Handbook of Pharmaceutical Additives
Third Edition

Compiled by Michael and Irene Ash

Synapse Information Resources Inc.
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Michael and Irene Ash

Synapse Information Resources
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Preface

The Handbook of Pharmaceutical Additives, Third Edition has been extensively updated from the previous edition which was published five years ago. This edition contains completely new trade name and generic chemical entries as well as added information for previously listed excipients. The new edition reflects the many changes in the manufacturers of both trade name and generic products. More than 5300 trade name products and 4000 generic chemicals and materials, available from worldwide manufacturers are described in this reference.

Pharmaceutical additives are defined here as the secondary ingredients that are present in both prescription and over-the-counter drug formulations and contribute in one or more of the following ways:

- improving consumption ease of the dosage form by masking unpleasant odor, improving palatability or appearance of the active ingredient.
- enabling or enhancing the delivery of the drug or medicine that is available in a variety of dosage forms (i.e., oral; topical, ophthalmic, and otic; suppositories; injectables; inhalants) and thus improving its efficacy, control of bioavailability, uniformity, and/or flow characteristics
- increasing the stability of active ingredients.
- acting as a filler or diluent so that an adequate amount of material is available to properly fill a dosage form.
- acting as an antimicrobial or antioxidant to extend the shelf life of the active ingredient.

Thus, the definition of pharmaceutical additives for the purpose of this book encompasses excipients, synergists, or chemicals that substantively contribute to the effectiveness of the active ingredient. Entries for both trade names and chemicals contain extensive information gathered from worldwide manufacturers, distributors, trade journals, government documents, and other reference sources.

The Handbook of Pharmaceutical Additives, Third Edition centralizes and integrates information on these chemicals and materials thereby serving as an essential guide to pharmaceutical product managers, formulation scientists, quality controllers, ingredient chemists, pharmacists, physicians, and consumers.

This reference contains the following sections:

Part I
Trade Name Reference contains over 5300 alphabetical entries of trade name pharmaceutical additive products with extensive profiles of each product listed.

Part II
Chemical Component Cross-Reference contains almost 4000 pharmaceutical chemicals/materials that are either contained in the trade name products profiled in Part I or are generic chemicals used as pharmaceutical additive ingredients. Each entry includes, wherever possible, its synonyms, CAS number, EINECS number/ELINCS, FEMA number, UN/DOT number, molecular and empirical formulas, chemical properties, functions and applications, toxicology, precautions, use levels, regulatory information, and manufacturers and distributors of the chemical. All chemical/material synonyms are cross-referenced back to the main entry. The chemical monograph entries also contain a listing of the trade name products that are either equivalent to the chemical entry or contain this chemical as one of its ingredients.

Part III
Functional/Application Index is a powerful tool for locating the trade names and chemicals based on their function and application. By searching for key functional words related to pharmaceutical additives such as anticaking agents, binders, colorants, disintegrants, emulsifiers, encapsulants, fillers, flavors, gellants, in specific application areas such as tablets, capsules, inhalants, ointments, suppositories, etc., the user is directed to the trade names and/or chemicals that have that specific functional/application attribute.

Part IV
Manufacturers Directory contains detailed contact information for the more than 3000 worldwide manufacturers and their branches of trade name products and chemical components that are referenced in this handbook. Wherever possible, telephone, telefax, toll-free numbers, e-mail and internet addresses, and complete mailing addresses are included for each manufacturer.

Appendixes
CAS Number Index contains CAS number entries followed by a listing of their trade name product and chemical
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equivalents in alphabetical order. The chemical name is in boldfaced type.

**EINECS/ELINCS Number Index** contains EINECS/ELINCS number entries followed by a listing of their trade name product and generic chemical equivalents in alphabetical order. The chemical name is in boldfaced type.

**FEMA Number Index** orders chemicals (that have assigned FEMA numbers) contained in this reference by these numbers. These numbers have been assigned by the Flavor and Extract Manufacturers Association.

**Glossary** contains definitions of terminology associated with the pharmaceutical industry.

**Chemicals in Compliance with Pharmaceutical Standards:**
- Inactive Ingredient Guide: Approved Products
- Inactive Ingredient Guide: Permanently Listed Color Additives
- USP/NF Chemical Listing
- British Pharmacopoeia Chemical Listing
- European Pharmacopoeia Chemical Listing

M. & I. Ash
Abbreviations

abs. absolute
ABS acrylonitrile-butadiene-styrene
absorp. absorption
ACGIH American Conference of Governmental Industrial Hygienists
ACN acrylonitrile
act. active
ADI acceptable daily intake (FAO/WHO)
ADR adverse drug reactions
AEL acceptable exposure limit
adsorp. adsorption
agric. agricultural
agrochem. agrochemical
a.i. active ingredient
AIHA American Industrial Hygiene Association
alc. alcohol
Am., Amer. American
amts. amounts
anhyd. anhydrous
ANSI American National Standards Institute
AOC assimilable organic carbon
APHA American Public Health Association
API Active Pharmaceutical Ingredients
applic(s). application(s)
aq. aqueous
AS acrylonitrile-butadiene-styrene
ASA acrylic-styrene-acrylonitrile
ASBC Am. Society of Brewing Chemists
ASTM American Society for Testing and Materials
ATH alumina trihydrate
atm atmosphere
at.wt. atomic weight
autoignit. autoignition
aux(s). auxiliary, auxiliaries
avail. available
avg. average
a.w. atomic weight
BAC biological activated carbon
BATF Bureau of Alcohol, Tobacco, and Firearms (U.S.)
BDG butyl diglycol
BDOC biodegradable dissolved organic carbon
BfArM Bundesinstitut fÜR Arzneimittel und Medizinprodukte (Federal Institute for Drugs and Medical Devices, Germany)
BGA Federal Republic of Germany Health Dept. certification
BgVV Bundesinstitut fÜR Gesundheitlichen Verbraucherschutz und Veterinã©rmedizin (Federal Institute for Consumer Health Protection and Veterinary Medicine) (Germany)
BHA butylated hydroxyanisole
BHT butylated hydroxytoluene
biochem. biochemical
biodeg. biodegradable
bldg. building
blk. black
BMC bulk molding compound
BOD biochemical oxygen demand
BP British Pharmacopeia
b.p. boiling point
BR butadiene rubbers, polybutadienes
B&R Ball & Ring
br., brn. brown
brnsh. brownish
BS British Standards
B/S butadiene/styrene
BSI British Standards Institute
BSS British Standard Sieve
Btu British thermal unit
B.U. Brabender units (viscosity)
BVC British Veterinary Codex
BVO brominated vegetable oil
byprod. byproduct(s)
C degrees Centigrade
CAA Clean Air Act
CAB cellulose acetate butyrate
calcd. calculated
cap. capillary
CAS Chemical Abstracts Service
CC closed cup
cc cubic centimeter(s)
CCFAC Codex Committee on Food Additives and Contaminants
CCl4 carbon tetrachloride
CD completely denatured
CDA completely denatured alcohol
CEL corporate exposure limit
CERCLA Comprehensive Environmental Response, Compensation, & Liability Act (U.S.)
CFC chlorofluorocarbon
CFN Council on Food & Nutrition (Am. Medical Assoc.)
### Abbreviations

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<td>cfu</td>
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<td>Drug Master Files</td>
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<td>DO</td>
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<td>DOC</td>
<td>dissolved organic carbon</td>
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<td>DOM</td>
<td>dissolved organic matter</td>
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<td>DOP</td>
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<td>DPG</td>
<td>diphenyl guanidine, dipropylene glycol</td>
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<td>DSB</td>
<td>dry solids basis</td>
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<td>DSI</td>
<td>Canadian Provisional Domestic Substance list</td>
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<td>DTUL</td>
<td>deflection temperature under load</td>
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<td>DVB</td>
<td>divinylbenzene</td>
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<td>DW</td>
<td>distilled water, deionized water</td>
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<td>DWV</td>
<td>drainage, waste and vent</td>
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<td>eb, EB</td>
<td>electron beam</td>
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<td>EC</td>
<td>European Community</td>
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<td>EC50</td>
<td>environmental concentration, 50%</td>
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<td>EDTA</td>
<td>ethylenediamine tetraacetic acid</td>
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<td>EE</td>
<td>epoxy equivalent</td>
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<td>EEC</td>
<td>European Economic Community</td>
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<td>EED</td>
<td>environmental endocrine disrupter</td>
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<td>epoxide equivalent weight</td>
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<td>for example</td>
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<td>EMI</td>
<td>electromagnetic interference</td>
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Abbreviations

EMS  electromagnetic shielding
ENB  5-ethylidene-2-norbornene
EO   ethylene oxide
EP   European Pharmacopoeia
EP   extreme pressure
EPA  Environmental Protection Agency
     (U.S.)
EPDM ethylene-propylene-diene rubber,
      ethylene-propylene terpolymer
EPR  ethylene-propylene rubber
EPS  expandable polystyrene
equip. equipment
equiv. equivalent
ESCR environmental stress crack resistance
ESD  electrostatic discharge
ESO  epoxidized soybean oil
ESP  electrostatic protection
esp. especially
EU   European Union
Eur.Ph. European Pharmacopoeia
EVA  ethylene vinyl acetate
evap. Evaporation
exc. excellent
F    degrees Fahrenheit
FA   fatty acid
FAO  Food and Agriculture Organization
     (United Nations)
FAP  Food Additive Petition (U.S.)
FCC  Food Chemicals Codex
FCC  fluorochlorocarbon
FDA  Food and Drug Administration (U.S.)
FD&C Foods, Drugs, and Cosmetics
FEMA Flavor and Extract Manufacturers’
     Association (U.S.)
FEP  fluorinated ethylene propylene
FFA  free fatty acid
FFDCA Federal Food, Drug, and Cosmetic Act
FG   food grade
FIFRA Federal Insecticide, Fungicide, and
     Rodenticide Act (U.S. EPA)
FKM  fluoroelastomer
fl   fluid
flamm. flammable, flammability
flex. flexural
FNB  Food and Nutrition Board
f.p. freezing point
FP   French Pharmacopoeia
FR   flame retardant
FR-ABS flame retardant ABS
FRP  fiberglass-reinforced plastics
F-T  Fischer-Tropsch
ft   foot, feet
f.w. formula weight
G    giga
g    gram(s)
gal  gallon(s)
g/d  gram/dyne
GFRP glass fiber-reinforced plastic
G-H  Gardner-Holdt
GI   gastro-intestinal
glac. glacial
GLP  good laboratory practice
GLY  glycine
GMP  good manufacturing practice
gpd  gallons per day
gpm  gallons per minute
GPSS general purpose polystyrene
gpt  gallons per ton
gr.  gravity
gran. granules, granular
GRAS generally regarded as safe
grn(sh). green, greenish
GRP  glass-reinforced plastics, glass-
     reinforced polyester
GVS  Gardner varnish scale (color)
GWP  Global warming potential
h   hour(s)
HAF  high abrasion furnace carbon black
HALS hindered amine light stabilizer
HAP  hazardous air pollutant
HAPS hazardous air pollutants
HAP's hazardous air pollutants
HB   horizontal burning
HC   hydrocarbon
HCFC hydrochlorofluorocarbon
HCI  hydrochloride, hydrochloric acid
HDPE high-density polyethylene
HDT  heat distortion (deflection) temp.
HFC  hydrofluorocarbon
Hg   mercury
HIPS high-impact polystyrene
HLB  hydrophilic lipophilic balance
HMIS Hazardous Material Identification
     System
hr  hour(s)
HTST high temperature short-time
     pasteurization
HEUR hydrophobically modified ethoxylate
     urethane
HVAC heating, ventilation, air conditioning
HVP  hydrolyzed vegetable protein
hyd. hydroxyl
hydrog. hydrogenated
Hz   hertz
IARC International Agency for Research on
     Cancer (United Nations)
i.b.p. initial boiling point
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<td>immediately dangerous to life and health</td>
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<td>I&amp;I</td>
<td>industrial and institutional</td>
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<td>isobutylene-isoprene rubber</td>
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<td>International Organization of the Flavor Industry</td>
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<td>isopropyl myristate</td>
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<td>isopropyl palmitate</td>
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<td>isopropene rubber (synthetic), polyisoprene</td>
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<tr>
<td>SMA</td>
<td>styrene maleic anhydride</td>
</tr>
<tr>
<td>SMC</td>
<td>sheet molding compound</td>
</tr>
<tr>
<td>SMG</td>
<td>succinylated monoglycerides</td>
</tr>
<tr>
<td>SNAP</td>
<td>Significant New Alternative Policy (U.S. EPA)</td>
</tr>
<tr>
<td>soften.</td>
<td>softening</td>
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</tbody>
</table>
Abbreviations

sol. soluble, solubility
solid. solidification
sol’n. solution
solv(s). solvent(s)
sp. specific
spec. specification, specialty
SPF sun protection factor
spp. non-specified species
SRF semireinforced species
SS stainless steel
SSU Saybolt Universal Seconds
std. standard
STEL short term exposure limit
Stod. Stoddard solvent
STP standard temperature and pressure
str. strength
subcut. subcutaneous
subl. sublimates
surf. surface
SUS Saybolt Universal Seconds
susp. suspension
syn. synthetic
t tertiary
TAPPI Technical Association of the Pulp & Paper Industry
TBHQ tert-butyl hydroquinone
TCC Tag closed cup
TCLo toxic concentration low
TDI toluene diisocyanate
TDLo toxic dose low
TDS total dissolved solids
TEA triethanolamine, triethanolamide
tech. technical
temp. temperature
tens. tensile, tension
tert tertiary
THF tetrahydrofuran
THMs trihalomethanes
TIPA triisopropanolamine
TKPP tetrapotassium pyrophosphate
TLV Threshold Limit Value
TLV-CL Threshold Limit Value/ceiling limit
TLV-STEL Threshold Limit Value/short term exposure limit
TLV-TWA Threshold Limit Value/time weighted average
TMC thick molding compound
TOC Tag open cup, total organic carbon
tox. toxicity
TPE thermoplastic elastomer
TPU thermoplastic polyurethane
TRI Toxic Release Inventory
TSCA Toxic Substances Control Act
tsp teaspoon
TSS total suspended solids
TWA time weighted average
TWC time weighted concentration
typ. typical
uel upper explosive limits
UF urea formaldehyde
UF ultra filtration
UHF ultra high frequency
UHMW ultra high molecular weight
UHMWPE ultra high molecular weight polyethylene
UHT ultra high temperature
UL Underwriter’s Laboratory
UN No. United Nations Substance Identification Number (for transport purposes)
unsat. unsaturated
UPVC unplasticized polyvinyl chloride
USDA U.S. Department of Agriculture
USFA United States Food Additives
USP United States Pharmacopeia
uv, UV ultraviolet
V volt
VA vinyl acetate
VAE vinyl acetate ethylene
VC vinyl chloride
VCA vinyl chloride-acrylic
VdC, VDC vinylidene chloride
veg(s). vegetable, vegetables
visc. viscous, viscosity
VM&P Varnish Makers and Painters
VOC volatile organic compounds
vol. volume
v/v volume by volume
wh. white
WEEL Workplace Environmental Exposure Level (U.S.)
WFC World Food Council
WHMIS Workplace Hazardous Materials Information System (Canada)
WHO World Health Organization (United Nations)
wks weeks
w/o water-in-oil
wt. weight
w/v weight by volume
w/w weight by weight
XLPE crosslinked polyethylene
X-PE crosslinked polyethylene
yel. yellow
ylsh. yellowish
yr year
# number
% percent
### Abbreviations

<table>
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<tr>
<th>Symbol</th>
<th>Description</th>
<th>Symbol</th>
<th>Description</th>
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<tr>
<td>&lt;</td>
<td>less than</td>
<td>δ,Δ</td>
<td>delta</td>
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<tr>
<td>&gt;</td>
<td>greater than</td>
<td>ε</td>
<td>epsilon</td>
</tr>
<tr>
<td>≤</td>
<td>less than or equal to</td>
<td>γ</td>
<td>gamma</td>
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<tr>
<td>±</td>
<td>plus or minus</td>
<td>Ω</td>
<td>omega</td>
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<tr>
<td>≥</td>
<td>greater than or equal to</td>
<td>µ</td>
<td>micron, micrometer</td>
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<tr>
<td>@</td>
<td>at</td>
<td>µg</td>
<td>microgram</td>
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<td>approximately equal to</td>
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<tr>
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</table>
Part I: Trade Name Reference
A-625  [SPI Pharma  
  http://www.spipharma.com]  
Chem. Descrip.:  Sorbitol sol'n.  
CAS  50-70-4;  EINECS/ELINCS  200-061-5  
Uses:  Nutritive sweetener and excipient in pharmaceuticals  
Features:  Noncrystallizing  
Regulatory:  NF  
Properties:  Cl. water-wh. odorless, sweet taste;  
sol. in water and ethanol;  misc. in glycerin and propylene glycol;  insol. in veg. and min. oil;  
visc. liq.;  visc. ≈ 170 cps;  ref. index 1.457-1.467;  45% min. assay

AP™ 25  [Avatar  http://www.avatarcorp.com]  
Chem. Descrip.:  Fully-refined paraffin wax  See Paraffin wax (petroleum), clay-treated  
CAS  64742-43-4;  EINECS/ELINCS  265-145-6  
Uses:  Lubricant, mold release agent, moisture resistance/retention aid, thickener in pharmaceuticals  
Regulatory:  21CFR 172.886, 178.3710  
Properties:  Wh. waxy translucent solid;  
tasteless;  odorless;  m.p. 126 F

AP™ 35  [Avatar  http://www.avatarcorp.com]  
Chem. Descrip.:  Fully-refined paraffin wax  See Paraffin wax (petroleum), clay-treated  
CAS  64742-43-4;  EINECS/ELINCS  265-145-6  
Uses:  Lubricant, mold release agent, moisture resistance/retention aid, thickener in pharmaceuticals  
Regulatory:  21CFR 172.886, 178.3710  
Properties:  Wh. waxy translucent solid;  
tasteless;  odorless;  m.p. 135 F

AP™ 45  [Avatar  http://www.avatarcorp.com]  
Chem. Descrip.:  Fully-refined paraffin wax  See Paraffin wax (petroleum), clay-treated  
CAS  64742-43-4;  EINECS/ELINCS  265-145-6  
Uses:  Lubricant, mold release agent, moisture resistance/retention aid, thickener in pharmaceuticals  
Regulatory:  21CFR 172.886, 178.3710  
Properties:  Wh. waxy translucent solid;  
tasteless;  odorless;  m.p. 150 F

AACH-418  [Summit Research Labs  
  http://www.summitresearchlabs.com]  
Chem. Descrip.:  Aluminum chlorohydrate  
CAS  12042-91-0;  EINECS/ELINCS  234-933-1  
Uses:  Antiperspirant active  
Features:  Enhanced efficacy;  35-45% sweat inhibition  
Regulatory:  FDA GRAS  
Properties:  Impalpable powd. (10% spheres max.)

AACH-7171  [Summit Research Labs  
  http://www.summitresearchlabs.com]  
Chem. Descrip.:  Aluminum chlorohydrate  
CAS  12042-91-0;  EINECS/ELINCS  234-933-1  
Uses:  Antiperspirant active  
Features:  Enhanced efficacy;  35-45% sweat inhibition  
Regulatory:  FDA GRAS  
Properties:  Spherical powd.

AA USP  [CasChem  
http://www.rutherfordchemicals.com/caschem.html]  
Chem. Descrip.:  Castor oil  See Castor (Ricinus communis) oil  
CAS  8001-79-4;  EINECS/ELINCS  232-293-8  
Uses:  Emollient for pharmaceuticals;  lubricant, release agent for protective coatings for vitamins, tableting  
Regulatory:  FDA approval  
Properties:  Sol. in alcohols, esters, ethers, ketone, and aromatic solvs.;  
acid no. 2;  iodine no. (Wijs) 86;  sapon. no. 180

AAZG-507  [Summit Research Labs  
  http://www.summitresearchlabs.com]  
Chem. Descrip.:  Aluminum zirconium chlorohydrax glycine complex  
CAS  134-58-7;  EINECS/ELINCS  205-146-1  
Uses:  Antiperspirant active  
Features:  Enhanced efficacy;  55-80% sweat inhibition  
Regulatory:  FDA GRAS  
Properties:  Superfine powd.
Trade Name Reference

http://www.summitresearchlabs.com
Chem. Descrip.: Aluminum zirconium chlorohydrex glycine complex
CAS 134-58-7; EINECS/ELINCS 205-146-1
Uses: Antiperspirant active
Features: Enhanced efficacy; 55-80% sweat inhibition
Regulatory: FDA GRAS
Properties: Spherical powd.

AAZG-7160 [Summit Research Labs http://www.summitresearchlabs.com]
Chem. Descrip.: Aluminum zirconium chlorohydrex glycine complex
CAS 134-58-7; EINECS/ELINCS 205-146-1
Uses: Antiperspirant active
Features: Enhanced efficacy; 55-80% sweat inhibition
Regulatory: FDA GRAS
Properties: Impalpable powd.

AAZG-7167 [Summit Research Labs http://www.summitresearchlabs.com]
Chem. Descrip.: Alcohol zirconium chlorohydrex glycine complex
CAS 134-58-7; EINECS/ELINCS 205-146-1
Uses: Antiperspirant active
Features: Enhanced efficacy; 55-80% sweat inhibition
Regulatory: FDA GRAS
Properties: Superfine powd.

AAZG-7168 [Summit Research Labs http://www.summitresearchlabs.com]
Chem. Descrip.: Alcohol zirconium chlorohydrex glycine complex
CAS 134-58-7; EINECS/ELINCS 205-146-1
Uses: Antiperspirant active
Features: Enhanced efficacy; 55-80% sweat inhibition
Regulatory: FDA GRAS
Properties: Superfine powd.

AB® [ANGUS http://www.dow.com/angus/]
Chem. Descrip.: 2-Amino-1-butanol See 2-Aminobutanol
CAS 96-20-8; EINECS/ELINCS 202-488-2
Uses: Pharmaceutical intermediate for synthesis of ethambutol, an anti-tuberculosis drug
Properties: APHA 100 color; water-misc.; m.w. 89.1; dens. 7.86 lb/gal; m.p. -2 C; b.p. 178 C; flash pt. (TCC) 193 F; pH 11.1 (0.1M aq.); 99% conc.
Toxicology: LD50 (oral, mouse) 2.5 g/kg, (IP, mouse) 0.48 g/kg; severe eye irritant;
causes eye burns and skin irritation
Precaution: Combustible; keep away from heat and flame; corrosive to copper, brass, and aluminum

Abil® B 8843 [Degussa Care Spec.]
Chem. Descrip.: Dimethicone copolyol
Uses: Surfactant, conditioner for pharmaceuticals
Features: Improves skin feel; stable, creamy foam
Regulatory: JCIC registered
Properties: Pale liq.; water-sol.; disp. in min. and veg. oils; sp.gr. 1.070; nonionic; 100% conc.

Abil® B 8852 [Degussa Care Spec.]
Chem. Descrip.: Dimethicone copolyol
Uses: Surfactant, conditioner, refatting agent for pharmaceuticals
Features: Lipophilic
Regulatory: JCIC registered
Properties: Amber liq.; sol. in water; disp. in veg. and min. oils; nonionic; 100% conc.

Abil® B 8863 [Degussa Care Spec.]
Chem. Descrip.: Dimethicone propyl PG-betaine
CAS 102523-96-6
Uses: Surfactant, conditioner in pharmaceuticals
Properties: Yel. liq.; sol. with sl. turbidity in water; disp. in veg. and min. oils; sp.gr. 1.078-1.092; amphoteric; 30% conc.

Abil® B 9950 [Degussa Care Spec.]
Chem. Descrip.: Dimethicone copolyol
Uses: Surfactant, emollient, foaming agent, lubricant, gloss aid for pharmaceuticals
Features: Compat. with all common surfactants; improves foam structure
Regulatory: JCIC registered
Properties: Pale yel. liq.; sol. in water, alcohol, 1,2-propylene glycol; sp.gr. 1.024; visc. 34.5 mN•m-1 (1% aq.); 50% act.
Toxicology: Proper use provided, no adverse health effects have been observed; eye
Trade Name Reference

Abil® B 88184 [Degussa Care Spec.]
Chem. Descrip.: Dimethicone copolyol
Uses: Surfactant, emollient for topical pharmaceuticals

Abil® EM 90 [Degussa Care Spec.]
Chem. Descrip.: Cetyl dimethicone copolyol
Uses: Surfactant, emollient, conditioner, emulsifier for w/o creams/lotions, skin protective treatments, sun care prods., pharmaceuticals

Abil® WE 09 [Degussa Care Spec.]
Chem. Descrip.: Polyglyceryl-4 isostearate, cetyl dimethicone copolyol, hexyl laurate
Uses: Emulsifier for highly stable w/o creams/lotions, skin care treatment emulsions, sun protection preps., pharmaceuticals; UV protectant in sunscreens

Abil®-Quat 3272 [Degussa Care Spec.]
Chem. Descrip.: Quaternium-80
CAS 134737-05-6
Uses: Refatting agent for pharmaceuticals
Features: Pleasant skinfeel
Properties: Amber cl. liq.; sol. in water, alcohol, 1,2-propylene glycol, glycerol; sp.gr. 1.008; visc. 1000±200 mm² s⁻¹; flash pt. 90 C; ref. index 1.429; pH 7.2±1 (30% aq.); surf. tens. 44±2 g/cm³; cationic; 50 ± 1% act.

Abil®-Wax 2434 [Degussa Care Spec.]
Chem. Descrip.: Stearoxy dimethicone
CAS 68554-53-0
Uses: Emollient, spreading agent for pharmaceuticals
Features: Lipophilic; improves applic. and skin care properties of emulsions; protects against aq. media; provides pleasant, nongreasy skinfeel; easy to emulsify
Properties: Pale yel. liq.; sol. in veg. and min. oils; insol. in water; sp.gr. 0.89-0.93; HLB 5.0; nonionic; 100% conc.

Abil®-Wax 2440 [Degussa Care Spec.]
Chem. Descrip.: Behenoxy dimethicone
Uses: Emollient, spreading agent for pharmaceuticals
Features: Lipophilic; improves applic. and skin care props. of emulsions; protects against aq. media; reduces whitening during applic. of creams and lotions; provides pleasant, nongreasy skinfeel
Properties: Pale yel. waxy solid; disp. in min. oil, IPM, sunflower seed oil; sp.gr. 0.88 (35 C); m.p. 25 C; pour pt. 20-30 C; flash pt. > 100 C; nonionic; 100% act.
Use Level: 1-5%

Abil®-Wax 9800 [Degussa Care Spec.]
Chem. Descrip.: Stearyl dimethicone
CAS 67762-83-8
Uses: Spreading agent, penetrant, and emollient for pharmaceuticals
Features: Lipophilic; provides pleasant, nongreasy skinfeel; easy to emulsify
Properties: Wh. waxy liq.; sol. in min. oil, IPM, sunflower seed oil; sp.gr. 0.86 (35 C); pour pt.
Use Level: 1-5%
Trade Name Reference

20 C; flash pt. > 40 C; nonionic; 100% act.
Use Level: 1-5%

Abil®-Wax 9801 [Degussa Care Spec.]
Chem. Descrip.: Cetyl dimethicone
Uses: Emollient for antiperspirants, pharmaceuticals, sunscreens (improves SPF response with org. or physical UV filters)
Features: Lipophilic
Properties: Pale yel. liq. wax; sol. in cyclomethicone, min. oil, IPM, sunflower seed oil; sp.gr. 0.86; pour pt. 10 C; flash pt. 40 C; nonionic; 100% act.
Use Level: 1-5%

Abil®-Wax 9814 [Degussa Care Spec.]
Chem. Descrip.: Cetyl dimethicone
Uses: Emollient in pharmaceuticals
Features: Lipophilic
Properties: Oily liq.; oil-sol.; water-disp.; HLB 8.6; nonionic; 100% act.

Ablunol S-20 [Taiwan Surf.]
Chem. Descrip.: Sorbitan laurate
CAS 1338-39-2; EINECS/ELINCS 215-663-3
Uses: Emulsifier, emulsion stabilizer, thickener for pharmaceuticals
Properties: Oily liq.; oil-sol.; water-disp.; HLB 8.6; nonionic; 100% act.

Ablunol S-60 [Taiwan Surf.]
Chem. Descrip.: Sorbitan stearate
CAS 1338-41-6; EINECS/ELINCS 215-664-9
Uses: Emulsifier, emulsion stabilizer, thickener for pharmaceuticals
Properties: Waxy flake; HLB 4.7; nonionic; 100% act.

Ablunol S-80 [Taiwan Surf.]
Chem. Descrip.: Sorbitan oleate
CAS 1338-43-8; EINECS/ELINCS 215-665-4
Uses: Emulsifier, emulsion stabilizer, thickener for pharmaceuticals
Properties: Oily liq.; HLB 4.3; nonionic; 100% act.

Ablunol S-85 [Taiwan Surf.]
Chem. Descrip.: Sorbitan trioleate
CAS 26266-58-0; EINECS/ELINCS 247-569-3
Uses: Emulsifier, emulsion stabilizer, thickener for pharmaceuticals
Properties: Oily liq.; HLB 1.8; nonionic; 100% act.

Ablunol T-20 [Taiwan Surf.]
Chem. Descrip.: POE sorbitan laurate
Uses: O/w emulsifier for pharmaceuticals
Properties: Oily liq.; water-sol.; HLB 16.7; nonionic; 100% solids

Ablunol T-60 [Taiwan Surf.]
Chem. Descrip.: POE sorbitan stearate
Uses: O/w emulsifier for pharmaceuticals
Properties: Oily liq.; water-sol.; HLB 14.9; nonionic; 100% conc.

Ablunol T-80 [Taiwan Surf.]
Chem. Descrip.: POE sorbitan oleate
Uses: O/w emulsifier for pharmaceuticals
Properties: Oily liq.; water-sol.; HLB 15.0; nonionic; 100% conc.

A-C® 6 [Honeywell Spec. Chems.]
Chem. Descrip.: Polyethylene homopolymer
CAS 9002-88-4; EINECS/ELINCS 200-815-3
Uses: Emollient, gellant, film-former for pharmaceuticals
Features: Increases permanency, moisture retention, water resist.
Regulatory: FDA 21CFR §172.615, 175.105, 175.125, 175.300, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1520, 177.2600, 177.2800, 178.3570, 178.3850, 179.45; DOT not regulated; Canada DSL; Europe EINECS; Australian Inventory; Japan ENCS; Korean inventory; Philippines PICCS; Chinese
Properties: Wh. waxy prills, powd., char. waxy odor; negligible sol. in water; dens. 0.92 g/cc; visc. 375 cps (140 C); drop pt. 106 C; acid no. nil; flash pt. (COC) 307 C; hardness 4.0 dmm
Toxicology: LD50 (oral, rat) > 2000 mg/kg; LDLo (oral, mouse) 5 g/kg; mild skin irritant; dust may cause mech. eye and respiratory tract irritation; OSHA TWA 5 mg/m3 (respirable dust), 15 mg/m3 (total dust) recommended; TSCA listed
Precaution: Combustible solid; incompat. with strong oxidizing agents
Hazardous Decomp. Prods.: CO, CO2, oxidized and nonoxidized hydrocarbons
HMIS: Health 0, Flammability 1, Reactivity 0
Storage: Store in cool, dry area away from direct heat, sunlight
A-C® 7 [Honeywell Spec. Chems.]
Trade Name Reference

Chem. Descrip.: Polyethylene homopolymer wax  See Polyethylene wax
CAS 9002-88-4; EINECS/ELINCS 200-815-3
Uses: Thickener for pharmaceutical gels

Properties: Prills, powd.; char. waxy odor; sol. in hot min. oil and fatty esters; dens. 0.92 g/cc; visc. 450 cps (140 °C); drop pt. 109 °C; acid no. nil; flash pt. (COC) 304 °C; hardness 2.5 dmm

Toxicology: LD₅₀ (oral, rat) > 2 g/kg; LD₅₀ (oral, mouse) 5 g/kg; TSCA listed

Precaution: Combustible solid
Hazardous Decomp. Prods.: CO, CO₂, oxidized and nonoxidized hydrocarbons
HMIS: Health 0, Flammability 1, Reactivity 0
Storage: Store in cool, dry area away from direct heat, sunlight


Chem. Descrip.: Polyethylene homopolymer wax  See Polyethylene wax
CAS 9002-88-4; EINECS/ELINCS 200-815-3
Uses: Emollient, gellant, film-former for pharmaceuticals
Features: Increases permanency, moisture retention, water resist.

Properties: Prills, powd.; char. waxy odor; sol. in hot min. oil and fatty esters; dens. 0.93 g/cc; visc. 400 cps (140 °C); drop pt. 116 °C; acid no. nil; flash pt. (COC) 307 °C; hardness 1.0 dmm

Toxicology: LD₅₀ (oral, rat) > 2 g/kg; LD₅₀ (oral, mouse) 5 g/kg; TSCA listed

Precaution: Combustible solid
Hazardous Decomp. Prods.: CO, CO₂, oxidized and nonoxidized hydrocarbons
HMIS: Health 0, Flammability 1, Reactivity 0
Storage: Store in cool, dry area away from direct heat, sunlight


Chem. Descrip.: Polyethylene homopolymer wax  See Polyethylene wax
CAS 9002-88-4; EINECS/ELINCS 200-815-3
Uses: Emollient, gellant, film-former for pharmaceuticals
Features: Increases permanency, moisture retention, water resist.

Properties: Prills, powd.; char. waxy odor; sol. in hot min. oil and fatty esters; dens. 0.94 g/cc; visc. 450 cps (140 °C); drop pt. 117 °C; acid no. nil; flash pt. (COC) 318 °C; hardness 0.5 dmm

Toxicology: LD₅₀ (oral, rat) > 2 g/kg; LD₅₀ (oral, mouse) 5 g/kg; TSCA listed

Precaution: Combustible solid
Hazardous Decomp. Prods.: CO, CO₂, oxidized and nonoxidized hydrocarbons
HMIS: Health 0, Flammability 1, Reactivity 0
Storage: Store in cool, dry area away from direct heat, sunlight

**Trade Name Reference**

**Hazardous Decomp. Prods.:** CO, CO₂, oxidized and nonoxidized hydrocarbons

**HMIS:** Health 0, Flammability 1, Reactivity 0

**Storage:** Store in cool, dry area away from direct heat, sunlight

**A-C® 400** [Honeywell Spec. Chems.](http://www.honeywell.com/sites/sm/index.jsp; Baerlocher France]

**Chem. Descrip.:** Ethylene/VA copolymer

**CAS:** 24937-78-8

**Uses:** Emollient, gellant, film-former for pharmaceuticals

**Features:** Increases permanency, moisture retention, water resist.

**Regulatory:** FDA 21CFR §175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1350, 177.2600, 177.2800, 178.3570, 178.3850, 179.45

**Properties:** Prills, powd.; dens. 0.92 g/cc; visc. 575 cps (140 C); drop pt. 92 C; flash pt. (COC) 317 C; hardness 7.0 dmm; 13% VA


**Chem. Descrip.:** Ethylene/acrylic acid copolymer

**CAS:** 9010-77-9

**Uses:** Emollient, gellant, film-former for pharmaceuticals

**Features:** Increases permanency, moisture retention, water resist.

**Regulatory:** FDA 21CFR §175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1310, 177.2600, 177.2800, 178.3570, 178.3850

**Properties:** Prills; dens. 0.93 g/cc; visc. 575 cps (140 C); drop pt. 105 C; acid no. 40; flash pt. (COC) 317 C; hardness 2.0 dmm

**A-C® 617** [Honeywell Spec. Chems.](http://www.honeywell.com/sites/sm/index.jsp; Baerlocher France]

**Chem. Descrip.:** Polyethylene homopolymer

**CAS:** 9002-88-4; EINECS/ELINCS 200-815-3

**Uses:** Film-former, emollient in pharmaceuticals; thickener for pharmaceutical gels

**Features:** Increases permanency, emolliency, moisture retention, water resist., and thermal stability

**Regulatory:** FDA 21CFR §175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.2600, 178.3570, 178.3850; DOT not regulated; Canada DSL; Europe EINECS; Australian Inventory; Japan ENCS; Korean inventory; Philippines PICCS; Chinese

**Properties:** Wh. waxy prills, powd., char. waxy odor; sol. in hot min. oil and fatty esters; negligible sol. in water; dens. 0.91 g/cc; visc. 200 cps (140 C); drop pt. 101 C; acid no. nil; flash pt. (COC) 317 C; hardness 7.0 dmm

**Toxicology:** LD₅₀ (oral, rat) > 2 g/kg; LD₅₀ (oral, mouse) 5 g/kg; mild skin irritant; dust may cause mech. eye and respiratory tract irritation; OSHA TWA 5 mg/m³ (respirable dust), 15 mg/m³ (total dust) recommended; TSCA listed

**Precaution:** Combustible solid; incompat. with strong oxidizing agents

**Hazardous Decomp. Prods.:** Oxides of carbon, various oxidized and nonoxidized hydrocarbons

**HMIS:** Health 0, Flammability 1, Reactivity 0

**Storage:** Store in cool, dry area away from direct heat, sunlight


**Chem. Descrip.:** Polyethylene homopolymer

**CAS:** 9002-88-4; EINECS/ELINCS 200-815-3

**Uses:** Film-former, emollient in pharmaceuticals; thickener for pharmaceutical gels

**Features:** Increases permanency, emolliency, moisture retention, water resist., and thermal stability

**Regulatory:** FDA 21CFR §175.105, 175.125, 175.300, 175.180, 176.200, 176.210, 177.1200, 177.1210, 177.2600, 178.3570, 178.3850; DOT not regulated; Canada DSL; Europe EINECS; Australian Inventory; Japan ENCS; Korean inventory; Philippines PICCS; Chinese

**Properties:** Wh. waxy prills, powd., char. waxy odor; sol. in hot min. oil and fatty esters; negligible sol. in water; dens. 0.91 g/cc; visc. 200 cps (140 C); drop pt. 101 C; acid no. nil; flash pt. (COC) 317 C; hardness 7.0 dmm

**Toxicology:** LD₅₀ (oral, rat) > 2 g/kg; LD₅₀ (oral, mouse) 5 g/kg; mild skin irritant; dust may cause mech. eye and respiratory tract irritation; OSHA TWA 5 mg/m³ (respirable dust), 15 mg/m³ (total dust) recommended; TSCA listed

**Precaution:** Combustible solid; incompat. with strong oxidizing agents

**Hazardous Decomp. Prods.:** Oxides of carbon, various oxidized and nonoxidized hydrocarbons

**HMIS:** Health 0, Flammability 1, Reactivity 0

**Storage:** Store in cool, dry area away from direct heat, sunlight

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strong oxidizing agents
Hazardous Decomp. Prods.: Oxides of carbon, various oxidized and nonoxidized hydrocarbons
HMIS: Health 0, Flammability 1, Reactivity 0
Storage: Store in cool, dry area away from direct heat, sunlight

http://www.honeywell.com/sites/sm/index.jsp]
Chem. Descrip.: Low m.w. ethylene/acrylic acid copolymer
CAS 9010-77-9
Uses: Gellant for medications, dental adhesives
Regulatory: FDA 21CFR §175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.120, 177.1210, 177.1310, 177.2600, 177.2800, 178.3570, 178.3850
Properties: Prills; alkali-dispersible; dens. 0.94 g/cc; visc. 650 cps (140 C); drop pt. 92 C; acid no. 120; flash pt. (COC) 307 C; hardness 11.5 dmm

Acconon C-44, EP  [ABITEC  
http://www.abiteccorp.com]
Chem. Descrip.: PEG 1500 Caprylic/capric glycerides
Chem. Analysis: Water 1.0% max.; total ash 0.1%; free glycerol 3.0%
CAS 68525-91-7; 9004-81-3
Uses: Solubilizer, bio-availability enhancer in capsules
Regulatory: EP
Properties: Drop pt. 42.5-47.5 C; acid value 2.0; hydroxyl value 36-56; sapon. value 79-93
Storage: Retest and requalify 2 yr from the date of manufacture; store in a cool dry place

Acconon CA-5  [ABITEC  
http://www.abiteccorp.com]
Chem. Descrip.: PEG-5 castor oil
CAS 61791-12-6
Uses: Surfactant, emulsifier, dispersant, solubilizer, visc. control agent for pharmaceutical dermatological emulsions
Properties: Gardner 3 max. liq.; HLB 8.0; acid no. 2 max.; pH 6-7 (5% aq.); nonionic; 98.5% min. solids

Acconon CC-6  [ABITEC  
http://www.abiteccorp.com]
Chem. Descrip.: Ethoxylated med. chain fatty acids
CAS 68954-97-2
Uses: Emulsifier, moisturizer, solubilizer for pharmaceuticals (delivery/absorption enhancement, dermatologicals, suspensions)
Properties: Liq.; mild odor; sp.gr. 1.01; vapor pressure < 1 mm Hg; flash pt > 200 C (COC); nonionic; 100% conc.
Precaution: Incompat. with strong oxidizers
Hazardous Decomp. Prods.: CO, CO₂

Acconon CC-6, EP  [ABITEC  
http://www.abiteccorp.com]
Chem. Descrip.: PEG 6 Caprylic/capric glycerides See PEG-6 caprylic/capric glycerides
Chem. Analysis: Water 1.0%; total ash 0.3%
CAS 68954-97-2
Uses: Solubilizer, bio-availability enhancer in oral suspensions, capsules
Properties: Lt.-colored liq.; vapor pressure < 1 mmHg; acid value 5.0; hydroxyl value 165-225; sapon. value 85-105
Toxicology: Nonirritant to eyes and skin
Precaution: Incompat. with oxidizers; keep away from temps. near the flash pt.

Acconon E  [ABITEC  
http://www.abiteccorp.com]
Chem. Descrip.: PPG-15 stearyl ether
CAS 25231-21-4
Uses: Surfactant, emulsifier, dispersant, solubilizer for pharmaceutical dermatological emulsions
Properties: Gardner 3 max. liq.; HLB 16; acid no. 1.5 max.; pH 4-6 (5% aq.); nonionic; 98.55 min. solids

Acconon MC-8, EP/NF  [ABITEC  
http://www.abiteccorp.com]
Chem. Descrip.: PEG-8 caprylic/capric glycerides
Chem. Analysis: Water 1.0%; total ash 0.3%
CAS 85536-07-8
Uses: Solubilizer and bio-availability enhancer in oral suspensions and capsules; an emulsifier for microemulsions
Regulatory: USP/NF, EP
Properties: Lt.- colored liq.; mild odor; vapor pressure <1 mmHg; acid no. 2.0 max.
Toxicology: Does not cause serious eye irritation; no adverse effects to skin or by ing.; noncarcinogenic
Trade Name Reference

Precaution: Avoid strong oxidizing agents
Hazardous Decomp. Prods.: COx
Storage: ≥ 2 yr shelf life; store in a cool dry place, keep in tight containers, protect from light and moisture.

Chem. Descrip.: PEG-8 caprylic/capric glycerides
CAS 85536-01-8; 84963-88-2
Uses: Solubilizer, bio-availability enhancer in oral suspensions, capsules
Properties: Lt. color liq.; mild odor; visc. 80-110 mPa•s; vapor pressure < 1 mm Hg; acid value 2.0; sapon. value 85-105; peroxide value 6.0; hydroxyl value 170-205
Precaution: Incompat. with strong oxidizers
Hazardous Decomp. Prods.: CO, CO2
Storage: 1 yr. min. where properly stored

Acconon® S-75 [ABITEC http://www.abiteccorp.com]
Chem. Descrip.: PEG-75 soy glycerides
CAS 61791-23-9
Uses: Surfactant, emulsifier, dispersant, solubilizer, visc. control agent, refatting agent in pharmaceuticals
Features: Mild; low-irritation; leaves pleasant after-feel; requires melting before use; stable under pH extremes
Properties: Gardner 6 max. waxy solid; water-sol.; HLB 16-18; acid no. 2 max.; pH 5.0-7.5 (5% in DI water); nonionic; 2% max. moisture
Storage: 1 yr. min. shelf life when stored in cool, dry place in sealed pkg.

Acconon W230 [ABITEC http://www.abiteccorp.com]
Chem. Descrip.: Ceteareth-20
CAS 68439-49-6
Uses: Surfactant, emulsifier, dispersant, solubilizer, vehicle, carrier, wetting agent for pharmaceutical dermatological emulsions, medicated cleansing prods.
Properties: Gardner 3 max. solid, low odor; HLB 15; acid no. 1 max.; pH 5.5-7.0 (5% aq.); nonionic; 98.5% min. solids
Features: Impalpable powd.

Ac-Di-Sol® [FMC Biopolymer http://www.fmcbiopolymer.com]
Chem. Descrip.: Croscarmellose sodium NF, Ph.Eur., JPE
CAS 74811-65-7
Uses: Disintegrant for pharmaceutical tablets, capsules, and granules
Features: Aids dissolution; rapid swelling; high capillary action; internally crosslinked to ensure water insol.; exc. long-term stability; compat. with most actives and excipients
Regulatory: NF, Ph.Eur., JPE, GRAS; kosher
Properties: Wh. relatively free-flowing powd.; odorless; ≤ 2% 200 mesh, ≤ 10% 325 mesh; bulk dens. 0.337 g/cc; pH 5.9-7.0
Storage: Hygroscopic; store in well sealed container

ACH-303 [Summit Research Labs http://www.summitresearchlabs.com]
Chem. Descrip.: Aluminum chlorohydrate
CAS 12042-91-0; EINECS/ELINCS 234-933-1
Uses: Antiperspirant active in aq. roll-ons, clear gels
Features: 25-35% sweat inhibition
Regulatory: FDA GRAS
Properties: Sol'n.

ACH-307 [Summit Research Labs http://www.summitresearchlabs.com]
Chem. Descrip.: Aluminum chlorohydrate
CAS 12042-91-0; EINECS/ELINCS 234-933-1
Uses: Antiperspirant active
Features: 25-35% sweat inhibition
Regulatory: FDA GRAS
Properties: Impalpable powd.

ACH-308 [Summit Research Labs http://www.summitresearchlabs.com]
Chem. Descrip.: Aluminum chlorohydrate
CAS 12042-91-0; EINECS/ELINCS 234-933-1
Uses: Antiperspirant active
Features: 25-35% sweat inhibition
Regulatory: FDA GRAS
Properties: Spherical powd.

ACH-323 [Summit Research Labs http://www.summitresearchlabs.com]
Chem. Descrip.: Aluminum chlorohydrate
CAS 12042-91-0; EINECS/ELINCS 234-933-1
Uses: Antiperspirant active
Features: 25-35% sweat inhibition
Regulatory: FDA GRAS
Properties: Impalpable powd.

ACH-325 [Summit Research Labs http://www.summitresearchlabs.com]
Chem. Descrip.: Aluminum chlorohydrate
CAS 12042-91-0; EINECS/ELINCS 234-933-1
Uses: Antiperspirant active
Features: 25-35% sweat inhibition
Regulatory: FDA GRAS
Properties: Controlled-particle size powd.

ACH-331 [Summit Research Labs http://www.summitresearchlabs.com]
Trade Name Reference

http://www.summitresearchlabs.com
Chem. Descrip.: Aluminum chlorohydrate
CAS 12042-91-0; EINECS/ELINCS 234-933-1
Uses: Antiperspirant active
Features: 25-35% sweat inhibition
Regulatory: FDA GRAS
Properties: Superfine powd.

Acido Ialuronico Sale Sodico [Esperis http://www.esperis.it]
Chem. Descrip.: Sodium hyaluronate
CAS 9067-3-2; EINECS/ELINCS 232-678-0
Uses: Humectant, emulsifier for pharmaceuticals

Aclame™ [Danisco Sweeteners http://www.daniscosweeteners.com]
Chem. Descrip.: Alitame
Uses: Sweetener for pharmaceuticals

Acritamer® 941 [RITA http://www.ritacorp.com]
Chem. Descrip.: Carbomer 941
CAS 9003-01-4
Uses: Emulsifier, dispersant, suspending agent, visc. control agent, gellant for topical pharmaceuticals; stabilizer for w/o and o/w emulsions
Features: For use in systems where sparkling clarity is not essential
Properties: Wh. fluffy hygroscopic powd.; sl. acetic odor; m.w. 1,250,000; sp.gr. 1.41; bulk dens. 15 lb/ft³; visc. 15,000-30,000 cps (0.2%); 45,000-70,000 cps (0.5%); pH 2.7-3.3 (0.5%); anionic
Toxicology: TLV 5 mg/m³; may cause eye/skin irritation
Precaution: Incompat. with ammonia, sodium hydroxide, potassium hydroxide, strongly basic amines (may generate intense heat); forms very slippery film with water
Storage: Store in cool, dry place; keep container closed to avoid moisture pickup

Aclame™ [Danisco Sweeteners http://www.daniscosweeteners.com]
Chem. Descrip.: Alitame
Uses: Sweetener for pharmaceuticals

Aclame™ [Danisco Sweeteners http://www.daniscosweeteners.com]
Chem. Descrip.: Alitame
Uses: Sweetener for pharmaceuticals

Aclame™ [Danisco Sweeteners http://www.daniscosweeteners.com]
Chem. Descrip.: Alitame
Uses: Sweetener for pharmaceuticals

Acritamer® 940 [RITA http://www.ritacorp.com]
Chem. Descrip.: Carbomer 940
CAS 9003-01-4
Uses: Emulsifier, dispersant, suspending agent, visc. control agent, gellant for topical pharmaceuticals; stabilizer for w/o and o/w emulsions
Features: For use in systems where sparkling clarity is not essential
Properties: Wh. fluffy hygroscopic powd.; sl. acetic odor; m.w. 4,000,000; sp.gr. 1.41; bulk dens. 15 lb/ft³; visc. 15,000-30,000 cps (0.2%); 45,000-70,000 cps (0.5%); pH 2.7-3.3 (0.5%); anionic
Toxicology: TLV 5 mg/m³; may cause eye/skin irritation
Precaution: Incompat. with ammonia, sodium hydroxide, potassium hydroxide, strongly basic amines (may generate intense heat); forms very slippery film with water
Storage: Store in cool, dry place; keep container closed to avoid moisture pickup

Acryl-Eze™ [Colorcon http://www.colorcon.com]
Chem. Descrip.: Methacrylic acid copolymer system
Uses: Enteric coating for pharmaceutical solid dosage forms such as tablets, granules, and beads; used to mask taste
Features: Dry, pigmented, one-step, fully formulated system
Properties: Disp. in water

Acryl-Eze™ MP [Colorcon http://www.colorcon.com]
Chem. Descrip.: Methacrylic acid copolymer system
Uses: Enteric coating for pharmaceutical multi-particulates, such as beads, granules and drug crystals
Features: Dry, pigmented, one-step, fully formulated system; easy to dispense and
Actiphyte® of Patchouli [Active Organics http://www.activeorganics.com]
Chem. Descrip.: Patchouli extract See Patchouli (Pogostemon cablin) extract
Uses: Herbal extract used in acne and athlete’s foot preps. for its antiseptic and stimulating props.
Properties: Med. amber liq.; char. odor; sol. in water; sp.gr. 1.02-1.05; pH 4.0-6.5
Use Level: 5-10% (skin care prods.)

Actiphyte® of Pennyroyal [Active Organics http://www.activeorganics.com]
Chem. Descrip.: Pennyroyal (Mentha pulegium) extract
CAS 90064-00-9; EINECS/ELINCS 290-061-1
Uses: Acts as a diuretic and used locally helps itching and burning skin
Properties: Lt. to medi. amber liq.; characteristic odor; sol. in water; sp.gr. 1.007 +/- 0.00; pH 5.2 +/- 0.3
Hazardous Decomp. Prods.: None
NFPA: Health 0, Flammability 0, Reactivity 0

Activera™ 10X [Active Organics http://www.activeorganics.com]
Chem. Descrip.: Aloe barbadensis gel
CAS 94349-62-9; EINECS/ELINCS 305-181-2
Uses: Full range of prods. for topical use as a soothing and healing aid
Properties: Cl. colorless to pale yel. liq.; completely sol. in water; sp.gr. 1.02 +/- 0.03; b.p. 212 F
Precaution: Avoid strong oxidizing agents, acids and alkaials
Hazardous Decomp. Prods.: None

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Trade Name Reference

Acylan [Croda Inc http://www.croda.com; http://www.crodausa.com; Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: Acetylated lanolin
CAS 61788-48-5; EINECS/ELINCS 262-979-2
Uses: Emollient, water-repellent film-former for pharmaceuticals, ointments
Features: Lipid; produces clear sol'ns. in min. oils
Properties: Lt. yel. soft solid; bland odor; sol. in min. oil and soft waxy hydrophobic films; m.p. 32-39 C; acid no. 2.0 max.; iodine no. 30 max.; sapon. no. 100-125; hyd. no. 12 max.; 100% act.
Use Level: 1-10%

Adeka PEG-200 [Asahi Denka Kogyo http://www.adk.co.jp]
Chem. Descrip.: PEG-4
CAS 25322-68-3; EINECS/ELINCS 203-989-9
Uses: Surfactant, wetting agent, lubricant for pharmaceuticals
Properties: Transparent liq.; m.w. 200; nonionic
Toxicology: Low toxicity; mild irritation

Adeka PEG-300 [Asahi Denka Kogyo http://www.adk.co.jp]
Chem. Descrip.: PEG-6
CAS 25322-68-3; EINECS/ELINCS 220-045-1
Uses: Surfactant, wetting agent, lubricant for pharmaceuticals
Features: Good sol. and compat.
Properties: Transparent liq.; m.w. 300; nonionic
Toxicology: Low toxicity; mild irritation

Adeka PEG-400 [Asahi Denka Kogyo http://www.adk.co.jp]
Chem. Descrip.: PEG-8
CAS 25322-68-3; EINECS/ELINCS 225-856-4
Uses: Surfactant, wetting agent, lubricant for pharmaceuticals
Features: Good sol. and compat.
Properties: Transparent liq.; m.w. 400; nonionic
Toxicology: Low toxicity; mild irritation

Adeka PEG-600 [Asahi Denka Kogyo http://www.adk.co.jp]
Chem. Descrip.: PEG-12
CAS 25322-68-3; EINECS/ELINCS 229-859-1
Uses: Surfactant, wetting agent, lubricant for pharmaceuticals
Features: Good sol. and compat.
Properties: Transparent liq.; m.w. 600; nonionic
Toxicology: Low toxicity; mild irritation

Adeka PEG-1000 [Asahi Denka Kogyo http://www.adk.co.jp]

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Trade Name Reference

PEG-20
Chem. Descrip.: Surfactant, wetting agent, lubricant for pharmaceuticals
Properties: Good sol. and compat.

PEG-1500
Chem. Descrip.: Surfactant, wetting agent, lubricant for pharmaceuticals
Properties: Wh. paste; m.w. 1000; nonionic

PEG-4000
Chem. Descrip.: Surfactant, wetting agent, lubricant for pharmaceuticals
Properties: Wh. paste; m.w. 1500

PEG-6000
Chem. Descrip.: Surfactant, wetting agent, lubricant for pharmaceuticals
Properties: Wh. flake; m.w. 6000

PEG-20,000
Chem. Descrip.: Surfactant, wetting agent, lubricant for pharmaceuticals
Properties: Wh. flake; m.w. 20,000

PEG-1500
Chem. Descrip.: Sodium methyl cocoyl taurate
Properties: Wh. powd.; anionic; 95% min. conc.
Use Level: 0.5-10%

PEG-4000
Chem. Descrip.: Sodium methyl cocoyl taurate
Properties: Wh. flake; m.w. 20,000

PEG-6000
Chem. Descrip.: Sodium methyl cocoyl taurate
Properties: Wh. flake; m.w. 6000

PEG-2000
Chem. Descrip.: Sodium methyl cocoyl taurate
Properties: Wh. flake; m.w. 20,000

Sorbitan stearate ester
Chem. Descrip.: Detergent, emulsifier, foaming agent, wetting agent, dispersant for oral and topical pharmaceuticals, germicidal scrubs, oral hygiene preps., gum-sensitive toothpaste, mouthwash
Properties: Wh. powd.; anionic; 95% min. conc.

ADM Clintose® CR 10
Chem. Descrip.: Maltodextrin
Properties: Wh. powd., odorless, bland taste; 90% min. through #60 mesh sieve; 80% min. through #100 mesh sieve; dens. 34.0 lbs/ft3; pH 4.7 (20% sol'n.); 99.7% act., 8.5% moisture

ADM Clintose® CR 15
Chem. Descrip.: Maltodextrin
Properties: Wh. powd., odorless, bland taste; 90% min. through #60 mesh sieve; 80% min. through #100 mesh sieve; dens. 34.0 lbs/ft3; pH 4.7 (20% sol'n.); 99.7% act., 8.5% moisture

Sorbitan stearate
Chem. Descrip.: Detergent, emulsifier, foaming agent, wetting agent, dispersant for oral and topical pharmaceuticals, germicidal scrubs, oral hygiene preps., gum-sensitive toothpaste, mouthwash
Properties: Wh. powd.; anionic; 95% min. conc.

Adinol CT95SD
Chem. Descrip.: Detergent, emulsifier, foaming agent, wetting agent, dispersant for oral and topical pharmaceuticals, germicidal scrubs, oral hygiene preps., gum-sensitive toothpaste, mouthwash
Properties: Wh. powd.; anionic; 95% min. conc.

Europe Ltd
Chem. Descrip.: Maltodextrin
Properties: Wh. powd., odorless, bland taste; 90% min. through #60 mesh sieve; 80% min. through #100 mesh sieve; dens. 34.0 lbs/ft3; pH 4.7 (20% sol'n.); 99.7% act., 8.5% moisture

Adinol CT95SD
Chem. Descrip.: Detergent, emulsifier, foaming agent, wetting agent, dispersant for oral and topical pharmaceuticals, germicidal scrubs, oral hygiene preps., gum-sensitive toothpaste, mouthwash
Properties: Wh. powd.; anionic; 95% min. conc.

Use Level: 0.5-10%

Precaution: Wear safety glasses; flammable dust when finely divided and suspended in air; keep away from sources of ignition; avoid strong oxidizers

Hazardous Decomp. Prods.: None

ADM Clintose® CR 15
Chem. Descrip.: Maltodextrin
Properties: Wh. powd., odorless, bland taste; 90% min. through #60 mesh sieve; 80% min. through #100 mesh sieve; dens. 34.0 lbs/ft3; pH 4.7 (20% sol'n.); 99.7% act., 8.5% moisture

Precaution: Wear safety glasses; flammable dust when finely divided and suspended in air; keep away from sources of ignition; avoid strong oxidizers

Hazardous Decomp. Prods.: None
Trade Name Reference

ADM Clintose® CR 18 [ADM Corn Processing http://www.adm.org/naen/ahn/cornprocessing.asp]
Chem. Descrip.: Maltodextrin
Chem. Analysis: Moisture 5%
CAS 9050-36-6; EINECS/ELINCS 232-940-4
Uses: Binder, solubilizer, crystal growth inhibitor, viscosifier, bodying agent, film former in pharmaceutical apps.
Features: Nonhygroscopic; nonsweet, nutritive saccharide
Regulatory: USP, FCC, GRAS, FDA 21 CFR 184.1444
Properties: Wh. powd., odorless, bland taste; 90% min. through #60 mesh sieve; 80% min. through #100 mesh sieve; dens. 35.0 lbs/ft³; pH 4.7 (20% sol'n.); 99.7% act., 8.5% moisture
Toxicology: Inh. may cause irritation
Precaution: Wear safety glasses; flammable dust when finely divided and suspended in air; keep away from sources of ignition; avoid strong oxidizers
Hazardous Decomp. Prods.: None

Chem. Descrip.: Refined dextrose See Glucose
Chem. Analysis: Moisture 8.5%; sulfated ash 0.02%
CAS 50-99-7; EINECS/ELINCS 200-075-1
Uses: Sweetener, flavor for pharmaceuticals, tableting
Features: Features mild sweetness, natural flavor enhancement, high fermentability, negative heat of sol'n., high osmotic pressure
Regulatory: USP, FCC, FDA 21 CFR 168.110, 168.111
Properties: Wh. free-flowing cryst., odorless, bland sweet taste; 99% min. through #16 screen; 50% min. through #200 screen; 50% sol. in water @ R.T.; dens. 34.0 lbs/ft³; m.p. 83 C; 8.5% moisture
Toxicology: Inh. may cause irritation
Precaution: Avoid ignition sources where fine dusts are generated
Hazardous Decomp. Prods.: CO vapors
Storage: Store @ R.T.

ADM Clintose® Dextrose B [ADM Corn Processing http://www.adm.org/naen/ahn/cornprocessing.asp]
Chem. Descrip.: Refined dextrose See Glucose
Chem. Analysis: Moisture 8.5%; sulfated ash 0.02%
CAS 50-99-7; EINECS/ELINCS 200-075-1
Uses: Sweetener, flavor for pharmaceuticals, tableting
Features: Features mild sweetness, natural flavor enhancement, high fermentability, negative heat of sol'n., high osmotic pressure
Regulatory: USP, FCC, FDA 21 CFR 168.110, 168.111
Properties: Wh. free-flowing cryst., odorless, bland sweet taste; 99% min. through #16 screen; 50% min. through #200 screen; 50% sol. in water @ R.T.; dens. 34.0 lbs/ft³; m.p. 83 C; 8.5% moisture
Toxicology: Inh. may cause irritation
Precaution: Wearing dust mask if dust is nuisance; avoid ignition sources where fine dusts are generated

ADM Clintose® Dextrose C [ADM Corn Processing http://www.adm.org/naen/ahn/cornprocessing.asp]
Chem. Descrip.: Refined dextrose See Glucose
Chem. Analysis: Moisture 8.5%; sulfated ash 0.02%
CAS 50-99-7; EINECS/ELINCS 200-075-1
Uses: Sweetener, flavor for pharmaceuticals, tableting
Features: Features mild sweetness, natural flavor enhancement, high fermentability, negative heat of sol'n., high osmotic pressure
Regulatory: USP, FCC, FDA 21 CFR 168.110, 168.111
Properties: Wh. free-flowing cryst., odorless, bland sweet taste; 99% min. through #16 screen; 50% min. through #200 screen; 50% sol. in water @ R.T.; dens. 34.0 lbs/ft³; m.p. 83 C; 8.5% moisture
Toxicology: Inh. may cause irritation
Precaution: Avoid ignition sources where fine dusts are generated
Hazardous Decomp. Prods.: CO vapors
Storage: Store @ R.T.
Trade Name Reference

ADM Clintose® Dextrose Greens  [ADM Corn Processing]
Chem. Descrip.: Glucose syrup  See Glucose, liquid
Chem. Analysis: Dry substance 83.6%; sulfated ash 0.02%
CAS 8029-43-4; EINECS/ELINCS 232-436-4
Uses: Sweetener, flavor for pharmaceutical prods.
Features: Economical source of dextrose affording the advantages of liq. handling
Regulatory: USP, FCC, FDA 21 CFR 184.1866
GRAS
Properties: Water-wh. to cl. yel. liq. characteristic odor; sweet taste; sol. in water; sp. gr. 1.35; pH 4.2
Toxicology: Nontoxic
Hazardous Decomp. Prods.: None
Storage: Store @ 130 F to avoid crystallizations

ADM Clintose® Dextrose VF  [ADM Corn Processing]
Chem. Descrip.: Refined dextrose  See Glucose
Chem. Analysis: Moisture 8.5%; sulfated ash 0.02%
CAS 50-99-7; EINECS/ELINCS 200-075-1
Uses: Sweetener, flavor for pharmaceuticals, tableting
Features: Used where fine particle size is required; features mild sweetness, natural flavor enhancement, high fermentability, negative heat of sol’n., high osmotic pressure
Regulatory: USP, FCC, FDA 21 CFR 168.110, 168.111
Properties: Lt. colored cl. bright fluid to visc. liq., mild ester odor; m.w. 13,500; sp.gr. 1.130; visc. 79,250 cps; pour pt. 35 F; acid no. 3; hyd. no. 2; flash pt. 575 F; ref. index 1.470
Toxicology: Inh. may cause irritation
Precaution: Avoid ignition sources where fine dusts are generated
Storage: Store @ R.T. with 50% relative humidity

ADM Clintose® Granular Dextrose  [ADM Corn Processing]
Chem. Descrip.: Glucose syrup and fructose  See Glucose, liquid
Chem. Analysis: Moisture = 23%; solids = 76.7%

Admex® 760  [Velsicol; Harwick Std. Distrib.]
Chem. Descrip.: Ultra high m.w. polymeric adipate polyester  See Polyester adipate
Uses: Plasticizer for skin patch drug delivery
Features: Max. resist. to extraction, migration, and volatility; high m.w. for solv.-resist.; nonmigratory; permanent
Properties: Lt. colored cl. bright fluid to visc. liq., mild ester odor; m.w. 13,500; sp.gr. 1.130; visc. 79,250 cps; pour pt. 35 F; acid no. 3; hyd. no. 2; flash pt. 575 F; ref. index 1.470
Trade Name Reference

CAS 8029-43-4; 57-48-7; EINECS/ELINCS 232-436-4; 200-333-3

Uses:  
Sweetener, humectant, crystallization control agent, viscosity reducer, flavor enhancer flavor and color development aid, texture softener, water activity reducer, and freeze point depressant in pharmaceutical syrups

Properties: Cl. lt. straw-colored liq. characteristic odor; sweet taste; completely misc. in water; sp. gr. 1.35; visc. 1100 cps; b.p. 226 F; pH 4.0-4.9

Toxicology: Nontoxic

Hazardous Decomp. Prods.: None

Storage: Store @ 95-105 F

Advantose™ 100 [SPI Pharma  http://www.spipharma.com]

Chem. Descrip.: Maltose powd.

CAS 69-79-4; EINECS/ELINCS 200-716-5

Uses: Excipient, flow aid, disintegrant for direct compression of pharmaceutical tablets, esp. chewables

Features: Nonhygroscopic; improves compressibility and disintegration of other materials; desirable mouthfeel; tolerates variability in lubricant levels; produces stable tablets

Properties: Spray-dried powd., spherical shape; 20% on 80 mesh, 16% on 100 mesh, 43% on 200 mesh; dens. 0.67-0.72 g/cc (bulk), 0.73-0.81 g/cc (tapped); surf. area 0.08 m²/g; m.p. 120-125 C; pH 4-6; 92% min. assay (maltose), 3% max. glucose; 7% max. moisture

Advantose™ FS 95 [SPI Pharma  http://www.spipharma.com]

Chem. Descrip.: Fructose (90%) and starch (5%)

CAS 57-48-7; 9005-25-8

Uses: Excipient, flow aid for direct compression for pharmaceutical tablets, nutraceuticals, and chewable vitamins; sweetener, flavor masking agent in chewable tablets

Features: Good compressibility; reduced friability; tablets hold shape well, but are very chewable; lower hygroscopicity than std. fructose; easier handling

Regulatory: Canada DSL; Europe EINECS

Properties: Wh. cryst. powd.; 57% on 40 mesh, 81% on 60 mesh, 87% on 80 mesh; desirable sweetness; bulk dens. 0.55-0.75 g/cc; 1-2% moisture

Toxicology: TSCA listed

Precaution: Wear impervious gloves, safety glasses with side shields

NFPA: Health 1, Flammability 1, Reactivity 0

Storage: Store in cool, well-ventilated place in tightly closed container

AEPD® [ANGUS  http://www.dow.com/angus/]

Chem. Descrip.: 2-Amino-2-ethyl-1,3-propanediol  See Aminoethyl propanediol

CAS 115-70-8; EINECS/ELINCS 204-101-2

Uses: Pharmaceutical intermediate

Properties: M.w. 119.2; water-sol.; m.p. 37.5 C; b.p. 152 C; flash pt. > 200 F (TCC); pH 10.8 (0.1M aq. sol'n.); nonionic; 100% conc.


Chem. Descrip.: Fumed silica  See Silica, fumed

Chem. Analysis: SiO₂ (> 99.8%),

CAS 112945-52-5; EINECS/ELINCS 231-545-4

Uses: Thickener, reinforcing agent, anticaking agent, free-flow agent, stabilizer (providing storage stability) for pharmaceutical creams, lotions, emulsions; glidant in solid dosage forms; free-flow agent and bulking agent for powds.; inert carrier for actives improving tableting char., decreasing disintegration time, reducing coating time of pills

Features: Dust-free, high purity, excellent flow both loaded and unloaded

Regulatory: USP/NF, EP

Properties: Wh. powd.; odorless; 30 nm avg. particle size; hardly sol. in water; dens., tapped ≈ 280 g/l surf. area ≈ 300 m²/g; m.p. ≈ 1700 C; pH 3.5-5.5 (40 g/l suspension)

Toxicology: LD₅₀ (oral, rat) > 10,000 mg/kg, (dermal, rabbit) > 5000 mg/kg; noncarcinogenic; nonmutagenic

Environmental: EC₅₀ (daphnia magna, 24 h) > 10,000 mg/l

Precaution: Wear safety goggles

Hazardous Decomp. Prods.: None

Storage: 2 yr shelf life; store in closed containers under dry conditions protected from volatile substances

Chem. Descrip.: Fumed silica  See Silica, fumed
Chem. Analysis: SiO₂ (> 99.8%), Al₂O₃ (< 0.05%), TiO₂ (< 0.03%)
CAS 112945-52-5; EINECS/ELINCS 231-545-4
Uses: Adsorbent, anticaoking agent, glidant, suspending agent for pharmaceuticals
Features: Increases filler loading and/or extrudability
Properties: Wh. fluffy powd.; 14 nm avg. particle size; sp.gr. 2.2; dens. ≈ 100 g/l (densed); surf. area 150±15 m²/g; pH 3.5-4.3 (40 g/l suspension)
Toxicology: LD₅₀ (oral, rat) > 10,000 mg/kg; noncarcinogenic; nonmutagenic
Environmental: EC₅₀ (daphnia magna, 24 h) > 10,000 mg/l
Precaution: Wear safety goggles
Hazardous Decomp. Prods.: None
Storage: Store in closed containers under dry conditions
Trade Name Reference

silanes.com; Degussa AG/Aerosil & Silanes
http://www.degussa-bioactives.com; Eigenmann & Veronelli
http://www.eigver.it

Chem. Descrip.: Fumed silica  See Silica, fumed
Chem. Analysis: SiO2 (> 99.8%), Al2O3 (< 0.05%), TiO2 (< 0.03%), HCl (< 0.025%), Fe2O3 (< 0.01%)
CAS 112945-52-5; EINECS/ELINCS 231-545-4
Uses: Filler, adsorbent, anticaking agent, glidant, suspending agent for pharmaceuticals

Regulatory: FDA 21CFR §133.146(b), 160.105(a)(d), 172.230(a), 172.480, 173.340(a), 175, 176, 177, 573.940

Properties: Wh. fluffy powd.; 7 nm avg. particle size; sp.gr. 2.2; dens. ≈ 120 g/l; surf. area 380±30 m2/g; pH 3.6-4.3 (in water:acetone 1:3)

Toxicology: TLV 10 mg/m3 total dust; LD50 > 20,000 mg/kg; may cause eye, skin, or respiratory tract irritation on overexposure

Precaution: Incompat. with strong bases and hydrofluoric acid


Chem. Descrip.: Amorphous, anhydrous, hydrophobic colloidal silica  See Silica, hydrophobic
CAS 68611-44-9; EINECS/ELINCS 271-893-4
Uses: Glidant for improving powder flow, especially suitable for very hygroscopic and/or cohesive powders; release behavior adjuster for active ingredients; viscosity adjuster for thickening nonpolar pharmaceutical oils; stabilizer for water in oil (w/o) emulsions

Regulatory: USP/NF, EP, DMF 1115
Properties: Wh. powd.; odorless; 16 nm avg. particle size; hardly sol. in water; sp.gr. 2.2; dens. ≈ 90 g/l; surf. area 110±20 m2/g; m.p. ≈ 1700 C; pH 3.5-5.5; (40 g/l suspension)

Storage: 2 yr shelf life; store in closed containers under dry conditions


Chem. Descrip.: Syn. amorphous fumed silica  See Silica, fumed
Chem. Analysis: SiO2 (> 99.8%), Al2O3 (< 0.05%), TiO2 (< 0.03%), HCl (< 0.025%), Fe2O3 (< 0.01%)
CAS 112945-52-5; EINECS/ELINCS 231-545-4
Uses: Suspending agent and redispersion aid in pharmaceutical aerosols

Features: Hydrophobic
Properties: Wh. fluffy powd.; 7 nm avg. particle size; sp.gr. 2.2; dens. ≈ 80 g/l (densed); surf. area (BET) 260±30 m2/g; pH 5.5-7.5 (in water: ethanol 1:3)


Chem. Descrip.: Silica dimethyl silylate  See Silica, fumed
Chem. Analysis: SiO2 (> 99.8%), HCl (< 0.1%), Al2O3 (< 0.05%), TiO2 (< 0.03%)
CAS 60842-32-2; EINECS/ELINCS 271-893-4
Uses: Adsorbent, suspending agent in pharmaceuticals

Features: Hydrophobic
Properties: Wh. fluffy powd.; 12 nm avg. particle size; dens. ≈ 90 g/l (densed); surf. area 170±20 m2/g; pH 3.4-4.2 (in water: ethanol 1:3)
Trade Name Reference

Aerosil® R8200 [Degussa/Aerosil & Silanes
http://www.aerosil.com; http://www.sivento-silanes.com; Degussa AG/Aerosil & Silanes
http://www.degussa-bioactives.com;
Eigenmann & Veronelli
http://www.eigver.it]

Chem. Descrip.: Adsorbent, anticaking agent, glidant, suspending agent for pharmaceuticals
Properties: Wh. powd.; odorless
Toxicology: LD50 (oral, rat) > 10,000 mg/kg, (skin, rabbit) > 5000 mg/kg; LD0 (inh., rat, 4 h) > 0.139 mg/l

Agnique AAM 12CM [Cognis/Care Chems.;
Cognis Canada; Cognis GmbH/Care Chems. http://www.cognis.com]
Chem. Descrip.: Cocamide MEA
CAS 68140-00-1; EINECS/ELINCS 268-770-2
Uses: Skin protectant
Properties: Pale yel. beads, faint fatty odor; sol. in common fatty materials; nonionic; 100% conc.
Storage: 1 yr. min. storage life in closed original containers at temps. below 40 C, protected against moisture

Chem. Descrip.: Cocamidopropyl betaine
CAS 61789-40-0; EINECS/ELINCS 263-058-8
Uses: Raw material for mfg. of pharmaceutical surfactants
Properties: Lt. yel. cl. pumpable liq., mild inherent odor; pH 6.0-7.5; amphoteric; 29-32% act.
Storage: 1 yr. min. storage stability in sealed original containers @ 0-40 C; may have corrosive effect on stainless steel tanks due to high salt content

Chem. Descrip.: PEG-40 hydrogenated castor oil
CAS 61788-85-0
Uses: Solubilizer and o/w emulsifier for pharmaceuticals; solubilizer for fragrances, essential oils in alcoholic/aq. systems
Properties: Wh. wax; m.w. ≈ 3000; dens. 1.022-1.026 g/cm³ (70 C); HLB 14-16; acid no. 1 max.; sapon. no. 40-50; hyd. no. 50-70; cloud pt. 80-86 C (1% in 5% NaCl sol'n.); pH 6-7 (1%); nonionic; 100% conc.; 1% max. water

Chem. Descrip.: PEG-60 hydrogenated castor oil
CAS 61788-85-0
Uses: Solubilizer and o/w emulsifier for pharmaceuticals; solubilizer for fragrances, essential oils in alcoholic/aq. systems
Properties: Wax; m.w. ≈ 3740; dens. 1.034-1.038 g/cm³; solid. pt. < 22 C; HLB 15-17; acid no. < 1; sapon. no. 40-50; hyd. no. 50-70; pH 6-7 (1%); nonionic; 100% conc.
<table>
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<tr>
<th>Trade Name Reference</th>
<th>Description</th>
<th>Uses</th>
<th>Features</th>
<th>Properties</th>
<th>Storage</th>
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<tbody>
<tr>
<td>Agnique FOH 5OC-10 [Cognis/Care Chems.; Cognis Canada]</td>
<td>Emulsifier for pharmaceutical o/w emulsions, ointments</td>
<td>Used with min. oils and terpenes</td>
<td>Ylsh. wh. soft waxy solid; sp.gr. 0.959-0.9615 (70 C); solid. pt. 50-68 F; HLB 12.0; hyd. no. 79-84; cloud pt. 26-30 C; pH 6.5-7.5 (1%); nonionic; 100% conc.</td>
<td>Storage: 1 yr. min. storage life in closed original containers at temps. below 40 C, protected against moisture</td>
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<tr>
<td>Agnique FOH 5OC-5 [Cognis/Care Chems.; Cognis Canada]</td>
<td>Emulsifier for prod. of pharmaceutical o/w emulsions, ointments</td>
<td>Bright yel. cl. liq.; water-sol.; sp.gr. 0.912-0.9145 (70 C); HLB 9.5; hyd. no. 115-125; cloud pt. 16-22 C; pH 6.5-75 (1%); nonionic; 100% conc.</td>
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<tr>
<td>Agnique FOH 9OC [Cognis/Chems. Group <a href="http://www.cognis-us.com">http://www.cognis-us.com</a>]</td>
<td>Emollient, superfatting agent, carrier, dispersant for pharmaceuticals</td>
<td></td>
<td>APHA 100 cl. liq.; oil-sol.; sp.gr. 0.830-0.840 g/cc (40 C); solid. pt. 2-12 C; b.p. 330-360 C; acid no. &lt; 0.2; iodine no. 90-97; sapon. no. &lt; 1.0; hyd. no. 205-215; flash pt. 190 C; nonionic; 100% conc.</td>
<td>Storage: 1 yr. min. storage life in closed original containers at temps. below 40 C, protected against moisture</td>
<td></td>
</tr>
<tr>
<td>Airflex® 460 [Air Prods./Polymers <a href="http://www.airproducts.com">http://www.airproducts.com</a>]</td>
<td>Adhesive base for medical applics.</td>
<td>Formaldehyde-free; exc. adhesion, water and heat resist., speed of set; rec. for applics. where presence of water has to be minimized; mechanically stable</td>
<td>Visc. 200-800 cps; pH 6.5-7.5; 63% min. solids</td>
<td>Storage: Store in cool, dry area; avoid excessive heat, open flames; incompat. with strong acids and oxidizers</td>
<td></td>
</tr>
</tbody>
</table>
Trade Name Reference

Ajidew N-50 [Ajinomoto
http://www.ajinomoto.co.jp;
http://www.ajinomoto.com]
Chem. Descrip.: Sodium PCA aq. sol'n.
CAS 28874-51-3; EINECS/ELINCS 249-277-1
Uses: Humectant in dentifrices, medicinal supplies
Features: Nat.
Properties: Liq.; pH 6.8-7.4; 50% act.

Akofine NF [Jarchem Ind.
http://www.jarchem.com]
Chem. Descrip.: Hydrogenated cottonseed oil
CAS 68334-00-9; EINECS/ELINCS 269-804-9
Uses: Tableting aid for pharmaceuticals (tablet lubricant, tablet coating, sustained release)
Features: High melting
Regulatory: EP, USP/NF compliance
Properties: Powd.

Akoline HH [Aarhus Karlshamn A/S
http://www.aak.com/]
Chem. Descrip.: Caprylic/capric glycerides
CAS 85409-09-2; EINECS/ELINCS 287-075-5
Uses: Absorption enhancer for poorly water-sol. drugs; bioavailability enhancer, emulsifier, solubilizer, mild antibacterial agent in hard and soft gelatin capsules; also used in transdermal apps.
Features: High capric acid content
Regulatory: USP, GRAS, FDA 21, CFR § 184.1505, E471
Properties: Semisolid @ R.T. m.p. 25-28 C; HLB 5-6; nonionic

Akoline R [Aarhus Karlshamn A/S
http://www.aak.com/]
Chem. Descrip.: Caprylic/capric glycerides
CAS 85409-09-2; EINECS/ELINCS 287-075-5
Uses: Absorption enhancer for poorly water-sol. drugs; bioavailability enhancer, emulsifier, solubilizer, mild antibacterial agent in hard and soft gelatin capsules; also used in transdermal apps.
Features: Low capric acid content
Regulatory: USP, GRAS, FDA 21, CFR § 184.1505, E471
Properties: Semisolid @ R.T. m.p. 25-28 C; nonionic; HLB 5.0-6.0

Akoline LM [Aarhus Karlshamn A/S
http://www.aak.com/]
Chem. Descrip.: Lipid
Uses: Excipient, vehicle, solubilizer for poorly water-sol. substances, dispersant, bioavailability enhancer for pharmaceuticals, esp. hard gelatin capsules, soft gelatin capsules, tablets, granules, controlled-release formulations
Features: Disperses rapidly in GI tract, enhancing wettability of the drug; crystallizes rapidly a few degrees below m.p.; inert
Properties: Solid; water-sol.; visc. 60 mPa•s (60 C); m.p. 44 C; HLB 14

Akomed E [Aarhus Karlshamn A/S
http://www.aak.com/]
Chem. Descrip.: Caprylic/capric triglycerides
EINECS/ELINCS 265-724-3
Uses: Penetrant, spreading agent, dispersant for pharmaceuticals; carrier system for sol. drugs; bioavailability enhancer, emulsifier, solubilizer, mild antibacterial agent in hard and soft gelatin capsules; also used in transdermal apps.
Features: Exc. oxidation stability; low cloud pt.
Regulatory: EP compliance
Properties: Low color and odor

Akomed R [Aarhus Karlshamn A/S
http://www.aak.com/]
Chem. Descrip.: Caprylic/capric triglyceride
Uses: Penetrant, spreading agent, dispersant for pharmaceuticals; carrier system for
capsules
Features: Exc. oxidation stability; low cloud pt.
Regulatory: EP compliance
Properties: Low color and odor
Akosoft 36 [Aarhus Karlshamn A/S
http://www.aak.com/]
Chem. Descrip.: Lipid  See Hydrogenated coco-glycerides
Uses: Hard fat for use in pharmaceutical dermal preps.; carrier system for capsules
Regulatory: EP compliance
Properties: Semisolid
Akypo®-Soft 45 NV [Kao Corp.
http://www.kao.co.jp]
Chem. Descrip.: Sodium laureth-6 carboxylate
CAS 33939-64-9
Uses: Surfactant for medicinal liq. soaps, feminine hygiene prods.
Features: Mild; well tolerated by optic mucosa
Properties: Water-wh. liq., odorless; m.w. 457; sp.gr. 1.0 kg/l; visc. 100 mPa•s; pH 6.5-7.5; anionic; 22% act. in water
Toxicology: Nonirritant
Environmental: Biodeg.
Albagel Premium USP 4444 [MPSI
http://www.mp-solutionsinc.com]
Chem. Descrip.: Bentonite
CAS 1302-78-9; EINECS/ELINCS 215-108-5
Uses: Thickener, protective colloid, emulsifier, suspending agent in pharmaceuticals
Alberger® [Cargill/Salt
http://www.cargillsalt.com]
Chem. Descrip.: Sodium chloride; crystalline salt refined by Alberger process
CAS 7647-14-5; EINECS/ELINCS 231-598-3
Uses: In personal care prods. (denture cleaners, first aid prods., mouthwash, toothpaste
Albone® 35 CG [Arkema
http://www.total.com/]
Chem. Descrip.: Hydrogen peroxide
CAS 7722-84-1; EINECS/ELINCS 231-765-0
Uses: For prep. of stable dilute sol'n's for consumer use in pharmaceutical applics.
Features: Specially stabilized grade; meets USP specs. when properly diluted to 3%
Regulatory: FDA approved
Properties: Colorless cl. liq., sl. pungent irritating odor; sp.gr. 1.196 mg/m3; dens. 9.98 lb/gal; m.p. -52 C; b.p. 114 C (760 mm Hg); pH 1.5-2.0; 50% conc., 23.5% act. oxygen
Toxicology: ACGIH TLV 1 ppm, 1.4 mg/m3, 8 h TWA; LD50 (oral, rat) 1232 mg/kg, (skin, rabbit) > 2000 mg/kg; may cause severe irritation or burns of skin, eyes, mucous membranes; ing. may cause upper GI irritation
Environmental: Aquatic LC50 (catfish, 96 h) 37.4 mg/l
Precaution: Corrosive, strong oxidizer; mixture with org. materials may be explosive; incompat. with flammables, cyanides, nitric acid, other oxidizing/reducing agents; liberation of oxygen gas may result in dangerous pressures
Storage: Store in orig. vented container in dry location, away from sunlight and heat sources; vent holes in bung cap must be kept open and free of obstruction; do not store on wooden pallets
Albone® 50 CG [Arkema
http://www.total.com/]
Chem. Descrip.: Hydrogen peroxide
CAS 7722-84-1; EINECS/ELINCS 231-765-0
Uses: For prep. of stable dilute sol'n's for consumer use in pharmaceutical applics.
Features: Specially stabilized grade; meets USP specs. when properly diluted to 3%
Regulatory: FDA approved
Properties: Colorless cl. liq., sl. pungent irritating odor; sp.gr. 1.133 mg/m3; dens. 9.45 lb/gal; m.p. -33 C; b.p. 108 C (760 mm Hg); pH 2.3-2.8; 35% conc., 16.5% act. oxygen
Toxicology: ACGIH TLV 1 ppm, 1.4 mg/m3, 8 h TWA; LD50 (oral, rat) 1232 mg/kg, (skin, rabbit) > 2000 mg/kg; may cause severe irritation or burns of skin, eyes, mucous membranes; ing. may cause upper GI irritation
Environmental: Aquatic LC50 (catfish, 96 h) 37.4 mg/l
Precaution: Corrosive, strong oxidizer; mixture with org. materials may be explosive; incompat. with flammables, cyanides, nitric acid, other oxidizing/reducing agents; liberation of oxygen gas may result in dangerous pressures
Storage: Store in orig. vented container in dry location, away from sunlight and heat sources; vent holes in bung cap must be kept open and free of obstruction; do not store on wooden pallets
Albone® 70 CG [Arkema http://www.total.com/]
Chem. Descrip.: Hydrogen peroxide
CAS 7722-84-1; EINECS/ELINCS 231-765-0
Uses: For prep. of stable dilute sol'ns. for consumer use in pharmaceutical applics.
Features: Specially stabilized grade; meets USP specs. when properly diluted to 3%
Regulatory: FDA approved
Properties: Colorless cl. liq., sl. pungent irritating odor; sp.gr. 1.3 mg/m3; dens. 10.75 lb/gal; m.p. -40 C; b.p. 126 C (760 mm Hg); pH 0.4-0.8; 68% conc., 32.9% act. oxygen
Toxicology: ACGIH TLV 1 ppm, 1.4 mg/m3, 8 h TWA; LD50 (oral, rat) 1232 mg/kg, (skin, rabbit) > 2000 mg/kg; may cause severe irritation or burns of skin, eyes, mucous membranes; ing. may cause upper GI irritation
Environmental: Aquatic LC50 (catfish, 96 h) 37.4 mg/l
Precaution: Corrosive, strong oxidizer; mixture with org. materials may be explosive; incompat. with flammables, cyanides, nitric acid, other oxidizing/reducing agents; liberation of oxygen gas may result in dangerous pressures
Storage: Store in orig. vented container in dry location, away from sunlight and heat sources; vent holes in bung cap must be kept open and free of obstruction; do not store on wooden pallets

Chem. Descrip.: Dicalcium phosphate anhyd. USP, FCC
CAS 7757-93-9; EINECS/ELINCS 231-826-1
Uses: Dispersant in tableting; source of calcium and phosphorus in preps. for infants, invalids, and geriatric patients
Features: Noncombustible
Regulatory: FDA 21CFR §182.1317, 182.8217; DOT nonregulated; SARA nonreportable; EU, UK compliance
Properties: Wh. fine powd.; 3% on 325 mesh; odorless; tasteless; insol. in water; m.w. 136.06; 97-105% assay; 7-8.5% loss on ignition; 28.5-30.8% calcium as CaO
Toxicology: LD50 (oral, rat) > 10,000 mg/kg; may cause eye irritation; may cause sl. transient skin irritation on prolonged contact; dusts may cause upper respiratory tract irritation; ing. of lg. amts. may cause abdominal cramps, nausea, vomiting, diarrhea; TSCA listed
Hazardous Decomp. Prods.: None known
HMIS: Health 0, Flammability 0, Reactivity 0
Storage: Store in closed containers in cool, dry, sanitary area; protect packages from water and contamination

Alcolec® Granules [Am. Lecithin http://www.americanlecithin.com]
Chem. Descrip.: Lecithin FCC
CAS 8002-43-5; EINECS/ELINCS 232-307-2
Uses: Wetting agent, release agent, o/w emulsifier, stabilizer, diet supplement in pharmaceuticals
Regulatory: FDA 21CFR §184.1400, GRAS; kosher approved
Properties: Lt. tan/yel. gran., bland odor and taste; disp. in water and paraffin (50 g/l); mild typical odor; dens. <1 g/cm3; pH 5-8 (10 g/l water); nonionic; 97% act., 1% max. moisture
Environmental: Biodegrad.
Precaution: Avoid sources of heat
Hazardous Decomp. Prods.: None
Storage: Store below 25 C; 1 yr. shelf life in original, unopened container

Alcolec® PS 20 P [Am. Lecithin http://www.americanlecithin.com]
Chem. Descrip.: Powdered soybean lecithin with tricalcium phosphate (0.5% max.) as a flow agent See Calcium phosphate tribasic
Chem. Analysis: 20% min. phosphatidylserine; 1.5% max. moisture
CAS 8030-76-0; 1306-06-5; EINECS/ELINCS 310-129-7; 231-840-8.
Uses: Wetting agent, release agent, o/w emulsifier, stabilizer, nutritional supplements
Features: Hygroscopic; oxidation-sensitive
Regulatory: FDA §21 CFR 184,1400 GRAS
Properties: Lt. tan/yel. powd.; disp. in water and paraffin (50 g/l); mild typical odor; dens. <1 g/cm3; pH 5-8 (10 g/l water); nonionic
Environmental: Biodegrad.
Precaution: Do not expose to direct heat or open fire; avoid strong oxidizers
Storage: 2 yr. shelf life in original, unopened container; store @ R.T.

Alcolec® PS 40 P [Am. Lecithin http://www.americanlecithin.com]
Chem. Descrip.: Powdered soybean lecithin with tricalcium phosphate (0.5% max.) as a
Trade Name Reference

flow agent See Calcium phosphate tribasic
Chem. Analysis: 40% min. phosphatidylserine; 1.5% max. moisture
CAS 8030-76-0; 1306-06-5; EINECS/ELINCS 310-129-7; 231-840-8.
Uses: Wetting agent, release agent, o/w emulsifier, stabilizer, nutritional supplements
Regulatory: FDA §21 CFR 184,1400 GRAS
Properties: <1 g/cm3; pH 5-8 (10 g/l water); nonionic and paraffin (50 g/l); mild typical odor; dens.
2 yr. shelf life in original, unopened container; store @ cool temps.

Alcolec® PS 50 P [Am. Lecithin http://www.americanlecithin.com]
Chem. Descrip.: Powdered soybean lecithin with tricalcium phosphate (0.5% max.) as a flow agent See Calcium phosphate tribasic
Chem. Analysis: 50% min. phosphatidylserine; 2.0% max. moisture
CAS 8030-76-0; 1306-06-5; EINECS/ELINCS 310-129-7; 231-840-8.
Uses: Wetting agent, release agent, o/w emulsifier, stabilizer, nutritional supplements
Features: Hygroscopic; oxidation-sensitive
Regulatory: FDA §21 CFR 184,1400 GRAS
Properties: Yelsh.-brown powd.; disp. in water and paraffin (50 g/l); mild typical odor; dens.
<1 g/cm3; pH 5-8 (10 g/l water); nonionic
Environmental: Biodegrad.
Precaution: Do not expose to direct heat or open fire; avoid strong oxidizers
Storage: 2 yr. shelf life in original, unopened container protected from light; store @ R.T.

Alcolec® Z-3 [Am. Lecithin http://www.americanlecithin.com]
Chem. Descrip.: Hydroxylated lecithin
CAS 8029-76-3; EINECS/ELINCS 232-440-6
Uses: Wetting agent, emulsifier, solubilizer, dispersant for pharmaceuticals
Regulatory: FDA 21 CFR §172.814, GRAS; kosher approved
Properties: Lt. amber liq.; sol. in most fat solv. except acetone; sp. gr. 1.03; visc. 8000 cps; acid no. < 38; flash pt. > 400 F; HLB 9.7;
nonionic; < 1.5% moisture, < 42% oil content
Toxicology: May be irritating to eyes
Precaution: Wear splash goggles and impervious gloves
Storage: 18 mos. shelf life in original unopened container; store @ 60-9- F

Aldehyde C 14 Socalled [Symrise USA http://www.symrise.com]
Chem. Descrip.: γ-Undecalactone
CAS 104-67-6; EINECS/ELINCS 203-225-4
Uses: Syn. flavoring agent in pharmaceuticals

Aldehyde C 18 Socalled [Symrise USA http://www.symrise.com]
Chem. Descrip.: γ-Nonalactone
CAS 104-61-0; EINECS/ELINCS 203-219-1
Uses: Syn. flavoring agent in pharmaceuticals

Aldo® MCT [Lonza http://www.lonza.com]
Chem. Descrip.: Caprylic/capric triglyceride
CAS 65381-09-1; EINECS/ELINCS 265-724-3
Uses: Carrier or suspension medium for oil-sol. antibiotics and drugs; dietary supplements; min. oil replacement, emollient, emulsifier in pharmaceuticals
Properties: Liq.; low odor; bland taste; acid no. 0.10 max.; sapon. no. 345

Aldo® MCT KFG [Lonza http://www.lonza.com]
Chem. Descrip.: Caprylic/capric triglyceride
CAS 73398-61-5; EINECS/ELINCS 265-724-3
Uses: Carrier or suspension medium for oil-sol. antibiotics and drugs; dietary supplement; lubricant for gel capsules; solvent, diluent, and flavor fixative
Regulatory: Kosher
Properties: Cl. liq., neutral odor and taste; acid no. 0.10 max.; iodine no. 1.0 max.; sapon. no. 335-360; hyd. no. 10 max.; 0.1% max. moisture

Aldo® MLD KFG [Lonza http://www.lonza.com]
Chem. Descrip.: Glyceryl monolaurate, dispersible See Glyceryl laurate
CAS 142-18-7; EINECS/ELINCS 205-526-6
Uses: Emulsifier for pharmaceuticals
Regulatory: Kosher certified
Properties: Soft solid; HLB 6; acid no. 5; nonionic

Aldo® MO KFG [Lonza http://www.lonza.com]
Chem. Descrip.: Glyceryl monooleate See
Glycerol oleate
CAS 25496-72-4; EINECS/ELINCS 203-827-7
Uses: Emulsifier for pharmaceuticals
Regulatory: Kosher certified
Properties: Liq.; HLB 3; acid no. 2; sapon. no. 171; nonionic
Aldo® MS-20 KFG [Lonza http://www.lonza.com]
Chem. Descrip.: PEG-20 glyceryl stearate
CAS 68153-76-4
Uses: Emulsifier, solubilizer for pharmaceutical applics.
Properties: Solid; HLB 13.0; nonionic; 100% conc.
Aldo® MS KFG [Lonza http://www.lonza.com]
Chem. Descrip.: Glyceryl stearate
CAS 123-94-4
Uses: Emulsifier for pharmaceuticals
Regulatory: Kosher certified
Properties: Beads; HLB 4; acid no. 3; sapon. no. 163; nonionic
Aldo® PGHMS [Lonza http://www.lonza.com]
Chem. Descrip.: Propylene glycol monostearate
CAS 1323-39-3; EINECS/ELINCS 215-354-3
Uses: Emulsifier, stabilizer, solubilizer, emollient, lubricant, thickeners, plasticizer, anti-irritant, and conditioner in pharmaceuticals
Properties: Wh. flakes; sol. in ethanol, min. and veg. oils; insol. in water; HLB 3±1; iodine no. 1.0 max.; sapon. no. 170-185; nonionic; 100% conc.
Aldosperse® O-20 KFG [Lonza http://www.lonza.com]
Chem. Descrip.: 80% Glycerol stearate, 20% polysorbate 80
CAS 31566-31-1; 9005-65-6
Uses: Emulsifier, solubilizer for pharmaceutical applics.
Regulatory: FDA 21CFR §172.840, 184.1505 (GRAS); kosher
Properties: Lt. tan beads, mild odor, bland taste; 100% through 8 mesh, 5% max. through 100 mesh; m.p. 50-65 C; HLB 5; acid no. 2 max.; sapon. no. 140-155; nonionic; 100% conc.
Storage: Store in cool, dry area below 35 C

Chem. Descrip.: C10-12 parenth-2.5  See C10-12 parenth-3
CAS 66455-15-0
Uses: Surfactant, emulsifier for ointments
Properties: APHA 5 cl. liq.; sol. in hydrocarbons; sparingly sol. in water; m.w. 298; sp.gr. 0.94; visc. 12.8 cSt (100 F); m.p. 23-26 F; HLB 9; hyd. no. 188; pour pt. 24 F; flash pt. (PM) 259 F; pH 6.6 (1% aq.); nonionic
Environmental: Biodeg.
Storage: Nitrogen blanketing during storage and transfer is rec.

Chem. Descrip.: C10-12 parenth-3.1  See C10-12 parenth-3
CAS 66455-15-0
Uses: Surfactant, emulsifier for ointments
Properties: APHA 5 cl. liq.; sol. in hydrocarbons; sparingly sol. in water; m.w. 298; sp.gr. 0.94; visc. 12.8 cSt (100 F); m.p. 23-26 F; HLB 9; hyd. no. 188; pour pt. 24 F; flash pt. (PM) 259 F; pH 6.6 (1% aq.); nonionic
Environmental: Biodeg.
Storage: Nitrogen blanketing during storage and transfer is rec.

Chem. Descrip.: C12-16 parenth-1.3  See C12-16 parenth-1
CAS 68551-12-2
Uses: Surfactant, emulsifier for ointments
Properties: APHA 10 cl. liq.; sol. in hydrocarbons; sparingly sol. in water; m.w. 258; sp.gr. 0.869; visc. 17 cSt (100 F); m.p. 37-40 F; HLB 4.4; hyd. no. 222; pour pt. 39 F; cloud pt. 41 F (1% aq.); flash pt. (PM) 260 F; pH 6.7 (1% aq.); nonionic; 100% conc.
Environmental: Biodeg.
Storage: Nitrogen blanketing during storage and transfer is rec.

Chem. Descrip.: Methylsilanol mannuronate
CAS 128973-71-7; EINECS/ELINCS 310-104-0
Uses: Provides cutaneous hydration, lipolytic action, skin regeneration and maintenance, for cosmetic and health prods., milks, emulsions, creams, lotions, anti-aging formulations
Trade Name Reference

**Properties:** Pale yel. sl. opalescent liq., odorless; misc. with water; insol. in alcohols, glycols, hexane; sp.gr. 1.0; b.p. 100 C; pH 5.5

**Use Level:** 4-6%

**Toxicology:** Nontoxic

Alkamuls® EL-620  [Rhodia HPCII](http://www.rhodia-hpcii.com); Rhodia HPCII France [http://www.hpcii.rhodia.com]

**Chem. Descrip.:** PEG-30 castor oil

**CAS:** 61791-12-6

**Uses:** Emulsifier, wetting agent, pigment dispersant, lubricant, solubilizer for pharmaceuticals

**Properties:** Lt. brn. cl. visc. liq., mild oily odor; sol. in water, acetone, CCl₄, alcohols, veg. oil, ethers, toluene, xylene; sp.gr. 1.04-1.05; dens. 8.705 lb/gal; visc. 600-1000 cps; HLB 12.0; cloud pt. 42 C (1% aq.); flash pt. 291-295 C; surf. tens. 41 dynes/cm; nonionic; 100% act.

**Toxicology:** LD₅₀ (oral, rat) 40 g/kg; low oral toxicity; not primary skin or eye irritants

Alkamuls® EL-719  [Rhodia HPCII](http://www.rhodia-hpcii.com); Rhodia HPCII France [http://www.hpcii.rhodia.com]; C.P. Hall [http://www.cphall.com]

**Chem. Descrip.:** PEG-40 castor oil

**CAS:** 61791-12-6

**Uses:** Emulsifier for vitamins and drugs

**Properties:** Yel. cl. liq., oily odor; sol. in water, acetone, CCl₄, alcohols, veg. oil, ether, toluene, xylene; sp.gr. 1.06-1.07; dens. 8.9-9.0 lb/gal; visc. 500-800 cps; HL 13.6; cloud pt. 80 C (1% aq.); flash pt. 275-279 C; surf. tens. 38 dynes/cm (0.1%); nonionic; 96% min. act.

**Toxicology:** LD₅₀ (oral, rat) 70 g/kg; low oral toxicity; not primary skin or eye irritants

Alkamuls® PSML-20  [Rhodia HPCII](http://www.rhodia-hpcii.com)

**Chem. Descrip.:** Polysorbate 20

**CAS:** 9005-64-5

**Uses:** Emulsifier, solubilizer, visc. modifier, lubricant for pharmaceuticals

**Properties:** Yel. liq.; sol. in water, aromatic solv.; dens. 1.1 g/ml; HL 16.7; sapon. no. 40-50; nonionic; 97% act.

Alkalquat® DMB-451-50  [Rhodia Canada; Rhodia HPCII France](http://www.hpcii.rhodia.com)

**Chem. Descrip.:** Benzalkonium chloride

**CAS:** 8001-54-5

**Uses:** Wetting agent, emulsifier, biocide, disinfectant for use in antidandruff rinses, general disinfection and sanitization for hospitals, laundries

**Properties:** Pale-yel. liq.; sol. in water, ethanol, acetone, aliphatic solv.; sp.gr. 0.96; surf. tens. 33 dynes/cm (1%); cationic; 50% act.

Alkalquat® DMB-451-80  [Rhodia Canada; Rhodia HPCII France](http://www.hpcii.rhodia.com)

**Chem. Descrip.:** Benzalkonium chloride

**CAS:** 8001-54-5

**Uses:** Wetting agent, emulsifier, biocide, disinfectant for use in antidandruff rinses, general disinfection and sanitization for hospitals, laundries

**Properties:** Pale-yel. liq.; sol. in water, ethanol, acetone, aliphatic solv.; sp.gr. 0.96; surf. tens. 33 dynes/cm (1%); cationic; 80% act.

Alkasurf® CO-630 Special  [Rhodia Canada]

**Chem. Descrip.:** Nonoxynol-9 USP

**CAS:** 9016-45-9

**Uses:** Surfactant for pharmaceuticals

**Properties:** HL 13.0; cloud pt. 52-56 C (1% aq.); nonionic; 80% act.

Aloe Gold Seal-Natural  [Terry Labs](http://www.terrylabs.com)

**Chem. Descrip.:** Aloe barbadensis

**Chem. Analysis:** 100% aloe solids; 8% max. moisture

**CAS:** 8001-97-6; EINECS/ELINCS 232-295-9

**Uses:** Moisturizer, soothing agent in dietary supplements, tablets, and capsules

**Properties:** Lt. cream to beige fine powd., mod. veg. odor; after reconstituting 1:199 with DI water
Aloe barbadensis gel
Uses: Ingrd. for therapeutic prods.
Properties: Gardner 3 max. liq.; pH 4.0-5.0; 5% solids

Chem. Descrip.: Freeze-dried aloe vera whole leaf gel See Aloe barbadensis gel
Uses: Ingrd. for pharmaceuticals, health supplements
Properties: Sl. tan free-flowing powd.; pH 3.5-5.5 (1:199); < 7% moisture

Chem. Descrip.: Aloe barbadensis gel, polyglyceryl methacrylate, and propylene glycol See Glyceryl polymethacrylate
Features: Delayed evaporation chars. for enhanced substantivity to skin and hair
Properties: Colorless cl. to sl. hazy visc. gel; sol. in water; sp.gr. 1.1; visc. 80,000-130,000 cps; pH 5.0-5.6
Storage: Store at R.T.; protect from oxidation; may darken over time

Chem. Descrip.: Aloe vera extract See Aloe barbadensis extract
CAS 85507-69-3; EINECS/ELINCS 287-390-8
Uses: Emollient in skin ointments, antidandruff shampoos, diaper rash ointments, hemorrhoid ointments/suppositories, mouth rinses, toothpaste for antiplaque and sore gums, vaginal douches
Properties: Lt. yel. cl. oil; char. veg. odor; sp.gr. 0.847-0.854

Aloe Vera Gel Decolorized 1X [Terry Labs http://www.terrylabs.com]
Chem. Descrip.: Aloe barbadensis gel
Uses: Moisturizer with soothing props. for OTC pharmaceuticals (topical analgesics/anesthetics, hydrocortisone creams, first aid sprays/creams/gels, anti-acne preps., bedsore preps., as a moisturizing base)
Properties: Colorless liq., sl. veg. odor; sp.gr. 0.997-1.004; pH 3.5-5.0; 0.5% min. total solids
**Trade Name Reference**

**Aloe Vera Gel Decolorized 10X** [Terry Labs http://www.terrylabs.com]
Chem. Descrip.: Aloe barbadensis gel
Uses: Moisturizer with soothing props. for OTC pharmaceuticals (topical analgesics/anesthetics, hydrocortisone creams, first aid sprays/creams/gels, anti-acne preps., bedsore preps., as a moisturizing base)
Properties: Yel./grn. liq., lt. veg. odor; sp.gr. 1.022-1.032; pH 3.5-5.0; 5% min. total solids
Storage: Store @ R.T.; protect from oxidation; may darken with age

**Aloe Vera Gel Decolorized 40X** [Terry Labs http://www.terrylabs.com]
Chem. Descrip.: Aloe barbadensis gel
Uses: Moisturizer with soothing props. for OTC pharmaceuticals (topical analgesics/anesthetics, hydrocortisone creams, first aid sprays/creams/gels, anti-acne preps., bedsore preps., as a moisturizing base)
Properties: Yel./amber liq., mod. veg. odor; sp.gr. 1.100-1.120; pH 3.5-5.0; 20% min. total solids
Storage: Store @ R.T.; protect from oxidation; may darken with age

**Aloe Vera Gel Powd., Dehydrated** [Garuda Int'l. http://www.garudaint.com]
Chem. Descrip.: Aloe vera gel, dehydrated (200X conc.) See Aloe barbadensis gel
Uses: Emollient in skin ointments, antidandruff shampoos, diaper rash ointments, hemorrhoid ointments/suppositories, mouth rinses, toothpaste for antiplaque and sore gums, vaginal douches
Properties: Lt. tan fluffy powd.; char. veg.-like odor and flavor; no off flavors; 10% solids; < 10% moisture

**Aloe Vera Gel Regular 1X** [Terry Labs http://www.terrylabs.com]
Chem. Descrip.: Aloe barbadensis leaf juice
Chem. Analysis: 0.5% min. aloe solids
Uses: Moisturizer, soothing agent for OTC pharmaceuticals including topical analgesics/anesthetics, hydrocortisone creams, first aid sprays, anti-acne preps., toothpaste and oral rinses
Properties: Gardner 3 max. liq., lt. veg. odor; sp.gr. 0.997-1.004; pH3.5-5.0

**Aloe Vera Gel Spray Dried Powd.** [Garuda Int'l. http://www.garudaint.com]
Chem. Descrip.: Aloe vera gel, dehydrated (20X conc.) See Aloe barbadensis gel
Uses: Emollient in skin ointments, antidandruff shampoos, diaper rash ointments, hemorrhoid ointments/suppositories, mouth rinses, toothpaste for antiplaque and sore gums, vaginal douches
Properties: Wh. to ylsh. powd.; char. veg.-like odor and flavor; no off flavors; 10% solids; < 10% moisture

**Precaution:** This is a nat. prod. which will darken with age; sl. fallout may occur over time; protect from oxidation

**Aloe Vera Gel Regular 10X** [Terry Labs http://www.terrylabs.com]
Chem. Descrip.: Aloe barbadensis leaf juice
Chem. Analysis: 4.6% min. aloe solids
Uses: Moisturizer, soothing agent for OTC pharmaceuticals including topical analgesics/anesthetics, hydrocortisone creams, first aid sprays, anti-acne preps., toothpaste and oral rinses
Properties: Lt. amber cl. to sl. hazy liq.; sp.gr. 1.022-1.032 (25 C); pH 3.5-5.0

**Precaution:** This is a nat. prod. which will with age; sl. fallout may occur over time; protect from oxidation

**Aloe Vera Gel Regular 40X** [Terry Labs http://www.terrylabs.com]
Chem. Descrip.: Aloe barbadensis leaf juice
Chem. Analysis: 18.4% min. aloe solids
Uses: Moisturizer, soothing agent for OTC pharmaceuticals including topical analgesics/anesthetics, hydrocortisone creams, first aid sprays, anti-acne preps., toothpaste and oral rinses
Properties: Lt. amber cl. to sl. hazy liq.; sp.gr. 1.100-1.120 (25 C); pH 3.5-5.0

**Precaution:** This is a nat. prod. which will with age; sl. fallout may occur over time; protect from oxidation

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Aloe Vera Gel Thickened [Terry Labs http://www.terrylabs.com]
Chem. Descrip.: Aloe barbadensis gel, acrylates/C10 alkyl acrylate crosspolymer See Acrylates/C10-30 alkyl acrylate crosspolymer; Aloe barbadensis gel
Uses: Moisturizer in OTC pharmaceuticals including topical analgesics/anesthetics, first aid gels and ointments, and anti-acne preps.
Features: Used as a base into which other ingredients can be blended
Properties: Cl. to sl. hazy lt. beige visc. gel; visc. 300,000-900,000 cps; pH 6.5-7.5
Storage: Store @ R.T.; protect from oxidation

Aloe Vera Oil CG [Terry Labs http://www.terrylabs.com; S. Black http://www.sblack.com]
Chem. Descrip.: Aloe barbadensis extract, mineral oil, coconut oil See Coconut (Cocos nucifera) oil
CAS 85507-69-3; 8012-95-1; 8001-31-8; EINECS/ELINCS 287-390-8; 232-384-2; 232-282-8
Uses: Ingred. in hydrophobic prods. or oil phases of formulations for OTC pharmaceuticals (topical analgesics/anesthetics, hydrocortisone creams, first aid sprays, creams and gels, anti-acne preps. and bedsore preps.)
Properties: Yel.-grn. cl. to sl. hazy liq.; lt. veg. odor and taste; sp.gr. 1.000-1.020; pH 3.5-5.0
Storage: Protect from oxidation; store at room temp.; nat. prod. that will darken with age; sl. fallout may occur over time

Aloe Vera Whole Leaf Gel 1X [Terry Labs http://www.terrylabs.com; S. Black http://www.sblack.com]
Chem. Descrip.: Aloe vera gel, food grade See Aloe barbadensis gel
CAS 8001-97-6; EINECS/ELINCS 232-295-9
Uses: Ingred. in OTC pharmaceuticals (topical analgesics/anesthetics, hydrocortisone creams, first aid sprays/creams/gels, anti-acne preps., toothpaste, moisturizing base)
Properties: Yel.-grn. cl. to sl. hazy liq., lt. veg. odor; sp.gr. 0.997-1.004; pH 3.5-5.0; 0.5% min. total solids
Storage: Store @ R.T.; protect from oxidation; may darken with age

Aloe Vera Whole Leaf Gel 2X [Terry Labs http://www.terrylabs.com]
Chem. Descrip.: Aloe barbadensis leaf
CAS 8001-97-6; EINECS/ELINCS 232-295-9
Uses: Ingred. in OTC pharmaceuticals (topical analgesics/anesthetics, hydrocortisone creams, first aid sprays/creams/gels, anti-acne preps., toothpaste, moisturizing base)
Properties: Yel.-grn. cl. to sl. hazy liq., lt. veg. odor; sp.gr. 0.997-1.004; pH 3.5-5.0
Storage: Store in a cool, dry place

Aloe Vera Whole Leaf Gel 3X [Terry Labs http://www.terrylabs.com]
Chem. Descrip.: Aloe leaf See Aloe barbadensis
CAS 8001-97-6; EINECS/ELINCS 232-295-9
Uses: Ingred. in OTC pharmaceuticals (topical analgesics/anesthetics, hydrocortisone creams, first aid sprays/creams/gels, anti-acne preps., toothpaste, moisturizing base)
Properties: Yel.-grn. cl. to sl. hazy liq., lt. veg. odor; sp.gr. 0.997-1.004; pH 3.5-5.0
Storage: Store in a cool, dry place
Trade Name Reference

**Aloe Vera Whole Leaf Powder Organic Freeze Dried** [Terry Labs http://www.terrylabs.com]
Chem. Descr.: Aloe barbadensis leaf
Chem. Analysis: 100% aloe solids; 8% max. moisture
CAS 8001-97-6; EINECS/ELINCS 232-295-9
Uses: Ingred. in OTC pharmaceuticals (topical analgesics, hydrocortisone creams, first aid sprays/creams/gels, anti-acne preps., toothpaste, oral rinses, medicated powds., moisturizing base)
Properties: Lt. cream to beige fine powd.; sp. gr. 0.997-1.004; pH 3.5-5.0
Storage: Keep in cool, dry place, once reconstituted, prod. will darken with age; preserve after reconstitution

Chem. Descr.: High-purity, molecularly dist. monoglyceride prepared from fully hardened soybean oil and glycerin See Mono- and diglycerides of fatty acids
Uses: Pharmaceutical tableting aid
Features: Provides a stable, finely dispersed emulsion
Regulatory: FDA GRAS; kosher
Properties: Wh. to cream fine bead; 99% through 10 mesh; m.p. 70-75 C; iodine no. 3 max.; sapon. no. 150-165; HLB 3.5; nonionic; 90% min. alpha monoester
Storage: Indefinite storage life under proper cool, dry conditions

**Alpine Talc USP BC 127** [MPSI http://www.mp-solutionsinc.com]
Chem. Descr.: Talc
CAS 14807-96-6; EINECS/ELINCS 238-877-9
Uses: Glidant, anticaking agent, tablet lubricant, colorant in pharmaceuticals

Chem. Descr.: Talc USP/FCC See Talc
Chem. Analysis: SiO2 (61%), MgO (31%), Al2O3 (1%), Fe2O3 (1%), CaO (0.5%)
CAS 14807-96-6; EINECS/ELINCS 238-877-9
Uses: Filler for pharmaceuticals; dusting agent, glidant, lubricant, diluent, filler, compression aid, tablet coating, excipient, opacifier, extender pigment, film enhancer for aerosols, creams and lotions, medicated foot powds.
Features: Good brightness
Properties: Wh. powd.; 9 µ median particle size; 98% min. through 200 mesh; bulk dens. 24-28 lb/ft3 (loose), 62 lb/ft3 (tapped); TAPPI brightness 88; pH 8 (10% slurry)

Chem. Descr.: Talc
CAS 14807-96-6; EINECS/ELINCS 238-877-9
Uses: Filler in pharmaceuticals (tablets, medicated foot powds., creams/lotions/ointments); lubricant, glidant in tablet coatings; release agent in tablet molds
Features: Inert
Regulatory: DOT nonhazardous
Properties: Wh. to grayish-wh. fine powd.; 11 µ median particle size; 99% through 200 mesh; sl. earthy odor; sol. in hot, conc. phosphoric acid; insol. in water, cold acids and alkalies; sp.gr. 2.7-2.8; dens. 57 lb/ft3 (tapped), 26 lb/ft3 (loose); surf. area 3.0 m2/g; oil absorp. 28; brightness 86; pH sl. alkaline; hardness (Mohs) 1.0-1.5; 0.4% max. moisture
Toxicology: ACGIH TWA/TLV 2 mg/m3 (respirable dust); inh. of lg. amts. of dust may cause mucous membranes/respiratory tract irritation; chronic exposure may cause pulmonary fibrosis, shortness of breath, chronic cough, heart failure, pneumoconiosis; tumorigen; TSCA listed
Precaution: Very slippery when wet
Hazardous Ingredients: May contain 0-3% of: dolomite, chlorite, calcite, magnesite
### Altalc 300 USP

**Chem. Descrip.:** Talc USP/FCC  See Talc  
**Chem. Analysis:** SiO₂ (61%), MgO (31%), Al₂O₃ (1%), Fe₂O₃ (1%)  
**CAS** 14807-96-6; EINECS/ELINCS 238-877-9

**Uses:** Filler for pharmaceuticals; detackifier, dusting agent, glidant, lubricant, diluent, filler, compression aid, tablet coating, excipient, opacifier, extender pigment, film enhancer for aerosols, creams and lotions

**Features:** Wh. powd.; 6 µ median particle size; 98% min. through 325 mesh; bulk dens. 15-19 lb/ft³ (loose), 42 lb/ft³ (tapped); TAPPI brightness 91; pH 9 (10% slurry)

**Properties:** High purity; exc. brightness; specially processed for microbial control

**Regulatory:** DOT nonhazardous

**Health:** 1, Flammability 0, Reactivity 0

**Toxicology:** TWA/TLV 2 mg/m³ (respirable dust); inh. of lg. amts. of dust may cause mucous membranes/respiratory tract irritation; chronic exposure may cause pulmonary fibrosis, shortness of breath, chronic cough, heart failure, pneumoconiosis; tumorigen; TSCA listed

**Precaution:** Very slippery when wet

**Hazardous Ingredients:** May contain 0-3% of: dolomite, chlorite, calcite, magnesite

**HMIS:** Health 1, Flammability 0, Reactivity 0

**Storage:** Store in sealed containers

**Trade Name Reference**

- [http://www.mp-solutionsinc.com](http://www.mp-solutionsinc.com)
- [http://www.luzenac.com](http://www.luzenac.com)
- [http://www.luzenac.com](http://www.luzenac.com)

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### Altalc 300V USP

**Chem. Descrip.:** Talc USP/FCC  See Talc  
**Chem. Analysis:** SiO₂ (61%), MgO (31%), Al₂O₃ (1%), Fe₂O₃ (1%), CaO (0.5%)  
**CAS** 14807-96-6; EINECS/ELINCS 238-877-9

**Uses:** Filler in pharmaceuticals (tablets, medicated foot powds., creams/lotions/ointments); lubricant, glidant in tablet coatings; release agent in tablet molds

**Features:** Inert

**Regulatory:** DOT nonhazardous

**Properties:** Wh. to grayish-wh. fine powd.; 8 µ median particle size; 99.5% min. through 325 mesh; sl. earthy odor; sol. in hot, conc. phosphoric acid; insol. in water, cold acids and alkalis; sp.gr. 2.7-2.8; dens. 46 lb/ft³ (tapped), 16 lb/ft³ (loose); surf. area 4.0 m²/g; oil absorp. 33; brightness 88; pH sl. alkaline; hardness (Mohs) 1.0-1.5; 0.4% max. moisture

**Toxicology:** ACGIH TWA/TLV 2 mg/m³ (respirable dust); inh. of lg. amts. of dust may cause mucous membranes/respiratory tract irritation; chronic exposure may cause pulmonary fibrosis, shortness of breath, chronic cough, heart failure, pneumoconiosis; tumorigen; TSCA listed

**Precaution:** Very slippery when wet

**Hazardous Ingredients:** May contain 0-3% of: dolomite, chlorite, calcite, magnesite

**HMIS:** Health 1, Flammability 0, Reactivity 0

**Storage:** Store in sealed containers

**Trade Name Reference**

- [http://www.mp-solutionsinc.com](http://www.mp-solutionsinc.com)
- [http://www.luzenac.com](http://www.luzenac.com)
- [http://www.luzenac.com](http://www.luzenac.com)

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### Altalc 400 USP

**Chem. Descrip.:** Talc USP/FCC  See Talc  
**Chem. Analysis:** SiO₂ (61%), MgO (31%), Al₂O₃ (1%), Fe₂O₃ (1%), CaO (0.5%)  
**CAS** 14807-96-6; EINECS/ELINCS 238-877-9

**Uses:** Filler, diluent, glidant, antitackifier for pharmaceuticals, tablet lubricant, colorant, dusting powd. for pharmaceuticals; lubricant for surgical gloves

**Features:** High purity; exc. brightness; specially processed for microbial control

**Properties:** Wh. powd.; 4 µ median particle size; 99.9% min. through 325 mesh; bulk dens. 12-16 lb/ft³ (loose), 41 lb/ft³ (tapped); TAPPI brightness 92; pH 9 (10% slurry)

**Regulatory:** DOT nonhazardous

**Properties:** Wh. to grayish-wh. fine powd.; 5 µ median particle size; 99.9% through 325 mesh; sl. earthy odor; sol. in hot, conc. phosphoric acid; insol. in water, cold acids and alkalis; sp.gr. 2.7-2.8; dens. 40 lb/ft³ (tapped), 14 lb/ft³ (loose); surf. area 6.5 m²/g; oil absorp. 36; brightness 89; pH sl. alkaline; hardness (Mohs) 1.0-1.5; 0.4% max. moisture

**Toxicology:** ACGIH TWA/TLV 2 mg/m³ (respirable dust); inh. of lg. amts. of dust may cause mucous membranes/respiratory tract irritation; chronic exposure may cause pulmonary fibrosis, shortness of breath, chronic cough, heart failure, pneumoconiosis; tumorigen; TSCA listed

**Precaution:** Very slippery when wet

**Hazardous Ingredients:** May contain 0-3% of: dolomite, chlorite, calcite, magnesite

**HMIS:** Health 1, Flammability 0, Reactivity 0

**Storage:** Store in sealed containers

**Trade Name Reference**

- [http://www.mp-solutionsinc.com](http://www.mp-solutionsinc.com)
- [http://www.luzenac.com](http://www.luzenac.com)
- [http://www.luzenac.com](http://www.luzenac.com)
Trade Name Reference

Hazardous Decomp. Prods.: None
HMIS: Health 1, Flammability 0, Reactivity 0
Storage: Store in sealed containers

Altalc 500 USP [Luzenac Am.](http://www.luzenac.com)
Chem. Descrip.: Talc USP/FCC See Talc
Chem. Analysis: SiO₂ (62%), MgO (32%), Al₂O₃ (0.5%), Fe₂O₃ (0.5%), CaO (0.5%)
CAS 14807-96-6; EINECS/ELINCS 238-877-9
Uses: Diluent, glidant, antitackifier, TiO₂ extender pigment for tableting and aerosol applics.
Features: High purity; ultrafine with very consistent particle size
Properties: Wh. powd.; 4 µ median particle size; 99.9% through 400 mesh; bulk dens. 11-15 lb/ft³ (loose), 38 lb/ft³ (tapped); TAPPI brightness 92; pH 9 (10% slurry)

Altalc 500V USP [Luzenac Am.; MPSI](http://www.mp-solutionsinc.com)
Chem. Descrip.: Talc USP CAS 14807-96-6; EINECS/ELINCS 238-877-9
Uses: Filler in pharmaceuticals (tablets, medicated foot powds., creams/lotions/ointments); lubricant, glidant in tablet coatings; release agent in tablet molds
Features: Inert
Regulatory: DOT nonhazardous
Properties: Wh. to grayish-wh. fine powd.; 4 µ median particle size; 99.9% through 400 mesh; sl. earthy odor; sol. in hot, conc. phosphoric acid; insol. in water, cold acids and alkalis; sp.gr. 2.7-2.8; dens. 36 lb/ft³ (tapped), 13 lb/ft³ (loose); surf. area 8.0 m²/g; oil absorp. 38; brightness 90; pH sl. alkaline; hardness (Mohs) 1.0-1.5; 0.4% max. moisture
Toxicology: ACGIH TWA/TLV 2 mg/m³ (respirable dust); inh. of lg. amts. of dust may cause mucous membranes/respiratory tract irritation; chronic exposure may cause pulmonary fibrosis, shortness of breath, chronic cough, heart failure, pneumoconiosis; tumorigen; TSCA listed
Precaution: Very slippery when wet

Hazardous Ingredients: May contain 0-3% of: dolomite, chlorite, calcite, magnesite
Hazardous Decomp. Prods.: None
HMIS: Health 1, Flammability 0, Reactivity 0
Storage: Store in sealed containers

Alugel 30DF [Baerlocher GmbH](http://www.baerlocher.com; Baerlocher France)
Uses: Gellant in pharmaceuticals
Features: Easy to disperse
Properties: Bulk dens. ≈ 240 g/l; soften. pt. 150-160 C; 9-11% ash; 4-9% free fatty acids

Aluminum Stearate 22 [Chemtura](http://www.chemtura.com)
Uses: Accelerator, anticaking agent, builder, defoamer in pharmaceuticals
Properties: Solid; sol. hot in aromatic and aliphatic solvs. and oils; water-insol.

Amaranth Oil [Nu-World Amaranth](http://www.nuworldamaranth.com)
Chem. Descrip.: Natural amaranth oil high in squalene
CAS 915-67-3; EINECS/ELINCS 213-022-2
Uses: Heat stabilizer in pharmaceuticals; free radical scavenger
Features: Exc. natural source of omega acids, highly unsat.
Properties: Light-colored cl. oily liq., delicate agreeable odor and taste

Amberlite® IRA-67 [Rohm & Haas](http://www.rohmhaas.com; http://www.acusol.com)
Chem. Descrip.: 2-Propenoic acid, 2-methyl-, potassium salt, polymer with diethenylbenzene CAS 50602-21-6
Uses: Taste masking agent; stabilizer and
carrier for pharmaceuticals; sustained release of nicotine

Regulatory: CGMP compliant; SARA §311/312 acute health hazard, §313 nonreportable

Properties: Wh. to -off-wh., odorless powd.; insol. in water; sp. gr. 1.20-1.45

Toxicology: LD50 (acute oral, rat) >5,000 mg/kg; LD50 (acute dermal, rabbit) >5,000 mg/kg; can cause severe eye irritation

Precaution: Avoid dust formation and contact with strong oxidizers; wear safety glasses with side shields and cotton or canvas gloves

Hazardous Decomp. Prods.: Monomer vapors

HMIS: Health 2, Flammability 1, Reactivity 0

Amberlite® IRP-69 [Rohm & Haas
http://www.rohmhaas.com;
http://www.acusol.com]

Chem. Descrip.: Sulfonated divinylbenzene/styrene copolymer

CAS 63182-08-1

Uses: Taste masking agent; stabilizer and carrier for pharmaceuticals; sustained release apps.; therapeutic agent to lower potassium levels in the treatment of hyperkalemia

Regulatory: USP, SARA §3311/312 acute health hazard; SARA §313 unreportable

Properties: Amber powd.; pract. insol. in water; sp. gr. 1.10-1.40; pH 5.0-9.0 (aq. slurry)

Toxicology: LD50 (acute oral, rat) >5,000 mg/kg; LD50 (acute dermal, rabbit) >5,000 mg/kg; can cause severe eye irritation; irritating to skin and respiratory system

Precaution: Avoid dust formation and contact with strong oxidizers; wear safety glasses with side shields and cotton or canvas gloves

Hazardous Decomp. Prods.: Monomer vapors

HMIS: Health 2, Flammability 1, Reactivity 0

Amberol® 4 Liquid [Amerol
http://www.amerolcorp.com]

Chem. Descrip.: BHA, BHT, vegetable oils

Uses: Antioxidant and preservative for vitamins

Properties: Pale yel. liq.; insol. in water; sp. gr. 0.973 (20 C); visc. < 1 mm Hg; m.p. < -54 C; flash pt. (PMCC) 254 C

Toxicology: May cause irritation upon repeated or prolonged exposure to eyes, skin, and respiratory tract

Environmental: Prevent runoff from entering drains

Precaution: Incompat. with strong oxidizing agents

Hazardous Decomp. Prods.: Combustion: CO, CO2, NOx
Trade Name Reference

Precaution: May present explosion/fire hazard as spray mist or aerosol
Hazardous Decomp. Prods.: CO, CO₂
Storage: Store in a cool, well-ventilated area < 100 F away from heat and ignition sources

Amerol® 4B Liquid [Amerol http://www.amerolcorp.com]
Chem. Descrip.: BHA, vegetable oil
Uses: Antioxidant and preservative for vitamins
Properties: Yel. liq.; sol. in fats and oils; insol. in water; sp.gr. 0.951 (20 C); visc. 69; vapor pressure < 1 mm Hg; m.p. -15.5 C; flash pt. (PMCC) 156 C
Toxicology: Mildly toxic if ing. in very large quantities; allergic sensitivities aggravated by exposure
Precaution: May present explosion/fire hazard as spray mist or aerosol; avoid oxidizing agents
Storage: Store in cool, well-ventilated area < 100 F away from high heat and all ignition sources

Amerol® 8 Liquid [Amerol http://www.amerolcorp.com]
Chem. Descrip.: BHT, vegetable oil
Uses: Antioxidant
Properties: Pale amber liq., pract. odorless; exc. sol. in fats and oils; insol. in water; sp.gr. 0.925 (20 C); visc. 49; vapor pressure < 1 mm Hg; m.p. < 57 C; flash pt. 254 C
Toxicology: Causes severe eye irritation; blurred vision may occur upon contact; allergic sensitivities, psoriasis, acne, eczema are aggravated by exposure
Precaution: Incompat. with copper and copper alloys
Hazardous Decomp. Prods.: Combustion: CO, CO₂, NOₓ
Storage: Handle and store away from high heat and all ignition sources; store in a cool, well-ventilated area < 100 F, away from sunlight

Amerol® A Liquid [Amerol http://www.amerolcorp.com]
Chem. Descrip.: BHA, citric acid, propylene glycol
Uses: Antioxidant
Properties: Lt. yel. visc. liq., sl. odor; sol. in fats and oils; appreciable sol. in water; sp.gr. 1.071 (20 C); visc. 144; b.p. 198 C; flash pt. 108 C
Toxicology: May cause eye, skin, respiratory tract irritation; avoid breathing vapor from heated material
Precaution: Incompat. with strong oxidizing agents
Hazardous Decomp. Prods.: CO, CO₂
Storage: Do not store or ship together with odorous and toxic substances; protect from contamination

Amihope LL [Ajinomoto http://www.ajinomoto.co.jp; http://www.ajinomoto.com]
Chem. Descrip.: Lauroyl lysine
CAS 52315-75-0; EINECS/ELINCS 257-843-4
Uses: Surface modifier, coemulsifier, codispersant in medical field
Properties: Wh. fine powd.; insol. in almost all solvs. except strong acidic and alkaline sol'ns.; sol. in water @ pH < 1 and > 12; sp.gr. 1.2; amphoteric; 100% conc.
Toxicology: LD50 (oral, mice) > 5.0 g/kg; nonirritating to skin and eyes; nonsensitizing
Environmental: Biodeg.

Aminodermin CLR [CLR http://www.clr-berlin.de; Actives Int’l.]
Chem. Descrip.: Methionine, cysteine, and tryptophan See L-Cysteine; DL-Methionine; DL-α-Tryptophan
Uses: Conditioner for structurally damaged and oily hair, dandruff shampoos, oily skin care prods.; aq., aq.-alcoholic and emulsified personal care preps. for care of structurally affected and damaged hair; for applic. to greasy hair; also for applic. to oily and blemished skin
Properties: Wh. powd.; specific odor; water sol.; 13-14% S, 10-11% N
Use Level: 0.01-0.2%

Aminogluten MG [Croda Inc http://www.crodamer.com; http://www.crodausa.com; Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: Corn gluten amino acids, sodium chloride, and water
Uses: Humectant for pharmaceuticals
Properties: Lt. amber liq.; m.w. 150; water-sol.; 15% act. in water

Aminoxid WS 35 [Degussa Care Spec.]
Chem. Descrip.: Cocamidopropylamine oxide
CAS 68155-09-9; EINECS/ELINCS 268-938-5
Uses: Detergent, emulsifier, wetting agent, softener, foam stabilizer for pharmaceutical emulsions
Properties: Amber liq.; pH 5-7; nonionic; 35% act.
Trade Name Reference

**Amisoft CS-22** [Ajinomoto
http://www.ajinomoto.co.jp;
http://www.ajinomoto.com; Ajinomoto USA
http://www.ajinomoto-usa.com;
http://www.ajichem.com]
Chem. Descrip.: Sodium cocoyl glutamate
CAS 68187-32-6; EINECS/ELINCS 269-087-2
Uses: Surfactant, detergent, foaming agent, bacteriostat for infants or eczema cases
Features: Derived from glutamic acid and higher fatty acids; stable in hard water; weakly acidic
Properties: Liq.; anionic; 25% conc.
Toxicology: Nonirritating to skin
Environmental: Biodeg.

**AMMONYX® 4** [Stepan
http://www.stepan.com]
Chem. Descrip.: Stearalkonium chloride
CAS 122-19-0; EINECS/ELINCS 204-527-9
Uses: Emulsifier, conditioner, softener, emollient for pharmaceuticals
Properties: Paste; sp.gr. 0.99; flash pt. > 200 F; cationic; 18% act.

**AMMONYX® 4B** [Stepan
http://www.stepan.com]
Chem. Descrip.: Stearalkonium chloride
CAS 122-19-0; EINECS/ELINCS 204-527-9
Uses: Emulsifier, conditioner, softener, emollient for pharmaceuticals
Properties: Paste; sp.gr. 0.99; flash pt. > 200 F; cationic; 18% act.

**AMMONYX® 485** [Stepan
http://www.stepan.com]
Chem. Descrip.: Stearalkonium chloride
CAS 122-19-0; EINECS/ELINCS 204-527-9
Uses: Emulsifier, conditioner, softener, emollient for pharmaceuticals
Properties: Paste; sp.gr. 0.45; flash pt. 122 F; cationic; 85% act.

**AMMONYX® 4002** [Stepan
http://www.stepan.com]
Chem. Descrip.: Stearalkonium chloride
CAS 122-19-0; EINECS/ELINCS 204-527-9
Uses: Emulsifier, conditioner, softener, emollient for pharmaceuticals
Properties: Powd.; sp.gr. 0.52; flash pt. 170 F; cationic; 95% act.

**AMMONYX® CETAC** [Stepan
http://www.stepan.com]
Chem. Descrip.: Cetrimonium chloride
CAS 112-02-7; EINECS/ELINCS 203-928-6
Uses: Emulsifier, conditioner, softener, emollient for pharmaceuticals
Properties: Liq.; sp.gr. 0.93; flash pt. > 200 F; cationic; 26% act.

**AMMONYX® CETAC-30** [Stepan
http://www.stepan.com]
Chem. Descrip.: Cetrimonium chloride
CAS 112-02-7; EINECS/ELINCS 203-928-6
Uses: Emulsifier, conditioner, softener, emollient for pharmaceuticals
Properties: Liq.; sp.gr. 0.93; cationic; 30% act.

**AMMONYX® CO** [Stepan
http://www.stepan.com]
Chem. Descrip.: Palmitamine oxide
CAS 7128-91-8; EINECS/ELINCS 230-429-0
Uses: Conditioner, detergent, foam stabilizer, visc. builder for pharmaceuticals
Properties: Liq.; sp.gr. 0.96; flash pt. > 200 F; amphoteric; 30% act.

**AMMONYX® DMCD-40** [Stepan
http://www.stepan.com]
Chem. Descrip.: Lauramine oxide
CAS 1643-20-5; EINECS/ELINCS 216-700-6
Uses: Wetting agent, foaming agent, foam stabilizer for pharmaceuticals
Properties: Liq.; sp.gr. 0.91; flash pt. 86 F; cationic; 40% act.

**AMMONYX® GA-90** [Stepan
http://www.stepan.com]
Chem. Descrip.: Dipalmitoylethyl hydroxyethylmonium methosulfate
Uses: Conditioner, softener, emollient, emulsifier in pharmaceuticals
Properties: Paste; cationic; 90% solids

**AMMONYX® KP** [Stepan
http://www.stepan.com]
Chem. Descrip.: Olealkonium chloride
CAS 37139-99-4; EINECS/ELINCS 253-363-4
Uses: Conditioner in pharmaceuticals
Properties: Liq.; sp.gr. 0.98; flash pt. > 200 F; cationic; 52% min. solids

**AMMONYX® LO** [Stepan
http://www.stepan.com]
Chem. Descrip.: Lauramine oxide
CAS 1643-20-5; EINECS/ELINCS 216-700-6
Uses: Surfactant in pharmaceuticals
Properties: Liq., sp.gr. 0.96; flash pt. > 200 F; amphoteric; 30% act.

**AMMONYX® MCO** [Stepan
http://www.stepan.com]
Chem. Descrip.: Myristamine oxide
CAS 3332-27-2; EINECS/ELINCS 222-059-3
Uses: Foam booster/stabilizer, conditioner,
Trade Name Reference

visc. builder, and wetting agent for pharmaceuticals
Properties: Liq.; amphoteric; 30% conc.

AMMONYX® MO [Stepan
http://www.stepan.com]
Chem. Descrip.: Myristamine oxide
CAS 3332-27-2; EINECS/ELINCS 222-059-3
Uses: Wetting agent, foam booster/stabilizer, conditioner for pharmaceuticals
Properties: Liq.; sp.gr. 0.96; flash pt. > 200 F; amphoteric; 29-31% amine oxide

AMMONYX® SO [Stepan
http://www.stepan.com]
Chem. Descrip.: Stearamine oxide
CAS 2571-88-2; EINECS/ELINCS 219-919-5
Uses: Surfactant in pharmaceuticals
Properties: Paste; sp.gr. 0.99; flash pt. > 200 F; amphoteric; 25% act.

Amonyl® 265 BA [Seppic
http://www.seppic.com]
Chem. Descrip.: Cocobetaine
CAS 68424-94-2; EINECS/ELINCS 270-329-4
Uses: Surfactant, detergent, foaming agent, visc. modifier, conditioner, o/w emulsifier, substantivity agent for dermatological liq. cleansers
Properties: Liq.; sp.gr. 1.035 (20 C); cloud pt. < 0 C; pH 5-7.5 (5% aq.); amphoteric; 30% conc.

Amonyl® 380 BA [Seppic
http://www.seppic.com]
Chem. Descrip.: Cocamidopropyl betaine
CAS 61789-40-0; EINECS/ELINCS 263-058-8
Uses: Surfactant, detergent, foaming agent, visc. modifier, conditioner, o/w emulsifier, substantivity agent for pharmaceutical creams and lotions
Properties: Liq.; sp.gr. 1.050 (20 C); cloud pt.< 0 C; pH 5.5-7.0 (5% aq.); amphoteric; 30% act.

Amphisol® A [DSM Nutritional Products]
Chem. Descrip.: Hexadecyl hydrogen phosphate See Cetyl phosphate
CAS 3539-43-3; EINECS/ELINCS 222-581-1
Uses: O/w emulsifier in skin preps.
Properties: Wh. to off-wh. powd.; sol. in ethanol, mineral oil; very sl. sol. in water; acid value 300-330; anionic
Toxicology: TSCA listed

Amphisol® K [DSM Nutritional Products]
Chem. Descrip.: Potassium cetyl phosphate
CAS 19035-79-1; EINECS/ELINCS 242-768-1
Uses: Emulsifier, stabilizer for pharmaceutical creams and lotions
Features: Stable over wide pH range
Regulatory: FDA, EU, and Japanese compliances
Properties: Wh. to off-wh. powd.; sol. in water, oil; m.w. 360.40; pH (1% aq. sol'n.) 6.5-8.5; anionic
Use Level: 1-3%
Toxicology: TSCA listed

Ampholak® 7TX [Akzo Nobel Surf. Chem. AB
http://www.surface.akzonobel.com]
Chem. Descrip.: Tallowamphopolycarboxyglycinate See Sodium carboxymethyl tallow polypropylamine
Uses: Anti-irritant for anionics
Features: Med. foaming
Properties: Cl. liq.; misc. with water; dens. 1150 kg/m3; visc. 100 mPa*s max.; pour pt. -15 C; pH 9.0±0.5 (20%); surf. tens. 44 mN/m (0.1%); amphoteric; 39-41% conc.

Ampholak® 7TX/C [Akzo Nobel Surf. Chem. AB
http://www.surface.akzonobel.com]
Chem. Descrip.: Sodium carboxymethyl tallowpolypropylamine See Sodium carboxymethyl tallow polypropylamine
Uses: Anti-irritant for anionics
Properties: Cl. liq.; sol. in water, poorly sol. in org. solvs.; dens. 1150 kg/m3; visc. 100 mPa*s max.; pour pt. -15 C; pH 8.5-9.5; surf. tens. 44 mN/m (0.1%); Ross-Miles foam 160 mm (initial, 0.05%, 50 C); amphoteric; 39-41% solids

Precaution: Avoid contact with calcium and magnesium ions, heavy metals, metal salts, alkali, alkaline earth metals
Trade Name Reference

Environmental: Readily biodeg.

Chem. Descrip.: Disodium cocoamphodiacetate
CAS 68650-39-5; EINECS/ELINCS 272-043-5
Uses: Anti-irritant for anionics
Features: Med. foaming
Properties: Cl. liq.; misc. with water, ethanol, poorly sol. in org. solvs.; dens. 1140 kg/m³; visc. 400 mPa•s max.; pour pt. -18 C; pH 8-9; surf. tens. 34 mN/m (0.1%); Ross-Miles foam 170 mm (initial, 0.05%, 50 C); amphoteric; 38-41% solids

Amphoram® U [Ceca SA http://www.ceca.fr]
Chem. Descrip.: Undecylenamidopropyl betaine
CAS 133798-12-6; EINECS/ELINCS 308-783-3
Uses: Antidandruff base, fungicide for antidandruff shampoos
Features: Offers lathering and washing chars.; well-tolerated by skin; active at low concs.; compat. with anionic and cationic surfactants
Properties: Amphoteric

AMPHOSOL® CA [Stepan http://www.stepan.com]
Chem. Descrip.: Cocamidopropyl betaine
CAS 61789-40-0; EINECS/ELINCS 263-058-8
Uses: Conditioner, detergent, wetting agent, visc. builder, foam booster/stabilizer, base for pharmaceuticals
Features: Mild
Properties: Water-wh. to pale yel. cl. liq.; pH 5.0 (10%); amphoteric; 30% act.

AMPHOSOL® CG [Stepan http://www.stepan.com]
Chem. Descrip.: Cocamidopropyl betaine
CAS 61789-40-0; EINECS/ELINCS 263-058-8
Uses: Foam booster/stabilizer, visc. builder, wetting agent in pharmaceuticals
Properties: Amber cl. liq.; pH 4.5-6.5; amphoteric; 29-31% act.

Chem. Descrip.: 2-Acrylamido-2-methylpropanesulfonic acid sodium salt, 50% aq. sol’n. See Sodium 2-acrylamido-2-methylpropanesulfonate
CAS 5165-97-9
Uses: Polymerization monomer with end-uses in the medical field
Features: Highly reactive; adds anionic char. to polymers; hydrolytic and thermal stability; polyvalent cation tolerance
Properties: Lt. yel. bright, cl. liq.; m.w. 229; sp.gr. 1.2-1.23 (15.6 C); dens. 1.21 kg/l; visc. 6.0 cSt (40 C); pH 8.3 min.; ref. index 1.419-1.424; 47-51% w/w
Toxicology: Min. oral toxicity
Storage: Store in moisture-proof, stainless steel containers

Anatone [Am. Labs http://www.americanlaboratories.com]
Chem. Descrip.: Peptic hydrolysate from pork tissue
Uses: Media for growth of anaerobic bacteria and prod. of toxins; for testing disinfectants
Regulatory: USP compliance for peptone reagent stds.
Properties: Completely sol. in 2% sol’n.; pH 7±0.1

Chem. Descrip.: (E)-1-Methoxy-4-(1-propenyl)benzene stabilized with 0.005% Tenox GT-1 (a food grade antioxidant) See Anethole
CAS 4180-23-8; EINECS/ELINCS 203-205-5
Uses: Flavor, fragrance in pharmaceuticals
Regulatory: FDA 21CFR §182.60; DOT: Chemicals n.o.i.; USP and FCC compliance
Properties: Nearly colorless cl. liq.; solid @ low temps.; char. anise-like odor; sweet taste; 100% sol. in alcohol; m.w. 148.21; sp.gr. 0.983-0.988; dens. 8.22 lb/gal; vapor pressure 0.04 mm Hg; m.p. 70 F; b.p. 232.2 C; flash pt. (TCC) > 93.3 C; ref. index 1.5602-1.5613; 99.5% act.
Toxicology: LD50 (oral, rat) 2090 mg/kg, (skin, rabbit) > 5000 mg/kg; irritating to skin; may cause eye irritation on prolonged contact; TSCA listed
Precaution: Incompat. with strong acids, strong bases, materials that react with unsat. cyclic oxygenated compds.; prolonged/excessive heat and/or exposure to air may cause decomp. or oxidation of the material
Hazardous Decomp. Prods.: Combustion prods.: CO2, CO, acrid fumes
HMIS: Health 1, Flammability 1, Reactivity 1
Storage: Keep container tightly closed when not in use; store @ ≥ 21 C to maintain liq. state;
Trade Name Reference

store away from heat, sparks, open flames; avoid prolonged exposure to air

Anhydrous Emcompress® [JRS Pharma http://www.jrsworth.com]
Chem. Descrip.: Dibasic calcium phosphate anhydrous USP/BP See Calcium phosphate dibasic
CAS 7757-93-9; EINECS/ELINCS 231-826-1
Uses: Binder, filler, diluent, flow aid for direct compression of pharmaceutical tablets and capsules, esp. with moisture-sensitive drugs
Features: Storage-stable; compat. with broad range of drug actives
Properties: Wh. free-flowing powd.; 136 µ avg. particle size; dens. (tapped) 0.7 g/cc
Use Level: 20-50% (tablets, capsules)

Anhydrous Lanolin Grade 1 [Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: Lanolin B.P./Ph.Eur. with 150 ppm BHT (as stabilizer)
CAS 8006-54-0; EINECS/ELINCS 232-348-6
Uses: Emulsifier, emollient, ointment base for pharmaceuticals
Properties: Yel. soft grease, faint char. odor; sol. in oil; partly sol. in ethanol, min. oil, IPM; insol. in water; m.p. 38-44 C; acid no. 1 max.; sapon. no. 90-105; flash pt. > 100 C; nonionic; 100% conc.
Precaution: Incompatible with tetracycline antibiotics and indomethacin

Environmental: Substantially biodeg.
Precaution: Nonflamm., but will burn if strongly heated
Storage: Store in well-closed containers in cool place away from direct sunlight; avoid storage over 80 C, esp. for prolonged periods; 2 yrs. storage life

Anhydrous Lanolin Grade 2 [Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: Lanolin B.P./Ph.Eur. with 150 ppm BHT (as stabilizer)
CAS 8006-54-0; EINECS/ELINCS 232-348-6
Uses: Emulsifier, emollient, ointment base for pharmaceuticals
Properties: Lovibond 14-20Y/1.5-3.0R color; yel. soft grease, faint char. odor; sol. in oil; partly sol. in ethanol, min. oil, IPM; insol. in water; m.p. 38-44 C; acid no. 1 max.; sapon. no. 90-105; flash pt. > 100 C; nonionic
Toxicology: LD50 (oral, rat) > max. pract. dose of 16 g/kg; nontoxic; nonirritating to skin and eyes; nonsensitizing
Environmental: Substantially biodeg.
Precaution: Nonflamm., but will burn if strongly heated
Storage: Store in well-closed containers in cool place away from direct sunlight; avoid storage over 80 C, esp. for prolonged periods; 2 yrs. storage life

Anhydrous Lanolin P.80 [Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: Anhydrous lanolin, pesticide-reduced
CAS 8006-54-0; EINECS/ELINCS 232-348-6
Uses: Emulsifier, emollient, moisturizer for pharmaceuticals
Properties: Yel. soft grease, faint char. odor; sol. in oil; insol. in water; m.p. 38-44 C; HLB 4.5; acid no. 1 max.; sapon. no. 90-105; flash pt. > 100 C; nonionic; 100% conc.
Toxicology: Extremely low toxicity; LD50 (oral, rat) > max. pract. dose of 16 g/kg; nonirritating to skin and eyes
Environmental: Substantially biodeg.
Precaution: Nonflamm., but will burn if strongly heated
Storage: Store in well-closed containers in cool place away from direct sunlight; avoid storage over 80 C, esp. for prolonged periods; 2 yrs. storage life

Anhydrous Lanolin P95 [Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: Anhydrous lanolin, pract.
Anhydrous Lanolin Reference

Trade Name Reference

pesticide-free with 150 ppm BHT (as stabilizer)
CAS 8006-54-0; EINECS/ELINCS 232-348-6
Uses: Emulsifier, emollient, moisturizer for pharmaceuticals, ointments
Properties: Lovibond 8-14Y/0.8-2.0R color; yel. soft grease, faint char. odor; sol. in oil; insol. in water; m.p. 38-44 C; HLB 4.5; acid no. 1 max.; sapon. no. 90-105; flash pt. > 100 C; nonionic; 100% conc.
Toxicology: LD50 (oral, rat) > max. pract. dose of 16 g/kg; nonirritating to skin and eyes
Environmental: Substantially biodeg.
Precaution: Nonflamm., but will burn if strongly heated
Storage: Store in well-closed containers in cool place away from direct sunlight; avoid storage over 80 C, esp. for prolonged periods; 2 yrs. storage life

Anhydrous Lanolin P95 RA [Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: Refined lanolin
CAS 8006-54-0; EINECS/ELINCS 232-348-6
Uses: Emulsifier, emollient for pharmaceuticals
Features: Extremely low content of trace pesticide residues; 1 ppm max. total pesticides permitted; gives low incidence of allergic hypersensitivity
Properties: Soft solid; HLB 4.5; nonionic; 100% conc.

Anhydrous Lanolin Superfine [Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: Lanolin B.P./Ph.Eur. with 150 ppm BHT (as stabilizer)
CAS 8006-54-0; EINECS/ELINCS 232-348-6
Uses: Emulsifier, emollient, ointment base for pharmaceuticals
Properties: Lovibond 5-8Y/0.5-1.0R color; yel. soft solid; HLB 4.5; nonionic; 100% conc.

Animal GMS [Baerlocher France]
Chem. Descrip.: Glycercol stearate
CAS 31566-31-1; EINECS/ELINCS 250-705-4
Uses: Emollient, emulsifier for pharmaceuticals
Regulatory: FDA, EP compliance
Properties: Wh. prills; sol. in alcohol, ether; insol. in water; solid pt. 56-60 C; acid no. 3.0 max.; iodine no. 3.0 max.; 40% min. monoester
Environmental: > 90% biodeg.

Antarox® 17-R-2 [Rhodia HPCII http://www.rhodia-hpcii.com]
Chem. Descrip.: Meroxapol 172
CAS 9003-11-6
Uses: Defoamer, dispersant, wetting agent, emulsifier, demulsifier, binder, stabilizer, gellant, leveling agent, detergent for pharmaceuticals
Properties: Liq.; sol. in aliphatic solvs.; HLB 8.0; pour pt. -25 C; cloud pt. 39 C (1% aq.); nonionic; 100% conc.

Antarox® 25-R-2 [Rhodia HPCII http://www.rhodia-hpcii.com]
Chem. Descrip.: Meroxapol 252
CAS 9003-11-6
Uses: Defoamer, dispersant, wetting agent, emulsifier, demulsifier, binder, stabilizer,
Trade Name Reference

gellant, leveling agent, detergent for pharmaceuticals
Properties: Liq.; HLB 6.0; pour pt. -5 C; cloud pt. 33 C (1% aq.); nonionic; 100% conc.

Antarox® 31-R-1 [Rhodia HPCII
http://www.rhodia-hpcii.com]
Chem. Descrip.: Meroxapol 311
CAS 9003-11-6
Uses: Defoamer, dispersant, wetting agent, emulsifier, demulsifier, binder, stabilizer, gellant, leveling agent, detergent for pharmaceuticals
Properties: Liq.; HLB 6.0; pour pt. -5 C; cloud pt. 33 C (1% aq.); nonionic; 100% conc.

Anti-Dandruff Usnate AO [Cosmetochem
http://www.cosmetochem.ch/index]
Chem. Descrip.: Cocamidopropylamine oxide and lichen extract See Cocamidopropylamine oxide; Lichen (Usnea barbata) extract
Uses: A natural antidandruff additive for shampoos.

Antifoam E 100 conc. [Bayer
http://www.bayerus.com]
Chem. Descrip.: Monoglycerides and diglycerides of fatty acids
Chem. Analysis: Ash 0.5% max.
Uses: Antifoam for pharmaceuticals
Properties: Yellowish liq.; weak odor; not misc. in water; dens. 0.93-0.96; visc. 235 mPa•s min.; vapor pressure 100 mbar max.; b.p. 190 C; setting pt. ≈ 3 C; flash pt. 200 C; ignition pt. ≈ 400 C; pH 5-6 (1% in water); iodine no. 73-83; sapon. no. 154-162; peroxyde no. 6 max.; acid no. 2 max.

Anti-Irritant Complex-1 [Cosmetochem
http://www.cosmetochem.ch/index]
Chem. Descrip.: A blend of plant extracts and panthenol
Uses: Cosmetic specialty offering anti-irritant effect on sensitive skin

Anti-Irritant Liposomes [Engelhard]
Chem. Descrip.: Water, kola (Cola acuminata) extract, bisabolol, phospholipids, and triethanolamine
Uses: Anti-irritant for skin care and sunscreens

Antil® 141 Liq. [Degussa Care Spec.]
Chem. Descrip.: Propylene glycol and PEG-55 propylene glycol oleate
Uses: Thickener for aq. sol’ns. of surfactants, pharmaceuticals; solubilizer for essential oils into aq. surfactant systems
Features: Cold processable; results in Newtonian flow behavior
Regulatory: BfArM registered
Properties: Pale yel. liq.; disp. in water; sol. in ethanol, 1,2-propylene glycol; insol. in veg. and min. oils; acid no. 5 max.; sapon. no. 10-22; nonionic; 40% act.
Use Level: > 0.5%

Antil® HS 60 [Degussa Care Spec.]
Chem. Descrip.: Cocamidopropyl betaine and glyceryl laurate
Uses: Anti-irritant for surfactants
Features: Cold processable; temp.-independent thickening; thixotropic flow behavior; low tendency towards stringiness; PEG-free
Properties: Turbid visc. liq.; characteristic odor; dispersible in water; density 1.07 g/cm3; m.p. ≈0 C; b.p. ≈100 C; flash pt. >100 C (DIN 51758); pH ≈5; amphoteric/nonionic
Toxicology: Nonirritant to skin; strong eye irritant; LD50 (oral) >8,000 mg/kg
Environmental: Biologically degrad.; considered to be a weak water pollutant (German law); do not allow to enter soil, waterways or waste water canal.
Storage: Tends to crystallize partially below 15 C; in that case heat to 35 C and homogenize

Apifil® [Gattefosse
Chem. Descrip.: PEG-8 beeswax
Uses: Structural base for pharmaceutical o/w emulsions, creams; excipient for dermal/transdermal pharmaceuticals; protects the drug, improves stability of the dosage form
Features: Self-emulsifying; allows very high level of oily phase (up to 60%) in o/w emulsions
Regulatory: DMF no. 5171
Properties: Gardner < 8 waxy solid pellets; faint char. odor of beeswax; sol. @ 60 C in chloroform, methylene chloride; sl. sol. in veg. oils; insol. in water, ethanol; m.p. 59-70 C; HLB 9-10; acid no. < 5; iodine no. < 10; sapon. no. 70-90; nonionic; 100% conc.
Use Level: 3-4% (o/w emulsions); 5-15% (creams)
Toxicology: LD0 (oral, rat) > 8.5 g/kg; sl. skin irritant, very sl. eye irritant

Aquabase NF [Croda Chem. Europe Ltd
http://www.croda.co.uk]
Chem. Descrip.: Cetearyl alcohol and
polysorbate 60

Uses: Emulsifier for pharmaceuticals

Features: Self-bodying emulsifying wax

Regulatory: Conforms to emulsifying wax NF

Properties: Creamy wh. waxy flakes; faint char. odor; sol. in acetone, ethanol, IPA; partly sol. in min. oil, IPM; disp. in water; m.p. 50-54 C; iodine no. 3.5 max.; sapon. no. 14 max.; hyd. no. 178-192; flash pt. > 100 C; pH 5.5-7.0 (aq. sol'n.)

Toxicology: LD50 (oral, rat) > max. pract. dose of 16 g/kg; safe to skin and eyes

Environmental: Substantially biodeg.

Precaution: Nonflamm. but will burn if strongly heated

Storage: 2 yrs. storage life under good conditions

Aquacoat® CPD [FMC Biopolymer http://www.fmcbiopolymer.com]


CAS 9004-38-0

Uses: Enteric coating for pharmaceutical tablets, capsules, wet granulation, and in nutritional prods.

Features: Allows acid-sensitive drugs to pass thru the stomach unaffected or to keep stomach-upsetting drugs from releasing in the stomach; low visc.; nontacky

Regulatory: GRAS; kosher

Properties: Odorless; tasteless; visc. < 50 cp; pH 2-3; 19-27% CAP; 29-32% total solids

Storage: 18 mos. shelf life when stored refrigerated @ 5 C; 9 mos. shelf life when stored @ ambient temps.

Aquacoat® ECD [FMC Biopolymer http://www.fmcbiopolymer.com]

Chem. Descrip.: Ethyl cellulose (24.5-29.5), sodium lauryl sulfate (0.9-1.7%), cetyl alcohol (1.7-3.3%) aq. disp. USP/NF See Ethylcellulose

Uses: Coating for pharmaceutical capsules, tablets, granules, and powds. for sustained release, taste masking, and as moisture barrier/sealant, and in wet granulation

Features: Hydrophobic; low visc.; nontacky; stable and reproducible release rates

Regulatory: GRAS; kosher

Properties: Odorless; tasteless; visc. < 150 cps; pH 4-7; 24.5-29.5% ethyl cellulose; 29-32% total solids

Storage: 2 yr. shelf life when stored @ R.T.

Aquacoat® 7H3SF [Hercules/Aqualon http://www.aqualon.com]

Chem. Descrip.: Cellulose gum See Carboxymethylcellulose sodium

CAS 9004-32-4; EINECS/ELINCS 265-995-8

Uses: Rheology control agent, clarifier in skin care (topical gels, ointments)

Regulatory: FDA 21CFR §182.1745, GRAS

Properties: Water-sol.; bulk dens. 0.65-0.95 g/ml; visc. 1000-2800 cps; pH 6.5-8.5 (1%)

Toxicology: LD50 (oral, rat) 27 g/kg; sl. eye irritant; nonirritating to skin

Aqualon® 7H3SXF [Hercules/Aqualon http://www.aqualon.com]

Chem. Descrip.: Cellulose gum See Carboxymethylcellulose sodium

CAS 9004-32-4; EINECS/ELINCS 265-995-8

Uses: Binder, wet tackifier in denture adhesives

Regulatory: FDA 21CFR §182.1745, GRAS

Properties: Water-sol.

Toxicology: LD50 (oral, rat) 27 g/kg; sl. eye irritant; nonirritating to skin

Aqualon® 7L2P [Hercules/Aqualon http://www.aqualon.com]

Chem. Descrip.: Cellulose gum USP/NF, EP See Carboxymethylcellulose sodium

CAS 9004-32-4; EINECS/ELINCS 265-995-8

Uses: Excipient for pharmaceuticals

Properties: Water-sol.; bulk dens. 0.65-0.95 g/ml; visc. 50-200 cps; pH 6.5-8.5 (1%); 99.5% min. purity

Aqualon® 12M8P [Hercules/Aqualon http://www.aqualon.com]

Chem. Descrip.: Cellulose gum USP/NF, EP See Carboxymethylcellulose sodium

CAS 9004-32-4; EINECS/ELINCS 265-995-8

Uses: Excipient for pharmaceuticals

Properties: Water-sol.; bulk dens. 0.65-0.95 g/ml; visc. 400-800 cps; pH 6.5-8.5 (1%); 99.5% min. purity

Aqualon® 12M31P [Hercules/Aqualon http://www.aqualon.com]

Chem. Descrip.: Cellulose gum USP/NF, EP See Carboxymethylcellulose sodium

CAS 9004-32-4; EINECS/ELINCS 265-995-8

Uses: Excipient for pharmaceuticals

Properties: Water-sol.; bulk dens. 0.65-0.95 g/ml; visc. 800-3100 cps; pH 6.5-8.5 (1%); 99.5% min. purity

Aqualon® Cellulose Gum [Hercules/Aqualon http://www.aqualon.com]

Chem. Descrip.: Sodium
### Carboxymethylcellulose

**Trade Name Reference**

- **carboxymethylcellulose**, standard, food, and pharmaceutical grades  
- **See Carboxymethylcellulose sodium**

**CAS** 9004-32-4; **EINECS/ELINCS** 265-995-8

**Uses:** Suspending agent, tableting binder, visc. builder, excipient for pharmaceuticals; therapeutic uses in bulk-forming laxatives; adhesive and cohesives agent in ostomy adhesive prods.; suspending agent for abrasives, polishing agents, and prevents syneresis in toothpaste

**Regulatory:** FDA 21CFR §182.1745, GRAS; DOT nonregulated; SARA §302/304/311/312/313 nonreportable

**Properties:** Wh. to off-wh. gran. powd.; odorless; water-sol.; sp.gr. 1.59; 8% max. moisture

**Toxicology:** LD50 (oral, rat) 27 g/kg; sl. eye irritant; may cause skin irritation by mech. abrasion; inh. of dust may cause respiratory tract irritation; repeated ing., skin contact may cause allergic reaction in susceptible individuals; TSCA listed

**Environmental:** LC50 (rainbow trout or bluegill sunfish, 96 h) 100-1000 mg/l, pract. nontoxic

**Precaution:** Flamm. dust; may cause flamm. dust-air mixts.; static charges may cause flash fire; avoid conditions that generate dust; spills may be slippery; keep away from heat, flame, sparks

**Hazardous Decomp. Prods.:** CO, CO₂, smoke

**HMIS:** Health 1, Flammability 1, Reactivity 0

**Storage:** Store in cool, dry, well-ventilated area; keep container closed when not in use; do not store indirect sunlight, or expose to UV radiation

**Aqualon® N-10** [Hercules/Aqualon http://www.aqualon.com]

**Chem. Descrip.:** Ethylcellulose NF, FCC

**CAS** 9004-57-3

**Uses:** Tablet binder and coating in pharmaceuticals; color stabilizer for easily oxidizable substances; masks bitter taste of drugs; compression aid for tablets; prep. of sustained-release coatings or film coatings in combination with water-sol. polymers; diluent in colorants and inks for marking pharmaceuticals; binder and filler in dry vitamin preps.; flavor fixing agent

**Features:** Tablet coatings prevent reaction with other materials

**Regulatory:** FDA 21CFR §73.1(b), 73.1001, 172.868, 573.420

**Properties:** Sol. in various org. solvs. incl. alcohols, hydrocarbons, chlorinated hydrocarbons, esters, ketones; visc. 5.6-8 cps (5% in 80 parts toluene, 20 parts ethanol); 3% max. moisture

**Aqualon® N-14** [Hercules/Aqualon http://www.aqualon.com]

**Chem. Descrip.:** Ethylcellulose NF, FCC

**CAS** 9004-57-3

**Uses:** Tablet binder and coating in pharmaceuticals; color stabilizer for easily oxidizable substances; masks bitter taste of drugs; compression aid for tablets; prep. of sustained-release coatings or film coatings in combination with water-sol. polymers; diluent in colorants and inks for marking pharmaceuticals; binder and filler in dry vitamin preps.; flavor fixing agent

**Features:** Tablet coatings prevent reaction with other materials

**Regulatory:** FDA 21CFR §73.1(b), 73.1001, 172.868, 573.420

**Properties:** Sol. in various org. solvs. incl. alcohols, hydrocarbons, chlorinated hydrocarbons, esters, ketones; visc. 8-11 cps (5% in 80 parts toluene, 20 parts ethanol); 3% max. moisture

**Aqualon® N-22** [Hercules/Aqualon http://www.aqualon.com]

**Chem. Descrip.:** Ethylcellulose NF, FCC

**CAS** 9004-57-3

**Uses:** Tablet binder and coating in pharmaceuticals; color stabilizer for easily oxidizable substances; masks bitter taste of drugs; compression aid for tablets; prep. of sustained-release coatings or film coatings in combination with water-sol. polymers; diluent in colorants and inks for marking pharmaceuticals; binder and filler in dry vitamin preps.; flavor fixing agent

**Features:** Tablet coatings prevent reaction with other materials

**Regulatory:** FDA 21CFR §73.1(b), 73.1001, 172.868, 573.420

**Properties:** Sol. in various org. solvs. incl. alcohols, hydrocarbons, chlorinated hydrocarbons, esters, ketones; visc. 12-16 cps (5% in 80 parts toluene, 20 parts ethanol); 3% max. moisture
Aqualon® N-50 [Hercules/Aqualon http://www.aqualon.com]
Chem. Descr.: Ethylcellulose NF, FCC
CAS 9004-57-3
Uses: Tablet binder and coating in pharmaceuticals; color stabilizer for easily oxidizable substances; masks bitter taste of drugs; compression aid for tablets; prep. of sustained-release coatings or film coatings in combination with water-sol. polymers; diluent in colorants and inks for marking pharmaceuticals; binder and filler in dry vitamin preps.; flavor fixing agent
Features: Tablet coatings prevent reaction with other materials
Regulatory: FDA 21CFR §73.1(b), 73.1001, 172.868, 573.420
Properties: Sol. in various org. solvs. incl. alcohols, hydrocarbons, chlorinated hydrocarbons, esters, ketones; visc. 18-24 cps (5% in 80 parts toluene, 20 parts ethanol); 3% max. moisture
Aqualon® N-100 [Hercules/Aqualon http://www.aqualon.com]
Chem. Descr.: Ethylcellulose NF, FCC
CAS 9004-57-3
Uses: Tablet binder and coating in pharmaceuticals; color stabilizer for easily oxidizable substances; masks bitter taste of drugs; compression aid for tablets; prep. of sustained-release coatings or film coatings in combination with water-sol. polymers; diluent in colorants and inks for marking pharmaceuticals; binder and filler in dry vitamin preps.; flavor fixing agent
Features: Tablet coatings prevent reaction with other materials
Regulatory: FDA 21CFR §73.1(b), 73.1001, 172.868, 573.420
Properties: Sol. in various org. solvs. incl. alcohols, hydrocarbons, chlorinated hydrocarbons, esters, ketones; visc. 40-52 cps (5% in 80 parts toluene, 20 parts ethanol); 3% max. moisture
Aqualose L75 [Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descr.: PEG-75 lanolin USP
CAS 61790-81-6
Uses: Emollient, moisturizer, emulsifier, solubilizer in pharmaceuticals
Features: Mild
Properties: Pale yel. wax; faint char. odor; sol. in water, anhyd. ethanol; sl. sol. in min. oil, IPM; m.p. 48 C; HLB 16.0; acid no. 5 max.; sapon. no. 20 max.; cloud pt. 75-90 C; flash pt. > 100 C; pH 3.5-7.0 (5% aq.); nonionic; 100% conc.
Toxicology: Nonhazardous
Environmental: Substantially biodeg.
Precaution: Nonflamm. but will burn if strongly heated
Storage: 2 yrs. storage life under good conditions
Aqualose L75/50 [Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descr.: PEG-75 lanolin USP
CAS 61790-81-6
Uses: Emollient, emulsifier in pharmaceuticals
Properties: Cl. to sl. cloudy visc. liq. to soft gel; sol. in water, ethanol; sl. sol. in min. oil, IPM; nonflamm.; nonionic; 50% aq.
Toxicology: Nontoxic
Environmental: Substantially biodeg.; nonhazardous
Aquasorb® A380 [Hercules/Aqualon http://www.aqualon.com]
Chem. Descr.: Sodium carboxymethylcellulose-based See Carboxymethylcellulose sodium
Uses: Superabsorbent for urine, blood, and other body fluids in wound dressings
Features: High purity; does not contain a crosslinking agent
Properties: Wh. to lt. tan free-flowing powd. or gran.; odorless; partly sol. in water; pH 6.5-8.0; 99.5% min. purity
Toxicology: TLV 3 mg/m3 respirable dust; inert nuisance dust; not a primary irritant or
Trade Name Reference

sensitizer; not metabolized in body; no adverse effects from ing.

Environmental: Slowly biodeg.; TL50 (rainbow trout, 96 h) > 100 ppm; low order of toxicity in fish

Precaution: Explosion hazard as powd. in air, in presence of elec. sparks and static discharges; spillages may be slippery

Hazardous Decomp. Prods.: (combustion): CO, CO2, steam, smoke

Storage: Store in clean, dry, well-ventilated area under cover, away from heat, sparks, flames; avoid air and moisture; ground all equip.


Chem. Descrip.: Xanthan gum, PEG-180, and gluconolactone

Uses: Gelant for aq. sol'ns. for health care

Features: Rec. at mildly acidic pH (down to 2.0); produces stable gels at levels of 2-3%; physiologically inert


Chem. Descrip.: Aq. dispersion of methacrylic acid copolymer

Chem. Analysis: 10% max. moisture content

Uses: Enteric coating for resistance to gastric fluid; film coating of tablets and pills; masking agent for taste and odor of pharmaceutical tablets and pills

Features: Reduces risk of interactions between incompatible ingredients; insulates hygroscopic cores; hydrophobic

Regulatory: USP/NF

Properties: Wh. milky liq.; weakly aromatic odor; insol. in pure water, in buffer solutions < pH 5.5 and natural gastric juices; sol. in neutral to weakly alkaline region of the digestive tract, in intestinal fluids, and buffer solutions > pH 5.5; acid no. 300-330; anionic; 95% min. dry polymer

Toxicology: Nontoxic

Storage: 2 yr shelf life; store in tightly closed container away from moisture; keep away from frost

Arboce® A 300 [JRS Pharma http://www.jrspharma.com]

Chem. Descrip.: Cellulose

CAS 9004-34-6; EINECS/ELINCS 232-674-9

Uses: Filler, diluent, binder, disintegrant for pharmaceuticals, direct compression, capsules; improves tablet hardness

Features: Works synergistically with other economic excipients; inert

Properties: Powd.; 200 µm avg. particle size; bulk dens. 0.30 g/cm³

Arboce® M 80 [JRS Pharma http://www.jrspharma.com]

Chem. Descrip.: Powdered cellulose

CAS 9004-34-6; EINECS/ELINCS 232-674-9

Uses: Binder for pharmaceuticals, wet and dry granulation

Features: Fine, fibrous grade

Properties: Powd.; 60 µm avg. particle size; bulk dens. 0.22 g/cm³

Arboce® P 290 [JRS Pharma http://www.jrspharma.com]

Chem. Descrip.: Cellulose

Chem. Analysis: 6% max. loss on drying

CAS 9004-34-6; EINECS/ELINCS 232-674-9

Uses: Binder for pharmaceuticals, wet and dry granulation, esp. for actives with low bulk dens.

Features: Fine grade with increased density and improved flow; works well in combination with MCC

Properties: Powd.; 70 µm avg. particle size; bulk dens. ≈0.300 g/l; pH 5-7

Storage: Store at ambient conditions; keep containers closed
Arcopure® MTBE [Lyondell http://www.lyondell.com]
Chem. Descrip.: Methyl t-butyl ether
CAS 1634-04-4; EINECS/ELINCS 216-653-1
Uses: Extraction solv., reaction medium in pharmaceuticals
Features: Highly resist. to peroxide formation
Regulatory: SARA §313
Properties: Cl. liq., terpene-like odor; sl. sol. in water; misc. with most org. solvs.; m.w. 88.15; sp.gr. 0.744; dens. 6.2 lb/gal (20 C); visc. 0.350 cps (20 C); vapor pressure 204 mm Hg (20 C); f.p. -108 C; b.p. 55 C (760 mm Hg); flash pt. -30 C; ref. index 1.366; surf. tension 19.2 dynes/cm; > 99.9% purity
HMIS: Health 1, Flammability 3, Reactivity 0

Arbobase 125T [Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: Lanolin alcohol, mineral oil, and octyldodecanol with 150 ppm BHT (antioxidant)
Uses: Liq. absorption base, enhancing appearance and elegance of pharmaceuticals; stabilizer for w/o or o/w emulsions
Properties: Almost colorless to pale yel. cl. oily liq., faint char. odor; sol. in min. oil, IPA, IPM; partly sol. in ethanol; insol. in water; sp.gr. 0.84-0.87; HLB 8.0; acid no. 0.5 max.; iodine no. 12 max.; sapon. no. 3 max.; hyd. no. 11-18; flash pt. > 100 C; ref. index 1.46-1.476
Toxicology: Extremely low toxicity; LD50 (oral, rat) > max. pract. dose of 16 g/kg; nonirritating to eyes and skin
Environmental: Nonhazardous
Precaution: Nonflamm., but will burn if strongly heated
Storage: 2 yrs. shelf life when stored in well-closed containers in cool, dry place; avoid overheating

Argobase EU [Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: Lanolin alcohol, mineral oil, petrolatum, and paraffin
Uses: Emollient, emulsifier, stabilizer, absorp. base for pharmaceutical ointments or w/o emulsified creams
Features: Active therapeutic ingreds. may be dissolved in either the oil or water phase or physically dispersed as a suspension in the emulsion
Regulatory: Meets BP specs. for wool alcohols ointment
Properties: Pale yel. soft solid, pract. odorless; mostly sol. in min. oil, IPM; partly sol. in acetone, anhyd. ethanol; sl. sol. in anhyd. IPA; insol. in water; m.p. 39-45 C; HLB 4.0; acid no. 2 max.; flash pt. > 100 C; nonionic; 6% conc.
Toxicology: Nonhazardous; BP GRAS for topical appl.
Environmental: Nonhazardous
Precaution: Nonflamm., but will burn if strongly heated
Storage: 2 yrs. shelf life when stored in closed containers in cool place; avoid prolonged heating above 80 C

Argobase EUC 2 [Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: Lanolin alcohol, cetearyl alcohol, ozokerite, mineral oil, and petrolatum
Uses: W/o emulsifier, absorp. base for pharmaceutical ointments, w/o creams; at low levels as HLB adjuster and stabilizer for o/w emulsions; emollient
Regulatory: Improved version of wool alcohols ointment for the German Pharmacopoeia
Properties: Creamy to pale yel. unctuous mass, almost odorless; mostly sol. in min. oil, IPM; partly sol. in acetone; sl. sol. in anhyd. ethanol and IPA; insol. in water; m.p. 35 C; acid no. 2 max.; sapon. no. 2 max.; flash pt. > 100 C; mostly sol. in min. oil, IPM; partly sol. in acetone, anhyd. ethanol; sl. sol. in anhyd. IPA; insol. in water; m.p. 42-55 C; HLB 9; acid no. 0.5 max.; sapon. no. 1.5 max.; flash pt. > 100 C
Toxicology: Low toxicity
Environmental: Nonhazardous
Precaution: Nonflamm., but will burn if strongly heated
Storage: 2 yrs. shelf life stored in well-closed containers in cool, dry place; avoid overheating
Arlacel® 20 [Uniqema
http://www.uniqema.com; Uniqema Am.
http://www.uniqema.com]
Chem. Descrip.: Sorbitan laurate
CAS 1338-39-2; EINECS/ELINCS 215-663-3
Uses: Emulsifier for pharmaceuticals
Regulatory: SARA §311/312, 313 nonreportable
Properties: Yel. amber liq.; sol. in methanol, ethanol, min., cottonseed and corn oils, ethylene glycol; sp.gr. 1.0; visc. 4250 cps; HLB 8.6; flash pt. > 300 F; nonionic; 90-100% act.
Toxicology: Nonirritant to eyes; relatively harmless by ing.
Precaution: Wear safety glasses with side shields and impervious gloves
Hazardous Decomp. Prods.: COx
HMIS: Health 0, Flammability 1, Reactivity 0
Storage: Store @ 50-90 F in original closed containers

Arlacel® 40 [Uniqema
http://www.uniqema.com; Uniqema Am.
http://www.uniqema.com]
Chem. Descrip.: Sorbitan palmitate
CAS 26266-57-9; EINECS/ELINCS 247-568-8
Uses: Emulsifier for pharmaceuticals
Properties: Cream to tan waxy beads; sol. in IPA; sp.gr. 1; vapor pressure (mmHg) <1; HLB 6.7; pour pt. 48 C; flash pt. > 300 F; nonionic; 100% act.
Toxicology: Nonirritant to eyes and skin; relatively harmless by ing.
Precaution: Wear safety glasses with side shields; impervious gloves and apron
Hazardous Decomp. Prods.: CO2

Arlacel® 80 [Uniqema
http://www.uniqema.com; Uniqema Am.
http://www.uniqema.com]
Chem. Descrip.: Sorbitan oleate
CAS 1338-43-8; EINECS/ELINCS 215-665-4
Uses: Emulsifier for pharmaceuticals
Regulatory: SARA §313 nonreportable
Properties: Yel. amber oily liq.; insol. in water; sol. in IPA, min. and cottonseed oils; sp.gr. 1; visc. 1900 cps; vapor pressure < 1.0000; b.p. > 100 C; HLB 4.3; pour pt. (CC) > 300 F; pH neutral; nonionic; 97-100% act.
Toxicology: Nonirritant to eyes, by ing., inh. and skin contact
Environmental: LC50 (96 h, static, rainbow trout) > 1000 g/ml
Precaution: Avoid strong oxidizing agents
Hazardous Decomp. Prods.: COx

Arlacel® 83V Pharma [Uniqema
http://www.uniqema.com]
Chem. Descrip.: Sorbitan sesquioleate
CAS 8007-43-0; EINECS/ELINCS 232-360-1
Uses: Emulsifier for pharmaceuticals
Features: Pharmaceutical grade of Arlacel® C
Properties: Yel. cl. oily liq.; insol. in water; sol. in

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Handbook of Pharmaceutical Additives, Third Edition
Trade Name Reference

min. and cottonseed oils, ethanol, IPA; sp.gr. 1; visc 1500 cps; mp.p. ≈ -19 C; HLB 3.7; flash pt. (OC)>148.9 C; nonionic; 100% act.

 Toxicology: Eye irritant; nonirritant to skin; irritant to respiratory and GI tract; nonmutagenic

Environmental: BOD (28 d) 66%; COD 2.39 gO₂/g; LC50 (96 h, static, rainbow trout ) > 100 mg/l

Precaution: Avoid strong oxidizing agents

Storage: Store in original containers


Chem. Descrip.: Glycerol monostearate and PEG-100 stearate. See Glycerol stearate

CAS 31566-31-1; 9004-99-3

Uses: Surfactant, o/w emulsifier for pharmaceuticals

Features: Acid-stable; self-emulsifying

Regulatory: TDG, DOT not regulated; Canada, Australia, Japan, China, Korea, Philippines compliant; SARA §311/312, 313 nonreportable

Properties: Wh. to cream solid gran.; bland odor; disp. in dist. water; insol. in alcohol, cottonseed oil, min. oil, propylene glycol; sp. gr. ≈ 1.1; pour pt. 54 C; HLB 11.0; flash pt. (CC) > 93 C; nonionic

 Toxicology: Nonirritant by ing., inh., or skin contact; nonmutagenic

Precaution: Avoid eye contact; avoid strong oxidizing agents

Hazardous Decomp. Prods.: CO₂

HMIS: Health 1, Flammability 1, Reactivity 0

Storage: Store in original containers


Chem. Descrip.: Glyceryl oleate, propylene glycol. See Glyceryl oleate; Propylene glycol

CAS 67701-32-0; 57-55-6

Uses: Defoamer for oral pharmaceutical products.

Regulatory: SARA §302/313 nonreportable

Properties: Pale yel. cl. liq.; sol. in ethanol, IPA, cottonseed and min. oils; sp.gr. 1; visc. 150 cps; HLB 2.8; flash pt. (COC) > 300 F; nonionic; 100% act.

 Toxicology: Nonirritant by ing., inh., or skin contact

Precaution: Wear safety glasses with side shields and impervious gloves

HMIS: Health 0, Flammability 1, Reactivity 0

Storage: Store in original containers @ 50-90 F
Hazardous Decomp. Prods.: CO₂
HMIS: Health 1, Flammability 1, Reactivity 0
Storage: Store in original containers

Arlatone® 983S Pharma [Uniqema
http://www.uniqema.com]
Chem. Descrip.: Glyceryl stearate, PEG-30 stearate
CAS 123-94-4; 9004-99-3 (generic);
EINECS/ELINCS 204-664-4; $
Uses: O/w emulsifier for pharmaceutical o/w creams and lotions
Regulatory: EP; SARA §311/312 nonreportable
Properties: Off-wh. to ivory powd.; insol. in water; HLB 8.7; nonionic; 100% conc.
Toxicology: Nonirritating to eyes, skin, or respiratory tract; noncarcinogenic
Hazardous Decomp. Prods.: CO₂
HMIS: Health 0, Flammability 1, Reactivity 0

Arlatone® G Pharma [Uniqema
http://www.uniqema.com; Uniqema Am.
http://www.uniqema.com]
Chem. Descrip.: PEG-25 hydrogenated castor oil
CAS 61788-85-0 (generic)
Uses: Surfactant, solubilizer, coupling agent, emollient for pharmaceutical topicals
Regulatory: EP
Properties: Yel. visc., odorless liq.; sol. in water forming haze; sol. in ethanol, isopropanol; insol. in mineral oil and petroleum solvents; sp. gr. ≈ 1; dynamic visc. 1400 mPa.s; b.p. > 100 C; HLB 11.0; pour pt. ≈ 7 C; nonionic
Toxicology: LD50 (oral, rat) > 39.8 g/kg; LD50 (dermal, rabbit) > 9.4 ml/kg; ing. may cause irritation of the GI tract
Environmental: 99% biodeg.; LC50 (96 h, static, rainbow trout) 227 mg/l
Precaution: Avoid strong oxidizing agents
Hazardous Decomp. Prods.: CO₂
HMIS: Health 0, Flammability 1, Reactivity 0
Storage: Store in original containers

Arlex™ 83 [SPI Polyols
http://www.spipolyols.com]
Chem. Descrip.: Sorbitol
CAS 50-70-4; EINECS/ELINCS 200-061-5
Uses: Humectant, nutritive sweetener, oleaginous vehicle, tablet diluent in pharmaceuticals
Features: Noncrystallizing

Armotan® MO [Akzo Nobel bv
http://www2.akzonobel.nl/nl/home/]
Chem. Descrip.: Sorbitan oleate
CAS 1338-43-8; EINECS/ELINCS 215-665-4
Uses: W/o emulsifier for pharmaceuticals
Properties: Gardner 8 liq.; sp.gr. 1.01; visc. 9.5-
Arnica Oil CLR [CLR http://www.clr-berlin.de; Actives Int'l.]
Chem. Descrip.: Arnica montana extract, soybean (Glycine soja) oil, tocopherol
Uses: Emollient, conditioner; emulsified and oily skin and hair care preps. for preventive care for skin; herbal creams, oils, and lotions; also promotes circulation in skin and scalp poorly supplied with blood
Properties: Yel. oil; herbal odor; sol. in oils and fats; dens. 0.918-0.922 g/ml (20 C); acid no. < 3; iodine no. 125-140; ref. index 1.473-1.476
Use Level: 3-10%

Chem. Descrip.: Dodecyltrimethyl ammonium chloride, IPA See Isopropyl alcohol; Laurtrimonium chloride
Uses: Hemolytic agent in pharmaceuticals
Regulatory: FDA 40CFR §180.1001(d)
Properties: Gardner 4 max. cl. liq.; sp.gr. 0.892; visc. 819 SSU (38 C); vapor pressure 44 mm Hg; m.p. -10 C; i.b.p. 80 C; HLB 23; equiv. wt. 263; flash pt. 19 C; pH 6-9; surf. tens. 33 dynes/cm (0.1%); 49-52% act.; 8-12% moisture

Chem. Descrip.: Cetrimonium chloride, IPA See Isopropyl alcohol
Uses: Solubilizer, thickener, wetting agent in pharmaceuticals
Properties: Gardener 3 max. liq.; sol. in water, IPA, propylene glycol, chloroform, CCl₄; insol. in min. oil, IPM; m.w. (act.) 319; sp.gr. 0.88; f.p. 61 F; HLB 15.8; flash pt. (PMCC) 17 C; pH 5-8 (10% aq.); surf. tens. 34 dynes/cm (0.1%); cationic; 49-52% quat. in aq. IPA
Environmental: Biodeg.
Precaution: Flamm.

Chem. Descrip.: Tallowtrimonium chloride, aq. IPA See Isopropyl alcohol
Uses: Mfg. of antibiotics
Properties: Gardner 4 max. liq.; sol. in IPA, propylene glycol, chloroform, CCl₄; disp. in water; insol. in min. oil, IPM; m.w. 340; sp.gr. 0.881; HLB 14.2; pour pt. 15-48 F; flash pt. (PMCC) 16 C; pH 5-8 (10% aq.); cationic; 50% act. in aq. IPA
Environmental: Biodeg.
Precaution: Flamm.

Ascorbic Acid USP, FCC [DSM Nutritional Prods. USA http://www.nutraaccess.com]
Chem. Descrip.: Ascorbic acid USP, FCC, EP See L-Ascorbic acid
CAS 50-81-7; EINECS/ELINCS 200-066-2
Uses: Vitamin source, antioxidant in pharmaceuticals (direct compression tablets, multivitamin tablets, dry preps.)
Regulatory: FDA GRAS
Properties: Wh. or sl. yel. cryst. powd., Pract. odorless, pleasantly tart taste; sol. 1 g/3 ml water, 30 ml alcohol; m.w. 176.13; bulk dens. 0.8-1.1 (tapped); m.p. 190 C; pH 1.9-2.4 (10% aq.); 99-100.5% assay
Precaution: May deteriorate on exposure to atmospheric moisture, oxidizes readily in aq. sol'n.; avoid contact with iron, copper, or nickel salts
Storage: Store in tight, light-resist. containers, optimally @ ≤ 72 F; avoid exposure to moisture and excessive heat

Aspergillus Galactosidase J-P [Amano Enzyme http://www.amano-enzyme.co.jp]
Chem. Descrip.: Enzyme from Aspergillus oryzae See β-Galactosidase
CAS 9031-11-2; EINECS/ELINCS 232-864-1
Uses: Enzyme for digestive preps., pharmaceuticals
Regulatory: JP
Properties: Off-wh. to brown powd.; sl. odor; sol. in water
Toxicology: Inh. of aerosols or dust may induce sensitization and may cause allergic reactions in sensitized individuals; nontoxic
Environmental: Biodegrad.; not harmful to aquatic and marine organisms when dissolved with copious amounts of water
Precaution: Wear respirator, protective glasses, and impervious gloves; avoid dust formation
Hazardous Decomp. Prods.: None
Storage: Store container in a cool and dry place

Astor™ OK 210W [Honeywell Spec. Wax &
Trade Name Reference

Chem. Descrip.:  Microcrystalline wax, clay treated
CAS 64742-42-3; EINECS/ELINCS 264-038-1
Uses:  Wax for pharmaceutical creams and dressings

Regulatory:  FDA approved; DOT nonregulated; SARA §311/313 nonreportable; Canada DSL, EINECS, Australia, Korea listed

Properties:  Wh. waxy solid (prill, pellet, or slab form); char. waxy odor; negligible sol. in water; sp.gr. 0.83-0.87; visc. 13-17 cSt (212 F); vapor pressure negligible; m.p. 65-90 C; congeal pt. 159-167 F; flash pt. (OC) > 260 C; ref. index 1.437-1.441 (100 C); 100% act.

Toxicology:  Exposure to fumes from melting may cause irritation to eyes, respiratory system; contact with molten material will cause thermal burns; contact with powd. may cause mech. irritation to eyes; TSCA listed

Environmental:  Not expected to cause adverse environmental effect

Precaution:  Spillages may be slippery; melts in proximity to fire causing slippery floors; does not ignite readily, but will burn; incompat. with strong oxidizing agents

Hazardous Decomp. Prods.:  Fire may produce irritating or poisonous gases incl. CO, CO2

Storage:  Avoid excessive heat

Chem. Descrip.:  Low-melt paraffin wax, clay treated
CAS 8002-74-2; EINECS/ELINCS 232-315-6
UN 3257
Uses:  Wax for pharmaceuticals (creams, dressings)

Features:  Low melt point

Regulatory:  DOT regulated above 212 F; SARA §311/313 nonregulated; Canada DSL, EINECS, Australia, Korea listed

Properties:  Liq.; water-wh. molten wax @ 200 F; char. waxy odor; negligible sol. in water; sp.gr. 0.80-0.82; visc. 2.5-2.7 cSt (98.9 C); m.p. 45-67 C; flash pt. (OC) > 190 C; 100% act.

Toxicology:  Exposure to fumes may cause irritation to eyes, nose, throat; contact with molten material will cause thermal burns; TSCA listed

Precaution:  Spillages may be slippery; does not ignite readily, but will burn; incompat. with strong oxidizing agents

Hazardous Decomp. Prods.:  Fire may produce irritating or poisonous gases incl. CO, CO2

Storage:  Avoid excessive heat

Chem. Descrip.:  Calcium phosphate dibasic
CAS 7757-93-9; EINECS/ELINCS 231-826-1
Uses:  Direct compression excipient in tablet manufacture and a source of calcium and phosphorus in nutritional supplements

Regulatory:  USP, FCC, EP, DMF 8145, kosher

Properties:  Wh. free-flowing powd.; 1% max. on 20 mesh, 40% min. on 100 mesh; sl. sol. in water (0.08 wt/wt% @100 C); insol. in alcohol; pH 5; hygroscopic; 98-105% assay; 7-8.5% loss on ignition; 29.1% Ca; 22.6% P
Trade Name Reference

Toxicology: OSHA TWA 15 mg/m³; LD50 (oral, rat) > 10000 mg/kg
Storage: Store in an area that is cool, dry, sanitary, isolated from all toxic and harmful substances

ATBC, NF [Morflex http://www.morflex.com]
Chem. Descrip.: Acetyl tri-n-butyl citrate  See Acetyl tributyl citrate
CAS 77-90-7; EINECS/ELINCS 201-067-0
Uses: Plasticizer for aq. pharmaceutical coatings including controlled sustained release, immediate release, and enteric; taste masking agent
Features: Protects drugs from gastric juices but allows its release into the intestine
Properties: Insol. in water; miscible in acetone, ethanol, toluene, heptane, and veg. oil; m.w. 402.5; sp.gr. 1.045-1.055; dens. 8.74 lb/gal; visc. 32.7 cps; b.p. 173 C (1 mm); pour pt. -75 F; flash pt. (COC) 204 C; ref. index 1.4410-1.4425; 99% min. assay

ATEC, NF [Morflex http://www.morflex.com]
Chem. Descrip.: Acetyltriethyl citrate See Acetyl triethyl citrate
CAS 77-89-4; EINECS/ELINCS 201-066-5
Uses: Plasticizer for aq. pharmaceutical coatings including controlled sustained release, immediate release, and enteric; taste masking agent
Features: Protects drugs from gastric juices but allows its release into the intestine
Regulatory: NF, DMF, FDA 21CFR §175.105, 175.300, 175.320, 175.380, 176.170, 176.210, 177.2600, 177.2800, 178.3570, 178.3700, 178.3910, 573.720
Properties: Sol. 0.72 g/100 ml water; miscible in acetone, ethanol, toluene, heptane; partially sol. in veg. oil; m.w. 318.3; sp.gr. 1.135-1.139; dens. 9.47 lb/gal; visc. 53.7 cps; b.p. 132 C (1 mm); pour pt. -45 F; flash pt. (COC) 188 C; ref. index 1.432-1.441; 99% min. assay

Chem. Descrip.: Laureth-9
CAS 9002-92-0 (generic); EINECS/ELINCS 221-284-4
Uses: Emulsifier for topical pharmaceuticals; in topical anesthetics and soothing balms; lanolin substitute
Properties: Pale yel. liq. to paste; sol. in water, ethanol, toluene, mineral oil; insol. in paraffin oil; dens. (50 C) 0.986 g/ml; visc. (50 C) ≈ 24 mPa.s; m.p. ≈ 19 C; HLB 14.3; flash pt. >149 C; nonionic

Avagel™ 520 [Avatar http://www.avatarcorp.com]
Chem. Descrip.: Petrolatum
CAS 8009-03-8; EINECS/ELINCS 232-373-2
Uses: Moisturizer, moisture barrier, lubricant, conditioner for pharmaceuticals
Properties: Lovibond 1.0Y max. color (2´´); odorless; tasteless; consistency 370 dmm

Avagel™ 525 [Avatar http://www.avatarcorp.com]
Chem. Descrip.: Petrolatum
CAS 8009-03-8; EINECS/ELINCS 232-373-2
Uses: Moisturizer, moisture barrier, lubricant, conditioner for pharmaceuticals
Properties: Lovibond 1.0Y max. color (2´´); odorless; tasteless; consistency 305 dmm

Avanel® S 150 CG [BASF http://www.basf.com]
Chem. Descrip.: Sodium C12-15 pareth-15 sulfonate
CAS 121546-77-8
Uses: Surfactant, emulsifier, counter-irritant for acne treatments and hypoallergenic products
Properties: APHA color 250 max. cl. liq.; polyol odor; sol. in water; visc. 300 max. cps; b.p.
Trade Name Reference

Avanel® S 150 CG N [BASF AG http://www.basf.de]
Chem. Descrip.: Sodium C12-15 pareth-15 sulfonate, water
CAS 121546-77-8
Uses: Surfactant, emulsifier, counter-irritant for acne treatments and hypoallergenic prods.
Properties: APHA color 250 max. cl. liq.; sol. in water; visc. 300 max. cps; pH 6-8 (10%)
Storage: 6 mos. shelf life when stored in original, unopened containers; store in a cool, dark place

Avapol™ 20 [Avatar http://www.avatarcorp.com]
Chem. Descrip.: POE (20) sorbitan monolaurate See Polysorbate 20
CAS 9005-64-5
Uses: Emulsifier, solubilizer, wetting agent for pharmaceuticals
Properties: Yel. to amber liq.; sol. in water; sp.gr. 1.10; vapor pressure < 1.0 mm Hg; vapor dens. > 1; flash pt. (COC) 285 C
Toxicology: LD50 (oral, rat) > 64 ml/kg; primary skin irritation index (rabbit) 0.72; may cause eye irritation; TSCA listed
Precaution: Incompat. with fluorine, chlorine, strong oxidizers, strong acids
Hazardous Decomp. Prods.: CO, CO2, other toxic gases
HMIS: Health 1, Flammability 1, Reactivity 0
Storage: Store in a cool, well-ventilated area in sealed, labeled containers

Avapol™ 60 [Avatar http://www.avatarcorp.com]
Chem. Descrip.: POE (20) sorbitan monostearate See Polysorbate 60
CAS 9005-67-8
Uses: Syn. flavoring agent, defoamer, emulsifier, dispersant, solubilizer, wetting agent in pharmaceuticals
Properties: Yel. soft solid; sol. in water; sp.gr. 1.10; vapor pressure < 1.0 mm Hg; vapor dens. > 1; m.p. 25 C; b.p. > 200 C; flash pt. (COC) 285 C
Toxicology: LD50 (oral, rat) > 64 ml/kg; primary skin irritation index (rabbit) 0.72; may cause eye irritation; TSCA listed
Precaution: Incompat. with fluorine, chlorine, strong oxidizers, strong acids
Hazardous Decomp. Prods.: CO, CO2, other toxic gases
HMIS: Health 1, Flammability 1, Reactivity 0
Storage: Store in a cool, well-ventilated area in sealed, labeled containers

Avapol™ 60K [Avatar http://www.avatarcorp.com]
Chem. Descrip.: POE (20) sorbitan monostearate See Polysorbate 60
CAS 9005-67-8
Uses: Defoamer, emulsifier, dispersant, solubilizer, wetting agent in pharmaceuticals
Properties: Yel. soft solid; sol. in water; sp.gr. 1.10; vapor pressure < 1.0 mm Hg; vapor dens. > 1; m.p. 25 C; b.p. > 200 C; flash pt. (COC) 285 C
Toxicology: LD50 (oral, rat) > 64 ml/kg; primary skin irritation index (rabbit) 0.72;
may cause eye irritation; TSCA listed

Precaution: Incompat. with fluorine, chlorine, strong oxidizers, strong acids

Hazardous Decomp. Prods.: CO, CO₂, other toxic gases

HMIS: Health 1, Flammability 1, Reactivity 0

Storage: Store in a cool, well-ventilated area in sealed, labeled containers

Avapol™ 65 [Avatar http://www.avatarcorp.com]

Chem. Descrip.: POE (20) sorbitan tristearate

See Polysorbate 65

CAS 9005-71-4

Uses: Emulsifier, defoamer, dispersant, solubilizer, wetting agent in pharmaceuticals


Properties: Tan solid

Avapol™ 80 [Avatar http://www.avatarcorp.com]

Chem. Descrip.: POE (20) sorbitan monooleate

See Polysorbate 80

CAS 9005-65-6

Uses: Syn. flavoring agent, defoamer, emulsifier, dispersant, solubilizer, wetting agent in pharmaceuticals


Properties: Yel to amber liq.; bland odor; sol. in water; sp.gr. 1.06-1.09; vapor pressure < 1.0 mm Hg; vapor dens. > 1; m.p. -12 C; b.p. > 350 C; flash pt. (COC) 288 C

Toxicology: LD50 (oral, rat) > 64 ml/kg; primary skin irritation index (rabbit) 0.13; may cause eye irritation; TSCA listed

Precaution: Incompat. with fluorine, chlorine, strong oxidizers, strong acids

Hazardous Decomp. Prods.: CO, CO₂, other toxic gases

HMIS: Health 1, Flammability 1, Reactivity 0

Storage: Store in a cool, well-ventilated area in sealed, labeled containers

Avapol™ EMD [Avatar http://www.avatarcorp.com]

Chem. Descrip.: Ethoxylated mono-/diglycerides

See Ethoxylated mono- and diglycerides

CAS 61163-33-5

Uses: Emulsifier, crystal modifier, aeration enhancer in pharmaceuticals

Regulatory: FDA 21CFR §172.834, kosher

Properties: Pale yellow, semi-solid

Toxicology: LD50 (oral, rat) > 64 ml/kg; primary skin irritation index (rabbit) 0.13; may cause eye irritation; TSCA listed

Precaution: Incompat. with fluorine, chlorine, strong oxidizers, strong acids

Hazardous Decomp. Prods.: CO, CO₂, other toxic gases

HMIS: Health 1, Flammability 1, Reactivity 0

Storage: Store in a cool, well-ventilated area in sealed, labeled containers

Avester™ SMS sobitan ester [Avatar http://www.avatarcorp.com]

Chem. Descrip.: sorbitan monostearate

See Sorbitan stearate

CAS 1338-41-6; EINECS/ELINCS 215-664-9

Uses: Emulsifier, defoamer, dispersant, solubilizer, wetting agent in pharmaceuticals


Properties: Waxy, cream-colored solid

Avicel® CE-15 [FMC Biopolymer http://www.fmcbiopolymer.com]

Chem. Descrip.: Microcrystalline cellulose and guar gum

See Guar (Cyanopsis tetragonoloba) gum

CAS 1338-41-6; EINECS/ELINCS 215-664-9

Uses: Drug delivery system for direct
Trade Name Reference

**Avicel® CL-611** [FMC Biopolymer
http://www.fmcbiopolymer.com]

Chem. Descrip.: Microcrystalline cellulose and cellulose gum USP/NF See Carboxymethylcellulose sodium

CAS 9004-34-6; 9004-32-4; EINECS/ELINCS 232-674-9

Uses: Excipient, vehicle, visc. control agent, thixotrope for pharmaceutical suspensions and emulsions

Features: Heat and freeze-thaw stable; stable @ pH 4-11

Regulatory: GRAS; kosher; CERCLA nonreportable; Australia AICS; China; Japan ENCS (8-568/8-203); Philippines PICCS

Properties: Off-wh. free-flowing powd.; odorless; bulk dens. 0.6; pH 6-8 (2% solids disp.); volatiles ≈ 4%

Toxicology: LD50 (oral, rat) > 5 g/kg, (dermal, rabbit) > 2 g/kg; LC50 (inh., rat, 4 h) > 5.82 mg/l

Precaution: Slippery when wet

NFPA: Health 0, Flammability 1, Reactivity 0

Storage: Long shelf-life stability; hygroscopic; 2 yr. shelf life when stored in cool, dry place; avoid excessive heat and moisture

**Avicel® PH-101** [FMC Biopolymer
http://www.fmcbiopolymer.com]

Chem. Descrip.: Microcrystalline cellulose USP/NF, Ph.Eur., JP, BP

CAS 9004-34-6

Uses: Binder, disintegrant, flow aid, and filler for pharmaceuticals (direct compression tableting, wet and dry granulation, encapsulation, spherization) and animal health prods.; absorbent; peptizing agent; anticing agent for oils to make sticky substances free flowing

Features: Nonreactive; exc. stability; nonabrasive

Regulatory: NF, EP., JP, BP; GRAS; kosher; E 460(i)

Properties: Wh. free-flowing, odorless powd., 90 µ avg. particle size; > 45% +200 mesh; odorless; tasteless; insol. in water, dil. acids, most org. solvs.; pract. insol. in NaOH sol’n. (1 in 20); bulk dens. 0.30 g/cc; pH 5.5-7.0

Toxicology: ACGIH TWA 10 mg/m³; LD50 (dermal, rabbit) > 2,000 mg/kg, (oral, rat) > 5,000 mg/kg; nonirritating to eyes and skin; low oral, dermal, and inh. toxicity

Environmental: Biodegrad. in soil at a rate comparable to corn starch

Precaution: Wear monogoggles

NFPA: Health 0, Flammability 1, Reactivity 0

Storage: Very stable; unlimited shelf life; hygroscopic; store in well-sealed container in a dry place

**Avicel® PH-102** [FMC Biopolymer
http://www.fmcbiopolymer.com]

Chem. Descrip.: Microcrystalline cellulose

CAS 9004-34-6; EINECS/ELINCS 232-674-9

Uses: Binder, disintegrant, flow aid, and filler for pharmaceuticals (direct compression tableting, wet and dry granulation, encapsulation, spherization) and animal health prods.; absorbent; peptizing agent; anticaking agent for oils to make sticky substances free flowing

Features: Nonreactive; exc. stability; nonabrasive

Regulatory: NF, EP., JP, BP; GRAS; kosher; E 460(i)

Properties: Wh. free-flowing, odorless powd., < 30% +200 mesh; odorless; tasteless; insol. in water, dil. acids, most org. solvs.; pract. insol. in NaOH sol’n. (1 in 15); bulk dens. 0.29 g/cc; pH 5.5-7.0

Toxicology: ACGIH TWA 10 mg/m³; LD50 (dermal, rabbit) > 2,000 mg/kg, (oral, rat) > 5,000 mg/kg; nonirritating to eyes and skin; low oral, dermal, and inh. toxicity

Environmental: Biodegrad. in soil at a rate comparable to corn starch

Precaution: Wear monogoggles

NFPA: Health 0, Flammability 1, Reactivity 0

Storage: Very stable; unlimited shelf life; hygroscopic; store in well-sealed container in a dry place

**Avicel® PH-103** [FMC Biopolymer
http://www.fmcbiopolymer.com]

Chem. Descrip.: Microcrystalline cellulose NF, Ph.Eur., JP, BP

CAS 9004-34-6

Uses: Binder, disintegrant, flow aid, and filler for pharmaceuticals (direct compression tableting, wet and dry granulation, encapsulation, spherization) and animal health prods.; absorbent; peptizing agent; anticaking agent for oils to make sticky substances free flowing

Features: Nonreactive; exc. stability; nonabrasive

Regulatory: NF, EP., JP, BP; GRAS; kosher; E 460(i)

Properties: Wh. powd.; 50 µ avg. particle size; < 30% +200 mesh; odorless; tasteless; insol. in water, dil. acids, most org. solvs.; pract. insol. in NaOH sol’n. (1 in 20); bulk dens. 0.29 g/cc; pH 5.5-7.0

Toxicology: ACGIH TWA 10 mg/m³; LD50 (dermal, rabbit) > 2,000 mg/kg, (oral, rat) > 5,000 mg/kg; nonirritating to eyes and skin; low oral, dermal, and inh. toxicity

Environmental: Biodegrad. in soil at a rate comparable to corn starch

Precaution: Wear monogoggles

NFPA: Health 0, Flammability 1, Reactivity 0

Storage: Very stable; unlimited shelf life; hygroscopic; store in well-sealed container in a dry place
Avicel® PH-112 [FMC Biopolymer]
[http://www.fmcbiopolymer.com]
Chem. Descrip.: Microcrystalline cellulose NF, Ph.Eur., JP, BP
CAS 9004-34-6
Uses: Binder, disintegrant, flow aid, filler for direct compression of pharmaceutical solid dosage forms, tableting; binder in wet granulation, slugging and roller compaction; binder, flow aid, filler in encapsulation, esp. hard gelatin capsules
Features: Low moisture grade; ideal for use with moisture-sensitive actives; improves shelf life and prod. stability; desiccation props.; no need to pre-dry prior to usage
Regulatory: GRAS; kosher
Properties: Wh. powd.; 50 µ avg. particle size; odorless; tasteless; insol. in water, dil. acids, most org. solvs.; pract. insol. in NaOH sol'n. (1 in 20); bulk dens. 0.28 g/cc; pH 5.5-7.0
Toxicology: ACGIH TWA 10 mg/m³; LD50 (dermal, rabbit) > 2,000 mg/kg, (oral, rat) > 5,000 mg/kg; nonirritating to eyes and skin; low oral, dermal, and inh. toxicity
Environmental: Biodegrad. in soil at a rate comparable to corn starch
Precaution: Wear monogoggles
Storage: Very stable; unlimited shelf life; hygroscopic; store in well-sealed container

Avicel® PH-105 [FMC Biopolymer]
[http://www.fmcbiopolymer.com]
Chem. Descrip.: Microcrystalline cellulose NF, Ph.Eur., JP, BP
CAS 9004-34-6
Uses: Binder, disintegrant, flow aid, and filler for pharmaceuticals (direct compression tableting, wet and dry granulation, encapsulation, spherization) and animal health prods.; absorbent; peptizing agent; anticaking agent for oils to make sticky substances free flowing
Features: Inc. sp. surf. area for adhesion or adsorp.; enhanced compressibility; packs better during sphere formation
Regulatory: GRAS; kosher
Properties: Wh. fine powd.; 20 µ avg. particle size; < 1% +400 mesh; odorless; tasteless; insol. in water, dil. acids, most org. solvs.; pract. insol. in NaOH sol'n. (1 in 20); bulk dens. 0.25 g/cc; pH 5.0-7.0
Toxicology: ACGIH TWA 10 mg/m³; LD50 (dermal, rabbit) > 2,000 mg/kg, (oral, rat) > 5,000 mg/kg; nonirritating to eyes and skin; low oral, dermal, and inh. toxicity
Environmental: Biodegrad. in soil at a rate comparable to corn starch
Precaution: Wear monogoggles
Storage: Very stable; unlimited shelf life; hygroscopic; store in well-sealed container

Avicel® PH-113 [FMC Biopolymer]
[http://www.fmcbiopolymer.com]
Chem. Descrip.: Microcrystalline cellulose NF, Ph.Eur., JP, BP
CAS 9004-34-6
Uses: Binder, disintegrant, flow aid, filler for direct compression of pharmaceutical solid dosage forms, tableting; binder in wet granulation, slugging and roller compaction; binder, flow aid, filler in encapsulation, esp. hard gelatin capsules
Features: Low moisture grade; ideal for use with moisture-sensitive actives; improves shelf life and prod. stability; desiccation props.; no need to pre-dry prior to usage
Regulatory: GRAS; kosher
Properties: Wh. powd.: 90 µ avg. particle size; odorless; tasteless; insol. in water, dil. acids, most org. solvs.; pract. insol. in NaOH sol'n. (1 in 20); bulk dens. 0.30 g/cc
Toxicology: ACGIH TWA 10 mg/m³; LD50 (dermal, rabbit) > 2,000 mg/kg, (oral, rat) > 5,000 mg/kg; nonirritating to eyes and skin; low oral, dermal, and inh. toxicity
Environmental: Biodegrad. in soil at a rate comparable to corn starch
Precaution: Wear monogoggles
Storage: Very stable; unlimited shelf life; hygroscopic; store in well-sealed container
**Trade Name Reference**

comparable to corn starch

**Precaution:** Wear monogoggles

**Storage:** Very stable; unlimited shelf life; hygroscopics; store in well-sealed container

**Avicel® PH-200** [FMC Biopolymer
http://www.fmcbiopolymer.com]

**Chem. Descrip.:** Microcrystalline cellulose NF, Ph.Eur., JP, BP

**CAS 9004-34-6**

**Uses:** Binder, disintegrant, flow aid, filler for direct compression of pharmaceutical solid dosage forms, tableting; binder in wet granulation, slugging and roller compaction; binder, flow aid, filler in encapsulation, esp. hard gelatin capsules

**Features:** Lg. particle size grade; superior flow props. improve content uniformity and reduce tablet wt. variation; exc. compressibility

**Regulatory:** GRAS; kosher

**Properties:** Wh. powd.; 180 µ avg. particle size; odorless; tasteless; insol. in water, dil. acids, most org. solvs.; pract. insol. in NaOH sol'n. (1 in 20); bulk dens. 0.32 g/cc

**Storage:** Very stable; unlimited shelf life; hygroscopic; store in well-sealed container

**Avicel® PH-302** [FMC Biopolymer
http://www.fmcbiopolymer.com]

**Chem. Descrip.:** Microcrystalline cellulose NF, Ph.Eur., JP, BP

**CAS 9004-34-6**

**Uses:** Binder, disintegrant, flow aid, filler for direct compression of pharmaceutical solid dosage forms, tableting; binder in wet granulation, slugging and roller compaction; binder, flow aid, filler in encapsulation, esp. hard gelatin capsules

**Features:** High dens. grade; provides faster flow rates for greater tablet productivity, reduced tablet wt. variation, and enables smaller tablet size prod.

**Regulatory:** GRAS; kosher

**Properties:** Wh. powd.; 90 µ avg. particle size; odorless; tasteless; insol. in water, dil. acids, most org. solvs.; pract. insol. in NaOH sol'n. (1 in 20); bulk dens. 0.44 g/cc

**Toxicology:** ACGIH TWA 10 mg/m³; LD50 (dermal, rabbit) > 2,000 mg/kg, (oral, rat) > 5,000 mg/kg; nonirritating to eyes and skin; low oral, dermal, and inh. toxicity

**Environmental:** Biodegrad. in soil at a rate comparable to corn starch

**Precaution:** Wear monogoggles

**Storage:** Very stable; unlimited shelf life; hygroscopic; store in well-sealed container

**Avicel® RC-581** [FMC Biopolymer
http://www.fmcbiopolymer.com]

**Chem. Descrip.:** Microcrystalline cellulose and cellulose gum USP/NF See Carboxymethylcellulose sodium

**CAS 9004-34-6; 9004-32-4; EINECS/ELINCS 232-674-9**

**Uses:** Excipient, vehicle, visc. control agent, thixotrope for pharmaceutical suspensions and emulsions

**Features:** Heat and freeze-thaw stable; stable @ pH 4-11

**Regulatory:** FDA GRAS; CERCLA nonreportable; Australia AICS; China; Japan ENCS (8-568/8-203); Philippines PICCS

**Properties:** Off-wh., free-flowing powd.; odorless; tasteless; insol. in water; bulk dens. 0.6; ignition temp. 420 C min.; pH 6-8 (2% solids disp.); volatiles ≈ 4%

**Toxicology:** LD50 (oral, rat) > 5 g/kg, (dermal, rabbit) > 2 g/kg; LC50 (inh., rat, 4 h) > 5.82 mg/l

**Precaution:** Slippery when wet
Trade Name Reference

**NFPA:** Health 0, Flammability 1, Reactivity 0

**Storage:** Long shelf-life stability; hygroscopic; 2 yr. shelf life when stored in cool, dry place; avoid excessive heat and moisture

**Avicel® RC-591** [FMC Biopolymer](http://www.fmcbiopolymer.com)

*Chem. Descrip.*: Microcrystalline cellulose and cellulose gum USP/NF  See Carboxymethylcellulose sodium

*CAS*: 9004-34-6; 9004-32-4; EINECS/ELINCS 232-674-9

*Uses*: Excipient, vehicle, visc. control agent, thixotrope for pharmaceutical suspensions and emulsions

*Features*: Heat and freeze-thaw stable; stable @ pH 4-11; lg. surf. area for absorbing ingred. matrix onto RC

*Regulatory*: GRAS; kosher; CERCLA nonreportable; Australia AICS; China; Japan ENCS (8-568/8-203); Philippines PICCS

*Properties*: Off-wh., free-flowing powd.; odorless; tasteless; insol. in water; bulk dens. 0.6; ignition temp. 420 C min.; pH 6-8 (2% solids disp.); volatiles ≈ 4%

*Toxicology*: LD50 (oral, rat) > 5 g/kg, (dermal, rabbit) > 2 g/kg; LC50 (inh., rat, 4 h) > 5.82 mg/l

*Precaution*: Slippery when wet

**AZG-370** [Summit Research Labs](http://www.summitresearchlabs.com)

*Chem. Descrip.*: Aluminum zirconium chlorohydrex glycine complex

*CAS*: 134-58-7; EINECS/ELINCS 205-146-1

*Uses*: Antiperspirant active

*Features*: 45-55% sweat inhibition

*Regulatory*: FDA GRAS

*Properties*: Sol'n.

**AZG-417** [Summit Research Labs](http://www.summitresearchlabs.com)

*Chem. Descrip.*: Aluminum zirconium chlorohydrex glycine complex

*CAS*: 134-58-7; EINECS/ELINCS 205-146-1

*Uses*: Antiperspirant active

*Features*: 45-55% sweat inhibition

*Regulatory*: FDA GRAS

*Properties*: Sol'n.

**AZG-442** [Summit Research Labs](http://www.summitresearchlabs.com)

*Chem. Descrip.*: Aluminum zirconium chlorohydrex glycine complex

*CAS*: 134-58-7; EINECS/ELINCS 205-146-1

*Uses*: Antiperspirant active

*Features*: 45-55% sweat inhibition

*Regulatory*: FDA GRAS

*Properties*: Sol'n.

**B2595** [United Chem. Tech.](http://www.unitedchem.com)

*Chem. Descrip.*: Bis (trimethylsilyl) urea

*CAS*: 18297-63-7; EINECS/ELINCS 242-177-9

*Uses*: For use in synthesis of penicillins and cephalosporins

**B6-97®** Pyridoxine Hydrochloride for DC [BASF AG](http://www.basf.de)

*Chem. Descrip.*: Pyridoxine hydrochloride (97%) with HPMC (0.5%)  See Pyridoxine HCl; Hydroxypropyl methylcellulose

*CAS*: 58-56-0; 9004-65-3; EINECS/ELINCS 200-386-2; $

*Uses*: Dietary supplement in direct compression of high-dose pyridoxine, B-complex, or multivitamins with minerals

*Features*: Stable in air and slowly affected by sunlight

*Regulatory*: USP, EP, FCC, JP

*Properties*: Wh. fine gran. powd., odorless; particle size US Sieve #20 (850 μm) min 95% thru; pH 2.3-3.5 (1 in 20); ≈ 97%

*Storage*: 3 yrs. shelf life when stored in unopened original containers @ ≤ 25 C

**BB-5** [Nikko Chems. Co. Ltd]
Trade Name Reference

Chem. Descrip.: Beheneth-5
CAS 26636-40-8
Uses: Emulsifier for medicated ointments
Features: Lipophilic; provides good heat resist.
Regulatory: JSCI listed
Properties: Wh. solid; HLB 7.0; nonionic; 100% conc.
Toxicology: TSCA listed

BC-10 [Nikko Chems. Co. Ltd
Chem. Descrip.: Beheneth-10
CAS 26636-40-8
Uses: Emulsifier for medicated ointments
Features: Lipophilic; provides good heat resist.
Regulatory: JSCI listed
Properties: Wh. solid; HLB 10.0; nonionic; 100% conc.
Toxicology: TSCA listed

BB-20 [Nikko Chems. Co. Ltd
Chem. Descrip.: Beheneth-20
CAS 26636-40-8
Uses: Emulsifier for medicated ointments
Features: Lipophilic; provides good heat resist.
Regulatory: JSCI listed
Properties: Wh. solid; HLB 16.5; nonionic; 100% conc.
Toxicology: TSCA listed

BC-30 [Nikko Chems. Co. Ltd
Chem. Descrip.: Beheneth-30
CAS 26636-40-8
Uses: Emulsifier for medicated ointments
Features: Lipophilic; provides good heat resist.
Regulatory: JSCI listed
Properties: Wh. solid; HLB 18.0; nonionic; 100% conc.
Toxicology: TSCA listed

BC-2 [Nikko Chems. Co. Ltd
Chem. Descrip.: Ceteth-2
CAS 9004-95-9
Uses: Emulsifier for medicated ointments
Features: Lipophilic
Regulatory: JSCI listed
Properties: Wh. solid; HLB 8.0; nonionic; 100% conc.
Toxicology: TSCA listed

BC-5.5 [Nikko Chems. Co. Ltd
Chem. Descrip.: Ceteth-6
CAS 9004-95-9
Uses: Emulsifier for pharmaceuticals
Features: Hydrophilic
Regulatory: JSCI listed
Properties: Wh. solid; HLB 10.5; nonionic; 100% conc.
Toxicology: TSCA listed

BC-7 [Nikko Chems. Co. Ltd
Chem. Descrip.: Ceteth-7
CAS 9004-95-9
Uses: Emulsifier for pharmaceuticals
Features: Hydrophilic
Regulatory: JSCI listed
Properties: Wh. solid; HLB 11.5; nonionic; 100% conc.
Toxicology: TSCA listed

BC-10TX [Nikko Chems. Co. Ltd
Chem. Descrip.: Ceteth-10
CAS 9004-95-9
Uses: Emulsifier for pharmaceuticals
Features: Hydrophilic
Regulatory: JSCI listed
Properties: Wh. solid; HLB 13.5; nonionic; 100% conc.
Toxicology: TSCA listed

BC-15TX [Nikko Chems. Co. Ltd
Chem. Descrip.: Ceteth-15
CAS 9004-95-9
Uses: Emulsifier, dispersant for pharmaceuticals
Features: Hydrophilic
Regulatory: JSCI listed
Properties: Wh. solid; HLB 15.5; nonionic; 100% conc.
Toxicology: TSCA listed

BC-20TX [Nikko Chems. Co. Ltd
Chem. Descrip.: Ceteth-20
CAS 9004-95-9
Uses: Emulsifier, dispersant for pharmaceuticals
Features: Hydrophilic
Regulatory: JSCI listed
Properties: Wh. solid; HLB 17.0; nonionic; 100% conc.
Toxicology: TSCA listed

BC-23 [Nikko Chems. Co. Ltd
Chem. Descrip.: Ceteth-23
Trade Name Reference

CAS 9004-95-9
Uses: Emulsifier, dispersant, solubilizer for o/w creams, lotions, medicated ointments
Features: Hydrophilic
Regulatory: JSCI listed
Properties: Wh. solid; HLB 18.0; nonionic; 100% conc.
Toxicology: TSCA listed

BC-25TX [Nikko Chems. Co. Ltd  
http://www.nikkol.co.jp/index.html]
Chem. Descrip.: Ceteth-25
CAS 9004-95-9
Uses: Emulsifier, dispersant, and solubilizer for pharmaceuticals
Features: Hydrophilic
Regulatory: JSCI listed
Properties: Wh. solid; HLB 18.5; nonionic; 100% conc.
Toxicology: TSCA listed

BC-30TX [Nikko Chems. Co. Ltd  
http://www.nikkol.co.jp/index.html]
Chem. Descrip.: Ceteth-30
CAS 9004-95-9
Uses: Emulsifier, dispersant, and solubilizer for pharmaceuticals
Features: Hydrophilic
Regulatory: JSCI listed
Properties: Wh. solid; HLB 19.5; nonionic; 100% conc.
Toxicology: TSCA listed

BC-40TX [Nikko Chems. Co. Ltd  
http://www.nikkol.co.jp/index.html]
Chem. Descrip.: Ceteth-40
CAS 9004-95-9
Uses: Emulsifier, dispersant, and solubilizer for pharmaceuticals
Features: Hydrophilic
Regulatory: JSCI listed
Properties: Wh. solid; HLB 20.0; nonionic; 100% conc.
Toxicology: TSCA listed

BGL™ 855 [Avatar  
http://www.avatarcorp.com]
Chem. Descrip.: Caprylic/capric triglyceride
Uses: Solubilizer, solvent, mold release agent, conditioner in pharmaceuticals; provide emolliency, moisturizing and viscosity reducing properties with a nongreasy, nontacky after-feel in ointments
Regulatory: 21CFR 170.30 (GRAS); kosher, SARA §302, 313 nonreportable; CERCLA nonreportable
Properties: Pale yel. odorless liq.; negligible in water (< 0.1%); sol. in hydrocarbons; sp. gr. 0.9; vapor pressure < 1.0 mmHg @ 760 mmHg
Toxicology: Eye irritant; prolonged or repeated contact with the skin may cause irritation of the hair follicles and block sebaceous gland, causing rash, acne, or dermatitis; noncarcinogenic; TSCA listed
Precaution: Avoid excessive heat, ignition sources, chlorine, fluorine, and other strong oxidizers.

BIO-PSA® 7-4101 Silicone Adhesive [Dow Corning  
http://www.dowcorning.com]
Chem. Descrip.: Methylated trimethylated silica in heptane (40.0 - 70.0%) and xylene (< 0.1%)
CAS 238094-36-5; 142-82-5; 1330-20-7
UN UN1206
Uses: Pressure-sensitive adhesive designed to adhere transdermal drug delivery systems to the skin
Features: Enhanced chemical stability in the presence of amine-functional drugs, excipients, and enhancers; compat. with many drugs
Regulatory: SARA §311/312 Acute and Fire Hazard, §313 nonreportable
Properties: Colorless to pale yel. liq.; sp. gr. 0.934; visc. 500 cP; b.p. > 98 C; flash pt. (CC) -3.9 C; flamm.
Toxicology: ACGIH TLV TWA 400 ppm, STEL 500 ppm; nonirritating and nonsensitizing to skin; inh. may irritate nose and throat and overexposure by inh. may injure the heart and CNS
Precaution: Wear full face respirator and chemical protective gloves; avoid oxidizing
**BIO-PSA® 7-4102 Silicone Adhesive**  [Dow Corning](http://www.dowcorning.com]

Chem. Descrip.: Methylated trimethylated silica (> 60.0%) in ethyl acetate (40.0 - 70.0%) and xylene (< 0.1%)

CAS 238094-36-5; 141-78-6; 1330-20-7

UN UN 1173

**Uses:** Pressure-sensitive adhesive designed to adhere transdermal drug delivery systems to the skin

**Features:** Enhanced chemical stability in the presence of amine-functional drugs, excipients, and enhancers; compat. with many drugs

**Regulatory:** SARA §311/312 Acute, Chronic, and Fire Hazard, §313 nonreportable

**Properties:** Colorless to pale yel. liq.; sp. gr. 1.021; visc. 500 cP; b.p. > > 77 C; flash pt. (CC) -4.4 C; flamm.

**Toxicology:** ACGIH TLV TWA 400 ppm, STEL 500 ppm.; nonirritating and nonsensitizing to skin; inh. may irritate nose and throat and overexposure by inh. may injure the blood, lungs, liver and kidneys

**Precaution:** Wear full face respirator and chemical goggles; avoid oxidizing materials

**Hazardous Decomp. Prods.:** COx, SiO2

**NFPA:** Health 2, Flammability 3, Reactivity 0

**Storage:** 72 mos. shelf life from date of production; store @ R.T. in original unopened containers away from heat, sparks, and flame

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**BIO-PSA® 7-4201 Silicone Adhesive**  [Dow Corning](http://www.dowcorning.com]

Chem. Descrip.: Methylated trimethylated silica (40.0 - 70.0%) in heptane (40.0 - 70.0%)

CAS 238094-36-5; 142-82-5

UN UN1206

**Uses:** Pressure-sensitive adhesive designed to adhere transdermal drug delivery systems to the skin

**Features:** Enhanced chemical stability in the presence of amine-functional drugs, excipients, and enhancers; compat. with many drugs

**Regulatory:** SARA §311/312 Acute and Fire Hazard, §313 nonreportable

**Properties:** Colorless to pale yel. liq.; sp. gr. 0.94; visc. 4000 cP; b.p. > 98 C; flash pt. (CC) -3.9 C; flamm.

**Toxicology:** ACGIH TLV TWA 400 ppm, STEL 500 ppm.; nonirritating and nonsensitizing to skin; inh. may irritate nose and throat and overexposure by inh. may injure the heart and CNS

**Precaution:** Wear full face respirator and chemical protective gloves; avoid oxidizing materials

**Hazardous Decomp. Prods.:** COx, SiO2

**NFPA:** Health 2, Flammability 3, Reactivity 0

**Storage:** 72 mos. shelf life from date of production; store @ R.T. in original unopened containers away from heat, sparks, and flame

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**BL-9EX**  [Nikko Chems. Co. Ltd](http://www.nikkol.co.jp/index.html]

Chem. Descrip.: Laureth-9

CAS 3055-99-0; EINECS/ELINCS 221-284-4
Trade Name Reference

BPS-10 [Nikko Chems. Co. Ltd
http://www.nikkol.co.jp/index.html]
Chem. Descrip.: PEG-10 phytosterol
CAS 68441-03-2
Uses: Emulsifier for o/w and w/o compds., solubilizer, dispersant, emollient, foam stabilizer, visc. modifier, conditioner in pharmaceuticals
Features: Hydrophilic; forms low visc. glossy emulsions
Regulatory: JSCI listed
Properties: Pale yel. wax-like solid; sol. in water, propylene glycol, ethanol; HLB 18.0; acid no. 0.09 max.; pH 5.7 (5%); nonionic; 100% conc.
Toxicology: TSCA listed

BPSH-25 [Nikko Chems. Co. Ltd
http://www.nikkol.co.jp/index.html]
Chem. Descrip.: Calcium carbonate (90%), starch (10%)
CAS 471-34-1; 9005-25-8
Uses: Excipient, calcium source for nutraceutical supplements, multivitamin and min. supplements, pharmaceutical antacid tablets, bone loss treatment tablets, chewable and swallowed tablets
Features: Directly compressible; uniform particle size distribution; smooth mouthfeel
Regulatory: USP, BP, EP compliance
Properties: Free-flowing spray-dried wh. powd.; sl. sol. in water; 75% < 40 µ; dens. 0.65-0.85 g/cc (tapped)
Toxicology: LD50 (oral, rat) > 6450 mg/kg; ACGIH TWA 10 mg/m³ inhalable particulates; ACGIH TWA 3 mg/m³ respirable particulates; dusts of this product should not produce toxicity; ing. of large amounts can cause GI irritation, nausea, and vomiting; excessive or prolonged exposure may produce more harmful effects
Environmental: Low potential for impact on aquatic organisms; LC50 (mosquito fish, 48 h) 56,000 mg/L
Precaution: Avoid acids, alum, ammonium salts and mercury and hydrogen; will ignite on contact with fluorine
Hazardous Decomp. Prods.: On combustion oxides of calcium, carbon, sulfur and/or...
Trade Name Reference

nitr

gen may be emitted

HMIS: Health 1, Flammability 1, Reactivity 0

Bardac® 2240 [Lonza http://www.lonz

a.com]
Chem. Descrip.: Didecyl dimethyl ammonium chloride See Didecyldimonium chloride
CAS 7173-51-5; EINECS/ELINCS 230-525-2
Uses: Antiseptic for topicals (hand scrubs, teat dips, athlete’s foot prevention)
Properties: Liq.; 40% act.

Bardac® 2270 [Lonza http://

a.com]
Chem. Descrip.: Didecyl dimethyl ammonium chloride See Didecyldimonium chloride
CAS 7173-51-5; EINECS/ELINCS 230-525-2
Uses: Antiseptic for topicals (hand scrubs, teat dips, athlete’s foot prevention)
Properties: Liq.; 70% act.

Bardac® 2270E [Lonza http:

a.com]
Chem. Descrip.: Didecyl dimethyl ammonium chloride in ethanol See Didecyldimonium chloride; Alcohol
Uses: Antiseptic for topicals (hand scrubs, teat dips, athlete’s foot prevention)
Properties: Liq.; 70% act.

Barquat® CT-29 [Lonza http:

a.com]
Chem. Descrip.: Cetrimonium chloride
CAS 112-02-7; EINECS/ELINCS 203-928-6
Uses: Coagulant in mfg. of antibiotics
Properties: Colorless to pale yel. liq.; m.w. 319; sp.gr. 0.966; dens. 8.10 lb/gal; pH 6.5-8.3 (10%); cationic; 29% act.
Storage: Store in original unopened containers @ 50-140 F; may become cloudy if exposed to temps. < 50 F; use as is or warm overnight @ 100-125 F to restore uniformity

Batyl Alcohol 100, EX [Nikko Chems. Co. Ltd http://www.nikkol.co.jp/index.html]
Chem. Descrip.: Batyl alcohol
CAS 544-62-7; EINECS/ELINCS 208-874-7
Uses: Emollient, emulsifier, hydrotrope, emulsion thickener for pharmaceuticals
Features: Low hemolysis
Regulatory: JSCI listed
Properties: Wh. powd.; m.p. 60-70 C; nonionic; 100% conc.
Toxicology: Low toxicity; TSCA listed

Beeswax SP 11 [Strahl & Pitsch http://www.strahlpitsch.com]
Chem. Descrip.: Beeswax, USP/NF
CAS 8006-40-4; EINECS/ELINCS 232-383-7
Uses: For pharmaceutical creams, lotions, ointments, tablet coatings
Features: Pharmaceutical grade
Properties: Yel. slabs, cakes, or pellets; m.p. 60-

65 C; acid no. 17-24; sapon. no. 89-103
Toxicology: TSCA listed

Beeswax SP 44 [Strahl & Pitsch http://www.strahlpitsch.com]
Chem. Descrip.: Beeswax
CAS 8006-40-4; EINECS/ELINCS 232-383-7
Uses: Pharmaceuticals, ointments, tablet coatings, lotions, creams
Regulatory: FDA 21CFR §184.1973, GRAS; CTFA listed
Properties: Wh. slabs, cakes, or pellets; m.p. 60-

65 C; acid no. 17-24; sapon. no. 89-103

Beeswax SP 58 [Strahl & Pitsch http://www.strahlpitsch.com]
Chem. Descrip.: Syn. beeswax See Beeswax, synthetic
CAS 71243-51-1; EINECS/ELINCS 275-286-5
Uses: Pharmaceuticals, ointments, tablet coatings, lotions, creams
Features: For apps. where genuine beeswax is not required
Properties: Wh. slabs, cakes, or pellets; m.p. 57-

62 C; acid no. 17-24; sapon. no. 89-103
Toxicology: TSCA listed

Beeswax SP 62 [Strahl & Pitsch http://www.strahlpitsch.com]
Chem. Descrip.: Beeswax, USP/NF
CAS 8012-89-3; EINECS/ELINCS 232-383-7
Uses: For pharmaceutical creams, lotions,
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<th>Trade Name Reference</th>
<th>Beeswax SP 422 <a href="http://www.strahlpitsch.com">Strahl &amp; Pitsch</a></th>
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<td>Properties: Amber slabs, cakes, or pellets; m.p. 60-65 C; acid no. 17-24; sapon. no. 89-103</td>
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<tr>
<td>CAS 8012-89-3; EINECS/ELINCS 232-383-7</td>
<td>CAS 71243-51-1; EINECS/ELINCS 275-286-5</td>
</tr>
<tr>
<td>Uses: Pharmaceuticals, ointments, tablet coatings, lotions, creams</td>
<td>Uses: Pharmaceuticals, ointments, tablet coatings, lotions, creams</td>
</tr>
<tr>
<td>Properties: Yel. slabs, cakes, or pellets; m.p. 62-65 C; acid no. 17-24; sapon. no. 89-103</td>
<td>Properties: Wh. slabs, cakes, or pellets; m.p. 58-62 C; acid no. 10-17; sapon. no. 94-105</td>
</tr>
<tr>
<td>Toxicology: TSCA listed</td>
<td>Toxicology: TSCA listed</td>
</tr>
</tbody>
</table>
Trade Name Reference

**Features:** For applics. where genuine beeswax is not required

**Properties:** Wh. slabs, cakes, or pellets; m.p. 56-60 C; acid no. 12-20; sapon. no. 32-48
**Toxicology:** **TSCA listed**

**Beezax SP 755** [Strahl & Pitsch](http://www.strahlpitsch.com)

Chem. Descrip.: Syn. beeswax See Beeswax, synthetic
CAS 71243-51-1; EINECS/ELINCS 275-286-5
Uses: Pharmaceuticals, ointments, tablet coatings, lotions, creams
Features: For applics. where genuine beeswax is not required
Properties: Wh. slabs, cakes, or pellets; m.p. 74-78 C; acid no. 19-24
Toxicology: **TSCA listed**

**Beezax SP 772** [Strahl & Pitsch](http://www.strahlpitsch.com)

Chem. Descrip.: Syn. beeswax See Beeswax, synthetic
CAS 71243-51-1; EINECS/ELINCS 275-286-5
Uses: Pharmaceuticals, ointments, tablet coatings, lotions, creams
Features: For applics. where genuine beeswax is not required
Properties: Wh. slabs, cakes, or pellets; m.p. 62-65 C; acid no. 17-24; sapon. no. 89-103
Toxicology: **TSCA listed**

**Beezax SP 1290** [Strahl & Pitsch](http://www.strahlpitsch.com)

Chem. Descrip.: Syn. beeswax See Beeswax, synthetic
CAS 71243-51-1; EINECS/ELINCS 275-286-5
Uses: Pharmaceuticals, ointments, tablet coatings, lotions, creams
Features: For applics. where genuine beeswax is not required
Properties: Wh. slabs, cakes, or pellets; m.p. 61-63 C; acid no. 17-24; sapon. no. 57-90
Toxicology: **TSCA listed**

**Behenyl Alcohol 65, 80** [Nikko Chems. Co. Ltd](http://www.nikkol.co.jp/index.html)

Chem. Descrip.: Behenyl alcohol
CAS 861-19-8; EINECS/ELINCS 211-546-6
Uses: Emollient, emulsion stabilizer for pharmaceuticals
Regulatory: JSCI listed
Properties: Wh. flake; sol. in warm ethanol, min. oil, 2-hexyldecanol, IPM; insol. in water; 65 and 80% act. resp.
Toxicology: Very safe; mild skin irritant; **TSCA listed**

**Benecel® Hydroxypropyl Methylcellulose** [Hercules/Aqualon](http://www.aqualon.com)

Chem. Descrip.: Hydroxypropyl methylcellulose
CAS 9004-65-3
Uses: Protective colloid, suspending agent, tablet excipient in pharmaceuticals

**Benecel® Methylcellulose** [Hercules/Aqualon](http://www.aqualon.com)

Chem. Descrip.: Methyl cellulose See Methylcellulose
CAS 9004-67-5
Uses: Thickener, stabilizer, rheology control agent, film-former, suspending agent, water-retention aid, binder for pharmaceuticals
Regulatory: OSHA hazardous; SARA §302/304/313 nonreportable, §311/312 Fire Hazard; CERCLA, RCRA nonreportable; DOT not regulated; Canada DSL; Korea KECL
Properties: Wh. to off-wh. powd.; odorless; water-sol.; sp.gr. 0.25; visc. 10-12,000 mPa•s (2% aq.); pH 5-7 (1% sol'nl.); nonionic
Toxicology: May cause eye, skin irritation by abrasion; inh. may cause respiratory tract irritation; not mutagenic; **TSCA listed**
Precaution: Wear safety glasses, impervious gloves, protective clothing; may form flamm. dust/air mixts.; spills may be slippery; avoid generating dust; avoid breathing dust; ground all equipment; incompat. with acids, oxidizers, alkalis, strong sunlight, UV light, free radicals
Hazardous Decomp. Prods.: CO, CO₂, smoke
HMIS: Health 1, Flammability 1, Reactivity 0
Storage: Store in cool, dry, well-ventilated area in closed container; keep away from heat, flame, sparks, ignition sources

**Benecel® M** [Hercules/Aqualon](http://www.aqualon.com)

Chem. Descrip.: Methyl cellulose See Methylcellulose
CAS 9004-67-5
Uses: Suspending agent, binder, stabilizer, thickener, rheology control agent, film-former, gelant, surfactant for solid and liq. pharmaceutical dosage forms, sustained release tablets
Regulatory: EP, USP, FCC compliance
Properties: Sol. in water; visc. 10-12,000 mPa•s (2%)
### Trade Name Reference

<table>
<thead>
<tr>
<th>Trade Name</th>
<th>Manufacturer</th>
<th>Chemical Description</th>
<th>CAS Number</th>
<th>Regulatory</th>
<th>Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Benecel® ME1</strong></td>
<td><em>Hercules/Aqualon</em></td>
<td>Methyl cellulose</td>
<td>9004-67-5</td>
<td>EP, USP, FCC</td>
<td>Sol. in water; visc. 100-40,000 mPa•s (2%)</td>
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<tr>
<td><strong>Benecel® ME2</strong></td>
<td><em>Hercules/Aqualon</em></td>
<td>Methyl cellulose</td>
<td>9004-67-5</td>
<td>EP, USP, FCC</td>
<td>Sol. in water; visc. 100-40,000 mPa•s (2%)</td>
</tr>
<tr>
<td><strong>Benecel® MP</strong></td>
<td><em>Hercules/Aqualon</em></td>
<td>Methylhydroxypropylcellulose</td>
<td>9004-65-3</td>
<td></td>
<td>Water-sol.; visc. 3-70,000 mPa•s (2%); nonionic</td>
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<tr>
<td><strong>Benecel® MP3</strong></td>
<td><em>Hercules/Aqualon</em></td>
<td>Methyl cellulose</td>
<td>9004-67-5</td>
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</tr>
<tr>
<td><strong>Benecel® MP6</strong></td>
<td><em>Hercules/Aqualon</em></td>
<td>Methyl cellulose</td>
<td>9004-67-5</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Benox® A-70 USP</strong></td>
<td><em>Norac</em></td>
<td>Benzoyl peroxide, USP grade</td>
<td>94-36-0</td>
<td></td>
<td>Free-flowing gran.; 30% min. water; act. oxygen (4.4%)</td>
</tr>
<tr>
<td><strong>Bentolite® MB-Treated</strong></td>
<td><em>Southern Clay Prods.</em></td>
<td>Bentonite USP-NF</td>
<td>1302-78-9</td>
<td>EINECS/ELINCS</td>
<td>215-288-5</td>
</tr>
</tbody>
</table>
Trade Name Reference

Uses: Thickener, suspending agent, stabilizer for pharmaceuticals
Features: Rec. where economics are important
Properties: Fine powd.; odorless; 0% on No. 200 sieve; brightness 60; pH 9.5-10.5 (2% slurry); 5-8% moisture

Chem. Descrip.: Stearalkonium hectorite
Chem. Analysis: Moisture 3% max.
Uses: Rheology control agent, suspension aid in ointments
Features: Vegetable origin; specially treated to control microbial content to below 100 cfu/g; highly efficient for intermediate to high polarity systems; predictable, reproducible, stable visc. control; improved emulsion stability; nonabrasive; lt. in color
Regulatory: Europe EINECS; Canada DSL; Australia AICS; China; Japan
Properties: Lt. cream powd.; odorless; insol. in water; sp.gr. 1.7; lel 52.6 g/m³
Use Level: 0.25-3.0%
Toxicology: LD50 (oral, rat) 20 g/kg; not mutagenic; ACGIH TLV TWA 10 mg/m³ (8 h, total), 3 mg/m³ (8 h, respirable); OSHA PEL TWA 10 mg/m³ (8 h, total), 5 mg/m³ (8 h, respirable); TSCA listed
Environmental: LC50 (corophium volutator) no acute effect, (acartia tonsa) > 30 g/l; EC50 (skeletonema costatum) > 10 g/l; insignificant biodeg.
Precaution: Wear chemical resistant gloves, eye protection, air-purifying dust respirator; avoid breathing dust, contact with eyes; may be slippery when wet
Hazardous Decomp. Pros.: Under fire: CO, CO₂, org. chlorides, ammonia
HMIS: Health 0, Flammability 1, Reactivity 0
Storage: Keep closed when not in use

Chem. Descrip.: Purified hectorite clay
CAS 12173-47-6; EINECS/ELINCS 235-340-0
Uses: Thickener, rheological additive, thixotrope, pigment suspending agent, emulsion stabilizer for antidandruff shampoos, lotions, antiperspirants
Features: VOC-free
Properties: Wh. powd.; 100% act.
Use Level: 0.25-5.0% on total wt.

Chem. Descrip.: Octyldodecanol, disteardimonium hectorite, propylene carbonate (2.5%) See Nonoxynol-1
CAS ::108-32-7; EINECS/ELINCS ::203-572-1
Uses: Rheological control agent, suspension aid for chap stick, and ointments
Features: Predictable, reproducible and stable visc. control; exc. suspension of pigments and actives; enhanced emulsion stabilization; nonabrasive; imparts pleasant residual silkiness to skin; provides a high degree of formulation flexibility
Regulatory: Europe EINECS; Canada DSL exempted; Australia exempted; Japan ENCS
Properties: Lt. tan gel; odorless; negligible in water; dens. 0.86; m.p. -20 C; flash pt. (PMCC) 356-392 F
Toxicology: LD50 (oral, rat) > 2 g/kg; may cause eye, skin, respiratory irritation
Precaution: Wear chemical resistant gloves, safety glasses or goggles, org. vapor air purifying respirator; incompat. with oxidizers
HMIS: Health 1, Flammability 1, Reactivity 0
Storage: Store in cool, dry place

Chem. Descrip.: Hectorite, hydroxyethylcellulose
Uses: Suspending agent, rheology control agent, thickener, gelant, antisagging agent, leveling agent for antidandruff shampoos
Features: VOC-free
Regulatory: SARA §313 nonreportable
Properties: Milky wh. powd.; water-disp.; sp.gr. 2.6; dens. 20.9 lb/gal; pH 2% aq. disp. 8.8-10.2; 100% NV

Bentonite BC 342 [MPSI http://www.mp-solutionsinc.com]
Chem. Descrip.: Bentonite NF
Chem. Analysis: SiO₂ (58-61%); Al₂O₃ (21-22%); CaO (2-2.5%); MgO (3-4%); Fe₂O₃ (0.6-1%);
Trade Name Reference

**Na₂O (3.7-4.2%); K₂O (0.3-0.5%); TiO₂ (0.18-0.25%)**

**CAS 1302-78-9; EINECS/ELINCS 215-108-5**

**Uses:** Thickener in pharmaceuticals, acne lotions, medicinal skin creams, ointments, salves, powder preps., antidandruff shampoos; tablet binder

**Regulatory:** DOT nonregulated; SARA §313 nonreportable

**Properties:** Tan powd.; 100% through 200 mesh; mild odor; negligible sol.; sp.gr. 2.50; dens. 20.82 lb/solid gal; dry brightness 82-86; pH 9.5-10.5; 5-8% moisture

**Toxicology:** May cause **sl. eye irritation**; inh. of high dust levels may cause **minor irritation**; possible **hazard from chronic exposure to dust** (cryst. silica can cause **severe/permanent lung damage** and is a human **carcinogen**); TSCA listed

**Precaution:** Very slippery when wetted with water

**Hazardous Ingredients:** Cryst. silica (< 1%)

**HMIS:** Health 1, Flammability 0, Reactivity 0

**Storage:** Store in closed containers in dry area

**Bentonite BC 670** [MPSI http://www.mp-solutionsinc.com]

**Chem. Descrip.:** Bentonite NF

**Chem. Analysis:** SiO₂ (61.50%); Al₂O₃ (20.40%); CaO (1.20%); MgO (2.60%); Fe₂O₃ (3.80%); Na₂O (2.20%); K₂O (1.30%); TiO₂ (0.22%)

**CAS 1302-78-9; EINECS/ELINCS 215-108-5**

**Uses:** Thickener in pharmaceuticals, acne lotions, medicinal skin creams, ointments, salves, powder preps., antidandruff shampoos; tablet binder

**Regulatory:** DOT nonregulated; SARA §313 nonreportable

**Properties:** Tan powd.; 99.75% through 325 mesh, 99% through 200 mesh; mild odor; negligible sol.; sp.gr. 2.70; dens. 22.49 lb/solid gal; dry brightness 56-63; 5-8% moisture

**Toxicology:** May cause **sl. eye irritation**; inh. of high dust levels may cause **minor irritation**; possible **hazard from chronic exposure to dust** (cryst. silica can cause **severe/permanent lung damage** and is a human **carcinogen**); TSCA listed

**Precaution:** Very slippery when wetted with water

**Hazardous Ingredients:** Cryst. silica (< 1%)

**HMIS:** Health 1, Flammability 0, Reactivity 0

**Storage:** Store in closed containers in dry area

**Bentonite BC 770** [MPSI http://www.mp-solutionsinc.com]

**Chem. Descrip.:** Bentonite NF

**Chem. Analysis:** SiO₂ (61.50%); Al₂O₃ (20.40%); CaO (1.20%); MgO (2.60%); Fe₂O₃ (3.80%); Na₂O (2.20%); K₂O (1.30%); TiO₂ (0.22%)

**CAS 1302-78-9; EINECS/ELINCS 215-108-5**

**Uses:** Thickener in pharmaceuticals, acne lotions, medicinal skin creams, ointments, salves, powder preps., antidandruff shampoos; tablet binder

**Regulatory:** DOT nonregulated; SARA §313 nonreportable

**Properties:** Tan powd.; 99.75% through 325 mesh, 99% through 200 mesh; mild odor; negligible sol.; sp.gr. 2.70; dens. 22.49 lb/solid gal; dry brightness 56-63; 5-8% moisture

**Toxicology:** May cause **sl. eye irritation**; inh. of high dust levels may cause **minor irritation**; possible **hazard from chronic exposure to dust** (cryst. silica can cause **severe/permanent lung damage** and is a human **carcinogen**); TSCA listed

**Precaution:** Very slippery when wetted with water

**Hazardous Ingredients:** Cryst. silica (< 1%)

**HMIS:** Health 1, Flammability 0, Reactivity 0

**Storage:** Store in closed containers in dry area
**Bentonite BC 870** [MPSI](http://www.mp-solutionsinc.com)

**Chem. Descrip.:** Bentonite NF  
**Chem. Analysis:** SiO₂ (61.50%); Al₂O₃ (20.40%); CaO (1.20%); MgO (2.60%); Fe₂O₃ (3.80%); Na₂O (2.20%); K₂O (1.30%); TiO₂ (0.22%)

**CAS 1302-78-9; EINECS/ELINCS 215-108-5**

**Uses:** Thickener in pharmaceuticals, acne lotions, medicinal skin creams, ointments, salves, powder preps., antidandruff shampoos; tablet binder

**Regulatory:** DOT nonregulated; SARA §313 nonreportable

**Properties:** Tan powd.; 99.75% through 325 mesh, 99% through 200 mesh; mild odor; negligible sol.; sp.gr. 2.70; dens. 22.49 lb/solid gal; dry brightness 56-63; 5-8% moisture

**Toxicology:** May cause slight eye irritation; inh. of high dust levels may cause minor irritation; possible hazard from chronic exposure to dust (cryst. silica can cause severe/permanent lung damage and is a human carcinogen); TSCA listed

**Precaution:** Very slippery when wetted with water

**Hazardous Ingredients:** Cryst. silica (< 1%)

**HMIS:** Health 1, Flammability 0, Reactivity 0

**Storage:** Store in closed containers in dry area

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**Bentonite BC 4446** [MPSI](http://www.mp-solutionsinc.com)

**Chem. Descrip.:** Bentonite NF  
**Chem. Analysis:** SiO₂ (59-61%); Al₂O₃ (20-22%); CaO (2-3%); MgO (3.5-4%); Fe₂O₃ (0.6-0.7%); Na₂O (3.5-4%); K₂O (0.02-0.03%); TiO₂ (0.1-0.2%)

**CAS 1302-78-9; EINECS/ELINCS 215-108-5**

**Uses:** Thickener in pharmaceuticals, acne lotions, medicinal skin creams, ointments, salves, powder preps., antidandruff shampoos; tablet binder

**Regulatory:** DOT nonregulated; SARA §313 nonreportable

**Properties:** Tan powd.; 100% through 200 mesh; mild odor; negligible sol.; sp.gr. 2.50; dens. 20.82 lb/solid gal; dry brightness 83-87; pH 9.5-10.5; 8% max. moisture

**Toxicology:** May cause slight eye irritation; inh. of high dust levels may cause minor irritation; possible hazard from chronic exposure to dust (cryst. silica can cause severe/permanent lung damage and is a human carcinogen); TSCA listed

**Precaution:** Very slippery when wetted with water

**Hazardous Ingredients:** Cryst. silica (< 1%)

**HMIS:** Health 1, Flammability 0, Reactivity 0

**Storage:** Store in closed containers in dry area

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**Bentonite BC 4448** [MPSI](http://www.mp-solutionsinc.com)

**Chem. Descrip.:** Bentonite NF  
**Chem. Analysis:** SiO₂ (58-61%); Al₂O₃ (21-22%); CaO (2-2.5%); MgO (3-4%); Fe₂O₃ (0.6-1%); Na₂O (3.7-4.2%); K₂O (0.3-0.5%); TiO₂ (0.18-0.25%)

**CAS 1302-78-9; EINECS/ELINCS 215-108-5**

**Uses:** Thickener in pharmaceuticals, acne lotions, medicinal skin creams, ointments, salves, powder preps., antidandruff shampoos; tablet binder

**Regulatory:** DOT nonregulated; SARA §313 nonreportable

**Properties:** Tan powd.; 100% through 200 mesh; mild odor; negligible sol.; sp.gr. 2.50; dens. 20.82 lb/solid gal; dry brightness 82-86; pH 9.5-10.5; 5-8% moisture

**Toxicology:** May cause slight eye irritation; inh. of high dust levels may cause minor irritation; possible hazard from chronic exposure to dust (cryst. silica can cause severe/permanent lung damage and is a human carcinogen); TSCA listed

**Precaution:** Very slippery when wetted with water

**Hazardous Ingredients:** Cryst. silica (< 1%)

**HMIS:** Health 1, Flammability 0, Reactivity 0

**Storage:** Store in closed containers in dry area
Trade Name Reference

20.82 lb/solid gal; visc. 40-200 cps (5% solids); dry brightness 82-86; pH 9-10; 5-8% moisture

Toxicology: May cause sl. eye irritation; inh. of high dust levels may cause minor irritation; possible hazard from chronic exposure to dust (cryst. silica can cause severe/permanent lung damage and is a human carcinogen); TSCA listed

Precaution: Very slippery when wetted with water

Hazardous Ingredients: Cryst. silica (< 1%)

HMIS: Health 1, Flammability 0, Reactivity 0

Storage: Store in closed containers in dry area

Beta Carotene 30% FS [DSM Nutritional Prods. USA http://www.nutraaccess.com]

Chem. Descrip.: β- Carotene in corn oil with dl-α-tocopherol added as an antioxidant See Carotene; Corn (Zea mays) oil

CAS 7235-40-7; EINECS/ELINCS 230-636-6
Uses: Colorant or nutrient for pharmaceuticals

Regulatory: FDA 21CFR §73.95 (food use), 73.1095 (drug use), 73.2095 (cosmetic use), 182.5245 GRAS

Properties: Terra-cotta red fluid, fresh char. odor; sl. sol. in all oils and fats; 30% min. assay

Storage: Store in cool, dry place in tightly closed container

Beta Carotene 1% CWS [DSM Nutritional Prods. USA http://www.nutraaccess.com]

Chem. Descrip.: β- Carotene with dextrin, gum acacia, partially hydrogenated veg. oil, sucrose and antioxidants (sodium ascorbate, dl-α-tocopherol) See Carotene; Hydrogenated vegetable oil

Uses: Colorant in pharmaceuticals

Regulatory: FDA 21CFR §73.95 (food use), 73.1095 (drug use), 73.2095 (cosmetic use), GRAS

Properties: Orange fine powd.; 90% min. through 80 mesh; disp. in water; 1% min. assay (β-carotene)

Toxicology: Avoid ingestion or direct contact by applying suitable protective measures and personal hygiene

Storage: Store in tightly closed container in cool place protected from light and humidity; sensitive to air, heat

Beta-Carotene 10% DC/GFP [BASF AG http://www.basf.de]

Chem. Descrip.: Beta-carotene See Carotene

CAS 7235-40-7; EINECS/ELINCS 230-636-6
Uses: Dietary supplements for multivitamin mineral tablets made by direct compression

Features: High density and narrow particle size distribution; high tablet stability; nonanimal-derived; nonallergenic

Regulatory: Kosher and halal certified
Properties: Free-flowing, nondusting beadlet powd.

Beta-Carotene Dry Powd. 10% DC/GFP [BASF AG http://www.basf.de]

Chem. Descrip.: Beta-carotene in a matrix of modified starch and sucrose, coated with native starch with antioxidants and anticaking agents See Carotene; Starch sodium octenyl succinate

Chem. Analysis: 10% min. assay

CAS 7235-40-7; EINECS/ELINCS 230-636-6
Uses: Dietary supplement in direct compression of multivitamin mineral tablets, hard shell capsules, chewable and effervescent tablets, sugar or film-coated tablets

Regulatory: USP, EP

Properties: Free-flowing dk. red uniform sperical particles; mild characteristic odor; bulk dens. 0.7 g/ml

Storage: Store in tightly sealed original packaging @ R.T. in dry dark place; sensitive to oxygen, light, heat and moisture


Chem. Descrip.: Mono- and diglycerides with ≤ 0.01% citric acid and 0.02% BHT as preservatives See Mono- and diglycerides of fatty acids

Uses: Emulsifier for topical ointments

Properties: Ivory wh. fine flakes; m.p. 135-145 F; iodine no. 3 max.; 40-46% alpha monoglycerides

Storage: Up to 6 mos. storage life at temps. not to exceed 85 F

Bioban® BP Pharma [Dow http://www.dow.com]

Chem. Descrip.: 2-Bromo-2-nitropropane-1,3-diol (99%)

CAS 52-51-7; EINECS/ELINCS 200-143-0
Uses: Antimicrobial, preservative for topical pharmaceuticals

Features: Broad spectrum; effective against Gram-positive and Gram-negative bacteria, esp. Pseudomonas sp.; rec. @ pH 4-8;
excellent in combination with other preservatives, particularly isothiazolinone-based preservatives

**Properties:** Wh. to off-wh. cryst. solid; m.p. approx. 130 C; 99% active composition

**Toxicology:** No teratological effects were noted in studies involving rats and rabbits exposed either orally or dermally; similarly, no mutagenic effects were noted in the Ames test.

**Precaution:** Avoid contact with skin, eyes, clothing. Avoid breathing dust.

**Storage:** Store at temperatures below 25°C; keep container closed.

**Bioban® BP Pharma 30** [Dow http://www.dow.com]

**Chem. Descrip.:** 2-Bromo-2-nitropropane-1,3-diol (30%)

**CAS 52-51-7; EINECS/ELINCS 200-143-0**

**Uses:** Antimicrobial, preservative for topical pharmaceuticals

**Features:** Broad spectrum; effective against Gram-positive and Gram-negative bacteria, esp. *Pseudomonas* sp.; rec. @ pH 4-8

**Properties:** Pale yel. to colorless liq.; sp. gr. 1.19-1.21 (20 C); pH 4.5 max.; 29.1-30.9 % by wt.


**Chem. Descrip.:** α-Glucan oligosaccharide

**Uses:** Rec. for acne preps.

**Properties:** Wh. powd.; very sl. char. odor; sol. in water, propylene glycol, glycerol; insol. in ethanol; nonmisc. with min. and veg. oils; sp.gr. 0.70; pH 5.5±0.5 (5%)

**Toxicology:** Nonirritating to skin and eyes

**Storage:** Store @ R.T.

**Bio-Gentle® Formulation** [Lonza http://www.lonza.com]

**Chem. Descrip.:** Dialkyl dimethyl ammonium chloride, 1-methyl-2-heptadecenyl-3-olylamidoethyl imidazolinium methosulfate, ethyl alcohol, isopropyl alcohol, water See Oleic imidazolium methosulfate; Alcohol

**Uses:** Biocide for pharmaceuticals, veterinary prods.


**Chem. Descrip.:** Panthenol amino dimethicone See Panthenolamino dimethicone

**Uses:** Substantivity agent for topical pharmaceuticals

**Properties:** Milky liq.; water-disp.; pH 6-8; 37 ± 1% solids

**Use Level:** 1-2%


**Chem. Descrip.:** Dimethiconol panthenate See Dimethiconol panthenol
**Trade Name Reference**

**Uses:** Conditioner and bodying agent for pharmaceuticals, creams and lotions

**Properties:** Milky liq.; water-disp.; pH 4.3-5.3; 36-38% solids

**Use Level:** 1-2%


**Chem. Descrip.:** Di(octyldodecyl) fluoroheptyl citrate See Dioctyldodecyl fluoroheptyl citrate

**Uses:** Emollient, pigment dispersant for pharmaceuticals, creams, lotions, gels

**Features:** Improves slip and feel on skin; helps create water barrier

**Regulatory:** DOT nonregulated; SARA §311/312 nonreportable

**Properties:** Yel. to amber, cl. to hazy oily liq.; mild odor; sol. @ 5% in safflower oil, castor oil, min. oil, ethanol, oleyl alcohol, octyl palmitate; insol. in water, propylene glycol; sp.gr. 0.97; b.p. > 100 C; acid no. 4 max.; sapon. no. 135-165; flash pt. (PMCC) > 200 C; 0.2% max. moisture

**Use Level:** 0.5-5%

**Toxicology:** No potential health effects expected from handling; may cause mod. eye irritation, or skin irritation/discomfort; ing. may cause abdominal discomfort, nausea, vomiting, diarrhea; keep vapor concs. within PEL for formaldehyde

**Environmental:** Do not release into sewers or waterways

**Precaution:** No known chem. incompatibilities

**Hazardous Decomp. Prods.:** Heated to > 150 C in presence of air, may form formaldehyde vapors (potential cancer hazard, skin/respiratory sensitizer, irritant to nose/throat/digestive system)

**Storage:** Keep container tightly closed


**Chem. Descrip.:** Dimethiconol cysteinate See Dimethiconol cysteine

**Uses:** Ingre. for pharmaceuticals, creams and lotions

**Properties:** Milky wh. liq.; water-disp.; pH 4-6; 36-38% solids

**BIO-SOFT® N-300** [Stepan http://www.stepan.com]

**Chem. Descrip.:** TEA-dodecylbenzene sulfonate See TEA-dodecylbenzenesulfonate

**CAS** 27323-41-7; EINECS/ELINCS 248-406-9

**Uses:** Detergent, wetting agent, and foaming agent for pharmaceuticals

**Properties:** Pale yel. cl. liq.; water sol.; dens. 9.0 lb/gal; sp.gr. 1.08; visc. 3200 cps; surf. tens. 38.8 dynes/cm (0.1%); anionic; 60% act.

**Environmental:** Biodeg.

**Biospumex 275K** [Cognis France]

**Chem. Descrip.:** alkyl polyalkoxyether

**Uses:** Defoamer in pharmaceuticals

**Features:** Particularly rec. for media containing starch, glucose; silicone-free; does not affect the dissolved oxygen rate; stable to conventional sterilization conditions

**Properties:** Cl., colorless liq.; dens. 1.015-1.025; cloud pt. 27.5-32.5 C; pH (5% sol'n) 5-8; nonionic

**Use Level:** ≈ 1000 ppm

**Environmental:** No toxicity towards a wide range of micro-organisms

**Biosulphur Fluid** [CLR http://www.clr-berlin.de; Actives Int’l.]

**Chem. Descrip.:** Polysorbate 80 and sulfur

**Uses:** Sebum control additive, conditioner for aq., aq.-alcoholic, and emulsified preps., skin care, scalp care, oily hair care, dandruff, liq. shampoos

**Properties:** Dk. brn. visc. liq.; specific odor; sol. in water, water-alcohol mixts., alcohol, surfactants; misc. with fatty and min. oils; dens. 1.070-1.095 g/ml (20 C); ref. index 1.475-1.478; 1.4-1.7% S

**Use Level:** 0.1-2.0%

**Bio-Surf I-20** [Lonza http://www.lonza.com]

**Chem. Descrip.:** Nonylphenoxypoly(ethyleneoxy) ethanol-iodine complex, iodophor conc. See Nonoxynol iodine

**CAS** 11096-42-7

**Uses:** Disinfectant in pharmaceuticals

**Regulatory:** FDA 21 CFR §178.1010; EPA Reg. no. 6836-184

**Properties:** Very dk. brn. visc. liq.; mild, pleasantly clean halogen odor; sol. in water, monobutyl glycol ether, propylene glycol; sp.gr. 1.34; dens. 11.2 lb/gal; visc. 580 cps; f.p. < 0 C; pH 1.68 (10% aq.); flash pt. (PMCC) > 93 C; nonionic; 92% act. in water

**Toxicology:** TSCA listed

**Storage:** Congealing may occur during prolonged storage at low temperatures, reversible upon warming with mixture.
Trade Name Reference

BIO-TERGE® 804 [Stepan
http://www.stepan.com]
Chem. Descrip.: Sodium C14-16 olefin
sulfonate, sodium laureth sulfate,
lauramide DEA
Uses: Surfactant conc. for pharmaceuticals
Properties: Liq.; anionic; 50% act.

BIO-TERGE® AS-40 [Stepan
http://www.stepan.com]
Chem. Descrip.: Sodium C14-16 olefin
sulfonate
CAS 68439-57-6; EINECS/ELINCS 270-407-8
Uses: Detergent, foaming agent for
pharmaceuticals
Features: Provides exc. flash foam; contains no
phosphates
Properties: Yel. liquid; water sol.; dens. 8.9
lb/gal; anionic; 40% act. in water

BIO-TERGE® AS-90 Beads [Stepan
http://www.stepan.com]
Chem. Descrip.: Sodium C14-16 olefin
sulfonate
CAS 68439-57-6; EINECS/ELINCS 270-407-8
Uses: Detergent, foaming agent for
pharmaceuticals
Features: High foaming; provides exc. flash
foam
Properties: Solid beads; anionic; 90% conc.

Biowax 754 [Biosil Tech.
http://www.biosiltech.com]
Chem. Descrip.: Dimethicone copolyol wax
CAS 68937-54-2
Uses: Moisturizer, humectant for skin care
emulsions and gels, e.g., lotions, creams,
pharmaceuticals
Features: Can be used to make clear gels and
sol'n.
Properties: Wh. wax; water-sol. (readily
disperses @ 77 F); m.p. 36-46 C; flash pt.
(PMCC) > 200 F; nonionic; 100% solids

α-Bisabolol [BASF AG http://www.basf.de]
Chem. Descrip.: (±)-α-Bisabolol nat. derived
from chamomile and (±)-α-bisabolol rac.
(synthetic) See Bisabolol
CAS 515-69-5; EINECS/ELINCS 208-205-9
Uses: Antiphlogistic (anti-inflammatory)
active agent for cosmetics industry for
protection and care of sensitive skin
Properties: Colorless to sl. ylsh. cl. liq., faint
floral sweetish odor; sol. in ethanol, 2-
propanol, natural, min., and syn. fats and oils;
insol. in water and glycerin
Toxicology: (±): LD50 (rat) > 15,000 mg/kg;
nonirritating to skin, sl. irritating to eyes

(-)-α-Bisabolol [Symrise USA
http://www.symrise.com]
Chem. Descrip.: Bisabolol
CAS 515-69-5; EINECS/ELINCS 208-205-9
Uses: Anti-irritant in skin care (for sensitive,
dry, and problematic skin), after-sun and sun
block prods., aftershave, shaving prods.,
face/body lotions, baby care, hair care

Bitrit-1™ (1% Biotin Trituration) [DSM
Nutritional Prods. USA
http://www.nutraaccess.com]
Chem. Descrip.: Biotin FCC in dicalcium
phosphate dihydrate carrier See d-Biotin;
Calcium phosphate dibasic
CAS 58-85-5
Uses: As a source of the micronutrient biotin
in pharm., food and special dietary food
prods. including multivitamin tablets,
capsules, or powd. forms
Regulatory: USP, EP, FCC
Properties: Wh. free-flowing powd.; odorless;
98% min. through 80 mesh; insol. in water,
m.w. 244.31; org. solvs.; bulk dens. 50 lb/ft³;
10 mg min. d-biotin/g
Storage: 2 yr shelf life; store @ 59-86 F

Bitterness Blocker 1, Natural [Natural
Advantage http://www.natural-
advantage.net]
Uses: Flavor blocker for blocking bitter taste
of pharmaceuticals
Regulatory: GRAS; CFR §172.510; 21 CFR
§101.22; kosher
Properties: Liq.; faint, nodescript taste; sol. in
PG, alcohol, flavor oils

Bitterness Blocker 2, Natural [Natural
Advantage http://www.natural-
advantage.net]
Uses: Flavor blocker for blocking bitter taste
of pharmaceuticals
Regulatory: GRAS; CFR §172.510; 21 CFR
§101.22; kosher
Properties: Liq.; faint, nodescript taste; sol. in
PG, alcohol, flavor oils

Bitterness Blocker 3, Natural [Natural
Advantage http://www.natural-
advantage.net]
Uses: Flavor blocker for blocking bitter taste
of pharmaceuticals
Regulatory: GRAS; CFR §172.510; 21 CFR
Trade Name Reference

§101.22; kosher
Properties: Liq.; faint, nodescript taste; sol. in PG, alcohol, flavor oils

Bitterness Blocker 4, Natural [Natural Advantage http://www.natural-advantage.net]
Uses: Flavor blocker for blocking bitter taste of pharmaceuticals
Regulatory: GRAS; CFR §172.510; 21 CFR §101.22; kosher
Properties: Liq.; faint, nodescript taste; sol. in PG, alcohol, flavor oils

Bitterness Blocker 5, Natural [Natural Advantage http://www.natural-advantage.net]
Uses: Flavor blocker for blocking bitter taste of pharmaceuticals
Regulatory: GRAS; CFR §172.510; 21 CFR §101.22; kosher
Properties: Liq.; faint, nodescript taste; sol. in PG, alcohol, flavor oils

Bitterness Blocker 6, Natural [Natural Advantage http://www.natural-advantage.net]
Uses: Flavor blocker for blocking bitter taste of pharmaceuticals
Regulatory: GRAS; CFR §172.510; 21 CFR §101.22; kosher
Properties: Liq.; faint, nodescript taste; sol. in PG, alcohol, flavor oils

Bitterness Blocker 7, Natural [Natural Advantage http://www.natural-advantage.net]
Uses: Flavor blocker for blocking bitter taste of pharmaceuticals
Regulatory: GRAS; CFR §172.510; 21 CFR §101.22; kosher
Properties: Liq.; faint, nodescript taste; sol. in PG, alcohol, flavor oils

Bitterness Blocker 8, Natural [Natural Advantage http://www.natural-advantage.net]
Uses: Flavor blocker for blocking bitter taste of pharmaceuticals
Regulatory: GRAS; CFR §172.515; 21 CFR §101.22; kosher
Properties: Liq.; faint, nodescript taste; sol. in PG, alcohol, flavor oils

Bitterness Blocker 9, Natural [Natural Advantage http://www.natural-advantage.net]
Uses: Flavor blocker for blocking bitter taste

Blanose® Cellulose Gum [Hercules/Aqualon http://www.aqualon.com]
Chem. Descrip.: Cellulose gum See Carboxymethylcellulose sodium
CAS 9004-32-4; EINECS/ELINCS 265-995-8
Uses: Thickener in hydrocolloid wound gels; absorbent for body fluids in dressings; thickener, water binder, flow aid, thixotrope, suspending agent, gellant, foam stabilizer, adhesion promoter, lubricant in toothpaste
Properties: Anionic

Blanose® 7L2P [Hercules/Aqualon http://www.aqualon.com]
Chem. Descrip.: Cellulose gum USP/NF, EP See Carboxymethylcellulose sodium
CAS 9004-32-4; EINECS/ELINCS 265-995-8
Uses: Excipient for pharmaceuticals
Properties: Water-sol.; bulk dens. 0.65-0.95 g/ml; visc. 50-200 cps; pH 6.5-8.5 (1%); 99.5% min. purity

Blanose® 12M8P [Hercules/Aqualon http://www.aqualon.com]
Chem. Descrip.: Cellulose gum USP/NF, EP See Carboxymethylcellulose sodium
CAS 9004-32-4; EINECS/ELINCS 265-995-8
Uses: Excipient for pharmaceuticals
Properties: Water-sol.; bulk dens. 0.65-0.95 g/ml; visc. 400-800 cps; pH 6.5-8.5 (1%); 99.5% min. purity

Blanose® 12M31P [Hercules/Aqualon http://www.aqualon.com]
Chem. Descrip.: Cellulose gum USP/NF, EP See Carboxymethylcellulose sodium
CAS 9004-32-4; EINECS/ELINCS 265-995-8
Uses: Excipient for pharmaceuticals
Properties: Water-sol.; bulk dens. 0.65-0.95 g/ml; visc. 800-3100 cps; pH 6.5-8.5 (1%); 99.5% min. purity

BLO® [ISP http://www.ispcorp.com]
Chem. Descrip.: γ-Butyrolactone (99.7%) See Butyrolactone
CAS 96-48-0; EINECS/ELINCS 202-509-5
Uses: Intermediate for alkaloids, analgesics, anesthetics
Regulatory: Not regulated for transport; Canada DSL; Europe EINECS; Japan ENCS; Australia
Blue Algae Extract [Engelhard]
Chem. Descrip.: Blue algae (Haslea ostrearia) extract, propylene glycol
Uses: Anti-irritant for skin care

Chem. Descrip.: Sodium tetraborate decahydrate  See Sodium borate decahydrate
CAS 1303-96-4; EINECS/ELINCS 215-540-4
Uses: Base for pharmaceutical preps. and ointments

Regulatory: FDA 21CFR §175.105, 176.180, 181.30; SARA, RCRA nonreportable, DOT nonregulated; Canada DSL; Europe EINECS; South Korea listed; Japan MITI; WHMIS D2A
Properties: Wh. cryst. powd. or gran., odorless; sol. in water, glycerin; m.w. 381.37; sp.gr. 1.71; vapor pressure negligible; m.p. 62 C; pH 6.1 (0.1%); nonflamm.; > 99% act.
Toxicology: OSHA PEL 10 mg/m³ total dust; LD50 (oral, rat) 4500-5000 mg/kg, (dermal, rabbit) > 10,000 mg/kg; low acute oral and dermal toxicity; inh. at levels > 10 mg/m³ may cause mild irritation to nose and throat; ing. of lg. amts. may cause GI symptoms; TSCA listed

Environmental: EC50 (daphnia magna, 24 h) 242 mg; lg. amts. can be harmful to plants and other species
Precaution: Reacts as weak acid which may cause corrosion of base metals; incompat.

with strong reducing agents will generates hydrogen gas

NFPA: Health 0, Flammability 0, Reactivity 0
Storage: Store indoors in dry area; avoid wide fluctuations in temp. and humidity

Borax Decahydrate NF [U.S. Borax http://www.borax.com]
Chem. Descrip.: Sodium tetraborate decahydrate See Sodium borate decahydrate
CAS 1303-96-4; EINECS/ELINCS 215-540-4
Uses: Base for pharmaceutical preps. and ointments

Regulatory: FDA 21CFR §175.105, 176.180, 181.30; SARA, RCRA nonreportable, DOT nonregulated; Canada DSL; Europe EINECS; South Korea listed; Japan MITI; WHMIS D2A
Properties: Wh. cryst. powd. or gran., odorless; sol. in water, glycerin; m.w. 381.37; sp.gr. 1.71; vapor pressure negligible; m.p. 62 C; pH 6.1 (0.1%); nonflamm.; > 99% act.
Toxicology: OSHA PEL 10 mg/m³ total dust; LD50 (oral, rat) 4500-5000 mg/kg, (dermal, rabbit) > 10,000 mg/kg; low acute oral and dermal toxicity; inh. at levels > 10 mg/m³ may cause mild irritation to nose and throat; ing. of lg. amts. may cause GI symptoms; TSCA listed

Environmental: EC50 (daphnia magna, 24 h) 242 mg; lg. amts. can be harmful to plants and other species
Precaution: Reacts as weak acid which may cause corrosion of base metals; incompat.

with strong reducing agents will generates hydrogen gas

NFPA: Health 0, Flammability 0, Reactivity 0
Storage: Store indoors in dry area; avoid wide fluctuations in temp. and humidity

Chem. Descrip.: Sodium tetraborate decahydrate See Sodium borate decahydrate
CAS 1303-96-4; EINECS/ELINCS 215-540-4
Uses: Base for pharmaceutical preps.

Regulatory: FDA 21CFR §175.105, 176.180, 181.30; SARA, RCRA nonreportable, DOT nonregulated; Canada DSL; Europe EINECS; South Korea listed; Japan MITI; WHMIS D2A
Properties: Wh. cryst. powd. or gran., odorless; sol. in water, glycerin; m.w. 381.37; sp.gr. 1.71; vapor pressure negligible; m.p. 62 C; pH 6.1 (0.1%); nonflamm.; > 99% act.

Chem. Descrip.: Sodium tetraborate decahydrate  See Sodium borate decahydrate

CAS 1303-96-4; EINECS/ELINCS 215-540-4

Uses: Base for pharmaceutical preps.

Regulatory: FDA 21CFR §175.105, 176.180, 181.30; SARA, RCRA nonreportable, DOT nonregulated; Canada DSL; Europe EINECS; South Korea listed; Japan MITI; WHMIS D2A

Properties: Wh. cryst. powd. or gran., odorless; sol. in water, glycerin; m.w. 381.37; sp.gr. 1.71; vapor pressure negligible; m.p. 62 C; pH 6.1 (0.1%); nonflamm.; > 99% act.

Toxicology: OSHA PEL 10 mg/m³ total dust; LD50 (oral, rat) 4500-5000 mg/kg, (dermal, rabbit) > 10,000 mg/kg; low acute oral and dermal toxicity; inh. at levels > 10 mg/m³ may cause mild irritation to nose and throat; ing. of lg. amts. may cause GI symptoms; TSCA listed

Environmental: EC50 (daphnia magna, 24 h) 242 mg; lg. amts. can be harmful to plants and other species

Precaution: Reacts as weak acid which may cause corrosion of base metals; incompat. with strong reducing agents will generates hydrogen gas

NFPA: Health 0, Flammability 0, Reactivity 0

Storage: Store indoors in dry area; avoid wide fluctuations in temp. and humidity


Chem. Descrip.: Laureth-4

CAS 5274-68-0; EINECS/ELINCS 226-097-1

Uses: O/w coemulsifier, wetting agent, solubilizer, dispersant for topical pharmaceuticals

Regulatory: SARA §313 nonreportable

Properties: Colorless to lt. yel. liq. (may become hazy or form a precipitate); sol. in alcohol, propylene glycol, cottonseed oil; disp. in water; sp.gr. 0.95; visc. 30 cps; HLB 9.7; flash pt. (OC) >300 F; nonionic; 100% conc.

Toxicology: LD50 (oral, rat) 9.06 ml/kg

Environmental: 80% biodeg.; LC50 (96 h, semistatic, rainbow trout) 3.3 mg/l

HMIS: Health 3, Flammability 1, Reactivity 0

Storage: Store in original containers


Chem. Descrip.: Laureth-23

CAS 9002-92-0

Uses: Emulsifier, wetting agent, dispersant, solubilizer for pharmaceutical topicals

Regulatory: SARA §313 nonreportable

Properties: Wh. waxy solid; sol. in water, alcohol, propylene glycol; sp.gr. 1.05; m.p. 32.78 C; HLB 17.0; pour pt. 33 C; flash pt. (OC) >300 F; nonionic

Toxicology: Local eye anesthetic; nontoxic by ing., inh., or skin contact

Hazardous Decomp. Prods.: COx

HMIS: Health 1, Flammability 1, Reactivity 0

Storage: Store @ 50-90 F in original closed containers

Brij® 35P Pharma [Uniqema http://www.uniqema.com]

Chem. Descrip.: Laureth-23

CAS 9002-92-0

Uses: Emulsifier for pharmaceuticals

Regulatory: SARA §313 nonreportable

Properties: Wh. solid; sol. in water, alcohol,
propylene glycol; insol. in veg.oil, mineral oil, cottonseed oil; sp.gr. ≈ 1.05; vapor pressure <1 mmHg; b.p. ≈ 100 C; HLB 17.0; pour pt ≈ 33 C; flash pt. (OC) >149 C; nonionic

Toxicology: Local eye anesthetic; eye, skin, and GI tract irritant; LD50 (oral, rat) 8.6 g/kg

Environmental: Biodeg. (28 d) 89%

Precaution: Avoid strong oxidizing agents

Hazardous Decomp. Prods.: COx

HMIS: Health 1, Flammability 1, Reactivity 0

Storage: Store in original closed containers

Brij® 52 [Uniqema http://www.uniqema.com;
Chem. Descrip.: Ceteth-2 (antioxidants added)
CAS 9004-95-9
Uses: Emulsifier, wetting agent for topical pharmaceuticals

Regulatory: SARA §313 nonreportable; DSL listed

Properties: Wh. waxy solid; sl. odor; sol. in alcohol, cottonseed oil, min. oil; m.p. 32.8 CHLB 5.3; flash pt. (setaflash CC) > ≈ 200 F; nonionic; 100% conc.

Toxicology: TSCA listed

Precaution: Wear chemical tight goggles and impervious gloves

Hazardous Decomp. Prods.: COx

HMIS: Health 1, Flammability 1, Reactivity 0

Storage: Store @ 50-90 F in original closed containers

Brij® 58 [Uniqema http://www.uniqema.com;
Chem. Descrip.: Ceteth-20 with preservatives
CAS 9004-95-9
Uses: O/w emulsifier, dispersant, wetting agent for topical pharmaceuticals

Regulatory: SARA §311/312, 313 nonreportable; DSL listed

Properties: Wh. waxy solid; sol. in water, alcohol; sp. gr. 1.02; m.p. 35.6 C; HLB 15.7; pour pt. 38 C; flash pt. > 300 F; nonionic; 90-100% conc.

Toxicology: LD50 0.5-5 g/kg; nonirritant by ing., inh., and skin contact; noncarcinogenic; TSCA listed

HMIS: Health 1, Flammability 1, Reactivity 0

Storage: Store @ 50-90 F in original closed containers

Brij® 72 Pharma [Uniqema http://www.uniqema.com]
Chem. Descrip.: Steareth-2
CAS 9005-00-9
Uses: W/o emulsifier, o/w coemulsifier, wetting agent for pharmaceutical creams and lotions; excipient for drug delivery systems

Regulatory: USP/NF, EP compliance, TDG, DOT not regulated; Canada, Australia, EU, USA, Japan, China, Korea, Philippines compliant; SARA §313 nonreportable

Properties: Wh. waxy solid; sol. in alcohol; insol. in water, mineral oil and propylene glycol; sp. gr. 1.07; HLB 12.4; pour pt. 38 C; flash pt. > 300 F; pH 5 - 8 (10% in 3:1 IPA/water); nonionic; 90-100% conc.

Toxicology: LD50 (oral, rat) 25.1 g/kg; eye irritant; skin and eye irritant; nonirritant by ing. and inh.

Precaution: Avoid strong oxidizing agent

Hazardous Decomp. Prods.: COx

HMIS: Health 1, Flammability 1, Reactivity 0

Storage: Store in original containers

Brij® 76 Pharma [Uniqema http://www.uniqema.com]
Chem. Descrip.: Steareth-10
CAS 9005-00-9
Uses: O/w coemulsifier, wetting agent for topical pharmaceuticals

Regulatory: Canada, Australia, EU, USA, Japan, China, Korea, Philippines, Switzerland compliant

Properties: Wh. waxy solid; disp. in water; sol. in propylene glycol, ethanol; insol. in cottonseed oil and mineral oil; sp. gr. 0.97; HLB 12.4; pour pt. 38 C; flash pt. > 300 F; pouring pt. 38 C; nonionic; 100% conc.

Toxicology: Nonirritant to eyes and skin; low oral toxicity, but ing. may cause irritation of the GI tract

Precaution: Wear safety glasses with side shields and NR gloves

Brij 78P Pharma [Uniqema http://www.uniqema.com]
Chem. Descrip.: Steareth-20
CAS 9005-00-9
Uses: O/w coemulsifier, wetting agent for topical pharmaceuticals; excipient for drug delivery systems

Regulatory: USP/NF, EP compliance

Properties: Wh. waxy solid; sol. in water, alcohol; disp. in cottonseed oil; sp. gr. 1.09; HLB 15.3; flash pt. (CC) > 149 C; pour pt. 38 C; nonionic; 100% conc.

Toxicology: LD50 (oral, rat) 2.07 g/kg;
Trade Name Reference

nonirritant to eyes and skin; ing. may cause irritation to GI tract

Environmental: 80% biodeg.; COD 2.23 gO2/g
Precaution: Wear safety glasses with side shields and rubber gloves

Chem. Descrip.: Oleth-10 with antioxidants
CAS 9004-98-2
Uses: O/w emulsifier, wetting agent for topical pharmaceuticals
Properties: Pale yel. liq. with some solids; sol. in water and alcohol; visc. 100 cps; HLB 12.4; flash pt. > 300 F; pour pt. 16 C; nonionic; 100% conc.

Chem. Descrip.: Oleth-20
CAS 9004-98-2
Uses: Emulsifier, wetting agent for pharmaceuticals
Properties: Cream-colored soft waxy solid; sol. in water, alcohol, propylene glycol; HLB 15.3; flash pt. > 300 F; pour pt. 30 C; nonionic; 100% conc.

Brij 98 [Uniqema http://www.uniqema.com]
Chem. Descrip.: Oleth-20
CAS 9004-98-2
Uses: Emulsifier, wetting agent for pharmaceuticals
Properties: Characteristic odor; disp. in water; insol. in isopropanol, mineral oil, propylene glycol; sp. gr. 1; HLB 15.5; pour pt. ≈ 45 C; flash pt. (CC) > 230 F; 5-8 (10% in water); nonionic; 90-100% conc.

Chem. Descrip.: Steareth-21
CAS 9005-00-9
Uses: O/w emulsifier, wetting agent for topical pharmaceuticals
Properties: Colorless waxy flakes, characteristic odor; disp. in water; insol. in isopropanol, mineral oil, propylene glycol; sp. gr. 1; HLB 15.5; pour pt. ≈ 45 C; flash pt. (CC) > 230 F; 5-8 (10% in water); nonionic; 90-100% conc.

Chem. Descrip.: Acetodiphosphonic acid aq. sol'n. See Etidronic acid
CAS 2809-21-4; EINECS/ELINCS 220-552-8
UN 3265
Uses: Sequestrant for radioactive pharmaceuticals
Properties: Colorless cl. liq.; sl. odor; misc. with water; m.w. 206; sp.gr. 1.46 (20 C); visc. 64 cps (20 C); b.p. > 100 C; nonflamm.; pH < 1.8 (1%); 60% act.

Handbook of Pharmaceutical Additives, Third Edition 91
Trade Name Reference

**Bronopol™**

Chem. Descrip.: 2-Bromo-2-nitropropane-1,3-diol
CAS 52-51-7; EINECS/ELINCS 200-143-0
UN 3241

Uses: Antibacterial preservative for aq. systems, internal and topical formulations incl. antacids, suppositories, acne preps., creams and lotions

Features: Broad spectrum; effective against both gram-positive and gram-negative bacteria; very stable in acid media

Regulatory: FDA 21CFR §175.105, 176.300; EPA registered; JP, BP compliance

Properties: Wh. to sl. yel. crystals; char. odor; sol. in water, alcohol, propylene glycol; vapor pressure 1.26 x 10⁻⁵; m.p. 130 C; flash pt. 180 C; pH 4.5-5.0 @ 10% aq.; 99-100% purity

Use Level: Up to 0.1% (CIR, cosmetic preservative)

Toxicology: LD₅₀ (oral, male rat) 307 mg/kg, (oral, female rat) 342 mg/kg, (skin, rabbit) 64 - 164 mg/kg, (inh., rat) > 0.588 mg/L; harmful or fatal if swallowed; eye irritant; not a primary skin irritant

Environmental: LD₅₀ (mallard duck) 509.5 mg/kg; LC₅₀ (rainbow trout, 96h) 41.6 mg/kg, (water flea) 1.4 mg/kg, (mysid shrimp, 96h) 5.9 ppm; expected to have two day half life

Precaution: Wash hands before eating and smoking; use rubber or other impermeable

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**Bristol® 20USP**

Chem. Descrip.: White mineral oil USP
CAS 8020-83-5; EINECS/ELINCS 232-384-2
Uses: Binder, carrier, extender, lubricant, moisture barrier, protective agent, softener in pharmaceuticals

Properties: Sp.gr. 0.858-0.870; visc. 37.9-40.1 cst (40 C); pour pt. -18 C max.; flash pt. 193 C min.
Trade Name Reference

BTC® 50 USP/NF [Stepan http://www.stepan.com]
Chem. Descrip.: Benzalkonium chloride
USP/NF [n-alkyl (50% C12, 30% C14, 17% C16, 3% C18) dimethyl benzyl ammonium chloride]
CAS 68391-01-5; EINECS/ELINCS 269-919-4
Uses: Antimicrobial for pharmaceuticals
Regulatory: FDA 21CFR §178.1010; EPA reg. no. 1839-27; Europe, Japan, Canada, Australia listed; avail. kosher
Properties: APHA 200 max. cl. liq.; sp.gr. 0.97;
dens. 8.1 lb/gal; visc. 75 cps; pour pt. -8 C;
cloud pt. -2 C; flash pt. (PMCC) 52 C; pH 6.5-8.5 (10% aq.);
cationic; 50% act.
Toxicology: Mod. to sl. toxic orally; may cause severe skin irritation @ 2% act. and minimal eye irritation @ 0.3% act.
Environmental: Biodeg.
Storage: Store in sealed containers in cool, dry place; if frozen, heat gently and stir to ensure homogeneity before use

BTC® 65 USP/NF [Stepan http://www.stepan.com]
Chem. Descrip.: Benzalkonium chloride
USP/NF [n-alkyl (67% C12, 25% C14, 7% C16, 1% C8, C10, C18) dimethyl benzyl ammonium chloride]
CAS 68424-85-1; EINECS/ELINCS 270-325-2
Uses: Antimicrobial for pharmaceuticals
Regulatory: FDA 21CFR §178.1010; EPA reg. no. 1839-65; Europe, Japan, Canada, Australia listed; avail. kosher
Properties: APHA 200 max. cl. liq.; sp.gr. 0.97;
dens. 8.1 lb/gal; visc. 60 cps; pour pt. -4 C;
cloud pt. -3 C; flash pt. (PMCC) 56 C; pH 6.5-8.5 (10% aq.);
cationic; 50% act.
Toxicology: Mod. to sl. toxic orally; may cause severe skin irritation @ 2% act. and minimal eye irritation @ 0.3% act.
Environmental: Biodeg.
Storage: Store in sealed containers in cool, dry place; if frozen, heat gently and stir to ensure homogeneity before use

Environmental: Biodeg.
Storage: Store in sealed containers in cool, dry place; if frozen, heat gently and stir to ensure homogeneity before use

BTC® 776 [Stepan http://www.stepan.com]
Chem. Descrip.: Benzalkonium chloride
USP/NF [n-alkyl (50% C12, 30% C14, 17% C16, 3% C18) dimethyl benzyl ammonium chloride]
CAS 68391-01-5; 68391-06-0
Uses: Antimicrobial for pharmaceuticals
Regulatory: EPA reg. no. 1839-18; Japan, Canada, Australia listed; avail. kosher
Properties: APHA 200 max. cl. liq.; sp.gr. 0.96;
dens. 8.0 lb/gal; visc. 50 cps; flash pt. (PMCC) 39 C; pH 7.5 (10% aq.); cationic; 50% act.
Toxicology: LD50 (oral, rat) 50 - 500 mg/kg,
(skin, rabbit) 2000 - 20,000 mg/kg; sl. toxic orally; causes mod. skin and severe eye irritation; TSCA listed
Environmental: Biodeg.; very toxic to aquatic life
Precaution: Wear chemical goggles and face shield if splashing is possible; wear clothing sufficient to prevent all skin contact; use approved respirator if exposure limits are exceeded

BTC® 824 [Stepan http://www.stepan.com]
Chem. Descrip.: n-Alkyl (60% C12, 30% C16, 5% C12, 5% C18) dimethyl benzyl ammonium chloride See Benzalkonium chloride
CAS 68391-01-5; EINECS/ELINCS 269-919-4
Uses: Antimicrobial for pharmaceuticals
Regulatory: FDA 21CFR §178.1010; EPA reg. no. 1839-23; Europe, Japan, Canada, Australia listed; avail. kosher
Properties: APHA 200 max. cl. liq.; sp.gr. 0.96;
dens. 8.0 lb/gal; visc. 120 cps; pour pt. -10 C;
flash pt. (PMCC) 49 C; pH 7.5 (10% aq.); cationic; 50% act.
Toxicology: Mod. toxic orally; causes extreme skin and eye irritation at 25% act.
Environmental: Biodeg.
Storage: Store in sealed containers in cool, dry place; if frozen, heat gently and stir to ensure homogeneity before use
### Trade Name Reference

**BTC® 824 P100** [Stepan  
http://www.stepan.com]

**Chem. Descrip.**: Myristalkonium chloride monohydrate

CAS 139-08-2; EINECS/ELINCS 205-352-0

**Uses**: Antimicrobial for pharmaceuticals

**Regulatory**: EPA reg. no. 1839-30

**Properties**: Powd.; water-sol.; sp.gr. 0.40; flash pt. > 200 F; cationic; 95% act.

**BCT® 835** [Stepan  
http://www.stepan.com]

**Chem. Descrip.**: N-Alkyl (50% C14, 40% C12, 10% C16) dimethyl benzyl ammonium chloride  
See Benzalkonium chloride

CAS 68424-85-1; EINECS/ELINCS 270-325-2

**Uses**: Antimicrobial for pharmaceuticals

**Regulatory**: FDA 21CFR §178.1010; EPA reg. no. 1939-32; Europe, Japan, Canada, and Australia listed; avail. kosher

**Properties**: APHA 200 max. cl. liq.; sp.gr. 0.98; dens. 8.1 lb/gal; visc. 80 cps; flash pt. (PMCC) 54 C; pH 7.5 (10% aq.); cationic; 50% act.

**Toxicology**: Pract. nontoxic orally @ 5% act.; causes mod. skin and extreme eye irritation @ 5% act.

**Environmental**: Biodeg.

**Storage**: Store in sealed containers in cool, dry place; if frozen, heat gently and stir to ensure homogeneity before use

**BTC® 885** [Stepan  
http://www.stepan.com]

**Chem. Descrip.**: N-Alkyl (50% C14, 40% C12, 10% C16) dimethyl benzyl ammonium chloride, octyledecyl dimethyl ammonium chloride, dioctyl dimethyl ammonium chloride, and didecyl dimethyl ammonium chloride  
See Benzalkonium chloride; Didecylldimonium chloride; Dioctyl dimonium chloride; Stearalkonium chloride

CAS 68424-85-1; 122-19-0; 5538-94-3; 7173-51-5

**Uses**: Antimicrobial for pharmaceuticals

**Regulatory**: EPA reg. no. 1639-113

**Properties**: Liq.; sp.gr. 0.95; flash pt. 116 F; cationic; 80% act.

**BTC® 885 P40** [Stepan  
http://www.stepan.com]

**Chem. Descrip.**: Alkyl dimethyl benzyl ammonium chloride (16%), dI-C8-10-alklydimethyl ammonium chlorides (12%), didecyl dimethyl ammonium chloride (6%) and dioctyl dimethyl ammonium chloride (6%)  
See Benzalkonium chloride; Dicapryl/dicaprylyl dimonium chloride; Didecylldimonium chloride; Dioctyldimonium chloride

**BTC® 888** [Stepan  
http://www.stepan.com]

**Chem. Descrip.**: Quaternium-24, benzalkonium chloride

**Uses**: Antimicrobial for pharmaceuticals

**Regulatory**: EPA registered

**Properties**: Liq.; cationic; 80% act.

**BTC® 2125** [Stepan  
http://www.stepan.com]

**Chem. Descrip.**: n-Alkyl (60% C14, 30% C16, 5% C12, 5% C18) dimethyl benzyl ammonium chloride (CAS 68391-01-5) (25%) and alkyl dimethyl ethylbenzyl ammonium chloride (25%)  
See Benzalkonium chloride

**Uses**: Antimicrobial for pharmaceuticals

**Regulatory**: FDA 21CFR §178.1010; EPA reg. no. 1839-13; Europe, Japan, Canada, and Australia listed; avail. kosher

**Properties**: APHA 200 max. cl. liq.; sp.gr. 0.97; dens. 8.1 lb/gal; visc. 60 cps; pour pt. -6 C; cloud pt. -4 C; flash pt. (PMCC) 77 C; pH 6.5-8.5 (10% aq.); cationic; 50% act.

**Toxicology**: LD50 (oral) 350 mg/kg; mod. toxic orally; sl. toxic dermally; causes mod. skin and severe eye irritation @ 10% act.

**Environmental**: Biodeg.

**Storage**: Store in sealed containers in cool, dry place; if frozen, heat gently and stir to ensure homogeneity before use

**BTC® 2125-80** [Stepan  
http://www.stepan.com]

**Chem. Descrip.**: N-Alkyl (60% C14, 30% C16, 5% C12, 5% C18) dimethyl benzyl ammonium chloride (CAS 68391-01-5) (40%) and alkyl dimethyl ethylbenzyl ammonium chloride (25%)  
See Benzalkonium chloride

**Uses**: Antimicrobial for pharmaceuticals

**Regulatory**: EPA reg. no. 1839-136

**Properties**: Liq.; flash pt. > 93.9 C; cationic; 40% act.

**Toxicology**: CAS 68424-85-1: LD50 (oral, rat) 426 mg/kg, (oral, mouse) 919 mg/kg; CAS 7173-51-5: LD50 (oral, rat) 84 mg/kg, (oral, mouse) 268 mg/kg; may cause irritation to eyes, skin, respiratory tract; TSCA listed

**Precaution**: Incompat. with strong oxidizing agents; wear suitable protective clothing, impervious gloves

**Hazardous Decomp. Prods.**: May yeild poisonous gases including oxides nitrogen and ammonia

**Storage**: Avoid dispersion of dust in air; prevent electrostatic charge buildup
Trade Name Reference

(40%) See Benzalkonium chloride

Uses: Antimicrobial for pharmaceuticals

Regulatory: FDA 21 CFR §178.1010; EPA reg. no. 1839-34; Europe, Japan, Canada, and Australia listed; avail. kosher

Properties: APHA 200 max. cl. liq.; sp.gr. 0.94; dens. 7.8 lb/gal; visc. 215 cps; pour pt. 2 C; cloud pt. -13 C; flash pt. (PMCC) 54 C; pH 6.5-8.5 (10% aq.); cationic; 80% act.

Toxicology: Sl. toxic dermally

Environmental: Biodeg.

Storage: Store in sealed containers in cool, dry place; if frozen, heat gently and stir to ensure homogeneity before use

BTC® 2125M [Stepan http://www.stepan.com]

Chem. Descrip.: n-Alkyl (60% C14, 30% C16, 5% C12, 5% C18) dimethyl benzyl ammonium chloride (CAS 68391-01-5) (25%) and alkyl dimethyl ethylbenzyl ammonium chloride (25%) See Alcohol; Benzalkonium chloride

CAS 68391-01-5; 68956-79-6; 64-17-5

Uses: Antimicrobial for pharmaceuticals

Regulatory: FDA 21 CFR §178.1010; EPA reg. no. 1839-46; Europe, Japan, Canada, and Australia listed; avail. kosher

Properties: APHA 200 max. cl. liq.; sp.gr. 0.97; dens. 8.1 lb/gal; visc. 50 cps; pour pt. -4 C; flash pt. (PMCC) 77 C; pH 6.5-8.5 (10% aq.); cationic; 50% act.

Toxicology: CAS 64-17-5: LD50 (oral, rat) 7060 mg/kg; (oral, mouse) 3450 mg/kg; LC50 (inh., rat) 20,000 ppm/10H, (inh., mouse) 39 gm/m3; sl. toxic orally; causes severe skin and extreme eye irritation; TSCA listed

Environmental: Biodeg.

Precaution: Avoid contact with skin and eyes; avoid breathing mists or vapors; wear chemical goggles, suitable protective clothing, impervious gloves and respirator if irritation is experienced

HMIS: Health 2, Flammability 2, Reactivity 0

Storage: Store in sealed containers in cool, dry place; if frozen, heat gently and stir to ensure homogeneity before use; keep away from heat sparks or open flame

BTC® 2125M-90% [Stepan http://www.stepan.com]

Chem. Descrip.: n-Alkyl (60% C14, 30% C16, 5% C12, 5% C18) dimethyl benzyl ammonium chloride (CAS 68391-01-5) (45%) and alkyl dimethyl ethylbenzyl ammonium chloride (45%) See Benzalkonium chloride

CAS 68956-79-6; 68391-04-8

Uses: Antimicrobial for pharmaceuticals

Features: Broad-spectrum

Regulatory: FDA 21 CFR §178.1010; EPA reg. no. 1839-54; Europe, Japan, Canada, and Australia listed; avail. kosher

Properties: APHA 200 max. cl. liq.; sp.gr. 0.94; dens. 7.8 lb/gal; visc. 320 cps; pour pt. 2 C; flash pt. (PMCC) 54 C; pH 6.5-8.5 (10% aq.); cationic; 80% act.

Toxicology: Sl. toxic orally; causes severe skin and extreme eye irritation; TSCA listed

Environmental: Biodeg.

Precaution: Ethanol: LC50 (inh., rat) 20,000 ppm/10H, (inh. mouse) 39 gm/m3, (oral, rat) 7060 mg/kg; LD50 (oral, mouse) 3450 mg/kg; may be irritating to eyes, skin, gastrointestinal tract, respiratory system; wear chemical goggles, impervious gloves, suitable protective clothing; incompat. with strong oxidizing agents

Hazardous Decomp. Prods.: CO, CO2

BTC® 2125M-80% [Stepan http://www.stepan.com]

Chem. Descrip.: N-Alkyl (60% C14, 30% C16, 5% C12, 5% C18) dimethyl benzyl ammonium chloride (CAS 68391-01-5) (40%) and alkyl dimethyl ethylbenzyl ammonium chloride (40%) See Benzalkonium chloride;

Dimethyl C13-15 alkyl amine

CAS 68391-01-5; 68956-79-6; 68391-04-8

Uses: Antimicrobial for pharmaceuticals

Features: Broad-spectrum

Regulatory: FDA 21 CFR §178.1010; EPA reg. no. 1839-34; Europe, Japan, Canada, and Australia listed; avail. kosher

Properties: APHA 200 max. cl. liq.; sp.gr. 0.94; dens. 7.8 lb/gal; visc. 215 cps; pour pt. 2 C; cloud pt. -13 C; flash pt. (PMCC) 54 C; pH 6.5-8.5 (10% aq.); cationic; 80% act.

Toxicology: Sl. toxic dermally

Environmental: Biodeg.

Storage: Store in sealed containers in cool, dry place; if frozen, heat gently and stir to ensure homogeneity before use

BTC® 2125M-90% [Stepan http://www.stepan.com]

Chem. Descrip.: n-Alkyl (60% C14, 30% C16, 5% C12, 5% C18) dimethyl benzyl ammonium chloride (CAS 68391-01-5) (45%) and alkyl dimethyl ethylbenzyl ammonium chloride (45%) See Benzalkonium chloride

CAS 68391-01-5; 68956-79-6; 68391-04-8

Uses: Antimicrobial in pharmaceuticals

Features: Approved for no rinse clearance when used as either straight sanitizer or when formulated as detergent/sanitizer

Regulatory: FDA 21 CFR §178.1010; EPA reg. no. 1839-158; Europe, Japan, Canada, and Australia listed; avail. kosher

Properties: APHA 200 max. paste; sp.gr. 0.95; dens. 7.9 lb/gal; flash pt. (PMCC) > 94 C; pH 7.5 (10% aq.); 0% VOC; 90% act.

Toxicology: Sl. toxic orally; causes severe skin and extreme eye irritation

Environmental: Biodeg.

Storage: Store in sealed containers in cool, dry place; if frozen, heat gently and stir to ensure homogeneity before use

BTC® 2125M-80% [Stepan http://www.stepan.com]

Chem. Descrip.: N-Alkyl (60% C14, 30% C16, 5% C12, 5% C18) dimethyl benzyl ammonium chloride (CAS 68391-01-5) (40%) and alkyl dimethyl ethylbenzyl ammonium chloride (40%) See Benzalkonium chloride;
Trade Name Reference
BTC® 2125M P-40 [Stepan http://www.stepan.com]
Chem. Descrip.: Urea, n-alkyl dimethyl benzyl ammonium chloride (20%), alkyl dimethyl ethylbenzyl ammonium chloride (20%) and dimethyl C13-15 alkyl amine See Benzalkonium chloride
CAS 57-13-6; 68391-01-5; 68956-79-6; 68391-04-8
Uses: Antimicrobial for pharmaceuticals
Features: Broad-spectrum
Regulatory: FDA 21CFR §178.1010; EPA reg. no. 1839-55; Europe, Japan, Canada, and Australia listed; avail. kosher
Properties: Wh. prill; sp.gr. 0.55; dens. 37.6 lb/ft³; flash pt. (PMCC) > 94 C; pH 6.5-8.5 (10% aq.): 0% VOC; cationic; 40% act.
Toxicology: LD50 (oral, rat) 500 - 5000 mg/kg, (skin, rabbit) 2000 - 20,000; sl. toxic orally; causes severe skin and extreme eye irritation; TSCA listed
Environmental: Biodeg.; very toxic to aquatic life
Precaution: Avoid contact with skin, eyes; avoid breathing dusts; wear chemical goggles; wear sufficient to prevent all skin contact; if irritation is experienced, use respirator
Hazardous Decomp. Prods.: Oxides of nitrogen and ammonia, CO, CO₂ and other low-molecular weight hydrocarbons
HMIS: Health 2, Flammability 1, Reactivity 0
Storage: Store in cool, dry place in original shipping container; keep lid closed to prevent agglomeration

BTC® 2565 [Stepan http://www.stepan.com]
Chem. Descrip.: N-Alkyl (60% C14, 25% C12, 15% C16) dimethyl benzyl ammonium chloride See Benzalkonium chloride
CAS 68424-85-1; EINECS/ELINCS 270-325-2
Uses: Antimicrobial for pharmaceuticals
Regulatory: EPA reg. no. 1839-65; Europe, Japan, Canada, and Australia listed; avail. kosher
Properties: APHA 200 max. cl. liq.; sp.gr. 0.96; dens. 8.0 lb/gal; flash pt. (PMCC) 43 C; pH 6.5-8.5 (10% aq.); cationic; 50% act.
Toxicology: Mod. toxic orally; causes mod. skin and extreme eye irritation @ 5% act.
Environmental: Biodeg.
Storage: Store in sealed containers in cool, dry place; if frozen, heat gently and stir to ensure homogeneity before use

BTC® 2568 [Stepan http://www.stepan.com]
Chem. Descrip.: N-Alkyl (60% C14, 25% C12, 15% C16) dimethyl benzyl ammonium chloride See Benzalkonium chloride
CAS 68424-85-1; EINECS/ELINCS 270-325-2
Uses: Antimicrobial for pharmaceuticals
Regulatory: EPA reg. no. 1939-67; Europe, Japan, Canada, and Australia listed; avail. kosher
Properties: APHA 200 max. cl. liq.; sp.gr. 0.94; dens. 7.8 lb/gal; flash pt. (PMCC) 37 C; pH 6.5-8.5 (10% aq.); cationic; 80% act.
Toxicology: Mod. toxic orally; causes mod. skin and extreme eye irritation @ 5% act.
Environmental: Biodeg.
Storage: Store in sealed containers in cool, dry place; if frozen, heat gently and stir to ensure homogeneity before use

BTC® 8248 [Stepan http://www.stepan.com]
Chem. Descrip.: N-Alkyl (60% C14, 30% C16, 5% C12, 5% C18) dimethyl benzyl ammonium chloride See Benzalkonium chloride
CAS 68391-01-5; EINECS/ELINCS 269-919-4
Uses: Antimicrobial for pharmaceuticals
Regulatory: FDA 21CFR §178.1010; EPA reg. no. 1389-33; Europe, Japan, Canada, and Australia listed; avail. kosher
Properties: APHA 150 max. cl. liq.; sp.gr. 0.95; dens. 7.9 lb/gal; flash pt. (PMCC) 54 C; pH 7.5 (10% aq.); cationic; 80% act.
Toxicology: Mod. toxic orally; causes extreme skin and eye irritation at 25% act.

shipping container; keep lid closed to prevent agglomeration
Trade Name Reference

Environmental: Biodegrad.
Storage: Store in sealed containers in cool, dry place; if frozen, heat gently and stir to ensure homogeneity before use

BTC® 8249 [Stepan http://www.stepan.com]
Chem. Descrip.: N-Alky (60% C14, 30% C16, 5% C12, 5% C18) dimethyl benzyl ammonium chloride See Benzalkonium chloride
CAS 68391-01-5; EINECS/ELINCS 269-919-4
Uses: Antimicrobial for pharmaceuticals
Regulatory: FDA 21CFR §178.1010; EPA reg. no. 1839-19; Europe, Japan, and Australia listed; avail. kosher
Properties: Amber paste; sp.gr. 0.94; dens. 7.8 lb/gal; visc. 3700 cps; flash pt. (PMCC) 48 C; pH 7.5 (10% aq.); cationic; 90% act.
Toxicology: Mod. toxic orally; causes extreme skin and eye irritation at 25% act.
Environmental: Biodegrad.
Storage: Store in sealed containers in cool, dry place; if frozen, heat gently and stir to ensure homogeneity before use

BTC® 8358 [Stepan http://www.stepan.com]
Chem. Descrip.: N-Alkyl (50% C14, 40% C12, 10% C16) dimethyl benzyl ammonium chloride See Benzalkonium chloride
CAS 68424-85-1; EINECS/ELINCS 270-325-2
Uses: Antimicrobial for pharmaceuticals
Regulatory: FDA 21CFR §178.1010; EPA reg. no. 1939-68; Europe, Japan, and Canada listed; avail. kosher
Properties: APHA 200 max. cl. liq.; sp.gr. 0.94; dens. 7.8 lb/gal; visc. 500 cps; flash pt. (PMCC) 28 C; pH 7.5 (10% aq.); cationic; 80% act.
Toxicology: Pract. nontoxic orally @ 5% act.; causes mod. skin and extreme eye irritation @ 5% act.
Environmental: Biodegrad.
Storage: Store in sealed containers in cool, dry place; if frozen, heat gently and stir to ensure homogeneity before use

Chem. Descrip.: Oleic isopropanolamide See Oleamide MIPA
CAS 111-05-7; EINECS/ELINCS 203-828-2
Uses: Foam stabilizer in ointments
Features: Coco-DEA replacement; lower pH inc. visc.
Properties: Yel. cl. liq. @ 40 C; tan solid @ R.T.; sol. in ethanol, IPA; disp. in water; m.w. 339.5; sp.gr. 0.92; HLB 6-8; acid no. 7 max.; amine

Butyl Diglyme [Ferro http://www.ferro.com]
Chem. Descrip.: Diethylene glycol dibutyl ether
CAS 112-73-2; EINECS/ELINCS 204-001-9
Uses: Solvent, drug carrier, stabilizer in pharmaceuticals
Features: Tends to solvate cations
Properties: Colorless liq.; mild nonresidual odor; sol. 0.3% in water; misc. with ethanol, acetone, benzene, diethyl ether, octane; m.w. 218.34; sp.gr. 0.8814; dens. 7.36 lb/gal; visc. 2.4 cP; f.p. -60.2 C; b.p. 256 C; flash pt. (CC) 118 C; ref. index 1.4235; pH neutral; surf. tens. 27 dynes/cm (20 C); sp. heat 0.495 cal/g/°C; 98.5% min. purity
Environmental: LD50 3900 mg/kg; low to mod. acute toxicity; chronic exposure may cause reproductive effects
Precaution: Slowly biodeg.

Butylparaben NF [Protameen http://www.protameen.com]
Chem. Descrip.: Butylparaben
Chem. Analysis: 99.0 - 100.5% assay
CAS 94-26-8; EINECS/ELINCS 202-318-7
Uses: Pharmaceutical preservative
Regulatory: USP/NF
Properties: Off-wh. powd.; sl. odor; negligible sol. in water (0.015%); melting range 68-72 C
Toxicology: Dust may irritate eyes; nonirritating to skin
Environmental: Biodegrad.
Precaution: Avoid strong oxidizing agents; wear goggles and gloves
Hazardous Decomp. Prods.: None
Storage: Store in cool, dry place

Byco 1500 [Croda Inc http://www.croda.com; http://www.crodausa.com]
Chem. Descrip.: Hydrolyzed gelatin NF
CAS 68410-45-7; EINECS/ELINCS 270-082-2
Uses: Oral and topical pharmaceuticals; nutritional prods.
Features: Deodorized
Properties: Sol. in water, propylene glycol; insol. in min. oil, IPA; m.w. 3000

Byco A [Croda Inc http://www.croda.com; http://www.crodausa.com; Croda Colloids Ltd http://www.croda-colloids.co.uk]
Chem. Descrip.: Hydrolyzed gelatin
CAS 68410-45-7; EINECS/ELINCS 270-082-2
Uses: Excipient, film-former, coating agent,
Trade Name Reference

binder in pharmaceutical tableting, spray drying, wet/dry granulation, direct compression; emulsion stabilizer; adjuvant protein in nutritional supplement; growth media; surgical dusting powd.; anti-irritant for other ingreds.

Properties: Wh. to pale cream spray-dried powd., char. odor and taste; sol. in water, propylene glycol; insol. in min. oil, IPA; m.w. 10,000; bulk dens. 0.15-0.30 g/cc; pH 5.5-6.5 (10% aq.); 7% max. moisture
Use Level: 2.5-5% (granulation)
Storage: Store in cool dry conditions in sealed containers, away from odiferous materials; indefinitely stable

Byco C [Croda Inc  http://www.croda.com; Croda Colloids Ltd  http://www.croda-colloids.co.uk]
Chem. Descrip.: Hydrolyzed gelatin
CAS 68410-45-7; EINECS/ELINCS 270-082-2
Uses: Excipient, film-former, gloss aid, coating agent, binder in pharmaceutical tableting, spray drying, wet/dry granulation, direct compression; emulsion stabilizer; adjuvant protein in nutritional supplement; growth media; surgical dusting powd.
Features: Provides hard film
Properties: Wh. to pale cream spray-dried powd., char. odor and taste; sol. in water, propylene glycol; insol. in min oil, IPA; m.w. 176.1; pH 5.5-6.5 (10% aq.); 7% max. moisture
Use Level: 2.5-5% (granulation)
Toxicology: LD50 (oral, rat) 5 g/kg
Storage: Store in cool dry conditions in sealed containers, away from odiferous materials; indefinitely stable

Byco M [Croda Inc  http://www.croda.com; Croda Colloids Ltd  http://www.croda-colloids.co.uk]
Chem. Descrip.: Hydrolyzed fish collagen  See Hydrolyzed collagen
CAS 92113-31-0
Uses: Binder, film-former for oral and topical pharmaceuticals, microencapsulation
Regulatory: Kosher
Properties: M.w. 25,000

Byco O [Croda Colloids Ltd  http://www.croda-colloids.co.uk]
Chem. Descrip.: Hydrolyzed gelatin
CAS 68410-45-7; EINECS/ELINCS 270-082-2
Uses: Binder in pharmaceutical tableting, spray drying, wet/dry granulation, direct compr.; excipient, film-former, coating agent; emulsion stabilizer; adjuvant protein in nutritional supplement; growth media; surgical dusting powd.
Properties: Wh. to pale cream spray-dried powd., char. odor and taste; sol. in water; m.w. 1000-2000; bulk dens. 0.25-0.40 g/cc; pH 5.5-6.5 (10% aq.); 7% max. moisture
Toxicology: LD50 (oral, rat) 5 g/kg
Storage: Store in cool dry conditions in sealed containers, away from odiferous materials; indefinitely stable

C-90™ Ascorbic Acid 90% Granulation  [DSM
Nutritional Prods. USA  http://www.nutraaccess.com]
Chem. Descrip.: Ascorbic acid granulated with corn starch and lactose  See L-Ascorbic acid; (Corn (Zea mays) starch
CAS 50-81-7; EINECS/ELINCS 200-066-2
Uses: Vitamin for direct compression tableting
Regulatory: USP, FCC, Ph. Eur.
Properties: Wh. to sl. off-wh., granular powd.; 89.0% min. assay
Storage: Stable to air if protected from humidity

C-97® Ascorbic Acid for DC  [BASF
http://www.basf.com]
Chem. Descrip.: Ascorbic acid (97%) and food starch (3%)  See L-Ascorbic acid
CAS 50-81-7; EINECS/ELINCS 200-066-2
Uses: Dietary supplement in pharmaceutical tablets and nutritional supplements produced by direct compression
Features: Rapidly oxidizes in solution
Regulatory: USP/FCC
Properties: Wh. to off wh. powd.; almost odorless; sl. mild odor; m.w. 176.1; ≈ 97% act.
Storage: 3 yr shelf-life; store in tightly closed containers @ R.T; protect from light and in a dry place

C-97®SF Ascorbic Acid for DC  [BASF
http://www.basf.com]
Chem. Descrip.: Ascorbic acid (97%) and HPMC (3%)  See L-Ascorbic acid; Hydroxypropyl methylcellulose
CAS 50-81-7; 9004-65-3; EINECS/ELINCS 200-066-2; $
Uses: Dietary supplement in pharmaceutical tablets and nutritional supplements produced by direct compression
Features: Formulated without starch or sugar; rapidly oxidizes in solution
Regulatory: USP/FCC
Properties: Wh. to off wh. powd.; almost
Trade Name Reference

odorless; sl. mild odor; m.w. 176.1; ≈ 97% act.
Storage: 2 yr shelf-life; store in tightly closed containers @ R.T; protect from light and in a dry place
C.Cal-97™ Calcium Ascorbate for DC [BASF http://www.basf.com]
Chem. Descr.: Calcium ascorbate, HPMC (2.9%), tartaric acid (0.1%) See Hydroxypropyl methylcellulose; L-Tartaric acid
CAS 5743-27-1; 9004-65-3; 87-69-4; EINECS/ELINCS 227-261-5; $; 201-766-0
Uses: Dietary supplement in pharmaceutical tablets and nutritional supplements by direct compression
Features: Used where a less acidic form of ascorbic acid is desired
Regulatory: USP/FCC
Properties: Sl. yelsh. gran. powd.; almost odorless; particle size US Sieve #20 (850 μ) min. 85% thru; m.w. 426.4; ≈ 97% act.
Storage: 36 months shelf-life; store in tightly closed containers @ R.T; protect from light and in a dry place
Chem. Descr.: PEG-3 castor oil
CAS 61791-12-6
Uses: Hydrotrope, solubilizer, w/o emulsifier in pharmaceuticals
Regulatory: JSCI listed
Properties: Pale yel. liq.; HLB 3.0; nonionic; 100% conc.
Toxicology: TSCA listed
Chem. Descr.: PEG-10 castor oil
CAS 61791-12-6
Uses: Emulsifier for pharmaceuticals
Features: Lipophilic
Regulatory: JSCI listed
Properties: Pale yel. liq.; HLB 6.5; nonionic; 100% conc.
Toxicology: TSCA listed
Chem. Descr.: PEG-20 castor oil
CAS 61791-12-6
Uses: Emulsifier for pharmaceuticals
Features: Hydrophilic
Regulatory: JSCI listed
Properties: Pale yel. liq.; HLB 10.5; nonionic; 100% conc.
Toxicology: TSCA listed
Chem. Descr.: PEG-40 castor oil
CAS 61791-12-6
Uses: Solubilizer for pharmaceuticals
Features: Rec. for systems with high alcohol conc.
Regulatory: JSCI listed
Properties: Pale yel. liq.; HLB 12.5; nonionic; 100% conc.
Toxicology: TSCA listed
Chem. Descr.: PEG-50 castor oil
CAS 61791-12-6
Uses: Solubilizer for pharmaceuticals
Features: Rec. for low alcohol content systems
Regulatory: JSCI listed
Properties: Pale yel. liq.; HLB 14.0; nonionic
Toxicology: TSCA listed
Chem. Descr.: PEG-60 castor oil
CAS 61791-12-6
Uses: Solubilizer for pharmaceuticals
Features: Rec. for low alcohol content systems
Regulatory: JSCI listed
Properties: Pale yel. liq.; HLB 14.0; nonionic; 100% conc.
Toxicology: TSCA listed
Chem. Descr.: Natural milk calcium (calcium (27% min.) and phosphorus (10% min.) mixture) derived from bovine milk
CAS 7758-23-8; EINECS/ELINCS 231-837-1
Uses: Calcium and phosphorus source for direct compression of nutritional supplement tablets and capsules for prevention of osteoporosis
Features: Directly compressible; free of lactose
Properties: Wh. to off-wh. fine gran.; min. salt flavor; 10% max. moisture; 27% min. Ca, 10% min. P
Storage: 3 yr. min. shelf life; store in cool, dry location (5-20 C, < 60% r.h.) with fresh, clean, circulating air; protect from microbial contamination
Trade Name Reference

CP [Nikko Chems. Co. Ltd
http://www.nikkol.co.jp/index.html]
Chem. Descrip.: Ascorbyl dipalmitate
CAS 28474-90-0
Uses: Oil-sol. vitamin C deriv.; whitening agent for skin lightening creams; promotes collagen synthesis
Regulatory: JSCI listed
Properties: Wh. cryst. powd.; 97% min. conc.

CVC™ Type A Coated Ascorbic Acid [BASF
http://www.basf.com]
Chem. Descrip.: Ascorbic acid and ethylcellulose (= 1.2%) See L-Ascorbic acid
CAS 50-81-7; 9004-57-3; EINECS/ELINCS 200-066-2; $
Uses: Dietary supplement in pharmaceutical tablets and nutritional supplements
Features: Formulated with ethylcellulose coating for high-moisture dry blends for improved stability
Regulatory: USP/FCC
Properties: Wh. fine gran. powd.; almost odorless; particle size US Sieve #30 (600μm)
min. 99% thru; m.w. 176.1; ≈ 97% act.
Storage: 42 months shelf-life; store in tightly closed containers @ R.T; protect from light
and in a dry place

CA-320S [Eastman http://www.eastman.com]
Chem. Descrip.: Cellulose acetate
CAS 9004-35-7
Uses: Excipient for pharmaceuticals, coatings, enteric coatings
Regulatory: DOT nonregulated; SARA §311/312/313 nonreportable
Properties: Wh. powd.; odorless; negligible sol. in water; sp.gr. 1.31-1.32; vapor pressure negligible; 100% act.
Environmental: Expected to have low BOD, cause essentially no oxygen depletion in aquatic systems, have low potential to affect aquatic organisms, and be nonbiodeg.; unlikely to bioconcentrate
Precaution: Combustible solid; powd. material may form explosive dust-air mixt.; can react with strong oxidizing agents; may accumulate a static charge which could act as an ignition source; can dec. above 304 C
Hazardous Decomp. Prods.: Combustion prods.: CO2, CO
HMIS: Health 0, Flammability 1, Reactivity 0
Storage: Keep container closed; use caution when storing or processing above 204 C

CA-398-10NF [Eastman http://www.eastman.com]
Chem. Descrip.: Cellulose acetate
CAS 9004-35-7
Uses: Excipient for pharmaceuticals
Regulatory: DOT nonregulated; SARA §311/312/313 nonreportable
Properties: Wh. powd.; odorless; negligible sol. in water; sp.gr. 1.31-1.32; vapor pressure negligible; 100% act.
Environmental: Expected to have low BOD, cause essentially no oxygen depletion in aquatic systems, have low potential to affect aquatic organisms, and be nonbiodeg.; unlikely to bioconcentrate
Precaution: Combustible solid; powd. material may form explosive dust-air mixt.; can react with strong oxidizing agents; may accumulate a static charge which could act as an ignition source; can dec. above 304 C
Hazardous Decomp. Prods.: Combustion prods.: CO2, CO
HMIS: Health 0, Flammability 1, Reactivity 0
Storage: Keep container closed; use caution when storing or processing above 204 C

CA-398-30NF [Eastman http://www.eastman.com]
Chem. Descrip.: Cellulose acetate
CAS 9004-35-7
Uses: Excipient for pharmaceuticals
Regulatory: DOT nonregulated; SARA §311/312/313 nonreportable
Properties: Wh. powd.; odorless; negligible sol. in water; sp.gr. 1.31-1.32; vapor pressure negligible; 100% act.
Environmental: Expected to have low BOD, cause essentially no oxygen depletion in aquatic systems, have low potential to affect aquatic organisms, and be nonbiodeg.; unlikely to bioconcentrate
Precaution: Combustible solid; powd. material may form explosive dust-air mixt.; can react with strong oxidizing agents; may accumulate a static charge which could act as an ignition source; can dec. above 304 C
Hazardous Decomp. Prods.: Combustion prods.: CO2, CO
HMIS: Health 0, Flammability 1, Reactivity 0
Storage: Keep container closed; use caution when storing or processing above 204 C

CAB-171-15 Pharm Grade [Eastman http://www.eastman.com]
Chem. Descrip.: Cellulose acetate butyrate

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CAS 9004-36-8
Uses: Excipient for pharmaceuticals
Regulatory: DOT nonregulated; SARA §313 nonreportable
Properties: Wh. powd.; sl. char. odor; negligible sol. in water; sp.gr. 1.16-1.26; m.p. 127-240 C; 100% act.
Toxicology: LD50 (oral, rat) > 6400 mg/kg, (skin, guinea pig) > 1000 mg/kg; TSCA listed
Environmental: Expected to have low BOD, cause essentially no oxygen depletion in aquatic systems, have low potential to affect aquatic organisms, and be nonbiodeg.; unlikely to bioconcentrate
Precaution: Combustible solid; powd. material may form explosive dust-air mixts.; may accumulate a static charge which could act as an ignition source; reacts with strong oxidizing agents
Hazardous Ingredients: Nonhazardous
HMIS: Health 0, Flammability 1, Reactivity 0
Storage: Keep container closed
Cab-O-Sil® EH-5 [Cabot/Cab-O-Sil http://www.cabot-corp.com/cabosil/cabosil.nsf]
Chem. Descrip.: Untreated fumed silica, undensed See Silica, fumed
CAS 112945-52-5; EINECS/ELINCS 231-545-4
Uses: Rheology control agent, reinforcing agent, and flow control agent for pharmaceuticals; carrier, tablet binder/disintegrant, oil adsorbent, thermal stabilizer (suppositories), emulsifier, thickener, gellant, free-flow agent (foot and tooth powds., antiperspirants), suspending agent; in antacids, calamine, tranquilizer capsules
Features: Inert
Regulatory: FDA 21CFR §175.105, 175.300, 175.350, 175.390, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1350, 177.1400, 177.1460, 177.2420, 177.2600, 182.90
Properties: Wh. powd., odorless; 0.02% 325 mesh residue; sp.gr. 2.2; bulk dens. 2.5 lb/ft3; surf. area 300±25 m2/g; ref. index 1.46; pH 3.7-4.3 (4% aq. slurry); > 99.8% assay
Toxicology: LD50 (oral, rat) > 5 g/kg; inert to mildly irritating to skin; inert to very mildly irritating to eyes
Storage: Store in dry environment away from chemical vapors

Cab-O-Sil® H-5 [Cabot/Cab-O-Sil http://www.cabot-corp.com/cabosil/cabosil.nsf]
Chem. Descrip.: Syn., colloidal silicon dioxide
Uses: Rheology control agent, suspension agent, adsorbent in pharmaceuticals
Features: Provides exc. fluidization and free-flow properties; high performance at low loading levels
Properties: Powd.; avg. particle length 0.2-0.3 microns; sp.gr. 2.2; bulk dens. 3 lbs/ft3; ref. index 1.46; pH 3.7-4.3 (4% aq. slurry)
Storage: Store in dry environment away from chemical vapors

Cab-O-Sil® HS-5 [Cabot/Cab-O-Sil http://www.cabot-corp.com/cabosil/cabosil.nsf]
Chem. Descrip.: Untreated fumed silica, undensed See Silica, fumed
CAS 112945-52-5; EINECS/ELINCS 231-545-4
Uses: Reinforcing agent for pharmaceuticals; carrier, tablet binder/disintegrant, oil adsorbent, thermal stabilizer (suppositories), emulsifier, thickener, gellant, free-flow agent (foot and tooth powds., antiperspirants), suspending agent; in antacids, calamine, tranquilizer capsules
Features: Inert
Regulatory: FDA 21CFR §175.105, 175.300, 175.350, 175.390, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1350, 177.1400, 177.1460, 177.2420, 177.2600, 182.90
Properties: Wh. powd., odorless; 0.02% 325 mesh residue; sp.gr. 2.2; bulk dens. 2.5 lb/ft3; surf. area 300±25 m2/g; ref. index 1.46; pH 3.7-4.3 (4% aq. slurry); > 99.8% assay
Toxicology: LD50 (oral, rat) > 5 g/kg; inert to mildly irritating to skin; inert to very mildly irritating to eyes
Storage: Store in dry environment away from chemical vapors
Trade Name Reference

Cab-O-Sil® LM-150 [Cabot/Cab-O-Sil http://www.cabot-corp.com/cabosil/cabosil.nsf]  
Chem. Descrip.: Untreated fumed silica, undensed See Silica, fumed  
CAS 112945-52-5; EINECS/ELINCS 231-545-4  
Uses: Dispersant, anticaking agent, rheology control agent, reinforcing agent for pharmaceuticals; carrier, tablet binder/disintegrant, oil adsorbent, thermal stabilizer (suppositories), emulsifier, thickener, gellant, free-flow agent (foot and tooth powds., antiperspirants), suspending agent; in antacids, calamine, tranquilizer capsules  
Features: Inert  
Regulatory: FDA 21CFR §175.105, 175.300, 175.350, 175.390, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1350, 177.1400, 177.1460, 177.2420, 177.2600, 182.90  
Properties: Wh. fine powd., odorless; 0.2% 325 mesh residue; bulk dens. 2.5 lb/ft³; surf. area 200±15 m²/g; pH 3.8-4.2 (4% aq. slurry); > 99.8% assay  
Toxicology: LD₅₀ (oral, rat) > 5000 mg/kg  
Storage: 2 yr. shelf life in clean, dry area away from chem. vapors @ ambient temps.

Cab-O-Sil® M-5P [Cabot/Cab-O-Sil http://www.cabot-corp.com/cabosil/cabosil.nsf]  
Chem. Descrip.: Untreated fumed silica See Silica, fumed  
CAS 112945-52-5; EINECS/ELINCS 231-545-4  
Uses: Rheology control agent, flow control agent for pharmaceuticals  
Regulatory: FDA 21CFR §175.105, 175.300, 175.350, 175.390, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1350, 177.1400, 177.1460, 177.2420, 177.2600, 182.90  
Properties: Wh. fine powd., odorless; 0.2% 325 mesh residue; bulk dens. 2.5 lb/ft³; surf. area 200±15 m²/g; pH 3.8-4.2 (4% aq. slurry)  
Toxicology: LD₅₀ (oral) > 5000 mg/kg  
Storage: 2 yr. shelf life in clean, dry area away from chem. vapors @ ambient temps.

Cab-O-Sil® MS-55 [Cabot/Cab-O-Sil http://www.cabot-corp.com/cabosil/cabosil.nsf]  
Chem. Descrip.: Untreated fumed silica See Silica, fumed  
CAS 112945-52-5; EINECS/ELINCS 231-545-4  
Uses: Inert carrier, tablet binder/disintegrant, oil adsorbent, thermal stabilizer (suppositories), emulsifier, thickener, gellant, free-flow agent (foot and tooth powds., antiperspirants), suspending agent; in antacids, calamine, tranquilizer capsules  
Regulatory: FDA 21CFR §175.105, 175.300, 175.350, 175.390, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1350, 177.1400, 177.1460, 177.2420, 177.2600, 182.90  
Properties: Wh. fine powd., odorless; 0.02% 325 mesh residue; bulk dens. 2.5 lb/ft³; surf. area 160±15 m²/g; pH 3.7-4.3 (4% aq. slurry); > 99.8% assay  
Toxicology: LD₅₀ (oral) > 5 g/kg; nontoxic by ingestion; inert to mildly irritating to skin; inert to very mildly irritating to eyes  
Storage: Store in dry environment away from chemical vapors
Trade Name Reference

182.90

Properties: Wh. powd., odorless; 0.02% 325 mesh residue; sp.gr. 2.2; bulk dens. 2.5 lb/ft³; surf. area 200 ± 25 m²/g; Ref. index 1.46; pH 3.7-4.3 (4% aq. slurry); > 99.8% assay
Toxicology: LD₅₀ (oral, rat) > 5 g/kg; inert to mildly irritating to skin; inert to very mildly irritating to eyes
Storage: Store in dry environment away from chemical vapors

Cachalot® AR-20 [M. Michel http://www.mmichel.com]
Chem. Descrip.: Arachidyl alcohol
CAS 629-96-9; EINECS/ELINCS 211-119-4
Uses: Pharmaceutical vehicle; adhesive tackifier; antifoam; antistat; bactericide; detergent; emulsifier; evaporation control agent; flotation agent; extraction agent; fungicide; lubricant

Cachalot® BE-22 [M. Michel http://www.mmichel.com]
Chem. Descrip.: Behenyl alcohol
CAS 661-19-8; EINECS/ELINCS 211-546-6
Uses: Pharmaceutical raw material

Cachalot® C-50 [M. Michel http://www.mmichel.com]
Chem. Descrip.: Cetyl alcohol NF/USP/BP/EP
CAS 36653-82-4; EINECS/ELINCS 253-149-0
Uses: Emollient
Properties: Hazen 20 color; sol. in acetone, alcohol, aromatic hydrocarbons, carbon disulfide, chloroform, glycol and diglycol ethers; m.w. 241-255; sp.gr. 0.820 (50 C); visc. 7 cps (70 C); m.p. 47-49 C; b.p. 310-330 C; acid no. 0.1 max.; iodine no. 1 max.; sapon. no. 0.5 max.; hyd. no. 225-235; flash pt. 165 C; ref. index 1.4320-1.4322 (70 C)

Cachalot® L-90 [M. Michel http://www.mmichel.com]
CAS 112-53-8; EINECS/ELINCS 203-982-0
Uses: Pharmaceutical vehicle; adhesive tackifier; antifoam; antistat; bactericide; detergent; emulsifier; evaporation control agent; flotation agent; extraction agent; fungicide; lubricant

Cachalot® M-43 [M. Michel http://www.mmichel.com]
CAS 112-72-1; EINECS/ELINCS 204-000-3
Uses: Pharmaceutical vehicle; adhesive tackifier; antifoam; antistat; bactericide; detergent; emulsifier; evaporation control agent; flotation agent; extraction agent;

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fungicide; lubricant

Properties: Hazen 20 color; sol. in acetone, alcohol, aromatic hydrocarbons, carbon disulfide, chloroform, glycol and diglycol ethers; m.w. 212-220; sp.gr. 0.825 (40 C); visc. 9 cps (50 C); b.p. 280-295 C; solid. pt. 36-38 C; acid no. 0.3 max.; iodine no. 0.3 max.; sapon. no. 0.5 max.; hyd. no. 255-265; flash pt. 150 C; ref. index 1.4334-1.4336 (50 C)

Cachalot® S-56 [M. Michel http://www.mmichel.com]

Chem. Descrip.: Stearyl alcohol NF/USP/BP/EP CAS 112-92-5; EINECS/ELINCS 204-017-6
Uses: Emollient in pharmaceuticals

Properties: Hazen 20 color; sol. in acetone, alcohol, aromatic hydrocarbons, carbon disulfide, chloroform, glycol and diglycol ethers; m.w. 267-281; sp.gr. 0.815 (60 C); visc. 9 cps (70 C); m.p. 56-58 C; b.p. 330-350 C; acid no. 0.3 max.; iodine no. 1 max.; sapon no. 1 max.; hyd. no. 200-210; flash pt. 190 C; ref. index 1.4347-1.4349 (70 C)


Chem. Descrip.: PCA ethyl N-cocoyl-L-arginate See PCA ethyl cocoyl arginate
CAS 95370-65-3; EINECS/ELINCS 305-928-2
Uses: Antiseptic, germicide, and disinfectant in dentifrices, medical supplies

Properties: White crystalline powd.; sol. in water, ethanol, ethyleneglycol; sl. sol. in ethyl acetate, toluene; sol. 5% in water @ 30 C; m.p. 180-185 C; pH 5.0-7.0 (1% aq., 20 C); cationic; 100% conc.
Toxicology: LD50 (oral, mice) 10,750 mg/kg
Environmental: Highly biodeg.

Caffeine Anhydrous Granular S USP [BASF http://www.basf.com]

Chem. Descrip.: 1,3,7-Trimethylxanthine See Caffeine
CAS 58-08-2; EINECS/ELINCS 200-362-1
Uses: Stimulant for single entity caffeine capsules and tablets and in diet pills to promote weight loss, provide energy and enhance mental and physical performance
Features: Very stable in dry form
Regulatory: USP. kosher
Properties: Wh. free-flowing gran.; pract. odorless; bitter taste; particle size US Sieve#14 (1410 μ) min. 95% thru; sparingly sol. in water; sl. sol. in ethanol and ether; m.w. 194.19; m.p. ≥ 235-239 C; ≈ 99% act.
Storage: 4 yr. shelf life if stored in original containers protected from light

Cairox® Potassium Permanganate USP Grade
[Carus http://www.caruschem.com]
Chem. Descrip.: Potassium permanganate USP
CAS 7722-64-7; EINECS/ELINCS 231-760-3
Uses: Oxidizing agent in pharmaceuticals; medicine (antiseptic); topical antibacterial
Features: Regular, coarse and fine grades available
Regulatory: NSF certified
Properties: Gran. crystalline; sp.gr. 1.0414


Chem. Descrip.: Calcium bentonite
Chem. Analysis: Moisture 10-12%; SiO2 55.1%; Al2O3 23.3%; CaO 4.7%; MgO 2.9%; Fe2O3 1.6%; Na2O 1.9%
Uses: Used in pharmaceuticals
Regulatory: DOT not regulated
Properties: Tan to ylsh. fine powd.; odorless; insol. in water; bulk dens. 40-44 lbs/ft³ loose, 65-70 lbs/ft³ packed; pH 7-9
Toxicology: TSCA listed
Precaution: Wear dust tight goggles
Hazardous Decomp. Prods.: CO, CO2
HMIS: Health 1, Flammability 0, Reactivity 0
Storage: Store in original containers away from incompat. materials in cool, dry, will-ventilated area

Cal-Carb® 4450 PG [Chr. Hansen A/S http://www.chr-hansen.com]
Chem. Descrip.: Calcium carbonate USP and maltodextrin NF
Uses: Direct compression carrier/vehicle for pharmaceutical tablets, calcium supplements, and antacid tablets
Features: Economic; exc. compr. props.
Properties: Wh. free-flowing gran.; 5% max. on 20 mesh, 25% max. through 200 mesh; bulk dens. 1.00-1.30 g/ml (loose), 1.15-1.45 g/ml (tapped); ≥ 36% Ca

Cal-Carb® 4457 [Chr. Hansen A/S http://www.chr-hansen.com]
Chem. Descrip.: Calcium carbonate USP and pregelatinized starch NF See Starch, pregelatinized
Uses: Direct compression carrier/vehicle for pharmaceutical tablets, calcium
supplements, and antacid tablets

**Features:** Economic; exc. compr. props.

**Properties:** Wh. free-flowing gran.; 5% max. on 20 mesh, 25% max. through 200 mesh; bulk dens. 1.00-1.30 g/ml (loose), 1.15-1.45 g/ml (tapped); ≥ 36% Ca

**Cal-Carb® 4462**  [Chr. Hansen A/S  
[http://www.chr-hansen.com](http://www.chr-hansen.com)]

Chem. Descrip.: Precipitated calcium carbonate USP and pregelatinized starch NF  
See Starch, pregelatinized

Uses: Direct compression carrier/vehicle for pharmaceutical tablets, calcium supplements, and antacid tablets

**Features:** Exc. compr. and disintegration props.

**Properties:** Wh. free-flowing gran.; 5% max. on 20 mesh, 25% max. through 200 mesh; bulk dens. 0.95 g/cc (loose), 1.05 g/cc (tapped); ≥ 36% Ca

**Calci-Press™ MD**  [Particle Dynamics  
[http://www.particledynamics.com](http://www.particledynamics.com)]

Chem. Descrip.: Calcium carbonate and maltodextrin binder

Uses: Excipient, calcium source for nutritional supplements, nutraceuticals, calcium supplements, chewable tablets

**Features:** Directly compressible; can be formulated to aid in rapid disintegration

**Regulatory:** FCC compliance

**Properties:** Free-flowing fine powd.; ≤ 2% on 16 mesh, ≤ 75% on 60 mesh, ≤ 20% through 200 mesh; dens. 0.8-1.2 g/ml (tapped); 34-38% assay (elemental Ca); ≤ 500 ppb lead

**Calcium Carbonate 2927 Extra Heavy**  [MPSI  
[http://www.mp-solutionsinc.com](http://www.mp-solutionsinc.com)]

Chem. Descrip.: Precipitated calcium carbonate

Chem. Analysis: CaCO₃ (98-100.5%)

CAS 471-34-1; EINECS/ELINCS 207-439-9

Uses: Pharmaceutical and veterinary antacid; calcium source for dietary supplements, veterinary dietary supplements; oral care agent; veterinary anti diarrheal preps.

**Regulatory:** USP, FCC, kosher

**Properties:** Wh. powd.; 12.00 µ median particle size; odorless; pract. insol. in water; sp.gr. 2.71; dens. 22.57 lb/solid gal; dens. (tapped) 94 lb/ft³; surf. area 0.7 m²/g; pH 10.1; 0.2% max. moisture

**Toxicology:** ACGIH 10 mg/m³; may cause mech. irritation to eyes, skin, and respiratory tract; TSCA listed

**Environmental:** Not expected to be harmful to aquatic life; no bioaccumulation or food chain conc. toxicity potential

**Precaution:** Wear dust goggles and impervious gloves; avoid contact with acids

**Hazardous Decomp. Prods.:** Calcium oxide

**HMIS:** Health 1, Flammability 0, Reactivity 0

**Calci-Press Ultra Heavy**  [MPSI  
[http://www.mp-solutionsinc.com](http://www.mp-solutionsinc.com)]

Chem. Descrip.: Precipitated calcium carbonate

Chem. Analysis: CaCO₃ (98-100.5%)

CAS 471-34-1; EINECS/ELINCS 207-439-9

Uses: Pharmaceutical and veterinary antacid; calcium source for dietary supplements, veterinary dietary supplements; oral care agent; veterinary anti diarrheal preps.

Regulatory: USP, FCC, kosher

Properties: Wh. powd.; 12.00 µ median particle size; odorless; pract. insol. in water; sp.gr. 2.71; dens. 22.57 lb/solid gal; dens. (tapped) 94 lb/ft³; surf. area 0.7 m²/g; pH 10.1; 0.2% max. moisture

Toxicology: ACGIH 10 mg/m³; may cause mech. irritation to eyes, skin, and respiratory tract; TSCA listed

**Environmental:** Not expected to be harmful to aquatic life; no bioaccumulation or food chain conc. toxicity potential

**Precaution:** Wear dust goggles and impervious gloves; avoid contact with acids

**HMIS:** Health 1, Flammability 0, Reactivity 0

**Calcium Ascorbate USP FCC**  [DSM Nutritional Prods. USA  
[http://www.nutraaccess.com](http://www.nutraaccess.com)]

Chem. Descrip.: Calcium ascorbate

Chem. Analysis: CaCO₃ (98-100.5%)

CAS 5743-27-1; EINECS/ELINCS 227-261-5

Uses: Preservative, antioxidant, vitamin source for pharmaceuticals, esp. multivitamin and monovitamin preps.

Features: Sodium-free, acid-free

**Regulatory:** FDA GRAS, USP, FCC, Ph. Eur.

**Properties:** Wh. to sl. yel. powd., pract. odorless; freely sol. in water; preac. insol. in alcohol; insol. in ether; m.w. 426.35; pH 6.8-7.4 (10% aqu.); 99.0-100.5% assay

**Hazardous Decomp. Prods.:** Calcium oxide

Storage: Store in tight light-resist. containers, optimally @ ≤ 72 F; avoid exposure to moisture, excessive heat

**Calcium Carbonate BC 300 Light**  [MPSI  
[http://www.mp-solutionsinc.com](http://www.mp-solutionsinc.com)]
Calcium Carbonate BC 2924 Extra Light [MPSI http://www.mp-solutionsinc.com]
Chem. Descrip.: Precipitated calcium carbonate USP/FCC
Chem. Analysis: CaCO₃ (98-100.5%)
CAS 471-34-1; EINECS/ELINCS 207-439-9
Uses: Pharmaceutical and veterinary antacid; calcium source for dietary supplements, veterinary dietary supplements; oral care agent; veterinary antidiarrheal preps.
Regulatory: USP, FCC, kosher
Properties: Wh. odorless powd.; 1.90 µ median particle size; odorless; pract. insol. in water; sp.gr. 2.71; dens. 22.57 lb/solid gal; compacted dens. 27 lb/ft³; dry brightness 98; nonflamm.; pH 9.8; 0.2% max. moisture; 0% volatiles
Toxicology: ACGIH 5 mg/m³ respirable dust, 10 mg/m³ total dust; may cause mech. irritation to eyes and respiratory tract; noncarcinogenic
HMIS: Health 0, Flammability 0, Reactivity 0

Calcium Carbonate BC 2925 Medium [MPSI http://www.mp-solutionsinc.com]
Chem. Descrip.: Precipitated calcium carbonate USP/FCC
Chem. Analysis: CaCO₃ (98-100.5%)
CAS 471-34-1; EINECS/ELINCS 207-439-9
Uses: Pharmaceutical and veterinary antacid; calcium source for dietary supplements, veterinary dietary supplements; oral care agent; veterinary antidiarrheal preps.
Regulatory: USP, FCC, kosher
Properties: Wh. odorless powd.; 1.80 µ median particle size; odorless; sl. sol. in water; sp.gr. 2.71; dens. 22.57 lb/solid gal; compacted dens. 27 lb/ft³; dry brightness 98; nonflamm.; pH 9.8; 2% max. moisture; 0% volatiles
Toxicology: ACGIH 5 mg/m³ respirable dust, 10 mg/m³ total dust; may cause mech. irritation to eyes and respiratory tract
HMIS: Health 0, Flammability 0, Reactivity 0

Calcium Hydroxide 3002 [MPSI http://www.mp-solutionsinc.com]
Chem. Descrip.: Calcium hydroxide
Chem. Analysis: Ca(OH)₂ (98.5%)
CAS 1305-62-0; EINECS/ELINCS 215-137-3
Uses: Filler, neutralizer, pH buffer in pharmaceuticals, topical medicinal salves, gastric preps.
Regulatory: USP, kosher
Properties: Wh. powd.; median particle size; 2.00 µ; 100% through 200 mesh; odorless; sl. sol. in water; sp.gr. 2.34; dens. 41.60 lb/ft³ (tapped); 18.60 lb/ft³ (loose); oil absorp. 52-58; dry brightness 94; m.p. 1076 F; b.p. 5162 F; pH 12.4; 0.50% max. moisture
Toxicology: ACGIH TLV 5 mg/m³; corrosive to skin, eyes; causes irritation/inflamm. to mucous membranes, respiratory passages
Precaution: Wear safety goggles and leather or rubber gloves; incompat. with acids, fluorine
Hazardous Ingredients: Calcium hydroxide; cryst. silica (< 0.1%)
Trade Name Reference

**Calcium Hydroxide BC 802** [MPSI](http://www.mp-solutionsinc.com)
Chem. Descrip.: Calcium hydroxide USP
Chem. Analysis: Ca(OH)\(_2\) (95-100.5%)
CAS 1305-62-0; EINECS/ELINCS 215-137-3
Uses: Filler, neutralizer, pH buffer in pharmaceuticals, topical medicinal salves, gastric preps.
Regulatory: USP, kosher
Properties: Wh. powd.; 99% through 200 mesh; odorless; sl. sol. in water; sp.gr. 2.30; dens. 40-45 lb/ft\(^3\) (compacted), 19-24 lb/ft\(^3\) (loose); oil absorp. 52-58; dry brightness 93-98; m.p. 1076 F; b.p. 5162 F; nonflamm.; pH 11.5-13.0; 0.80% max. moisture; 0% volatiles
Toxicology: ACGIH TLV 5 mg/m\(^3\); corrosive to skin, eyes; causes irritation/inflamm. to mucous membranes, respiratory passages
Precaution: Incompat. with acids, fluorine
Hazardous Ingredients: Calcium hydroxide; cryst. silica (< 0.1%)
Hazardous Decomp. Prods.: None
HMIS: Health 2, Flammability 0, Reactivity 0

**Calcium Pantothenate USP, FCC** [DSM Nutritional Prods. USA](http://www.nutraaccess.com)
Chem. Descrip.: Calcium pantothenate USP, FCC, EP
See Calcium D-pantothenate
CAS 137-08-6; EINECS/ELINCS 205-278-9
Uses: Pantothentic acid source for solid dosage forms (tablets, hard shell capsules)
Regulatory: USP, FCC, Ph. Eur.
Properties: Wh. spray-dried, free-flowing powd., odorless, sl. hygroscopic; freely sol. in water (1 g/3 ml water); sol. in glycerin; pract. insol. in alcohol, chloroform, ether; m.w. 476.54; 90-110% assay
Precaution: Sli. sensitive to heat
Storage: Store in dry place @ 59-96 F

**Calcium Stearate 2307-G** [MPSI](http://www.mp-solutionsinc.com)
Chem. Descrip.: Calcium stearate FCC
CAS 1592-23-0; EINECS/ELINCS 216-472-8
Uses: Lubricant, flow aid for pharmaceuticals
Features: Tallow grade; noncaking
Properties: 99.9% max. through 325 mesh; bulk dens. 0.19 g/ml; m.p. 145-155 C; 3% max. moisture; 9-10.5% oxide
Toxicology: Dust can cause discomfort of the nose, throat, and respiratory tract, coughing and choking

**Calcium Sulfate Anhydrous NF 164** [MPSI](http://www.mp-solutionsinc.com)
Chem. Descrip.: Calcium sulfate NF
CAS 7778-18-9; EINECS/ELINCS 231-900-3
Uses: Extender, diluent, calcium source in pharmaceuticals
Features: Inert

**Calcium Sulfate BC 164** [MPSI](http://www.mp-solutionsinc.com)
Chem. Descrip.: Calcium sulfate anhyd. NF
See Calcium sulfate
Chem. Analysis: CaSO\(_4\) (98-101%)
CAS 7778-18-9; EINECS/ELINCS 231-900-3
Uses: Dietary calcium source, extender and diluent in pharmaceuticals
Features: Inert

**Calcium Hydroxide**
Storage: Store away from incompat. substances

**Calcium Stearate 920-T** [MPSI](http://www.mp-solutionsinc.com)
Chem. Descrip.: Calcium stearate FCC
CAS 1592-23-0; EINECS/ELINCS 216-472-8
Uses: Anticaking agent, emulsifier, lubricant, water repellent, and thickener in pharmaceuticals
Properties: Wh. powd.; sl. fatty odor; 99.0% max. through 200 mesh; insol. in water; bulk dens. 16.2 g/ml; m.p. 302-320 F; pH 7.0-9.0; 4.0% max. moisture; 9-10.5% oxide
Toxicology: Dust can cause discomfort of the nose, throat, and respiratory tract, coughing and choking
Environmental: Not hazardous to aquatic life
Precaution: Avoid dust formation, contact with eyes and skin
Hazardous Decomp. Prods.: Burning will produce toxic fumes
HMIS: Health 0, Flammability 1, Reactivity 0

**Calcium Sulfate**
Chem. Analysis: CaSO\(_4\) (98-101%)
CAS 7778-18-9; EINECS/ELINCS 231-900-3
Uses: Dietary calcium source, extender and diluent in pharmaceuticals
Features: Inert

**Calcium Hydroxide**
Properties: Wh. powd.; 5.50 µ median particle size; 97% through 325 mesh; 99% through 200 mesh; odorless; sol. 26% in water; sp.gr. 2.96; dens. 76-86 lb/ft\(^3\); 35-41 lb/ft\(^3\) (loose); oil absorp. 30-40; dry brightness 93-94; m.p. 1450 C (dec.); nonflamm.; pH 10-11
Toxicology: TLV 10 mg/m\(^3\); may cause eye irritation; nuisance dust may cause coughing, sneezing, nasal irritation
Precaution: Incompat. with acids
Hazardous Ingredients: Calcium sulfate (98-100%), calcium carbonate (0-2%)
Hazardous Decomp. Prods.: SO\(_2\), CaO (above 1450 C)
Trade Name Reference

HMIS: Health 0, Flammability 0, Reactivity 0
Calcium Sulfate BC 166 [MPSI
http://www.mp-solutionsinc.com]
Chem. Descrip.: Calcium sulfate dihydrate
NF/FCC
Chem. Analysis: CaSO₄ • 2H₂O (98-101%)
CAS 13397-24-5; EINECS/ELINCS 231-900-3
Uses: Dietary calcium source, extender and
diluent in pharmaceuticals
Features: Inert
Properties: Wh. powd.; 99% through 325 mesh;
100% through 200 mesh; odorless; sol. 26% in
water; sp.gr. 2.32; dens. 70-76 lb/ft³
(compacted), 34-39 lb/ft³ (loose); dry
brightness 87-91; m.p. 1450 C (dec.);
nonflamm.; pH 6.2-7.2
Toxicology: TLV 10 mg/m³; may cause eye
irritation; nuisance dust may cause
coughing, sneezing, nasal irritation
Precaution: Incomp. with acids
Hazardous Ingredients: Calcium sulfate (98-
100%), calcium carbonate (0-2%)
Hazardous Decomp. Prods.: SO₂, CaO (above
1450 C)
HMIS: Health 0, Flammability 0, Reactivity 0
CalEssence® 70 Enhanced Purity [MPSI
http://www.mp-solutionsinc.com]
Chem. Descrip.: Ultra-low precipitated calcium
carbonate USP/FCC
Chem. Analysis: CaCO₃ (98%)
CAS 471-34-1; EINECS/ELINCS 207-439-9
Uses: Calcium source in pharmaceuticals,
chewable tablets
Features: Meets stringent regulatory
requirements, such as Calif. Prop. 65; lead
levels <125 ppb
Regulatory: USP, FCC, kosher
Properties: Prismatic cubic blend; 0.80 µ median
particle size; compacted dens. 34-39 lb/ft³; surf.
area 7.0 m²/g
Toxicology: Overexposure may cause irritation
of eyes, skin and respiratory system; acute
ing. may result in mild GI distress; chronic
exposure may result in hypercalcemia;
alkalosis, or renal impairment;
noncarcinogenic
Environmental: No significant effects; not
harmful to aquatic life; no bioaccumulation
or food chain conc. toxicity potential
Precaution: Avoid contact with acids, alum,
ammonium salts, and mercury/hydrogen
mixtures; ignites on contact with fluorine
HMIS: Health 1, Flammability 0, Reactivity 0
CalEssence® 160 Enhanced Purity [MPSI
http://www.mp-solutionsinc.com]
Chem. Descrip.: Ultra-low precipitated calcium
carbonate USP/FCC
Chem. Analysis: CaCO₃ (98%)
CAS 471-34-1; EINECS/ELINCS 207-439-9
Uses: Calcium source in pharmaceuticals,
chewable tablets
Features: Meets stringent regulatory
requirements, such as Calif. Prop. 65; best for
redispersible powds. due to open structure and
rapid dispersibility; lead levels <125 ppb
Regulatory: USP, FCC, kosher
Properties: Scaleno-hedral particles; 1.60 µ median particle size; compacted dens. 26
lb/ft³; surf. area 8.7 m²/g
Toxicology: Overexposure may cause irritation
of eyes, skin and respiratory system; acute
ing. may result in mild GI distress; chronic
exposure may result in hypercalcemia;
alkalosis, or renal impairment;
noncarcinogenic
Environmental: No significant effects; not
harmful to aquatic life; no bioaccumulation
or food chain conc. toxicity potential
Precaution: Avoid contact with acids, alum,
Trade Name Reference

ammonium salts, and mercury/hydrogen mixtures; ignites on contact with fluorine
HMIS: Health 1, Flammability 0

CalEssence® 300 Enhanced Purity [MPSI http://www.mp-solutionsinc.com]
Chem. Descrip.: Ultra-low precipitated calcium carbonate USP/FCC
Chem. Analysis: CaCO₃ (98%)
CAS 471-34-1; EINECS/ELINCS 207-439-9
Uses: Calcium source in pharmaceuticals
Features: Meets stringent regulatory requirements, such as Calif. Prop. 65; preferred when minimizing tablet size; lead levels <125 ppb
Regulatory: USP, FCC, kosher
Properties: Cubic particles; 3.00 µ median particle size; compacted dens. 53 lb/ft³; surf. area 3.0 m²/g
Toxicology: Overexposure may cause irritation of eyes, skin and respiratory system; acute ing. may result in mild GI distress; chronic exposure may result in hypercalcemia; alkalosis, or renal impairment; noncarcinogenic
Environmental: No significant effects; not harmful to aquatic life; no bioaccumulation or food chain conc. toxicity potential
Precaution: Avoid contact with acids, alum, ammonium salts, and mercury/hydrogen mixtures; ignites on contact with fluorine
HMIS: Health 1, Flammability 0, Reactivity 0

CalEssence® 1500 Enhanced Purity [MPSI http://www.mp-solutionsinc.com]
Chem. Descrip.: Ultra-low precipitated calcium carbonate USP/FCC
Chem. Analysis: CaCO₃ (98%)
CAS 471-34-1; EINECS/ELINCS 207-439-9
Uses: Calcium source in pharmaceuticals
Features: Meets stringent regulatory requirements, such as Calif. Prop. 65; preferred when minimizing tablet size; lead levels <125 ppb
Regulatory: USP, FCC, kosher
Properties: Semi-regular prismatic wh. odorless particles; 15.00 µ median particle size; partly sol. in water; sp. gr. 2.71; compacted dens. 90 lb/ft³; surf. area 2.0 m²/g
Toxicology: Overexposure may cause irritation of eyes, skin and respiratory system; acute ing. may result in mild GI distress; chronic exposure may result in hypercalcemia; alkalosis, or renal impairment; noncarcinogenic; TSCA listed
Environmental: No significant effects; not harmful to aquatic life; no bioaccumulation or food chain conc. toxicity potential
Precaution: Avoid contact with acids, alum, ammonium salts, and mercury/hydrogen mixtures; ignites on contact with fluorine
HMIS: Health 1, Flammability 0, Reactivity 0

Calibre™ 2060-10 [Dow Plastics http://www.dow.com/plastics]
Chem. Descrip.: PC resin See Polycarbonate
CAS 24936-68-3
Uses: Sterilizable health care resin for hemodialyzers, surgical instruments, cardiotomy reservoirs, blood centrifuge bowls, I.V. connectors, safety syringes
Features: Provides exceptional clarity, heat resist., impact. str., and processability; for apps. using steam or ethylene oxide sterilization
Properties: Sp.gr. 1.20; melt flow 10; dens. 0.043 lb/in.³; transmittance 87-91%; haze 0.7-1.5%; ref. index 1.586; tens. str. 10,300 psi (break); tens. elong 7% (yield), 150% (break); flex. str. 14,000 psi; Izod impact 17 ft lb/in. notch (1/8 in.); Rockwell hardness R118; mold
Trade Name Reference

shrinkage 0.005-0.007 in./in.; water absorp. 0.15%; Vicat soften. pt. 312 F; distort. temp. 263 F (264 psi, unannealed); flamm. V-2 (1/16 in.); dielec. str. 399 V/mil; vol. resist. > 10^{14} ohm-cm.

Calibre™ 2060-15 [Dow Plastics http://www.dow.com/plastics]
Chem. Descrip.: PC resin See Polycarbonate
CAS 24936-68-3
Uses: Sterilizable health care resin for hemodialyzers, surgical instruments, cardiotomy reservoirs, blood centrifuge bowls, I.V. connectors, safety syringes
Features: Provides exceptional clarity, heat resist., impact. str., and processability; for applics. using steam or ethylene oxide sterilization
Properties: Sp.gr. 1.20; melt flow 15; dens. 0.043 lb/in.³; transmittance 87-91%; haze 0.7-1.5%; ref. index 1.586; tens. str. 10,300 psi (break); tens. elong 7% (yield), 150% (break); flex. str. 14,000 psi; Izod impact 16 ft lb/in. notch (1/8 in.); Rockwell hardness R118; mold shrinkage 0.005-0.007 in./in.; water absorp. 0.15%; Vicat soften. pt. 309 F; distort. temp. 260 F (264 psi, unannealed); flamm. V-2 (1/16 in.); dielec. str. 399 V/mil; vol. resist. > 10^{14} ohm-cm.

Calibre™ 2060-22 [Dow Plastics http://www.dow.com/plastics]
Chem. Descrip.: PC resin See Polycarbonate
CAS 24936-68-3
Uses: Sterilizable health care resin for hemodialyzers, surgical instruments, cardiotomy reservoirs, blood centrifuge bowls, I.V. connectors, safety syringes
Features: Provides exceptional clarity, heat resist., impact. str., and processability; for applics. using steam or ethylene oxide sterilization
Properties: Sp.gr. 1.20; melt flow 22; dens. 0.043 lb/in.³; transmittance 87-91%; haze 0.7-1.5%; ref. index 1.586; tens. str. 9,500 psi (break); tens. elong 7% (yield), 120% (break); flex. str. 14,000 psi; Izod impact 14 ft lb/in. notch (1/8 in.); Rockwell hardness R118; mold shrinkage 0.005-0.007 in./in.; water absorp. 0.15%; Vicat soften. pt. 306 F; distort. temp. 260 F (264 psi, unannealed); flamm. V-2 (1/16 in.); dielec. str. 399 V/mil; vol. resist. > 10^{14} ohm-cm.

Chem. Descrip.: Dicalcium phosphate dihydrate FCC See Calcium phosphate dibasic dihydrate
CAS 7789-77-7; EINECS/ELINCS 231-826-1
Uses: Excipient, compressibility aid, and diluent for pharmaceutical tablets providing additional bulk
Features: Relatively inert and therefore do not react with other formulation ingredients
Properties: Wh. gran. free-flowing microcrystalline gran. powd.; odorless; tasteless; m.w. 172.09; insol. in water

Chem. Descrip.: 2,2-Dimethyl-3-methylenebicyclo [2.2.1] heptane; α-fenchene, and tricyclene See Camphene
CAS 79-92-5; 471-84-1; 508-32-7; EINECS/ELINCS 201-234-8; $;208-083-7
UN 1325
Uses: Syn. flavoring agent and fragrance for pharmaceutical preps.
Features: Provides lift to pine, lavender, lavandin, cedar, and citrus fragrances
Regulatory: DOT regulated; FCC compliant; GRAS
Properties: Wh. solid; mild camphor-like odor; completely sol. in alcohol; m.w. 136.24; sp.gr. 0.839 @ 60 C; dens. 7.00 lb/gal; b.p. 160 C; flash pt. (TCC) 34.4 C
Use Level: 0.01-0.4%
Toxicology: Not skin sensitizing; contact with undiluted material is irritating to eyes; TSCA listed
Precaution: Flamm. HMIS: Health 1, Flammability 3, Reactivity 1

Canadian Willowherb Extract (5% clear) [Fytokem Prods. http://www.fytokem.com]
Chem. Descrip.: Epilobium angustifolium extract (4.9-5.4%), phenoxethanol (0.5%), water (94-95%)
Uses: Anti-irritant, antibacterial for skin cleansers, fresheners, and soothers
Properties: Amber liq.; pH 4.5-5.5
Toxicology: Nonirritating to skin
Storage: 6 mos. shelf life in closed container @ 18-23 C

Canasol MJ 45 [Canamex http://www.canamex.com.mx]
Chem. Descrip.: POE (8) stearate See PEG-8 stearate
Trade Name Reference

Candelilla (Euphorbia cerifera) wax
CAS 8006-44-8; EINECS/ELINCS 232-347-0
Uses: Wax for pharmaceuticals
Regulatory: FDA 21 CFR §172.615, 175.105, 175.320, 176.180, 184.1976; CTFA listed
Properties: Yel. crude lumps, refined lumps, flakes, or powd.; m.p. 68.5-72.5 C; acid no. 12-22; sapon. no. 43-65; flash pt. 241 C min.; 45% max. paraffinic hydrocarbons
Toxicology: TSCA listed

Candelilla Wax SP 75 [Strahl & Pitsch
http://www.strahlpitsch.com]
Chem. Descrip.: Candelilla wax See Candelilla (Euphorbia cerifera) wax
CAS 8006-44-8; EINECS/ELINCS 232-347-0
Uses: Wax for pharmaceuticals
Regulatory: FDA 21 CFR §172.615, 175.105, 175.320, 176.180, 184.1976; CTFA listed
Properties: Yel. crude lumps, refined lumps, flakes, or powd.; m.p. 68.5-72.5 C; acid no. 12-22; sapon. no. 43-65; flash pt. 241 C min.; 45% max. paraffinic hydrocarbons
Toxicology: TSCA listed

Candelilla Wax SP 76 [Strahl & Pitsch
http://www.strahlpitsch.com]
Chem. Descrip.: Candelilla wax See Candelilla (Euphorbia cerifera) wax
CAS 8006-44-8; EINECS/ELINCS 232-347-0
Uses: Wax for pharmaceuticals
Regulatory: FDA 21 CFR §172.615, 175.105, 175.320, 176.180; CTFA listed
Properties: Yel. crude lumps, refined lumps, flakes, or powd.; m.p. 68.5-72.5 C; acid no. 12-22; sapon. no. 43-65; flash pt. 241 C min.; 45% max. paraffinic hydrocarbons
Toxicology: TSCA listed

Candelilla Wax SP 78 Prime Quality Crude [Strahl & Pitsch
http://www.strahlpitsch.com]
Chem. Descrip.: Candelilla wax See Candelilla (Euphorbia cerifera) wax
CAS 8006-44-8; EINECS/ELINCS 232-347-0
Uses: Wax for pharmaceuticals
Regulatory: FDA 21 CFR §172.615, 175.105, 175.320, 176.180; CTFA listed
Properties: Tan crude lumps, refined lumps, flakes, or powd.; m.p. 68.5-72.5 C; acid no. 12-22; sapon. no. 43-65; flash pt. 241 C min.; 45% max. paraffinic hydrocarbons
Toxicology: TSCA listed
Candelilla Wax SP 99  [Strahl & Pitsch
http://www.strahlpitsch.com]
Chem. Descr.:  Candelilla wax  See Candelilla (Euphorbia cerifera) wax
CAS  8006-44-8; EINECS/ELINCS 232-347-0
Uses:  Wax for pharmaceuticals
Regulatory:  FDA 21CFR §172.615, 175.105, 175.320, 176.180, 184.1976; CTFA listed
Properties:  Yel. crude lumps, refined lumps, flakes, or powd.; m.p. 68.5-72.5 C; acid no. 12-22; sapon. no. 43-65; flash pt. 241 C min.; 45% max. paraffinic hydrocarbons
Toxicology:  TSCA listed

Candelilla Wax SP 350  [Strahl & Pitsch
http://www.strahlpitsch.com]
Chem. Descr.:  Candelilla wax  See Candelilla (Euphorbia cerifera) wax
CAS  8006-44-8; EINECS/ELINCS 232-347-0
Uses:  Wax for pharmaceuticals
Regulatory:  FDA 21CFR §172.615, 175.105, 175.320, 176.180, 184.1976; CTFA listed
Properties:  Yel. crude lumps, refined lumps, flakes, or powd.; m.p. 68.5-72.5 C; acid no. 12-22; sapon. no. 43-65; flash pt. 241 C min.; 45% max. paraffinic hydrocarbons
Toxicology:  TSCA listed

Candelilla Wax SP 803  [Strahl & Pitsch
http://www.strahlpitsch.com]
Chem. Descr.:  Candelilla wax substitute  See Candelilla synthetic
CAS  136097-95-5
Uses:  Wax for pharmaceuticals
Regulatory:  FDA 21CFR §172.615, 175.105, 175.320, 176.180; CTFA listed
Properties:  Tan crude lumps, refined lumps, flakes, or powd.; m.p. 174-180 F; acid no. 8-15; sapon. no. 30-40; 45% max. paraffinic hydrocarbons

Candelilla Wax Fine  [Strahl & Pitsch
http://www.strahlpitsch.com]
Chem. Descr.:  Candelilla wax  See Candelilla (Euphorbia cerifera) wax
CAS  8006-44-8; EINECS/ELINCS 232-347-0
Uses:  Wax for pharmaceuticals
Regulatory:  FDA 21CFR §172.615, 175.105, 175.320, 176.180; CTFA listed
Properties:  Powd.; 98% min. through 60 mesh, 70% min. through 120 mesh, 30% min. through 200 mesh, 10% min. through 325 mesh; 45% max. paraffinic hydrocarbons
Toxicology:  TSCA listed

Candex®  [JRS Pharma
http://www.jrspharma.com]
Chem. Descr.:  Dextrose with small amounts of higher glucose saccharides  See Glucose
CAS  50-99-7; EINECS/ELINCS 200-075-1
Uses:  Binder, diluent, sweetener, mouthfeel enhancer for direct compression of pharmaceutical tablets, chewable tablets
Features:  Exc. flow and compaction props.; offers sweet, nongritty taste; cool, refreshing mouthfeel; easily blended with flavors, lubricants, and other dry additives
Properties:  Wh. porous, spherical gran.; sweet noncloying/nongritty taste; avg particle size 218 µ; 30% max. -100 mesh; very sol. in water; dens. (tapped) 0.77 g/ml; pH 3.5 min.

Candex® Plus  [JRS Pharma
http://www.jrspharma.com]
Chem. Descr.:  Dextrates (CAS 50-99-7) with 0.3% max. magnesium stearate as anticaking agent  See Glucose
Uses:  Binder, diluent, vehicle for direct compression and wet granulation of pharmaceutical tablets, incl. chewable tablets
Features:  Exc. flow and compaction props.; sweet, nongritty taste; cool, refreshing mouthfeel; easily blended with flavors, lubricants, and other dry additives
Properties:  Wh. to very sl. off-wh. porous spherical gran.; sweet noncloying/nongritty taste; 196 µ avg. particle size; 35% max. -100 mesh; dens. 0.82 g/ml max. (tapped); pH 4.0-7.5

Canionic LAA  [Centro China
http://www.centro.ttnet.net]
Chem. Descr.:  Ammonium POE alkyl ester sulfate
Uses:  Detergent, foaming agent, foaming detergent for pharmaceuticals
Properties:  Liq.; anionic; 25% solids

Canionic LTA  [Centro China
http://www.centro.ttnet.net]
Chem. Descr.:  Triethanol amine aluryl sulfate
Uses:  Detergent, foaming agent, foaming detergent for pharmaceuticals
Properties:  Liq.; anionic; 40% solids

Canionic S  [Centro China
http://www.centro.ttnet.net]
Chem. Descr.:  Sodium lauryl sulfate
Uses:  Emulsifier for pharmaceuticals
Properties:  Paste; anionic; 30% solids

Canionic SLES(2)  [Centro China
http://www.centro.ttnet.net]
Trade Name Reference

- Canionic SLES(3) [Centro China http://www.centro.ttnet.net]
  Chem. Descrip.: Sodium POE lauryl ether sulfate (3EO)
  Uses: Detergent, foaming agent, foaming detergent for pharmaceuticals
  Properties: Paste; anionic; 70% solids

- Canionic SLS(N) [Centro China http://www.centro.ttnet.net]
  Chem. Descrip.: Sodium lauryl sulfate
  Uses: Emulsifier for pharmaceuticals
  Properties: Needle; anionic; 92% solids

- Canionic SLS(P) [Centro China http://www.centro.ttnet.net]
  Chem. Descrip.: Sodium lauryl sulfate
  Uses: Emulsifier for pharmaceuticals
  Properties: Powd.; anionic; 92% solids

- Canionic SLS(R) [Centro China http://www.centro.ttnet.net]
  Chem. Descrip.: Sodium lauryl sulfate
  Uses: Emulsifier for pharmaceuticals
  Properties: Needle; anionic; 92% solids

- Canocol S-20 [Centro China http://www.centro.ttnet.net]
  Chem. Descrip.: Sorbitan monolaurate
  Uses: Emulsifier for pharmaceuticals
  Properties: Liq.; HLB 8.6; nonionic; 100% solids

- Canocol S-60 [Centro China http://www.centro.ttnet.net]
  Chem. Descrip.: Sorbitan monostearate
  Uses: Emulsifier for pharmaceuticals
  Properties: Flake; HLB 4.7; nonionic; 100% solids

- Canocol S-80 [Centro China http://www.centro.ttnet.net]
  Chem. Descrip.: Sorbitan monooleate
  Uses: Emulsifier for pharmaceuticals
  Properties: Liq.; HLB 4.3; nonionic; 100% solids

- Canocol S-85 [Centro China http://www.centro.ttnet.net]
  Chem. Descrip.: Sorbitan trioleate
  Uses: Emulsifier for pharmaceuticals
  Properties: Liq.; HLB 1.8; nonionic; 100% solids

- Canocol T-20 [Centro China http://www.centro.ttnet.net]
  Chem. Descrip.: Polyoxyethlene sorbitan monolaurate
  Uses: Emulsifier for pharmaceuticals
  Properties: Liq.; HLB 16.7; nonionic

- Canocol T-40 [Centro China http://www.centro.ttnet.net]
  Chem. Descrip.: Polyoxyethlene sorbitan monolaurate
  Uses: Emulsifier for pharmaceuticals
  Properties: Liq.; HLB 15.6; nonionic

- Canocol T-60 [Centro China http://www.centro.ttnet.net]
  Chem. Descrip.: Polyoxyethlene sorbitan monolaurate
  Uses: Emulsifier for pharmaceuticals
  Properties: Liq.; HLB 14.9; nonionic

- Canocol T-80 [Centro China http://www.centro.ttnet.net]
  Chem. Descrip.: Polyoxyethlene sorbitan monolaurate
  Uses: Emulsifier for pharmaceuticals
  Properties: Liq.; HLB 15.0; nonionic

- Canocol T-81 [Centro China http://www.centro.ttnet.net]
  Chem. Descrip.: Polyoxyethlene sorbitan monolaurate
  Uses: Emulsifier for pharmaceuticals
  Properties: Liq.; HLB 10.0; nonionic

- Canthaxanthin 10% CWS/N [DSM Nutritional Prods. USA http://www.nutraaccess.com]
  Chem. Descrip.: Canthaxanthin finely dispersed in corn starch coated gelatin, sucrose, and corn oil. See Canthaxanthine; Corn (Zea mays) oil; Corn (Zea mays) starch
  CAS 514-78-3; EINECS/ELINCS 208-187-2
  Uses: Colorant imparting a orange-red to pharmaceutical powds. and granulates
  Features: Imparts a purple-red or bluish-red color
  Properties: Violet-brown powd.; 85% min. through sieve No. 40; disp. in water; 10% min. assay (canthaxanthin)
  Storage: Store in tightly closed container in cool, dry place, optimally below 46 F; avoid moisture

- C-A-P Enteric Coating Polymer [Eastman http://www.eastman.com]
  Chem. Descrip.: Cellulose acetate phthalate USP/NF
  CAS 9004-38-0
  Uses: Pharmaceutical excipient; enteric film-
Trade Name Reference

coating material for tablets or gran.; matrix binder for solid dosage forms

Features: Stable in strongly acid gastric fluids, but dissolves readily in mildly acidic to neutral environment of the sm. intestine

Properties: Wh. free-flowing powd.; visc. 68 cP (15% in acetone sol’n.); pH ≥ 6.2; 35% phthalyl, 24% acetyl

Storage: Store in cool, dry area; protect from moisture and humidity; bring drums to R.T. before opening to prevent moisture condensation on inside surfs.

Capillisil® [Exsymol
http://www.exsymol.com]

Chem. Descrip.: Silanediol salicylate, butylene glycol, and triethanolamine

Uses: Moisturizer, tissue-regenerator, anti-inflammatory for health prods.

Features: No preservatives

Properties: Yel. limpid to sl. opalescent liq.; misc. with cold water, alcohols, and glycols; ref. index 1.47; pH 4.5-6.5 (3% aq.)

Use Level: 0.5-5% (hair care treatments)

Toxicology: Nonirritating to skin, eyes

Storage: Do not expose to temps. < 0 C

Capmul® GMO [ABITEC
http://www.abiteccorp.com]

Chem. Descrip.: Glyceryl stearate

Uses: Emulsifier, bodying agent, emollient, lubricant, visc. modifier for pharmaceuticals (clinical nutrition, coating, delivery/absorption enhancement, dermatological emulsions, infant formulas, microemulsions, nutritional/sports supplements

Properties: Lovibond R4.0 max. semisolid; m.p. 28-31 C; HLB 3-4; acid no. 3 max.; sapon. no. 215-230; nonionic

Regulatory: FDA 21CFR §184.1323, 184.1505

Uses: Emulsifier, bodying agent, emollient, lubricant, visc. modifier for pharmaceuticals (clinical nutrition, coating, delivery/absorption enhancement, dermatological emulsions, infant formulas, nutritional/sports supplements, suppositories, tablets), sun care preps.

Properties: Lovibond R4.0 max. bead; mild odor; insol. in water; sol. in oil @ elevated temps.; vapor pressure < 1 mm Hg; vapor dens. > 1; m.p. 57-62 C; flash pt 480 F (COC); HLB 3-4;
Trade Name Reference

acid no. 3.0; iodine no. 5.0; nonionic

Precaution: Incompat. with strong oxidizers
Hazardous Decomp. Prods.: CO, CO₂

Capmul® GMS-50K [ABITEC
http://www.abiteccorp.com]
Chem. Descrip.: Glyceryl stearate
CAS 31566-31-1; EINECS/ELINCS 250-705-4
Uses: Emulsifier, emollient, lubricant, visc. modifier for pharmaceuticals (delivery systems, infant formulas, suppository systems, tablet systems coating applics.)
Regulatory: GRAS; FDA 21CFR §184.1505
Properties: Wh. waxy beads; mild odor; disperses in water; vapor dens. > 1; vapor pressure < 1 mm Hg; m.p. 58 C; flash pt. (COC) 480 F
Toxicology: LD₅₀ (IP, mouse) 200 mg/kg; may cause eye, skin irritation
Precaution: Wear chemical splash goggles; incompat. with oxidizers
Hazardous Decomp. Prods.: CO, CO₂
NFPA: Health 0, Flammability 1, Reactivity 0
Storage: Store @ 68-77 F in dry place; requalify after 12 mos.

Capmul® MCM [ABITEC
http://www.abiteccorp.com]
Chem. Descrip.: Glyceryl mono-dicaprylate, deconoic acid monoester with 1,2,3-propanetriol See Glyceryl caprate; Glyceryl caprylate
CAS 26402-26-6; 26402-22-2; EINECS/ELINCS 252-992-1; 247-667-6
Uses: Solvent, dispersant, emulsifier, solubilizer, vehicle, carrier, penetrant with bacteriostatic effects for pharmaceuticals, aerosols, clinical nutrition, coating, delivery/absorp. enhancement, dermatologicals, microemulsions, nutritional/sports supplements, suppositories, sun care preps.; solvent for many organic compounds including steroids
Regulatory: FDA GRAS; SARA §311/312, 313 nonreportable
Properties: Lovibond 4R max. liq. to semisolid; fatty odor; partly sol. in water; vapor pressure < 1 mmHg; acid no. 2.5 max.; iodine no. 2 max.; nonionic; 55% min. alpha mono
Toxicology: LD₅₀ (oral, rat) > 5 mg/kg; sl. eye and skin irritant; ing. may cause GI discomfort; vapors and/or aerosols which may be formed at elevated temps. may be irritating to eyes and respiratory tract
Precaution: Wear chemical splash goggles and neoprene or PVC gloves; incompat. with oxidizers
Hazardous Decomp. Prods.: COₓ
Storage: Store @ 68-77 F in dry place; requalify after 12 mos.; store away from heat and flame in closed SS storage tanks in a dry area

Capmul® MCMC8 [ABITEC
http://www.abiteccorp.com]
Chem. Descrip.: Glyceryl caprylate and 1,2,3-Propanetriol See Glycerin
CAS 26402-26-6; 56-81-5; EINECS/ELINCS 247-668-1; 200-289-5
Uses: Dispersant, emulsifier, solubilizer, vehicle, carrier, penetrant with bacteriostatic effects for pharmaceuticals, delivery/absorp. enhancement, dermatologicals, microemulsions, suppositories, sun care preps.; solvent for many organic compounds including steroids
Regulatory: FDA GRAS; SARA §311/312, 313 nonreportable
Properties: Lovibond 5R max. liq. to semisolid; fatty odor; partly sol. in water; vapor pressure < 1 mmHg; acid no. 2.5 max.; iodine no. 2 max.; nonionic; 55% min. alpha mono
Toxicology: LD₅₀ (oral, rat) > 5 mg/kg; sl. eye and skin irritant; ing. may cause GI discomfort; vapors and/or aerosols which may be formed at elevated temps. may be irritating to eyes and respiratory tract
Precaution: Wear chemical splash goggles and neoprene or PVC gloves; incompat. with oxidizers
Hazardous Decomp. Prods.: COₓ
Storage: Store @ 68-77 F in dry place; requalify after 12 mos.; store away from heat and flame in closed SS storage tanks in a dry area

Capmul® MCMC10 [ABITEC
http://www.abiteccorp.com]
Chem. Descrip.: Glyceryl monopropionate See Glyceryl caprate
CAS 26402-22-2; EINECS/ELINCS 247-667-6
Uses: Dispersant, solubilizer, emulsifier, vehicle/carrier, penetrant with bacteriostatic effects for pharmaceuticals (coating, microemulsions, soft gelatin capsules, suppositories)
Regulatory: FDA GRAS
Properties: Solid; sol. in propylene glycol, dipropylene glycol, IPM, octyl stearate, octyl palmitate, SDA alcohol, ethoxydiglycol, phenyl trimethicone; vapor dens. > 1; vapor pressure < 1 mm Hg; flash pt. (COC) > 150 C; nonionic
Use Level: 10% (lipsticks)
Precaution: Incompat. with strong oxidizers
Trade Name Reference

Capmul® MCM-L [ABITEC http://www.abiteccorp.com]
Chem. Descrip.: Mono/diglycerides of caprylic/capric acid in glycerol See Glycerin; Glyceryl caprate
CAS 26402-22-2; 56-81-5; EINECS/ELINCS 247-667-6; 200-289-5
Uses: Bioavailability enhancer, emulsifier, solubilizer in pharmaceutical and nutritional applications; penetration enhancer in dermatological applications; solvent for many organic compounds including steroids
Regulatory: FDA GRAS; DMF 3700
Properties: Lovibond 4.0 R max. liq.; fatty odor; vapor pressure < 1 mmHg; acid no. 2.5 max.; flash pt. (COC) > 136°C; nonionic
Toxicology: LD₅₀ (oral, rat) > 5 mg/kg; not expected to cause serious irritation to eyes; no adverse effects to skin
Precaution: Wear chemical splash goggles and neoprene gloves for hot oil; incompat. with strong oxidizers
Hazardous Decomp. Prods.: COₓ
Storage: Store @ 68-77°F in dry place; requalify after 12 mos.

Capmul® PG-8 [ABITEC http://www.abiteccorp.com]
Chem. Descrip.: Propylene glycol monocaprylate (>90%) and propylene glycol dicaprylate (<10%) See Propylene glycol caprylate
CAS 31565-12-5; 7384-98-7
Uses: Solvent, bioavailability enhancer, carrier, in pharmaceutical and nutritional applications; penetration enhancer for transdermal applics.
Regulatory: FDA GRAS; DMF17436, E 477; SARA §311/312, 313 nonreportable
Properties: APHA 100 max. liq.; sl. medicinal odor; insol. in water; vapor pressure < 1 mm Hg; b.p. 137°C @ 4 mm Hg; acid no. 2.5 max.; flash pt. (COC) 136 C; nonionic
Toxicology: LD₅₀ (oral, rat) > 5 mg/kg; sl. eye and skin irritant; vapors and/or aerosols which may be formed at elevated temps. may be irritating to eyes and respiratory tract; noncarcinogenic; nonmutagenic
Environmental: Biodegrad.; avoid runoff into storm sewers and ditches which lead to waterways
Precaution: Wear ANSI-approved goggles and neoprene gloves; incompat. with oxidizers
Hazardous Decomp. Prods.: COₓ
Storage: Retest and requalify 24 mos. from the date of manufacture; store in a dry area away from heat and sparks in closed containers; maintain good ventilation

Capmul® PG-12 [ABITEC http://www.abiteccorp.com]
Chem. Descrip.: Propylene glycol monolaurate See Propylene glycol laurate
Chem. Analysis: 1% max. moisture content
CAS 142-55-2; EINECS/ELINCS 205-542-3
Uses: Solubilizer for many complex, poorly soluble drug compounds; carrier in soft and hard gelatin capsules; penetration enhancer for transdermal applics.
Regulatory: USP, EP, FDA Title 21 CFR 172.856
Properties: APHA 100 max. liq.; insol. in water; vapor pressure <1 mm Hg; acid no. 2.5 max.; iodine no. 1.0 max.; sapon. no 200-230;
Caprico 80%  [Undesa  
http://www.undesa.com; S. Black  
http://www.sblack.com]
Chem. Descrip.:  Capric acid  
CAS 334-48-5; EINECS/ELINCS 206-376-4  
Uses:  Emulsifier in pharmaceuticals  
Regulatory:  Not regulated for transport  
Environmental:  Biodeg. (28 d) > 90%  
Precaution:  Wear gloves, goggles, overall skin protection; avoid entry to sewers, drain and surface water  
Storage:  Store @ R.T. in original sealed container protected from heat sources

Caprilico 98-100%  [Undesa  
http://www.undesa.com; S. Black  
http://www.sblack.com]
Chem. Descrip.:  Caprylic acid  
CAS 124-07-2; EINECS/ELINCS 204-677-5  
Uses:  Emulsifier in pharmaceuticals  
Regulatory:  Not regulated for transport  
Environmental:  Biodeg. (28 d) > 90%  
Precaution:  Wear gloves, goggles, overall skin protection; avoid entry to sewers, drain and surface water  
Storage:  Store @ R.T. in original sealed container protected from heat sources

Caprol® 3GO  [ABITEC  
http://www.abiteccorp.com]
Chem. Descrip.:  Polyglyceryl-3 oleate  
CAS 33940-98-6; EINECS/ELINCS 251-749-7  
Uses:  Dispersant, emollient, emulsifier, solubilizer, wetting agent for pharmaceuticals, clinical nutrition, coating, delivery/absorp. enhancement, dermatologicals, infant formulas, microemulsions, nutritional/sports supplements, suppositories, sun care preps.  
Features:  Lipophilic  
Regulatory:  FDA 21CFR §172.854  
Properties:  Amber to brn., Gardner 7 max. liq.; mild odor; insol. in water; sp.gr. ≈ 1.01; visc. 4432 centistokes; vapor dens. > 1; vapor pressure < 1 mm Hg; HL 6.2; acid no. 6 max.; iodine no. 60 max.; sapon. no. 150; flash pt. (COC) > 425 F; nonionic; 100% conc.  
Precaution:  Incompat. with oxidizers  
Hazardous Decomp. Prods.:  CO, CO₂
NFPA: Health 1, Flammability 1, Reactivity 0
Storage: Ambient storage

Caprol® 10G100 [ABITEC http://www.abiteccorp.com]
Chem. Descrip.: Polyglyceryl-10 decaoleate
CAS 11094-60-3; EINECS/ELINCS 234-316-7
Uses: Dispersant, emollient, emulsifier, lubricant, solubilizer for pharmaceuticals, aerosols, clinical nutrition, delivery/absorp. enhancement, dermatologicals, infant formulas, microemulsions, nutritional/sports supplements, suppositories, sun care preps.

Storage: Store in a dry location in tightly sealed containers @ R.T. away from heat and sparks

Caprol® MPGO [ABITEC http://www.abiteccorp.com]
Chem. Descrip.: Polyglyceryl-6 dioleate
CAS 9007-48-1; EINECS/ELINCS 278-358-4
Uses: Solubilizer, clouding agent, crystallization inhibitor, suspending agent in pharmaceuticals
Features: Nongreasy
Properties: Nonionic

Caprol® PGE860 [ABITEC http://www.abiteccorp.com]
Chem. Descrip.: Polyglyceryl-10 oleate
CAS 9007-48-1; EINECS/ELINCS 279-230-0
Uses: Dispersant, o/w emulsifier, solubilizer, visc. modifier, wetting agent for pharmaceuticals, clinical nutrition, coating, delivery/absorp. enhancement, dermatologicals, infant formulas, microemulsions, nutritional/sports supplements, suppositories, sun care preps.
Features: Hydrophilic
Regulatory: FDA 21CFR §172.854
Properties: Gardner 10 max. liq.; caramel odor; disp. in water; vapor pressure < 1 mm Hg; acid no. 6 max.; iodine no. 155-185; nonionic; 100% conc.
Toxicology: Slight eye irritant; no adverse effects to skin; vapors and/or aerosols which may be formed at elevated temps. may be irritating to eyes and respiratory tract; noncarcinogenic; nonmutagenic; nonteratogenic
Environmental: Avoid runoff into storm sewers and ditches which lead to waterways
Precaution: Combustible; incompat. with oxidizers; wear goggles, neoprene gloves for chem. protection, and PVC-lined gloves for thermal protection
HMIS: Health 0, Flammability 1, Reactivity 0

Storage: Ambient storage
Trade Name Reference

Capsul® [Nat’l. Starch & Chem./Food Innovation
http://www.foodinnovation.com]
Chem. Descrip.: Food starch modified derived from waxy maize See Food starch, modified
Uses: Encapsulating agent for vitamins
Features: Forms very stable o/w emulsions at higher solids
Regulatory: FDA 21CFR §172.892; DOT nonregulated; SARA §313 nonreportable
Properties: Off-wh. powd.; starch odor; sol. in water; m.w. > 10,000; sp.gr. 1.5; pH ≈ 3.5
(1%); ≈ 5% moisture
Toxicology: Possible physical irritant from dust particles; particulates may scratch eye surfs. and cause mech. irritation; possible nuisance dust by inh.; maintain below TWA 10 mg/m³; low oral toxicity; low toxicity by skin contact; nontoxic; TSCA listed
Environmental: No aquatic toxicity established
Precaution: Potential for dust explosion; minimize dust generation
Hazardous Decomp. Prods.: Does not undergo spontaneous decomp.; typ. combustion prod.: CO, CO₂, N, water
HMIS: Health 1, Flammability 1, Reactivity 0
Storage: Store @ ambient temps.; sensitive to static electricity

Capsulec 51-SB [ADM Lecithin http://www.admworld.com]
Chem. Descrip.: Capsule-grade lecithin
CAS 8002-43-5; EINECS/ELINCS 232-307-2
Uses: Emulsifier, binder for soft and hard gelatin encapsulation
Properties: Translucent fluid; visc. 10 stokes; HLB 4.0

Capsulec 51-UB [ADM Lecithin http://www.admworld.com]
Chem. Descrip.: Capsule-grade lecithin
CAS 8002-43-5; EINECS/ELINCS 232-307-2
Uses: Emulsifier, binder for soft and hard gelatin encapsulation
Properties: Translucent fluid; visc. 20 stokes; HLB 4.0

Capsulec 56-SB [ADM Lecithin http://www.admworld.com]
Chem. Descrip.: Capsule-grade lecithin
CAS 8002-43-5; EINECS/ELINCS 232-307-2
Uses: Emulsifier, binder for soft and hard gelatin encapsulation
Properties: Translucent fluid; visc. 20 stokes; HLB 4.0

Capsulec 56-UB [ADM Lecithin http://www.admworld.com]
Chem. Descrip.: Capsule-grade lecithin
CAS 8002-43-5; EINECS/ELINCS 232-307-2
Uses: Emulsifier, binder for soft and hard gelatin encapsulation
Properties: Translucent fluid; visc. 20 stokes; HLB 4.0

Capsulec 60-SB [ADM Lecithin http://www.admworld.com]
Chem. Descrip.: Capsule-grade lecithin
CAS 8002-43-5; EINECS/ELINCS 232-307-2
Uses: Emulsifier, binder for soft and hard gelatin encapsulation
Properties: Transparent liq.; visc. 50 Stokes

Capsulec 60-UB [ADM Lecithin http://www.admworld.com]
Chem. Descrip.: Capsule-grade lecithin
CAS 8002-43-5; EINECS/ELINCS 232-307-2
Uses: Emulsifier, binder for soft and hard gelatin encapsulation
Properties: Transparent liq.; visc. 50 Stokes
Capsulec 62-SB [ADM Lecithin
http://www.admworld.com]
Chem. Descrip.: Capsule-grade lecithin
CAS 8002-43-5; EINECS/ELINCS 232-307-2
Uses: Emulsifier, binder for soft and hard
gelatin encapsulation
Properties: Translucent fluid; visc. 60 stokes;
HLB 4.0

Capsulec 62-UB [ADM Lecithin
http://www.admworld.com]
Chem. Descrip.: Capsule-grade lecithin
CAS 8002-43-5; EINECS/ELINCS 232-307-2
Uses: Emulsifier, binder for soft and hard
gelatin encapsulation
Properties: Translucent fluid; visc. 60 stokes;
HLB 4.0

Captex® 100 [ABITEC
http://www.abiteccorp.com]
Chem. Descrip.: Propylene glycol dicaprate
CAS 68583-51-7; EINECS/ELINCS 271-516-3
Uses: Emollient, lubricant, moisturizer,
solubilizer, extender, visc. modifier,
availability enhancer, vehicle, carrier for
vitamins, colors, and flavors for
pharmaceuticals and nutritional formulas;
emollient, moisturizer, solubilizer, carrier,
visc. modifier for sun care preps.
Features: Nonoily
Regulatory: FDA 21CFR §172.856; Kosher
Properties: Cl. liq.; bland odor and taste; misc.
with most org. solvs.; vapor dens. > 1; vapor
pressure < 1 mm Hg; acid no. 0.1 max.; sapon.
no. 270-295; flash pt. (COC) > 200 C; 0.1% max.
moisture
Precaution: Incompat. with oxidizers
Hazardous Decomp. Prods.: CO, CO2
NFPA: Health 0, Flammability 1, Reactivity 0
Storage: Store in dry place @ ambient temp.

Captex® 200 [ABITEC
http://www.abiteccorp.com]
Chem. Descrip.: Propylene glycol
dicaprylate/dicaprate
CAS 68583-51-7; EINECS/ELINCS 271-516-3
Uses: Carrier, vehicle, energy source,
availability enhancer, viscosity modifier for
pharmaceutical microemulsions,
suspensions, soft gelatin capsules,
suppositories, nutritional supplements; and
clinical nutrition
Regulatory: USP/NF, EP, DMF 1939, FDA 21
CFR § 172.856; SARA §311/312, 313
nonreportable
Properties: APHA 100 liq.; odorless; sol. in fatty
oils and lt. petroleum, hydrocarbons, ketones;
sl. sol. in anhyd. ethanol; insol. in water; sp.gr.
0.91-0.93; visc. 9-12 cP; vapor dens. > 1;
vapor press < 1 mm Hg; acid no. 0.2 max.;
iodine no. 1.0 max.; sap; hyd. no. 10.0 max.;
peroxide no. 1.0 max.; cloud pt. < -15 C; flash
pt. (COC) 410 F; ref. index 1.439-1.442
Toxicology: Nonirritant to eyes and skin;
nontoxic; noncarcinogenic
Environmental: Avoid runoff to waterways
Precaution: Wear PVC or neoprene gloves,
goggles, suitable boots; incompat. with
oxidizers
Hazardous Decomp. Prods.: CO, CO2
NFPA: Health 0, Flammability 1, Reactivity 0
Storage: Store in dry place @ ambient temp.; retest and requalify after 2 yr.

Captex® 200P [ABITEC
http://www.abiteccorp.com]
Chem. Descrip.: Propylene glycol
dicaprylate/dicaprate
CAS 68583-51-7; EINECS/ELINCS 271-516-3
Uses: Carrier, vehicle, energy source,
availability enhancer, viscosity modifier for
pharmaceutical microemulsions,
suspensions, soft gelatin capsules,
suppositories, nutritional supplements; and
clinical nutrition
Regulatory: USP/NF, EP, DMF 1939, FDA 21
CFR § 172.856; SARA §311/312, 313
nonreportable
Properties: APHA 100 liq.; odorless; sol. in fatty
oils and lt. petroleum, hydrocarbons, ketones;
sl. sol. in anhyd. ethanol; insol. in water; sp.gr.
0.91-0.93; visc. 9-12 cP; vapor dens. > 1;
vapor press < 1 mm Hg; acid no. 0.2 max.;
iodine no. 1.0 max.; sap; hyd. no. 10.0 max.;
peroxide no. 1.0 max.; cloud pt. < -15 C; flash
pt. (COC) 410 F; ref. index 1.439-1.442
Toxicology: Nonirritant to eyes and skin;
nontoxic; noncarcinogenic
Environmental: Avoid runoff to waterways
Precaution: Wear PVC or neoprene gloves,
goggles, suitable boots; incompat. with
oxidizers
Hazardous Decomp. Prods.: CO, CO2
NFPA: Health 0, Flammability 1, Reactivity 0
Storage: Store in dry place @ ambient temp.; retest and requalify after 2 yr.

Captex® 300 [ABITEC
http://www.abiteccorp.com]
Chem. Descrip.: Caprylic/capric triglyceride
CAS 65381-09-1; EINECS/ELINCS 265-724-3
Uses: Emollient, lubricant, moisturizer,
diluent, solubilizer, vehicle/carrier, visc.

Properties: APHA 100 liq.; odorless; sol. in
alcohol, oils, hydrocarbons, ketones; insol. in
water; sp.gr. 0.92-0.96; visc. 7-13 mPa•s;
vapor dens. > 1; vapor press < 1 mm Hg; acid
no. 0.1 max.; iodine no. 1.0 max.; sapon. no.
315-335; cloud pt. < -20 C; flash pt. (COC) 410
F; ref. index 1.4393
Environmental: Avoid runoff to waterways
Precaution: Wear PVC or neoprene gloves,
goggles, suitable boots; incompat. with
oxidizers
Hazardous Decomp. Prods.: CO, CO2
NFPA: Health 0, Flammability 1, Reactivity 0
Storage: Store in dry place @ ambient temp.; retest and requalify after 2 yr.
modifier for pharmaceuticals, aerosols, clinical nutrition, coating, delivery/absorp. enhancement, dermatologicals, infant formulas, soft gelatin capsules, orals, suspensions

Features: Med. chain triglyceride

Properties: Gardner 2 max. liq., bland odor and flavor; sol. in alcohol, oils, hydrocarbons, ketones; insol. in water; sp.gr. 0.95; visc. 24-30 mPa*s; b.p. > 500 F; acid no. 0.1 max.; iodine no. 0.5; sapon. no. 335-350; cloud pt. <-5 C; ref. index 1.4481; flash pt. (COC) 480 F

Toxicology: LD50 (oral, rat) > 34 g/kg, (oral, mouse) > 23.5 g/kg; sl. irritating to eyes

Environmental: Avoid runoff to waterways; biodeg.

Precaution: Wear goggles, gloves, apron when working with hot material; incompat. with oxidizers

Hazardous Decomp. Prods.: CO, CO2

NFPA: Health 0, Flammability 1, Reactivity 0

Storage: Store in dry area; keep container closed when not in use

Captex® 300 EP/NF [ABITEC http://www.abiteccorp.com]

Chem. Descrip.: Caprylic/capric triglyceride
(from food grade, veg. oil raw materials)
CAS 65381-09-1; EINECS/ELINCS 265-724-3
Uses: Carrier, vehicle, solubilizer, energy source, visc. modifier in pharmaceuticals; lubricant for soft gelatin capsules; emollient in topical formulations

Features: Fully refined; deodorized

Regulatory: NF, EP compliance; DMF # 1939

Properties: Misc. with most org. solvs. incl. 95% ethanol; sp.gr. 0.93-0.96; visc. 25-33 mPa*s; vapor dens. > 1; vapor pressure < 1 mm Hg; acid no. 0.2 max.; iodine no. 1.0 max.; sapon. no. 310-360; flash pt. (COC) 480 F; ref. index 1.440-1.452; 0.2% max. moisture

Toxicology: LD50 (oral, rat) > 36 ml/kg; no or sl. irritation potential on skin; nonirritating to eyes

Precaution: Incompat. with strong oxidizers

Hazardous Decomp. Prods.: CO, CO2

NFPA: Health 0, Flammability 1, Reactivity 0

Storage: Store in dry area at ambient temps.

Captex® 350 [ABITEC http://www.abiteccorp.com]

Chem. Descrip.: Caprylic/capric triglyceride
(conforms to hydrogenated veg. oil NF)
CAS 68991-68-4
Uses: Diluent, emollient, moisturizer, solvent, vehicle/carrier, fixative, and extender for pharmaceuticals, clinical nutrition, coating, delivery/absorp. enhancement, dermatologicals, infant formulas, nutritional/sports supplements, sun care preps.

Features: Med. chain triglyceride

Regulatory: Kosher

Properties: Gardner 2 max. liq., bland odor and flavor; insol. in water; sp.gr. 0.94; visc. 36-42 mPa*s; b.p. > 500 F; acid no. 0.1 max.; iodine no. 1.52 max.; sapon. no. 290-360; cloud pt. 0 C max.; flash pt. (COC) 520 F; ref. index 1.4582

Toxicology: LD50 (oral, rat) > 36 ml/kg, (oral, mouse) > 25 ml/kg; may cause sl. eye, skin irritation

Environmental: Avoid runoff to waterways; expected to be biodeg.; not expected to bioaccumulate

Hazardous Decomp. Prods.: CO, CO2

NFPA: Health 0, Flammability 1, Reactivity 0

Storage: Store in dry area at ambient temps.


Chem. Descrip.: Caprylic/capric triglyceride
CAS 65381-09-1; EINECS/ELINCS 265-724-3
Uses: Carrier, vehicle, solubilizer, lubricant, energy source, viscosity modifier for pharmaceuticals and clinical nutrition; emollient for topical formulations; lubricant for soft gelatin capsules

Features: Refined and deodorized

Regulatory: NF, EP, DMF 1939; SARA §311/312, 313 nonreportable

Properties: Colorless to lt. liq.; no odor; bland flavor; misc. with most org. solvs. incl. 95% ethanol; sp.gr. 0.95; visc. 25-33 mPa*s; b.p. > 500 F; acid no. 0.2 max.; iodine no. 1.0 max.; sapon. no. 310 - 360; hyd. no. 10.0 max.; ref. index 1.440-1.452; flash pt. (COC) 480 F

Toxicology: LD50 (oral, rat) > 36 g/kg, (oral, mouse) 23.5 mg/kg; sl. irritating to eyes; nonirritating to skin; noncarcinogenic; nonmutagenic; nonteratogenic

Environmental: Avoid runoff to waterways; biodeg.

Precaution: Wear goggles, gloves, apron when working with hot material; incompat. with oxidizers

Hazardous Decomp. Prods.: COx

NFPA: Health 0, Flammability 1, Reactivity 0
Trade Name Reference

Storage: Store in dry area @ ambient temps. and away from heat and direct sunlight; keep container closed when not in use

Captex® 35 5EP/NF [ABITEC http://www.abiteccorp.com]
Chem. Descrip.: Caprylic/capric triglyceride
CAS 65381-09-1; EINECS/ELINCS 265-724-3
Uses: Emollient, solvent, fixing agent, solubilizer, extender, carrier, solubilizer in pharmaceuticals
Features: Fully refined and deodorized
Regulatory: NF, EP compliance; SARA §311/312, 313 nonreportable
Properties: Colorless to lt. yel. odorless liq.; miscible with most organic solvents including ethanol (95%); sp. gr. 0.93-0.96; visc. 25-33 mPa.s; b.p. > 500 F; acid no. 0.2 max.; iodine no.1.0 max.; sapon. no. 310-360; hyd. no. 10 max.
Toxicology: LD50 (oral, rat) > 34 g/kg, , (oral, mouse) > 23.5 g/kg; sl. irritating to eyes; inh. of vapors and/or aerosols which may be irritating to eyes and respiratory tract; may cause GI discomfort; noncarcinogenic; nonmutagenic
Environmental: Biodeg.; prevent liquid from entering bodies of water
Precaution: Wear goggles, gloves, apron when working with hot material; incompat. with oxidizers
Hazardous Decomp. Prods.: CO, CO2
HMIS: Health 0, Flammability 1, Reactivity 0
Storage: Store in dry area; keep container closed when not in use

Captex® 500 [ABITEC http://www.abiteccorp.com]
Chem. Descrip.: Glycerin triacetate See Triacetin
CAS 102-76-1; EINECS/ELINCS 203-051-9
Uses: Solvent, fixing agent for flavors and fragrances in pharmaceuticals
Regulatory: FDA 21CFR §184.1901, GRAS; FCC, USP approved; RCRA not regulated
Properties: Colorless liq.; mild vegetable oil odor; insol. in water; sp.gr. 1.16; b.p. ≈ 260 C; flash pt. ≈ 146 C; autoignition temp.≈ 432 C
Toxicology: LD50 (oral, rat) 3 g/kg; no adverse effects
Environmental: Avoid runoff into storm sewers or ditches that lead to waterways; biodeg.;
Precaution: Combustible; wear PVC or neoprene gloves, goggles, suitable boots; incompat. with oxidizers
Hazardous Decomp. Prods.: CO, CO2
HMIS: Health 0, Flammability 1, Reactivity 0
Storage: 18 mos.; store in closed container in dry place @ ambient temps.; keep away from heat, flame, sparks

Captex® 500P [ABITEC http://www.abiteccorp.com]
Chem. Descrip.: Triacetin
Chem. Analysis: Moisture 0.2% max.
CAS 102-76-1; EINECS/ELINCS 203-051-9
Uses: Emollient, solvent, fixing agent, solubilizer, extender, carrier, solubilizer in pharmaceuticals
Regulatory: USP, FCC, FDA 21 CFR §184.1901, SARA §311/312 nonreportable
Properties: Colorless liq.; mild veg. odor; insol. in water; sp.gr. 1.16; b.p. ≈ 260 C; ref. index 1.429-1.430; acid value 0.04 max.; flash pt ≈ 146 C
Toxicology: LD50 (oral, rat) 3 g/kg; no adverse effects

Captex® 500P [ABITEC http://www.abiteccorp.com]
Chem. Descrip.: Triacetin
Chem. Analysis: Moisture 0.2% max.
CAS 102-76-1; EINECS/ELINCS 203-051-9
Uses: Emollient, solvent, fixing agent, solubilizer, extender, carrier, solubilizer in pharmaceuticals
Regulatory: USP, FCC, FDA 21 CFR §184.1901, SARA §311/312 nonreportable
Properties: Colorless liq.; mild veg. odor; insol. in water; sp.gr. 1.16; b.p. ≈ 260 C; ref. index 1.429-1.430; acid value 0.04 max.; flash pt ≈ 146 C
Toxicology: LD50 (oral, rat) 3 g/kg; no adverse effects
Captex® 800 [ABITEC
http://www.abiteccorp.com]
Chem. Descrip.: Propylene glycol
diethylhexanoate See Propylene glycol
dioctanoate
CAS 93981-97-6; EINECS/ELINCS 301-185-3
Uses: Emollient, moisturizer, lubricant,
penetrant, visc. modifier for
pharmaceuticals, dermatologicals,
emulsions, suppositories, sun care
preps.; carrier for essential oils, flavors;
vehicle for vitamins, medicinals, nutritional
prods.
Features: Nonoily; imparts rich feel to skin
Properties: APHA 100 max. cl. liq.; neutral odor;
bland flavor; misc. with most org. solvs. incl.
95% ethanol; insol. in water; sp.gr. 0.916-
0.926; visc. 9-13 mPa•s; vapor dens. > 1;
vapor pressure < 1 mm Hg; acid no. 1.0 max.;
iodine no. 1.0 max.; sapon. no. 320-340; cloud
pt. < -20 C
Environmental: Avoid runoff to waterways
Precaution: Incomp. with oxidizers
NFPA: Health 0, Flammability 1, Reactivity 0
Storage: Ambient storage
Captex® 810D [ABITEC
http://www.abiteccorp.com]
Chem. Descrip.: Caprylic/capric/linoleic
triglyceride
Uses: Diluent, emollient, moisturizer,
solubilizer, solvent, vehicle/carrier, fixing
agent, extender in pharmaceuticals,
nutritional applcs., clinical nutrition,
delivery/absorp. enhancement,
dermatologicals; carrier for flavors and
fragrances; lipid vehicle in pharmaceuticals
for parenteral and enteric
hyperalimentation

Captex® 1000 [ABITEC
http://www.abiteccorp.com]
Chem. Descrip.: Tricaprin
CAS 621-71-6; EINECS/ELINCS 210-702-0
Uses: Diluent, emollient, lubricant,
moisturizer, solubilizer, vehicle, carrier,
visc. modifier for aerosols, clinical
nutrition, coating, delivery/absorption
enhancement, dermatologicals, infant
formulas, nutritional/sports supplements,
gelatin capsules; carrier for flavors,
fragrances, colors, and vitamins
Features: Provides non-greasy water-resist. film
Regulatory: Kosher
Properties: Pale yel. solid; misc. with most org.
solvs.; sp.gr. 0.92; vapor dens. > 1; vapor
pressure < 1 mm Hg; m.p. 33 C; b.p. > 500 F;
acid no. 0.1 max.; sapon. no. 280-320; 0.1%
max. moisture
Precaution: Wear chemical splash goggles,
neoprene gloves; incomp. with strong
oxidizers
Storage: Store in dry place @ ambient temp.
Captex® 8000 [ABITEC
http://www.abiteccorp.com]
Chem. Descrip.: Tricaprylin
CAS 538-23-8; EINECS/ELINCS 208-686-5
Uses: Lubricant for pharmaceuticals; carrier
for essential oils, flavors; vehicle for
vitamins, medicinals, nutritional prods.
Features: Nonoily; imparts rich feel to the skin
Properties: APHA 150 max. cl. liq.; neutral odor;
bland flavor; misc. with most org. solvs. incl.
95% ethanol; visc. 20-28 mPa•s; acid no. 1.0
max.; iodine no. 1.0 max.; sapon. no. 350-365;
cloud pt. < -5 C; ref. index 1.4469

Captex® 800
Trade Name Reference

effect on skin or upon ing.; vapors and/or
aerosols which may formed at elevated temps.
can irritate to eyes and respiratory tract;
noncarcinogenic

Environmental: Avoid runoff into storm
sewers and ditches which which lead to
waterways
Precaution: Combustible; keep away from
heat, sparks and flame; wear ANSI-approved
goggles and PVC or neoprene gloves

Hazardous Decomp. Prods.: COx
HMIS: Health 0, Flammability 1, Reactivity 0
Storage: Keep container closed when not in use;
store in a dry area SS storage tanks at
ambient temps.

Captex® 8000

Regulatory: SARA §311/312, 313 nonreportable
Properties: Gardner 2 max. liq.; mild fatty odor;
vapor pressure < 1 mmHg; acid no. 0.1 max.;
iodine no. 85; sapon. no. 320-340
Toxicology: Sl. eye irritant; no adverse effect
to skin; noncarcinogenic; nonmutagenic
Precaution: Avoid mist formation and contact
with eyes; wear chemical splash goggles
and neoprene-type gloves for hot oil;
incomp. with oxidizers
Hazardous Decomp. Prods.: COx
HMIS: Health 0, Flammability 1, Reactivity 0
Storage: 2 yr min. shelf life; store in dry area in
closed, labeled containers; keep away from
heat, sparks and flame.

Captex® 1000

Chem. Descrip.: Tricaprin
CAS 621-71-6; EINECS/ELINCS 210-702-0
Uses: Diluent, emollient, lubricant,
moisturizer, solubilizer, solvent, vehicle, carrier,
visc. modifier for aerosols, clinical
nutrition, coating, delivery/absorption
enhancement, dermatologicals, infant
formulas, nutritional/sports supplements,
gelatin capsules; carrier for flavors,
fragrances, colors, and vitamins
Features: Provides non-greasy water-resist. film
Regulatory: Kosher
Properties: Pale yel. solid; misc. with most org.
solvs.; sp.gr. 0.92; vapor dens. > 1; vapor
pressure < 1 mm Hg; m.p. 33 C; b.p. > 500 F;
acid no. 0.1 max.; sapon. no. 280-320; 0.1%
max. moisture
Precaution: Wear chemical splash goggles,
neoprene gloves; incomp. with strong
oxidizers
Storage: Store in dry place @ ambient temp.

Captex® 800

Chem. Descrip.: Caprylic/capric/linoleic
triglyceride
Uses: Diluent, emollient, moisturizer,
solubilizer, solvent, vehicle/carrier, fixing
agent, extender in pharmaceuticals,
nutritional applcs., clinical nutrition,
delivery/absorp. enhancement,
dermatologicals; carrier for flavors and
fragrances; lipid vehicle in pharmaceuticals
for parenteral and enteric
hyperalimentation

Captex® 810D

Chem. Descrip.: Caprylic/capric/linoleic
triglyceride
Uses: Diluent, emollient, moisturizer,
solubilizer, solvent, vehicle/carrier, fixing
agent, extender in pharmaceuticals,
nutritional applcs., clinical nutrition,
delivery/absorp. enhancement,
dermatologicals; carrier for flavors and
fragrances; lipid vehicle in pharmaceuticals
for parenteral and enteric
hyperalimentation

Captex® 1000

Chem. Descrip.: Tricaprin
CAS 621-71-6; EINECS/ELINCS 210-702-0
Uses: Diluent, emollient, lubricant,
moisturizer, solubilizer, vehicle, carrier,
visc. modifier for aerosols, clinical
nutrition, coating, delivery/absorption
enhancement, dermatologicals, infant
formulas, nutritional/sports supplements,
gelatin capsules; carrier for flavors,
fragrances, colors, and vitamins
Features: Provides non-greasy water-resist. film
Regulatory: Kosher
Properties: Pale yel. solid; misc. with most org.
solvs.; sp.gr. 0.92; vapor dens. > 1; vapor
pressure < 1 mm Hg; m.p. 33 C; b.p. > 500 F;
acid no. 0.1 max.; sapon. no. 280-320; 0.1%
max. moisture
Precaution: Wear chemical splash goggles,
neoprene gloves; incomp. with strong
oxidizers
Storage: Store in dry place @ ambient temp.

Captex® 8000

Chem. Descrip.: Tricaprylin
CAS 538-23-8; EINECS/ELINCS 208-686-5
Uses: Lubricant for pharmaceuticals; carrier
for essential oils, flavors; vehicle for
vitamins, medicinals, nutritional prods.
Features: Nonoily; imparts rich feel to the skin
Properties: APHA 150 max. cl. liq.; neutral odor;
bland flavor; misc. with most org. solvs. incl.
95% ethanol; visc. 20-28 mPa•s; acid no. 1.0
max.; iodine no. 1.0 max.; sapon. no. 350-365;
cloud pt. < -5 C; ref. index 1.4469

Captex® 1000

Chem. Descrip.: Tricapryrin
CAS 538-23-8; EINECS/ELINCS 208-686-5
Uses: Lubricant for pharmaceuticals; carrier
for essential oils, flavors; vehicle for
vitamins, medicinals, nutritional prods.
**Captex® 8227** [ABITEC http://www.abiteccorp.com]

**Chem. Descrip.:** Triundecanoin

**CAS:** 13552-80-2; EINECS/ELINCS 236-935-8

**Uses:** Solubilizer, carrier, and vehicle in pharmaceuticals and nutritional applics.; carrier for flavors and fragrances

**Regulatory:** 21 CFR 172.856; SARA §311/312, 313 nonreportable

**Properties:** APHA 150 solid; fatty odor; insol. in water; sp.gr. 0.9; vapor dens. > 1; vapor pressure < 1 mm Hg; m.p. 25-29 C; acid no. 0.5 max.; iodine no. 5 max.; sapon. no. 270-290; cloud pt. 21 C; flash pt. (COC) 350 F

**Toxicology:** LD50 (oral, rat) > 5 gm/ kg; slight irritant to eyes; no adverse effects to skin or by ing.; noncarcinogenic; nonmutagenic; nonteratogenic

**Precaution:** Wear chemical splash goggles; incompat. with strong oxidizers

**Hazardous Decomp. Prods.:** COx

**Storage:** Retest and requalify 18 months from the date of manufacture; store in a dry area away from heat or sparks; maintain good ventilation around containers.

**Captex® CA** [ABITEC http://www.abiteccorp.com]

**Chem. Descrip.:** Medium chain triglycerides; starch See Caprylic/capric triglyceride

**CAS:** 65381-09-1; 9005-25-8; EINECS/ELINCS 265-724-3; 232-686-4

**Uses:** Pharmaceutical fragrance

**Regulatory:** SARA §311/312, 313 nonreportable

**Properties:** Wh. free-flowing powd.; clean, sl. sweet taste; vapor pressure < 1 mmHg; acid no. 0.1 max.; iodine no. 85; sapon. no. 235-253

**Precaution:** Avoid mist formation and contact with eyes; wear chemical splash goggles and neoprene-type gloves for hot oil; incompat. with oxidizers

**Hazardous Decomp. Prods.:** COx

**Storage:** 1 yr shelf life; store @ 60-80° F.

**Captisol®** [CyDex http://www.cydexinc.com]

**Chem. Descrip.:** Sulfobutylether β-cyclodextrin

**Uses:** Excipient, carrier, solubilizer, stabilizer, bioavailability enhancer for parenteral pharmaceuticals

**Features:** Enables delivery of drugs with poor water sol.; can complex neutral, anionic, and cationic drugs; biocompatible.; can minimize tissue irritation effects of irritating drugs

**Properties:** Wh. to off-wh. solid; anionic

**Carbopol® 934 NF Polymer** [Noveon http://www.carbopol.com; http://www.noveoncoatings.com]

**Chem. Descrip.:** Carbomer 934 NF

**CAS:** 9003-01-4

**Uses:** Rheology control agent, emulsifier, thickener, stabilizer, suspending agent for stable topical pharmaceutical emulsions and suspensions, aq. and solv.-based gels

**Regulatory:** USP/NF, JPE, not covered by Carbomers monograph in EP which stipulates benzene < 2 ppm; FDA 21 CFR §175.105, 175.300, 175.320, 176.180, 177.2260; 40 CFR §180.1001; NF, BP, JSPI compliance; EPA hazardous waste; SARA §312 chronic health hazard, §313 reportable (benzene) (benzene)

**Properties:** Wh. fluffy powd.; sl. acetic odor; sol. in water, polar solvs., many nonpolar solvs. blends; sp.gr. 1.41; bulk dens. 208 kg/m³; visc. 30,500-39,400 cps (0.5%); pH 2.5-3.0 (1% aq. disp.); anionic; 100% conc.; < 2% moisture

**Toxicology:** LD50 (oral, rat) > 2500 mg/kg, (skin, rabbit) > 3000 mg/kg; dust may cause eye irritation, pain; dust inh. may cause coughing, mucous prod., shortness of breath; prolonged/repeated exposure may cause contact dermatitis; TSCA listed

**Environmental:** LC50 (daphnia magna, 96 h) 168-280 mg/l; low aquatic toxicity; BOD=0, nonbiodeg.; removed with the biomass in typ. wastewater treatment

**Precaution:** Take precautions against dust explosion; heat may be generated in contact with strong basic materials, e.g., ammonia, NaOH, KOH, or strongly basic amines

**Hazardous Ingredients:** Benzene (< 0.3%)

**Hazardous Decomp. Prods.:** CO, CO2, hydrocarbons, irritating vapors

**NFPA:** Health 2, Flammability 1, Reactivity 0

**Storage:** 2 yr. min. shelf life stored in sealed containers, protected from moisture and extreme temps.: hygroscopic

**Carbopol® 934P NF Polymer** [Noveon http://www.carbopol.com; http://www.noveoncoatings.com]

**Chem. Descrip.:** Carbomer 934P NF

**CAS:** 9003-01-4

**Uses:** Thickener, suspending agent,
**Trade Name Reference**

emulsifier for pharmaceuticals, topicals, transdermals, sustained release tablets, oral suspensions, mucoadhesive apps.

**Features:** High purity grade

**Regulatory:** USP/NF, JPE, not covered by Carbomers monograph in EP which stipulates benzene < 2 ppm; FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 177.1210, 177.2260; 40CFR §180.1001; EPA hazardous waste; SARA §312 chronic health hazard, §313 nonreportable

**Properties:** Wh. fluffy powd.; sl. acetic odor; sol. in water, many nonpolar solvs.; sp.gr. 1.41; bulk dens. 208 kg/m³; visc. 4000-11,000 cps (0.5%); pH 2.5-3.0 (1% disp.); anionic; 100% conc.; < 2% moisture

**Toxicology:** LD50 (oral, rat) > 2500 mg/kg, (skin, rabbit) > 3000 mg/kg; dust may cause eye irritation, pain; dust inh. may cause coughing, mucous prod., shortness of breath; prolonged/repeated exposure may cause contact dermatitis; TSCA listed

**Environmental:** LC50 (daphnia magna, 96 h) 168-280 mg/l; low aquatic toxicity; BOD=0; nonbiodeg.; removed with the biomass in typ. wastewater treatment

**Precaution:** Take precautions against dust explosion; heat may be generated in contact with strong basic materials, e.g., ammonia, NaOH, KOH, or strongly basic amines

**Hazardous Ingredients:** Benzene (< 0.3%)

**Hazardous Decomp. Prods.:** CO, CO₂, hydrocarbons, irritating vapors

**NFPA:** Health 2, Flammability 1, Reactivity 0

**Storage:** 2 yr. min. shelf life stored in sealed containers, protected from moisture and extreme temps.; hygroscopic

**Carbopol® 940 NF** [Noveon http://www.carbopol.com; http://www.noveoncoatings.com]

**Chem. Descrip.:** Carbomer 940 NF

**CAS 9003-01-4**

**Uses:** Emulsifier, thickener for low visc. sparkling clear topical pharmaceutical gels; emulsion stabilizer for topical lotions

**Features:** Effective in mod. ionic systems

**Regulatory:** USP/NF, JPE, not covered by Carbomers monograph in EP which stipulates benzene < 2 ppm; FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 177.1210, 177.2260; 40CFR §180.1001; EPA hazardous waste; SARA §312 chronic health hazard, §313 reportable

**Properties:** Wh. fluffy powd.; sl. acetic odor; sol. in water, many nonpolar solvs.; sp.gr. 1.41; bulk dens. 208 kg/m³; visc. 4000-60,000 cps (0.5%); pH 2.5-3.0 (1% disp.); anionic; 100% conc.; < 2% moisture

**Toxicology:** LD50 (oral, rat) > 2500 mg/kg,
Trade Name Reference

(skin, rabbit) > 3000 mg/kg; dust may cause eye irritation, pain; dust inh. may cause coughing, mucous prod., shortness of breath; prolonged/repeated exposure may cause contact dermatitis; TSCA listed

Environmental: LC50 (daphnia magna, 96 h)
168-280 mg/l; nonbiodeg.; removed with the biomass in typ. wastewater treatment

Precaution: Take precautions against dust explosion; heat may be generated in contact with strong basic materials, e.g., ammonia, NaOH, KOH, or strongly basic amines

Hazardous Ingredients: Benzene (< 0.3%)

Hazardous Decomp. Prods.: CO, CO₂, hydrocarbons, irritating vapors

NFPA: Health 2, Flammability 1, Reactivity 0

Storage: 2 yr. min. shelf life stored in sealed containers, protected from moisture and extreme temps.; hygroscopic

Carbopol® 971P NF [Noveon
http://www.carbopol.com;
http://www.noveoncoatings.com]
Chem. Descrip.: Carbomer 941 NF (polymerized in ethyl acetate)
CAS 9003-01-4
Uses: Emulsifier, thickener, stabilizer, suspending agent for pharmaceuticals, esp. oral and mucosal applics., controlled-release tablets, oral suspensions, transdermals, topical lotions and gels


Properties: Wh. fluffy powd.; sol. in water; sp.gr. 1.41; bulk dens. 208 kg/m³; visc. 4000-11,000 cps (0.5%); acid no. 700-750; pH 2.5-3.0 (1% aq. disp.); anionic

Toxicology: LD50 (oral, rat) > 2500 mg/kg, (skin, rabbit) > 3000 mg/kg; nonirritating to eyes; nonsensitizing to human skin; may cause mild upper respiratory symptoms; may cause lung effects on prolonged/repeated exposure

Precaution: May generate heat in contact with strong basic materials, e.g., ammonia, NaOH, KOH, or strongly basic amines; contact with water creates a very slippery film

Hazardous Decomp. Prods.: CO, CO₂, hydrocarbons, irritating vapors

Storage: 2 yr. min. shelf life stored in sealed containers, protected from moisture and extreme temps.; hygroscopic

Carbopol® 974P NF [Noveon
http://www.carbopol.com;
http://www.noveoncoatings.com]
Chem. Descrip.: Carbomer 934P NF (polymerized in ethyl acetate)
CAS 9003-01-4
Uses: Emulsifier, thickener, stabilizer, suspending agent for pharmaceuticals, esp. oral and mucosal applics., controlled-release tablets, oral suspensions, transdermals, topical lotions and gels


Properties: Wh. fluffy powd.; sp.gr. 1.41; bulk dens. 208 kg/m³; visc. 29,400-39,400 cps (0.5%); pH 2.5-3.0 (1% aq. disp.); anionic

Toxicology: LD50 (dermal, rabbit) > 2.0 g/kg; nonirritating to eyes; nonsensitizing to human skin

Storage: 2 yr. min. shelf life stored in sealed containers, protected from moisture and extreme temps.; hygroscopic

Carbopol® 980 NF Polymer [Noveon
http://www.carbopol.com;
http://www.noveoncoatings.com]
Chem. Descrip.: Carbomer 940 NF
CAS 9003-01-4
Uses: Solvent thickener for topical pharmaceuticals, sparkling clear water or hydroalcoholic topical gels, aq. or solv. systems

Features: For use with or without neutralizing

Regulatory: USP/NF, EP, JPE; FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 177.1210, 177.2260; 40CFR §180.1001; NF, DAB, compliance; SARA §312 chronic health hazard

Properties: Wh. fluffy powd.; stl. acetic odor; sol. in water; sp.gr. 1.41; bulk dens. 208 kg/m³; visc. 13,000-30,000 cps (0.2%); 40,000-60,000 cps (0.5%); pH 2.5-3.0 (1% aq. disp.); < 2% moisture

Toxicology: LD50 (oral, rat) > 2500 mg/kg, (skin, rabbit) > 3000 mg/kg; sl. irritating to skin; minimal eye irritant; dust inh. may cause coughing, mucous prod., shortness of breath; prolonged/repeated exposure may cause contact dermatitis; TSCA listed

Environmental: LC50 (daphnia magna, 96 h)
Carbopol® 981 NF [Noveon
http://www.carbopol.com;
http://www.noveoncoatings.com]
Chem. Descrip.: Carbomer 941 NF
CAS 9003-01-4
Uses: Emulsifier, thickener for low visc.
sparkling clear pharmaceutical topical gels;
emulsion stabilizer for topical lotions
Features: Effective in mod. ionic systems
Regulatory: USP/NF, EP, JPE; FDA 21CFR
§175.105, 175.300, 175.320, 176.170,
176.180, 176.200, 177.1210, 177.2260;
40CFR §180.1001; SARA §312 chronic health
hazard
Properties: Wh. fluffy powd.; sl. acetic odor; sol.
in water; sp.gr. 1.41; bulk dens. 208 kg/m³;
visc. 4000-10,000 cps (0.5%); pH 2.5-3.0 (1% 
aq. disp.); anionic; < 2% moisture
Toxicology: LD50 (oral, rat) > 2500 mg/kg,
(skin, rabbit) > 3000 mg/kg; sl. irritating to
skin; minimal eye irritant; dust inh. may
cause coughing, mucous prod., shortness of
breath; prolonged/repeated exposure may
cause contact dermatitis; TSCA listed
Environmental: LC50 (daphnia magna, 96 h)
168-280 mg/l; nonbiodeg.; removed with the
biomass in typ. wastewater treatment
Precaution: Take precautions against dust
explosion; heat may be generated in
contact with strong basic materials, e.g.,
ammonia, NaOH, KOH, or strongly basic
amines
Hazardous Decomp. Prods.: CO, CO₂,
hydrocarbons, irritating vapors
NFPA: Health 2, Flammability 1, Reactivity 0
Storage: 2 yr. min. shelf life stored in sealed
containers, protected from moisture and
extreme temps.; hygroscopic

Carbopol® 1382 [Noveon
http://www.carbopol.com;
http://www.noveoncoatings.com]
Chem. Descrip.: Acrylates/C10-30 alkyl
acrylate crosspolymer
Uses: Rheology control agent, thickener,
stabilizer, moisturizer, gellant for
pharmaceuticals; light gellant for water or
hydroalcoholic systems
Features: For pourable prod. contg. suspended
incompat. ingreds.
Regulatory: FDA 21CFR §175.105, 175.300,
175.320, 176.170, 176.200, 176.180, 177.1210,
177.2260; 40CFR §180.1001; EPA hazardous waste; SARA §312 chronic health
hazard, §313 reportable (benzene)
Properties: Wh. fluffy powd., sl. acetic odor; sol.
in water; sp.gr. 1.41; bulk dens. 208 kg/m³;
visc. 9500-26,500 cps (1%); pH 2.5-3.0 (1% 
aq. disp.); anionic; < 2% moisture
Toxicology: LD50 (oral, rat) > 2500 mg/kg,
(skin, rabbit) > 3000 mg/kg; nonirritating to
skin; mod. eye irritant in conc. form,
nonirritating @ 1%; dust inh. may cause
coughing, mucous prod., shortness of
breath; may cause contact dermatitis; TSCA
listed
Environmental: LC50 (daphnia magna, 96 h)
168-280 mg/l; nonbiodeg.; removed with the
biomass in typ. wastewater treatment
Precaution: Take precautions against dust
explosion; heat may be generated in
contact with strong basic materials, e.g.,
ammonia, NaOH, KOH, or strongly basic
amines
Hazardous Ingredients: Benzene (< 0.3%)
Hazardous Decomp. Prods.: CO, CO₂,
hydrocarbons, irritating vapors
NFPA: Health 2, Flammability 1, Reactivity 0
Storage: 2 yr. min. shelf life stored in sealed
containers, protected from moisture and
extreme temps.; hygroscopic
**Trade Name Reference**

175.320, 176.170, 176.180, 176.200, 177.1210, 177.2260; 40CFR §180.1001; JSCI compliance

**Properties:** Wh. fluffy powd.; sp.gr. 1.41; bulk dens. 208 kg/m³; visc. 25,000-45,000 (1%); pH 2.5-3.0 (1% aq. disp.); anionic

**Toxicology:** Sl. skin irritant; borderline eye irritant

**Storage:** 2 yr. min. shelf life stored in sealed containers, protected from moisture and extreme temps.; hygroscopic

**Carbopol® 2984** [Noveon](http://www.carbopol.com; http://www.noveoncoatings.com)

**Chem. Descrip.:** Carboxylic acid polymer crosslinked with allyl ethers of pentaerythritol See Carbomer 941

**CAS 9003-01-4**

**Uses:** Rheology control agent, emulsifier, thickener, stabilizer, suspending agent in topical pharmaceutical stable emulsions and suspensions, aq. and solv.-based gels

**Regulatory:** USP/NF, EP, JPE; USP/NF, US DMF 17095, EP, JPE; BP, JSCI compliance; SARA §312 chronic health hazard

**Properties:** Wh. fluffy powd.; sl. acetic odor; sl. acetic odor; sol. in water; sp.gr. 1.41; bulk dens. 208 kg/m³; visc. 25,000-45,000 cps (0.5%); pH 2.5-3.0 (1% aq. disp.); anionic; < 2% moisture

**Toxicology:** LD50 (oral, rat) > 2500 mg/kg, (skin, rabbit) > 3000 mg/kg; dust may cause pain, eye irritation; dust inh. may cause coughing, mucous prod., shortness of breath; prolonged/repeated exposure may cause contact dermatitis; TSCA listed

**Environmental:** LC50 (daphnia magna, 96 h) 168-280 mg/l; nonbiodeg.; removed with the biomass in typ. wastewater treatment

**Precaution:** Take precautions against dust explosion; heat may be generated in contact with strong basic materials, e.g., ammonia, NaOH, KOH, or strongly basic amines

**Hazardous Decomp. Prods.:** CO, CO₂, hydrocarbons, irritating vapors

**NFPA:** Health 2, Flammability 1, Reactivity 0

**Storage:** 2 yr. min. shelf life stored in sealed containers, protected from moisture and extreme temps.; hygroscopic

**Carbopol® 71G NF Polymer** [Noveon](http://www.carbopol.com; http://www.noveoncoatings.com)

**Chem. Descrip.:** Acrylic acid polymer crosslinked with allyl ethers of pentaerythritol

**CAS 9003-01-4**

**Uses:** Matrix ingredient for controlled release tablets and capsules; rheology modifier for topical lotions, creams and gels.; suspending agent for oral liquids

**Regulatory:** USP/NF, US DMF 17095, EP, JPE; SARA §311/312 Chronic Health Hazard

**Properties:** Wh. granules; sl. acetic odor; sp. gr. ≈ 1.4; visc. 4,000-11,000 cP (4.0% conc.); pH 2.5-3.0 (1% aq. disp.)

**Toxicology:** LD50 (oral, rat) > 2500.00 mg/kg

**Environmental:** Not biodegrad.; LC50 (daphnia magna, 96h) 168-280 mg/l
Precaution: Avoid strongly basic materials and basic amines
Hazardous Decomp. Prods.: COx, hydrocarbons, and irritating vapors
HMIS: Health 2, Flammability 1, Reactivity 0
Storage: Store in sealed, tightly closed standard Noveon containers and protect from moisture and excessive temps.

Chem. Descr.: Crosslinked acrylic acid polymer with processing aid See Polyacrylic acid
Uses: Emulsifier, thickener for low visc. sparkling clear pharmaceutical topical gels; emulsion stabilizer for topical lotions
Features: Effective in mod. ionic systems; easier to disperse and mix
Regulatory: FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 177.1210, 177.2260; 40CFR §180.1001; SARA §312 chronic health hazard
Properties: Wh. fluffy powd.; sl. acetic odor; sp.gr. 1.41; bulk dens. 208 kg/m3; visc. 8000-16,500 cps (0.5%); pH 2.5-3.0 (1% aq. disp.); < 2% moisture
Toxicology: Sl. skin irritant in conc. form, non to very sl. irritant @ 1%; sl. to mod. eye irritant (undiluted); dust inh. may cause coughing, mucous prod., shortness of breath; TSCA listed
Environmental: Nonbiodeg.; removed with the biomass in typ. wastewater treatment
Precaution: Take precautions against dust explosion; heat may be generated in contact with strong basic materials, e.g., ammonia, NaOH, KOH, or strongly basic amines

Carbopol® Ultrez™ 10 NF Polymer [Noveon http://www.carbopol.com; http://www.noveoncoatings.com]
Chem. Descr.: Carbomer
CAS 9003-01-4
Uses: Thickener, rheology control agent for pharmaceutical hydroalcohol topical gels, water or solv. systems
Features: Easily dispersed; nontacky feel; rich, buttery texture
Regulatory: USP/NF (Carbomer Interpolymer Type A); SARA §312 Chronic Health Hazard
Properties: Wh. fluffy powd.; sl. acetic odor; sp.gr. 1.4; bulk dens. 0.19-0.24 g/ml; visc. 45,000-65,000 cps (0.5% sol'n.); pH 2.5-3.0 (1% in water); volatiles < 3.0%; 2% moisture
Environmental: LC50 (daphnia magna, 96 h) 168-280 mg/l, (bluegill, 96 h) 580-2000 mg/l
Precaution: Wear eye protection, protective gloves
Hazardous Decomp. Prods.: CO, CO2, hydrocarbons, irritating vapors
NFPA: Health 2, Flammability 1, Reactivity 0
Storage: Store in dry area in closed container
Trade Name Reference

Carbowax® E300 NF [Dow http://www.dow.com]
Chem. Descrip.: PEG-6 NF, FCC
CAS 25322-68-3; EINECS/ELINCS 220-045-1
Uses:  Carrier for ointments for antiseptics and other medicaments; plasticizer in tablet film coatings; base for suppositories; carrier, solvent, suspending agent in liq. pharmaceuticals; vehicle for actives in gelatin capsules
Properties:  Cl. viscid. liq.; sol. in water; m.w. 300; sp.gr. 1.125; dens. 9.36 lb/gal; f.p. -10 C; viscid. 69 cSt; flash pt. (PMCC) > 400 F; ref. index 1.463; sp. heat 0.508 cal/g/°C
Toxicology:  Extremely low acute oral toxicity; little or no irritation to eyes and skin; not recommended for use on abraded skin; may generate irritating vapors on decomp.

Carbowax® E3350 NF
Chem. Descrip.: PEG-6 NF, FCC
CAS 229-859-1; EINECS/ELINCS 203-989-9
Uses:  Carrier for ointments for antiseptics and other medicaments; plasticizer in tablet film coatings; base for suppositories; carrier, solvent, suspending agent in liq. pharmaceuticals; vehicle for actives in gelatin capsules
Properties:  Wh. waxy solid; m.w. 1450; sp.gr. 1.224; visc. 93 cSt (210 F); flash pt. (PMCC) > 450 F
Toxicology:  Extremely low acute oral toxicity; little or no irritation to eyes and skin; not recommended for use on abraded skin; may generate irritating vapors on decomp.

Carbowax® E400 NF [Dow http://www.dow.com]
Chem. Descrip.: PEG-8 NF, FCC
CAS 25322-68-3; EINECS/ELINCS 225-856-4
Uses:  Carrier for ointments for antiseptics and other medicaments; plasticizer in tablet film coatings; base for suppositories; carrier, solvent, suspending agent in liq. pharmaceuticals; vehicle for actives in gelatin capsules
Properties:  Cl. viscid. liq.; m.w. 400; sp.gr. 1.125; dens. 9.36 lb/gal; f.p. 6 C; viscid. 90 cSt; flash pt. (PMCC) > 450 F; ref. index 1.465; sp. heat 0.498 cal/g/°C
Toxicology:  Extremely low acute oral toxicity; little or no irritation to eyes and skin; not recommended for use on abraded skin; may generate irritating vapors on decomp.

Carbowax® E600 NF [Dow http://www.dow.com]
Chem. Descrip.: PEG-12 NF, FCC
CAS 25322-68-3; EINECS/ELINCS 229-859-1
Uses:  Carrier for ointments for antiseptics and other medicaments; plasticizer in tablet film coatings; base for suppositories; carrier, solvent, suspending agent in liq. pharmaceuticals; vehicle for actives in gelatin capsules
Properties:  Cl. viscid. liq.; sol. in water, ethanol, cyclomethicone, sunscreens, lactic acid; m.w. 600; sp.gr. 1.126; dens. 9.37 lb/gal; f.p. 22 C; viscid. 131 cSt; flash pt. (PMCC) > 450 F; ref. index 1.466; sp. heat 0.490 cal/g/°C
Toxicology:  Extremely low acute oral toxicity; little or no irritation to eyes and skin; not recommended for use on abraded skin; may generate irritating vapors on decomp.

Carbowax® E1000 NF [Dow http://www.dow.com]
Chem. Descrip.: PEG-20 NF, FCC
CAS 25322-68-3; EINECS/ELINCS 203-989-9
Uses:  Carrier for ointments for antiseptics and other medicaments; plasticizer in tablet film coatings; base for suppositories; carrier, solvent, suspending agent in liq. pharmaceuticals; vehicle for actives in gelatin capsules
Properties:  Wh. waxy solid; m.w. 1000; sp.gr. 1.214; f.p. 37 C; viscid. 18 cSt (210 F); flash pt. (PMCC) > 450 F
Toxicology:  Extremely low acute oral toxicity; little or no irritation to eyes and skin; not recommended for use on abraded skin; may generate irritating vapors on decomp.

Carbowax® E1450 NF [Dow http://www.dow.com]
Chem. Descrip.: PEG-32 NF, FCC
CAS 25322-68-3; EINECS/ELINCS 203-989-9
Uses:  Carrier for ointments for antiseptics and other medicaments; plasticizer in tablet film coatings; base for suppositories; carrier, solvent, suspending agent in liq. pharmaceuticals; vehicle for actives in gelatin capsules
Properties:  Wh. waxy solid; m.w. 1450; sp.gr. 1.214; f.p. 44 C; viscid. 29 cSt (210 F); flash pt. (PMCC) > 450 F
Toxicology:  Extremely low acute oral toxicity; little or no irritation to eyes and skin; not recommended for use on abraded skin; may generate irritating vapors on decomp.

Carbowax® E3350 NF [Dow http://www.dow.com]
Chem. Descrip.: PEG-75 NF, FCC
CAS 25322-68-3; EINECS/ELINCS 203-989-9
Uses:  Carrier for ointments for antiseptics and other medicaments; plasticizer in tablet film coatings; base for suppositories; carrier, solvent, suspending agent in liq. pharmaceuticals; vehicle for actives in gelatin capsules
Properties:  Wh. waxy solid; pract. odorless; sol. > 100 g/100 g in water; m.w. 3350; sp.gr. 1.224; viscid. 93 cSt (210 F); f.p. 54 C; b.p. dec.; flash pt. (PMCC) > 232 C; f.p. 4.5-7.5 (5% aq.)
Toxicology:  Single dose oral toxicity believed to be very low; may cause sl. transient eye irritation; avoid prolonged/repeated contact avoid prolonged/repeated contact
Trade Name Reference

Carbowax® E8000 NF [Dow http://www.dow.com]
Chem. Descrip.: PEG-150 NF, FCC
CAS 25322-68-3; EINECS/ELINCS 203-989-9
Uses: Carrier for ointments for antiseptics and other medicaments; plasticizer in tablet film coatings; base for suppositories; carrier, solvent, suspending agent in liq. pharmaceuticals; vehicle for actives in gelatin capsules
Properties: Wh. waxy solid, cl. liq. above 65 C, pract. odorless; sol. > 100 g/100 g in water; m.w. 8000; sp.gr. 1.224; f.p. 60 C; visc. 800 cSt (210 F); flash pt. (PMCC) > 260 C; pH 4.5-7.5 (5% aq.); > 99% act.
Toxicology: LD50 (oral, rat) > 50 g/kg (low oral toxicity); may cause sl. transient temporary eye irritation; avoid prolonged/repeated exposure on abraded skin
Precaution: Dusts may present explosive hazard; incompat. with oxidizers, conc. min. acids

Carbowax® PEG 300 [Dow http://www.dow.com]
Chem. Descrip.: PEG-6
CAS 25322-68-3; EINECS/ELINCS 220-045-1
Uses: Coupling agent, solvent, vehicle, humectant, lubricant, binder, base in pharmaceuticals
Regulatory: FDA 21CFR §175.105, 178.3750, 178.3910; EPA regulated
Properties: Water-wh. visc. liq.; sol. in water, alcohols, glycerin, glycols; m.w. 285-315; sp.gr. 1.1250; dens. 9.38 lb/gal; visc. 5.8 cSt (99 C); f.p. -15 to -8 C; hyd. no. 356-394; flash pt. (PMCC) > 180 C; ref. index 1.463; pH 4.5-7.5 (5% aq.); surf. tens. 44.5 dynes/cm; nonionic

Carbowax® PEG 400 [Dow http://www.dow.com]
Chem. Descrip.: PEG-8
CAS 25322-68-3; EINECS/ELINCS 225-856-4
Uses: Antistat, dye carrier, humectant, lubricant, release agent, plasticizer for capsules, creams and lotions
Regulatory: FDA 21CFR §175.105, 178.3750, 178.3910; EPA regulated
Properties: Liq.; sol. in water, methanol, ethanol, acetone, trichloroethylene, Cellosolve®, Carbitol®, dibutyl phthalate, toluene; m.w. 380-420; sp.gr. 1.1254; dens. 9.39 lb/gal; visc. 7.3 cSt (210 F); f.p. 4-8 C; flash pt. (CCC) > 350 F; ref. index 1.465; pH 4.5-7.5 (5% aq.); surf. tens. 44.5 dynes/cm; nonionic

Carbowax® PEG 540 Blend [Dow http://www.dow.com]
Chem. Descrip.: PEG-6 and PEG-32 (41:59)
Uses: Base for ointments and suppositories
Regulatory: FDA 21CFR §175.105, 178.3750, 178.3910; EPA regulated
Properties: Soft solid; sol. in methylene chloride, 73% in water, 50% in trichloroethylene, 48% in methanol; m.w. 500-600; sp.gr. 1.0930 (60 C); dens. 9.17 lb/gal (55 C); visc. 15.1 cSt (210 F); f.p. 38-41; flash pt. (CCC) > 350 F; pH 4.5-7.5 (5% aq.)

Carbowax® PEG 600 [Dow http://www.dow.com]
Chem. Descrip.: PEG-12
CAS 25322-68-3; EINECS/ELINCS 229-859-1
Uses: Antistat, dye carrier, humectant, lubricant, release agent, plasticizer for capsules, creams and lotions
Regulatory: FDA 21CFR §175.105, 178.3750, 178.3910; EPA regulated
Properties: Liq.; sol. in water; m.w. 570-630; sp.gr. 1.1257; dens. 9.40 lb/gal; visc. 10.8 cSt (210 F); f.p. 20-25 C; flash pt. (CCC) > 350 F; ref. index 1.46; pH 4.5-7.5 (5% aq.); surf. tens. 44.5 dynes/cm; nonionic

Carbowax® PEG 900 [Dow http://www.dow.com]
Chem. Descrip.: PEG-20
CAS 25322-68-3; EINECS/ELINCS 203-989-9
Uses: Ointment and suppository base
Regulatory: FDA 21CFR §175.105, 178.3750, 178.3910; EPA regulated
Properties: Soft solid; sol. 86% in water; m.w. 855-900; sp.gr. 1.0927 (60 C); dens. 9.16 lb/gal (55 C); visc. 15.3 cSt (210 F); f.p. 32-36; flash pt. (CCC) > 350 F; pH 4.5-7.5 (5% aq.); nonionic

Carbowax® PEG 1000 [Dow http://www.dow.com]
Chem. Descrip.: PEG-20
CAS 25322-68-3; EINECS/ELINCS 203-989-9
Uses: Ointment and suppository base
Regulatory: FDA 21CFR §175.105, 178.3750, 178.3910; EPA regulated
Properties: Soft solid; sol. 80% in water; m.w. 950-1050; sp.gr. 1.0926 (60 C); dens. 9.16...
Carbowax® PEG 1450  [Dow http://www.dow.com]
Chem. Descrip.:  PEG-32
CAS 25322-68-3; EINECS/ELINCS 203-989-9
Uses:  Antistat, lubricant, release agent for dentifrices
Regulatory:  FDA 21CFR §175.105, 178.3750, 178.3910; EPA regulated
Properties:  Soft solid or flake; sol. 72% in water; m.w. 1300-1600; sp.gr. 1.0919 (60 C); dens. 9.17 lb/gal (55 C); visc. 26.5 cSt (210 F); f.p. 43-46; flash pt. (CCC) > 350 F; pH 4.5-7.5 (5% aq.); nonionic

Carbowax® PEG 3350  [Dow http://www.dow.com]
Chem. Descrip.:  PEG-75
CAS 25322-68-3; EINECS/ELINCS 203-989-9
Uses:  Antistat, dye carrier, lubricant, release agent for dentifrices
Regulatory:  FDA 21CFR §175.105, 178.3750, 178.3910; EPA regulated
Properties:  Wh. flake or powd.; sol. 67% in water; m.w. 3000-3700; sp.gr. 1.0926 (60 C); dens. 8.94 lb/gal (80 C); visc. 90.8 cSt (210 F); f.p. 54-58 C; flash pt. (PMCC) > 180 C; ref. index 1.465; pH 4.5-7.5 (5% aq.); nonionic

Carbowax® Sentry® PEG 300  [Dow http://www.dow.com]
Chem. Descrip.:  PEG-6 FCC, USP/NF
CAS 25322-68-3; EINECS/ELINCS 220-045-1
Uses:  Coupling agent, solvent, vehicle, humectant, lubricant, binder, base, bodying agent, dispersant for pharmaceuticals (coating, binder, plasticizer, and lubricant in tablets; antiperspirants); glycerin replacement
Properties:  Water-wh. visc. liq.; sol. in water, alcohols, glycerin, glycols; m.w. 285-315; sp.gr. 1.1250; dens. 9.38 lb/gal; visc. 5.8 cSt (99 C); f.p. -15 to -8 C; hyd. no. 356-394; flash pt. (PMCC) > 180 C; ref. index 1.463; pH 4.5-7.5 (5% aq.); surf. tens. 44.5 dynes/cm; nonionic

Carbowax® Sentry® PEG 400  [Dow http://www.dow.com]
Chem. Descrip.:  PEG-8 FCC, USP/NF
CAS 25322-68-3; EINECS/ELINCS 225-856-4
Uses:  Coupling agent, solvent, vehicle, humectant, lubricant, binder, base for pharmaceuticals (coating, binder, plasticizer, and lubricant in tablets; toothpaste; creams/lotions)
Properties:  Water-wh. visc. liq.; sol. in water, methanol, ethanol, acetone, trichloroethylene, Cellosolve®, Carbitol®, dibutyl phthalate, toluene; m.w. 380-420; sp.gr. 1.1254; dens. 9.39 lb/gal; visc. 7.3 cSt (99 C); f.p. 4.8-8 C; hyd. no. 267-295; flash pt. (PMCC) > 180 C; ref. index 1.465; pH 4.5-7.5 (5% aq.); surf. tens. 44.5 dynes/cm; nonionic

Carbowax® Sentry® PEG 540 Blend  [Dow http://www.dow.com]
Chem. Descrip.:  PEG-6 and PEG-32 FCC, USP/NF
Uses:  Coupling agent, solvent, vehicle, humectant, lubricant, binder, base for pharmaceuticals (coating, binder, plasticizer, and lubricant in tablets; ointments; antiperspirants; ointments; creams/lotions)
Properties:  Wh. soft waxy solid; sol. in methylene chloride, 73% in water, 50% in trichloroethylene, 48% in methanol; m.w. 500-600; sp.gr. 1.0930; dens. 9.17 lb/gal (55 C); visc. 15.1 cSt (99 C); m.p. 38-41 C; hyd. no. 187-224; flash pt. (PMCC) > 180 C; pH 4.5-7.5 (5% aq.)

Carbowax® Sentry® PEG 600  [Dow http://www.dow.com]
Chem. Descrip.:  PEG-12 FCC, USP/NF
CAS 25322-68-3; EINECS/ELINCS 229-859-1
Uses:  Coupling agent, solvent, vehicle, humectant, lubricant, binder, base for pharmaceuticals (coating, binder, plasticizer, and lubricant in tablets; antiperspirants; dentifrices; creams/lotions)
Properties:  Water-wh. visc. liq.; sol. in water, alcohols, glycols; m.w. 570-630; sp.gr. 1.1257; dens. 9.40 lb/gal; visc. 5.8 cSt (99 C); f.p. 20-25 C; hyd. no. 178-197; flash pt. (PMCC) > 180 C; ref. index 1.463; pH 4.5-7.5 (5% aq.); surf. tens. 44.5 dynes/cm; nonionic
Carbowax® Sentry® PEG 900  [Dow http://www.dow.com]
Chem. Descrip.:  PEG-20 FCC, USP/NF
CAS 25322-68-3; EINECS/ELINCS 203-989-9
Uses:  Coupling agent, solvent, vehicle, humectant, lubricant, binder, base for pharmaceuticals (coating, binder, plasticizer, and lubricant in tablets; antiperspirants; creams/lotions)
Properties:  Wh. soft waxy solid; sol. 86% in water; m.w. 855-945; sp.gr. 1.0927 (60 C); dens. 9.16 lb/gal (55 C); m.p. 32-36 C; hyd. no. 119-131; flash pt. (PMCC) > 180 C; pH 4.5-7.5 (5% aq.); nonionic

Carbowax® Sentry® PEG 1000  [Dow http://www.dow.com]
Chem. Descrip.:  PEG-20 FCC, USP/NF
CAS 25322-68-3; EINECS/ELINCS 203-989-9
Uses:  Coupling agent, solvent, vehicle, humectant, lubricant, binder, base for pharmaceuticals (coating, binder, plasticizer, and lubricant in tablets; ointments; creams/lotions; antiperspirants; creams/lotions; ointments)
Properties:  Wh. soft waxy solid; sol. 80% in water; m.w. 950-1050; sp.gr. 1.0926 (60 C); dens. 8.94 lb/gal (80 C); m.p. 37-40 C; hyd. no. 107-118; flash pt. (PMCC) > 180 C; pH 4.5-7.5 (5% aq.); nonionic

Carbowax® Sentry® PEG 1450  [Dow http://www.dow.com]
Chem. Descrip.:  PEG-32 FCC, USP/NF
CAS 25322-68-3; EINECS/ELINCS 203-989-9
Uses:  Coupling agent, solvent, vehicle, humectant, lubricant, binder, base for pharmaceuticals (coating, binder, plasticizer, and lubricant in tablets; ointments; creams/lotions; antiperspirants; creams/lotions; ointments)
Properties:  Wh. hard waxy flake or powd.; sol. 67% in water; m.w. 4400-4800; sp.gr. 1.0926 (60 C); dens. 8.95 lb/gal (80 C); m.p. 57-61 C; hyd. no. 23-26; flash pt. (PMCC) > 180 C; pH 4.5-7.5 (5% aq.); nonionic

Carbowax® Sentry® PEG 3350  [Dow http://www.dow.com]
Chem. Descrip.:  PEG-75 FCC, USP/NF
CAS 25322-68-3; EINECS/ELINCS 203-989-9
Uses:  Coupling agent, solvent, vehicle, humectant, lubricant, binder, base for pharmaceuticals (coating, binder, plasticizer, and lubricant in tablets; antiperspirants; toothpaste; creams/lotions)
Properties:  Wh. hard waxy flake or powd.; sol. 65% in water; m.w. 7000-9000; sp.gr. 1.0845 (60 C); dens. 8.96 lb/gal (80 C); m.p. 60-63 C; hyd. no. 13-16; flash pt. (PMCC) > 180 C; pH 4.5-7.5 (5% aq.); nonionic
Trade Name Reference

Cargill Pharm 05521 [Cargill Foods http://www.cargillfoods.com]
Chem. Descrip.: Corn (Zea mays) starch
Chem. Analysis:  11% loss on drying
CAS 9005-25-8; EINECS/ELINCS 232-679-6
Uses: Diluent in direct compression and wet and dry granulation; capsule and powder formulations; binder for wet granulation; disintegrating agent; base for dusting powders and topical formulations
Features: Compatible with most excipients and drugs; when heated in an aqueous environment, the starch gelatinizes
Properties: Granules; particle size 2% on 100 mesh; swells on contact with water; bulk dens., loose 33 lb/ft²
Precaution: Excessive dusting can result in explosive conditions
Storage: 2 yr shelf life; store in a clean, dry, odor-free area at ambient temperature and humidity

Carnauba Wax SP 8 [Strahl & Pitsch http://www.strahlpitsch.com]
Chem. Descrip.: Carnauba (Copernicia cerifera) wax See Carnauba (Copernica cerifera) wax
CAS 8015-86-9; EINECS/ELINCS 232-399-4
Uses: Wax for pharmaceuticals, ointments, tablet coatings
Regulatory: FDA 21 CFR §184.1978 and 175.320; CTFA listed
Toxicology: TSCA listed

Carnauba Wax SP 59-2 [Strahl & Pitsch http://www.strahlpitsch.com]
Chem. Descrip.: Carnauba wax substitute See Carnauba (Copernica cerifera) wax
CAS 8015-86-9; EINECS/ELINCS 232-399-4
Uses: Wax for pharmaceuticals, ointments, tablet coatings
Regulatory: FDA 21 CFR §184.1978 and 175.320; CTFA listed

Carnauba Wax SP 63 [Strahl & Pitsch http://www.strahlpitsch.com]
Chem. Descrip.: Carnauba wax See Carnauba (Copernica cerifera) wax
CAS 8015-86-9; EINECS/ELINCS 232-399-4
Uses: Wax for pharmaceuticals, ointments, tablet coatings
Regulatory: FDA 21 CFR §184.1978 and 175.320; CTFA listed
Properties: Yel. flakes, lumps, or powd.; m.p. 82.5 C min.; acid no. 8-10; sapon. no. 78-88; flash pt. 299 C min.; 2% max. paraffinic hydrocarbons
Toxicology: TSCA listed

Carnauba Wax SP 64 (Extra Light) [Strahl & Pitsch http://www.strahlpitsch.com]
Chem. Descrip.: Carnauba wax substitute See Carnauba (Copernica cerifera) wax
CAS 8015-86-9; EINECS/ELINCS 232-399-4
Uses: Wax for pharmaceuticals, ointments, tablet coatings
Regulatory: FDA 21 CFR §184.1978 and 175.320; CTFA listed
Properties: Tan flakes, lumps, or powd.; m.p. 169-175 F; acid no. 5 max.; sapon. 15-21

Carnauba Wax SP 135 [Strahl & Pitsch http://www.strahlpitsch.com]
Chem. Descrip.: Carnauba wax substitute See Carnauba (Copernica cerifera) wax
CAS 8015-86-9; EINECS/ELINCS 232-399-4
Uses: Wax for pharmaceuticals, ointments, tablet coatings
Regulatory: FDA 21 CFR §184.1978 and 175.320; CTFA listed
Properties: Yel. flakes, lumps, or powd.; m.p. 75-80 C; acid no. 8-12; sapon. no. 46-54
Toxicology: TSCA listed

Carnauba Wax SP 142 [Strahl & Pitsch http://www.strahlpitsch.com]
Chem. Descrip.: Carnauba wax See Carnauba (Copernica cerifera) wax
CAS 8015-86-9; EINECS/ELINCS 232-399-4
Uses: Wax for pharmaceuticals, ointments, tablet coatings
Regulatory: FDA 21 CFR §184.1978 and 175.320; CTFA listed
Properties: Brn. flakes, lumps, or powd.; m.p. 82.5 C min.; acid no. 4-10; sapon. no. 78-88; flash pt. 299 C min.; 2% max. paraffinic hydrocarbons
Toxicology: TSCA listed
Trade Name Reference

Toxicology: TSCA listed
Carnauba Wax SP 200 [Strahl & Pitsch http://www.strahlpitsch.com]
Chem. Descrip.: Carnauba wax See Carnauba (Copernica cerifera) wax
CAS 8015-86-9; EINECS/ELINCS 232-399-4
Uses: Wax for pharmaceuticals, ointments, tablet coatings
Regulatory: FDA 21CFR §184.1978 and 175.320 ; CTFA listed
Properties: Tan flakes, lumps, or powd.; m.p. 82.5 C min.; acid no. 4-10; sapon. no. 78-88; flash pt. 299 C min.; 2% max. paraffinic hydrocarbons

Toxicology: TSCA listed
Carnauba Coarse [Strahl & Pitsch http://www.strahlpitsch.com]
Chem. Descrip.: Carnauba wax See Carnauba (Copernica cerifera) wax
CAS 8015-86-9; EINECS/ELINCS 232-399-4
Uses: Wax for pharmaceuticals, ointments, tablet coatings
Regulatory: FDA 21CFR §184.1978 and 175.320 ; CTFA listed
Properties: Powd.; 80% min. through 60 mesh, 60% min. through 120 mesh, 20% min. through 200 mesh, 10% min. through 325 mesh

Toxicology: TSCA listed
Carnauba Wax Fine [Strahl & Pitsch http://www.strahlpitsch.com]
Chem. Descrip.: Carnauba wax See Carnauba (Copernica cerifera) wax
CAS 8015-86-9; EINECS/ELINCS 232-399-4
Uses: Wax for pharmaceuticals, ointments, tablet coatings
Regulatory: FDA 21CFR §184.1978 and 175.320 ; CTFA listed
Properties: Powd.; 98% min. through 60 mesh, 98% min. through 120 mesh, 65% min. through 200 mesh, 40% min. through 325 mesh

Toxicology: TSCA listed

Toxicology: TSCA listed
Caroat [Degussa http://www.degussa.com; Eigenmann & Veronelli http://www.eigver.it]
Chem. Descrip.: Potassium caroate
CAS 10058-23-8; EINECS/ELINCS 233-187-4
Uses: Stabilizer for pharmaceuticals

Toxicology: TSCA listed
Chem. Descrip.: β-Carotene dispersed in sunflower oil See Carotene; Sunflower (Helianthus annuus) seed oil
CAS 7235-40-7; 8001-21-6; EINECS/ELINCS 230-636-6; 232-273-9
Uses: Dietary supplement; colorant in pharmaceutical preps.
Regulatory: FCC, FDA CFR 73.95(b)
Properties: Red visc. oil; sl. sol. in fats and oils; m.w. 536.85; 30% min. carotene content
Toxicology: Can increase risk of lung cancer in heavy smokers and drinkers

Carrot Oil CLR [CLR http://www.clr-berlin.de]
Trade Name Reference

**Carrot Oil Extra** [Croda Inc](http://www.croda.com; http://www.crodausa.com)

Chem. Descrip.: *Peanut (Arachis hypogaea)* oil, *carrot (Daucus carota)* extract, isopropyl myristate, tocopherol

Uses: Conditioner for reddened coarse skin

Features: Botanical extract of *Daucus carota* L.

Properties: Red cl. liq.; char. odor; sp.gr. 0.880-0.893; acid no. 2 max.; iodine no. 44-68; sapon. no. 185-205; ref. index 1.452-1.460

Use Level: 0.5-5%

**Carrot Oil Extra** [Croda Inc](http://www.croda.com; http://www.crodausa.com)

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Uses: Conditioner for reddened coarse skin

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Use Level: 0.5-5%
Trade Name Reference

Handbook of Pharmaceutical Additives, Third Edition

Cavamax® W6 Pharma [Wacker-Chemie Fine Chemicals GmbH

Chem. Descrip.: α-Cyclodextrin See Cyclodextrin
CAS 10016-20-3; EINECS/ELINCS 233-007-4
Uses: Complex hosting guest molecules, increasing the sol. and bioavailability of other substances, masking flavor, odor, or coloration, stabilizing against light, oxidation, heat, and hydrolysis, turning liqs. or volatiles into stable solid powds., for use in pharmaceuticals
Properties: Wh. cryst. powd.; sol. 14.5 g/100 ml in water; m.w. 972; > 98% act.
Toxicology: LD50 (acute IV, rat) > 3750 mg/kg; nonirritating to eye

Cavamax® W7 Pharma [Wacker-Chemie Fine Chemicals GmbH

Chem. Descrip.: β-Cyclodextrin See Cyclodextrin
CAS 7585-39-9; EINECS/ELINCS 231-493-2
Uses: Complex hosting guest molecules, increasing the sol. and bioavailability of other substances, masking flavor, odor, or coloration, stabilizing against light, oxidation, heat, and hydrolysis, turning liqs. or volatiles into stable solid powds., for use in pharmaceuticals
Properties: Wh. crys. powd.; sol. 1.85 g/100 ml in water; m.w. 1135

Cavasol® W6 HP TL [Wacker-Chemie Fine Chemicals GmbH

Chem. Descrip.: Hydroxypropyl-α-cyclodextrin
CAS 128446-33-3
Uses: Complex hosting guest molecules, increasing the sol. and bioavailability of other substances, masking flavor, odor, or coloration, stabilizing against light, oxidation, heat, and hydrolysis, turning liqs. or volatiles into stable solid powds., for use in pharmaceuticals
Properties: Ylsh. cl. liq.; sol. > 200 g/100 ml water; sol. in methanol, ethanol; m.w. 1184; dens. 1.1-1.2 g/ml; visc. 20-80 mPa•s; 50% aq.
Storage: 6 mos. shelf life; store @ R.T. in sealed containers
**Chem. Descrip.:** Hydroxypropyl-β-cyclodextrin  
**CAS 128446-35-5**  
**Uses:** Complex hosting guest molecules, increasing the sol. and bioavailability of other substances, masking flavor, odor, or coloration, stabilizing against light, oxidation, heat, and hydrolysis, turning liqs. or volatiles into stable solid powds., for use in pharmaceuticals  
**Properties:** Wh. to off-wh. powd.; sol. > 200 g/100 ml water; sol. in methanol, ethanol, pyridine, dimethyl sulfoxide, dimethyl formamide; m.w. 1507; bulk dens. 0.2-0.3 g/ml  
**Storage:** 12 mos. shelf life; store @ R.T. in sealed containers  

**Chem. Descrip.:** Hydroxypropyl-β-cyclodextrin  
**CAS 128446-35-5**  
**Uses:** Complex hosting guest molecules, increasing the sol. and bioavailability of other substances, masking flavor, odor, or coloration, stabilizing against light, oxidation, heat, and hydrolysis, turning liqs. or volatiles into stable solid powds., for use in pharmaceuticals  
**Properties:** Wh. to off-wh. powd.; sol. > 200 g/100 ml water; sol. in methanol, ethanol, pyridine, dimethyl sulfoxide, dimethyl formamide; m.w. 1507; bulk dens. 0.2-0.3 g/ml  
**Storage:** 12 mos. shelf life; store @ R.T. in sealed containers  

**Chem. Descrip.:** Methyl-β-cyclodextrin  
**CAS 128446-36-6**  
**Uses:** Complex hosting guest molecules, increasing the sol. and bioavailability of other substances, masking flavor, odor, or coloration, stabilizing against light, oxidation, heat, and hydrolysis, turning liqs. or volatiles into stable solid powds., for use in pharmaceuticals  
**Properties:** Wh. to sl. ysh. powd.; sol. > 150 g/100 ml water; sol. in methanol, ethanol, pyridine, dimethyl sulfoxide, dimethyl formamide; m.w. 1310; bulk dens. 0.2-0.3 g/ml; m.p. 160-190 C (dec.); 50% aq.  
**Storage:** 12 mos. shelf life; store @ R.T. in sealed containers  

**Chem. Descrip.:** Methyl-β-cyclodextrin  
**CAS 128446-36-6**  
**Uses:** Complex hosting guest molecules, increasing the sol. and bioavailability of other substances, masking flavor, odor, or coloration, stabilizing against light, oxidation, heat, and hydrolysis, turning liqs. or volatiles into stable solid powds., for use in pharmaceuticals  
**Properties:** Wh. powd.; sol. > 200 g/100 ml water; sol. in methanol, ethanol, pyridine, dimethyl sulfoxide, dimethyl formamide; m.w. 1310; bulk dens. 0.2-0.3 g/ml; m.p. 160-190 C (dec.); 50% aq.  
**Storage:** 12 mos. shelf life; store @ R.T. in sealed containers  

**Chem. Descrip.:** Methyl-β-cyclodextrin  
**CAS 128446-36-6**  
**Uses:** Complex hosting guest molecules,
increasing the sol. and bioavailability of other substances, masking flavor, odor, or coloration, stabilizing against light, oxidation, heat, and hydrolysis, turning liqts. or volatiles into stable solid powds., for use in pharmaceuticals

Properties: Ylsh. cl. liq.; odorless; sol. > 150 g/100 ml water; sol. in methanol, ethanol, pyridine, dimethyl sulfoxide, dimethyl formamide; m.w. 1311; dens. 1.2 g/ml; visc. 20-80 mPa*s; 50% aq.

Storage: 6 mos. shelf life; store @ R.T. in sealed containers

Cavasol® W8 HP Pharma [Wacker-Chemie Fine Chemicals GmbH

Chem. Descrip.: Hydroxypropyl-γ-cyclodextrin
CAS 128446-34-4

Uses: Complex hosting guest molecules, increasing the sol. and bioavailability of other substances, masking flavor, odor, or coloration, stabilizing against light, oxidation, heat, and hydrolysis, turning liqts. or volatiles into stable solid powds., for use in pharmaceuticals

Properties: Wh. powd.; sol. > 150 g/100 ml water; sol. in methanol, ethanol, pyridine, dimethyl sulfoxide, dimethyl formamide; m.w. 1580; bulk dens. 0.2-0.3 g/ml

Storage: 12 mos. shelf life; store @ R.T. in sealed containers

CC-901 [Am. Casein
http://www.americancasein.com]

Chem. Descrip.: Calcium caseinate, spray dried
CAS 9005-43-0

Uses: Additive in pharmaceuticals, medical nutritional applcs.

Features: Low visc.

Regulatory: Kosher

Properties: Wh. to lt. cream fine free-flowing powd.; clean/bland odor/flavor; pH 6.6-7.3; 6% moisture

Storage: Store in cool, dry place

CC-902I [Am. Casein
http://www.americancasein.com]

Chem. Descrip.: Calcium caseinate, spray dried, instantized

CAS 9005-43-0

Uses: Bodying agent, mouthfeel enhancer for pharmaceuticals

Features: Readily disp.

Regulatory: Kosher

Properties: Wh. to lt. cream fine free-flowing powd.; clean/bland odor/flavor; pH 6.6-7.3; 6% moisture

Storage: Store in cool, dry place

C*Cavitron 82003 [Cerestar
http://www.cerestar.com]

Chem. Descrip.: Endotoxin-controlled hydroxypropyl-β-cyclodextrin
CAS 94035-02-6

Uses: Solubilizer and bioavailability enhancer of poorly sol. pharmaceutical preps.; used in IV preps.; stabilizer for volatile, labile, and reactive compounds

Features: Chemically stable and does not contribute significantly to viscosity until very high concentrations (> 50%) are reached

Regulatory: EP, DMF (type IV) 10772

Properties: Sparingly sol. in water

C*Cavitron 82004 [Cerestar
http://www.cerestar.com]

Chem. Descrip.: Endotoxin-controlled hydroxypropyl-β-cyclodextrin
CAS 94035-02-6

Uses: Solubilizer and bioavailability enhancer of poorly sol. pharmaceutical preps.; used in IV preps.; stabilizer for volatile, labile, and reactive compounds

Features: Chemically stable and does not contribute significantly to viscosity until very high concentrations (> 50%) are reached

Regulatory: EP, DMF (type IV) 10772

Properties: Sparingly sol. in water

C*Cavitron 82005 [Cerestar
http://www.cerestar.com]

Chem. Descrip.: Hydroxypropyl-β-cyclodextrin
CAS 94035-02-6

Uses: Solubilizer and bioavailability enhancer of poorly sol. pharmaceutical preps.; used in IV preps.; stabilizer for volatile, labile, and reactive compounds

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Regulatory: EP, DMF (type IV) 10772

Properties: Sparingly sol. in water

Cavasol® W8 HP Pharma [Wacker-Chemie Fine Chemicals GmbH

Chem. Descrip.: Hydroxypropyl-γ-cyclodextrin
CAS 128446-34-4

Uses: Complex hosting guest molecules, increasing the sol. and bioavailability of other substances, masking flavor, odor, or coloration, stabilizing against light, oxidation, heat, and hydrolysis, turning liqts. or volatiles into stable solid powds., for use in pharmaceuticals

Properties: Wh. powd.; sol. > 150 g/100 ml water; sol. in methanol, ethanol, pyridine, dimethyl sulfoxide, dimethyl formamide; m.w. 1580; bulk dens. 0.2-0.3 g/ml

Storage: 12 mos. shelf life; store @ R.T. in sealed containers

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http://www.americancasein.com]

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CAS 9005-43-0

Uses: Bodying agent, mouthfeel enhancer for pharmaceuticals

Features: Readily disp.

Regulatory: Kosher

Properties: Wh. to lt. cream fine free-flowing powd.; clean/bland odor/flavor; pH 6.6-7.3; 6% moisture

Storage: Store in cool, dry place

Cavasol® W8 HP Pharma [Wacker-Chemie Fine Chemicals GmbH

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CAS 128446-34-4

Uses: Complex hosting guest molecules, increasing the sol. and bioavailability of other substances, masking flavor, odor, or coloration, stabilizing against light, oxidation, heat, and hydrolysis, turning liqts. or volatiles into stable solid powds., for use in pharmaceuticals

Properties: Ylsh. cl. liq.; odorless; sol. > 150 g/100 ml water; sol. in methanol, ethanol, pyridine, dimethyl sulfoxide, dimethyl formamide; m.w. 1311; dens. 1.2 g/ml; visc. 20-80 mPa*s; 50% aq.

Storage: 6 mos. shelf life; store @ R.T. in sealed containers
Trade Name Reference

CAS 1592-23-0; EINECS/ELINCS 216-472-8
Uses: Conditioner in pharmaceuticals
Properties: Fine powd.; 99% < 71 μm; ≈ 8.4 μm median particle size; bulk dens. ≈ 200 g/l; surf. area ≈ 8.6 m²/g; soften. pt. 150-160 C; 9.2-10.2% ash; < 0.5% free fatty acids

Ceasit PC [Baerlocher France]
Chem. Descrip.: Calcium stearate
CAS 1592-23-0; EINECS/ELINCS 216-472-8
Uses: Stabilizer, lubricant for pharmaceuticals
Properties: Very fine powd.; 99% < 71 µm; ≈ 5.5 µm median particle size; bulk dens. ≈ 170 g/l; surf. area ≈ 10 m²/g; soften. pt. ≈ 160 C; 9.2-9.6% ash; < 0.5% free fatty acid

Cecavon® MG 51 [Ceca SA http://www.ceca.fr]
Chem. Descrip.: Magnesium stearate
CAS 557-04-0; EINECS/ELINCS 209-150-3
Uses: Anticaking agent for pharmaceutical prods.
Properties: Powd.; dens. 0.20 max.; m.p. 140-145 C; 4.5-5.1% Mg.

Cecavon® ZN 70 [Ceca SA http://www.ceca.fr]
Chem. Descrip.: Zinc stearate
CAS 557-05-1; EINECS/ELINCS 209-151-9
Uses: Waterproofing agent, lubricant, gellant, opacifier for pharmaceuticals
Properties: Powd.; dens. 0.20 max.; m.p. 125-130 C; 10.2-11% Zn.

Cecavon® ZN 72 [Ceca SA http://www.ceca.fr]
Chem. Descrip.: Zinc stearate
CAS 557-05-1; EINECS/ELINCS 209-151-9
Uses: Waterproofing agent, lubricant, gellant, opacifier for pharmaceuticals
Properties: Powd.; dens. 0.20 max.; m.p. 125-130 C; 9.8-10.6% Zn.

Cecavon® ZN 735 [Ceca SA http://www.ceca.fr]
Chem. Descrip.: Zinc stearate
CAS 557-05-1; EINECS/ELINCS 209-151-9
Uses: Waterproofing agent, lubricant, gellant, opacifier for pharmaceuticals
Properties: Liq.; sp.gr. 1±0.10; visc. 50-200 mPa•s; 35 ± 2% dry content

CEDEPAL® TD-407 [Stepan http://www.stepan.com]
Chem. Descrip.: Sodium trideceth sulfate
EINECS/ELINCS 246-985-2
Uses: Surfactant, wetting agent, foaming agent for pharmaceuticals
Properties: Liq.; anionic; 73% act.

CEDEPAL® TDS 484 [Stepan http://www.stepan.com]
Chem. Descrip.: Sodium trideceth sulfate
EINECS/ELINCS 246-985-2
Uses: Surfactant, wetting agent, foaming agent for shampoos, bath prods., mild baby prods., pharmaceuticals
Properties: Liq.; anionic; 32% act.

Cegesoft® GPO [Cognis/Care Chems.]
Chem. Descrip.: Palm (elaeis guineensis) oil
CAS 8002-75-3; EINECS/ELINCS 232-316-1
Uses: Emollient for cosmetics, pharmaceuticals, creams/lotions, deodorants, and antiperspirants
Features: Slow spreading value
Properties: Ylsh. red oil; bland odor

Cekol® 30 [Noviant Inc]
Chem. Descrip.: Sodium CMC See Carboxymethylcellulose sodium
CAS 9004-32-4; EINECS/ELINCS 265-995-8
Uses: Binder, thickener, stabilizer, protective colloid, water retention agent, and film-former for pharmaceutical apps., esp. tablet coatings
Regulatory: USP/NF, Eur.Ph. and other compliances
Properties: Wh. to off-wh. fine powd. or gran., odorless; sol. in water; dens. 1.6 g/cc (20 C); bulk dens. 400-800 kg/m³; visc. 10 mPa•s (1%); decomp. pt. 240 C; pH 6.5-8.0 (1%); 99.5% act.; 10% max. moisture
Toxicology: LD50 (oral, rat) 27,000 mg/kg; powd. may dry the skin; dust may irritate eyes; inh. of dust may cause respiratory irritation
Environmental: Biodeg.; BOD7 ≈ 50-100 g O₂/kg
Storage: Hygroscopic; store in cool, dry place; avoid dusting

Cekol® 150 [Noviant CMC Oy http://www.noviantgroup.com; Noviant Inc]
Chem. Descrip.: Sodium CMC See Carboxymethylcellulose sodium
CAS 9004-32-4; EINECS/ELINCS 265-995-8
Uses: Binder, thickener, stabilizer, dispersant for o/w emulsions
Regulatory: USP/NF, Eur.Ph. and other compliances
Trade Name Reference

compliances

Properties: Wh. to off-wh. fine powd. or gran., odorless; sol. in water; dens. 1.6 g/cc (20 C); bulk dens. 400-800 kg/m³; visc. 20 mPa•s (1%); decomp. pt. 240 C; pH 6.5-8.0 (1%); 99.5% act.; 10% max. moisture

Toxicology: LD50 (oral, rat) 27,000 mg/kg; powd. may dry the skin; dust may irritate eyes; inh. of dust may cause respiratory irritation

Environmental: Biodeg.; BOD7 ≈ 50-100 g O₂/kg

Storage: Hygroscopic; store in cool, dry place; avoid dusting

Cekol® 300 [Noviant CMC Oy http://www.noviantgroup.com; Noviant Inc]
Chem. Descrip.: Sodium CMC See Carboxymethylcellulose sodium
CAS 9004-32-4; EINECS/ELINCS 265-995-8
Uses: Binder, thickener, stabilizer, protective colloid, water retention agent, and film-former for pharmaceuticals
Regulatory: USP/NF, Eur.Ph. and other compliances

Properties: Wh. to off-wh. fine powd. or gran., odorless; sol. in water; dens. 1.6 g/cc (20 C); bulk dens. 400-800 kg/m³; visc. 100 mPa•s (1%); decomp. pt. 240 C; pH 6.5-8.0 (1%); 99.5% act.; 10% max. moisture

Toxicology: LD50 (oral, rat) 27,000 mg/kg; powd. may dry the skin; dust may irritate eyes; inh. of dust may cause respiratory irritation

Environmental: Biodeg.; BOD7 ≈ 50-100 g O₂/kg

Storage: Hygroscopic; store in cool, dry place; avoid dusting

Cekol® 500 T [Noviant CMC Oy http://www.noviantgroup.com; Noviant Inc]
Chem. Descrip.: Sodium CMC (99.5% min.) See Carboxymethylcellulose sodium
CAS 9004-32-4; EINECS/ELINCS 265-995-8
Uses: Binder, thickener, stabilizer, protective colloid, water retention agent, and film-former for pharmaceuticals
Regulatory: USP/NF, Eur.Ph. and other compliances

Properties: Wh. to off-wh. powd.; odorless; visc. 350-700 mPa•s; 99.5% act.; 10% max. moisture

Cekol® 700 [Noviant CMC Oy http://www.noviantgroup.com; Noviant Inc]
Chem. Descrip.: Sodium CMC See Carboxymethylcellulose sodium

CAS 9004-32-4; EINECS/ELINCS 265-995-8
Uses: Binder, thickener, stabilizer, protective colloid, water retention agent, and film-former for pharmaceuticals, esp. nose, eye, and ear drops; stabilizer, dispersant for o/w emulsions
Regulatory: USP/NF, Eur.Ph. and other compliances

Properties: Wh. to off-wh. fine powd. or gran., odorless; sol. in water; dens. 1.6 g/cc (20 C); bulk dens. 400-800 kg/m³; visc. 100 mPa•s (1%); decomp. pt. 240 C; pH 6.5-8.0 (1%); 99.5% act.; 10% max. moisture

Toxicology: LD50 (oral, rat) 27,000 mg/kg; powd. may dry the skin; dust may irritate eyes; inh. of dust may cause respiratory irritation

Environmental: Biodeg.; BOD7 ≈ 50-100 g O₂/kg

Storage: Hygroscopic; store in cool, dry place; avoid dusting

Cekol® 2000 S [Noviant CMC Oy http://www.noviantgroup.com; Noviant Inc]
Chem. Descrip.: Sodium CMC See Carboxymethylcellulose sodium
CAS 9004-32-4; EINECS/ELINCS 265-995-8
Uses: Binder, thickener, stabilizer, protective colloid, water retention agent, and film-former for pharmaceuticals, toothpaste
Features: Rec. for severe conditions,
formulations with very high electrolyte or peroxide concs., and when an almost instant visc. buildup is required.

**Regulatory:** USP/NF, Eur.Ph. and other compliances

**Properties:** Wh. to off-wh. fine powd. or gran., odorless; sol. in water; dens. 1.6 g/cc (20 C); bulk dens. 400-800 kg/m³; visc. 180 mPa·s (1%); comp. pt. 240 C; pH 6.5-8.0 (1%); 99.5% act.; 10% max. moisture

**Toxicology:** LD₅₀ (oral, rat) 27,000 mg/kg; powd. may dry the skin; dust may irritate eyes; inh. of dust may cause respiratory irritation

**Environmental:** Biodeg.; BOD₇ ≈ 50-100 g O₂/kg

**Storage:** Hygroscopic; store in cool, dry place; avoid dusting

Cekol® 30000 [Noviant CMC Oy](http://www.noviantgroup.com; Noviant Inc]

**Chem. Descrip.:** Sodium CMC  See Carboxymethylcellulose sodium

**CAS** 9004-32-4; EINECS/ELINCS 265-995-8

**Uses:** Binder, thickener, stabilizer, protective colloid, water retention agent, and film-former for pharmaceuticals, esp. syrups, ointment bases

**Regulatory:** USP/NF, Eur.Ph. and other compliances

**Properties:** Wh. to off-wh. fine powd. or gran., odorless; sol. in water; dens. 1.6 g/cc (20 C); bulk dens. 400-800 kg/m³; visc. 3500 mPa·s (1%); comp. pt. 240 C; pH 6.5-8.0 (1%); 99.5% act.; 10% max. moisture

**Toxicology:** LD₅₀ (oral, rat) 27,000 mg/kg; powd. may dry the skin; dust may irritate eyes; inh. of dust may cause respiratory irritation

**Environmental:** Biodeg.; BOD₇ ≈ 50-100 g O₂/kg

**Storage:** Hygroscopic; store in cool, dry place; avoid dusting

Celite® 503 [Celite](http://www.worldminerals.com]

**Chem. Descrip.:** Diatomaceous earth

**CAS** 7631-86-9; EINECS/ELINCS 231-545-4

**Uses:** Filler, filter aid for pharmaceuticals

**Properties:** Wh.; 10 µ median pore size; 10% on 150 mesh; dens. 12 lb/ft³ (dry); pH 10; 0.1% moisture
Trade Name Reference

Celite® 545  [Celite  http://www.worldminerals.com]
Chem. Descrip.:  Diatomaceous earth
CAS  7631-86-9; EINECS/ELINCS  231-545-4
Uses:  Filler, filter aid for pharmaceuticals
Properties:  Wh.; 17 µ median pore size; 24% on 150 mesh; dens. 12 lb/ft³ (dry); pH 10; 0.1% moisture

Celite® 577  [Celite  http://www.worldminerals.com]
Chem. Descrip.:  Diatomaceous earth
CAS  7631-86-9; EINECS/ELINCS  231-545-4
Uses:  Filler, filter aid for pharmaceuticals
Properties:  Pink; 2.5 µ median pore size; 2% on 150 mesh; dens. 8.0 lb/ft³ (dry); pH 7.0; 0.5% moisture

Cellogen HP-5HS  [Dai-ichi Kogyo Seiyaku  http://www.dks-web.co.jp]
Chem. Descrip.:  Carboxymethylcellulose sodium
CAS  9004-32-4; EINECS/ELINCS  265-995-8
Uses:  Thickener, stabilizer, water retention agent for pharmaceuticals
Features:  Moderate hydration; resist. to heat, enzyme, and bacterial decomp.; superb water-holding ability; inert; wide compat. with other anionic and nonionic thickeners
Regulatory:  Kosher
Properties:  Visc. 2000-3000 cps (1%)

Cellogen HP-6HS  [Dai-ichi Kogyo Seiyaku  http://www.dks-web.co.jp]
Chem. Descrip.:  Carboxymethylcellulose sodium
CAS  9004-32-4; EINECS/ELINCS  265-995-8
Uses:  Thickener, stabilizer, water retention agent for pharmaceuticals
Features:  Resist. to heat, enzyme, and bacterial decomp.; superb water-holding ability
Regulatory:  Kosher
Properties:  Visc. 3000-4000 cps (1%)

Chem. Descrip.:  Carboxymethylcellulose sodium
CAS  9004-32-4; EINECS/ELINCS  265-995-8
Uses:  Thickener, stabilizer, water retention agent for pharmaceuticals
Features:  Resist. to heat, enzyme, and bacterial decomp.; superb water-holding ability
Regulatory:  Kosher
Properties:  Visc. 3000-4000 cps (1%)

Cellogen HP-SB  [Dai-ichi Kogyo Seiyaku  http://www.dks-web.co.jp]
Chem. Descrip.:  Carboxymethylcellulose sodium
CAS  9004-32-4; EINECS/ELINCS  265-995-8
Uses:  Thickener, stabilizer, water retention agent for pharmaceuticals
Features:  Resists turbidity; resist. to heat, enzyme, and bacterial decomp.; superb water-holding ability
Regulatory:  Kosher
Properties:  Visc. 6000-8000 cps (1%)

Celphere® CP-102  [Asahi Kasei  http://www.asahi-kasei.co.jp]
Chem. Descrip.:  Microcrystalline cellulose
Chem. Analysis:  2.0-6.0% loss on drying
CAS  9004-34-6; EINECS/ELINCS  232-674-9
Uses:  Taste masking agent, sustained release aid in pharmaceutical coating granules
Features:  High mechanical strength; uniform particle size; low reactivity
Regulatory:  USP/NF, EP, JP
Properties:  Spherical seed core; particle size, avg. 106-212 µm; bulk dens. 0.83 g/cm³; 0.0% friability; 100% water absorption

Celphere® CP-203  [Asahi Kasei  http://www.asahi-kasei.co.jp]
Chem. Descrip.:  Microcrystalline cellulose
Trade Name Reference

Celphere® SCP-100 [Asahi Kasei
http://www.asahi-kasei.co.jp]
Chem. Descrip.: Microcrystalline cellulose
Chem. Analysis: 2.0-6.0% loss on drying
CAS 9004-34-6; EINECS/ELINCS 232-674-9
Uses: Taste masking agent, sustained release aid in pharmaceutical coating granules
Features: High mechanical strength; uniform particle size; low reactivity
Regulatory: USP/NF, EP, JP
Properties: Spherical seed core; particle size, avg. 75-212 μm; bulk dens. 0.66 g/cm³; 0.0% friability; 130% water absorption

Celtone [Celanese
http://www.celanesechemicals.com;
http://www.chemvip.com; Celanese GmbH
http://www.celanese.com]
Chem. Descrip.: Acetone (50%), methanol (50%), 2,2-dimethoxypropane (8%), water (1%)
See Dimethoxypropane; Methyl alcohol
CAS 67-64-1; 67-56-1; 77-76-9
UN 1993
Uses: Solv. for pharmaceuticals
Regulatory: OSHA hazardous; SARA §313/312 acute health/chronic health/fire hazard, §313 reportable (methanol); EINECS, Australia, China, Canada, Korea, Philippines, Japan listed
Properties: Colorless cl. mobile liq.; mild acetone odor; completely sol. in water, common org. solvs.; sp.gr. 0.78 (20 C); vapor pressure 140 mm Hg (20 C); f.p. -97 C; b.p. 60 C; flash pt. (CC) 0 C
Toxicology: Prolonged/repeated skin contact can cause death, blindness; may be fatal or cause blindness if swallowed; eye irritant; may cause respiratory tract irritation; harmful if inhaled; may cause CNS depression, nausea, dizziness, headache, stupor, unconsciousness, nasal discharge, coughing, chest pain, breathing difficulty, GI irritation, diarrhea; possible birth defect hazard; overexposure may cause kidney/liver damage; TSCA listed
Environmental: Avoid run-off into storm sewers and ditches leading to waterways
Precaution: Flamm. liq. and vapor; flamm. limits in air 2-36 vol.%; vapor is heavier than air, may flash back; may generate static charge; ground/bond during transfer; closed containers > 49 C may develop

Handbook of Pharmaceutical Additives, Third Edition
excessive vapor pressure; incompat. with caustic soda, lime, other strong alkalis, hydrochloric, sulfuric, and other strong inorg. acids, amines, oxidizing agents, peroxides, nitric acid, perchloric acid, chromic acid, chromium trioxide, copper/alloys, pyridines

Hazardous Decomp. Prods.: Thermal decomp. or combustion: COx

HMIS: Health 2, Flammability 3, Reactivity 0

Storage: Store in cool, dry, well-ventilated area under dry air or dry nitrogen @ 15-38 C, atm. pressure, away from direct sunlight, incompat. materials; keep containers tightly closed when not in use; open containers slowly to allow excess pressure to vent

Centella Phytosome® [Indena SpA
http://www.indena.it]
Chem. Descrip.: Hydrocotyl (Centella asiatica) extract and phospholipids
Uses: Coadjuvant in external treatment of cellulitis, preps. for aging skin, after-sun prods., dentifrices for sensitive gums, prods. for oral cavity
Properties: Ylsh.-brn. amorphous powd.; water-disp.

Centrolex® P [Solae http://www.solae.com]
Chem. Descrip.: Special grade lecithin
CAS 8002-43-5; EINECS/ELINCS 232-307-2
Uses: Emulsifier and suspending agent for pharmaceuticals
Features: Can be easily sterilized and filtered in solvs.; autoclavable in some appls.
Properties: Yel. gran., low flavor; oil-sol., water-disp.; bulk dens. 0.38 g/cc; acid no. 27; 0.7% moisture

Ceolus® KG-802 [Asahi Kasei
http://www.asahi-kasei.co.jp]
Chem. Descrip.: Microcrystalline cellulose
Chem. Analysis: 2.0-6.0% loss on drying
CAS 9004-34-6; EINECS/ELINCS 232-674-9
Uses: Compression aid and dry binder in tableting of pressure-sensitive drugs such as enzymes, antibiotics, and film-coated granules
Regulatory: USP/NF, EP, JP
Properties: Rod-form particles; particle size, avg. 50 µm; bulk dens. 0.21 g/cm³

Ceolus® PH-102 [Asahi Kasei
http://www.asahi-kasei.co.jp]
Chem. Descrip.: Microcrystalline cellulose
Chem. Analysis: 2.0-6.0% loss on drying
CAS 9004-34-6; EINECS/ELINCS 232-674-9
Uses: Compression aid in pharmaceutical tableting
Regulatory: USP/NF, EP, JP
Properties: Powd.; particle size, avg. 50 µm; bulk dens. 0.29 g/cm³

Ceolus® PH-301 [Asahi Kasei
http://www.asahi-kasei.co.jp]
Chem. Descrip.: Microcrystalline cellulose
Chem. Analysis: 2.0-6.0% loss on drying
CAS 9004-34-6; EINECS/ELINCS 232-674-9
Uses: Compression aid in pharmaceutical tableting
Regulatory: USP/NF, EP, JP
Properties: Powd.; particle size, avg. 90 µm; bulk dens. 0.41 g/cm³

Ceolus® PH-302 [Asahi Kasei
http://www.asahi-kasei.co.jp]
Chem. Descrip.: Microcrystalline cellulose
Chem. Analysis: 2.0-6.0% loss on drying
CAS 9004-34-6; EINECS/ELINCS 232-674-9
Uses: Compression aid in pharmaceutical tableting
Regulatory: USP/NF, EP, JP
Properties: Powd.; particle size, avg. 90 µm; bulk dens. 0.43 g/cm³

Ceolus® PH-F20JP [Asahi Kasei
http://www.asahi-kasei.co.jp]
Chem. Descrip.: Microcrystalline cellulose
Chem. Analysis: 2.0-6.0% loss on drying
CAS 9004-34-6; EINECS/ELINCS 232-674-9
Uses: Compression aid in pharmaceutical tableting
Regulatory: USP/NF, EP, JP
Properties: Powd.; particle size, avg. 20 µm; bulk dens. 0.23 g/cm³

Ceolus® RC-A591NF [Asahi Kasei
http://www.asahi-kasei.co.jp]
Chem. Descrip.: Microcrystalline cellulose and sodium carboxymethylcellulose (See Carboxymethylcellulose sodium)
Chem. Analysis: 7.0% max. loss on drying
Trade Name Reference

CAS 9004-34-6; 9004-32-4; EINECS/ELINCS 232-674-9; 265-995-8

Uses: Stabilizer for pharmaceutical syrups and dry-syrup suspensions; granulation aid for dry-syrup granulation

Features: Colloid-grade

Regulatory: USP/NF, EP, JP

Properties: Visc. 39-91 mPa.s; 80% max. assay MCC


Chem. Descrip.: Wheat (triticum vulgare) germ oil and disodium cocoamphodiacetate with Phenonip® preservative (0.5%) See Butylparaben; Ethylparaben; Methylparaben; Phenoxyethanol; Propylparaben

Uses: Active ingred., blood anticoagulant for shaving and aftershave prods. (lotions, balms, creams)

Features: Effective at reducing blood coagulation time when topically applied to cuts; contributes to rapid regeneration of lipid layers damaged by daily use of soaps, wetting agents, antiseptics, etc.

Properties: Ylsh. cl. to sl. opalescent sol'n.; sp.gr. 1.007-1.012 (20 C); pH 6-7

Use Level: 2%

Toxicology: Nonirritating, nonsensitizing to human skin

Storage: Store in clean, dark, cool place in original, sealed containers; avoid sec. contamination once containers are opened

Cera-E [Koster Keunen http://www.kosterkeunen.com]

Chem. Descrip.: Emulsifying wax NF

CAS 97069-99-0

Uses: Emulsifier and thickener for pharmaceuticals, creams, lotions

Properties: Pastilles

Cerabeil White DAB [Baerlocher France; S. Black http://www.sblack.com]

Chem. Descrip.: White beeswax EP See Beeswax, white

CAS 8006-40-4; EINECS/ELINCS 232-383-7

Uses: Emollient, emulsifier, film-former, binder, coating agent in pharmaceuticals

Regulatory: FDA, EP compliance

Properties: Wh. pellets; sol. in chloroform, xylene; sl. sol. in ethyl alcohol; insol. in water; drop pt. 61-65 C; acid no. 17-24; sapon. no. 87-104

Environmental: > 90% biodeg.

Cerabeil White Selection [Baerlocher France; S. Black http://www.sblack.com]

Chem. Descrip.: White beeswax See Beeswax, white

CAS 8006-40-4; EINECS/ELINCS 232-383-7

Uses: Emulsifier, emollient, film-former, and viscosifier in pharmaceuticals, emulsions

Regulatory: FDA, EP compliance

Properties: Wh. pellets; sol. in chloroform, xylene; sl. sol. in ethyl alcohol; insol. in water; drop pt. 61-65 C; acid no. 17-24; sapon. no. 87-104

Environmental: > 90% biodeg.

Cerabeil Yellow Selection [Baerlocher France; S. Black http://www.sblack.com]

Chem. Descrip.: Yellow beeswax See Beeswax, yellow

CAS 8012-89-3; EINECS/ELINCS 232-383-7

Uses: Emulsifier, emollient, film-former, and viscosifier in pharmaceuticals

Features: For use where color is not critical

Regulatory: FDA, EP compliance

Properties: Yel. pellets; sol. in chloroform, xylene; sl. sol. in ethyl alcohol; insol. in water; drop pt. 61-65 C; acid no. 17-22; sapon. no. 87-102

Environmental: < 90% biodeg.

Cerabel BWS [Baerlocher France]

Chem. Descrip.: Syn. beeswax See Beeswax, synthetic

CAS 71243-51-1; EINECS/ELINCS 275-286-5

Uses: Binder, emulsion stabilizer, visc. control agent in pharmaceuticals

Regulatory: FDA compliance

Properties: Wh. pellets; sol. in chloroform, xylene; sl. sol. in ethyl alcohol; insol. in water; drop pt. 75-80 C; acid no. 19-24; sapon. no. 80-85

Environmental: < 90% biodeg.

Cerabel CA [Baerlocher France]

Chem. Descrip.: Syn. beeswax See Beeswax, synthetic

CAS 71243-51-1; EINECS/ELINCS 275-286-5

Uses: Binder, emulsion stabilizer, visc. control agent in pharmaceuticals

Regulatory: FDA compliance

Properties: Wh. pellets; sol. in chloroform, xylene; sl. sol. in ethyl alcohol; insol. in water; drop pt. 63-68 C; acid no. 19-24; sapon. no. 92-103

Environmental: < 90% biodeg.
Cerabel D157 [Baerlocher France]
Chem. Descrip.: Syn. beeswax See Beeswax, synthetic
CAS 71243-51-1; EINECS/ELINCS 275-286-5
Uses: Binder, emulsion stabilizer, visc. control agent in pharmaceuticals
Regulatory: FDA compliance
Properties: Yel. slabs; sol. in chloroform, xylene; sl. sol. in ethyl alcohol; insol. in water; drop pt. 70-75 C; acid no. 20-25; sapon. no. 70-90
Environmental: < 90% biodeg.

Cerabel L109 [Baerlocher France]
Chem. Descrip.: Syn. beeswax See Beeswax, synthetic
CAS 71243-51-1; EINECS/ELINCS 275-286-5
Uses: Binder, emulsion stabilizer, visc. control agent in pharmaceuticals
Regulatory: FDA compliance
Properties: Wh. pellets; sol. in chloroform, xylene; sl. sol. in ethyl alcohol; insol. in water; drop pt. 72-75 C; acid no. 19-24; sapon. no. 92-102
Environmental: < 90% biodeg.

Cerabel L118 [Baerlocher France]
Chem. Descrip.: Syn. beeswax See Beeswax, synthetic
CAS 71243-51-1; EINECS/ELINCS 275-286-5
Uses: Binder, emulsion stabilizer, visc. control agent in pharmaceuticals
Regulatory: FDA compliance
Properties: Wh. pellets; sol. in chloroform, xylene; sl. sol. in ethyl alcohol; insol. in water; drop pt. 56-60 C; acid no. 20-28; sapon. no. 170-190
Environmental: < 90% biodeg.

Cerabel L132 [Baerlocher France]
Chem. Descrip.: Syn. Japan wax See Japan wax, synthetic
Uses: Gelant, thickener, emulsifier for pharmaceuticals
Properties: Wh. pellets; congeal pt. 40-45 C; acid no. 20-30; sapon. no. 200-220; penetration 7-12 dmm

Cerabel R260 [Baerlocher France]
Chem. Descrip.: Syn. beeswax See Beeswax, synthetic
CAS 71243-51-1; EINECS/ELINCS 275-286-5
Uses: Binder, emulsion stabilizer, visc. control agent in pharmaceuticals
Regulatory: FDA compliance
Properties: Yel. pellets; sol. in chloroform, xylene; sl. sol. in ethyl alcohol; insol. in water; drop pt. 60-68 C; acid no. 18-22; sapon. no. 85-103
Environmental: > 90% biodeg.

Cerabel S30 [Baerlocher France]
Chem. Descrip.: Syn. beeswax See Beeswax, synthetic
CAS 71243-51-1; EINECS/ELINCS 275-286-5
Uses: Binder, emulsion stabilizer, visc. control agent in pharmaceuticals
Regulatory: FDA compliance
Properties: Wh. or yel. pellets; sol. in chloroform, xylene; sl. sol. in ethyl alcohol; insol. in water; drop pt. 61-65 C; acid no. 17-22; sapon. no. 87-102
Environmental: > 90% biodeg.

Cerabel S40 [Baerlocher France]
Chem. Descrip.: Syn. beeswax See Beeswax, synthetic
CAS 71243-51-1; EINECS/ELINCS 275-286-5
Uses: Binder, emulsion stabilizer, visc. control agent in pharmaceuticals
Regulatory: FDA compliance
Properties: Wh. or yel. pellets; sol. in chloroform, xylene; sl. sol. in ethyl alcohol; insol. in water; drop pt. 61-65 C; acid no. 17-22; sapon. no. 87-102
Environmental: > 90% biodeg.

Cerabel S60 [Baerlocher France]
Chem. Descrip.: Syn. beeswax See Beeswax, synthetic
CAS 71243-51-1; EINECS/ELINCS 275-286-5
Uses: Binder, emulsion stabilizer, visc. control agent in pharmaceuticals
Regulatory: FDA compliance
Properties: Wh. or yel. pellets; sol. in chloroform, xylene; sl. sol. in ethyl alcohol; insol. in water; drop pt. 61-65 C; acid no. 17-22; sapon. no. 87-102
Environmental: > 90% biodeg.

Cerabel SCA [Baerlocher France]
Chem. Descrip.: Syn. beeswax See Beeswax, synthetic
CAS 71243-51-1; EINECS/ELINCS 275-286-5
Uses: Binder, emulsion stabilizer, visc. control agent in pharmaceuticals
Regulatory: FDA compliance
Properties: Wh. pellets; sol. in chloroform, xylene; sl. sol. in ethyl alcohol; insol. in water; drop pt. 68-73 C; acid no. 20-24; sapon. no. 100-110
Environmental: < 90% biodeg.

Ceraffine 48/50 [Baerlocher France]
Chem. Descrip.: Refined paraffin wax
<table>
<thead>
<tr>
<th>Trade Name Reference</th>
<th>CAS</th>
<th>EINECS/ELINCS</th>
<th>Uses</th>
<th>Properties</th>
<th>Regulatory</th>
<th>Environmental</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ceraffine 50/52</strong></td>
<td><strong>8002-74-2</strong></td>
<td><strong>232-315-6</strong></td>
<td><strong>Emollient, visc. control agent for pharmaceuticals</strong></td>
<td>Wh. slabs; sol. in chloroform, xylene; sl. sol. in ethyl alcohol; insol. in water; solid. pt. 48-50 C; penetration 30-50 dmm</td>
<td>FDA, EP compliance</td>
<td>&gt; 90% biodeg.</td>
</tr>
<tr>
<td><strong>Ceraffine 52/54</strong></td>
<td><strong>8002-74-2</strong></td>
<td><strong>232-315-6</strong></td>
<td><strong>Emollient, visc. control agent for pharmaceuticals</strong></td>
<td>Wh. slabs or pellets; sol. in chloroform, xylene; sl. sol. in ethyl alcohol; insol. in water; solid. pt. 50-52 C; penetration 14-18 dmm</td>
<td>FDA, EP compliance</td>
<td>&gt; 90% biodeg.</td>
</tr>
<tr>
<td><strong>Ceraffine 54/56</strong></td>
<td><strong>8002-74-2</strong></td>
<td><strong>232-315-6</strong></td>
<td><strong>Emollient, visc. control agent for pharmaceuticals</strong></td>
<td>Wh. slabs or pellets; sol. in chloroform, xylene; sl. sol. in ethyl alcohol; insol. in water; solid. pt. 52-54 C; penetration 14-18 dmm</td>
<td>FDA, EP compliance</td>
<td>&gt; 90% biodeg.</td>
</tr>
<tr>
<td><strong>Ceraffine 56/58</strong></td>
<td><strong>8002-74-2</strong></td>
<td><strong>232-315-6</strong></td>
<td><strong>Emollient, visc. control agent for pharmaceuticals</strong></td>
<td>Wh. slabs or pellets; sol. in chloroform, xylene; sl. sol. in ethyl alcohol; insol. in water; solid. pt. 54-56 C; penetration 14-18 dmm</td>
<td>FDA, EP compliance</td>
<td>&gt; 90% biodeg.</td>
</tr>
<tr>
<td><strong>Ceraffine 58/60</strong></td>
<td><strong>8002-74-2</strong></td>
<td><strong>232-315-6</strong></td>
<td><strong>Emollient, visc. control agent for pharmaceuticals</strong></td>
<td>Wh. slabs or pellets; sol. in chloroform, xylene; sl. sol. in ethyl alcohol; insol. in water; solid. pt. 58-60 C; penetration 15-19 dmm</td>
<td>FDA, EP compliance</td>
<td>&gt; 90% biodeg.</td>
</tr>
<tr>
<td><strong>Ceraffine 60/62</strong></td>
<td><strong>8002-74-2</strong></td>
<td><strong>232-315-6</strong></td>
<td><strong>Emollient, visc. control agent for pharmaceuticals</strong></td>
<td>Wh. slabs or pellets; sol. in chloroform, xylene; sl. sol. in ethyl alcohol; insol. in water; solid. pt. 60-62 C; penetration 16-20 dmm</td>
<td>FDA, EP compliance</td>
<td>&gt; 90% biodeg.</td>
</tr>
<tr>
<td><strong>Ceraffine 62/64</strong></td>
<td><strong>8002-74-2</strong></td>
<td><strong>232-315-6</strong></td>
<td><strong>Emollient, visc. control agent for pharmaceuticals</strong></td>
<td>Wh. slabs or pellets; sol. in chloroform, xylene; sl. sol. in ethyl alcohol; insol. in water; solid. pt. 62-64 C; penetration 16-20 dmm</td>
<td>FDA, EP compliance</td>
<td>&gt; 90% biodeg.</td>
</tr>
<tr>
<td><strong>Ceraffine 68/70</strong></td>
<td><strong>8002-74-2</strong></td>
<td><strong>232-315-6</strong></td>
<td><strong>Emollient, visc. control agent for pharmaceuticals</strong></td>
<td>Wh. slabs or pellets; sol. in chloroform, xylene; sl. sol. in ethyl alcohol; insol. in water; solid. pt. 68-70 C; penetration 16-20 dmm</td>
<td>FDA, EP compliance</td>
<td>&gt; 90% biodeg.</td>
</tr>
<tr>
<td><strong>Ceralan®</strong></td>
<td><strong>8027-33-6</strong></td>
<td><strong>232-430-1</strong></td>
<td><strong>Emollient, w/o emulsifier in topical pharmaceuticals</strong></td>
<td>Amber waxy solid, mild char. odor; m.p. 45-60 C; acid no. 3 max.; iodine no. 40-60; sapon. no. 10 max.; hyd. no. 150-175;</td>
<td>FDA, EP compliance</td>
<td>&gt; 90% biodeg.</td>
</tr>
</tbody>
</table>
Trade Name Reference

nonionic; 100% conc.

**Ceraphyl® 28** [ISP http://www.ispcorp.com; S. Black http://www.sblack.com]

Chem. Descrip.: Cetyl lactate
CAS 35274-05-6; EINECS/ELINCS 252-478-7
Uses: Lubricant and emollient for topical pharmaceuticals
Properties: Wh. solid, faint char. odor; sol. @ 5% in min. oil, peanut oil, IPM, oleyl alcohol, and 95% ethanol; partly sol. in water, propylene glycol; sp.gr. 0.893-0.905; HLB 13-15; acid no. 2 max.; sapon. no. 174-189
Toxicology: LD50 (oral, rat) > 2 ml/kg; nonirritating to eyes and skin

**Ceraphyl® 31** [ISP http://www.ispcorp.com; S. Black http://www.sblack.com]

Chem. Descrip.: Lauryl lactate
CAS 6283-92-7; EINECS/ELINCS 228-504-8
Uses: Emollient, lubricant for topical pharmaceuticals; antitackifier in antiperspirants
Properties: Lt. yel. liq., faint char. odor; sol. in min. oil, peanut oil, 95% ethanol, propylene glycol, and IPM; partly sol. in 70% sorbitol; sp.gr. 0.910-0.922; HLB 10; acid no. 2 max.; sapon. no. 210-225; ref. index 1.4417-1.4456
Toxicology: LD50 (oral, rat) > 2 ml/kg; nonirritating to eyes; mild skin irritant

**Ceraphyl® 41** [ISP http://www.ispcorp.com; S. Black http://www.sblack.com]

Chem. Descrip.: C12-15 alkyl lactate
CAS 93925-36-1; EINECS/ELINCS 300-338-1
Uses: Emollient for topical pharmaceuticals, alcoholic and hydroalcoholic skin preps.; antitackifier in antiperspirants
Features: Nongreasy; reduces tacky, greasy feel in formulations high in petrolatum or min. oil
Properties: Cl. to Lt. yel. liq.; sol. in aerosol propellants, min. oil, 60% ethanol, propylene glycol, IPM, oleyl alcohol, methylene chloride; partly sol. in water, glycerin; sp.gr. 0.900-0.920; HLB 14; acid no. 2 max.; sapon. no. 195-210; ref. index 1.4430-1.4450
Toxicology: LD50 (oral, rat) 21 ± 9.2 ml/kg; moderate eye and skin irritant

**Ceraphyl® 45** [ISP http://www.ispcorp.com; S. Black http://www.sblack.com]

Chem. Descrip.: Diocetyl malate
CAS 56235-92-8; EINECS/ELINCS 260-070-5
Uses: Emollient for topical pharmaceuticals, hypoallergenic prods.; coupling agent for fragrances; solubilizer for oxybenzone and other difficult-to-solubilize materials; antitackifier in antiperspirants, carbomer formulations
Features: Nongreasy skin feel; produces clear emollient gels
Properties: Colorless to pale yel. cl. liq., char. mild odor; sol. @ 5% in cyclomethicone, min. oil, IPM, ethanol, dimethicone, hexylene glycol; disp. in propylene glycol; insolv. in water; m.w. 358.52; sp.gr. 0.960-0.970; HLB 12; acid no. 5 max.; iodine no. 1 max.; sapon. no. 310 min.; ref. index 1.4480-1.4520
Toxicology: LD50 (oral, rat) > 5 g/kg; pract. nonirritating to eyes; not a primary skin irritant; noncomedogenic

**Ceraphyl® 50** [ISP http://www.ispcorp.com; S. Black http://www.sblack.com]

Chem. Descrip.: Myristyl lactate
CAS 1323-03-1; EINECS/ELINCS 215-350-1
Uses: Lubricant, emollient, film-former for topical pharmaceuticals, medicated prods.
Features: Provides soft, silky, water-resist. film on the skin
Properties: Water-wh. to pale yel. liq. to soft solid; sol. in peanut oil, min. oil, ethanol, propylene glycol, IPM, oleyl alcohol; partly sol. in 70% sorbitol; insolv. in water; sp.gr. 0.892-0.904; HLB 12; acid no. 2 max.; sapon. no. 166-181
Toxicology: LD50 (oral, rat) 20 ml/kg; nonirritating to skin

**Ceraphyl® 55** [ISP http://www.ispcorp.com; S. Black http://www.ispcorp.com]

Chem. Descrip.: Tridecyl neopentanoate
CAS 106436-39-9
Uses: Emollient for topical pharmaceutical creams and lotions; gloss aid and spreading agent in pigmented prods.
Features: Imparts nonoily, nonocclusive lubricity and elegant skin feel
Properties: Lt. yel. cl. liq., char. mild odor; sol. @ 5% in corn oil, 95% ethanol, min. oil, IPM, cyclomethicone; insolv. in water; m.w. 284; sp.gr. 0.850-0.860; HLB 10; acid no. 2 max.; sapon. no. 195 min.; ref. index 1.4435-1.4465
Toxicology: LD50 (oral, rat) > 5 g/kg; minimally irritating to eyes; mildly irritating to skin; noncomedogenic

**Ceraphyl® 70** [ISP http://www.ispcorp.com; S. Black http://www.sblack.com]

Chem. Descrip.: Quaternium-70, propylene glycol
Uses: Conditioner for topical cleansing
Trade Name Reference

products, medicated shampoos and scalp applications; emulsifier for topical skin formulations

Features: Patented

Properties: Amber soft gel; water-disp.; sol. in oil; m.p. 27-32 C; alkali no. 5 max.; sapon. no. 45-60; flash pt. 125 C; cationic; 48-58% total solids

Use Level: 0.5-4%

Toxicology: LD50 (oral, rat) > 40 ml/kg; mild eye irritant; very sl. skin irritant

Chem. Descrip.: Decyl oleate
CAS 3687-46-5; EINECS/ELINCS 222-981-6
Uses: Emollient, cosolvent, slip agent, lubricant for topical pharmaceuticals, creams, lotions

Properties: Wh. to straw-colored liq., char. mild odor; sol. @ 5% in peanut oil, 95% ethanol, IPM, oleyl alcohol; insol. in water; sp.gr. 0.858-0.864; acid no. 5 max.; iodine no. 55-65; sapon. no. 130-145; ref. index 1.4540-1.4560; nonionic; 100% act.

Toxicology: LD50 (oral, rat) > 40 ml/kg; sl. eye irritant; very sl. skin irritant; nonsensitizing

Chem. Descrip.: Isodecyl oleate
CAS 59231-34-4; EINECS/ELINCS 261-673-6
Uses: Emollient, cosolvent, and solubilizer for topical pharmaceuticals

Features: Lighter, drier skin feel than Ceraphyl 140

Properties: Wh. to straw-colored liq., char. mild odor; sol. @ 5% in peanut oil, 95% ethanol, IPM, oleyl alcohol; insol. in water; sp.gr. 0.858-0.864; acid no. 5 max.; iodine no. 55-65; sapon. no. 130-145; ref. index 1.4540-1.4560; nonionic; 100% act.

Toxicology: LD50 (oral, rat) > 40 ml/kg; nonirritating to eyes; mild skin irritant; nonsensitizing

Chem. Descrip.: Diisopropyl adipate
CAS 6938-94-9; EINECS/ELINCS 230-072-0
Uses: Emollient for topical pharmaceutical creams and lotions; coupling agent for aq. alcoholic systems; solubilizer for fragrances

Features: Reduces tackiness and lightens feel of other heavy emollients

Regulatory: DSL listed

Properties: Colorless cl. liq. with mild fatty odor; sol. @ 5% in min. oil, 50% ethano1, propylene glycol, IPM, oleyl alcohol, 70% sorbitol; water-insol.; m.w. 230.18; sp.gr. 0.950-0.962; b.p. 507 F; acid no. 2 max.; sapon. no. 465-500; flash pt. 279 F ref. inde

Toxicology: LD50 (oral, rat) > 20 ± 3 ml/kg; nonirritating to eyes and skin; nonsensitizing; not a hazard to eyes and skin under normal use conditions; TSCA listed

Precaution: Avoid contact with strong oxidizers

HMIS: Health 0, Flammability 1, Reactivity 0

Chem. Descrip.: Octyl palmitate
CAS 29806-73-3; EINECS/ELINCS 249-862-1
Uses: Emollient for topical pharmaceuticals, emulsions, aerosol antiperspirants; antitackifier for antiperspirants; solubilizer for benzophenone-3

Features: Nonoily, nonocclusive

Properties: Water-wh. liq.; sol. @ 5% in min. oil, 95% ethanol, IPM, peanut oil, oleyl alcohol; insol. in water; sp.gr. 0.850-0.856; acid no. 3 max.; sapon. no. 146-156; ref. index 1.4445-1.4465

Toxicology: LD50 (oral, rat) > 40 ml/kg; nonirritating to eyes; mild primary skin irritant; nonsensitizing

Chem. Descrip.: Isostearyl neopentanoate
CAS 58958-60-4; EINECS/ELINCS 261-521-9
Uses: Emollient for topical pharmaceuticals; spreading agent in highly pigmented prods.; antitackifier for antiperspirants

Features: Mild

Properties: Pale yel. cl. liq.; sol. @ 5% in IPM, oleyl alcohol, 95% ethanol, peanut and min. oils; insol. in water; sp.gr. 0.850-0.870; acid no. 2 max.; sapon. no. 144-165; ref. index 1.4435-1.4475

Toxicology: LD50 (oral, rat) > 40 ml/kg; nonirritating to eyes and skin

Chem. Descrip.: Myristyl myristate
CAS 3234-85-3; EINECS/ELINCS 221-787-9
Uses: Emollient for topical pharmaceutical...
Trade Name Reference

**Tocopherol**  [http://www.ispcorp.com](http://www.ispcorp.com); S. Black [http://www.sblack.com](http://www.sblack.com)

**Maleated soybean oil**  [http://www.ispcorp.com](http://www.ispcorp.com); S. Black [http://www.sblack.com](http://www.sblack.com)

**Isocetyl stearoyl stearate**  [http://www.ispcorp.com](http://www.ispcorp.com); S. Black [http://www.sblack.com](http://www.sblack.com)

**Octyldodecyl stearoyl stearate**  [http://www.ispcorp.com](http://www.ispcorp.com); S. Black [http://www.sblack.com](http://www.sblack.com)

**Ceraphyl® 494**  [ISP](http://www.ispcorp.com)  S. Black  [http://www.sblack.com](http://www.sblack.com)

**Ceraphyl® GA-D**  [ISP](http://www.ispcorp.com)  S. Black  [http://www.sblack.com](http://www.sblack.com)

**Ceraphyl® ICA**  [ISP](http://www.ispcorp.com)  S. Black  [http://www.sblack.com](http://www.sblack.com)

**Ceraphyl® 791**  [ISP](http://www.ispcorp.com)  S. Black  [http://www.sblack.com](http://www.sblack.com)

**Ceraphyl® 847**  [ISP](http://www.ispcorp.com)  S. Black  [http://www.sblack.com](http://www.sblack.com)

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**emulsions, creams, lotions; visc. builder for creams and lotions at low concs.**

**Features:** Imparts rich, velvety skin feel; reduces watery feel of low-oil emulsions; melts at body temp.

**Properties:** Wh. to sl. yel. waxy solid, bland char. odor; sol. @ 5% in peanut oil, 95% ethanol, IPM, oleyl alcohol; insol. in water; m.p. 36-39 C; acid no. 3 max.; sapon. no. 120-130

**Toxicology:** LD50 (oral, rat) 8.6 g/kg; minimally irritating to eyes; mild skin irritant; nonsensitizing

**Ceraphyl® 494**  [ISP](http://www.ispcorp.com)  S. Black  [http://www.sblack.com](http://www.sblack.com)

**Chem. Descrip.:** Isocetyl stearate

**CAS**  25339-09-7  EINECS/ELINCS  246-868-6

**Uses:** Emollient, lubricant for topical pharmaceuticals, creams and lotions, skin care prods.

**Features:** Imparts soft, elegant, nonoily feel

**Properties:** Wh. to lt. yel. liq., bland char. odor; sol. @ 5% in diocyl malate, castor oil, corn oil, IPM; insol. in water; acid no. 43-53; iodine no. 107 max.; hyd. no. 132-148; hyd. no. 15 max.; ref. index 1.456-1.465

**Toxicology:** LD50 (oral, rabbit) > 5 g/kg; minimally irritating to eyes; nonirritating to skin

**Ceraphyl® 791**  [ISP](http://www.ispcorp.com)  S. Black  [http://www.sblack.com](http://www.sblack.com)

**Chem. Descrip.:** Isocetyl stearoyl stearate

**CAS**  97338-28-8  EINECS/ELINCS  306-621-6

**Uses:** Pigment dispersant, emollient, lubricant, spreading agent for topical pharmaceuticals

**Properties:** Lt. to straw-colored liq., char. mild odor; sol. @ 5% in diocyl malate, castor oil, corn oil, IPM; insol. in water; acid no. 43-53; iodine no. 107 max.; sapon. no. 220-250; ref. index 1.4750-1.4850; 100% act.

**Toxicology:** LD50 (oral, rat) > 20 g/kg; nonirritating to skin; nonmutagenic (Ames assay); TSCA listed

**Precaution:** Wear safety glasses, gloves; incompat. with strong oxidizers

**Hazardous Decomp. Prods.:** CO, CO2

**NFPA:** Health 1, Flammability 1, Reactivity 0

**Storage:** Keep in cool, dry place in tightly closed container out of direct sunlight

**Ceraphyl® GA-D**  [ISP](http://www.ispcorp.com)  S. Black  [http://www.sblack.com](http://www.sblack.com)

**Chem. Descrip.:** Maleated soybean oil, deodorized, 0.1% mixed tocopherols (antioxidant)  See Tocopherol

**Uses:** Moisturizer and skin softener for creams, lotions, topical pharmaceuticals

**Features:** Patented; imparts a rich, nongreasy, nontacky, full-bodied, long-lasting feel to the skin

**Properties:** Amber-yel. visc. oily liq., mild char. odor; sol. @ 5% in diocyl malate, castor oil, corn oil, IPM; insol. in water; acid no. 43-53; iodine no. 107 max.; sapon. no. 220-250; ref. index 1.4750-1.4850; 100% act.

**Toxicology:** LD50 (oral, rat) > 5 g/kg; nonirritating to eyes; mildly irritating to skin; nonsensitizing, noncomedogenic

**Ceraphyl® ICA**  [ISP](http://www.ispcorp.com)  S. Black  [http://www.sblack.com](http://www.sblack.com)

**Chem. Descrip.:** Isocetyl alcohol

**CAS**  36311-34-9  EINECS/ELINCS  252-964-9

**Uses:** Emollient for topical pharmaceuticals, creams, lotions; carrier and extender for flavors and fragrances

**Features:** Nongreasy; ideal for oil-free preps. and high-pH apps.

**Properties:** Colorless cl. liq., low odor; sol. @ 5% in peanut and min. oils, 95% ethanol, IPM, oleyl alcohol, castor oil, cyclomethicone; insol. in water; m.w. 242; sp.gr. 0.830-0.840; HLB 12-14; acid no. 5 max.; iodine no. 10 max.; sapon. no. 10 max.; hyd. no. 195-230

**Toxicology:** LD50 (oral, rat) > 5 g/kg; mild eye
Trade Name Reference

and skin irritant; noncomedogenic

Chem. Descrip.: Diethylaminoethyl stearate
CAS 3179-81-5; EINECS/ELINCS 221-662-9
Uses: O/w emulsifier, dispersant, wetting agent in topical pharmaceuticals
Properties: Straw to amber liq. to semisolid, amine odor; sol. @ 5% in peanut oil, ethanol, IPM, oleyl alcohol; partly sol. in min. oil; gels in glycerin, 70% sorbitol; sp.gr. 0.860-0.880; acid no. 30-40; alkali no. 127-137; sapon. no. 150-160; pH 9.5-10.5 (3%); cationic; 100% conc.
Features: Hydrophilic; broad compatibility
Regulatory: DOT not regulated; Canada DSL; Australia AICS; Japan ENCS; Germany WGK
Properties: Waxy, wh. to off-wh. solid; sol. @ 5% in ethanol; partly sol. in propylene glycol; forms liq. disp. in glycerin, solid disp. in peanut oil, IPM; insol. in water; m.w. 1165.55; m.p. 39.5-42.5 C; acid no. 0.25 max.; iodine no. 0.5 max.; sapon. no. 40-50; nonionic; 100% conc.
Toxicology: LD50 (oral) > 52 g/kg (50% corn oil); TSCA listed
Precaution: Wear safety glasses, gloves; incompat. with strong oxidizers
Hazardous Decomp. Prods.: CO, CO2
Storage: Store in cool, dry place in tightly closed container out of direct sunlight

Chem. Descrip.: PEG-20 stearate
CAS 9004-99-3
Uses: Emulsifier, visc. builder, stabilizer for topical pharmaceutical o/w creams, lotions, medicated ointments
Features: Hydrophilic; broad compatibility
Regulatory: DOT not regulated; Canada DSL; Australia AICS; Japan ENCS; Germany WGK
Properties: Waxy, wh. to cream flakes; partly sol. @ 5% in peanut oil; sol. @ 5% in propylene glycol; partly sol. @ 5% in peanut oil; gels in peanut oil, 70% sorbitol; sp.gr. 0.860-0.880; acid no. 30-40; alkali no. 127-137; sapon. no. 150-160; pH 9.5-10.5 (3%); cationic; 100% conc.
Features: Hydrophilic; broad compatibility
Regulatory: DOT not regulated; Canada DSL; Australia AICS; Japan ENCS; Germany WGK
Properties: Waxy, wh. to cream flakes; partly sol. @ 5% in peanut oil; sol. @ 5% in propylene glycol; partly sol. @ 5% in peanut oil; gels in peanut oil, 70% sorbitol; sp.gr. 0.860-0.880; acid no. 30-40; alkali no. 127-137; sapon. no. 150-160; pH 9.5-10.5 (3%); cationic; 100% conc.
Toxicology: LD50 (oral) > 52 g/kg (50% corn oil); TSCA listed
Precaution: Wear safety glasses, gloves; incompat. with strong oxidizers
Hazardous Decomp. Prods.: CO, CO2
Storage: Store in cool, dry place in tightly closed container out of direct sunlight

Chem. Descrip.: Glyceryl stearate
CAS 123-94-4
Uses: Sec. o/w emulsifier for topical pharmaceuticals, creams, lotions; visc. builder for emulsions
Regulatory: DOT not regulated; Europe EINECS; Canada DSL; Australia AICS; Japan ENCS; Germany WGK
Properties: Wh. to cream flakes; forms visc. disp. in peanut oil, min. oil, IPM; m.w. 359.56; m.p. 76-82 C; b.p. 687 F; acid no. 10-20; iodine no. 0.5 max.; sapon. no. 97-107; flash pt. 522 F; nonionic; 100% conc.
Toxicology: Nonirritating; nonphotoallergic; nonphototoxic; nonphotoallergic; TSCA listed
Precaution: Wear safety glasses, gloves; incompat. with strong oxidizers
Hazardous Decomp. Prods.: CO, CO2
Storage: Store in cool, dry place in tightly closed container out of direct sunlight

Chem. Descrip.: Glycol stearate and other ingreds.
Uses: O/w emulsifier for topical...
Trade Name Reference

**Cerasynt® M** [ISP [http://www.ispcorp.com]; S. Black [http://www.sblack.com]]

**Chem. Descrip.:** Glycol stearate
CAS 111-60-4; EINECS/ELINCS 203-886-9

**Uses:** Sec. o/w emulsifier for topical pharmaceutical creams and lotions

**Regulatory:** DOT not regulated; Canada DSL; Australia AICS; Japan ENCS

**Properties:** Wh. to cream waxy flakes, mild char. odor; partly sol. in peanut oil; insol. in water, min. oil, glycerin, propylene glycol; m.w. 328.54; m.p. 56-60 C; b.p. 549 F; HLB 3.0; acid no. 5 max.; iodine no. 0.5 max.; sapon. no. 185-195; flash pt. 460 F; nonionic; 100% conc.

**Toxicology:** Mildly irritating to rabbit skin; TSCA listed

**Precaution:** Wear safety glasses, gloves; incompat. with strong oxidizers

**Hazardous Decomp. Prods.:** CO, CO2

**NFPA:** Health 1, Flammability 1, Reactivity 0

**Storage:** Store in cool, dry place in tightly closed area

**Chem. Descrip.:** Glyceryl stearate SE
CAS 86418-55-5

**Uses:** O/w emulsifier in pharmaceutical creams and lotions; visc. builder for emulsions containing high percentage of water in aq. phase

**Regulatory:** DOT not regulated; Europe EINECS; Canada DSL; Australia AICS; Japan ENCS

**Properties:** Wh. to cream flakes; forms liq. disp. in water; insol. in min. oil, ethanol, glycerin, propylene glycol, IPM; m.p. 57-60 C; m.w. 328.54; acid no. 5 max.; iodine no. 0.5 max.; sapon. no. 181-191; flash pt. 475 F; anionic; 100% conc.

**Toxicology:** Mildly irritating to rabbit skin; TSCA listed

**Precaution:** Wear safety glasses, gloves; incompat. with strong oxidizers

**Hazardous Decomp. Prods.:** CO, CO2

**Storage:** Store in cool, dry place in tightly closed area
Trade Name Reference

containers out of direct sunlight

Chem. Descrip.: Glyceryl stearate, stearyl alcohol, and sodium lauryl sulfate
CAS 31566-31-1; 112-92-5; 151-21-3
Uses: Emulsifier for topical pharmaceutical o/w creams, lotions, ointments, antiperspirants
Features: Acid-stable; electrolyte tolerance and low pH stability
Regulatory: DSL, ENCS, AICS. listed
Properties: Wh. to cream flakes; mild odor; forms liq. disp. @ 5% in IPM, solid disp. in water, peanut and min. oils, oleyl alcohol, 70% sorbitol; insol. in ethanol, glycerin, propylene glycol; m.p. 55-57 C; acid no. 5 max.; iodine no. 0.5 max.; sapon. no. 140-1; flash pt. 451 F; anionic; 100% conc.
Toxicology: TSCA listed
Precaution: Avoid strong oxidizers
HMIS: Health 1, Flammability 1, Reactivity 0
Storage: Keep containers tightly closed when not in use; store in a cool, dry place, out of sunlight

Ceresine C [Baerlocher France]
Chem. Descrip.: Ceresine wax See Ceresin
CAS 8001-75-0; EINECS/ELINCS 232-290-1
Uses: Antistat, binder, emulsion stabilizer, opacifier, visc. control agent for pharmaceuticals
Regulatory: FDA compliance; ADI 20 mg/kg
Properties: Wh. pellets; sol. in chloroform, xylene; sl. sol. in ethyl alcohol; insol. in water; drop pt. 77-80 C; solid. pt. 69-72 C; penetration 9-13 dmm
Environmental: > 90% biodeg.

Ceresine K [Baerlocher France]
Chem. Descrip.: Ceresine wax See Ceresin
CAS 8001-75-0; EINECS/ELINCS 232-290-1
Uses: Antistat, binder, emulsion stabilizer, opacifier, visc. control agent for pharmaceuticals
Regulatory: FDA compliance
Properties: Wh. pellets; sol. in chloroform, xylene; sl. sol. in ethyl alcohol; insol. in water; drop pt. 80-85 C; solid. pt. 65-70 C; penetration 7-12 dmm
Environmental: > 90% biodeg.

Ceresine Wax SP 248 [Strahl & Pitsch http://www.strahlpitsch.com]
Chem. Descrip.: Ceresine wax See Ceresin
CAS 8001-75-0; EINECS/ELINCS 232-290-1
Uses: Wax for pharmaceuticals, salves/ointments
Regulatory: FDA 21CFR §175.105, CTFA listed
Properties: Wh. slabs or pastilles; m.p. 129-135 F
Toxicology: TSCA listed

Ceresine Wax SP 254 [Strahl & Pitsch http://www.strahlpitsch.com]
Chem. Descrip.: Ceresine wax See Ceresin
CAS 8001-75-0; EINECS/ELINCS 232-290-1
Uses: Wax for pharmaceuticals, salves/ointments
Regulatory: FDA 21CFR §175.105, CTFA listed
Properties: Wh. slabs or pastilles; m.p. 141-147 F
Toxicology: TSCA listed

Ceresine Wax SP 252 [Strahl & Pitsch http://www.strahlpitsch.com]
Chem. Descrip.: Ceresine wax See Ceresin
CAS 8001-75-0; EINECS/ELINCS 232-290-1
Uses: Wax for pharmaceuticals, salves/ointments
Regulatory: FDA 21CFR §175.105, CTFA listed
Properties: Wh. slabs or pastilles; m.p. 137-143 F
Toxicology: TSCA listed

Ceresine Wax SP 272 [Strahl & Pitsch http://www.strahlpitsch.com]
Chem. Descrip.: Ceresine wax See Ceresin
CAS 8001-75-0; EINECS/ELINCS 232-290-1
Uses: Wax for pharmaceuticals, salves/ointments
Regulatory: FDA 21CFR §175.105, CTFA listed
Properties: Wh. slabs or pastilles; m.p. 130-136 F
Toxicology: TSCA listed

Ceresine Wax SP 301 [Strahl & Pitsch http://www.strahlpitsch.com]
Chem. Descrip.: Ceresine wax See Ceresin
CAS 8001-75-0; EINECS/ELINCS 232-290-1
Uses: Wax for pharmaceuticals, salves/ointments
Regulatory: FDA 21CFR §175.105, CTFA listed
Properties: Wh. slabs or pastilles; m.p. 130-136 F
Toxicology: TSCA listed
Trade Name Reference

Chem. Descrip.: Decyl olate
CAS 3687-46-5; EINECS/ELINCS 222-981-6
Uses: Solubilizer, vehicle for medicines; excipient for injectable substances; emollient in antiperspirants
Features: Changes skin feel, rub out props. and greasiness; veg. oil substitute; vaseline substitute
Properties: Ylsh. liq.; typical odor; insol. in water; dens. 0.86 g/ml; cloud pt. 0 C; flash pt. 220 C
Toxicology: Nontoxic through ing. inh. or skin contact
Environmental: Keep out of sewers, drains, surface and underground water and the ground
Precaution: Wear goggles and gloves
Hazardous Ingredients: K
Hazardous Decomp. Prods.: None
Storage: Store in original container, @ R.T. closed and protected from damp and heat sources.

Cerewax 2T [Baerlocher France; S. Black http://www.sblack.com]
Chem. Descrip.: Microcrystalline wax
CAS 63231-60-7; EINECS/ELINCS 264-038-1
Uses: Binder, emulsion stabilizer, opacifier, visc. control agent in pharmaceuticals
Regulatory: FDA compliance; ADI 20 mg/kg
Properties: Wh. fine cryst.; sol. in chloroform, xylene; sl. sol. in ethyl alcohol; insol. in water; solid. pt. 70-75 C; penetration 20-30 dmm
Environmental: > 90% biodeg.

Cerewax 4T [Baerlocher France; S. Black http://www.sblack.com]
Chem. Descrip.: Microcrystalline wax
CAS 63231-60-7; EINECS/ELINCS 264-038-1
Uses: Binder, emulsion stabilizer, opacifier, visc. control agent in pharmaceuticals
Regulatory: FDA compliance
Properties: Wh. fine cryst.; sol. in chloroform, xylene; sl. sol. in ethyl alcohol; insol. in water; solid. pt. 70-75 C; penetration 40-60 dmm
Environmental: > 90% biodeg.

Cerewax 105 [Baerlocher France; S. Black http://www.sblack.com]
Chem. Descrip.: Microcrystalline wax
CAS 63231-60-7; EINECS/ELINCS 264-038-1
Uses: Binder, emulsion stabilizer, opacifier, visc. control agent in pharmaceuticals
Regulatory: FDA compliance
Properties: Wh. fine cryst.; sol. in chloroform, xylene; sl. sol. in ethyl alcohol; insol. in water; solid. pt. 70-75 C; penetration 40-60 dmm
Environmental: > 90% biodeg.
Trade Name Reference

Cerewax A75 [Baerlocher France; S. Black
http://www.sblack.com]
Chem. Descrip.: Microcrystalline wax
CAS 63231-60-7; EINECS/ELINCS 264-038-1
Uses: Binder, emulsion stabilizer, opacifier,
visc. control agent in pharmaceuticals
Regulatory: FDA compliance; ADI 20 mg/kg
Properties: Wh. fine cryst.; sol. in chloroform,
xylene; sl. sol. in ethyl alcohol; insol. in water;
drop pt. 115-120 C; solid. pt. 105-115 C;
penetration 0-2 dmm
Environmental: > 90% biodeg.

Cerewax M85/C [Baerlocher France; S. Black
http://www.sblack.com]
Chem. Descrip.: Microcrystalline wax
CAS 63231-60-7; EINECS/ELINCS 264-038-1
Uses: Binder, emulsion stabilizer, opacifier,
visc. control agent in pharmaceuticals
Regulatory: FDA compliance; ADI 20 mg/kg
Properties: Wh. fine cryst.; sol. in chloroform,
xylene; sl. sol. in ethyl alcohol; insol. in water;
drop pt. 82-87 C; solid. pt. 80-85 C;
penetration 3-8 dmm
Environmental: > 90% biodeg.

Cerewax AS15 [Baerlocher France; S. Black
http://www.sblack.com]
Chem. Descrip.: Microcrystalline wax
CAS 63231-60-7; EINECS/ELINCS 264-038-1
Uses: Binder, emulsion stabilizer, opacifier,
visc. control agent in pharmaceuticals
Regulatory: FDA compliance; ADI 20 mg/kg
Properties: Wh. fine cryst.; sol. in chloroform,
xylene; sl. sol. in ethyl alcohol; insol. in water;
drop pt. 72-76 C; solid. pt. 68-70 C;
penetration 12-15 dmm
Environmental: > 90% biodeg.

Cerewax FT/B [Baerlocher France; S. Black
http://www.sblack.com]
Chem. Descrip.: Microcrystalline wax
CAS 63231-60-7; EINECS/ELINCS 264-038-1
Uses: Binder, emulsion stabilizer, opacifier,
visc. control agent in pharmaceuticals
Regulatory: ADI 20 mg/kg
pt. 90-95 C; penetration 0-3 dmm

Cerewax L [Baerlocher France; S. Black
http://www.sblack.com]
Chem. Descrip.: Microcrystalline wax
CAS 63231-60-7; EINECS/ELINCS 264-038-1
Uses: Binder, emulsion stabilizer, opacifier,
visc. control agent in pharmaceuticals
Regulatory: FDA compliance; ADI 20 mg/kg
Properties: Wh. fine cryst.; sol. in chloroform,
xylene; sl. sol. in ethyl alcohol; insol. in water;
drop pt. 80-85 C; solid. pt. 66-74 C;
penetration 20-40 dmm
Environmental: > 90% biodeg.

Cerewax LKT [Baerlocher France; S. Black
http://www.sblack.com]
Chem. Descrip.: Microcrystalline wax
CAS 63231-60-7; EINECS/ELINCS 264-038-1
Uses: Binder, emulsion stabilizer, opacifier,
visc. control agent in pharmaceuticals
Regulatory: FDA compliance; ADI 20 mg/kg
Properties: Wh. fine cryst.; sol. in chloroform,
xylene; sl. sol. in ethyl alcohol; insol. in water;
drop pt. 90-95 C; solid. pt. 82-86 C;
penetration 5-9 dmm

Cerewax N°1 [Baerlocher France; S. Black
http://www.sblack.com]
Chem. Descrip.: Microcrystalline wax
CAS 63231-60-7; EINECS/ELINCS 264-038-1
Uses: Binder, emulsion stabilizer, opacifier,
visc. control agent in pharmaceuticals
Regulatory: FDA compliance; ADI 20 mg/kg
Properties: Wh. fine cryst.; sol. in chloroform,
xylene; sl. sol. in ethyl alcohol; insol. in water;
drop pt. 68-73 C; solid. pt. 60-65 C;
penetration 20-25 dmm
Environmental: > 90% biodeg.

Cerewax N°2 [Baerlocher France; S. Black
http://www.sblack.com]
Chem. Descrip.: Microcrystalline wax
CAS 63231-60-7; EINECS/ELINCS 264-038-1
Uses: Binder, emulsion stabilizer, opacifier,
visc. control agent in pharmaceuticals
Regulatory: FDA compliance; ADI 20 mg/kg
Properties: Wh. fine cryst.; sol. in chloroform,
xylene; sl. sol. in ethyl alcohol; insol. in water;
drop pt. 80-85 C; solid. pt. 68-72 C;
penetration 18-22 dmm

Cerewax N°3 [Baerlocher France; S. Black
http://www.sblack.com]
Chem. Descrip.: Microcrystalline wax
CAS 63231-60-7; EINECS/ELINCS 264-038-1
Uses: Binder, emulsion stabilizer, opacifier,
visc. control agent in pharmaceuticals
Regulatory: FDA compliance; ADI 20 mg/kg
Properties: Wh. fine cryst.; sol. in chloroform,
xylene; sl. sol. in ethyl alcohol; insol. in water;
drop pt. 88-94 C; solid. pt. 80-85 C;
penetration 6-10 dmm

Environmental: > 90% biodeg.
Trade Name Reference

Environmental: > 90% biodeg.

Cerewax S90 [Baerlocher France; S. Black http://www.sblack.com]
Chem. Descrip.: Microcrystalline wax
CAS 63231-60-7; EINECS/ELINCS 264-038-1
Uses: Binder, emulsion stabilizer, opacifier, visc. control agent in pharmaceuticals
Regulatory: FDA compliance; ADI 20 mg/kg
Properties: Wh. fine cryst.; sol. in chloroform, xylene; sl. sol. in ethyl alcohol; insol. in water; drop pt. 90-95 C; solid. pt. 80-85 C; penetration 3-5 dmm
Environmental: > 90% biodeg.

Cerewax T300 [Baerlocher France; S. Black http://www.sblack.com]
Chem. Descrip.: Microcrystalline wax
CAS 63231-60-7; EINECS/ELINCS 264-038-1
Uses: Binder, emulsion stabilizer, opacifier, visc. control agent in pharmaceuticals
Properties: Fine cryst.; solid. pt. 80-85 C; penetration 8-13 dmm
Environmental: > 90% biodeg.

Cerozo 1247 [Baerlocher France; S. Black http://www.sblack.com]
Chem. Descrip.: Ozokerite
CAS 8021-55-4; EINECS/ELINCS 265-134-6
Uses: Binder, emulsion stabilizer, opacifier, visc. control agent in pharmaceuticals
Regulatory: FDA compliance
Properties: Wh. pellets; sol. in chloroform, xylene; sl. sol. in ethyl alcohol; insol. in water; drop pt. (Mettler) 64-67 C; solid. pt. 62-64 C; penetration 12-15 dmm
Environmental: > 90% biodeg.

Cerozo 3549T [Baerlocher France; S. Black http://www.sblack.com]
Chem. Descrip.: Ozokerite
CAS 8021-55-4; EINECS/ELINCS 265-134-6
Uses: Binder, emulsion stabilizer, opacifier, visc. control agent in pharmaceuticals
Regulatory: FDA compliance; ADI 20 mg/kg
Properties: Wh. pellets; sol. in chloroform, xylene; sl. sol. in ethyl alcohol; insol. in water; drop pt. (Mettler) 75-80 C; solid. pt. 69-74 C; penetration 7-12 dmm
Environmental: > 90% biodeg.

Cerozo 4347 [Baerlocher France; S. Black http://www.sblack.com]
Chem. Descrip.: Ozokerite
CAS 8021-55-4; EINECS/ELINCS 265-134-6
Uses: Binder, emulsion stabilizer, opacifier, visc. control agent in pharmaceuticals
Regulatory: FDA compliance
Properties: Wh. pellets; sol. in chloroform, xylene; sl. sol. in ethyl alcohol; insol. in water; drop pt. (Mettler) 89-91 C; solid. pt. 70-75 C; penetration 10-14 dmm
Environmental: > 90% biodeg.

Cerozo 30447 [Baerlocher France; S. Black http://www.sblack.com]
Chem. Descrip.: Ozokerite
CAS 8021-55-4; EINECS/ELINCS 265-134-6
Uses: Binder, emulsion stabilizer, opacifier, visc. control agent in pharmaceuticals
Regulatory: FDA compliance
Properties: Wh. pellets; sol. in chloroform, xylene; sl. sol. in ethyl alcohol; insol. in water; drop pt. (Mettler) 90-94 C; solid. pt. 78-80 C; penetration 4-8 dmm
Environmental: > 90% biodeg.
Trade Name Reference

CAS 8021-55-4; EINECS/ELINCS 265-134-6
Uses: Binder, emulsion stabilizer, opacifier, 
visc. control agent in pharmaceuticals

Regulatory: FDA compliance
Properties: Wh. pellets; sol. in chloroform, 
xylene; sl. sol. in ethyl alcohol; insol. in water; 
drop pt. (Mettler) 93-98 C; solid. pt. 75-80 C; 
penetration 16-20 dmm
Environmental: > 90% biodeg.

Cerozo C806 [Baerlocher France; S. Black http://www.sblack.com]
Chem. Descrip.: Ozokerite
CAS 8021-55-4; EINECS/ELINCS 265-134-6
Uses: Binder, emulsion stabilizer, opacifier, 
visc. control agent in pharmaceuticals

Regulatory: FDA compliance; ADI 20 mg/kg
Properties: Wh. pellets; sol. in chloroform, 
xylene; sl. sol. in ethyl alcohol; insol. in water; 
drop pt. (Mettler) 93-98 C; solid. pt. 75-80 C; 
penetration 16-20 dmm
Environmental: > 90% biodeg.

Cerozo D306 [Baerlocher France; S. Black http://www.sblack.com]
Chem. Descrip.: Ozokerite
CAS 8021-55-4; EINECS/ELINCS 265-134-6
Uses: Binder, emulsion stabilizer, opacifier, 
visc. control agent in pharmaceuticals

Regulatory: FDA compliance
Properties: Wh. pellets; sol. in chloroform, 
xylene; sl. sol. in ethyl alcohol; insol. in water; 
drop pt. (Mettler) 53-56 C; solid. pt. 50-55 C; 
penetration 10-14 dmm
Environmental: > 90% biodeg.

Cerozo E626 [Baerlocher France; S. Black http://www.sblack.com]
Chem. Descrip.: Ozokerite
CAS 8021-55-4; EINECS/ELINCS 265-134-6
Uses: Binder, emulsion stabilizer, opacifier, 
visc. control agent in pharmaceuticals

Regulatory: FDA compliance
Properties: Wh. pellets; sol. in chloroform, 
xylene; sl. sol. in ethyl alcohol; insol. in water; 
drop pt. (Mettler) 77-80 C; solid. pt. 70-75 C; 
penetration 7-11 dmm
Environmental: > 90% biodeg.

Cerozo F110 [Baerlocher France; S. Black http://www.sblack.com]
Chem. Descrip.: Ozokerite
CAS 8021-55-4; EINECS/ELINCS 265-134-6
Uses: Binder, emulsion stabilizer, opacifier, 
visc. control agent in pharmaceuticals

Properties: Drop pt. (Mettler) 64-68 C; solid. pt. 
62-67 C; penetration 10-12 dmm

Cerozo F308 [Baerlocher France; S. Black http://www.sblack.com]
Chem. Descrip.: Ozokerite
CAS 8021-55-4; EINECS/ELINCS 265-134-6
Uses: Binder, emulsion stabilizer, opacifier, 
visc. control agent in pharmaceuticals

Properties: Wh. pellets; sol. in chloroform, 
xylene; sl. sol. in ethyl alcohol; insol. in water; 
drop pt. (Mettler) 89-92 C; solid. pt. 73-80 C; 
penetration 7-10 dmm
Environmental: > 90% biodeg.

Cerozo AN [Baerlocher France; S. Black http://www.sblack.com]
Chem. Descrip.: Ozokerite
CAS 8021-55-4; EINECS/ELINCS 265-134-6
Uses: Binder, emulsion stabilizer, opacifier, 
visc. control agent in pharmaceuticals

Properties: Wh. pellets; sol. in chloroform, 
xylene; sl. sol. in ethyl alcohol; insol. in water; 
drop pt. (Mettler) 63-66 C; solid. pt. 57-61 C; 
penetration 10-14 dmm
Environmental: > 90% biodeg.
Trade Name Reference

Certified® Pharmaceutical Glaze [Mantrose Bradshaw Zinsser
http://www.mbzgroup.com]
Chem. Descrip.: Pure lac resin in specially denatured alcohol See Alcohol; Shellac
Uses: Barrier, gloss aid, adhesion promoter for pharmaceutical glazes, enteric coatings
Regulatory: USP/NF compliance; kosher

CertiSeal® FC 300 [Mantrose-Haueuser http://www.mbzgroup.com]
Uses: Film coating for pharmaceuticals
Features: Used by itself or mixed with conventional HPMC film coat sol'ns.; faster film build; improved gloss; reduction of coating cost; non-VOC

Uses: Film coating for pharmaceuticals
Features: Used by itself or mixed with conventional HPMC film coat sol'ns.; faster film build; improved gloss; reduction of coating cost; non-VOC

Cetina [Robeco http://www.robecoinc.com]
Chem. Descrip.: Cetyl esters and stearamide DEA
Uses: Emulsifying wax, lubricant, emollient providing satiny feel for dermatologicals
Properties: Lt. colored flake, bland odor and taste; m.p. 43-50 C; acid no. 0-5; alkali no. 28 max.; sapon. no. 85-100; pH 8.5-10.0 (1%); nonionic; 100% conc.

Cetiol® 868 [Cognis/Care Chems.; Cognis Canada; Cognis GmbH/Care Chems.
http://www.cognis.com]
Chem. Descrip.: Octyl stearate
Uses: Emollient for pharmaceutical skin care preps.; superfatting oil for o/w and w/o emulsions
Properties: Pale yel. cl. oily liq.; m.w. 390; sp.gr. 0.855-0.865; visc. 14-16 mPa*s; acid no. 0.5 max.; iodine no. 2; sapon. no. 140-150; cloud pt. < 8 C; ref. index 1.447-1.450; 100% act.
Storage: 1 yr. storage life in sealed original containers at temps. below 30 C in dry environment

Cetiol® A [Cognis/Care Chems.; Cognis Canada; Cognis GmbH/Care Chems.
http://www.cognis.com]
Chem. Descrip.: Hexyl laurate
Uses: Pharmaceutical glaze for seed coating, core sealing, finish gloss, and ink base applics., esp. for automatic panning equip.
Features: Accelerated drying chars.
Trade Name Reference

**Cetiol® B**  [Cognis GmbH/Care Chems.  
http://www.cognis.com]
Chem. Descrip.:  Dibutyl adipate
CAS 105-99-7; EINECS/ELINCS 203-350-4
Uses: Emollient, oily component for skin oils, sun protection oils, pharmaceuticals, liq. emulsions; penetrant on skin; solvent for lipid-sol. substances

Properties:  Colorless oily liq., faint intrinsic odor; sp.gr. 0.958-0.962; visc. 5-7 mPa*s; solid. pt. < -30 C; acid no. 0.5 max.; iodine no. 1 max.; sapon. no. 420-440; hyd. no. 1 max.; cloud pt. < -25 C; flash pt. 150 C min.; ref. index 1.434-1.437; 100% act.

Storage:  1 yr. min. storage if in sealed original containers at temps. below 40 C, protected from moisture

**Cetiol® S**  [Cognis/Care Chems.; Cognis Canada; Cognis GmbH/Care Chems.
http://www.cognis.com]
Chem. Descrip.:  Myristyl myristate
CAS 3234-85-3; EINECS/ELINCS 221-787-9
Uses: Emollient, superfatting agent for pharmaceutical skin care prods.

Features:  Melts near body temp.

Properties:  Wh. to lt. yelsh. waxy solid, faint char. odor; misc. with oils and waxes; m.p. 38-42 C; acid no. 1 max.; iodine no. 1 max.; sapon. no. 120-135; hyd. no. 7 max.

Storage:  1 yr. min. storage if stored in sealed original containers, protected from moisture

**Cetiol® LC**  [Cognis/Care Chems.; Cognis Canada; Cognis GmbH/Care Chems.  
http://www.cognis.com]
Uses: Penetrant, emollient, superfatting agent in pharmaceutical oils, creams, liq. emulsions, skin oils; reduces oiliness in creams, lotions, and solid sticks; carrier for oil-sol. actives

Features:  Very dry feeling

Properties:  Sl. yel. cl. oily liq., pract. odorless; sol. @ 10% in min. and castor oil, IPM, oleyl alcohol, silicone fluid; insol. in water; sp.gr. 0.855-0.860; visc. 9-12 mPa*s; solid. pt. < 13 C; HLB 9; acid no. 0.5 max.; iodine no. 1 max.; sapon. no. 30-45; hyd. no. 1 max.; cloud pt. 15 C max.; flash pt. > 180 C; ref. index 1.443-1.447

Storage:  1 yr. min. storage if in sealed containers at temps. below 30 C, protected from moisture

**Cetiol® LC**  [Cognis/Care Chems.; Cognis Canada; Cognis GmbH/Care Chems.  
http://www.cognis.com]
Chem. Descrip.:  Dibutyl adipate
CAS 105-99-7; EINECS/ELINCS 203-350-4
Uses: Emollient, oily component for skin oils, sun protection oils, pharmaceuticals, liq. emulsions; penetrant on skin; solvent for lipid-sol. substances

Properties:  Colorless cl. oily liq., odorless; sol. @ 10% in min. and castor oil, IPM, oleyl alcohol, ethyl alcohol-SD 40 (95%), silicone fluid; sp.gr. 0.857-0.861; visc. 6 mPa*s; solid. pt. < 0 C; HLB 12; acid no. 0.2 max.; iodine no. 1; sapon. no. 190-205; hyd. no. 2 max.; cloud pt. < 5 C; flash pt. > 165 C; ref. index 1.438-1.441; 100% act.

Storage:  1 yr. storage life in sealed containers below 30 C, protected against moisture

**Cetiol® S**  [Cognis/Care Chems.; Cognis Canada; Cognis GmbH/Care Chems.
http://www.cognis.com]
Chem. Descrip.:  Myristyl myristate
CAS 3234-85-3; EINECS/ELINCS 221-787-9
Uses: Emollient, superfatting agent for pharmaceutical skin care prods.

Features:  Melts near body temp.

Properties:  Wh. to lt. yelsh. waxy solid, faint char. odor; misc. with oils and waxes; m.p. 38-42 C; acid no. 1 max.; iodine no. 1 max.; sapon. no. 120-135; hyd. no. 7 max.

Storage:  1 yr. min. storage if stored in sealed original containers, protected from moisture

**Cetiol® OE**  [Cognis/Care Chems.; Cognis GmbH/Care Chems.  
http://www.cognis.com]
Chem. Descrip.:  Dioctyl ether
CAS 629-82-3; EINECS/ELINCS 211-112-6
Uses: Emollient, spreading agent for Lt. pharmaceutical o/w and w/o emulsions

Features:  Dry feel; resist. to hydrolysis

Properties:  Cl. liq.; sp.gr. 0.80; visc. 4 mPa*s; acid no. 0.5 max.; sapon. no. 0.1 max.; hyd. no. 0.5 max.; ref. index 1.430

Storage:  1 yr. min. storage stability in sealed original containers in dry place at temps. below 40 C

**Cetiol® S**  [Cognis/Care Chems.; Cognis Canada; Cognis GmbH/Care Chems.
http://www.cognis.com]
Trade Name Reference

Canada; Cognis GmbH/Care Chems. http://www.cognis.com

Chem. Descrip.: Dioctylcyclohexane See Dioctyl cyclohexane

EINECS/ELINCS 283-854-9

Uses: Emollient, superfatting agent in pharmaceutical creams and emulsions

Properties: Colorless cl. liq., faint odor; sp.gr. 0.825-0.835; visc. 25 mPa•s; acid no. 0.2 max.; iodine no. 0.5 max.; sapon. no. 0.5 max.; cloud pt. 0 C max.; ref. index 1.455-1.465; 100% act.

Storage: 1 yr. min. storage life stored in sealed containers at temps. below 30 C, protected from humidity

Cetiol® SN [Cognis/Care Chems.; Cognis Canada; Cognis GmbH/Care Chems. http://www.cognis.com]

Chem. Descrip.: Cetearyl isononanoate

CAS 84878-33-1; EINECS/ELINCS 284-424-3

Uses: Emollient, oily component for pharmaceuticals, skin care, sun protection preps.

Features: Hydrophobic

Properties: Colorless to sl. yel. low visc. oily liq., faint intrinsic odor; sp.gr. 0.853-0.856; visc. 19-22 mPa•s; acid no. 0.2 max.; iodine no. 1 max.; sapon. no. 140-146; hyd. no. 1 max.; cloud pt. 15 C max.; ref. index 1.445-1.450

Storage: Protect from frost; 1 yr. min. storage life in closed containers at temps. below 30 C

Cetiol® V [Cognis/Care Chems.; Cognis Canada; Cognis GmbH/Care Chems. http://www.cognis.com]

Chem. Descrip.: Decyl oleate with antioxidant (mixed tocopherols)

CAS 3687-46-5; EINECS/ELINCS 222-981-6

Uses: Penetrating emollient, carrier for lipid sol. substances in pharmaceutical topicals

Regulatory: Austrian Pharmacopoeia

Properties: Yel. low visc. cl. oily liq.; sol. @ 10%; sol. in min. and castor oil, IPM, oleyl alcohol; insol. in water; m.w. 415; dens. 0.86-0.87 g/cm³; visc. 15-20 mPa•s (20 C); HLB 9; acid no. 1 max.; iodine no. 55-65; sapon. no. 130-140; solid. pt. < 0 C; cloud pt. < 5 C; ref. index 1.4555-1.4575 (20 C)

Storage: 1 yr. min. storage stability in sealed original containers at temps. below 30 C in dry environment

Cetomacrogol 1000 BP [Croda Inc http://www.croda.com; http://www.crodausa.com; Croda Chem.

Europe Ltd http://www.croda.co.uk]

Chem. Descrip.: Ceteareth-20 NF, BP

CAS 68439-49-6

Uses: O/w emulsifier, solubilizer for topical pharmaceuticals, creams and lotions, depilatories, antiperspirants

Regulatory: BP compliance

Properties: Wh. to off-wh. solid; sol. in water, IPA, propylene glycol; insol. in min. oil; m.w. 1000; HLB 15.7; nonionic; 100% conc.

Use Level: 0.5-5%

Toxicology: LD50 (oral, rat) 3.6 g/kg; moderate skin irritant, severe eye irritant


Chem. Descrip.: Cocamidopropylhydroxy sulfate See Cocamidopropyl hydroxysultaine

CAS 68139-30-0; EINECS/ELINCS 268-761-3

Uses: Anti-irritant for other surfactants

Properties: Pale yel. liq.; sol. in soft and hard water, brine and conc. electrolyte sol'ns.; amphoteric; 50% conc.


Chem. Descrip.: Cocamidopropyl betaine

CAS 61789-40-0; EINECS/ELINCS 263-058-8

Uses: Surfactant, foaming agent, and visc. builder for medicated shampoos and conditioners

Features: High purity, low color

Properties: Water-wh. liq.; amphoteric; 35% conc.


Chem. Descrip.: Oleth-2

Chem. Analysis: Moisture 1.0% max.; ash 0.4% max.

CAS 9004-98-2

Uses: Solubilizer, emulsifier, dispersant, stabilizer, cosolvent for creams/lotions, fluid and gelled transparent emulsions, aerosols, pharmaceuticals

Features: Lipophilic

Properties: Pale straw-colored cl. liq.; Gardner color 2 max.; bland odor; sol. in min. oil, isopropyl esters, anhyd. ethanol; HLB 5.0; acid no. 0.2 max.; sapon. no. 2 max.; iodine value...
Trade Name Reference

Chemonic® OE-10 [Noveon
http://www.carbopol.com;
http://www.noveoncoatings.com]
Chem. Descrip.: Oleth-10
CAS 9004-98-2
Uses: Emulsifier, stabilizer, solubilizer for pharmaceuticals
Features: Broad electrolyte and pH tolerance
Properties: Wh. semisolid; bland odor; sol. in ethanol, water, hydroalcohols, glycols; HLB 12; cloud pt. 47-55 C; acid no. 0.5 max.; sapon. no. 2 max.; pH 4.5-7.0 (10% aq.); nonionic; 100% conc.

Chemonic® OE-20 [Noveon
http://www.carbopol.com;
http://www.noveoncoatings.com]
Chem. Descrip.: Oleth-20
CAS 9004-98-2
Uses: Emulsifier, stabilizer, solubilizer for pharmaceuticals
Properties: Wh. waxy solid; bland odor; sol. in ethanol, water, hydroalcoholics, glycols; HLB 15; cloud pt. 87-93 C; acid no. 0.5 max.; sapon. no. 2 max.; pH 4.5-7.0 (10% aq.); nonionic; 100% conc.

Chimyl Alcohol 100 [Nikko Chems. Co. Ltd
http://www.nikkol.co.jp/index.html]
Chem. Descrip.: Chimyl alcohol
CAS 506-03-6; EINECS/ELINCS 208-026-6
Uses: Emulsifier, hydrotrope, emollient, emulsion thickener for pharmaceuticals
Features: Oily ingred.
Regulatory: JSCI listed
Properties: Wh. powd.; m.p. 60-70 C; nonionic; 100% conc.

ChiroCLEC™-CR [Merck KGaA
http://www.merck.de]
Chem. Descrip.: Cross-linked enzyme crystals of Candida rugosa lipase
CAS 9001-62-1; EINECS/ELINCS 232-619-9
Uses: Stable catalyst for synthesis of optically pure drugs and peptides; stereoselective catalyst for the resolution of racemic esters, acids, and alcohols; also for regioselective and chemoselective acylations and deacylations
Properties: Dry powd. or slurry; insol. in water and org. solvs.

Cholesterol HP [Solvay Pharmaceuticals BV
http://www.solvayvitamins.nl/]
Chem. Descrip.: Cholesterol
Properties: CAS 57-88-5; EINECS/ELINCS 200-353-2
Uses: Component of liposomes for pharmaceuticals; carrier for medicines and diagnostic substances
Properties: Wh. cryst. powd.

Chroma-Seal™ [DMV Int’l. Pharma
http://www.dmv-international.com]
Chem. Descrip.: Solvent-based ethylcellulose seal coating solution
Uses: Seal coating system for pharmaceutical tablets
Features: Fast drying; applicable by std. or automated fluidized coating equip.; seals moisture-sensitive tablets prior to aq. film coating; provides protective coating and increased shelf life

Cire Lanol® CTO [Seppic
http://www.seppic.com]
Chem. Descrip.: Ceteareth-33 and cetearyl alcohol
Uses: Self-emulsifying base for pharmaceuticals, permitting prep. of all emulsions, esp. fluid emulsions contg. oily phases
Features: Useful for formulations contg. cationics, strong electrolytes, and under variable pH conditions
Regulatory: Complies with BP Cetomacrogol emulsifying wax
Properties: Wh. waxy flakes, pract. odorless; disp. in water; m.p. 50-53 C; acid no. 1 max.; hyd. no. 173-187; cloud pt. 60 C; pH 6.5-7.8 (10% aq.); nonionic; 100% act.

Citation™ 70 [Avatar
http://www.avatarcorp.com]
Chem. Descrip.: Wh. mineral oil NF
CAS 8020-83-5; EINECS/ELINCS 232-455-8
Uses: Release agent, emollient, lubricant, conditioner in pharmaceutical preps. and veterinary ointments
Regulatory: NF, FCC, FDA 21CFR §172.878, 178.3620, 573.680; kosher, USDA H-1 and/or 3H certified; SARA §302, 311/312, 313 nonreportable; CERCLA nonreportable
Properties: Colorless oily liq.; odorless; tasteless; negligibly sol. in water; sol. in hydrocarbons; sp.gr. 0.835-0.854; visc. 165-755 SUS (100 F); vapor pressure < 1.0 mm Hg; pour pt. 20 F; flash pt. 280 F
Toxicology: ACGIH TLV -TWA 5 mg/m³ (oil mist), OSHA PEL 5 mg/m³ (oil mist); nontoxic
Precaution: Avoid excessive heat and open...
Trade Name Reference

**flames, chlorine, fluorine, and other strong oxidizers**

*Hazardous Decomp. Prods.: None*

**NFPA:** Health 0, Flammability 1, Reactivity 0

**Storage:** Store in sealed containers and in cool, well-ventilated area away from strong oxidizers and combustible material

**Citation™ 90** [Avatar http://www.avatarcorp.com]

**Chem. Descrip.:** Wh. mineral oil NF

**CAS 8020-83-5; EINECS/ELINCS 232-455-8**

**Uses:** Release agent, emollient, lubricant, conditioner in pharmaceutical preps. and veterinary ointments

**Regulatory:** FDA 21CFR §172.878, 178.3620, 573.680; USDA H-1 and/or 3H certified

**Properties:** Colorless oily liq.; odorless; tasteless; negligibly sol. in water; sol. in hydrocarbons; sp.gr. 0.839-0.859; visc. 185-905 SUS (100 F); vapor pressure < 1.0 mm Hg; pour pt. 20 F; flash pt. 280 F

**Toxicology:** ACGIH TLV -TWA 5 mg/m3 (oil mist), OSHA PEL 5 mg/m3 (oil mist); nontoxic

**Precaution:** Avoid excessive heat and open flames, chlorine, fluorine, and other strong oxidizers

*Hazardous Decomp. Prods.: None*

**NFPA:** Health 0, Flammability 1, Reactivity 0

**Storage:** Store in sealed containers and in cool, well-ventilated area away from strong oxidizers and combustible material

**Citation™ 100** [Avatar http://www.avatarcorp.com]

**Chem. Descrip.:** White mineral oil USP

**CAS 8020-83-5; EINECS/ELINCS 232-455-8**

**Uses:** Conditioner, solvent, emollient in pharmaceutical ointments

**Regulatory:** USP, FCC, kosher, FDA 21CFR §172.878, 178.3620, 573.680; USDA H-1 and/or 3H certified

**Properties:** Odorless; tasteless; negligibly sol. in water; sol. in hydrocarbons; sp.gr. 0.847-0.868; visc. 200-215 SUS (100 F); vapor pressure < 1.0 mm Hg; pour pt. 20 F; flash pt. (COC) 350 F

**Toxicology:** ACGIH TLV -TWA 5 mg/m3 (oil mist), OSHA PEL 5 mg/m3 (oil mist); nontoxic

**Precaution:** Avoid excessive heat and open flames, chlorine, fluorine, and other strong oxidizers

*Hazardous Decomp. Prods.: None*

**NFPA:** Health 0, Flammability 1, Reactivity 0

**Storage:** Store in sealed containers and in cool, well-ventilated area away from strong oxidizers and combustible material

**Citation™ 180** [Avatar http://www.avatarcorp.com]

**Chem. Descrip.:** White mineral oil USP

**CAS 8020-83-5; EINECS/ELINCS 232-455-8**

**Uses:** Release agent, binder, lubricant for pharmaceutical ointments

**Regulatory:** USP, FCC, kosher, FDA 21CFR §172.878, 178.3620, 573.680; SARA §302, 311/312, 313 nonreportable ; CERCLA nonreportable

**Properties:** Colorless; odorless; tasteless; negligibly sol. in water; sol. in hydrocarbons; sp.gr. 0.859-0.875; visc. 180-190 SUS (100 F); vapor pressure < 1.0 mm Hg; pour pt. 20 F; flash pt. (COC) 350 F

**Toxicology:** ACGIH TLV -TWA 5 mg/m3 (oil mist), OSHA PEL 5 mg/m3 (oil mist); nontoxic

**Precaution:** Avoid excessive heat and open flames, chlorine, fluorine, and other strong oxidizers

*Hazardous Decomp. Prods.: None*

**NFPA:** Health 0, Flammability 1, Reactivity 0

**Storage:** Store in sealed containers and in cool, well-ventilated area away from strong oxidizers and combustible material

**Citation™ 210** [Avatar http://www.avatarcorp.com]

**Chem. Descrip.:** White mineral oil USP

**CAS 8020-83-5; EINECS/ELINCS 232-455-8**

**Uses:** Release agent, binder, lubricant, solvent, conditioner, emollient for pharmaceutical ointments

**Regulatory:** USP, FCC, kosher, FDA 21CFR §172.878, 178.3620, 573.680; USDA H-1 and/or 3H certified

**Properties:** Odorless; tasteless; negligibly sol. in water; sol. in hydrocarbons; sp.gr. 0.847-0.868; visc. 200-215 SUS (100 F); vapor pressure < 1.0 mm Hg; pour pt. 20 F; flash pt. (COC) 350 F

**Toxicology:** ACGIH TLV -TWA 5 mg/m3 (oil mist), OSHA PEL 5 mg/m3 (oil mist); nontoxic

**Precaution:** Avoid excessive heat and open flames, chlorine, fluorine, and other strong oxidizers

*Hazardous Decomp. Prods.: None*

**NFPA:** Health 0, Flammability 1, Reactivity 0

**Storage:** Store in sealed containers and in cool, well-ventilated area away from strong oxidizers and combustible material

**Citation™ 350** [Avatar http://www.avatarcorp.com]
Trade Name Reference

**Chem. Descrip.:** White mineral oil USP
**CAS 8020-83-5; EINECS/ELINCS 232-455-8**
**Uses:** Release agent, binder, lubricant, solvent, conditioner, emollient for pharmaceutical ointments
**Regulatory:** USP, FCC, kosher, FDA 21CFR §172.878, 178.3620, 573.680; USDA H-1 and/or 3H certified
**Properties:** Odorless; tasteless; negligibly sol. in water; sol. in hydrocarbons; sp.gr. 0.850-0.873; visc. 345-365 SUS (100 F); vapor pressure < 1.0 mm Hg; pour pt. 20 F; flash pt. (COC) 350 F
**Toxicology:** ACGIH TLV -TWA 5 mg/m³ (oil mist), OSHA PEL 5 mg/m³ (oil mist); nontoxic
**Precaution:** Avoid excessive heat and open flames, chlorine, fluorine, and other strong oxidizers
**Hazardous Decomp. Prods.:** None
**NFPA:** Health 0, Flammability 1, Reactivity 0
**Storage:** Store in sealed containers and in cool, well-ventilated area away from strong oxidizers and combustible material

Citation™ 550 [Avatar http://www.avatarcorp.com]

**Chem. Descrip.:** White mineral oil USP
**CAS 8020-83-5; EINECS/ELINCS 232-455-8**
**Uses:** Release agent, binder, lubricant, solvent, conditioner, emollient for pharmaceutical ointments
**Regulatory:** USP, FCC, kosher, FDA 21CFR §172.878, 178.3620, 573.680; USDA H-1 and/or 3H certified
**Properties:** Odorless; tasteless; negligibly sol. in water; sol. in hydrocarbons; sp.gr. 0.850-0.873; visc. 345-365 SUS (100 F); vapor pressure < 1.0 mm Hg; pour pt. 20 F; flash pt. (COC) 350 F
**Toxicology:** ACGIH TLV -TWA 5 mg/m³ (oil mist), OSHA PEL 5 mg/m³ (oil mist); nontoxic
**Precaution:** Avoid excessive heat and open flames, chlorine, fluorine, and other strong oxidizers
**Hazardous Decomp. Prods.:** None
**NFPA:** Health 0, Flammability 1, Reactivity 0
**Storage:** Store in sealed containers and in cool, well-ventilated area away from strong oxidizers and combustible material

Cithrol GDO S/E [Croda Chem. Europe Ltd http://www.croda.co.uk]
**Chem. Descrip.:** Glyceryl dioleate SE
**Uses:** Emulsifier, coemulsifier, stabilizer, wetting agent, lubricant for pharmaceuticals
**Properties:** Liq.; HLB 2.9; anionic; 100% conc.

Cithrol GDS N/E [Croda Chem. Europe Ltd http://www.croda.co.uk]
**Chem. Descrip.:** Glyceryl distearate
**Uses:** Emulsifier, coemulsifier, stabilizer, wetting agent, lubricant for pharmaceuticals
**Properties:** Solid; HLB 3.4; nonionic; 100% conc.

Cithrol GDS S/E [Croda Chem. Europe Ltd http://www.croda.co.uk]
**Chem. Descrip.:** Glyceryl distearate SE
**Uses:** Emulsifier, coemulsifier, stabilizer, wetting agent, lubricant for pharmaceuticals
**Properties:** Solid; HLB 4.2; anionic; 100% conc.

Cithrol GML S/E [Croda Chem. Europe Ltd http://www.croda.co.uk]
**Chem. Descrip.:** Glyceryl monostearate
**Uses:** Emulsifier, coemulsifier, stabilizer, wetting agent, lubricant for pharmaceuticals
**Properties:** Liq.; HLB 5.6; anionic; 100% conc.

Cithrol GMO N/E [Croda Chem. Europe Ltd http://www.croda.co.uk]
**Chem. Descrip.:** Glyceryl oleate
**Uses:** Emulsifier, coemulsifier, stabilizer, wetting agent, lubricant for pharmaceuticals
**Properties:** Amber liq./semisolid; HLB 3.3; nonionic; 100% conc.

Cithrol GMS 0400 [Croda Inc http://www.croda.com; http://www.crodausa.com]
**Chem. Descrip.:** Glyceryl stearate
**Uses:** Emulsifier, coemulsifier, stabilizer, wetting agent, lubricant for pharmaceuticals
**Properties:** Amber liq./semisolid; HLB 3.3; nonionic; 100% conc.

Handbook of Pharmaceutical Additives, Third Edition 164
Trade Name Reference

orals

Regulatory: FDA 21CFR §184.1324, GRAS

Properties: Wh. pastille; disp. in min. oil; insol. in water, IPA, propylene glycol; m.p. 55 C; nonionic

Use Level: 1-20%

Cithrol GMS A/S [Croda Chem. Europe Ltd http://www.croda.co.uk]

Chem. Descrip.: Glyceryl stearate and PEG-100 stearate See Glyceryl stearate SE

Uses: Emulsifier, coemulsifier, stabilizer, wetting agent, lubricant for pharmaceuticals; base for creams and ointments

Properties: Wh. waxy solid; HLB 10.9; m.p. 52 C; sapon. no. 96; nonionic; 100% conc.

Cithrol GMS N/E [Croda Chem. Europe Ltd http://www.croda.co.uk]

Chem. Descrip.: Glyceryl stearate

CAS 31566-31-1

Uses: Emulsifier, coemulsifier, stabilizer, wetting agent, lubricant for pharmaceuticals

Properties: Off-wh. solid; HLB 3.4; nonionic; 100% conc.

Cithrol GMS S/E [Croda Chem. Europe Ltd http://www.croda.co.uk]

Chem. Descrip.: Glyceryl stearate SE

CAS 31566-31-1

Uses: Emulsifier, coemulsifier, stabilizer, wetting agent, lubricant for pharmaceuticals

Properties: Solid; HLB 4.4; anionic; 100% conc.

Cithrol PGML S/E [Croda Chem. Europe Ltd http://www.croda.co.uk]

Chem. Descrip.: Propylene glycol laurate SE

Uses: Emulsifier, coemulsifier, stabilizer, wetting agent, lubricant for pharmaceuticals

Properties: Liq.; HLB 3.6; anionic; 100% conc.

Cithrol PGMO S/E [Croda Chem. Europe Ltd http://www.croda.co.uk]

Chem. Descrip.: Propylene glycol oleate SE

Uses: Emulsifier, coemulsifier, stabilizer, wetting agent, lubricant for pharmaceuticals

Properties: Liq.; HLB 3.9; anionic; 100% conc.


Chem. Descrip.: Citric acid anhydrous

CAS 77-92-9; EINECS/ELINCS 201-069-1

Uses: Effervescent in liq. pharmaceutical prods. and microbial stabilizer in creams, lotions, and ointments

Properties: Colorless to wh. cryst. powd.; odorless; acetic taste; sl. deliquescent in moist air; sol. in water (1g/0.5 ml)

Citric Acid FCC Granular [Tate & Lyle N. Am. http://www.tlna.com]

Chem. Descrip.: Citric acid anhydrous

CAS 77-92-9; EINECS/ELINCS 201-069-1

Uses: Effervescent in liq. pharmaceutical prods. and microbial stabilizer in creams, lotions, and ointments

Properties: Colorless to wh. cryst. powd.; odorless; acetic taste; sl. deliquescent in moist air; sol. in water (1g/0.5 ml)


Chem. Descrip.: Citric acid anhydrous

CAS 77-92-9; EINECS/ELINCS 201-069-1

Uses: Effervescent in liq. pharmaceutical prods. and microbial stabilizer in creams, lotions, and ointments

Properties: Colorless to wh. cryst. powd.; odorless; acetic taste; sl. deliquescent in moist air; sol. in water (1g/0.5 ml)

Citric Acid, USP FCC Anhydrous Granular [DSM Nutritional Prods. USA http://www.nutraaccess.com]

Chem. Descrip.: Citric acid USP, FCC, EP

CAS 77-92-9; EINECS/ELINCS 201-069-1

Uses: Acidulant, flavor enhancer in solid/liq. pharmaceuticals and effervescent tablets; trace metal scavenger to protect labile substances

Regulatory: GRAS, USP, FCC

Storage: Store in dry place; avoid excessive exposure to heat and humidity

Citrocoat® [Jungbunzlauer Int'l. AG http://www.jungbunzlauer.com]

Chem. Descrip.: Encapsulated citric acid

CAS 77-92-9; EINECS/ELINCS 201-069-1

Uses: Flavor enhancer in pharmaceutical film-coated tablets, emulsions, and suspensions

Features: Protects against moisture, microorganisms, oxygen, temp., chemical reactions

Regulatory: EP compliance

Properties: Gran.
Trade Name Reference

**Citrofol® AHII** [Jungbunzlauer
http://www.jungbunzlauer.com; Jungbunzlauer Int'l. AG
http://www.jungbunzlauer.com]
Chem. Descr.: Acetyltri-2-ethylhexyl citrate
See Acetyl trioctyl citrate
CAS 144-15-0; EINECS/ELINCS 205-617-0
Uses: Plasticizer for pharmaceutical tablet coatings
Features: Gives exc. flexibility to resins @ low temps.; excellent compatibility with PVC,
Properties: Color <50 APHA; insol. in water; sp. gr. 0.980-0.990; visc. 90.1 mPa*s; b.p. 437 C;
ref. index 1.440 - 1.460; sapon. no. 389 -393 mg KOH/g; pour point -55 C

**Citrofol® AI** [Jungbunzlauer
http://www.jungbunzlauer.com; Jungbunzlauer Int'l. AG
http://www.jungbunzlauer.com]
Chem. Descr.: Triethyl citrate FCC, USP/NF, EP
CAS 77-93-0; EINECS/ELINCS 201-070-7
Uses: Plasticizer in pharmaceuticals (film coated tablets)
Features: Stable to light; sweet, plum-like flavor
Regulatory: FDA 21CFR §184.1911 GRAS; USP approved; E 1505; DOT nonregulated;
CERCLA nonhazardous; SARA nonhazardous
Properties: Colorless/translucent sl. oily liq., free of suspended matter; sl. odor; sol. 6.5 g/100 ml in water; m.w. 276.3; sp.gr. 1.137; visc. 35.2 mPa*s; vapor pressure 1.33 hPa (107 C); b.p. 294 C; sapon. no. 609.20; pour pt. -45.5 C; flash pt. 188 C; ref. index 1.440; 99% min. assay
Toxicology: LD50 (oral, rat) > 3200 mg/kg, (skin, rabbit) > 5000 mg/kg; LC50 (inh., rat, 6 h) 1300 mg/kg; may cause eye and skin irritation; TSCA listed
Environmental: Readily biodeg.
Precaution: Incompat. with strong bases and oxidizing agents
Hazardous Decomp. Prods.: Thermal decomp. may lead to release of irritating gases and vapors
HMIS: Health 1, Flammability 1, Reactivity 0
Storage: Unlimited storage when stored @ R.T. in tightly closed original container in cool, dry place

**Citrofol® AII** [Jungbunzlauer
http://www.jungbunzlauer.com]
Chem. Descr.: Acetyltributyl citrate USP/NF
See Acetyl triethyl citrate
CAS 77-89-4; EINECS/ELINCS 201-066-5
Uses: Plasticizer, carrier, solvent, fixing agent in pharmaceuticals (film coated tablets)
Features: High b.p.; low volatility
Properties: Cl. liq.; odorless; sol. 0.7 g/100 ml in water; dens. 1.037; sp.gr. 1.137; visc. 32 mPa*s; b.p. 164 C (1 mm); pour pt. -63.5 C; flash pt. 204 C; ref. index 1.445; 99% min. assay
Toxicology: LD50 (oral, rat) 5900 mg/kg; nontoxic; may cause skin and eye irritation
Environmental: Readily biodeg.
Precaution: Incompat. with strong bases and oxidizing agents
Hazardous Decomp. Prods.: Thermal decomp. may lead to release of irritating gases and vapors
HMIS: Health 1, Flammability 1, Reactivity 0
Storage: Store @ R.T. in tightly closed original container in dry, cool place

**Citrofol® BI** [Jungbunzlauer
http://www.jungbunzlauer.com]
Chem. Descr.: Tributyl citrate USP/NF
CAS 77-94-1; EINECS/ELINCS 201-071-2
Uses: Plasticizer in pharmaceuticals (film coated tablets)
Properties: Liq.; insol. in water; dens. 1.140; visc. 32 mPa*s; b.p. 164 C (1 mm); pour pt. -63.5 C; flash pt. 185 C; ref. index 1.441
Toxicology: LD50 (oral, rat) 26,300 mg/kg; toxicologically harmless; may cause skin and eye irritation
Environmental: Readily biodeg.
Precaution: Incompat. with strong bases and oxidizing agents
Hazardous Decomp. Prods.: Thermal decomp. may lead to release of irritating gases and vapors
HMIS: Health 1, Flammability 1, Reactivity 0
Storage: Store @ R.T. in tightly closed original container in dry, cool place

**Citrofol® BII** [Jungbunzlauer
http://www.jungbunzlauer.com]
Chem. Descr.: Acetyltributyl citrate USP/NF
See Acetyl tributyl citrate
CAS 77-90-7; EINECS/ELINCS 201-067-0
Uses: Plasticizer for medical, pharmaceuticals (dental forming masses, prostheses, film coating tablets); syn. flavoring agent
Properties: Colorless/translucent sl. oily liq., free of suspended matter; sl. odor; sol. 6.5 g/100 ml in water; m.w. 402.5; sp.gr. 1.045; visc. 33 mPa*s; vapor pressure 1.33 hPa (173 C); b.p. 327 C; sapon. no. 550-558; pour point -59 C; flash pt. 204 C; ref. index 1.445; 99% min. assay
Toxicology: LD50 (oral, rat) 26,300 mg/kg; may cause eye and skin irritation with susceptible persons; TSCA listed
Trade Name Reference

Environmental: Readily biodeg.
Precaution: Incompat. with strong bases and oxidizing agents
Hazardous Decomp. Prods.: Thermal decomp. can lead to release of irritating gases and vapors
HMIS: Health 1, Flammability 1, Reactivity 0
Storage: Unlimited storage when stored @ R.T. in tightly closed original container in cool, dry place

Citronellol 96 FCC [Millennium/F&F http://www.aromachem.com]
Chem. Descrip.: Citronellol See β-Citronellol
CAS 106-22-9; EINECS/ELINCS 203-375-0
Uses: Fragrance, flavor in pharmaceuticals
Regulatory: FDA 21CFR §172.515; DOT: Chemicals n.o.i.
Properties: APHA 20 max. liq.; clean rose floral note; sol. 1 in 2 in 70% alcohol v/v; sp.gr. 0.850-0.860; b.p. 426 F; flash pt. (TCC) 214 F; ref. index 1.454-1.462 (20 C); 94-96% act.
Toxicology: LD50 (oral, rat) 3450 mg/kg, (skin, rabbit) 2650 mg/kg; undiluted liq. may cause skin/eye irritation

Chem. Descrip.: Citronellol See β-Citronellol
CAS 106-22-9; EINECS/ELINCS 203-375-0
Uses: Fragrance, flavor in pharmaceuticals
Regulatory: FDA 21CFR §172.515; DOT: Chemicals n.o.i.
Properties: APHA 20 max. liq.; clean rose floral note; sol. 1 in 2 in 70% alcohol v/v; sp.gr. 0.850-0.860; b.p. 426 F; flash pt. (TCC) 214 F; ref. index 1.454-1.462 (20 C); 94-96% act.
Toxicology: LD50 (oral, rat) 3450 mg/kg, (skin, rabbit) 2650 mg/kg; undiluted liq. may cause skin/eye irritation

Clarity [ABITEC http://www.abiteccorp.com]
Chem. Descrip.: Fractionated partially hydrogenated soybean oil
CAS 8016-70-4; EINECS/ELINCS 232-410-2
Uses: Diluent, lubricant, moisturizer for pharmaceuticals, clinical nutrition, coating, delivery/absorp. enhancement, dermatologicals, nutritional/sports supplements, soft gelatin capsul; moisturizer, lubricant for sun care preps.
Properties: Lovibond 1.5R liq.; m.p. < 70 F; acid no. 0.1 max.; iodine no. 120 max.

Clay BC 347 [MPSI http://www.mp-solutionsinc.com]
Chem. Descrip.: Colloidal kaolin USP
Chem. Analysis: SiO2 (44-46%); Al2O3 (39-41%); CaO (0.30%); Fe2O3 (0.70%)
CAS 1332-58-7; EINECS/ELINCS 296-473-8
Uses: Internal absorbent, diluent, filler, opacifier in pharmaceuticals; suspending agent, opacifier in pharmaceutical creams/lotions; topical and GI absorbent and poultice component in veterinary applics.
Regulatory: DOT nonhazardous; SARA §311/312 reportable, §304/313 nonreportable
Properties: Wh. to buff powd.; odorless; insol. in water; sp.gr. 2.60; dens. 45-52 lb/ft³ (tapped), 18-24 lb/ft³ (loose); dry brightness 86-90; nonflamm.; pH 7-8; 1% max. moisture
Toxicology: ACGIH TLV 10 mg/m³ total dust, 5 mg/m³ respirable dust; long-term overexposure to high concs. of dust may produce x-ray evidence of dust in lungs and may affect respiratory function; TSCA listed
Environmental: No harmful effects known other than those associated with suspended inert solids in water
Precaution: Slippery when wet
Hazardous Ingredients: Inhalable silica not expected to be present in dust at levels exceeding 1%; cryst. silica
Hazardous Decomp. Prods.: None
HMIS: Health 0, Flammability 0, Reactivity 0
Storage: Store in dry area at ambient temps.

Clay BC 638 [MPSI http://www.mp-solutionsinc.com]
Chem. Descrip.: Kaolin USP
Chem. Analysis: SiO2 (44-46%); Al2O3 (38-40%); CaO (0.01-0.04%); MgO (0.20-0.30%); Fe2O3 (0.20-0.40%); TiO2 (1.20-1.60%)
CAS 1332-58-7; EINECS/ELINCS 296-473-8
Uses: Internal absorbent, diluent, filler, opacifier in pharmaceuticals; suspending agent, opacifier in pharmaceutical creams/lotions; topical and GI absorbent and poultice component in veterinary applics.
Regulatory: DOT nonhazardous; SARA §311/312 reportable, §304/313 nonreportable
Properties: Wh. to buff fine powd.; 4 µ median particle size; 99.7% through 325 mesh, 100% through 200 mesh; odorless; insol. in water; sp.gr. 2.60; dens. 53-56 lb/ft³ (tapped), 21-25 lb/ft³ (loose); oil absorp. 24-30; dry brightness
Clearsweet® 99 Refined Liquid Dextrose
[Cargill Foods
http://www.cargillfoods.com]
Chem. Descrip.: Dextrose (99%) See Glucose
Chem. Analysis: Moisture 28.5-29.5%; sulfated ash 0.05% max.; sulfur dioxide 2 ppm max.
CAS 50-99-7; EINECS/ELINCS 200-075-1
Uses: Sweetener, carbohydrate source in fermentation for pharmaceuticals
Regulatory: GRAS 21 CFR §184.1865
Properties: Sp.gr. 1.2821 (20 C); dens. 10.67 lb/gal (20 C); ref. index 1.4395; pH 4.0 (1:1); 71% total solids; 29% moisture
Storage: Store @ R.T.

Cloisonné® [Engelhard]
Chem. Descrip.: Mica pigments coated with titanium dioxide and/or iron oxide with carmine, iron blue, etc. See Ferric oxide
Uses: Highly lustrous pigments with deep colors produced by combination of light interference and light absorption; for analgesic body
### Trade Name Reference

- **lotions, sunscreens, toothpaste**
  - **Properties:** Fine powds.

**Cloronine** [United-Guardian [http://www.u-g.com]]

- **Uses:** Antiseptic, germicide, sanitizer for disinfecting medical/surgical instruments and equip., esp. where autoclaves are not avail.
- **Features:** Esp. rec. where autoclaves are not avail.
- **Properties:** Wh. powd.; rapidly sol. in water

**Clorpactin WCS-90** [United-Guardian [http://www.u-g.com]]

- **Chem. Descrip.:** Oxychlorosene
- **Uses:** Topical bactericide, fungicide, and virucide for treating localized infections; debriding agent for wounds; deodorizer for necrotizing conditions (diabetic gangrene); irrigation of sinus tracts; cleansing and antisepsis of bed-sores; treatment of mastitis in dairy cows
- **Features:** Broad-spectrum
- **Regulatory:** DOT nonregulated
- **Properties:** Wh. to cream powd.; chlorine odor; disp. in water; dens. 1.21 g/cc (tapped); vapor pressure negligible; pH 6.4-6.8 (0.25%); 6-8% avail. Cl
- **Toxicology:** TLV 0.5 ppm (TWA), 1 ppm (STEL); may cause eye/skin irritation; may cause respiratory tract/mucous membrane irritation on inh.
- **Precaution:** Reactive oxidizer; explosive when heated with org. matter, reducing agents, ammonia, etc.; incompat. with org. matter, acids, amines, ammonia, metals; avoid high temps. and humidity
- **Hazardous Decomp. Prods.:** Cl₂, HOCl, HCl; emits toxic and irritating Cl₂ on heating above 175 C
- **Storage:** Store under refrigeration (3-8 C)

**C*Maltidex L 16303** [Cerestar [http://www.cerestar.com]]

- **Chem. Descrip.:** Maltitol syrup
- **CAS 585-88-6; EINECS/ELINCS 209-567-0**
- **Uses:** Plasticizer in gelatin capsules; in medicated confectionery; emollient and humectant in pharmaceutical creams and lotions
- **Features:** High sweetness; low viscosity; low maltitol content
- **Regulatory:** USP/NF, EP
- **Properties:** Cl. colorless syrup; 55% act.

**C*Maltidex M 16311** [Cerestar [http://www.cerestar.com]]

- **Chem. Descrip.:** Maltitol syrup
- **CAS 585-88-6; EINECS/ELINCS 209-567-0**
- **Uses:** Plasticizer in gelatin capsules; in medicated confectionery; emollient and humectant in pharmaceutical creams and lotions
- **Features:** High sweetness; low viscosity; high maltitol content
- **Regulatory:** USP/NF, EP
- **Properties:** Cl. colorless syrup; 75% act.

**C*Maltidex CH 16385** [Cerestar [http://www.cerestar.com]]

- **Chem. Descrip.:** Maltitol syrup
- **CAS 585-88-6; EINECS/ELINCS 209-567-0**
- **Uses:** Plasticizer in gelatin capsules; in medicated confectionery; emollient and humectant in pharmaceutical creams and lotions
- **Features:** High sweetness; nonhygroscopic; suitable for diabetics
- **Regulatory:** USP/NF, EP
- **Properties:** Crystalline wh. powd.; 55% act.

**C*Maltidex M 16311** [Cerestar [http://www.cerestar.com]]

- **Chem. Descrip.:** Maltitol syrup
- **CAS 585-88-6; EINECS/ELINCS 209-567-0**
- **Uses:** Plasticizer in gelatin capsules; in medicated confectionery; emollient and humectant in pharmaceutical creams and lotions
- **Features:** High sweetness; low viscosity; high maltitol content
- **Regulatory:** USP/NF, EP
- **Properties:** Cl. colorless syrup; 75% act.

**CMC Daicel** [Daicel USA]

- **Chem. Descrip.:** Sodium carboxymethyl cellulose See Carboxymethylcellulose sodium
- **CAS 9004-32-4; EINECS/ELINCS 265-995-8**
- **Uses:** Thickener, binder, stabilizer, excipient, protective colloid, suspending agent for pharmaceutical ointments
- **Regulatory:** USP, EP, JP

**CMP-I®** [Am. Casein [http://www.americancasein.com]]

- **Chem. Descrip.:** Milk protein
- **CAS 9000-71-9; EINECS/ELINCS 232-555-1**
- **Uses:** Binder, emulsifier, whitener for medical formulations
- **Features:** Fat sparing props.; low in sodium; low pH tolerant; natural ingred., consumer-friendly labeling
- **Regulatory:** Kosher
- **Properties:** Lt. cream-colored fine powd.; clean,
milk-like flavor; sol. in water; pH 6.8-7.3; 5.5% moisture

Toxicology: Nontoxic; nonsensitizing; nonirritant

Storage: Store in cool, dry place

Chem. Descrip.: High maltose brown rice syrup
Uses: Sweetener for cough drops
Regulatory: Kosher certified
Properties: Dens. 11.8 lb/gal (100 F); visc. 125 poise (100 F); DE 42; pH 6.0-6.6 (5%)

Chem. Descrip.: Clarified high maltose brown rice syrup solids
Uses: Sweetener for cough drops
Features: Patented syrup with further filtration to produce a clear syrup with low flavor profile
Regulatory: Kosher certified
Properties: Off-wh. spray-dried powd., -100 mesh, bland taste or lt. beige drum-dried powd., -30 mesh, caramel flavor; DE 42; pH 6.0-6.6 (5%)

Chem. Descrip.: High maltose brown rice syrup solids
Uses: Sweetener for cough drops
Regulatory: Kosher certified
Properties: Lt. beige drum-dried powd., -30 mesh, caramel flavor or off-wh. spray-dried powd., -100 mesh, bland taste; DE 42; pH 6.0-6.6 (5%)

Chem. Descrip.: Cocamidopropyl phosphatidyl PG-dimonium chloride See Cocamidopropyl PG-dimonium chloride phosphate
Uses: Anti-irritant, antimicrobial for skin, eyes, baby care prods., personal care, and health care prods.
Features: Mild
Properties: Yel. cl. liq.; sp.gr. 1.02 (25 C); pH 6.5 (10%); 47% solids
Toxicology: Sl. skin irritant; mild eye irritant

Chem. Descrip.: Disodium ricinoleamido MEA sulfoxuccinate See Disodium ricinoleamido MEA-sulfoxuccinate
Uses: Anti-irritant for anionics
Features: Mild; compat. with lauryl sulfates, lauryl ether sulfates, alpha olefin sulfonates, amides, and betaines; imparts a smooth feel to skin after drying; provides detergency to tablets, monovitamin and multivitamin tablets, dry preps.)
Trade Name Reference
formulations without irritation

Properties: Amber cl. liq.; pH 5.5-7.5 (10% aq.); 39% min. solids

Chem. Descrip.: Disodium lauroamphodiacetate
CAS 14350-97-1; EINECS/ELINCS 238-306-3
Uses: Anti-irritant for personal care, skin cleansers, shampoos, bath care
Features: Mild
Properties: Cl. visc liq.; pH 9.0 (10%); 31% act.; 38% solids

Chem. Descrip.: Cold pressed grapefruit oil
See Grapefruit (Citrus grandis) oil
CAS 8016-20-4
Uses: Nat. flavor for pharmaceuticals
Properties: Cl. to pale yel. oil; sweet grapefruit aroma; sol. in benzyl benzoate and min. oil; sl. sol. in PG; insol. in water and glycerine; sp.gr. 0.848-0.858; vapor pressure 2 mm Hg (20 C); b.p. 349 F; flash pt. (CC) 48 C; ref. index 1.4750-1.4780; 98% volatile
Toxicology: Mod. irritant to skin, eyes, nose, and throat; sl. allergen; mod. ing. and sl. inh. hazard
Precaution: Combustible; keep away from heat, sparks, open flame; incompat. with strong oxidizing agents
Hazardous Ingredients: None
HMIS: Health 1, Flammability 2, Reactivity 0
Storage: Store @ < 21 C in well-ventilated, covered area; once opened, head space should be purged with inert gas and tightly resealed

Chem. Descrip.: Hydrolyzed rice peptides with preservative Phenonip® (0.5%) See Ethylparaben; Methylparaben; Phenoxyethanol; Phenoxyethanol; Propylparaben
CAS 94350-05-7
Uses: Collagenase inhibitor, UV absorber, moisturizer, anti-aging agent, protectant for skin care
Properties: Yel. cl. sol’n.; sp.gr. 1.050-1.100 (20 C); ref. index 1.368-1.371 (25 C); pH 5.5-6.5
Storage: 2 yr. shelf life when stored in the original sealed containers protected from light in a clean and cool place at temps. between 4-8 C; in order to avoid secondary microbial contamination after opening, containers should be handled with special care

Colloidal Kaolin BC 825 [MPSI http://www.mp-solutionsinc.com]
Chem. Descrip.: Kaolin USP (95%), bentonite (5%)
Chem. Analysis: SiO₂ (43-47%); Al₂O₃ (36-40%); CaO (0.04-0.08%); MgO (0.20-0.40%); Fe₂O₃ (0.20-0.40%); TiO₂ (1.20-2.20%)
Uses: Internal absorbent, diluent, filler, opacifier in pharmaceuticals; suspending agent, opacifier in pharmaceutical creams/lotions; topical and GI absorbent and poultice component in veterinary applics.
Features: Medicinal grade
Regulatory: USP
Properties: Wh. to buff fine powd.; 99.8% through 325 mesh, 100% through 200 mesh; odorless; insol. in water; sp.gr. 2.58; dens. 32-38 lb/ft³ (tapped), 12-18 lb/ft³ (loose); oil absorp. 49-53; dry brightness 88-92; nonflamm.; pH 6.5-8.5; 1% max. moisture; 0% volatiles
Toxicology: ACGIH TLV 10 mg/m³ (total nuisance dust), 5 mg/m³ (respirable nuisance dust); may cause delayed respiratory disease if dust is inhaled over prolonged period
Precaution: Very slippery when wet
Hazardous Ingredients: Cryst. silica
Hazardous Decomp. Prods.: None
HMIS: Health 0, Flammability 0, Reactivity 0

Colloidal Kaolin BC 2457 [MPSI http://www.mp-solutionsinc.com]
Chem. Descrip.: Colloidal kaolin USP
Chem. Analysis: SiO₂ (44-46%); Al₂O₃ (37-40%); CaO (0.03-0.06%); MgO (0.20-0.40%); Fe₂O₃ (0.20-0.40%); TiO₂ (1.50-2.00%)
CAS 1332-58-7; EINECS/ELINCS 296-473-8
Uses: Internal absorbent, diluent, filler, opacifier in pharmaceuticals; suspending agent, opacifier in pharmaceutical creams/lotions; topical and GI absorbent and poultice component in veterinary applics.
Regulatory: DOT nonhazardous; SARA §311/312 reportable, §304/313 nonreportable
Properties: Wh. to buff powd.; 0.60 µ median particle size; 99.8% through 325 mesh; 100%
Trade Name Reference

through 200 mesh; odorless; insol. in water; sp.gr. 2.60; dens. 33-39 lb/ft³ (tapped), 12-16 lb/ft³ (loose); oil absorp. 36-40; dry brightness 88-91; nonflamm.; pH 6.7-7.7; 1% max. moisture; 0% volatiles

Toxicology: ACGIH TLV 10 mg/m³ total dust, 5 mg/m³ respirable dust; long-term overexposure to high concs. of dust may produce x-ray evidence of dust in lungs and may affect respiratory function; TSCA listed

Environmental: No harmful effects known other than those associated with suspended inert solids in water

Precaution: Slippery when wet

Hazardous Ingredients: Inhalable silica not expected to be present in dust at levels exceeding 1%; cryst. silica

Hazardous Decomp. Prods.: None

HMIS: Health 0, Flammability 0, Reactivity 0

Storage: Store in dry area at ambient temps.

Colloidal Kaolin BC 2749 [MPSI http://www.mp-solutionsinc.com]

Chem. Descrip.: Colloidal kaolin USP

Chem. Analysis: SiO₂ (44-46%); Al₂O₃ (38-41%); CaO (0.02-0.05%); MgO (0.20-0.40%); Fe₂O₃ (0.20-0.40%); TiO₂ (1.30-1.80%)

CAS 1332-58-7: EINECS/ELINCS 296-473-8

Uses: Internal absorbent, diluent, filler, opacifier in pharmaceuticals; suspending agent, opacifier in pharmaceutical creams/lotion; topical and GI absorbent and poultice component in veterinary applics.

Regulatory: USP, DOT nonhazardous; SARA §311/312 reportable, §304/313 nonreportable

Properties: Wh. to buff powd.; 1.00 µ median particle size; 99.9% through 200 mesh; odorless; insol. in water; sp.gr. 2.60; dens. 33-39 lb/ft³ (tapped), 12-17 lb/ft³ (loose); oil absorp. 38-42; dry brightness 87-91; nonflamm.; pH 6.7-7.7; 1% max. moisture

Toxicology: ACGIH TLV 10 mg/m³ total dust, 5 mg/m³ respirable dust; long-term overexposure to high concs. of dust may produce x-ray evidence of dust in lungs and may affect respiratory function; TSCA listed

Environmental: No harmful effects known other than those associated with suspended inert solids in water

Precaution: Slippery when wet

Hazardous Ingredients: Inhalable silica not expected to be present in dust at levels exceeding 1%; cryst. silica

Hazardous Decomp. Prods.: None

HMIS: Health 0, Flammability 0, Reactivity 0

Storage: Store in dry area at ambient temps.


Chem. Descrip.: Ammonium laureth sulfate

CAS 32612-48-9

Uses: Foaming agent, solubilizer, wetting agent for antiseptic creams, contraceptive foams, diaper rash preventives

Features: Low cloud pt.

Properties: Mild, pleasant odor; visc. thixotropic at R.T.; cloud pt. 0 C; pH 6.7 (10%); 27% act.; 1% NH₄Cl

Storage: Good storage stability, but not rec. to store for more than 1 yr.


Chem. Descrip.: Ammonium laureth sulfate

CAS 32612-48-9
Trade Name Reference

Uses: Foaming agent, solubilizer, wetting agent for antiseptic creams, contraceptive foams, diaper rash preventives
Features: Low cloud pt.
Properties: Mild, pleasant odor; visc. 300 cps; cloud pt. -5 C; pH 6.7 (10%); 27% act.; 0.5% NH₄Cl
Storage: Good storage stability, but not rec. to store for more than 1 yr.

Chem. Descrip.: Mineral oil, lanolin alcohols See Lanolin alcohol
Uses: Primary o/w emulsifier, sec. o/w emulsion stabilizer, penetrant, emollient, moisturizer, humectant for topical pharmaceuticals, creams/lotions, lip care, and ointments
Properties: Yel. hazy liq.; odorless; sp.gr. 0.84-0.86; acid no. 1.0 max.; iodine no. 12 max.; sapon. no. 2.0 max.; hyd. no. 15 max.; nonionic; 0.2% max. moisture

Chem. Descrip.: Glyceryl monolaurate See Glycerin laurate
CAS 142-18-7; EINECS/ELINCS 205-526-6
Uses: Emollient, antimicrobial, emulsifier for pharmaceuticals, wound healing ointments, skin care, psoriasis treatment; penetrant for actives such as lidocaine, capsaicin into skin; emulsion stabilizer; anticaries agent, plaque inhibitor in toothpaste and mouth rinses
Features: Strong emulsifier; stable to oxidation; strong self-preservation activity
Regulatory: FDA 21CFR §121.2520(c)(5), 177.1200
Properties: Wh. flake or wh. powder; low odor; disp. in water; dissolves in oil; m.p. 59-60 C; iodine no. 1 max.; sapon. no. 200-210; 90% min. monoester
Use Level: 0.1-5.0%
Toxicology: Virtually no skin irritation
Storage: 36 mo shelf life when kept in cool and dry area; avoid severe heating for prolonged periods

Chem. Descrip.: Glyceryl laurate
CAS 142-18-7; EINECS/ELINCS 205-526-6
Uses: For pharmaceutical products
Features: Stability to oxidation; low odor; pure wh. color; potent emulsification; antimicrobial activity
Properties: Disp. in water
Use Level: 0.1-5.0%
Toxicology: Virtually no skin irritation

Compactrol® [JRS Pharma http://www.jrspharma.com]
Chem. Descrip.: Calcium sulfate dihydrate NF, FCC
CAS 10101-41-4; EINECS/ELINCS 231-900-3
Uses: Filler, flow aid for direct compression of pharmaceutical tablets and capsules
Features: Economical; nonhygroscopic; exc. long term stability
Regulatory: NF/FCC compliance
Properties: Wh. to sl. off-wh. free-flowing powd., odorless; 106 µm avg. particle size; >85% on #14 mesh; dens. (tapped) 1.24 g/ml; 100% conc.

Chem. Descrip.: Cocamide DEA and glycerin
Uses: Foaming agent, visc. builder, emulsifier, solvent for pharmaceuticals
Properties: Yel. cl. liq.; solid. pt. -5 to 5 C; pH 9.5-10.5 (2%); 85% conc.

Compressol™ S Co-Processed Polyol [SPI Pharma http://www.spipharma.com]
Chem. Descrip.: Mannitol and sorbitol See D-Mannitol
Chem. Analysis: 0.6% max. moisture
CAS 69-65-8; 50-70-4; EINECS/ELINCS 200-061-5; 200-711-8
Uses: Excipient in direct compression
Regulatory: USP
Properties: Wh. free-flowing powd.1 % max. through #14 mesh, 20% max. through #140 mesh; m.p. 165-170 C; 97.0-102.0% polyols
Storage: Store away from excessive temperatures and humidity @ 25 C and 50% r.h.

Chem. Descrip.: Tribehenin
CAS 18641-57-1; EINECS/ELINCS 242-471-7
Uses: Excipient, lubricant, stabilizer for pharmaceutical tablets/capsules, controlling sustained release in tablets
Features: Protects the drug
Properties: Nonionic
Chem. Descrip.: Tribehenin
CAS 18641-57-1; EINECS/ELINCS 242-471-7
Uses: Formulation aid, excipient, lubricant, viscosifier, stiffener, binder for pharmaceutical tablets/capsules; controlled release agent for short half-life drugs; improves compressibility
Features: Lipophilic
Regulatory: FDA 21CFR §184.1328 GRAS; USP/NF, EP, and JSFA compliance; DMF no. 4663
Properties:
- Wh. to off-wh. fine powd. (spherical particles), faint odor, tasteless; 85% through 250 mesh; sol. hot in chloroform, methylene chloride; insol. in water, min. oil, ethanol; m.p. 69-74 C; HLB 2.0; acid no. < 4; iodine no. < 3; sapon. no. 145-165; nonionic; 100% conc.
Use Level: 0.5-4% (tablets, capsules); 10-30% (sustained-release formulations)
Toxicology: LD0 (oral, rat) > 5 g/kg
Storage: Preserve in orig. container; store below 35 C; prevent exposure to air, light, heat, and moisture

Chem. Descrip.: PEG-8 behenate and tribehenin
Uses: Excipient, lubricant, visc. builder, stiffener, and brightening agent for pharmaceuticals; tableting agent and lipophilic matrix
Properties:
- Drop pt. ≈ 62 C; HLB 5.0; acid no. < 4; iodine no. < 3; sapon. no. 105-125

Conacure® AH-35 [Cytec Conap http://www.conap.com]
Chem. Descrip.: Hydroxyl terminated tetrafunctional polyols based on castor oil
Uses: Curing agent for biomedical sealants
Properties:
- Gardner 4-6 color; sp.gr. 0.990; dens. 8.2 lb/gal; visc. 1500-2000 cps; acid no. 3.0; hyd. no. 300-350; equiv. wt. 162-173; 100% solids

Copherol® 1250 [Cognis/Nutrition & Health]
Chem. Descrip.: d-α-Tocopheryl acetate USP, FCC
CAS 58-95-7; EINECS/ELINCS 231-710-0
Uses: Vitamin source, antioxidant, protectant, and moisturizer for pharmaceuticals, sun protection
Features: Natural source; stable to air, light, acid
Regulatory: USP, FCC compliance; kosher certified
Properties:
- Yel. cl. visc. oil, nearly odorless; sol. in ethanol; misc. with acetone, ether, chloroform, veg. oils; insol. in water; m.w.
Trade Name Reference

472.75; sp.gr. 0.94-0.96 g/cm³; 1250 IU/g
Use Level: 2-5% (skin care prods.); up to 20% (sun protectants)
Storage: Protect from heat, light, freezing; 1 yr. shelf life stored cold in unopened original pkg.; unstable to alkalins and oxidizing agents

Copherol® F-1300 [Cognis/Nutrition & Health]
Chem. Descrip.: D-α-Tocopherol USP, FCC
CAS 59-02-9; EINECS/ELINCS 200-412-2
Uses: Vitamin source, antioxidant, protectant, and moisturizer for pharmaceuticals, sun protection
Features: Natural source
Regulatory: USP, FCC compliance; kosher certified
Properties: Amber cl. visc. oil, mild to bland odor and taste; sol. in ethanol; misc. with acetone, ether, chloroform, veg. oils and fats; insol. in water; m.w. 430.69; sp.gr. 0.94-0.96 g/cm³; 1300 IU/g
Use Level: 2-5% (skin care prods.), up to 20% (sun protectants)
Precaution: Unstable to acid, light, alkali, and oxidizing agents
Storage: Store in tightly closed containers; protect from heat and light; use promptly once opened; 12 mos. shelf life stored cold in original unopened containers

Chem. Descrip.: Coriolus versicolor mushroom extract
Uses: Dietary supplement in pharmaceutical prods.
Properties: Brn. fine powd.; 95% through 60 mesh; 70.6% carbohydrates, < 6% moisture
Storage: Store in cool room (5-10 C) in sealed polyethylene bag

CornSweet® Crystalline Fructose [ADM Corn Processing http://www.adm.org/naen/ahn/cornprocessing.asp; MLG Enterprises]
Chem. Descrip.: Fructose FCC/USP
Uses: Sweetener offering intense sweetness, sweetness synergism, flavor enhancement, humectancy, low water activity, f.p. depression, high osmotic pressure
Properties: Wh. free-flowing cryst., odorless, clean very sweet taste; 1% max. on 16 mesh, 10% max. through 100 mesh; bulk dens. 52 lb/ft³; m.p. 103 C; 99.9% act.
Storage: Store @ 25 C and 50% r.h.
**Cosmica®** [Engelhard]

*Uses:* Pigment series where absorption colors are deposited directly on the mica, creating highly intense effects with minimal luster; suitable for analgesic body lotions, sunscreens, toothpaste

*Features:* Absorption colors are deposited directly on the mica, creating highly intense effects with minimal luster

**Cosmolloid® 60** [Honeywell Spec. Wax & Addit. http://www.acwax.com]

*Chem. Descrip.:* Microcrystalline wax

*Uses:* Emulsifier, rheological control agent in pharmaceutical preps. including ointments and salves, suppositories

*Features:* Inert; superior color, UV stability


*Chem. Descrip.:* Microcrystalline wax

*Chem. Analysis:* Oil content 2% max.


*Chem. Descrip.:* Microcrystalline wax

*Chem. Analysis:* Oil content 2% max.
Trade Name Reference

UN 3257

Uses: Emulsifier, rheological control agent in pharmaceutical preps. including ointments and salves, suppositories

Features: Inert; superior color, UV stability

Regulatory: FDA 21 CFR §172.886, 178.3710; SARA §311 Immediate Health Hazard; DOT regulated when transported @ > 212 F; meets USP, BP, DAB, EP standards; RCRA, CERCLA nonreportable; Canada DSL; Europe EINECS; Australia; Korea; Philippines PICCS; China

Properties: Wh. to yel. liq.; color 2.5; visc. 14-20 cSt @ 100 C; congealing pt. 77-82 C; penetration 13-19 dmm

Toxicology: LD50 (oral) > 5 g/kg (cooled powd.); contact with molten material will cause thermal burns; will cause burns with eye contact; exposure to fumes may cause eye, nose, throat irritation; TSCA listed

Precaution: Wear insulated gloves, chemical goggles when working with molten material; incompat. with strong oxidizers

Hazardous Decomp. Prods.: CO, CO2, hazardous gases

Storage: Store away from excessive heat, strong oxidizers


Chem. Descrip.: Microcrystalline wax

Uses: Emulsifier, rheological control agent in pharmaceutical preps. including ointments and salves, suppositories

Features: Inert; superior color, UV stability


Properties: Liq.; color 2.5; visc. 14-20 cSt @ 100 C; congealing pt. 77-82 C; penetration 13-19 dmm


Chem. Descrip.: Microcrystalline wax

Uses: Emulsifier, rheological control agent in pharmaceutical preps. including ointments and salves, suppositories

Features: Inert; superior color, UV stability

Regulatory: FDA 21 CFR §172.886, 178.3710; SARA §311 Immediate Health Hazard; DOT regulated when transported @ > 212 F; meets USP, BP, DAB, EP standards; RCRA, CERCLA nonreportable; Canada DSL; Europe EINECS; Australia; Korea; Philippines PICCS; China

Properties: Wh. to yel. liq.; color 0.5; char. waxy odor; negligible sol. in water; sp.gr. 0.84-0.86; visc. 18-23 cSt @ 100 C; congealing pt. 88-91 C; flash pt. (COC) > 243 C; penetration 7-10 dmm

Toxicology: LD50 (oral) > 5 g/kg (cooled powd.); contact with molten material will cause thermal burns; will cause burns with eye contact; exposure to fumes may cause eye, nose, throat irritation; TSCA listed

Precaution: Wear insulated gloves, chemical goggles when working with molten material; incompat. with strong oxidizers

Hazardous Decomp. Prods.: CO, CO2, hazardous gases

Storage: Store away from excessive heat, strong oxidizers
Trade Name Reference

oxidizers

Chem. Descrip.: Synthetic wax
Uses: Emulsifier, rheological control agent in pharmaceutical preps. including ointments and salves, suppositories
Features: Inert; superior color, UV stability; increases opacity, hardness; improved oil/fragrance retention
Regulatory: Meets USP, BP, DAB, EP standards; RCRA nonreportable; DOT not regulated; Canada DSL; Europe EINECS; Australia; Korea; Philippines PICCS; China
Properties: Wh. pellets or slab; negligible sol. in water; sp.gr. 0.92; visc. 250-380 cSt @ 100 C; congealing pt. 68-79 C; flash pt. (OC) > 176 C; penetration 3-7 dmm
Use Level: 1-4%
Toxicology: May be mild skin irritant; TSCA listed
Precaution: Wear chemical goggles, chemical resistant gloves for prolonged, repeated exposure; incompat. with strong oxidizers
Hazardous Decomp. Prods.: Dense smoke, irritating or poisonous gases
Storage: Avoid excessive heat, strong oxidizers

Chem. Descrip.: Synthetic wax
Uses: Emulsifier, rheological control agent in pharmaceutical preps. including ointments and salves, suppositories
Features: Inert; superior color, UV stability
Regulatory: Meets USP, BP, DAB, EP standards
Properties: Wh. to ivory; congealing pt. 80-90 C
Storage: Store @ < 86 F in cool, dry place out of direct sunlight

Chem. Descrip.: Synthetic wax
CAS 9002-88-4
Uses: Emulsifier, rheological control agent in pharmaceutical preps. including ointments and salves, suppositories
Features: Inert; superior color, UV stability
Regulatory: DOT not regulated; meets USP, BP, DAB, EP standards; RCRA, CERCLA nonreportable; Canada DSL; Europe EINECS; Australia; Korea; Japan ENCS; Philippines PICCS; China
Properties: Wh. to ivory pellets or slabs; char. waxy odor; negligible sol. in water; sp.gr. 0.92-0.98; congealing pt. 64-72 C; flash pt. (OC) > 176 C; penetration 10-15 dmm
Toxicology: LD50 (oral, rat) > 2 g/kg (based on other polyethylene material); may be mild skin irritant; TSCA listed
Precaution: Wear chemical goggles around molten material, chemical resistant gloves for prolonged, repeated exposure; spills may be slippery; incompat. with strong oxidizers
Hazardous Decomp. Prods.: CO, CO2, hazardous gases
Storage: Avoid excessive heat, strong oxidizers

Chem. Descrip.: Synthetic wax
Uses: Emulsifier, rheological control agent in pharmaceutical preps. including ointments and salves, suppositories
Features: Inert; superior color, UV stability
Properties: Saybolt color 28 min.; visc. 8-10 cSt @ 100 C; congealing pt. 74-76 C; penetration 5-8 dmm @ 25 C, 15-20 dmm @ 43.3 C

Chem. Descrip.: Synthetic wax
Uses: Emulsifier, rheological control agent in pharmaceutical preps. including ointments and salves, suppositories
Features: Inert; superior color, UV stability
Regulatory: DOT not regulated; FDA 21 CFR §172.886, 178.3710; meets USP, BP, DAB, EP standards; RCRA, CERCLA nonreportable; Canada DSL; Europe EINECS; Australia; Korea; Japan ENCS; Philippines PICCS; China
Properties: Whitish pellets; Saybolt color 28 min.; char. waxy odor; negligible sol. in water; sp.gr. 0.98; visc. 9-11 cSt @ 100 C; congealing pt. 69-71 C; flash pt. (OC) > 175 C; penetration 5-8 dmm @ 77 F, 16-20 dmm @ 110 F
Toxicology: May be mild skin irritant; TSCA listed
Precaution: Wear chemical goggles around molten material, chemical resistant gloves for prolonged, repeated exposure; spills may be slippery; incompat. with strong oxidizers
Hazardous Decomp. Prods.: CO, CO2, hazardous gases
Storage: Avoid excessive heat, strong oxidizers
Trade Name Reference

Chem. Descrip.: Petrolatum
Uses: Emulsifier, rheological control agent in pharmaceutical preps. including ointments and salves, suppositories
Features: Inert; superior color, UV stability
Regulatory: Meets USP, BP, DAB, EP standards
Properties: Lovibond color 1.0Y max. (2" cell); visc. 5 cSt min. @ 100 C; congealing pt. 45-55 C; penetration 140-170 dmm

Chem. Descrip.: Petrolatum
Uses: Emulsifier, rheological control agent in pharmaceutical preps. including ointments and salves, suppositories
Features: Inert; superior color, UV stability
Regulatory: Meets USP, BP, DAB, EP standards
Properties: Lovibond color 1.5Y max. (2" cell); visc. 9 cSt min. @ 100 C; congealing pt. 46-56 C; penetration 160-180 dmm

Chem. Descrip.: Petrolatum
Uses: Emulsifier, rheological control agent in pharmaceutical preps. including ointments and salves, suppositories
Features: Inert; superior color, UV stability
Regulatory: Meets USP, BP, DAB, EP standards
Properties: Lovibond color 0.5Y max. (2" cell); visc. 9 cSt min. @ 100 C; congealing pt. > 50 C; penetration 150-170 dmm

Chem. Descrip.: Petrolatum
Uses: Emulsifier, rheological control agent in pharmaceutical preps. including ointments and salves, suppositories
Features: Inert; superior color, UV stability
Regulatory: Meets USP, BP, DAB, EP standards
Properties: Lovibond color 0.5Y (2" cell); visc. 9-12 cSt min. @ 100 C; congealing pt. 55-65 C; penetration 160-180 dmm

Chem. Descrip.: Petrolatum
Uses: Emulsifier, rheological control agent in pharmaceutical preps. including ointments and salves, suppositories
Features: Inert; superior color, UV stability
Regulatory: Meets USP, BP, DAB, EP standards
Properties: Lovibond color 30Y + 2.5R (2" cell); visc. 6-9 cSt min. @ 100 C; congealing pt. 45-52 C; penetration 155-180 dmm

Chem. Descrip.: Petrolatum
Uses: Emulsifier, rheological control agent in pharmaceutical preps. including ointments and salves, suppositories
Features: Inert; superior color, UV stability
Regulatory: Meets USP, BP, DAB, EP standards
Properties: Lovibond color 0.5Y (2" cell); visc. 9-12 cSt min. @ 100 C; congealing pt. 55-65 C; penetration 160-180 dmm

Chem. Descrip.: Synthetic wax
Uses: Emulsifier, rheological control agent in pharmaceutical preps. including ointments and salves, suppositories
Features: Inert; superior color, UV stability
Regulatory: Meets USP, BP, DAB, EP standards
Properties: Wh. to ivory; congealing pt. 80-85 C; penetration 2.5-5.0 dmm
Storage: Store in cool, dry place

Cosmowax [Croda Inc http://www.croda.com; http://www.crodausa.com]
Chem. Descrip.: Stearyl alcohol, steareth-20, steareth-10
Uses: Self-emulsifying wax, emulsifier, stabilizer for pharmaceuticals, creams and lotions, antiperspirants
Properties: Creamy wh. waxy solid, low odor; m.p. 47-55 C; acid no. 0.5 max.; iodine no. 2 max.; sapon. no. 1 max.; nonionic; 100% conc.

Cosmowax BP [Croda Inc http://www.croda.com; http://www.crodausa.com]
Chem. Descrip.: Cetearyl alcohol and ceteareth-20
Uses: Emulsifying wax, wetting agent, penetrant, stabilizer in pharmaceuticals
Features: Self-bodying; produces stable emulsions; unaffected by alkali or acids; tolerates metallic salts if not in excess
Properties: Wh. waxy flake; mild char. odor; m.p. 45-50 C; acid no. ≤ 1.0; iodine no. ≤ 1.0; nonionic
Use Level: 5-20%
Storage: Failure to store at < 90 F can cause coagulation

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Trade Name Reference

Cosmowax J [Croda Inc
http://www.croda.com;
http://www.crodausa.com; Croda Chem.
Europe Ltd http://www.croda.co.uk]
Chem. Descr.: Cetearyl alcohol and
ceteareth-20
Uses: O/w emulsifier, stabilizer, bodying
agent, opacifier, and conditioner for
pharmaceutical creams
Properties: Creamy wh. waxy solid; low odor;
HLB 8.5; m.p. 47-55 C; acid no. 0.5 max.;
iodine no. 2 max.; sapon. no. 1 max.; nonionic;
100% conc.
Use Level: 2-15%

Cosmowax K [Croda Inc
http://www.croda.com;
http://www.crodausa.com]
Chem. Descr.: Stearyl alcohol and
ceteareth-20
Uses: Emulsifier, stabilizer, bodying agent,
opacifier, and conditioner for
pharmaceuticals
Properties: Creamy wh. waxy solid; low odor;
HLB 8.0; m.p. 55-63 C; acid no. 0.5 max.;
iodine no. 2 max.; sapon. no. 1 max.; nonionic;
100% conc.
Use Level: 2-10%

Covi-Ox® T-70 [Cognis/Nutrition & Health;
Cognis/Care Chems.; Cognis Canada]
Chem. Descr.: Tocopherol
CAS 1406-18-4; EINECS/ELINCS 215-798-8
Uses: Blocking agent for nitrosamine
formation in lip balms
Features: Natural
Properties: Brwnsh. red visc. liq.; 70% min. total
tocopherols

Covi-Ox® T-90 [Cognis/Nutrition & Health]
Chem. Descr.: Mixed tocopherol conc.
NF/FCC (typically 14% d-α, 2% d-β, 60% d-γ,
24% d-δ
CAS 1406-18-4; EINECS/ELINCS 215-798-8
Uses: γ-tocopherol source in nutritional
supplements
Features: Low volatility; exc. carry-through
chars.
Regulatory: Kosher
Properties: Brownish-red cl. visc. oil; bland to
mild odor and taste; misc. with org. solvs., veg.
oils, animal fats; sparingly sol. in abs. ethanol;
insol. in water; sp.gr. 0.94-0.96 g/cm³
Precaution: Unstable to acid, light, alkali,
oxidizing agents

Storage: 36 mos. shelf life when stored @ 15-30
C in unopened original container; protect from
heat, light, and air in tightly closed containers;
do not refrigerate

Covitol® 700 [Cognis/Nutrition & Health]
Chem. Descr.: D-α-Tocopherol USP on
silicon dioxide carrier, surf. treated with gum
acacia See Acacia; Silica
Uses: Nutrient, dietary supplement for
chewable tablets and two-piece capsules
Features: Stable to air and light; unstable to
alkali and acid
Properties: Wh. to lt. cream free-flowing gran.
powd.; bland odor and taste; 60% through 40
mesh, 10% through 120 mesh; insol. in water
and org. solvs.; bulk dens. 0.40-0.50 g/cm³
Storage: 1 yr. shelf life in unopened original
container; protect from heat, light, moisture,
and freezing

Covitol® 700 WD [Cognis/Nutrition & Health]
Chem. Descr.: D-α-Tocopherol USP/FCC in
carrier of gum acacia, surf. treated See
Acacia
Uses: Nutrient, dietary supplement for dry
powd. mixes and effervescent tablets that
are added to water
Features: Stable to air and light; unstable to
alkali and acid
Regulatory: Kosher
Properties: Lt. tan fine powd.; bland odor and
taste; water-disp.; insol. in org. solvs.
Storage: 1 yr. shelf life in unopened original
container; protect from heat, light, moisture,
and freezing

Covitol® 1100 [Cognis/Nutrition & Health]
Chem. Descr.: Tocopheryl acetate
CAS 1406-70-8; EINECS/ELINCS 231-710-0
Uses: Antioxidant; pharmaceutical grade
natural Vitamin E
Properties: 809 mg/g min. assay

Covitol® 1185 [Cognis/Nutrition & Health]
Chem. Descr.: Tocopheryl succinate
CAS 4345-03-3; EINECS/ELINCS 224-403-8
Uses: Antioxidant; pharmaceutical grade
natural Vitamin E
Properties: Wh. gran. powd.; bland odor; 960
mg/g min. assay

Covitol® 1210 [Cognis/Nutrition & Health]
Chem. Descr.: Tocopheryl succinate
CAS 4345-03-3; EINECS/ELINCS 224-403-8
Uses: Antioxidant; pharmaceutical grade
natural Vitamin E for use in pharmaceutical
**Trade Name Reference**

**tablets, multivitamins, chewable tablets**

*Properties*: Wh. to off-wh. cryst. powd. with little to no odor or taste; 960 mg/g min. assay

**Covitol® 1360** [Cognis/Nutrition & Health]

*Chem. Descrip.:* Tocopheryl acetate  
*CAS 1406-70-8; EINECS/ELINCS 231-710-0*  
*Uses: Antioxidant for pharmaceuticals*  
*Features: Pharmaceutical grade natural Vitamin E*  
*Properties*: Wh. to off-wh. cryst. powd. with little to no odor or taste; 960 mg/g min. assay

**Covitol® 1360J** [Cognis/Nutrition & Health]

*Chem. Descrip.:* d-α-Tocopheryl acetate  
*USP/FCC CAS 58-95-7; EINECS/ELINCS 231-710-0*  
*Uses: Nutrient, dietary supplement liq. prep. and food fortification; in softgel capsules*  
*Features: Stable to air, light, acids*  
*Regulatory: Kosher*  
*Properties*: Very pale yel. cl. visc. oil; little or no odor and taste; misc. with org. solvs., veg. oils and fats; sparingly sol. in abs. ethanol; insol. in water; m.w. 472.75; sp.gr. 0.94-0.96 g/cm³  
*Precaution: Unstable to alkali and oxidizing agents*  
*Storage: 48 mos. shelf life in unopened original pkg.; store @ 15-30 C; protect from heat, light, air in tightly closed containers; do not refrigerate; may crystallize on exposure to cold temps.*

**Covitol® F-350M** [Cognis/Nutrition & Health]

*Chem. Descrip.:* Tocopherol  
*CAS 1406-18-4; EINECS/ELINCS 215-798-8*  
*Uses: Antioxidant; pharmaceutical grade natural Vitamin E*  
*Properties*: Cream powd.; 235 mg/g of d-α tocopherol conc. FCC plus 59 mg/g of d-β, d-γ, and d-δ tocopherol FCC.

**Covitol® F-1000-2** [Cognis/Nutrition & Health]

*Chem. Descrip.:* Tocopherol  
*CAS 1406-18-4; EINECS/ELINCS 215-798-8*  
*Uses: Antioxidant; pharmaceutical grade natural Vitamin E used in capsules, syrups, drops and food fortification*  
*Properties*: Brn.-red cl. visc. oil; bland to mild odor; 671 mg/g min. assay

**Coyote Brand Tara Gum** [Gum Tech. http://www.gumtech.com]

*Chem. Descrip.:* Tara gum, polysaccharide composed of mannose and galactose derived from the tara seed  
*Chem. Analysis: * Moisture < 14%; ash (total) < 10%; heavy metals as Pb 20 ppm max.; Pb 5 ppm max.; As 3 ppm max.  
*CAS 39300-88-4*  
*Uses: Thickener, stabilizer, gelling agent, suspension aid in pharmaceuticals*  
*Regulatory: FDA GRAS*  
*Properties*: Wh. powd.; 98% through US Std. 80 mesh; Brookfield visc. 3500-5000 cps in 1% sol’n. (spindle 4, 25 C, 20 rpm), 4000-6000 cps (spindle 4, 85 C, 20 rpm); pH 4-6 (1% sol’n.)

**Coyote Stabilizer Cellulose Gel 50** [Gum Tech. http://www.gumtech.com]

*Chem. Descrip.:* Cellulose gel  
*CAS 9004-34-6; EINECS/ELINCS 232-674-9*  
*Uses: Binder, tableting agent*  
*Chem. Analysis: * Moisture < 14%; ash (total) < 1%; heavy metals as Pb 30 ppm max.; Pb 5 ppm max.; As 3 ppm max.  
*CAS 37220-17-0*  
*Uses: Thickener, stabilizer in pharmaceutical apps.*  
*Regulatory: FDA GRAS*  
*Properties*: Wh. powd.; particle size 95% through 100 mesh; Brookfield visc. > 18,000 cps (1% sol’n., spindle 6, 20 rpm); pH 6-8 (1% sol’n)

**CP Glycerine** [Procter & Gamble http://pgchemicals.com]

*Chem. Descrip.:* 1,2,3-Propanetriol (99-100%)  
*See Glycerin*  
*CAS 56-81-5; EINECS/ELINCS 200-289-5*  
*Uses: Emulsifier, emollient, plasticizer, humectant, sweetener in drugs; intermediate for making glycerol derivatives*  
*Regulatory: DOT/ADR/IMDG/ICAO/IATA not regulated; Canada DSL; Japan; Australia; Philippines; China; Korea*  
*Properties*: Water wh., cl. liq.; bland odor; sweet taste; completely sol. in water; misc. with ethanol; sl. sol. in acetone; insol. in ether, chloroform; sp.gr. 1.262; visc. ≈ 1300 mPa•s; vapor pressure < 0.008 mm Hg; b.p. > 288 C; flash pt. (PMCC) > 198.9 C; auto-ignition temp. ≈ 400 C  
*Toxicology: * LD50 (oral, rat) > 2 g/kg; may cause mild, transient eye irritation; TSCA listed
Trade Name Reference

Environmental: LC50 (goldfish, 24 h) > 5 g/l; LC0 (golden orfe, 48 h) > 250 mg/l; LC100 (rainbow trout, 96 h) 51-57 g/l; NOEC (chilomonas paramecium, 48 h) > 10 g/l, (entosiphon sulcatum, 72 h) 3200 mg/l; biodeg.

Precaution: Incompat. with strong oxidizers, strong acids
Hazardous Decomp. Prods.: Thermal reaction may release acrolein
Storage: Store in clean, tight containers to prevent moisture pickup from air; can be stored in aluminum, stainless steel, fiberglass or resin lined steel vessels

CP Glycerine Kosher [Procter & Gamble http://pgchemicals.com]
Chem. Descrip.: 1,2,3-Propanetriol (99-100%) See Glycerin
CAS 56-81-5; EINECS/ELINCS 200-289-5
Uses: Emulsifier, emollient, plasticizer, humectant, sweetener in drugs; intermediate for making glycerol derivatives
Regulatory: DOT/ADR/RID/IMDG/ICAO/IATA not regulated; Canada DSL; Japan; Australia; Philippines; China; Korea
Properties: Water wh., cl. liq.; bland odor; sweet taste; completely sol. in water; misc. with ethanol; sl. sol. in acetone; insol. in ether, chloroform; sp.gr. 1.262; visc. = 1300 mPa•s; vapor pressure < 0.008 mm Hg; b.p. > 288 C; flash pt. (PMCC) > 198.9 C; auto-ignition temp. = 400 C
Toxicology: LD50 (oral, rat) > 2 g/kg; may cause mild, transient eye irritation; TSCA listed

Environmental: LC50 (goldfish, 24 h) > 5 g/l; LC0 (golden orfe, 48 h) > 250 mg/l; LC100 (rainbow trout, 96 h) 51-57 g/l; NOEC (chilomonas paramecium, 48 h) > 10 g/l, (entosiphon sulcatum, 72 h) 3200 mg/l; biodeg.

Precaution: Incompat. with strong oxidizers, strong acids
Hazardous Decomp. Prods.: Thermal reaction may release acrolein
Storage: Store in clean, tight containers to prevent moisture pickup from air; can be stored in aluminum, stainless steel, fiberglass or resin lined steel vessels

C*PharmDex 02010 [Cerestar http://www.cerestar.com]
Chem. Descrip.: Glucose monohydrate, pyrogen-free See D-Glucose monohydrate
CAS 5996-10-1; EINECS/ELINCS 200-075-1
Uses: Used in parenteral nutrition; dialysis and serum applications
Features: Solutions of this product are characterized by excellent filterability and high stability
Regulatory: USP/NF, EP, JPE
Properties: Readily sol. in water

C*PharmDex 02011 [Cerestar http://www.cerestar.com]
Chem. Descrip.: Glucose monohydrate See D-Glucose monohydrate
CAS 5996-10-1; EINECS/ELINCS 200-075-1
Uses: Diluent in tablet, capsule and powder formulations; sweetening agent, cooling agent
Features: Mildly reducing properties improve the stability of oxidation sensitive active materials
Regulatory: USP/NF, EP, JPE
Properties: Rel. sweetness value 75%; readily sol. in water; heat of solution -105.5 J/g

C*PharmDry 01984 [Cerestar http://www.cerestar.com]
Chem. Descrip.: Glucose
CAS 50-99-7; EINECS/ELINCS 200-075-1
Uses: Binder, diluent in direct compression, wet and dry granulation; diluent in capsule and powd. formulations; sweetening agent; coating agent in solid dosage formulations; viscosity increasing agent and crystallization inhibitor in liquid dosage formulations; carrier in spray-drying of active substances; sweetener in oral nutritional supplements
Features: Good dispersibility and solubility

C*PharmGel 03302 [Cerestar http://www.cerestar.com]
Chem. Descrip.: White maize starch See Corn (Zea mays) starch
CAS 9005-25-8; EINECS/ELINCS 232-679-6
Uses: Binder for wet granulation (cooked); disintegrating agent; diluent in capsule and powder formulations, direct compression and wet and dry granulation
Features: Hydrophilic polymer; stable upon storage; high dilution potential, low friability; excellent compatibility; fast disintegration; high compressibility
Regulatory: USP/NF, EP, JP
Trade Name Reference

C*PharmGel 03406 [Cerestar http://www.cerestar.com]
Chem. Descrip.: Maize starch See Corn (Zea mays) starch
CAS 9005-25-8; EINECS/ELINCS 232-679-6
Uses: Binder for wet granulation (cooked); disintegrating agent; diluent in capsule and powder formulations, direct compression and wet and dry granulation
Features: Hydrophilic polymer; stable upon storage; high dilution potential, low friability; excellent compatibility; fast disintegration; high compressibility
Regulatory: USP/NF, EP, JP

C*PharmGel 03415 [Cerestar http://www.cerestar.com]
Chem. Descrip.: Low-moisture maize starch See Corn (Zea mays) starch
CAS 9005-25-8; EINECS/ELINCS 232-679-6
Uses: Binder for wet granulation (cooked); disintegrating agent; diluent in capsule and powder formulations, direct compression and wet and dry granulation
Features: Hydrophilic polymer; stable upon storage; high dilution potential, low friability; excellent compatibility; fast disintegration; high compressibility
Regulatory: USP/NF, EP, JP

C*PharmGel 12012 [Cerestar http://www.cerestar.com]
Chem. Descrip.: Pregelatinized regular maize starch See Corn (Zea mays) starch
CAS 9005-25-8; EINECS/ELINCS 232-679-6
Uses: Diluent/binder in direct compression and wet and dry granulation; diluent in capsule and powder formulations
Features: Provides natural high whiteness to tablets; stable upon storage; high dilution potential, low friability; excellent compatibility; fast disintegration; high compressibility
Regulatory: USP/NF, EP, JP
Properties: Disperses in cold water to form paste

C*PharmMannidex 16701 [Cerestar http://www.cerestar.com]
Chem. Descrip.: Endotoxin-controlled mannitol See D-Mannitol
CAS 69-65-8; EINECS/ELINCS 200-711-8
Uses: Parenteral nutrition; dialysis and serum apps.; lyophilized preps.
Features: Shows an osmotic diuretic activity accelerating renal excretion of drugs
Regulatory: USP, EP, JP

C*PharmMannidex DC (200 grade) 16702 [Cerestar http://www.cerestar.com]
Chem. Descrip.: Mannitol See D-Mannitol
CAS 69-65-8; EINECS/ELINCS 200-711-8
Uses: Binder and diluent for direct compression, wet and dry granulation, and capsule and powder formulations; sweetening agent
Features: Suitable for producing tablets with direct compression; nonhygroscopic and therefore useful with moisture-sensitive active ingredients
Regulatory: USP/NF, EP, JP

C*PharmSweet 01533 [Cerestar http://www.cerestar.com]
Chem. Descrip.: Glucose liquid
CAS 50-99-7; EINECS/ELINCS 200-075-1
Uses: Coating agent in solid dosage formulations; bulking agent and anticrystallization agent in oral solutions and syrups; bulking agent in medicated confectionery
Features: Medium viscosity with a moderate relative sweetness and neutral taste; good workability during production
Regulatory: USP/NF, EP, JP
Properties: Cl. colorless liq.; sweet taste

Cremogen® Camomile Forte 728790 [Symrise USA http://www.symrise.com]
Chem. Descrip.: Water, propylene glycol, ethoxydiglycol, and matricaria (Chamomilla

Handbook of Pharmaceutical Additives, Third Edition
Trade Name Reference

recuitita) extract
Uses: Botanical extract offering antiphlogistic effect

Chem. Descrip.: Ceteareth-6 and stearyl alcohol
Uses: Emulsifier, humectant, solubilizer for pharmaceuticals (ointments, creams, o/w and w/o emulsions)
Properties: Wh. wax; sol. in water, alcohol; drop pt. 41-45 C; HLB 10-12; acid no. < 1; iodine no. < 1; sapon. no. < 3; hyd. no. 115-135; nonionic; 100% act.

Cremophor® A 11 [BASF AG http://www.basf.de]
Chem. Descrip.: Ceteareth-11
CAS 68439-49-6
Uses: Emulsifier for pharmaceutical preps.
Properties: Wh. wax; sol. in water, alcohol; sp.gr. 0.964-0.968 (60 C); drop pt. 34-38 C; HLB 12-14; acid no. < 1; iodine no. < 1; sapon. no. < 1; hyd. no. 70-80; pH 6-7; nonionic; 100% act.

Chem. Descrip.: Ceteareth-25
CAS 68439-49-6
Uses: Emulsifier, humectant, solubilizer for pharmaceuticals (ointments, creams, o/w emulsions)
Properties: Wh. powd.; sol. in water, alcohol; sp.gr. 1.020-1.028 (60 C); drop pt. 44-48 C; HLB 15-17; acid no. < 1; iodine no. 25-35; sapon. no. < 1; hyd. no. 35-45; pH 5-7; nonionic; 100% act.

Cremophor® ELP [BASF http://www.basf.com; BASF AG http://www.basf.de]
Chem. Descrip.: PEG-35 castor oil
CAS 61791-12-6
Uses: Solubilizer in parenteral dosage forms, specially for sensitive active ingredients
Features: Extra pure grade for demanding formulations
Properties: Wh. to yelsh. ish paste or cloudy liq.; sol. in water, organic solvents, such as ethanol, n-propanol, isopropanol, ethyl acetate, chloroform, CCL4, trichloroethylene, toluene and xylene; dens. 1.05-1.06 g/ml; visc. 600–750 mPa•s; acid no. ≤ 2; iodine no. 25-35; sapon. no. 65-70; hydroxyl no. 65-78; nonionic;

Cremophor® GO31 [BASF http://www.basf.com]
Chem. Descrip.: Polyglyceryl-3 oleate
CAS 9007-48-1
Uses: Emulsifier for hypoallergenic prods.
Properties: Gardner color 9 max. cl. liq.; sol. in water, organic solvents, such as ethanol, n-propanol, isopropanol, ethyl acetate, chloroform, CCL4, trichloroethylene, toluene and xylene; dens. 1.05-1.06 g/ml; visc. 600–750 mPa•s; acid no. ≤ 2; iodine no. 25-35; sapon. no. 65-70; hydroxyl no. 65-78; nonionic;

Features: Stable towards electrolytes (except mercury II chloride)
Regulatory: EP, USP/NF compliance
Properties: Pale yel. oily liq.; faint char. odor; sol. in water, ethanol, propanol, ethyl acetate, chloroform, CCL4, benzene, toluene, and xylene; sp.gr. 1.05-1.06; visc. 700-850 cps; vapor pressure 6. 2mm Hg (20 C); HLB 12-14; acid no. < 2; iodine no. 25-35; sapon. no. 65-70; hyd. no. 65-78; flash pt. 250 C; ref. index 1.471; pH 6-8 (10% aq.); nonionic; 100% act.; ≤ 2.8% water
Toxicology: LD50 (IV, mouse) 6500 mg/kg; may be harmful by ing., inh., or skin absorption; may cause eye/skin/respiratory tract irritation; may cause sensitization by inh. and skin contact; may cause anaphylactic reactions
Precaution: Avoid very acidic or basic substances
Storage: 2 yrs. shelf life if stored in unopened original containers @ R.T.; prolonged storage is not rec. unless the containers are completely full

Cremophor® GO31 [BASF http://www.basf.com]
Chem. Descrip.: Polyglyceryl-3 oleate
CAS 9007-48-1
Uses: Emulsifier for hypoallergenic prods.
Properties: Gardner color 9 max. cl. liq.; sol. in water, organic solvents, such as ethanol, n-propanol, isopropanol, ethyl acetate, chloroform, CCL4, trichloroethylene, toluene and xylene; dens. 1.05-1.06 g/ml; visc. 600–750 mPa•s; acid no. ≤ 2; iodine no. 25-35; sapon. no. 65-70; hydroxyl no. 65-78; nonionic;

Storage: 1 yr. shelf life when stored in original,
Cremophor® PS 20 [BASF
http://www.basf.com]
Chem. Descrip.: Polysorbate 20
CAS 9005-64-5
Uses: Anti-irritant for baby bath prods., baby shampoos
Properties: Gardener color 4 max. cl. liq.; sol. in water; HLB 16.7; acid no. 2.2 max.; sapon. no. 40-50; hyd. no. 96-108; nonionic; 100% act.
Storage: 1 yr. shelf life when stored in original, unopened containers; store in a cool, dry place

Cremophor® RH 40 [BASF
http://www.basf.com; BASF AG
http://www.basf.de]
Chem. Descrip.: PEG-40 hydrogenated castor oil
CAS 61788-85-0
Uses: Emulsifier, solubilizer for fat-sol. vitamins, essential oils, and hydrophobic materials in pharmaceuticals (tablets, capsules, orals, topicals, sprays, ointments, creams, lotions, gels, suppositories, transdermal systems)
Features: Chemically very stable; largely insensitive to water hardness
Regulatory: EP, USP/NF compliance
Properties: Water-wh. visc. liq.; sol. in water, ethanol, oleyl alcohol, min. oil; disp. in water; sp.gr. 1.00; visc. 39-49 poise; HLB 8.6; acid no. ≤ 1; iodine no. ≤ 1; sapon. no. 158-170; hyd. no. 60-75; pH 6-7 (10% aq.); nonionic; 100% act.
Toxicology: LD50 (oral, rat) > 16 g/kg, (IP, mouse) > 6.4 g/kg; nonirritating to skin, mucous membranes; nonsensitizing
Precaution: Avoid strong bases or acids
Storage: 2 yr. min shelf life when stored in unopened original drums @ 20-25 C; prolonged exposure to heat may cause physical separation into liq. and solid phase on cooling; homogenize to restore to original form

Cremophor® S 9 [BASF
http://www.basf.com; BASF AG
http://www.basf.de]
Chem. Descrip.: PEG-9 stearate
CAS 9004-99-3; EINECS/ELINCS 226-312-9
Uses: O/w emulsifier, thickener, suspension stabilizer, lubricant, antistackifier for pharmaceuticals
Properties: Ylsh. wh. visc. liq.; sol. in water, alcohols, acetone, ethyl acetate, chloroform, benzene, castor oil, and oleic acid; sp.gr. 0.97 (60 C); HLB 12; acid no. 2; sapon. no. 88-98; nonionic; 100% act.

Crill 1 [Croda Inc http://www.croda.com;
http://www.crodausa.com]
Chem. Descrip.: Sorbitan laurate
CAS 1338-39-2; EINECS/ELINCS 215-663-3
Uses: Emulsifier, pigment dispersant, cosolvent, wetting agent, antifoam, visc. reducer, lubricant for pharmaceuticals
Regulatory: FDA 21CFR §175.105, 175.300, 175.320, 175.380, 175.390, 176.170, 176.210, 178.3120, 178.3400; 40CFR §180.1001(c)(e) exempt; EEC, UK clearance; DOT nonregulated/nonhazardous; SARA §313 nonreportable
Properties: Pale yel. cl. visc. liq.; sol. in ethanol, oleyl alcohol, min. oil; disp. in water; sp.gr. 1.00; visc. 39-49 poise; HLB 8.6; acid no. 4-7; sapon. no. 160-175; hyd. no. 330-358; nonionic; 98% conc.
Toxicology: LD50 (acute oral) > 20 g/kg; essentially nonirritating to eyes; may be mildly irritating to skin; no significant adverse health effects are known; may aggravate pre-existing dermatological conditions
Precaution: Incompat. with strong oxidizing agents
Hazardous Decomp. Prods.: Burning will produce COx
Storage: Store under cool, dry conditions

Crill 1 NF [Croda Inc http://www.croda.com;
http://www.crodausa.com]
Chem. Descrip.: Sorbitan laurate NF
CAS 1338-39-2; EINECS/ELINCS 215-663-3
Uses: Surfactant, w/o emulsifier, solubilizer for oral, topical, and parenteral pharmaceuticals; coemulsifier with Crillets in o/w systems; wetting agent; emulsifier for intramuscular pharmaceuticals
Features: Very mild; multifunctional
Properties: Yel. visc. liq.; sol. in ethanol, oleyl alcohol, min. oil, IPM, olive oil, oleic acid; insol. in water, propylene glycol; HLB 8.6; acid no. 8 max.; sapon. no. 158-170; hyd. no. 330-358; nonionic; ≤ 1.5% water
Use Level: 1-10%; 0.1-3% (wetting agent); 0.01-0.05% (intramuscular)
Toxicology: LD50 (oral, rat) > 30 g/kg; mild skin/eye irritant
Trade Name Reference

Crill 3 [Croda Inc http://www.croda.com; http://www.crodausa.com]
Chem. Descrip.: Sorbitan stearate
CAS 1338-41-6; EINECS/ELINCS 215-664-9
Uses: Emulsifier, lubricant for oral and topical pharmaceuticals; solubilizer for excipients and/or actives with low sol. in lipophilic bases; contributes to stability of o/w emulsions when used in combination with Crillets
Properties: Cream/yel. hard waxy solid; low odor; partially sol. in oleyl alcohol, olive oil, oleic acid; insol. in water, m.p. 54 C; HLB 4.7; acid no. 5-10; sapon. no. 146-157; hyd. no. 235-260; nonionic; 98% conc.
Use Level: 0.5-5%
Toxicology: LD50 (oral, rat) > 31 g/kg; nonirritating to eyes
Storage: Store under cool, dry conditions

Chem. Descrip.: Sorbitan isostearate
CAS 71902-01-7; EINECS/ELINCS 276-171-2
Uses: W/o emulsifier, wetting agent, pigment dispersant for topical pharmaceuticals, creams, lotions, aerosols; solubilizer for excipients and/or actives with low sol. in lipophilic bases
Features: Not prone to oxidation or associated changes in color or odor; low m.p.
Regulatory: FDA 40CFR §180.1001(c)(e) exempt
Properties: Pale yel. cl. visc. liq. to soft solid; sol. in min. oil, IPA, olive oil; partly sol. in oleyl alcohol, IPM; insol. in water, propylene glycol; HLB 4.7; acid no. 8 max.; sapon. no. 143-153; hyd. no. 220-250; nonionic; 98% conc.; 1.5% max. water
Use Level: 0.5-5%
Toxicology: LD50 (oral, rat) > 16 g/kg (10% aq.); moderate skin irritant; nonirritating to eyes

Crill 4 [Croda Inc http://www.croda.com; http://www.crodausa.com; Croda Food Services Ltd http://www.croda-foods.co.uk; Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: Sorbitan oleate
CAS 1338-43-8; EINECS/ELINCS 215-665-4
Uses: W/o emulsifier, wetting agent, pigment dispersant, antifoam for oral and topical pharmaceuticals; solubilizer for excipients and/or actives with low sol. in lipophilic bases; aids stability of o/w emulsions when used in combination with Crillets
Features: Mild; multifunctional; solubilizer for compds. with low sol. in lipophilic bases
Regulatory: FDA 21CFR §172.836, 172.842
Properties: Cream/yel. solid; sol. in ethanol, oleyl alcohol, min. oil, IPM, olive oil, oleic acid; insol. in water; gels in propylene glycol; HLB 4.7; acid no. < 10; sapon. no. 147-157; hyd. no. 235-260; nonionic; 1% max. water
Toxicology: LD50 (oral, rat) > 31 g/kg; nonirritating to eyes; mild skin irritant
Use Level: 1-10%; 0.1-3% (wetting agent)

Crill 4 NF [Croda Inc http://www.croda.com; http://www.crodausa.com]
Chem. Descrip.: Sorbitan oleate NF
CAS 1338-43-8; EINECS/ELINCS 215-665-4
Uses: Surfactant, w/o emulsifier, and solubilizer for oral and topical pharmaceuticals; wetting agent; coemulsifier with Crillets in o/w systems
Features: Ideal for emulsions whose oil phase contains unsat. lipid components
Properties: Amber liq.; sol. in ethanol, oleyl alcohol, min. oil, IPM, olive oil, oleic acid; insol. in water, propylene glycol; HLB 4.3; acid no. < 8; sapon. no. 145-160; hyd. no. 190-215; nonionic; 1% max. water
Use Level: 1-10%; 0.1-3% (wetting agent)
Toxicology: LD50 (oral, rat) > 40 g/kg; nonirritating to eyes; mild skin irritant

Crill 6 [Croda Inc http://www.croda.com; http://www.crodausa.com; Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: Sorbitan isostearate
CAS 71902-01-7; EINECS/ELINCS 276-171-2
Uses: W/o emulsifier, wetting agent, pigment dispersant for topical pharmaceuticals, creams, lotions, aerosols; solubilizer for excipients and/or actives with low sol. in lipophilic bases
Features: Not prone to oxidation or associated changes in color or odor; low m.p.
Regulatory: FDA 40CFR §180.1001(c)(e) exempt
Properties: Pale yel. cl. visc. liq. to soft solid; sol. in min. oil, IPA, olive oil; partly sol. in oleyl alcohol, IPM; insol. in water, propylene glycol; HLB 4.7; acid no. 8 max.; sapon. no. 143-153; hyd. no. 220-250; nonionic; 98% conc.; 1.5% max. water
Use Level: 0.5-5%
Toxicology: LD50 (oral, rat) > 16 g/kg (10% aq.); moderate skin irritant; nonirritating to eyes

Crill 4 [Croda Inc http://www.croda.com; http://www.crodausa.com]
Chem. Descrip.: Sorbitan stearate
CAS 1338-41-6; EINECS/ELINCS 215-664-9
Uses: Emulsifier, lubricant for oral and topical pharmaceuticals; solubilizer for excipients and/or actives with low sol. in lipophilic bases; contributes to stability of o/w emulsions when used in combination with Crillets
Properties: Amber visc. liq.; sol. in ethyl, isopropyl, and oleyl alcohols, min. oil, IPM, olive oil, oleic acid; HLB 4.3; acid no. 5.5-7.5; sapon. no. 147-160; hyd. no. 193-209; nonionic; 98% conc.
Toxicology: LD50 (oral, rat) > 40 g/kg; nonirritating to eyes
Chem. Descrip.: Sorbitan tristearate
CAS 26658-19-5; EINECS/ELINCS 247-891-4
Uses: Emulsifier, lubricant for pharmaceuticals
Properties: Pale tan hard waxy solid; partly sol. in oleyl alcohol, min. and olive oil, IPM, oleic acid; m.p. 48 C; HLB 2.1; sapon. no. 176-188; nonionic; 98% conc.

Chem. Descrip.: Sorbitan sesquioleate
CAS 8007-43-0; EINECS/ELINCS 232-360-1
Uses: W/o emulsifier, wetting agent, pigment dispersant for pharmaceuticals
Properties: Amber visc. liq.; sol. in oleyl alcohol, min. oil, olive oil, oleic acid; HLB 3.7; sapon. no. 149-160; nonionic; 98% conc.

Chem. Descrip.: Sorbitan trioleate
CAS 26266-58-0; EINECS/ELINCS 247-569-3
Uses: W/o emulsifier, wetting agent, pigment dispersant for pharmaceuticals (oral, topical, parenteral); surfactant for nasal dosage and metered dose inhalers; emulsifier for intramuscular pharmaceuticals
Properties: Amber visc. liq.; sol. in oleyl alcohol, min. oil, olive oil, IPM, IPA, oleic acid; insol. in water, propylene glycol; HLB 1.8; sapon. no. 172-186; nonionic; 98% conc.
Use Level: 0.1-3%; 0.01-0.05% (intramuscular)

Chem. Descrip.: Polysorbate 20 NF
CAS 9005-64-5
Uses: Solubilizer, o/w emulsifier, stabilizer, dispersant, wetting agent for pharmaceuticals (topical, oral, opthalmic, parenteral prods.); solubilizer in mouthwash; bulk pharmaceutical prod.
Features: High purity grade esp. for pharmaceuticals; often combined with a member of the Crill range in emulsification systems
Properties: Yel. to amber cl. liq.; low odor; sol. in water, ethyl alcohol, IPA, propylene glycol, oleyl alcohol, oleic acid; HLB 16.7; acid no. 2 max.; sapon. no. 40-50; hyd. no. 96-108; peroxide value 2 max.; surf. tens. 38.5 dynes/cm (0.1%); nonionic; ≤ 0.2% water
Use Level: 1-10%; 0.01-3% (as wetting agent)
Toxicology: LD50 (oral, rat) > 30 g/kg; mild skin irritant; nonirritating to eyes

Chem. Descrip.: Polysorbate 20
CAS 9005-64-5
Features: Very mild; often combined with a member of the Crill range in emulsification systems
Properties: Yel. to amber cl. liq.; low odor; sol. in water, ethyl alcohol, IPA, propylene glycol, oleyl alcohol, oleic acid; HLB 16.7; acid no. 2 max.; sapon. no. 40-50; hyd. no. 96-108; peroxide value 2 max.; surf. tens. 38.5 dynes/cm (0.1%); nonionic; ≤ 0.2% water
Use Level: 1-10%; 0.01-3% (as wetting agent)
Toxicology: LD50 (oral, rat) > 30 g/kg; mild skin irritant; nonirritating to eyes
Trade Name Reference

Crillet 1 Super  [Croda Inc http://www.croda.com; http://www.crodausa.com]
Chem. Descrip.:  PEG (20) sorbitan monolaurate  See Polysorbate 20
CAS 9005-64-5 (generic)
Uses:  Solubilizer in oil-sol. vitamins and mouthwashes; wetting agent for actives such as calamine, menthol and phenol; used in pharmaceutical topicals, ophthalmics, parenterals and oral preps.
Regulatory:  FDA Inactive Ingredients Guide listed
Properties:  Cl. yel. liq.; HLB 16.7; nonionic

Crillet 3  [Croda Inc http://www.croda.com; http://www.crodausa.com]
Chem. Descrip.:  Polysorbate 60
CAS 9005-67-8 (generic)
Uses:  O/w emulsifier and wetting agent for oral, topical, ophthalmic, and parenteral pharmaceuticals; used with Crills to solubilize actives in syrups, in prep. of oral emulsions, as mild emulsifiers in ointments, creams, lotions
Properties:  Yel. liq. gels to soft solid on cooling; sol. in water, ethyl, isopropyl, and oleyl alcohols, oleic acid; disp. in propylene glycol; partly sol. in IPM; insol. in propylene glycol, min. oil, olive oil; HLB 14.9; acid no. 2 max.; sapon. no. 45-55; hyd. no. 81-96; nonionic; 97% conc.
Use Level:  0.5-5%
Toxicology:  LD50 (oral, rat) > 38 g/kg; mild skin irritant; nonirritating to eyes
Storage:  Store under cool, dry conditions

Crillet 3 NF  [Croda Inc http://www.croda.com; http://www.crodausa.com]
Chem. Descrip.:  Polysorbate 60 NF
CAS 9005-67-8 (generic)
Uses:  Surfactant, o/w emulsifier, wetting agent, suspending agent, solubilizer for creams, gels, pharmaceuticals (oral, topical, ophthalmic, parenteral doses); tablet lubricant
Features:  Produces stable emulsions; multipurpose
Regulatory:  FDA 21CFR §172.836, 172.842
Properties:  Yel. visc. liq. to soft solid; sol. in water, ethanol, oleyl alcohol, oleic acid, IPA; disp. in propylene glycol; partly sol. in IPM; insol. in propylene glycol, min. oil, olive oil; HLB 14.9; acid no. 2 max.; sapon. no. 45-55; hyd. no. 81-96; nonionic; 3% max. water
Use Level:  0.5-15%
Toxicology:  LD50 (oral, rat) > 38 g/kg; mild skin irritant; nonirritating to eyes

Crillet 4  [Croda Inc http://www.croda.com; http://www.crodausa.com; Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.:  Polysorbate 80 NF
CAS 9005-65-6
Uses:  O/w emulsifier and wetting agent for oral, topical, ophthalmic, and parenteral pharmaceuticals; used with Crills to solubilize actives in syrups, in prep. of oral emulsions, as mild emulsifiers in ointments, creams, lotions; solubilizer producing stable vitamin and essential oil emulsions
Properties:  Yel. amber cl. liq.; faint char. odor; sol. in water, ethyl, isopropyl, and oleyl alcohols, oleic acid; HLB 15.0; acid no. 2 max.; sapon. no. 45-55; hyd. no. 65-80; pH 6-7 (5%); surf. tens. 42.5 dynes/cm (0.1%); nonionic; 97% conc.
Use Level:  0.5-5%
Toxicology:  LD50 (oral, rat) > 38 g/kg; nonirritating to eyes
Storage:  Store under cool, dry conditions
<table>
<thead>
<tr>
<th>Trade Name Reference</th>
<th>Uses: Surfactant, o/w emulsifier, solubilizer, stabilizer, wetting agent, dispersant for pharmaceuticals (topical, oral, parenteral, ophthalmic prods.); plasticizer and lubricant for tablets; bulk pharmaceutical prod.; vitamin mineral supplements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Polysorbate 80 NF</strong></td>
<td><strong>Chem. Descrip.:</strong> Polysorbate 80 NF <strong>CAS</strong> 9005-65-6 <strong>Properties:</strong> Yellow liquid; soluble in water, ethanol, IPA; dispersible in propylene glycol; insoluble in olive oil; HLB 15.0; acid number 2.2 max.; saponification number 40-50; hydrotroping number 65-85; surfactant tension 38.6 dynes/cm (0.1%); nonionic; 97% conc. <strong>Toxicology:</strong> LD50 (oral, rat) &gt; 38 g/kg; mild skin irritant; nonirritating to eyes <strong>Use Level:</strong> 0.5-5%</td>
</tr>
<tr>
<td><strong>Crillet 6</strong> [Croda Inc <a href="http://www.croda.com">http://www.croda.com</a>; <a href="http://www.crodausa.com">http://www.crodausa.com</a>]</td>
<td><strong>Chem. Descrip.:</strong> PEG-20 sorbitan isostearate <strong>Uses:</strong> O/w emulsifier, solvent, and wetting agent for topical pharmaceuticals; mild emulsifiers in ointments, creams, lotions; o/w emulsifier, solubilizer for fragrances; surfactant for creams, lotions, ointments <strong>Features:</strong> Used with Crills; improved resistance to oxidation <strong>Properties:</strong> Yellow to amber liquid; HLB 14.9; acid number 2 max.; saponification number 40-50; hydrotroping number 65-85; surfactant tension 38.6 dynes/cm (0.1%); nonionic; 97% conc.; 3% max. water <strong>Use Level:</strong> 0.5-5%</td>
</tr>
<tr>
<td><strong>Crillet 35</strong> [Croda Chem. Europe Ltd <a href="http://www.croda.co.uk">http://www.croda.co.uk</a>]</td>
<td><strong>Chem. Descrip.:</strong> Polysorbate 65 <strong>Uses:</strong> Solubilizer, emulsifier, wetting agent for pharmaceuticals <strong>Regulatory:</strong> FDA 21CFR §172.838, 176.210, 40CFR §180.1001(c)(e) exempt; EEC compliance <strong>Properties:</strong> Cream/buff waxy solid; soluble in ethyl and oleyl alcohols, oleic acid, trichlorethylene; partly soluble in water; HLB 10.5; acid number 2 max.; saponification number 88-98; hydrotroping number 44-60; surfactant tension 42.5 dynes/cm (0.1%); nonionic; 97% conc. <strong>Use Level:</strong> 0.5-5%</td>
</tr>
</tbody>
</table>
Trade Name Reference

Crillet 41 [Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descr.: Polysorbate 81
CAS 9005-65-6
Uses: Solubilizer, emulsifier, wetting agent for pharmaceutical applics.
Regulatory: FDA 21 CFR §176.210; 40 CFR §180.1001(c) exempt
Properties: Amber liq.; sol. in ethanol, oleyl alcohol, IPM, oleic acid, kerosene, butyl stearate; partly sol. in water, olive oil, xylene, trichlorehylene; HLB 10.0; acid no. 2 max.; sapon no. 96-104; hyd. no. 134-150; nonionic; 97% conc.

Crillet 45 [Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descr.: Polysorbate 85
CAS 9005-70-3
Uses: Solubilizer, emulsifier, wetting agent for pharmaceutical applics.
Regulatory: FDA 21 CFR §176.210, 178.3400; 40 CFR §180.1001(c)(e) exempt
Properties: Amber cl. visc. liq.; sol. in ethyl and oleyl alcohols, IPM, oleic acid, kerosene, trichlorethylene, butyl stearate; HLB 11.0; acid no. 2 max.; sapon. no. 82-95; hyd. no. 39-52; surf. tens. 41 dynes/cm (0.1%); nonionic; 97% conc.

Crinipan® AD [Symrise USA http://www.symrise.com]
Chem. Descr.: Climbazole
CAS 38083-17-9; EINECS/ELINCS 253-775-4
Uses: Preservative, antidandruff agent in cosmetics
Properties: Wh. to pale brmsh. crystalline powd., sl. odor; sol. in ethanol, 1,2-propylene glycol (20 C); insol. in water; m.w. 292.8; vapor pressure < 0.1 mbar (80 C); m.p. 94-98 C
Toxicology: LD50 (oral, rat) 400 mg/kg, (dermal, rat) > 5,000 mg/kg; harmful if ing.; do not breathe dust
Environmental: Very toxic to aquatic organisms; may cause long-term adverse effects in the aquatic environment
Storage: 3 yrs. shelf-life when stored in an ambient temp. (40 C), in tightly closed original containers

Chem. Descr.: Stearic acid
CAS 67701-03-5; EINECS/ELINCS 266-928-5
Uses: Emollient, emulsifier, thickener in pharmaceuticals
Regulatory: Not regulated for transport
Environmental: Biodeg. (28 d) > 90%
Precaution: Wear gloves, goggles, overall skin protection; avoid entry to sewers, drain and surface water
Storage: Store @ R.T. in original sealed container protected from heat sources

Crodacol 1618 [Croda Inc http://www.croda.com; http://www.crodausa.com]
Chem. Descr.: Cetearyl alcohol
CAS 8005-44-5; EINECS/ELINCS 267-008-6
Uses: Emollient, emulsifier, emulsion stabilizer, opacifier, visc. control agent in pharmaceutical creams; antiseptic in topical anti-infective prods.

Crodacol C-90 [Croda Inc http://www.croda.com; http://www.crodausa.com]
Chem. Descr.: Cetyl alcohol EP
CAS 36653-82-4; EINECS/ELINCS 253-149-0
Uses: Viscosity and structure modifier in pharmaceutical creams, lotions and anhydrous salves; water absorption aid in ointments and w/o emulsions; used in otic and ophthalmic preparations, suppositories and vaginal preparations, delayed release solid dosage tablets; anhydrous sticks and salves
Regulatory: USP/NF, EP, FDA Inactive Ingredients Guide listed
Properties: Wh. waxy solid
Toxicology: TSCA listed

Chem. Descr.: Cetyl alcohol EP
CAS 36653-82-4; EINECS/ELINCS 253-149-0
Uses: Viscosity modifier, stiffening agent,
Trade Name Reference

coemulsifier, lubricant, m.p. modifier, opacifier, and emulsion stabilizer used in pharmaceutical topical cream formulations; used with other excipients in tablets and capsules

Toxicology: TSCA listed

Crodacol C-95 NF [Croda Inc  
http://www.croda.com;  
http://www.crodausa.com]

Chem. Descrip.: Cetyl alcohol NF
CAS 36653-82-4; EINECS/ELINCS 253-149-0

Uses: Emulsion thickener, stabilizer, and coemulsifier for pharmaceutical suppositories, lotions, creams, and ointments; mixed with petrolatum to increase water retention; mixed with other excipients for oral tablets and capsules; structural agent in antiperspirant sticks

Properties: Wh. to cream flakes; sol. in IPA; sol. warm in min. oil, propylene glycol; m.p. 45-50 C; HLB 14.78; acid no. 0.3 max.; iodine no. 3 max.; sapon. no. 1 max.; hyd. no. 218-238; 95% conc.

Use Level: 2-30%

Toxicology: LD50 (oral, rat) > 20 g/kg; used with other excipients in tablets and capsules

Crodacol CS90 EP [Croda Chem. Europe Ltd  
http://www.croda.co.uk]

Chem. Descrip.: Cetearyl alcohol
CAS 8005-44-5; EINECS/ELINCS 267-008-6

Uses: Viscosity and structure modifier in pharmaceutical creams, lotions and anhydrous salves; water absorption aid in ointments and w/o emulsions; used in otic and ophthalmic preparations, suppositories and vaginal preparations, delayed release solid dosage tablets; anhydrous sticks and salves

Regulatory: EP

Properties: Wh. waxy solid

Crodacol S95 EP [Croda Chem. Europe Ltd  
http://www.croda.co.uk]

Chem. Descrip.: Stearyl alcohol
CAS 112-92-5; EINECS/ELINCS 204-017-6

Uses: Emulsion thickener, stabilizer, and coemulsifier for pharmaceutical suppositories, lotions, creams, and ointments; mixed with petrolatum to increase water retention; mixed with other excipients for oral tablets and capsules; structural agent in antiperspirant sticks

Features: Produces stiffer creams than Crodacol C-95 NF

Properties: Wh. flakes; sol. in IPA; sol. warm in min. oil, propylene glycol; insol. in water; HLB 13.93

Use Level: 2-30%; 5-25% (oral prods.)

Toxicology: LD50 (oral, rat) > 5 g/kg; nonirritating to skin; minimal eye irritant; nonsensitizer

Crodafos CES [Croda Inc  
http://www.croda.com;  
http://www.crodausa.com; Croda Chem. Europe Ltd  
http://www.croda.co.uk]

Chem. Descrip.: Cetearyl alcohol, dicetyl phosphate, and ceteth-10 phosphate

Uses: Emulsifier for topical pharmaceutical creams and lotions

Features: Rapid delivery of actives to the skin; water-resist.; extremely stable emulsion in o/w systems

Properties: Wh. to off-wh. flake; char. odor; partly sol. in warm IPA; disp. in warm min. oil, propylene glycol, water; m.p. 51-58 C; acid no. 28-38; mild anionic

Use Level: 5-10%

Crodafos CP-50 [Croda Inc  
http://www.croda.com;  
http://www.crodausa.com]

Chem. Descrip.: Cetyl phosphate and stearic acid

Uses: Emulsifier and emulsion stabilizer for skin creams and lotions, sunscreens, aftersun preps., shaving balms

Features: Rec. for use with nonionic emulsifier; remains stable over wide pH range

Properties: Wh. to pale yel. flake; mild char. odor; acid no. 225-235; sapon. no. 250-270; anionic; 50% conc.
Trade Name Reference

**Use Level:** 0.5-5%

**Crodafos CS20A** [Croda Chem. Europe Ltd http://www.croda.co.uk]

**Chem. Descrip.:** Cetearyl alcohol, ceteth-20 phosphate, and dicetyl phosphate

**Uses:** Emulsifier, visc. modifier for sunscreens

**Features:** For emulsions with high act. loads or med. to low visc. prods.; provides fast release of actives; naturally substantive to skin; leaves a conditioned afterfeel; contains no DEA; low m.p.

**Properties:** Pastille

**Crodafos N3A** [Croda Inc http://www.croda.com; http://www.crodausa.com; Croda Chem. Europe Ltd http://www.croda.co.uk]

**Chem. Descrip.:** Oleth-3 phosphate

**CAS 39464-69-2**

**Uses:** Surfactant, conditioner, o/w emulsifier, gellant for pharmaceuticals; corrosion inhibitor and antigellant in aerosol antiperspirant systems

**Features:** Spreads easily over the skin

**Properties:** Golden liq.; faint fatty odor; sol. in alcohol, water; sp.gr. 1.02-1.08; acid no. 3 max.; hyd. no. 55-67; pH 5-7 (10% aq.); nonionic; 100% act.

**Use Level:** 0.5-5%

**Toxicology:** Irritating to skin and may cause serious eye damage

**Environmental:** Biodeg.

**Crodalan AWS** [Croda Inc http://www.croda.com; http://www.crodausa.com; Croda Chem. Europe Ltd http://www.croda.co.uk]

**Chem. Descrip.:** Polysorbate 80, cetyl acetate, acetylated lanolin alcohol

**Uses:** Emollient, superfatting agent, o/w emulsifier, dispersant, wetting agent, solubilizer used in pharmaceuticals

**Properties:** Golden liq.; faint fatty odor; sol. in alcohol, water; sp.gr. 1.02-1.08; acid no. 3 max.; hyd. no. 55-67; pH 5-7 (10% aq.); nonionic; 100% act.

**Use Level:** 1-5%

**Crodalan LA** [Croda Inc http://www.croda.com; http://www.crodausa.com; Croda Chem. Europe Ltd http://www.croda.co.uk]

**Chem. Descrip.:** Cetyl acetate and acetylated lanolin alcohol

**Uses:** Emollient, penetrant, wetting agent

**Crodafos CS20A** used in pharmaceuticals and enhance to barrier action against urine and its decomposition prods in baby care

**Properties:** Pale yel. clear, thin mobile liq.; odorless; sol. in min. oil, esters; cloud pt. 20 C; acid no. 2 max.; iodine no. 10 max.; sapon. no. 180-200; hyd. no. 8 max.; nonionic; 100% act.

**Use Level:** 2-10%

**Crodamol AB** [Croda Chem. Europe Ltd http://www.croda.co.uk]

**Chem. Descrip.:** C12-15 alkyl benzoate

**CAS 68411-27-8; EINECS/ELINCS 270-112-4**

**Uses:** Emollient, solvent in pharmaceutical creams and lotions

**Features:** Spreads easily over the skin

**Properties:** Colorless to pale straw liq.; sol. in castor oil, corn oil, min. oil, oleyl alcohol, ethanol; sp.gr. 0.92; visc. 13.7 cst

**Use Level:** 5-10%

**Toxicology:** LD50 (oral, rat) 13.6 g/kg; moderate skin irritant; nonirritating to eyes

**Environmental:** Biodeg.

**Crodamol CP** [Croda Inc http://www.croda.com; http://www.crodausa.com; Croda Chem. Europe Ltd http://www.croda.co.uk]

**Chem. Descrip.:** Cetyl palmitate

**CAS 540-10-3; EINECS/ELINCS 208-736-6**

**Uses:** Lubricant, emollient, plasticizer, stiffener, bodying agent for topical pharmaceuticals

**Features:** Spermaceti wax replacement

**Properties:** Spermaceti wax replacement

**Use Level:** 3-10%

**Crodamol DA** [Croda Chem. Europe Ltd
Trade Name Reference

http://www.croda.co.uk]
Chem. Descrip.: Disopropyl adipate
CAS 6938-94-9; EINECS/ELINCS 230-072-0
Uses: Emollient, wetting agent, solvent, superfatting agent in pharmaceutical topical creams and lotions
Properties: Water-wh. liq., almost odorless; sol. in castor oil, corn oil, min. oil, oleyl alcohol, ethanol; sp.gr. 0.950-0.962; visc. 3.9 cst; f.p. -1 C; acid no. 0.5 max.; sapon. no. 480-500; ref. index 1.422-1.424

Crodamol EO  [Croda Inc
http://www.croda.com;
http://www.crodausa.com]
Chem. Descrip.: Ethyl oleate NF
CAS 111-62-6; EINECS/ELINCS 203-889-5
Uses: Vehicle, solvent, visc. reducer for drug delivery systems, for parenteral and topical pharmaceuticals
Features: Effective with triglyceride oils; nongreasy feel
Properties: Colorless liq.; sol. in min. oil, IPA; insol. in water, propylene glycol; sp. gr. 0.870; HLB 10.75; ref. index 1.4500
Use Level: 2-50%

Crodamol GTCC  [Croda Inc
http://www.croda.com;
http://www.crodausa.com;
Croda Food Services Ltd http://www.croda-foods.co.uk; Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: Glyceryl tricaprylate/caprate
See Caprylic/capric triglyceride
CAS 65381-09-1; EINECS/ELINCS 265-724-3
Uses: Nutritional source of lipids; solvent, vehicle, stabilizer, emollient, spreading agent, diluent for oral, parenteral, and topical pharmaceuticals; solvent carrier for flavors and fragrances
Features: Exc. dermatological props.; imparts fine, soft emolliency; exc. oxidative stability; nongreasy; substitute for min. hydrocarbon oils
Properties: Colorless to pale straw cl. liq.; sol. in castor oil, corn oil, min. oil, oleyl alcohol, ethanol; sp.gr. 0.950; visc. 30 cst; acid no. 0.2 max.; iodine no. 1 max.; sapon. no. 325-345; nonionic; 100% conc.
Use Level: 2-15%
Storage: Store under cool, dry conditions

Crodamol GTCC-PN  [Croda Inc
http://www.croda.com;
http://www.crodausa.com]
Chem. Descrip.: Caprylic/capric triglyceride
CAS 65381-09-1; EINECS/ELINCS 265-724-3
Uses: Nutritional source of lipids; solvent, vehicle, stabilizer, emollient, spreading agent in oral, topical, and parenteral pharmaceuticals
Features: Nongreasy; low visc.; exc. oxidative stability
Properties: Colorless liq.; sol. in min. oil, IPA; insol. in water, propylene glycol; sp. gr. 0.945; m.p. 36-39 C; HLB 7.52; acid no. 1 max.; sapon. no. 120-130
Use Level: 2-15%

Crodamol MM  [Croda Inc
http://www.croda.com;
http://www.crodausa.com; Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: Myristyl myristate
CAS 3234-85-3; EINECS/ELINCS 221-787-9
Uses: Emollient, superfatting agent, visc. builder in topical pharmaceutical emulsions, lotions, creams, and ointments; improves texture and stability of semisolids; substitute for spermaceti wax and/or beeswax in pharmaceutical formulations
Features: Nongreasy; modifies props. of hydrocarbon wax systems aiding feel; melts @ body temp.
Properties: Off-wh. waxy solid.; sol. in min. oil, IPM, IPA, oleyl alcohol; insol. in water, propylene glycol; sp.gr. 0.832-0.837 (50 C); m.p. 36-39 C; HLB 7.52; acid no. 1 max.; sapon. no. 120-130
Use Level: 3-10%
Toxicology: LD50 (oral, rat) > 5 g/kg; mild skin irritant, minimal eye irritant

Crodamol OP  [Croda Chem. Europe Ltd
http://www.croda.co.uk]
Chem. Descrip.: 2-Ethylhexyl palmitate See Octyl palmitate
CAS 29806-73-3; EINECS/ELINCS 249-862-1
Uses: Modifies occlusion of creams, ointments, and oils
Properties: Colorless liq., mild odor; sol. in castor oil, corn oil, min. oil, oleyl alcohol, ethanol; sp.gr. 0.850-0.860; visc. 12.7 cSt

Crodamol OPG  [Croda Inc
http://www.croda.com;
http://www.crodausa.com]
Chem. Descrip.: Octyl pelargonate
CAS 59587-44-9; EINECS/ELINCS 261-819-9
Uses: Penetrant, emollient, moisturizer, pigment wetting agent/dispersant for pharmaceuticals
Trade Name Reference

Crodamol PC [Croda Chem. Europe Ltd
http://www.croda.co.uk]
Chem. Descrip.: Propylene glycol dicaprylate
CAS 7384-98-7; EINECS/ELINCS 230-962-9
Uses: Solvent in injectable preparations,
      lipophilic drugs, creams and ointments,
      medicaments in suppositories; vehicle and
      absorption enhancer in rectal preps.;
      placebo in gelatin capsules
Features: Oxidatively stable; chemically
      stable/low reactivity; low cloud pt.; lipophilic
Properties: Colorless to pale straw liq.; sol.
      in castor oil, corn oil, min. oil, oleyl alcohol,
      ethanol.; sp.gr. 0.917-0.923; visc. 9.3 cSt

Use Level: 1-12%
Toxicology: LD50 (oral, rat) > 5 g/kg; minimal
      skin irritant, nonirritating to eyes; esp. low
      comedogenic potential

Crodamol PMP [Croda Inc
http://www.croda.com;
http://www.crodausa.com; Croda Chem.
Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: PPG-2 myristyl ether
propionate
CAS 111497-87-1
Uses: Emollient, lubricant, solvent, emulsion
      stabilizer for topical pharmaceuticals (burn
      creams, acne creams and lotions, antibiotic
      ointments, emulsions); spreading agent,
      antitackifier in ointments and creams
Features: Nonoily; dry, lt. greaseless feel; can
      partially replace min. oil to reduce greasy feel;
      enhances freeze/thaw stability; allows easier
      emulsification of unctuous masses
Properties: Gardner 1 max. colorless cl. liq., very
      mild char. odor; sol. (1%) in min. oil, IPM, oleyl
      alcohol, ethanol/water, lanolin, cetyl alcohol;
      sp.gr. 0.870-0.880; visc. 8.9 cSt; HL8 8.03;
      cloud pt. -5 C; acid no. 0.5 max.; iodine no. 1.0
      max.; sapon. no. 140-155
Use Level: 5-20%
Toxicology: LD50 (oral, rat) > 5 g/kg; minimal
      skin irritant, nonirritating to eyes; esp. low in
      comedogenic potential

Crodamol PTC [Croda Inc
http://www.croda.com;
http://www.crodausa.com; Croda Chem.
Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: Pentaerythrityl
      tetracaprylate/tetracaprate
CAS 68441-68-9; EINECS/ELINCS 270-474-3
Uses: Lubricant, emollient for skin care
      prods., topical pharmaceuticals (burn
      creams, acne creams and lotions, antibiotic
      ointments)
Features: Nongreasy
Properties: Lt. yel. lipophilic visc. liq.; sol. in
Trade Name Reference

5 max.; iodine no. 1 max.; sapon. no. 109-120
Use Level: 3-10%
Toxicology: LD50 (oral, rat) > 5 g/kg; nonirritating to skin, minimal eye irritant

Crodamol TDNP [Croda Inc
http://www.croda.com;
http://www.crodausa.com]
Chem. Descrip.: Tridecyl neopentanoate
CAS 106436-39-9
Uses: Binder, emollient, lubricant, gloss aid, spreading agent for pharmaceuticals

Crodamol W [Croda Inc
http://www.croda.com;
http://www.crodausa.com; Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: Stearyl heptanoate
CAS 66009-41-4; EINECS/ELINCS 266-065-4
Uses: Emollient and water repellent for topical pharmaceuticals (burn creams, acne creams and lotions, antibiotic ointments, other topical prods.)
Features: Nongreasy; melts rapidly on applic. to skin; syn. preen gland wax
Properties: Wh. waxy solid; mild odor; sol. in castor oil, corn oil, min. oil, oleyl alcohol, ethanol, IPA; sp.gr. 0.850-0.855; m.p. 23-27 C
Use Level: 2-20%
Toxicology: LD50 (oral, rat) > 16 g/kg; mild skin and eye irritant

Crodarom Calendula O [Croda Inc
http://www.croda.com;
http://www.crodausa.com]
Chem. Descrip.: Soybean (Glycine soja) oil, calendula officinalis extract, tocopherol
Uses: Ingrd. for personal care prods., helping to heal bruises, alleviate skin conditions
Features: Botanical extract of Flores calendulae
Properties: Cl. yel. liq., char. odor; sp.gr. 0.918-0.926; acid no. 0.5-1.0; sapon. no. 180-200; ref. index 1.473-1.476

Crodarom Chamomile O [Croda Inc
http://www.croda.com;
http://www.crodausa.com]
Chem. Descrip.: Caprylic/capric triglycerides and matricaria (Chamomilla recutita) extract
See Caprylic/capric triglyceride
Uses: Promotes wound healing, helps relieve effects of eczema
Features: Botanical extract of Flores matricariae chamomille L.
Properties: Bluish-grn. cl. liq., char. odor; sp.gr. 0.94-0.95; ref. index 1.448-1.500

Crodarom Rosemary Oil forte [Croda Inc
http://www.croda.com;
http://www.crodausa.com]
Chem. Descrip.: Caprylic/capric triglyceride and rosemary (Rosmarinus officinalis) extract
Uses: Antiseptic for bath and shower prods., skin cleansers, treatment creams, anti-dandruff preps., and other hair care prods.
Properties: Yel. cl. liq.; char. aromatic odor; sp.gr. 0.940-0.960; acid no. 2.0 max.; ref. index 1.440-1.460
Use Level: 3-10%

Crodasinic LS30 [Croda Inc
http://www.croda.com;
http://www.crodausa.com; Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: Sodium N-lauroyl sarcosinate and water
See Sodium lauroyl sarcosinate
CAS 137-16-6; EINECS/ELINCS 205-281-5
Uses: Surfactant, foaming agent, wetting agent, bacteriostat, enzyme inhibitor (hexokinase) for oral hygiene (mouthwashes, toothpaste), oral and topical pharmaceuticals, surgical scrubs; penetrant in pharmaceuticals
Features: Mild; compat. with cationics; substantive to skin; stable to alkaline hydrolysis and under mod. acid conditions at normal temps.
Properties: Cl. to sl. turbid liq.; water-sol.; HLB 30; anionic; 30% act.
Use Level: 1-3%

Crodasinic LS30 NP [Croda Inc
http://www.croda.com;
http://www.crodausa.com]
Chem. Descrip.: Sodium lauryl sarcosinate
See Sodium lauryl sarcosinate
CAS 137-16-6; EINECS/ELINCS 205-281-5
Uses: Surfactant, wetting agent, enzyme

Handbook of Pharmaceutical Additives, Third Edition 195
inhibitor, bacteriostat, foaming agent for oral and topical pharmaceuticals, oral care, surgical scrubs

Features: Compat. with germicides

Properties: Cl. to sl. turbid liq.; sol. in water, propylene glycol; insol. in min. oil, IPA; HLB 16.0; anionic

Use Level: 1-3%

Crodasinic LS35 [Croda Chem. Europe Ltd http://www.croda.co.uk]

Chem. Descrip.: Sodium N-lauroyl sarcosinate and water See Sodium lauroyl sarcosinate

CAS 137-16-6; EINECS/ELINCS 205-281-5

Uses: Foaming agent, wetting agent, lubricant, bacteriostat, penetrant in dental preps., pharmaceuticals, depilatories

Regulatory: DOT nonregulated/nonhazardous; SARA §313 nonreportable

Properties: Essentially colorless cl. liq.; sol. in water; anionic; 35% act.

Toxicology: LD50 (oral, rat) > 5 g/kg; contact with undiluted material may cause skin and eye irritation; may cause severe eye irritation; may aggravate pre-existing dermatological conditions

Environmental: Biodeg.

Precaution: Incompat. with strong oxidizing agents

Hazardous Decomp. Prods.: Burning will produce COx, NOx

Storage: Store in cool, dry place

Crodasinic LS95 NP [Croda Inc http://www.croda.com; http://www.crodausa.com]

Chem. Descrip.: Sodium lauryl sarcosinate

See Sodium lauryl sarcosinate

CAS 137-16-6; EINECS/ELINCS 205-281-5

Uses: Surfactant, wetting agent, enzyme inhibitor (hexokinase), bacteriostat, foaming agent for oral and topical pharmaceuticals, oral care, surgical scrubs

Features: Compat. with germicides

Properties: Wh. powd.; sol. in water, warm propylene glycol; disp. in warm min. oil; insol. in IPA; HLB 16.0; anionic

Use Level: 1-3%

Crodasinic LS95 [Croda Chem. Europe Ltd http://www.croda.co.uk]

Chem. Descrip.: Sodium N-lauroyl sarcosinate and water

CAS 137-16-6; EINECS/ELINCS 205-281-5

Uses: Foaming agent, wetting agent, lubricant, bacteriostat, penetrant in dental preps., pharmaceuticals

Regulatory: DOT nonregulated/nonhazardous; SARA §313 nonreportable

Properties: Wh. powd.; sol. in water, warm propylene glycol; disp. in warm min. oil; insol. in IPA; HLB 16.0; anionic

Use Level: 1-3%

Crodasinic LS95 NP [Croda Inc http://www.croda.com; http://www.crodausa.com]

Chem. Descrip.: Sodium lauryl sarcosinate

See Sodium lauryl sarcosinate

CAS 137-16-6; EINECS/ELINCS 205-281-5

Uses: Surfactant, wetting agent, enzyme inhibitor (hexokinase), bacteriostat, foaming agent for oral and topical pharmaceuticals, oral care, surgical scrubs

Features: Compat. with germicides

Properties: Wh. powd.; sol. in water, warm propylene glycol; disp. in warm min. oil; insol. in IPA; HLB 16.0; anionic

Use Level: 1-3%

Crodasinic LS95 [Croda Chem. Europe Ltd http://www.croda.co.uk]

Chem. Descrip.: Sodium N-lauroyl sarcosinate and water

CAS 137-16-6; EINECS/ELINCS 205-281-5

Uses: Foaming agent, wetting agent, lubricant, bacteriostat, penetrant in dental preps., pharmaceuticals

Regulatory: DOT nonregulated/nonhazardous; SARA §313 nonreportable

Properties: Wh. powd.; sol. in water, warm propylene glycol; disp. in warm min. oil; insol. in IPA; HLB 16.0; anionic

Use Level: 1-3%

Crodasinic LS95 NP [Croda Inc http://www.croda.com; http://www.crodausa.com]

Chem. Descrip.: Sodium lauryl sarcosinate

See Sodium lauryl sarcosinate

CAS 137-16-6; EINECS/ELINCS 205-281-5

Uses: Surfactant, wetting agent, enzyme inhibitor (hexokinase), bacteriostat, foaming agent for oral and topical pharmaceuticals, oral care, surgical scrubs

Features: Compat. with germicides

Properties: Wh. powd.; sol. in water, warm propylene glycol; disp. in warm min. oil; insol. in IPA; HLB 16.0; anionic

Use Level: 1-3%

Crodasinic LS95 [Croda Chem. Europe Ltd http://www.croda.co.uk]

Chem. Descrip.: Sodium N-lauroyl sarcosinate and water

CAS 137-16-6; EINECS/ELINCS 205-281-5

Uses: Foaming agent, wetting agent, lubricant, bacteriostat, penetrant in dental preps., pharmaceuticals

Regulatory: DOT nonregulated/nonhazardous; SARA §313 nonreportable

Properties: Wh. powd.; sol. in water, warm propylene glycol; disp. in warm min. oil; insol. in IPA; HLB 16.0; anionic

Use Level: 1-3%

Crodasinic LS95 NP [Croda Inc http://www.croda.com; http://www.crodausa.com]

Chem. Descrip.: Sodium lauryl sarcosinate

See Sodium lauryl sarcosinate

CAS 137-16-6; EINECS/ELINCS 205-281-5

Uses: Surfactant, wetting agent, enzyme inhibitor (hexokinase), bacteriostat, foaming agent for oral and topical pharmaceuticals, oral care, surgical scrubs

Features: Compat. with germicides

Properties: Wh. powd.; sol. in water, warm propylene glycol; disp. in warm min. oil; insol. in IPA; HLB 16.0; anionic

Use Level: 1-3%

Crodasinic LS95 [Croda Chem. Europe Ltd http://www.croda.co.uk]

Chem. Descrip.: Sodium N-lauroyl sarcosinate and water

CAS 137-16-6; EINECS/ELINCS 205-281-5

Uses: Foaming agent, wetting agent, lubricant, bacteriostat, penetrant in dental preps., pharmaceuticals

Regulatory: DOT nonregulated/nonhazardous; SARA §313 nonreportable

Properties: Wh. powd.; sol. in water, warm propylene glycol; disp. in warm min. oil; insol. in IPA; HLB 16.0; anionic

Use Level: 1-3%

Crodasinic LS95 NP [Croda Inc http://www.croda.com; http://www.crodausa.com]

Chem. Descrip.: Sodium lauryl sarcosinate

See Sodium lauryl sarcosinate

CAS 137-16-6; EINECS/ELINCS 205-281-5

Uses: Surfactant, wetting agent, enzyme inhibitor (hexokinase), bacteriostat, foaming agent for oral and topical pharmaceuticals, oral care, surgical scrubs

Features: Compat. with germicides

Properties: Wh. powd.; sol. in water, warm propylene glycol; disp. in warm min. oil; insol. in IPA; HLB 16.0; anionic

Use Level: 1-3%
Trade Name Reference

**Regulatory:** FDA 21CFR 172.859

**Properties:** Off-wh. powd.; water-sol.; HLB 12.0; m.p. 72-78 C; acid no. 5 max.; iodine no. 1 max.; sapon. no. 85-145; hyd. no. 475-525; nonionic; 100% act.

**Use Level:** 3-6%

**Crodesta F-160 [Croda Inc](http://www.croda.com); [Croda USA](http://www.crodausa.com); Croda Chem. Europe Ltd [http://www.croda.co.uk]**

**Chem. Descrip.:** Sucrose stearate

**CAS** 25168-73-4; EINECS/ELINCS 246-705-9

**Uses:** Dispersant, o/w emulsifier, wetting agent, solubilizer, detergent, foaming agent, thickener, suspending agent, component of coating systems for topical and oral pharmaceuticals

**Regulatory:** FDA 21CFR 172.859

**Properties:** Wh. powd.; water-sol.; HLB 14.5; m.p. 70-74 C; acid no. 5 max.; iodine no. 1 max.; sapon. no. 75-153; hyd. no. 545-595; nonionic; 100% act.

**Use Level:** 3-6%

**Crodesta SL-40 [Croda Inc](http://www.croda.com); [Croda USA](http://www.crodausa.com); Croda Chem. Europe Ltd [http://www.croda.co.uk]**

**Chem. Descrip.:** Sucrose cocoate

**CAS** 91031-88-8; EINECS/ELINCS 292-993-4

**Uses:** Dispersant, emulsifier, wetting agent, solubilizer, detergent, foaming agent, emollient for topical pharmaceuticals, skin cleansers

**Features:** Mild detergency; high foaming

**Properties:** Amber liq.; water-sol.; insol. in oil; HLB 15.0; acid no. 5 max.; iodine no. 1 max.; nonionic; 100% conc.

**Use Level:** 5-20%

**Crodet S8 [Croda Chem. Europe Ltd](http://www.croda.co.uk)**

**Chem. Descrip.:** PEG-8 stearate

**CAS** 9004-99-3

**Uses:** O/w emulsifier for pharmaceutical creams, lotions, and ointments; wetting agent, solubilizer for perfumes or aq. alcoholic preparations; dispersant

**Properties:** Off-wh. soft paste; sol. in ethyl and oleyl alcohols, oleic acid, ceto stearyl alcohol, arachis oil and isoparaffinic solv.; HLB 10.8; sapon. no. 84-94; nonionic; 97% conc.

**Features:** Heat stable (autoclavable)

**Regulatory:** FDA Inactive Ingredients Guide listed

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**Crodet S40 [Croda Chem. Europe Ltd](http://www.croda.co.uk)**

**Chem. Descrip.:** PEG-40 stearate

**CAS** 9004-99-3

**Uses:** O/w emulsifier for pharmaceutical creams, lotions, and ointments; wetting agent, solubilizer for perfumes or aq. alcoholic preparations; dispersant

**Properties:** Off-wh. waxy solid; sol. in ethyl and cetostearyl alcohol, water; HLB 16.7; sapon. no. 23-30; nonionic; 97% conc.

**Crodet S100 [Croda Chem. Europe Ltd](http://www.croda.co.uk)**

**Chem. Descrip.:** PEG-100 stearate

**CAS** 9004-99-3

**Uses:** O/w emulsifier for pharmaceutical creams, lotions, and ointments; wetting agent, solubilizer for perfumes or aq. alcoholic preparations; dispersant

**Properties:** Off-wh. waxy solid; sol. in ethyl and cetostearyl alcohol, water; HLB 18.8; sapon. no. 10-14; nonionic; 97% conc.

**Crodex A [Croda Chem. Europe Ltd](http://www.croda.co.uk)**

**Chem. Descrip.:** Cetostearyl alcohol and sodium lauryl sulfate

**See:** Cetearyl alcohol

**Uses:** O/w emulsifier for suppository bases, emulsified ointments

**Features:** Emulsifying wax BP; stable to weak acids, alkalis and some metal salts

**Regulatory:** EP

**Properties:** Wh. to pale yel. waxy solid; faint char. odor; water-disp.; anionic; 100% conc.

**Crodex C [Croda Chem. Europe Ltd](http://www.croda.co.uk)**

**Chem. Descrip.:** Cetearyl alcohol and cetrimonium bromide

**Uses:** Emulsifier, bactericide for pharmaceuticals

**Features:** Emulsifying wax BPC

**Properties:** Wh. waxy solid; faint char. odor; water-disp.; cationic; 100% conc.

**Crodex N [Croda Chem. Europe Ltd](http://www.croda.co.uk)**

**Chem. Descrip.:** Cetosteryl alcohol and ceteth-20

**See:** Cetearyl alcohol

**Uses:** Emulsifier, wetting agent, penetrant for most emollient materials in dermatological preps.

**Features:** Heat stable (autoclavable)

**Regulatory:** FDA Inactive Ingredients Guide listed
Trade Name Reference

Croduret 40LD [Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: PEG-40 hydrogenated castor oil
CAS 61788-85-0
Uses: Solubilizer used in a wide variety of oral formulations incl. medicated mouthwashes, vitamins, essential oils and pharmaceuticals; emollient and superfatting agent in pharmaceutical topicals
Features: Excellent oxidative stability
Properties: Wh. to off-wh. semisolid; nonionic; HLB 13.0; 100% conc.

Croduret 50 Special [Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: PEG-50 hydrogenated castor oil
CAS 61788-85-0
Uses: Superfatting agent, emollient, and emulsifier for pharmaceutical topical creams and lotions; solubilizer used in a wide variety of oral formulations incl. medicated mouthwashes
Features: Excellent oxidative stability
Properties: Wh. soft paste; tasteless; water-sol.; liquefies @ 30 C; HLB 14.1; nonionic; 100% conc.

Cromul EM 0685 [Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: Ceteth-5 and ceteareth-7
Uses: Emulsifier and opacifier for pharmaceutical creams and lotions
Properties: Soft waxy solid; HLB 10.2; nonionic; 100% conc.

Cropure® Orange Roughy [Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: Orange roughy (Hoplostethus) oil, BHT (preservative) See Orange roughy oil
Uses: Solubilizer for pharmaceuticals
Properties: APHILA 50 max. color, cl. oily liq.; essentially odorless; acid no. 1 max.; iodine no. 80-95; sapon. no. 95-110; hyd. no. 5 max.

Croquat L [Croda Inc http://www.croda.com; http://www.crodausa.com; Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: Lauridimonium hydroxypropyl hydrolyzed collagen and water See Laurydimonium hydroxypropyl hydrolyzed collagen
CAS 118441-80-8
Uses: Substantive conditioner in medicated hair care products; secondary antimicrobial properties
Properties: Cl. yel. visc. liq.; m.w. 2500; essentially water-sol.; cationic; 40% act.
Use Level: 0.5-2.5%

Crossential® GLA E95 SR [Croda Inc http://www.croda.com; http://www.crodausa.com]
Chem. Descrip.: High purity γ-linolenic acid
CAS 506-26-3
Uses: Used in the treatments of inflammatory conditions e.g. eczema, rheumatoid arthritis, diabetic neuropathy, cardiovascular disease (with omega-3 lipids), PMS and mastalgia, therapeutic skin care products.
Features: Low peroxide and para-anisidine values
Properties: Cl. pale yel. liq.; 95% min.

Crossential® EL90 [Croda Inc http://www.croda.com; http://www.crodausa.com]
Chem. Descrip.: Ethyl linolate
CAS 544-35-4; EINECS/ELINCS 208-868-4
Uses: Solvent for topical pharmaceuticals
Features: Props. similar to ethyloleate
Properties: Yel. liq.; sol. in min. oil, IPA; insol. in water, propylene glycol; HLB 15.95; 90% as ethyl ester
Use Level: 0-100%

Chem. Descrip.: γ-Linoleic acid derived from evening primrose oil See Linoleic acid
CAS 60-33-3; EINECS/ELINCS 200-470-9
Uses: Dietary supplements; drug delivery for oral and topical pharmaceuticals; indicated for treatment of disorders such as eczema, rheumatoid arthritis, diabetic neuropathy, cardiovascular disease (with omega-3 lipids), PMS and mastalgia
Features: Naturally derived plant lipid
Properties: Yel. liq.; sol. in min. oil, IPA; insol. in water, propylene glycol; HLB 7.12; 25% as triglyceride
Use Level: 0-100%
Chem. Descrip.: γ-Linolenic acid derived from borage seed oil. See Linolenic acid
CAS 463-40-1; EINECS/ELINCS 207-334-8
Uses: Nutritional applics.; drug delivery for oral and topical pharmaceuticals
Properties: Yel. liq.; sol. in min. oil, IPA; insol. in water, propylene glycol; HLB 7.21; 38% as triglyceride
Use Level: 0-100%

Crossential® GMO [Croda Inc http://www.croda.com; http://www.crodausa.com]
Chem. Descrip.: Glycerol monooleate. See Glycerol oleate
Chem. Analysis: 90% monoester, 84% oleic acid
CAS 37220-82-9; EINECS/ELINCS 247-038-6
Uses: Excipient for drug delivery in controlled release formulations; boosts membrane penetration; bioavailability enhancer, w/o emulsifier, emulsion stabilizer; stabilizer for peptide actives; used in tablets, periodontal drug delivery systems, nasal dosage forms
Features: Vegetable-derived; suitable for lipid and water soluble actives
Regulatory: EP, GRAS, FDA Inactive Ingredients Guide listed
Properties: Pale yel. liq.; sol. in min. oil, IPA; insol. in water; propylene glycol; HLB 3.3; 38% as triglyceride

Crossential® L90 [Croda Inc http://www.croda.com; http://www.crodausa.com]
Chem. Descrip.: Linoleic acid
CAS 60-33-3; EINECS/ELINCS 200-470-9
Uses: Absorp. enhancer for oral, topical, nasal, and transdermal pharmaceuticals; essential fatty acid and parent compd. of Omega 6 family; starting material for pharmaceutical derivatives
Properties: Pale yel. liq.; sol. in propylene glycol, IPA; min. oil; insol. in water; HLB 16.22; 90% as free fatty acid
Use Level: 0-100%

Toxicology: Low toxicity

Crossential® LN80 [Croda Inc http://www.croda.com; http://www.crodausa.com]
Chem. Descrip.: α-Linolenic acid. See Linolenic acid
Chem. Analysis: 80% min. free fatty acid purity
Trade Name Reference

dispersant for fragrances and other lipophilic materials; emollient, solubilizer for hydroalcoholic systems, external analgesic prods.

**Properties:** Yel. paste/liq.; sol. in water, ethanol, IPA, oleyl alcohol, maize oil; partly sol. in min. oil; HLB 15.0; acid no. 2 max.; sapon. no. 45-55; hyd. no. 70-90; nonionic

**Use Level:** 1-10%

**Toxicology:** Nonirritating to skin and eyes

**Chem. Descr.:** PEG-60 corn glycerides

**Uses:** Solubilizer, dispersant for lipophilic materials; emollient and solubilizer for hydroalcoholic systems, external analgesic products; protects against skin defatting in soaps and detergent scrubs; emulsifier, wetting agent, plasticizer in aerosols

**Properties:** Pale yel. visc. liq.; char. odor; insol. in water; sp.gr. 0.959; visc. 7.5 stokes; f.p. 15 F; i.b.p. 313 C; pour pt. -23 C; acid no. 2; iodine no. 86; sapon. no. 180; hyd. no. 164; 0.20% moisture

**Toxicology:** LD50 (oral, rat) > 5000 mg/kg; prolonged/repeated contact may cause skin irritation in some individuals; may cause sl. eye irritation; not expected to be toxic by ing.; single inh. exposure to vapors or mist not likely to be hazardous; TSCA listed

**Environmental:** Minimize entry into sewers, drainage systems

**Precaution:** May burn, but does not readily ignite; avoid high temps.; no sensitivity to explosion expected by mech. impact or static discharge; can react vigorously with oxidizing materials

**Hazardous Decomp. Prods.:** Incomplete combustion: CO, CO2, dense smoke; combustion may generate toxic gases, vapors, fumes

**HMIS:** Health 1, Flammability 1, Reactivity 0

**Storage:** Store in cool, dry place away from strong oxidizers and acids

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**Chem. Descr.:** Refined castor (Ricinus communis) oil USP (99.98%), with BHA (0.02%)

**CAS:** 8001-79-4; EINECS/ELINCS 232-293-8

**Uses:** Emulsifier, emollient, pigment dispersant/wetter/cosolvent, lubricant, film-former for pharmaceuticals, medicine, antiperspirant sticks

**Regulatory:** FDA approval; DOT nonregulated; SARA §302/311/312/313 nonreportable; Calif. Prop. 65 reportable [BHA (0.02%)]; Canada DSL listed

**Properties:** Gardner 1- color; sp.gr. 0.959; visc. 7.5 stokes; pour pt. -23 C; acid no. 2; iodine no. 86; sapon. no. 180; hyd. no. 164; 0.20% moisture

**Toxicology:** Nonirritating to eyes; minimal skin irritant

**Environmental:** Minimize entry into sewers, drainage systems

**Precaution:** May burn, but does not readily ignite; avoid high temps.; no sensitivity to explosion expected by mech. impact or static discharge; can react vigorously with oxidizing materials

**Hazardous Decomp. Prods.:** Incomplete combustion: CO, CO2, dense smoke; combustion may generate toxic gases, vapors, fumes

**HMIS:** Health 1, Flammability 1, Reactivity 0

**Storage:** Store in cool, dry place away from strong oxidizers and acids

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Crystalac® Confectioners Glaze [Mantrose Bradshaw Zinsser http://www.mbzgroup.com]

**Uses:** Pharmaceutical glaze for seed coating, core sealing, finish gloss, and ink base applics., esp. for automatic panning equip.

**Features:** Accelerated drying chars.
Trade Name Reference

Bradshaw Zinsser
http://www.mbzgroup.com
Chem. Descr.: Lac resin in alcohol  See Shellac

Uses: Pharmaceutical glaze for seed coating, core sealing, finish gloss, and ink base applincs., esp. for automatic panning equip.
Features: Accelerated drying chars.
Regulatory: USP/NF compliance; kosher

CS-10FG [Ducey Chem.]
Uses: Antifoam for pharmaceuticals, drugs
Storage: 6 mos. shelf life

CS-30FG [Ducey Chem.]
Uses: Antifoam for pharmaceuticals, drugs
Storage: 6 mos. shelf life

CS-100FG [Ducey Chem.]
Uses: Antifoam for pharmaceuticals, drugs
Storage: 6 mos. shelf life

CS-922 [Am. Casein
http://www.americancasein.com]
Chem. Descr.: Calcium sodium caseinate, spray dried
Uses: Solubilizer in pharmaceuticals
Regulatory: Kosher
Properties: Wh. to lt. cream fine free-flowing powd.; clean/bland odor/flavor; pH 6.6-7.7; 6% moisture
Storage: Store in cool, dry place

C*Sorbidex C [Cerestar
http://www.cerestar.com]
Chem. Descr.: Sorbitol syrup
CAS 50-70-4; EINECS/ELINCS 200-061-5
Uses: Sweetener in pharmaceuticals
Features: Crystallizing props.
Properties: Syrup

C*Sorbidex C 16121 [Cerestar
http://www.cerestar.com]
Chem. Descr.: Sorbitol liquid
CAS 50-70-4; EINECS/ELINCS 200-061-5
Uses: Taste masking and bodying agent; plasticizer in gelatin capsules; bulking agent, noncariogenic sweetening agent, anticrystallizing agent for sugar-free pharmaceutical solutions and syrups; stabilizer for drugs and vitamins in suspensions; emollient and humectant in pharmaceutical creams and emulsions; used in medicated chewing gums
Features: Crystallizing; does not undergo browning reactions in alkaline media; compatible with most active ingredients
Regulatory: USP/NF, EP, JP

Properties: Cl. colorless syrup; sweet taste

C*Sorbidex C 16122 [Cerestar
http://www.cerestar.com]
Chem. Descr.: Sorbitol liquid
CAS 50-70-4; EINECS/ELINCS 200-061-5
Uses: Taste masking and bodying agent; plasticizer in gelatin capsules; bulking agent, noncariogenic sweetening agent, anticrystallizing agent for sugar-free pharmaceutical solutions and syrups; stabilizer for drugs and vitamins in suspensions; emollient and humectant in pharmaceutical creams and emulsions; used in medicated chewing gums
Features: Crystallizing
Regulatory: USP/NF, EP, JP
Properties: Cl. colorless syrup; sweet taste

C*Sorbidex NC 16205 [Cerestar
http://www.cerestar.com]
Chem. Descr.: Sorbitol syrup
CAS 50-70-4; EINECS/ELINCS 200-061-5
Uses: Taste masking and bodying agent; plasticizer in gelatin capsules; bulking agent, noncariogenic sweetening agent, anticrystallizing agent for sugar-free pharmaceutical solutions and syrups; stabilizer for drugs and vitamins in suspensions; emollient and humectant in pharmaceutical creams and emulsions; used in medicated chewing gums
Features: Crystallizing
Regulatory: USP/NF, EP
Properties: Cl. colorless syrup; sweet taste

C*Sorbidex P 16616 [Cerestar
http://www.cerestar.com]
Chem. Descr.: Compressible sorbitol
CAS 50-70-4; EINECS/ELINCS 200-061-5
Uses: Plasticizer in gelatin capsules; bulking agent, noncariogenic sweetening agent, diluent in tablet, capsule and powder formulations; used in medicated chewing gums
Features: Fine grade; good compressibility and excellent workability on high speed tableting machines
Regulatory: USP/NF, EP, JP
Properties: Powd.; rapidly sol. in water

C*Sorbidex P 16656 [Cerestar
http://www.cerestar.com]
Chem. Descr.: Compressible sorbitol
CAS 50-70-4; EINECS/ELINCS 200-061-5
Uses: Plasticizer in gelatin capsules; bulking agent, noncariogenic sweetening agent,
Trade Name Reference

**C*Sorbidx P 16601 [Cerestar http://www.cerestar.com]**
Chem. Descrip.: Sorbitol
CAS 50-70-4; EINECS/ELINCS 200-061-5
Uses: Plasticizer in gelatin capsules; bulking agent, noncariogenic sweetening agent, diluent in tablet, capsule and powder formulations; used in medicated chewing gums
Features: Fine grade; compatible with and does not react with most active ingredients; good flow props.
Regulatory: DOT nonregulated; SARA §302/304/313 nonreportable, §311/312 fire hazard; Canada DSL, Korea listed
Properties: Sweet taste; rapidly sol. in water

**C*Sorbidx P 16603 [Cerestar http://www.cerestar.com]**
Chem. Descrip.: Sorbitol
CAS 50-70-4; EINECS/ELINCS 200-061-5
Uses: Plasticizer in gelatin capsules; bulking agent, noncariogenic sweetening agent, diluent in tablet, capsule and powder formulations; used in medicated chewing gums
Features: Fine grade; compatible with and does not react with most active ingredients; good flow props.
Regulatory: DOT nonregulated; SARA §302/304/313 nonreportable, §311/312 fire hazard; Canada DSL, Korea listed
Properties: Sweet taste; rapidly sol. in water

**Culminal® MC 2000 [Hercules/Aqualon http://www.aqualon.com]**
Chem. Descrip.: Methylcellulose
CAS 9004-67-5
Uses: Thickener, stabilizer for ointments
Regulatory: DOT nonregulated; SARA §302/304/313 nonreportable, §311/312 fire hazard; Canada DSL, Korea listed
Properties: Wh. to off-wh. gran. powd.; 1% max. on 0.8 mm sieve, 55-90% on 0.2 mm sieve; odorless; sol. in cold water; insol. in hot water; sp.gr. 0.25; bulk dens. 200-500 g/l; visc. 2100-2900 mPa•s (2%, 20 C); pH 5-7 (1%); nonionic
Toxicology: ACGIH TLV/TWA 3 mg/m³ respirable dust; may cause eye/skin irritation by mech. abrasion; inh. of dust may cause respiratory tract irritation; ing. may cause laxative effect, constipation; TSCA listed
Precaution: Flamm. dust; static charges may cause flash fire; may form flamm. dust-air mixts.; incompat. with acids, oxidizing agents, alkalis, strong sunlight, UV light, free radicals; spillages may be slippery
Hazardous Decomp. Prods.: CO, CO₂, smoke
HMIS: Health 1, Flammability 1, Reactivity 0
Storage: Hygroscopic; store in cool, dry, clean, well-ventilated area @ 20 C in original pkg.; keep container closed when not in use; keep away from heat, ignition sources; blanket with inert gas when emptying bags near flamm. vapors

**Culminal® MC 3000 P [Hercules/Aqualon http://www.aqualon.com]**
Chem. Descrip.: Methylcellulose
CAS 9004-67-5
Uses: Thickener, stabilizer for ointments
Regulatory: DOT nonregulated; SARA §302/304/313 nonreportable, §311/312 fire hazard; Canada DSL, Korea listed
Properties: Wh. to off-wh. gran. powd.; 1-8% max. on 0.2 mm sieve; odorless; sol. in cold
Culmina® MC 7000 PF [Hercules/Aqualon http://www.aqualon.com]

Chem. Descrip.: Methylcellulose

CAS 9004-67-5

Uses: Thickener, stabilizer for ointments

Regulatory: DOT nonregulated; SARA §302/304/313 nonreportable, §311/312 fire hazard; Canada DSL, Korea listed

Properties: Wh. to off-wh. gran. powd.; <8% max. on 0.125 mm sieve; odorless; sol. in cold water; insp. in hot water; sp.gr. 0.25; bulk dens. 200-500 g/l; visc. 7000-9500 mPa•s (2%, 20 C); pH 5-7 (1%); nonionic

Toxicology: ACGIH TLV/TWA 3 mg/m³ respirable dust; may cause eye/skin irritation by mech. abrasion; inh. of dust may cause respiratory tract irritation; ing. may cause laxative effect, constipation

Precaution: Flamm. dust; static charges may cause flash fire; may form flamm. dust-air mixts.; incompat. with acids, oxidizing agents, alkalis, strong sunlight, UV light, free radicals; spillages may be slippery

Hazardous Decomp. Prods.: CO, CO₂; smoke

Storage: Hygroscopic; store in cool, dry, clean area in original pkg.; keep container closed when not in use; keep away from heat, ignition sources; blanket with inert gas when emptying bags near flamm. vapors

Culmina® MHEC 8000 [Hercules/Aqualon http://www.aqualon.com]

Chem. Descrip.: Methylhydroxyethylcellulose

See Methylhydroxyethylcellulose

CAS 9032-42-2

Uses: Thickener, stabilizer for ointments

Regulatory: DOT nonregulated; SARA §302/304/313 nonreportable, §311/312 fire hazard

Properties: Wh. to off-wh. gran. powd.; 1-8% max. on 0.2 mm sieve; odorless; sol. in cold water; insp. in hot water; sp.gr. 0.3-0.35; bulk dens. 200-500 g/l; visc. 6000-8000 mPa•s (2%, 20 C); nonionic

Toxicology: ACGIH TLV/TWA 3 mg/m³ respirable dust; may cause eye irritation; may cause skin irritation by mech. abrasion; inh. of dust may cause respiratory tract irritation

Environmental: Biodeg.

Precaution: Flamm. dust; static charges may cause flash fire; may form flamm. dust-air mixts.; incompat. with acids, oxidizing agents, alkalis, strong sunlight, UV light, free radicals; spillages may be slippery

Hazardous Decomp. Prods.: CO, CO₂; smoke

Storage: Hygroscopic; store in cool, dry area in original pkg.; keep container closed when not in use; keep away from heat, ignition sources, direct sunlight, UV radiation; blanket with inert gas when emptying bags near flamm. vapors

Culmina® MHEC 8000 PR [Hercules/Aqualon http://www.aqualon.com]

Chem. Descrip.: Methylhydroxyethylcellulose

See Methylhydroxyethylcellulose

CAS 9032-42-2

Uses: Thickener, stabilizer for ointments

Regulatory: DOT nonregulated; SARA §302/304/313 nonreportable, §311/312 fire hazard

Properties: Wh. to off-wh. gran. powd.; 1-8% max. on 0.8 mm sieve; 55-90% on 0.2 mm sieve; odorless; sol. in cold water; insp. in hot water; sp.gr. 0.3-0.35; bulk dens. 200-500 g/l; visc. 8500-11,500 mPa•s (2%, 20 C); nonionic

Toxicology: ACGIH TLV/TWA 3 mg/m³ respirable dust; may cause eye irritation; may cause skin irritation by mech. abrasion; inh. of dust may cause respiratory tract irritation; TSCA listed

Environmental: Biodeg.

Precaution: Flamm. dust; static charges may cause flash fire; may form flamm. dust-air mixts.; incompat. with acids, oxidizing agents, alkalis, strong sunlight, UV light,
free radicals; spillages may be slippery
Hazardous Decomp. Prods.: CO, CO₂, smoke
HMIS: Health 1, Flammability 1, Reactivity 0

Storage: Hygroscopic; store in dry, clean area in original pkg.; keep container closed when not in use; keep away from heat, ignition sources, direct sunlight, UV radiation; blanket with inert gas when emptying bags near flamm. vapors

Culminal® MHEC 15000 PFF
[Hercules/Aqualon
http://www.aqualon.com]
Chem. Descr.: Methylhydroxyethylcellulose
See Methyl hydroxyethylcellulose
CAS 9032-42-2
Uses: Thickener, stabilizer for ointments
Regulatory: DOT nonregulated; SARA §302/304/313 nonreportable, §311/312 fire hazard
Properties: Wh. to off-wh. gran. powd.; 5% max. on 0.125 mm sieve; 40% max. on 0.063 mm sieve; odorless; sol. in cold water; insol. in hot water; sp.gr. 0.3-0.35; bulk dens. 200-500 g/l; visc. 15,000-20,500 mPa•s (2%, 20 C); nonionic
Toxicology: ACGIH TLV/TWA 3 mg/m³
respirable dust; may cause eye irritation;
may cause skin irritation by mech. abrasion;
inh. of dust may cause respiratory tract irritation
Environmental: Biodeg.
Precaution: Flamm. dust; static charges may cause flash fire; may form flamm. dust-air mixts.; incompat. with acids, oxidizing agents, alkalis, strong sunlight, UV light, free radicals; spillages may be slippery
Hazardous Decomp. Prods.: CO, CO₂, smoke
Storage: Hygroscopic; store in dry, clean area in original pkg.; keep container closed when not in use; keep away from heat, ignition sources, direct sunlight, UV radiation; blanket with inert gas when emptying bags near flamm. vapors

Culminal® MHEC 25000 PFF
[Hercules/Aqualon
http://www.aqualon.com]
Chem. Descr.: Methylhydroxyethylcellulose
See Methyl hydroxyethylcellulose
CAS 9032-42-2
Uses: Thickener, stabilizer for ointments
Regulatory: DOT nonregulated; SARA §302/304/313 nonreportable, §311/312 fire hazard
Properties: Wh. to off-wh. gran. powd.; 5% max. on 0.125 mm sieve; 40% max. on 0.063 mm sieve; odorless; sol. in cold water; insol. in hot water; sp.gr. 0.3-0.35; bulk dens. 200-500 g/l; visc. 26,000-34,000 mPa•s (2%, 20 C); nonionic
Toxicology: ACGIH TLV/TWA 3 mg/m³
respirable dust; may cause eye irritation;
may cause skin irritation by mech. abrasion;
inh. of dust may cause respiratory tract irritation
Environmental: Biodeg.
Precaution: Flamm. dust; static charges may cause flash fire; may form flamm. dust-air mixts.; incompat. with acids, oxidizing agents, alkalis, strong sunlight, UV light, free radicals; spillages may be slippery
Hazardous Decomp. Prods.: CO, CO₂, smoke
Storage: Hygroscopic; store in dry, clean area in original pkg.; keep container closed when not in use; keep away from heat, ignition sources, direct sunlight, UV radiation; blanket with inert gas when emptying bags near flamm. vapors
Trade Name Reference

Culmina® MHEC 35000 P1R
[Hercules/Aqualon
http://www.aqualon.com]
Chem. Descrip.:  Methylhydroxyethylcellulose
See Methyl hydroxyethylcellulose
CAS 9032-42-2
Uses:  Thickener, stabilizer for ointments
Features:  Retarded sol. grade
Regulatory:  DOT nonregulated; SARA §302/304/313 nonreportable, §311/312 fire hazard
Properties:  Wh. to off-wh. gran. powd.; 3-10% on 0.2 mm sieve; odorless; sol. in cold water; insol. in hot water; sp.gr. 0.3-0.35; bulk dens. 200-500 g/l; visc. 35,000-48,000 mPa•s (2%, 20 C); nonionic
Toxicology:  ACGIH TLV/TWA 3 mg/m³ respirable dust, may cause eye irritation; may cause skin irritation by mech. abrasion; inh. of dust may cause respiratory tract irritation
Environmental:  Biodeg.
Precaution:  Flamm. dust; static charges may cause flash fire; may form flamm. dust-air mixts.; incompat. with acids, oxidizing agents, alkalis, strong sunlight, UV light, free radicals; spillages may be slippery
Hazardous Decomp. Prods.:  CO, CO₂, smoke
Storage:  Hygroscopic; store in dry, clean area in original pkg.; keep container closed when not in use; keep away from heat, ignition sources, direct sunlight, UV radiation; blanket with inert gas when emptying bags near flamm. vapors

Culmina® MHEC 40000 P1
[Hercules/Aqualon
http://www.aqualon.com]
Chem. Descrip.:  Methylhydroxyethylcellulose
See Methyl hydroxyethylcellulose
CAS 9032-42-2
Uses:  Thickener, stabilizer for ointments
Regulatory:  DOT nonregulated; SARA §302/304/313 nonreportable, §311/312 fire hazard
Properties:  Wh. to off-wh. gran. powd.; 3-10% on 0.2 mm sieve; odorless; sol. in cold water; insol. in hot water; sp.gr. 0.3-0.35; bulk dens. 200-500 g/l; visc. 35,000-48,000 mPa•s (2%, 20 C); nonionic
Toxicology:  ACGIH TLV/TWA 3 mg/m³ respirable dust, may cause eye irritation; may cause skin irritation by mech. abrasion; inh. of dust may cause respiratory tract irritation
Environmental:  Biodeg.
Precaution:  Flamm. dust; static charges may cause flash fire; may form flamm. dust-air mixts.; incompat. with acids, oxidizing agents, alkalis, strong sunlight, UV light, free radicals; spillages may be slippery
Hazardous Decomp. Prods.:  CO, CO₂, smoke
Storage:  Hygroscopic; store in dry, clean area in original pkg.; keep container closed when not in use; keep away from heat, ignition sources, direct sunlight, UV radiation; blanket with inert gas when emptying bags near flamm. vapors

Culmina® MHPC 5
[Hercules/Aqualon
http://www.aqualon.com]
Chem. Descrip.:  Methylhydroxypropylcellulose
See Hydroxypropyl methylcellulose
CAS 9004-65-3
Uses:  Thickener, stabilizer for ointments
Regulatory:  DOT nonregulated; SARA §302/304/313 nonreportable, §311/312 fire hazard; Canada DSL, Korea listed
Properties:  Wh. to off-wh. gran. powd.; 1% max. on 0.8 mm sieve, 55-90% on 0.2 mm sieve; odorless; sol. in cold water; insol. in hot water; sp.gr. 0.3-0.35; bulk dens. 300-600 g/l; visc. 4-8 mPa•s (2%, 20 C); pH 5-7 (1%); nonionic
Toxicology:  May cause eye/skin irritation by mech. abrasion; inh. of dust may cause respiratory tract irritation; TSCA listed
Environmental:  Biodeg.
Precaution:  Flamm. dust; static charges may cause flash fire; may form flamm. dust-air mixts.; incompat. with acids, oxidizing agents, alkalis, strong sunlight, UV light, free radicals; spillages may be slippery
Hazardous Decomp. Prods.:  CO, CO₂, smoke
HMIS:  Health 1, Flammability 1, Reactivity 0
Storage:  Hygroscopic; store in cool, dry, clean, well-ventilated area @ 20 C in original pkg.; keep container closed when not in use; keep away from heat, ignition sources, direct sunlight, UV radiation; blanket with inert gas when emptying bags near flamm. vapors

Culmina® MHPC 25
[Hercules/Aqualon
http://www.aqualon.com]
Chem. Descrip.:  Methylhydroxypropylcellulose
See Hydroxypropyl methylcellulose
CAS 9004-65-3
Uses:  Thickener, stabilizer for ointments
Regulatory:  DOT nonregulated; SARA
Trade Name Reference

§302/304/313 nonreportable, §311/312 fire hazard; Canada DSL, Korea listed

Properties: Wh. to off-wh. gran. powd.; 1% max. on 0.8 mm sieve, 55-90% on 0.2 mm sieve; odorless; sol. in cold water; insol. in hot water; sp.gr. 0.3-0.35; bulk dens. 300-600 g/l; visc. 25-35 mPa•s (2%, 20 C); pH 5-7 (1%); nonionic

Toxicology: May cause eye/skin irritation by mech. abrasion; inh. of dust may cause respiratory tract irritation

Environmental: Biodeg.

Precaution: Flamm. dust; static charges may cause flash fire; may form flamm. dust-air mixts.; incompat. with acids, oxidizing agents, alkalis, strong sunlight, UV light, free radicals; spillages may be slippery

Hazardous Decomp. Prods.: CO, CO₂, smoke

Storage: Hygroscopic; store in cool, dry, clean, well-ventilated area @ 20 C in original pkg.; keep container closed when not in use; keep away from heat, ignition sources; blanket with inert gas when emptying bags near flamm. vapors

Culminal® MHPC 50 [Hercules/Aqualon http://www.aqualon.com]

Chem. Descrip.: Methylhydroxypropylcellulose See Hydroxypropyl methylcellulose

CAS 9004-65-3

Uses: Thickener, stabilizer for ointments

Regulatory: DOT nonregulated; SARA §302/304/313 nonreportable, §311/312 fire hazard; Canada DSL, Korea listed

Properties: Wh. to brnsh. gran. powd.; 1% max. on 0.8 mm sieve, 55-90% on 0.2 mm sieve; odorless; sol. in cold water; insol. in hot water; sp.gr. 0.3-0.35; bulk dens. 300-600 g/l; visc. 90-125 mPa•s (2%, 20 C); pH 5-7 (1%); nonionic

Toxicology: May cause eye/skin irritation by mech. abrasion; inh. of dust may cause respiratory tract irritation

Environmental: Biodeg.

Precaution: Flamm. dust; static charges may cause flash fire; may form flamm. dust-air mixts.; incompat. with acids, oxidizing agents, alkalis, strong sunlight, UV light, free radicals; spillages may be slippery

Hazardous Decomp. Prods.: CO, CO₂, smoke

Storage: Hygroscopic; store in cool, dry, clean, well-ventilated area @ 20 C in original pkg.; keep container closed when not in use; keep away from heat, ignition sources; blanket with inert gas when emptying bags near flamm. vapors

Culminal® MHPC 400 [Hercules/Aqualon http://www.aqualon.com]

Chem. Descrip.: Methylhydroxypropylcellulose See Hydroxypropyl methylcellulose

CAS 9004-65-3

Uses: Thickener, stabilizer for ointments

Regulatory: DOT nonregulated; SARA §302/304/313 nonreportable, §311/312 fire hazard; Canada DSL, Korea listed

Properties: Wh. to off-wh. gran. powd.; 1% max. on 0.8 mm sieve, 55-90% on 0.2 mm sieve; odorless; sol. in cold water; insol. in hot water; sp.gr. 0.3-0.35; bulk dens. 200-500 g/l; visc. 400-550 mPa•s (2%, 20 C); pH 5-7 (1%); nonionic

Toxicology: May cause eye/skin irritation by mech. abrasion; inh. of dust may cause respiratory tract irritation
**Trade Name Reference**

- **respiratory tract irritation**
- **Environmental:** Biodeg.
- **Precaution:** Flamm. dust; static charges may cause flash fire; may form flamm. dust-air mixts.; incompat. with acids, oxidizing agents, alkalis, strong sunlight, UV light, free radicals; spillages may be slippery
- **Hazardous Decomp. Prods.:** CO, CO₂, smoke
- **Storage:** Hygroscopic; store in cool, dry, clean, well-ventilated area @ 20 C in original pkg.; keep container closed when not in use; keep away from heat, ignition sources; blanket with inert gas when emptying bags near flamm. vapors

**Culmina® MHPC 500 PF** [Hercules/Aqualon http://www.aqualon.com]

- **Chem. Descrip.:** Methylhydroxypropylcellulose See Hydroxypropyl methylcellulose
- **CAS:** 9004-65-3
- **Uses:** Thickener, stabilizer for ointments
- **Regulatory:** DOT nonregulated; SARA §302/304/313 nonreportable, §311/312 fire hazard; Canada DSL, Korea listed
- **Properties:** Wh. to off-wh. gran. powd.; 8% max. on 0.125 mm sieve; odorless; sol. in cold water; insol. in hot water; sp.gr. 0.3-0.35; bulk dens. 200-500 g/l; vis. 400-600 mPa*s (2%, 20 C); pH 5-7 (1%); nonionic
- **Toxicology:** May cause eye/skin irritation by mech. abrasion; inh. of dust may cause respiratory tract irritation
- **Environmental:** Biodeg.

**Culmina® MHPC 3000 P1R** [Hercules/Aqualon http://www.aqualon.com]

- **Chem. Descrip.:** Methylhydroxypropylcellulose See Hydroxypropyl methylcellulose
- **CAS:** 9004-65-3
- **Uses:** Thickener, stabilizer for ointments
- **Features:** Retarded sol.
- **Regulatory:** DOT nonregulated; SARA §302/304/313 nonreportable, §311/312 fire hazard; Canada DSL, Korea listed
- **Properties:** Wh. to off-wh. gran. powd.; 1% max. on 0.8 mm sieve, 55-90% on 0.2 mm sieve; odorless; sol. in cold water; insol. in hot water; sp.gr. 0.3-0.35; bulk dens. 200-500 g/l; visc. 6000-8000 mPa*s (2%, 20 C); pH 5-7 (1%); nonionic
- **Toxicology:** May cause eye/skin irritation by mech. abrasion; inh. of dust may cause respiratory tract irritation
- **Environmental:** Biodeg.

**Culmina® MHPC 6000 R** [Hercules/Aqualon http://www.aqualon.com]

- **Chem. Descrip.:** Methylhydroxypropylcellulose See Hydroxypropyl methylcellulose
- **CAS:** 9004-65-3
- **Uses:** Thickener, stabilizer for ointments
- **Features:** Retarded sol.
- **Regulatory:** DOT nonregulated; SARA §302/304/313 nonreportable, §311/312 fire hazard; Canada DSL, Korea listed
- **Properties:** Wh. to off-wh. gran. powd.; 1% max. on 0.8 mm sieve, 55-90% on 0.2 mm sieve; odorless; sol. in cold water; insol. in hot water; sp.gr. 0.3-0.35; bulk dens. 200-500 g/l; visc. 6000-8000 mPa*s (2%, 20 C); pH 5-7 (1%); nonionic
- **Toxicology:** May cause eye/skin irritation by mech. abrasion; inh. of dust may cause respiratory tract irritation
- **Environmental:** Biodeg.
### Culmina® MHPC 12000 PFF

[Heracles/Aqualon](http://www.aqualon.com)

**Chem. Descrip.:**

- **Methylhydroxypropylcellulose**
  - See Hydroxypropyl methylcellulose

**CAS:** 9004-65-3

**Uses:** Thickener, stabilizer for ointments

**Regulatory:** DOT nonregulated; SARA §302/304/313 nonreportable, §311/312 fire hazard; Canada DSL, Korea listed

**Properties:**
- Wh. to off-wh. gran. powd.; 5% max. on 0.125 mm sieve, 40% on 0.063 mm sieve; odorless; sol. in cold water; insol. in hot water; sp.gr. 0.3-0.35; bulk dens. 200-500 g/l; visc. 12,000-16,000 mPa•s (2%, 20 C); pH 5-7 (1%); nonionic

**Toxicology:** May cause **eye/skin irritation** by mech. abrasion; inh. of dust may cause **respiratory tract irritation**

**Environmental:** Biodeg.

**Precaution:** Flamm. dust; static charges may cause flash fire; may form flamm. dust-air mixts.; incompat. with acids, oxidizing agents, alkalis, strong sunlight, UV light, free radicals; spillages may be slippery

**Hazardous Decomp. Prods.:** CO, CO₂, smoke

**Storage:** Hygroscopic; store in cool, dry, clean, well-ventilated area @ 20 C in original pkg.; keep container closed when not in use; keep away from heat, ignition sources; blanket with inert gas when emptying bags near flamm. vapors

### Culmina® MHPC 20000 P

[Heracles/Aqualon](http://www.aqualon.com)

**Chem. Descrip.:**

- **Methylhydroxypropylcellulose**
  - See Hydroxypropyl methylcellulose

**CAS:** 9004-65-3

**Uses:** Thickener, stabilizer for ointments

**Features:** Retarded sol.

**Regulatory:** DOT nonregulated; SARA §302/304/313 nonreportable, §311/312 fire hazard; Canada DSL, Korea listed

**Properties:**
- Wh. to off-wh. gran. powd.; 1% max. on 0.8 mm sieve, 55-90% on 0.2 mm sieve; odorless; sol. in cold water; insol. in hot water; sp.gr. 0.3-0.35; bulk dens. 200-500 g/l; visc. 20,000-27,500 mPa•s (2%, 20 C); pH 5-7 (1%); nonionic

**Toxicology:** May cause **eye/skin irritation** by mech. abrasion; inh. of dust may cause **respiratory tract irritation**

**Environmental:** Biodeg.

**Precaution:** Flamm. dust; static charges may cause flash fire; may form flamm. dust-air mixts.; incompat. with acids, oxidizing agents, alkalis, strong sunlight, UV light, free radicals; spillages may be slippery

**Hazardous Decomp. Prods.:** CO, CO₂, smoke

**Storage:** Hygroscopic; store in cool, dry, clean, well-ventilated area @ 20 C in original pkg.; keep container closed when not in use; keep away from heat, ignition sources; blanket with inert gas when emptying bags near flamm. vapors
Trade Name Reference

Culmina® MHPC 20000 PR
[Hercules/Aqualon
http://www.aqualon.com]
Chem. Descrip.: Methylhydroxypropylcellulose See Hydroxypropyl methylcellulose
CAS 9004-65-3
Uses: Thickener, stabilizer for ointments
Features: Retarded sol.
Regulatory: DOT nonregulated; SARA §302/304/313 nonreportable, §311/312 fire hazard; Canada DSL, Korea listed
Properties: Wh. to off-wh. gran. powd.; 1-8% max. on 0.2 mm sieve; odorless; sol. in cold water; insol. in hot water; sp.gr. 0.3-0.35; bulk dens. 200-500 g/l; visc. 20,000-27,500 mPa•s (2%, 20 C); pH 5-7 (1%); nonionic
Toxicology: May cause eye/skin irritation by mech. abrasion; inh. of dust may cause respiratory tract irritation
Environmental: Biodeg.
Precaution: Flamm. dust; static charges may cause flash fire; may form flamm. dust-air mixts.; incompat. with acids, oxidizing agents, alkalis, strong sunlight, UV light, free radicals; spills may be slippery
Hazardous Decomp. Prods.: CO, CO2, smoke
Storage: Hygroscopic; store in cool, dry, clean, well-ventilated area @ 20 C in original pkg.; keep container closed when not in use; keep away from heat, ignition sources; blanket with inert gas when emptying bags near flamm. vapors

Cumal [Mitsubishi Gas http://www.mgc-a.com]
Chem. Descrip.: p-Isopropylbenzaldehyde See Cuminaldehyde
CAS 122-03-2; EINECS/ELINCS 204-516-9
Uses: Intermediate for pharmaceuticals
Properties: Colorless liq., aromatic odor; sol. in ethanol, ether, toluene; insol. in water; m.w. 148.2; sp.gr. 0.979; b.p. 235.5 C; acid no. 0.3; flash pt. (COC) 104 C; 98.5% purity
Toxicology: LD50 (oral, rat) 1390 mg/kg; eye and skin irritant
Storage: Store in cool, dry place

CustoBlend® BAT [Custom Ingreds.
http://www.chembuyersguide.com/partners/customingredients.html]
Chem. Descrip.: Sodium lauryl sulfate, cocamidopropyl betaine, cocamide DEA, PEG 150 distearate, chloroxylenol See PEG-150 distearate
Uses: Antibacterial soap conc.
Properties: 42% act.

CustoBlend® BAC [Custom Ingreds.
http://www.chembuyersguide.com/partners/customingredients.html]
Chem. Descrip.: Sodium lauryl sulfate, phenoxyethanol, cocamidopropyl betaine, cocamide DEA, PEG 150 distearate, chloroxylenol See PEG-150 distearate
Uses: Antibacterial soap conc.
Properties: 42% act.

CustoBlend® BAT [Custom Ingreds.
http://www.chembuyersguide.com/partners/customingredients.html]
Chem. Descrip.: Sodium lauryl sulfate, cocamidopropyl betaine, cocamide DEA, PEG 150 distearate See PEG-150 distearate
Uses: Antibacterial soap conc.
Properties: 42% act.

CustoBlend® BAT [Custom Ingreds.
http://www.chembuyersguide.com/partners/customingredients.html]
Chem. Descrip.: Sodium lauryl sulfate, cocamidopropyl betaine, cocamide DEA, PEG 150 distearate See PEG-150 distearate
Uses: Antibacterial soap conc.
Properties: 42% act.

CustoBlend® BAT [Custom Ingreds.
http://www.chembuyersguide.com/partners/customingredients.html]
Chem. Descrip.: Sodium lauryl sulfate, cocamidopropyl betaine, cocamide DEA, PEG 150 distearate See PEG-150 distearate
Uses: Antibacterial soap conc.
Properties: 42% act.
Trade Name Reference

Chem. Descrip.: Peppermint oil See Peppermint (Mentha piperita) oil
CAS 8006-90-4; EINECS/ELINCS 308-770-2
Uses: Analgesic, anti-inflammatory in cosmetics

Chem. Descrip.: Rosemary oil See Rosemary (Rosmarinus officinalis) oil
CAS 8000-25-7; EINECS/ELINCS 283-291-9
Uses: Nat. flavoring agent in pharmaceuticals

Chem. Descrip.: Sage oil See Sage (Salvia officinalis) oil
CAS 8016-64-6
Uses: Nat. flavoring agent in pharmaceuticals

Chem. Descrip.: Sandalwood oil See Sandalwood (Santalum album) oil
CAS 8006-87-9
Uses: Nat. flavoring agent in pharmaceuticals

Chem. Descrip.: Thyme oil See Thyme oil red
CAS 8007-46-3
Uses: Nat. flavoring agent in pharmaceuticals

Chem. Descrip.: Ylang-ylang oil See Ylang ylang (Cananga odorata) oil
EINECS/ELINCS 281-092-1
Uses: Nat. flavoring agent in pharmaceuticals

Chem. Descrip.: Palmitic acid and stearic acid
Uses: Consistency agent after saponification; o/w emulsifier for pharmaceutical emulsions and ointments
Properties: Almost wh. fine flakes, weak char. odor; solid. pt. 51-55 C; acid no. 207-210; iodine no. 1 max.
Storage: 1 yr. min. shelf life in sealed original containers at temps. below 30 C

Cutina® HR Powd. [Cognis/Care Chems.; Cognis Canada; Cognis GmbH/Care Chems. http://www.cognis.com]
Chem. Descrip.: Hydrogenated castor oil
CAS 8001-78-3; EINECS/ELINCS 232-292-2
Uses: Lubricant, tableting aid producing smooth, glossy surfs. on tablets; retardant at > 1%; separates incompat. medicaments; embeds hygroscopic actives
Features: High melting
Regulatory: JCID, NF, DAB compliance
Properties: Wh. to sl. yel. fine free-flowing powd.; particle size 30% < 10 μ; bulk dens. 350-410 g/l; m.p. 85-88 C; acid no. 3.1 max.; iodine no. 5 max.; sapon. no. 176-182; hyd. no. 154-162; 0.1% max. water
Storage: 1 yr. storage life in sealed original containers protected against moisture and stored below 40 C

Cutina® KD [Cognis Canada; Cognis GmbH/Care Chems. http://www.cognis.com]
Chem. Descrip.: Glyceryl stearate SE
CAS 11099-07-3
Uses: Base, emulsifier and fatting coagent for o/w pharmaceutical ointments and creams
Properties: Wh. to sl. ylsh. waxy compd., faint odor; solid. pt. 55-60 C; acid no. 7 max.; sapon. no. 150-165; hyd. no. 190-220; anionic
Storage: Protect against frost; 1 yr. storage life in sealed containers at temps. below 30 C

Cutina® MD [Cognis Canada; Cognis GmbH/Care Chems. http://www.cognis.com]
Chem. Descrip.: Glyceryl stearate
CAS 123-94-4
Uses: Consistency agent, stabilizer for pharmaceutical ointments, creams, and liq. emulsions
Features: Nonemulsifying base
Properties: Wh. to pale yel. waxy gran.; m.p. 53-57 C; acid no. 6 max.; sapon. no. 165-180;
Trade Name Reference

Cutina® MD-A [Cognis Canada; Cognis GmbH/Care Chems.
http://www.cognis.com]
Chem. Descrip.: Glyceryl stearate
CAS 123-94-4
Uses: Cream base, consistency agent, spreading agent for pharmaceutical creams and emulsions
Properties: Wh. waxy gran.; m.p. 52-58 C; acid no. < 5; sapon. no. 160-170; nonionic; 100% conc.

http://www.nikkol.co.jp/index.html
Chem. Descrip.: Di-C12-15 pareth-6 phosphate
CAS 149919-03-9
Uses: Emulsifier, stabilizer, dispersant in pharmaceuticals
Features: Can be neutralized with alkali
Regulatory: JSCI listed
Properties: Yel. liq.; HLB 6.5; anionic; 100% conc.

DDP-8 [Nikko Chems. Co. Ltd
http://www.nikkol.co.jp/index.html]
Chem. Descrip.: Di-C12-15 pareth-8 phosphate
CAS 25982-05-8
Uses: Emulsifier, stabilizer, dispersant in pharmaceuticals
Features: Can be neutralized with alkali
Regulatory: JSCI listed
Properties: Yel. liq.; HLB 11.5; anionic; 100% conc.

DDP-10 [Nikko Chems. Co. Ltd
http://www.nikkol.co.jp/index.html]
Chem. Descrip.: Di-C12-15 pareth-10 phosphate
CAS 149919-04-0
Uses: Emulsifier, stabilizer, dispersant in pharmaceuticals
Features: Can be neutralized with alkali
Regulatory: JSCI listed
Properties: Yel. paste; HLB 13.5; anionic; 100% conc.

DES-SP [Nikko Chems. Co. Ltd
http://www.nikkol.co.jp/index.html]
Chem. Descrip.: Diethyl sebacate
CAS 110-40-7; EINECS/ELINCS 203-764-5
Uses: Penetrant for topical pharmaceuticals
Features: Oily ingred. which permeates the skin; good sol. and penetration; light feel
Regulatory: JSCI listed
Properties: Colorless liq.; congeal pt. 2.2 C
Toxicology: TSCA listed

DGDO [Nikko Chems. Co. Ltd
http://www.nikkol.co.jp/index.html]
Chem. Descrip.: Polyglyceryl-2 dioleate
CAS 67965-56-4
Uses: W/o emulsifier for pharmaceuticals
Properties: Yel. liq.; HLB 7.0; nonionic; 100% conc.

DGMO-CV [Nikko Chems. Co. Ltd
http://www.nikkol.co.jp/index.html]
Chem. Descrip.: Polyglyceryl-2 oleate
CAS 9007-48-1; EINECS/ELINCS 256-367-4
Trade Name Reference

Uses: W/o emulsifier for pharmaceuticals
Features: Lipophilic
Regulatory: JSCI listed
Properties: Yel. liq.; HLB 5.5; nonionic; 100% conc.
Toxicology: TSCA listed

Chem. Descrip.: Polyyglyceryl-2 stearate
CAS 12694-22-3; EINECS/ELINCS 235-777-7
Uses: W/o emulsifier for pharmaceuticals
Regulatory: JSCI listed
Properties: Pale yel. solid; HLB 5.0; nonionic; 100% conc.

Chem. Descrip.: Penetrant for topical pharmaceuticals
Features: Oily ingred. which permeates the skin;
good sol. and penetration; light feel
Regulatory: JSCI listed
Properties: Pale yel. liq.; HLB 12.5; anionic; 100% conc.

Chem. Descrip.: Pyridoxine dipalmitate
CAS 635-38-1; EINECS/ELINCS 250-520-9
Uses: Oil-sol. vitamin B6 deriv.; effective for pimples, rough skin, dandruff, sunburn
Regulatory: JSCI listed
Properties: Pale yel. paste to solid; sol. in water, polar solvs.; pH 5.0-8.0 (5% aq.); cationic

Daistat CM 50P [Dai-ichi Karkaria http://www.dai-ichiindia.com/]
Chem. Descrip.: Cetyl trimethyl ammonium chloride See Cetrimonium chloride
CAS 112-02-7; EINECS/ELINCS 203-928-6
Uses: Emulsifier, dispersant, antistat, germicide, fungicide, algicide for antibiotics
Properties: Waxy solid; sol. in water, polar solvs.; pH 6.0-8.0 (5% aq.); cationic

Daistat CM 80 [Dai-ichi Karkaria http://www.dai-ichiindia.com/]
Chem. Descrip.: Cetyl dimethyl benzyl ammonium chloride See Cetalkonium chloride
CAS 122-18-9; EINECS/ELINCS 204-526-3
Uses: Emulsifier, dispersant, antistat, germicide, fungicide, algicide for antibiotics
Properties: Waxy solid; sol. in water, polar solvs.; pH 6.0-8.0 (5% aq.); cationic

Daistat CMB 90 F [Dai-ichi Karkaria http://www.dai-ichiindia.com/]
Chem. Descrip.: Cocotrimethyl ammonium chloride See Cocotrimonium chloride
CAS 61789-18-2; EINECS/ELINCS 263-038-9
Uses: Emulsifier, dispersant, antistat, germicide, fungicide, algicide for antibiotics
Properties: Pale yel. paste to solid; sol. in water, polar solvs.; pH 5.0-8.0 (5% aq.); cationic
**Trade Name Reference**

**Daistat LMB 90 F** [Dai-ichi Karkaria](http://www.dai-ichiindia.com)

**Chem. Descrip.** Coco dimethyl benzyl ammonium chloride  See Cocoalkonium chloride

**Uses:** Emulsifier, dispersant, antistat, germicide, fungicide, algicide for antibiotics

**Properties:** Visc. yel. liq.; sol. in water, polar solvs; pH 6.0-8.0 (5% aq.); cationic

**Daistat SM 80** [Dai-ichi Karkaria](http://www.dai-ichiindia.com)

**Chem. Descrip.** Stearyl trimethyl ammonium chloride  See Steartrimonium chloride  CAS 112-03-8; EINECS/ELINCS 203-929-1

**Uses:** Emulsifier, dispersant, antistat, germicide, fungicide, algicide for antibiotics

**Properties:** Waxy solid; sol. in water, polar solvs.; pH 6.0-8.0 (5% aq.); cationic

**Daistat SMB 90 F** [Dai-ichi Karkaria](http://www.dai-ichiindia.com)

**Chem. Descrip.** Stearyl dimethyl benzyl ammonium chloride  See Stearalkonium chloride  CAS 122-19-0; EINECS/ELINCS 204-527-9

**Uses:** Emulsifier, dispersant, antistat, germicide, fungicide, algicide for antibiotics

**Properties:** Waxy solid; sol. in water, polar solvs.; pH 6.0-8.0 (5% aq.); cationic

**Dantogard® Plus Liq.** [Lonza](http://www.lonza.com)

**Chem. Descrip.** DMDM hydantoin, hydroxymethyl-5,5-dimethyl hydantoin, 5,5-dimethylhydantoin, iodopropynyl butylcarbamate (2.6%), 1,3-butylene glycol (4.5%), water (23%)  See Butylene glycol; DM hydantoin; MDM hydantoin

**Uses:** Biocide, fungicide, solvent, preservative, lubricant for pharmaceuticals

**Features:** Stable under most normal conditions, @ pH 4-9

**Regulatory:** EPA reg. no. 6836-271; DOT nonregulated; SARA §302/304 nonreportable, §311/312 acute health hazard, §313 reportable (iodopropynyl butylcarbamate); Calif. Prop. 65 reportable (formaldehyde)

**Properties:** Colorless cl. liq.; sl. formaldehyde odor; sol. in water; readily disp. in surfactant systems; sp.gr. 1.19; flash pt. > 200 F; pH 7

**Toxicology:** LD50 (oral, rat) 3141 mg/kg, (skin, rabbit) > 2000 mg/kg; LC50 (inh., rat, 4 h) > 2.09 mg/l; expected to be mod. eye and mild skin irritant on direct contact; inh. may irritate mucous membranes; may cause allergic skin response in certain individuals; formaldehyde can cause sensitization reactions and is possible human carcinogen by inh.; TSCA listed

**Environmental:** Keep spills out of sewers and open bodies of water

**Precaution:** Avoid temps. above 90 C (to avoid decomp. and release of formaldehyde); incompat. with strong acids and alkalis; spillages may be slippery

**Hazardous Ingredients:** Contains up to 0.09% free formaldehyde in sol'n.

**Hazardous Decomp. Prods.:** Toxic combustion prods.; heating will release formaldehyde; thermal decomp. may produce toxic vapors/fumes of iodine, other org. materials, COx, NOx

**Storage:** Store @ or near R.T.; keep containers tightly closed until used; do not store below 60 F to avoid formation of crystals

**DBS, NF** [Morflex  http://www.morflex.com]

**Chem. Descrip.** Dibutyl sebacate  CAS 109-43-3; EINECS/ELINCS 203-672-5

**Uses:** Plasticizer for aq. pharmaceutical coatings including controlled sustained release, immediate release, and enteric; taste masking agent

**Regulatory:** NF

**Properties:** APHA 50, max. cl. liq.; miscible in acetone, ethanol, toluene, heptane, and veg. oil; m.w. 314.4; sp.gr. 0.935-0.939 (20 C); m.p. -11 C; b.p. 180 C (3 mm Hg); sapon. no. 352-357; flash pt. (COC) 353 F; ref. index 1.429-1.441; 92% min. assay

**Decaglyn 1-L** [Nikko Chems. Co. Ltd  http://www.nikkol.co.jp/index.html]

**Chem. Descrip.** Polyglyceryl-10 laurate  CAS 34406-66-1

**Uses:** Emulsifier, solubilizer, dispersant for pharmaceuticals

**Features:** Hydrophilic

**Regulatory:** JSCI listed

**Properties:** Pale yel. visc. liq.; HLB 15.5; 92% conc.

**Decaglyn 1-LN** [Nikko Chems. Co. Ltd  http://www.nikkol.co.jp/index.html]

**Chem. Descrip.** Polyglyceryl-10 linoleate  CAS 102643-06-1

**Uses:** Emulsifier, solubilizer, dispersant for pharmaceuticals
Trade Name Reference

**Features:** Hydrophilic  
**Properties:** Pale yel. visc. liq.; HLB 12.0; nonionic; 100% conc.

**Decaglyn 1-M** [Nikko Chems. Co. Ltd  
[http://www.nikkol.co.jp/index.html]]  
Chem. Descrip.: Polyglyceryl-10 myristate  
CAS 87390-32-7  
Uses: Emulsifier, solubilizer, dispersant for pharmaceuticals  
Features: Hydrophilic  
Regulatory: JSCI listed  
Properties: Pale yel. visc. liq.; HLB 12.0; nonionic; 100% conc.  
**Decaglyn 1-OV** [Nikko Chems. Co. Ltd  
[http://www.nikkol.co.jp/index.html]]  
Chem. Descrip.: Polyglyceryl-10 oleate  
CAS 9007-48-1; EINECS/ELINCS 279-230-0  
Uses: Emulsifier, solubilizer, dispersant for pharmaceuticals  
Features: Hydrophilic  
Regulatory: JSCI listed  
Properties: Pale yel. visc. liq.; HLB 14.0; nonionic; 100% conc.  
**Decaglyn 1-SV** [Nikko Chems. Co. Ltd  
[http://www.nikkol.co.jp/index.html]]  
Chem. Descrip.: Polyglyceryl-10 stearate  
CAS 79777-30-3  
Uses: Emulsifier, solubilizer, dispersant for pharmaceuticals  
Features: Hydrophilic  
Regulatory: JSCI listed  
Properties: Pale yel. plate; HLB 12.0; nonionic; 100% conc.  
**Decaglyn 2-SV** [Nikko Chems. Co. Ltd  
[http://www.nikkol.co.jp/index.html]]  
Chem. Descrip.: Polyglyceryl-10 distearate  
CAS 12764-60-2  
Uses: O/w emulsifier for pharmaceuticals  
Features: Hydrophilic  
Regulatory: JSCI listed  
Properties: Pale yel. plate; HLB 9.5; nonionic; 100% conc.  
**DeCONC HS-30** [DeForest Enterprises  
[http://www.deforest.net]]  
Chem. Descrip.: Sodium laureth sulfate, cetyl betaine, cocamidopropyl betaine, cocamide MEA, ethanol (< 5%)  
Uses: Surfactant, foaming agent, visc. builder for liq. hand soaps, antibacterial hand soaps  
Features: DEA-free; exc. afterfeel on skin; mild; rich, dense foam; good rinsability  
**DeFatted Wheat Germ #3** [Garuda Int'l.  
[http://www.garudaint.com]]  
Chem. Descrip.: Dried defatted granular form processed from beef livers  
Chem. Analysis: 6% max. loss on drying  
Uses: Nutritive pharmaceutical additive in tablets, capsules, and powders; diagnostic applications; taste masking of veterinary foods and drugs  
Properties: Gran.  
Storage: Store in cool dry area  
**Defatted Wheat Germ #9** [Garuda Int'l.  
[http://www.garudaint.com]]  
Chem. Descrip.: Defatted wheat germ See Wheat (Triticum vulgare) germ  
Chem. Analysis: Moisture 7.0% max.; fat 1.0% max.; protein 30% min.  
Uses: Flavoring agent, nutrient, protein source, dietary fiber in tablet and capsule filler  
Properties: Lt. tan; flour-like consistency; nat. wheat grain flavor  
**Degalan® PM-555** [Degussa AG  
[http://www.degussa.com]; Röhm Am.  
[http://www.rohmamerica.com]]  
Chem. Descrip.: Methacrylic esters/olefins  

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**HMIS:** Health 2, Flammability 2, Reactivity 0  
**Defatted Beef Liver Granular** [Am. Labs  
[http://www.americannlaboratories.com]]  
Chem. Descrip.: Dried defatted granular form processed from beef livers  
Chem. Analysis: 6% max. loss on drying  
Uses: Nutritive pharmaceutical additive in tablets, capsules, and powders; diagnostic applications; taste masking of veterinary foods and drugs  
Properties: Gran.  
Storage: Store in cool dry area  
**Defatted Wheat Germ #3** [Garuda Int'l.  
[http://www.garudaint.com]]  
Chem. Descrip.: Dried defatted granular form processed from beef livers  
Chem. Analysis: 6% max. loss on drying  
Uses: Nutritive pharmaceutical additive in tablets, capsules, and powders; diagnostic applications; taste masking of veterinary foods and drugs  
Properties: Gran.  
Storage: Store in cool dry area  
**Defatted Wheat Germ #9** [Garuda Int'l.  
[http://www.garudaint.com]]  
Chem. Descrip.: Dried defatted granular form processed from beef livers  
Chem. Analysis: 6% max. loss on drying  
Uses: Nutritive pharmaceutical additive in tablets, capsules, and powders; diagnostic applications; taste masking of veterinary foods and drugs  
Properties: Gran.  
Storage: Store in cool dry area  
**Degalan® PM-555** [Degussa AG  
[http://www.degussa.com]; Röhm Am.  
[http://www.rohmamerica.com]]  
Chem. Descrip.: Methacrylic esters/olefins  

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copolymer in org. emulsion (butylacetate/MEK solvs.) See n-Butyl acetate; Methyl ethyl ketone

Uses: Heat-sealing raw material for pkg. of pharmaceuticals

Properties: Liq.; dilutable with esters and ketones; dens. 0.90 g/cm³; dynamic visc. 200-1000 cps (20 °C); flash pt < 0 °C; 45 ± 1% solids

Toxicology: TSCA listed

Storage: Store tightly closed in cool place; store well before use

Dehydol® LS 3 DEO N [Cognis Canada; Cognis GmbH/Care Chems. http://www.cognis.com]

Chem. Descrip.: Laureth-3

CAS 9002-92-0; EINECS/ELINCS 221-280-2

Uses: Emulsifier, solubilizer for solvs., oils; raw material for pharmaceutical preps.

Regulatory: Japanese compliance

Properties: Water-wh. to ylsh. cl. to sl. cloudy liq., mild distinctive odor; dens. 0.880-0.8925 g/cm³ (70 °C); cloud pt. 2-5 °C; hyd. no. 171-178; pH 6.0-7.5 (1%); nonionic; 0.3% max. water

Storage: 1 yr. min. storage life in original sealed containers at temps. below 40 °C; may become cloudy below 18 °C—warm to 40 °C and stir thoroughly to reverse

Dehydol® E [Cognis/Care Chems.; Cognis Canada; Cognis GmbH/Care Chems. http://www.cognis.com]

Chem. Descrip.: Sorbitan sesquioleate, pentaerythritol cocoate, stearyl citrate, beeswax, and aluminum stearate See Pentaerythrityl cocoate

Uses: W/o emulsifier for prod. of hydrocarbon-free pharmaceutical ointments, and for creams, anhyd. or hydrous preps.

Features: High water absorbency; good resist. to temp. fluctuations

Properties: Ylsh. waxy solid; drop pt. 45-60 °C; HLB 6.0; iodine no. 20-30; sapon. no. 160-170; anionic; 100% conc.

Storage: 1 yr. min. storage life in closed original containers at temps. below 30 °C, protected from moisture


Chem. Descrip.: PEG-7 hydrogenated castor oil

CAS 61788-85-0

Uses: Emulsifier for pharmaceutical w/o emulsions, esp. for low-visc. emulsions

Regulatory: DAC compliance

Properties: Pale yl. cloudy visc. liq., almost odorless; acid no. < 1; sapon. no. 125-140; hyd. no. 110-130; nonionic; 100% conc.

Storage: 1 yr. min. storage life in sealed waterproof containers at temps. below 30 C

Dehymuls® SML [Cognis/Care Chems.]

Chem. Descrip.: Sorbitan laurate NF/BP

CAS 1338-39-2; EINECS/ELINCS 215-663-3

Uses: W/o emulsifier and coemulsifier for pharmaceutical appls.

Properties: Yel. cl. liq., pract. odorless; acid no. 4-7; sapon. no. 158-170; hyd. no. 330-358; nonionic

Toxicology: Nontoxic

Storage: 1 yr. min. storage stability stored in sealed containers at temps. below 30 C, protected from frost

Dehymuls® SMO [Cognis/Care Chems.]

Chem. Descrip.: Sorbitan olate NF/BP

CAS 1338-43-8; EINECS/ELINCS 215-665-4

Uses: Emulsifier and coemulsifier for w/o pharmaceutical ointments and creams

Properties: Yel.-brn. cl. liq.; acid no. 5-8; iodine no. 62-76; sapon. no. 149-160; hyd. no. 193-209; nonionic

Toxicology: Nontoxic

Storage: 1 yr. min. storage when stored in sealed moisture-protected containers at temps. below 30 C

Dehymuls® SMS [Cognis/Care Chems.]

Chem. Descrip.: Sorbitan stearate

CAS 1338-41-6; EINECS/ELINCS 215-664-9

Uses: W/o emulsifier for pharmaceutical industry

Properties: Wh. to ylsh. flakes; acid no. 5-10; sapon. no. 147-157; hyd. no. 235-260; nonionic

Toxicology: Nontoxic

Storage: 1 yr. min. storage stability in sealed containers at temps. below 30 C, protected from moisture

Dehymuls® SSO [Cognis/Care Chems.]

Chem. Descrip.: Sorbitan sesquioleate

CAS 8007-43-0; EINECS/ELINCS 232-360-1

Uses: W/o emulsifier and coemulsifier for waxes and oils for pharmaceuticals

Properties: Yel.-brn. cl. liq., pract. odorless; acid no. 12 max.; iodine no. 65-75; sapon. no. 150-165; hyd. no. 185-215; nonionic

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Toxicology: Nontoxic

Chem. Descrip.: Coco-betaine
CAS 68424-94-2; EINECS/ELINCS 270-329-4
Uses: Surfactant, conditioner, thickener for pharmaceuticals
Properties: Lt. yel. cl. liq., mild inherent odor; pH 6.0-7.5; amphoteric; 29-31% act.
Storage: 1 yr. storage stability in sealed original containers at 0-40 C; may cause corrosion in stainless steel tanks due to high salt content

Chem. Descrip.: Cocamidopropyl betaine
CAS 61789-40-0; EINECS/ELINCS 263-058-8
Uses: Surfactant for pharmaceuticals
Features: Synergistic with anionic surfactants
Properties: Ylsh. liq.; odorless; unlimited sol. in water @ 20 C; m.w. 355; flash pt. none; pH 4.5-5.5; amphoteric; 46-48% solids in water
Toxicology: LD50 (oral) > 2000 mg/kg; eye irritant; nonirritating to skin
Environmental: Readily biodeg.
Hazardous Decomp. Prods.: None
Storage: 1 yr. min. shelf life in sealed original containers stored @ 0-40 C; store in frost-free place

Dermosaccharides® SEA [Laboratoires Sérobiologiques http://www.laboratoires-serobiologiques.com]
Chem. Descrip.: Glycerin, water, chitin, glycogen, and mannitol See D-Mannitol
Uses: Epicutaneous hydro-regulator, cell energizer, structuring agent for skin in prods. for anti-aging, antiwrinkle, and skin lacking structure, firmness, and energy
Features: Restores protection, repair, and regeneration capability
Properties: Colorless to pale yel. sl. opalescent liq.; water-sol.

Chem. Descrip.: Stearic acid
CAS 67701-03-5; EINECS/ELINCS 266-928-5
Uses: Emollient, emulsifier, thickener in pharmaceuticals
Regulatory: Not regulated for transport
Environmental: Biodeg. (28 d) > 90%
Precaution: Wear gloves, goggles, overall skin protection; avoid entry to sewers, drain and surface water
Storage: Store @ R.T. in original sealed container protected from heat sources

Chem. Descrip.: Stearic acid
CAS 67701-03-5; EINECS/ELINCS 266-928-5
Uses: Emollient, emulsifier, thickener in pharmaceuticals
Regulatory: Not regulated for transport
Environmental: Biodeg. (28 d) > 90%
Precaution: Wear gloves, goggles, overall skin protection; avoid entry to sewers, drain and surface water
Storage: Store @ R.T. in original sealed container protected from heat sources
Trade Name Reference

**pharmaceuticals**

**Regulatory:** Not regulated for transport

**Precaution:** Wear gloves, goggles, overall skin protection; avoid entry to sewers, drain and surface water

**Storage:** Store @ R.T. in original sealed container protected from heat sources

**Dervacid 3155** [Undesa http://www.undesa.com; S. Black http://www.sblack.com]

Chem. Descrip.: Stearic acid

CAS 67701-03-5; EINECS/ELINCS 266-928-5

Uses: Emollient, emulsifier, thickener in pharmaceuticals

**Regulatory:** Not regulated for transport

**Properties:** Wh. solid; typical odor; insol. in water; dens. ≈ 0.85; m.p. ≈ 55 C; b.p. 205-235 C; flash pt. 215 C; 43-47% stearic acid content

**Precaution:** Wear gloves, goggles, overall skin protection; avoid entry to sewers, drain and surface water

**Storage:** Store @ R.T. in original sealed container protected from heat sources

**Dervacid 3156** [Undesa http://www.undesa.com; S. Black http://www.sblack.com]

Chem. Descrip.: Stearic acid

CAS 67701-03-5; EINECS/ELINCS 266-928-5

Uses: Emollient, emulsifier, thickener in pharmaceuticals

**Regulatory:** Not regulated for transport

**Properties:** Solid; typical odor; insol. in water; dens. ≈ 0.85; m.p. ≈ 58 C; b.p. 205-235 C; flash pt. 200 C

**Toxicology:** Nontoxic by ing. or inh.

**Precaution:** Wear gloves, goggles, overall skin protection; avoid entry to sewers, drain and surface water

**Hazardous Decomp. Prods.: None**

**Storage:** Store @ R.T. in original sealed container

**Dervacid 3157** [Undesa http://www.undesa.com; S. Black http://www.sblack.com]

Chem. Descrip.: Stearic acid

CAS 67701-03-5; EINECS/ELINCS 266-928-5

Uses: Emollient, emulsifier, thickener in pharmaceuticals

**Regulatory:** Not regulated for transport

**Properties:** Wh. solid flakes or beads; typical odor; insol. in water; sol. in fat; dens. ≈ 0.85 g/ml; vapor pressure (20 C) < 1 (100 C) mbar; m.p. ≈ 58 C; b.p. ≈ 165 C; flash pt. > 200 C

**Toxicology:** LD50 (oral, rat) > 10 g/kg; nontoxic

**Precaution:** Wear gloves, goggles, overall skin protection; avoid entry to sewers, drain and surface water

**Hazardous Decomp. Prods.: None**

**Storage:** Store @ R.T. in original sealed container protected from heat sources

**Dervacid 3157-C** [Undesa http://www.undesa.com; S. Black http://www.sblack.com]

Chem. Descrip.: Stearic acid

CAS 67701-03-5; EINECS/ELINCS 266-928-5

Uses: Emollient, emulsifier, thickener in pharmaceuticals

**Regulatory:** Not regulated for transport

**Properties:** Wh. solid flakes or beads; typical odor; insol. in water; sol. in fat; dens. ≈ 0.85 g/ml; vapor pressure (20 C) < 1 (100 C) mbar; m.p. ≈ 61 C; b.p. ≈ 165 C; flash pt. > 200 C

**Toxicology:** LD50 (oral, rat) > 10 g/kg; nontoxic

**Environmental:** Biodeg. 28 d

**Precaution:** Wear gloves, goggles, overall skin protection; avoid entry to sewers, drain and surface water

**Storage:** Store @ R.T. in original sealed container

**Dervacid 3158** [Undesa http://www.undesa.com; S. Black http://www.sblack.com]

Chem. Descrip.: Stearic acid

CAS 67701-03-5; EINECS/ELINCS 266-928-5

Uses: Emollient, emulsifier, thickener in pharmaceuticals

**Regulatory:** Not regulated for transport

**Properties:** Wh. solid flakes or beads; typical odor; insol. in water; sol. in fat; dens. ≈ 0.85 g/ml; vapor pressure (20 C) < 1 (100 C) mbar; m.p. ≈ 165 C; flash pt. > 200 C

**Toxicology:** LD50 (oral, rat) > 10 g/kg; nontoxic

**Environmental:** Biodeg. (28 d) > 90%

**Precaution:** Wear gloves, goggles, overall skin protection; avoid entry to sewers, drain and surface water

**Hazardous Decomp. Prods.: None**

**Storage:** Store @ R.T. in original sealed container

**Dervacid 3352** [Undesa http://www.undesa.com; S. Black http://www.sblack.com]

Chem. Descrip.: Stearic acid

CAS 67701-03-5; EINECS/ELINCS 266-928-5

Uses: Emollient, emulsifier, thickener in pharmaceuticals

**Regulatory:** Not regulated for transport

**Properties:** Wh. solid flakes or beads; typical odor; insol. in water; sol. in fat; dens. ≈ 58 C; b.p. 165 C; flash pt. 200 C

**Toxicology:** LD50 (oral, rat) > 10 g/kg; nontoxic

**Precaution:** Wear gloves, goggles, overall skin protection; avoid entry to sewers, drain and surface water

**Hazardous Decomp. Prods.: None**

**Storage:** Store @ R.T. in original sealed container protected from heat sources

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Dervacid 3440 [Undesa
http://www.undesa.com; S. Black
http://www.sblack.com]
Chem. Descrip.: Tallow fatty acid See Tallow acid
CAS 67701-06-8; EINECS/ELINCS 266-930-6
Uses: Emollient, emulsifier in pharmaceuticals
Regulatory: Not regulated for transport
Properties: Wh. visc. liq.; typical odor; insol. in water; sol. in fat; dens. = 0.90 g/ml; vapor pressure (20 C) < 1 (100 C) mbar; m.p. = 40 C; b.p. = 170 C; flash pt. > 200 C
Toxicology: LD50 (oral, rat) > 10 g/kg; nontoxic
Environmental: Biodeg. (28 d) 100%
Precaution: Wear gloves, goggles, overall skin protection; avoid entry to sewers, drain and surface water
Hazardous Decomp. Prods.: None
Storage: Store at R.T. in original sealed container protected from heat sources

Dervacid 3443 [Undesa
http://www.undesa.com; S. Black
http://www.sblack.com]
Chem. Descrip.: Tallow fatty acid See Tallow acid
CAS 67701-06-8; EINECS/ELINCS 266-930-6
Uses: Emollient, emulsifier in pharmaceuticals
Regulatory: Not regulated for transport
Properties: Brown visc. liq.; typical odor; insol. in water; sol. in fat; dens. = 0.90 g/ml; vapor pressure (20 C) < 1 (100 C) mbar; m.p. = 42 C; b.p. = 170 C; flash pt. > 200 C
Toxicology: LD50 (oral, rat) > 10 g/kg; nontoxic
Environmental: Biodeg. (28 d) 100%
Precaution: Wear gloves, goggles, overall skin protection; avoid entry to sewers, drain and surface water
Hazardous Decomp. Prods.: None
Storage: Store @ R.T. in original sealed container protected from heat sources

Dervafac 3760 [Undesa
http://www.undesa.com; S. Black
http://www.sblack.com]
Chem. Descrip.: Hydrogenated tallow
CAS 8030-12-4; EINECS/ELINCS 232-442-7
Uses: Emollient, emulsifier for pharmaceutical prod.
Properties: Wh. solid in flakes or bead form; typical odor; insol. in water; sol. in fat; dens. = 0.86 g/ml; m.p. = 57 C; flash pt. = 220 C
Toxicology: LD50 (oral, rat) > 10 g/kg; nontoxic
Environmental: Biodeg. (28 d) 100%
Precaution: Wear gloves, goggles, overall skin protection; avoid entry to sewers, drain and surface water; avoid strong oxidants and sources of ignition
Hazardous Decomp. Prods.: None
Storage: Store @ R.T. in original sealed container protected from heat sources

Descote® Ascorbic Acid 60% [Particle Dynamics
http://www.particledynamics.com]
Chem. Descrip.: Encapsulated ascorbic acid
USP; each gram of coated prod. contains 600 mg ascorbic acid in edible matrix See L-Ascorbic acid
Uses: Encapsulated ingreds. providing...
taste/odor masking and preventing interaction of actives for nutritional supplements and powds., pharmaceuticals, chewable tablets

**Properties:** Wh. to off-wh. relatively free-flowing material with some soft agglomerates, sl. char. odor, satisfactory taste; 95% min. through 20 mesh, 20% max. through 100 mesh; 58.8% min. assay

**Storage:** Physically/chemically stable when stored in cool, dry area, preferably @ 59-86 F

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Descote® Copper Gluconate 20% [Particle Dynamics](http://www.particledynamics.com)

**Chem. Descrip.:** Encapsulated copper gluconate USP; each gram of coated prod. contains 200 mg copper gluconate in edible matrix [See Copper gluconate (ic)]

**Uses:** Encapsulated ingreds. providing taste/odor masking and preventing interaction of actives for use in tablets and other dry dosage forms

**Properties:** Green to blue-green relatively free-flowing powd., sl. char odor, satisfactory taste; 98% min. through 20 mesh, 20% max. through 200 mesh; 19.6% min. assay

**Storage:** Physically/chemically stable when stored in cool, dry area @ 59-86 F

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Descote® Ferrous Fumarate 60 Ultra [Particle Dynamics](http://www.particledynamics.com)

**Chem. Descrip.:** Encapsulated ferrous fumarate USP; each gram of coated prod. contains 600 mg ferrous fumarate in edible matrix

**Uses:** Encapsulated ingreds. providing taste/odor masking and preventing interaction of actives for use in tablets and other dry dosage forms

**Features:** Good dissolution profile for iron

**Properties:** Reddish orange to reddish brn. relatively free-flowing powd., sl. char odor, satisfactory taste; 5% max. on 20 mesh, 30% max. on 200 mesh; 58.8% min. assay

**Storage:** Physically/chemically stable for 2 yrs. when stored in cool, dry area @ 59-86 F

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Descote® Pyridoxine Hydrochloride 331/3% [Particle Dynamics](http://www.particledynamics.com)

**Chem. Descrip.:** Encapsulated pyridoxine hydrochloride; each gram of coated prod. contains 333 mg in edible coating of mono- and diglycerides [See Mono- and diglycerides of fatty acids; Pyridoxine HCl]

**Uses:** Encapsulated ingreds. providing taste/odor masking and preventing interaction of actives for use in chewable multivitamin tablets and other dry dosage forms

**Regulatory:** Pyridoxine HCl is FDA GRAS as a nutrient; coating materials are edible food grade prods.

**Properties:** Pract. wh. relatively free-flowing powd., sl. char odor, satisfactory taste; 99% min. through 20 mesh, 65% min. through 60 mesh; 32.6% min. assay

**Storage:** Physically/chemically stable when stored in cool, dry area @ 59-86 F
Trade Name Reference

Descote® Riboflavin 33½% [Particle Dynamics http://www.particledynamics.com]
Chem. Descrip.: Encapsulated riboflavin USP/FCC; each gram of coated prod. contains 333 mg riboflavin in edible coating of mono- and diglycerides See Mono- and diglycerides of fatty acids
Uses: Encapsulated ingreds. providing taste/odor masking and preventing interaction of actives, bioavailability enhancer for use in chewable multivitamin tablets and other dry dosage forms
Regulatory: Riboflavin is FDA GRAS as a nutrient; coating materials are edible food grade prods.
Properties: Orange-brn. relatively free-flowing powd., sl. char odor, satisfactory taste; 99% min. through 20 mesh, 60% min. through 60 mesh; 32.6% min. assay
Storage: Physically/chemically stable for 2 yrs. when stored in cool, dry area @ 59-86 F

Descote® Thiamine Mononitrate 33½% [Particle Dynamics http://www.particledynamics.com]
Chem. Descrip.: Encapsulated thiamine mononitrate USP/FCC; each gram of coated prod. contains 333 mg in edible coating of mono- and diglycerides See Mono- and diglycerides of fatty acids; Riboflavin
Uses: Encapsulated ingreds. providing taste/odor masking and preventing interaction of actives for use in chewable multivitamin tablets and other dry dosage forms
Regulatory: Thiamine mononitrate is FDA GRAS as a nutrient; coating materials are edible food grade prods.
Properties: Pract. wh. relatively free-flowing powd., sl. char odor, satisfactory taste; 99% min. through 20 mesh, 65% min. through 60 mesh; 32.6% min. assay
Storage: Physically/chemically stable when stored in cool, dry place @ 59-86 F

Desiccated Beef Liver Granular Undefatted [Am. Labs http://www.americanlaboratories.com]
Chem. Descrip.: Dried undefatted granular form processed from beef livers
Chem. Analysis: 6% max. loss on drying
Uses: Nutritive pharmaceutical additive in tablets, capsules, and powders; diagnostic applications; taste masking of veterinary foods and drugs
Properties: Lt.-tan to dk.-brown powd.
Storage: Store in a cool dry place

Desiccated Hog Bile [Am. Labs http://www.americanlaboratories.com]
Chem. Descrip.: Vacuum-dried prod. from fresh hog bile contg. hydeoxycholic acid, sodium glycohydeoxycholate, sodium taurohydeoxycholate
Uses: Nutritive pharmaceutical additive
Storage: Preserve in tight containers with moisture-proof liners, in cool, dry place

Desiccated Ox Bile [Am. Labs http://www.americanlaboratories.com]
Chem. Descrip.: Dried ox bile
Uses: Nutritive pharmaceutical additive
Properties: Powd.; pH 6.5-7.5
Storage: Preserve in tight containers with moisture-proof liners, in cool, dry place

Destab™ Calcium Carbonate 90S Ultra 250 [Particle Dynamics http://www.particledynamics.com]
Chem. Descrip.: Calcium carbonate with starch NF
Chem. Analysis: 250 ppb max. lead
Uses: Direct compression ingred. for tablet and capsule formulations
Features: Rec. where optimum tableting and free-flowing char. are desired
Properties: Wh. to off-wh. free-flowing powd.; 90% calcium carbonate
Storage: Physically/chemically stable when stored in cool dry place @ 59-86 F

Destab™ Calcium Carbonate 95S Ultra 250 [Particle Dynamics http://www.particledynamics.com]
Chem. Descrip.: Calcium carbonate USP with 5% max. starch NF
Chem. Analysis: 250 ppb max. lead
Uses: Direct compression ingreds. for tablets and other dry dosage forms
Features: Rec. where optimum tableting and free-flowing chars. are desired
Properties: Wh. to off-wh. free-flowing powd.; 95% calcium carbonate
Storage: Physically/chemically stable when stored in cool dry place @ 59-86 F

DeTHOX GLG-7 [DeForest Enterprises http://www.deforest.net]
Chem. Descrip.: Glycereth-7
CAS 31694-55-0
Uses: Used in antiperspirants, depilatories
Trade Name Reference

Regulatory: DOT nonregulated
Properties: APHA 20 max. cl. liq.; odorless and tasteless; sol. in water, alcohols, and glycols; insol. or disp. in most oils and solvs.; sp.gr. 1.0 g/ml; HLB 15.4; acid no. 0.5 max.; hyd. no. 410-415; flash pt. (PMCC) > 200 F; pH 5.0-7.0 (5% in DW); nonionic; 100% conc.
Toxicology: Ethylene oxide (cancer and reproductive hazard) may accumulate in storage and transport vessels
Precaution: Incompat. with strong oxidizers; avoid open flames
Hazardous Ingredients: DeTHOX GLG-7 (100%)
Hazardous Decomp. Prods.: Thermal decomp. prods.: CO, CO₂
HMIS: Health 1, Flammability 1, Reactivity 0
DeTHOX SA-80 [DeForest Enterprises http://www.deforest.net]
Chem. Descrip.: Steareth-80
CAS 9005-00-9
Uses: Emulsifier, lubricant, emollient, emulsion stabilizer, visc. builder, and opacifier used in depilatories, solid antiperspirants
Regulatory: DOT nonregulated
Properties: Cream to wh. flakes; sol. in water, alcohols, and glycols; insol. or disp. in oils and solvs.; m.p. 55-61 C; flash pt. (COC) > 300 F; pH 6.0-8.0 (1% in DW); nonionic; 100% conc.
Toxicology: May cause skin and severe eye irritation; ing. may cause nausea, abdominal pain; inh. may irritate causing coughing and headache; ethylene oxide (cancer and reproductive hazard) may accumulate in storage and transport vessels; TSCA listed
Environmental: Biodeg.
Precaution: Incompat. with strong oxidizers
Hazardous Ingredients: Stearyl alcohol ethoxylate (100%), ethylene oxide (< 25 ppm), 1,4-dioxane (< 20 ppm)
Hazardous Decomp. Prods.: Thermal decomp. prods.: CO, CO₂
HMIS: Health 2, Flammability 1, Reactivity 0
Dextrofin® [Danisco Sweeteners http://www.daniscosweeteners.com]
Chem. Descrip.: Dextrose See Glucose
CAS 50-99-7; EINECS/ELINCS 200-075-1
Uses: Sweetener for pharmaceuticals
DiaFil® 525 [World Minerals http://www.worldminerals.com]
Chem. Descrip.: Amorphous diatomite See Diatomaceous earth, amorphous
Chem. Analysis: SiO₂ (93%), Al₂O₃ (3%), Fe₂O₃ (1.3%), CaO (1.1%), cryst. silica (< 1%)
CAS 61790-53-2
Uses: Abrasive in toothpaste
Features: Inert; mild
Regulatory: FDA GRAS; FCC compliance; EPA reg. no. 59910-1
Properties: Sl. off-wh. fine powd.; odorless; 16 µ median particle size; fineness (Hegman) 1-2; sp.gr. 2.2; dens. 18.28 lb/solid gal; bulking value 0.055 gal/lb; surf. area 26-28 m²/g; oil absorp. 112-116; ref. index 1.43; pH 7.5-8.5
DiaFil® 570 [World Minerals http://www.worldminerals.com]
Chem. Descrip.: Amorphous diatomite See Diatomaceous earth, amorphous
Chem. Analysis: SiO₂ (93%), Al₂O₃ (3%), Fe₂O₃ (1.3%), CaO (1.1%), cryst. silica (< 1%)
CAS 61790-53-2
Uses: Inert, mild abrasive in toothpastes
Features: Inert; mild
Regulatory: FDA GRAS; FCC compliance; EPA reg. no. 59910-1
Properties: Sl. off-wh. fine powd.; odorless; 9 µ median particle size; fineness (Hegman) 4-4.5; sp.gr. 2.2; dens. 18.28 lb/solid gal; bulking value 0.055 gal/lb; surf. area 26-28 m²/g; oil absorp. 112-116; ref. index 1.43; pH 7.5-8.5
DiaFil® 590 [World Minerals http://www.worldminerals.com]
Chem. Descrip.: Amorphous diatomite See Diatomaceous earth, amorphous
Chem. Analysis: SiO₂ (93%), Al₂O₃ (3%), Fe₂O₃ (1.3%), CaO (1.1%), cryst. silica (< 1%)
CAS 61790-53-2
Uses: Inert, mild abrasive in toothpastes
Features: Inert; mild
Regulatory: FDA GRAS; FCC compliance; EPA reg. no. 59910-1

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Trade Name Reference

**Properties:** Sl. off-wh. fine powd.; odorless; 6 μ median particle size; fineness (Hegman) 5.5-6.0; sp.gr. 2.2; dens. 18.28 lb/solid gal; bulking value 0.055 gal/lb; surf. area 26-28 m²/g; oil absorp. 112-116; ref. index 1.43; pH 7.5-8.5

**DiaFil® 880** [World Minerals http://www.worldminerals.com]
*Chem. Descrip.:* Amorphous diatomite See Diatomaceous earth, amorphous
*CAS* 61790-53-2
*Uses:* Abrasive in dental preps.
*Features:* < 0.1% respirable cryst. silica
*Properties:* Sl. off-wh. fine powd.; odorless; sol. in HF; negligible sol. in water; sp.gr. 2.2; water absorp. 150%; pH 8

**Toxicology:** Exposure to dust may cause irritation of upper respiratory tract and lungs, coughing, wheezing, shortness of breath, tightness in chest; inh. may cause lung damage; may aggravate pre-existing asthma, bronchitis, emphysema, etc.

*Precaution:* Reacts with hydrofluoric acid
*HMIS:* Health 0, Flammability 0, Reactivity 0

**DiaFil® 890** [World Minerals http://www.worldminerals.com]
*Chem. Descrip.:* Amorphous diatomite See Diatomaceous earth, amorphous
*CAS* 61790-53-2
*Uses:* Abrasive in dental preps.
*Features:* < 0.1% respirable cryst. silica
*Properties:* Sl. off-wh. fine powd.; odorless; sol. in HF; negligible sol. in water; sp.gr. 2.2; water absorp. 150%; pH 8

**Toxicology:** Exposure to dust may cause irritation of upper respiratory tract and lungs, coughing, wheezing, shortness of breath, tightness in chest; inh. may cause lung damage; may aggravate pre-existing asthma, bronchitis, emphysema, etc.

*Precaution:* Reacts with hydrofluoric acid
*HMIS:* Health 0, Flammability 0, Reactivity 0

*Chem. Descrip.:* Polystyrene
*CAS* 9003-53-6; EINECS/ELINCS 202-851-5
*Uses:* Syn. adsorbent for vitamins, enzymes, fatty acids, other bioactive substances; decolorization appilcs.
*Properties:* High porous polymer matrix; 250-600 μ particle size; dens. 1.01 g/l (wet)
*Precaution:* Avoid exposure to high temp., sparks, flames, etc. and mixing with strong oxidizing agents
*Storage:* Store in cool, dry, dark place with good ventilation; at high temp., rapid degradation of resins may occur; below 0 C, freezing of resins may occur

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*CAS* 9003-53-6; EINECS/ELINCS 202-851-5
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*Chem. Descrip.:* Polystyrene
*CAS* 9003-53-6; EINECS/ELINCS 202-851-5
*Uses:* Enzyme carrier for treatment of biopharmaceutical substances
Trade Name Reference

Features: High surf. area
Properties: High porous polymer matrix; 210-590 µ particle size; surf. area 25 m²/g; anionic
Precaution: Avoid exposure to high temp., sparks, flames, etc. and mixing with strong oxidizing agents
Storage: Store in cool, dry, dark place with good ventilation; at high temp., rapid degradation of resins may occur; below 0 C, freezing of resins may occur
Chem. Descrip.: Polystyrene
CAS 9003-53-6; EINECS/ELINCS 202-851-5
Uses: Mainly applied as enzyme carriers for treatment of bio-pharmaceutical substances
Properties: High porous polymer matrix; 210-590 µ particle size; dens. 1.07 g/l (wet); surf. area 23 m²/g; anionic
Precaution: Avoid exposure to high temp., sparks, flames, etc. and mixing with strong oxidizing agents
Storage: Store in cool, dry, dark place with good ventilation; at high temp., rapid degradation of resins may occur; below 0 C, freezing of resins may occur
Chem. Descrip.: Polystyrene
CAS 9003-53-6; EINECS/ELINCS 202-851-5
Uses: Monodispersed cation for chromatography for separation and purification of various prods. in pharmaceuticals, fermentation
Properties: Gel; 220 µ±20 um particle size; cationic
Precaution: Avoid exposure to high temp., sparks, flames, etc. and mixing with strong oxidizing agents
Storage: Store in cool, dry, dark place with good ventilation; at high temp., rapid degradation of resins may occur; below 0 C, freezing of resins may occur
Chem. Descrip.: Polymethacrylate
Uses: Purifier for pharmaceuticals
Properties: Porous polymer matrix; 300-1180 µ particle size; dens. 1.16 g/l (wet)
Precaution: Avoid exposure to high temp., sparks, flames, etc. and mixing with strong oxidizing agents
Storage: Store in cool, dry, dark place with good ventilation; at high temp., rapid degradation of resins may occur; below 0 C, freezing of resins may occur
Chem. Descrip.: Polymethacrylate
Uses: Purifier for pharmaceuticals
Features: Exc. stability
Properties: Porous polymer matrix; 300-1180 µ particle size
Precaution: Avoid exposure to high temp., sparks, flames, etc. and mixing with strong oxidizing agents
Storage: Store in cool, dry, dark place with good ventilation; at high temp., rapid degradation of resins may occur; below 0 C, freezing of resins may occur
Chem. Descrip.: Polymethacrylate
Uses: Porous resin for prep. of antibiotics; purifier for pharmaceuticals
Features: Fully spherical
Properties: Porous spherical; 106-300 µ particle size
Precaution: Avoid exposure to high temp., sparks, flames, etc. and mixing with strong oxidizing agents
Storage: Store in cool, dry, dark place with good ventilation; at high temp., rapid degradation of resins may occur; below 0 C, freezing of resins may occur
<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Trade Name Reference</th>
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</thead>
<tbody>
<tr>
<td>Amylase</td>
<td>Enzyme USA; Unipex</td>
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<td></td>
<td>[<a href="http://www.unipex.com">http://www.unipex.com</a>]</td>
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<tr>
<td></td>
<td>Chem. Descrip.: Amylase of plant origin</td>
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<td>CAS 9000-92-4; EINECS/ELINCS 232-567-7</td>
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<tr>
<td></td>
<td>Uses: Enzyme for pharmaceuticals, digestive preps.</td>
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<td>Regulatory: JP</td>
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<tr>
<td></td>
<td>Properties: Off-wh. to brown powd.; sl. odor; sol. in water</td>
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<tr>
<td></td>
<td>Toxicology: May cause skin irritation; may cause sensitization and allergic reactions by inh.; nontoxic</td>
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<tr>
<td></td>
<td>Environmental: Biodegrad.; not harmful to aquatic and marine organisms when dissolved with copious amounts of water</td>
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<td></td>
<td>Precaution: Wear protective glasses and impervious gloves; avoid formation of dust</td>
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<td></td>
<td>Hazardous Decomp. Prods.: None</td>
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<tr>
<td></td>
<td>Storage: Store container in a cool and dry place.</td>
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</tbody>
</table>

**Dimethyloctanol P&F** [Millennium/F&F [http://www.aromachem.com]]
| Chem. Descrip.: | Dimethyloctanol See 3,7-Dimethyl-1-octanol |
|               | CAS 106-21-8; EINECS/ELINCS 203-374-5 |
|               | Uses: Syn. fragrance, flavoring agent in pharmaceuticals |
|               | Features: Sweet flavor |
|               | Regulatory: DOT: Chemicals n.o.i. |
|               | Properties: APHA 50 max. liq.; waxy rose-type odor and taste; sol. 1 in 3 in 70% alcohol; sp.gr. 0.826-0.842; b.p. 423 F; acid no. 1.0 max.; flash pt. (TCC) 203 F; ref. index 1.435-1.445 (20 C); 98% min. act. |
|               | Toxicology: LD50 (oral, rat) > 5000 mg/kg, (skin, rabbit) 2400 mg/kg; nonirritating, nonsensitizing to skin |

**Dimodan® H SK-A** [Danisco Cultor [http://ingredients.danisco.com]; Danisco USA [http://www.danisco.com]]
| Chem. Descrip.: | Hydrogenated soybean oil dist. monoglyceride, unsat. See Hydrogenated soy glyceride |
|               | CAS 61789-08-0; EINECS/ELINCS 263-030-5 |
|               | Uses: Emulsifier for pharmaceuticals |
|               | Regulatory: EU, FDA §184.1505, 184.4505, GRAS |
|               | Properties: Beads, powd.; m.p. 72 C; iodine no. 2 max.; nonionic; 90% min. monoester |
|               | Use Level: 0.1-0.5% (plastics) |

**Dimodan® HA** [Danisco Cultor [http://ingredients.danisco.com]; Danisco USA [http://www.danisco.com]]
| Chem. Descrip.: | Dist. monoglyceride from edible refined hydrogenated lard or tallow See Hydrogenated lard glyceride; Hydrogenated tallow glyceride |
|               | CAS 61789-08-0; EINECS/ELINCS 263-030-5 |
|               | Uses: Emulsifier for pharmaceuticals |
|               | Regulatory: EU E471, FDA 21CFR §184.1505, 184.4505, GRAS |
|               | Properties: Beads; m.p. 70 C; iodine no. 2 max.; nonionic; 90% min. monoester |
|               | Use Level: 0.1-0.5% (plastics) |
|               | Storage: Store in cool, dry area |

**DIPA Commercial Grade** [Dow [http://www.dow.com]]
| Chem. Descrip.: | Diisopropanolamine |
|               | CAS 110-97-4; EINECS/ELINCS 203-820-9 |
|               | Uses: Used to produce pharmaceuticals |
|               | Properties: Sp.gr. 0.992 (40/4 C); dens. 8.27 lb/gal (40 C); visc. 870 cps (30 C); f.p. 44 C; b.p. 294 C (760 mm Hg); flash pt. (Seta CC) 276 F; fire pt. 275 C; ref. index 1.4595 (30 C) |
|               | Storage: Store in cool, dry area |

**DIPA Low Freeze Grade 85** [Dow [http://www.dow.com]]
| Chem. Descrip.: | Diisopropanolamine |
|               | CAS 110-97-4; EINECS/ELINCS 203-820-9 |
|               | Uses: Used to produce pharmaceuticals |
|               | Properties: Sp.gr. 0.992 (40/4 C); dens. 8.27 lb/gal (40 C); visc. 870 cps (30 C); f.p. 44 C; b.p. 294 C (760 mm Hg); flash pt. (Seta CC) 276 F; fire pt. 275 C; ref. index 1.4595 (30 C); 15% water |

**DIPA Low Freeze Grade 90** [Dow [http://www.dow.com]]
| Chem. Descrip.: | Diisopropanolamine |
|               | CAS 110-97-4; EINECS/ELINCS 203-820-9 |
|               | Uses: Used to produce pharmaceuticals |
|               | Properties: Sp.gr. 0.992 (40/4 C); dens. 8.27 lb/gal (40 C); visc. 870 cps (30 C); f.p. 44 C; b.p. 294 C (760 mm Hg); flash pt. (Seta CC) 276 F; fire pt. 275 C; ref. index 1.4595 (30 C); 10% water |

**DIPA NF Grade** [Dow [http://www.dow.com]]
| Chem. Descrip.: | Diisopropanolamine |
|               | CAS 110-97-4; EINECS/ELINCS 203-820-9 |
|               | Uses: Used to produce pharmaceuticals |
|               | Properties: Sp.gr. 0.992 (40/4 C); dens. 8.27 lb/gal (40 C); visc. 870 cps (30 C); f.p. 44 C; b.p. 294 C (760 mm Hg); flash pt. (Seta CC) 276 F; fire pt. 275 C; ref. index 1.4595 (30 C); 10% water |

**Di-Pac®** [Domino Foods/Special Ingreds. [http://http://www.dominospecialtyingredients.com]]
| Chem. Descrip.: | Sugar and maltodextrin See Sucrose |
Trade Name Reference

Chem. Analysis: 96.5 ± 1.5% sucrose and 3.0 ± 0.75% maltodextrin
CAS 57-50-1; 9050-36-6; EINECS/ELINCS 200-334-9; 232-940-4
Uses: Excipient, flow aid, sweetener for pharmaceutical direct compaction and tableting
Features: High flowability, low hygroscopicity
Properties: Wh. solid; completely sol. in water
Storage: Store @ < 80 F and relative humidity below 70%

Dipentene Extra [Millennium/F&F http://www.aromachem.com]
Chem. Descrip.: Terpene hydrocarbons (terpinolene)
CAS 68956-56-9; EINECS/ELINCS 209-578-0
UN 2052; UN 2319
Uses: Syn. flavoring agent in pharmaceuticals
Features: Rec. where good odor and color are desirable
Regulatory: DOT regulated
Properties: APHA 50 max. cl. liq.; m.w. 154.25; sp.gr. 0.863-0.873; dens. 7.24 lb/gal; b.p. 170 C; flash pt. (TCC) 43.3 C; ref. index 1.472 (20 C); KB value 113
Toxicology: TSCA listed

Disfoam CA-115 [NOF http://www.nof.co.jp]
Uses: Defoamer for antibiotics
Properties: Insol. in water

Dissolvine® E-CA-10 [Akzo Nobel http://www.akzonobel.com]
Chem. Descrip.: Calcium disodium EDTA, USP
CAS 62-33-9; EINECS/ELINCS 200-529-9
Uses: Chelating agent reducing the toxic effects of metals in pharmaceutical preps.
Regulatory: USP, DOT nonregulated; DSL listed
Properties: Wh. free-flowing powd.; odorless; sol. 800 g/l in water (20 C); bulk dens. 690 kg/m³; m.p. 348 C; pH 7 (1% sol'n.); 98-100% act.
Toxicology: LD50 (oral, rat) > 5000 mg/kg; inh. of dust may cause mild irritation; possible eye irritant; TSCA listed
Environmental: LC50 (bluegill, 96 hr) 2340 mg/l; COD 690 mg/g
Precaution: Avoid contact with aluminum, copper, copper alloys, and nickel; incompat. with strong oxidizers
Hazardous Decomp. Prods.: Oxides of carbon and nitrogen
NFPA: Health 1, Flammability 1, Reactivity 0
Storage: Keep closed and dry

Chem. Descrip.: Dicalcium phosphate dihydrate FCC, USP
See Calcium phosphate dibasic dihydrate
CAS 7789-77-7; EINECS/ELINCS 231-826-1
Uses: Excipient for direct compression of tablets; calcium and phosphorus source in nutritional supplements
Features: Stable in air
Regulatory: USP, DMF no. 5688; kosher
Properties: Wh. gran. solid; 1% max. on 20 mesh, 40-80% on 100 mesh, 5% max. through 325 mesh; odorless; tasteless; readily sol. in dil. HCl and nitric acids; pract. insol. in water; insol. in alcohol; m.w. 172.09; bulk dens. 59 lb/ft³ (tapped); pH 7.4 (20% slurry); 98-105% assay; 24.5-26.5% loss on ignition; 1% moisture; 18.1% P; 23.3% Ca
Storage: 24 mos. shelf life

Docusate Calcium USP in Corn Oil NF Sol’n. [Cytec Ind. http://www.cytec.com]
Chem. Descrip.: Docusate calcium USP in corn oil NF sol’n. See Corn (Zea mays) oil; Dioctyl calcium sulfosuccinate
Uses: Pharmaceutical surfactant in stool softeners, vitamin formulations, ear wax removal compds., as processing aids in tableting operations
Properties: Amber cl. visc. liq.; acid no. 2 max.; 50% act.; ≤ 0.5% moisture
Docusate Sodium USP [Cytec Ind. http://www.cytec.com]
Chem. Descrip.: Dioctyl sodium sulfosuccinate USP
CAS 577-11-7; EINECS/ELINCS 209-406-4
Uses: Pharmaceutical surfactant, wetting agent, solubilizer, dispersant, emulsifier for tablets, tablet coating, treatment of constipation (alone or with other laxatives), topical creams, lotions, and ointments, vitamins, ear wax removal
Properties: Rolls of wh. wax-like plastic sheets, char. octyl alcohol odor; m.w. 444.57; 99-100.5% assay
Use Level: 0.025-0.25% (wetting agent), 0.1-1% (tablets), 20% (tablet coating), 0.1-1% (solubilizer), 0.1-1% (anticonstipation)
Toxicology: LD50 (oral, rat) 1900-4000 mg/kg, (dermal, rabbit) > 10,000 mg/kg; prolonged eye or skin contact may cause irritation
Storage: Store in tightly closed containers below 24 C and 60% r.h.; higher temps. may cause prod. to fuse and discolor

Docusate Sodium USP in Polyethylene Glycol 400 NF [Cytec Ind. http://www.cytec.com]
Chem. Descrip.: Dioctyl sodium sulfosuccinate USP in PEG 400 See PEG-8
Uses: Pharmaceutical surfactant in stool softeners, vitamin formulations, ear wax removal compds., as processing aids in tableting operations
Properties: Wh. to yel. cl. visc. liq.; sp.gr. 1.11-1.15 (25/15.5 C); acid no. 1 max.; 48.5-51.5% assay

Dow Corning® 7-9245 [Dow Corning http://www.dowcorning.com]
Chem. Descrip.: 30% simethicone emulsion with sorbic acid and water
Chem. Analysis: Heavy metal content < 10 ppm
Uses: Foam control in medical and pharmaceutical applics.; OTC antiflatulents
Features: Water-dilutable nonionic emulsion
Regulatory: USP, FDA 21 CFR §173.340, 332.10
Properties: Creamy, wh. liq.; pH 2.6; nonvolatile content > 36%
Storage: 48 mos. when stored @ 5-32 C in original, unopened container; avoid freezing

Dow Corning® 360 Medical Fluid (20 cst) [Dow Corning http://www.dowcorning.com]
Chem. Descrip.: Dimethicone NF
CAS 9006-65-9
Uses: Lubricant for plastic or rubber devices and instruments incl. hypodermic needles, rectoscopes; inert protective coating and water-repellent film on skin for barrier creams and sprays
Properties: Colorless cl. liq.; sol. in aliphatic, aromatic, and chlorinated hydrocarbons, fluorocarbon; insol. in glycerin, ethylene glycol, methanol, ethanol, water; sp.gr. 0.949; dens. 8.0 lb/gal; visc. 20 cs; acid no. < 0.01; pour pt. -84 C; ref. index 1.400-1.405; surf. tens. 20.6 dynes/cm; dielec. str. 375 V/mil; vol. resist. 1 x 10¹⁵ ohm-cm
Storage: 36 mos. shelf life when stored at or below 25 C

Dow Corning® 360 Medical Fluid (100 cst) [Dow Corning http://www.dowcorning.com]
Chem. Descrip.: Dimethicone NF
CAS 9006-65-9
Uses: Lubricant for plastic or rubber devices and instruments incl. hypodermic needles, rectoscopes; inert protective coating and water-repellent film on skin for barrier creams and sprays
Properties: Colorless cl. liq.; sol. in aliphatic, aromatic, and chlorinated hydrocarbons, fluorocarbon; insol. in glycerin, ethylene glycol, methanol, ethanol, water; sp.gr. 0.965; dens. 8.0 lb/gal; visc. 100 cs; acid no. < 0.01; pour pt. -65 C; ref. index 1.400-1.405; surf. tens. 20.9 dynes/cm; dielec. str. 400 V/mil; vol. resist. 1 x 10¹⁵ ohm-cm
Storage: 36 mos. shelf life when stored at or below 25 C
Trade Name Reference

below 25 C

Dow Corning® 360 Medical Fluid (350 cst) [Dow Corning http://www.dowcorning.com]
Chem. Descrip.: Dimethicone NF
CAS 9006-65-9
Uses: Lubricant for plastic or rubber devices and instruments incl. hypodermic needles, rectoscopes; inert protective coating and water-repellent film on skin for barrier creams and sprays
Properties: Colorless cl. liq.; sol. in aliphatic, aromatic, and chlorinated hydrocarbons, fluorocarbon; insol. in glycerin, ethylene glycol, methanol, ethanol, water; sp.gr. 0.970; dens. 8.1 lb/gal; visc. 350 cs; acid no. < 0.01; pour pt. -65 C; ref. index 1.400-1.405; surf. tens. 21.1 dynes/cm; dielec. str. 400 V/mil; vol. resist. 1 x 10^{15} ohm-cm
Storage: 36 mos. shelf life when stored at or below 25 C

Dow Corning® 360 Medical Fluid (1000 cst) [Dow Corning http://www.dowcorning.com]
Chem. Descrip.: Dimethicone NF
CAS 9006-65-9
Uses: Lubricant for plastic or rubber devices and instruments incl. hypodermic needles, rectoscopes; inert protective coating and water-repellent film on skin for barrier creams and sprays
Properties: Colorless cl. liq.; sol. in aliphatic, aromatic, and chlorinated hydrocarbons, fluorocarbon; insol. in glycerin, ethylene glycol, methanol, ethanol, water; sp.gr. 0.970; dens. 8.1 lb/gal; visc. 1000 cs; acid no. < 0.01; pour pt. -50 C; ref. index 1.400-1.405; surf. tens. 21.2 dynes/cm; dielec. str. 400 V/mil; vol. resist. 1 x 10^{15} ohm-cm
Storage: 36 mos. shelf life when stored at or below 25 C

Dow Corning® 360 Medical Fluid (12,500 cst) [Dow Corning http://www.dowcorning.com]
Chem. Descrip.: Dimethicone NF
CAS 9006-65-9
Uses: Lubricant for plastic or rubber devices and instruments incl. hypodermic needles, rectoscopes; inert protective coating and water-repellent film on skin for barrier creams and sprays
Properties: Colorless cl. liq.; sol. in aliphatic, aromatic, and chlorinated hydrocarbons, fluorocarbon; insol. in glycerin, ethylene glycol, methanol, ethanol, water; sp.gr. 0.970; dens. 8.1 lb/gal; visc. 12,500 cs; acid no. < 0.01; pour pt. -46 C; ref. index 1.400-1.405; surf. tens. 21.5 dynes/cm; dielec. str. 400 V/mil; vol. resist. 1 x 10^{15} ohm-cm
Storage: 36 mos. shelf life when stored at or below 25 C

Dow Corning® 5225C Formulation Aid [Dow Corning http://www.dowcorning.com]
Chem. Descrip.: Cyclopentasiloxane, PEG/PPG-18/18 dimethicone See Cyclomethicone
Uses: Delivery system for skin care, sun care, antiperspirants and deodorants
Properties: Translucent to hazy sl. gray liq.; char. odor; sl. sediment possible; sp.gr. 0.956; visc. 100-6,000 mm^2/s; flash pt. > 77 C
Storage: 24 mos. shelf life when stored at or below 25 C in the original, unopened containers

Dow Corning® Emulsifier 10 [Dow Corning http://www.dowcorning.com]
Chem. Descrip.: Silicone alkylmethyl glycol and dodecene See Dodecene-1
Chem. Analysis: > 60.0% silicone alkylmethyl glycol; 7.0-3.0% dodecene
CAS 212335-52-9; 112-41-4
UN NA1993
Uses: Emulsifier, moisturizer, and skin protectant and conditioner for pharmaceutical topical creams and lotions; coemulsifier for o/w emulsions
Features: Emulsifies @ R.T.; easy to spread
Regulatory: SARA §311/312 Acute and Fire Hazard, §313 nonreportable
Properties: Amber liq.; characteristic odor; sp. gr. 0.889; visc. 2500 cSt; b.p. > 65.00 C; flash pt (CC) 189.9 F
Toxicology: Mild irritant to eyes; nonirritant to skin
Precaution: Wear full-face respirator, safety glasses and chemical protective gloves; avoid breathing vapor, mist, dust, or fumes; oxidizing material can cause a reaction; water, alcohols, acidic or basic materials, and many metals or metallic compounds, when in contact with product, liberate flamm. H gas, which can form explosive mixtures in air
Hazardous Decomp. Prods.: Metal oxides, COx; SiO2, and formaldehyde
NFPA: Health 1, Flammability 2, Reactivity 0

Dow Corning® Q7-2243 LVA [Dow Corning http://www.dowcorning.com]
Chem. Descrip.: Polydimethylsiloxane See
Dimethylsiloxane
CAS 63148-62-9
Uses: Antifoam for medical and pharmaceutical applications; antiflatulent for treatment of gastrointestinal gas and bloating; gas elimination during gastroscopic and x-ray exams; antacid products.
Features: Low volatility
Properties: Gray translucent visc. liq.; sp. gr. 0.975; ref. index 1.404; nonionic; 100% act.
Storage: 18 mo shelf life stored in original unopened containers at ambient temps.; avoid extreme temps.; settling may occur during storage; mix before use

Dow Corning® Q7-2587 [Dow Corning http://www.dowcorning.com]
Chem. Descrip.: Simethicone emulsion USP contg. simethicone USP, stearate emulsifiers, sorbic acid, benzoic acid, thickeners, and water
Uses: Antiflatulent for treatment of intestinal gas; gas elimination during gastroscopic and x-ray exams; antacid products; antifoam for pharmaceutical processes, e.g., fermentation, maceration, percolation, mixing, ampule/bottle filling applications.
Regulatory: FDA 21CFR §173.340, 210.11, 332.10
Properties: Wh. creamy flowable liq.; water-dilutable; pH 2.6; nonionic; 30% act.
Storage: 24 mos. shelf life when stored between 5 and 32 C; stir gently before use; do not ship below 0 C; freeze/thaw cycling may break emulsion

Dow Corning® Q7-9120 Silicone Fluid [Dow Corning http://www.dowcorning.com]
Chem. Descrip.: Hexamethyldisiloxane
CAS 9006-65-9
Uses: Antifoam in pharmaceutical and biotechnological processes; excipient antiflatulent compositions; excipient, lubricant, smoothing agent, emollient, spreading agent, antitackifier for topical pharmaceuticals, cosmetics
Features: Nonocclusive; resistant to wash off or rub off
Regulatory: NF, EP compliance; FDA 21CFR §347.10
Properties: Colorless cl. liq.; sol. in nonpolar solvs., aliphatic hydrocarbons, aromatic hydrocarbons; sp.gr. 0.951-0.973; visc. various grades from 20-12,500 cSt; acid no. < 0.02; flash pt. (CC) > 100 C; ref. index 1.4018-1.4047; < 0.5% volatiles
Storage: 60 mos. shelf life when stored at 25 C in original, unopened containers

Dow Corning® Q7-9180 Silicone Fluid [Dow Corning http://www.dowcorning.com]
Chem. Descrip.: Hexamethyldisiloxane
CAS 107-46-0; EINECS/ELINCS 203-492-7
Uses: Excipient, carrier in pharmaceutical topicals; carrier for actives in sprays
Features: Nongreasy; nonocclusive; spreads uniformly on skin; good leveling and easy rub-out; nonstinging on skin
Properties: Colorless cl. liq.; sp.gr. two grades 0.76; 0.82; visc. two grades 0.65; 1.0 mPa.s; acid no. < 0.05 max.; flash pt. -3 C; 4 C; ref. index 1.375; 1.384; > 99.0% purity
Storage: Store in tightly closed containers away from heat, sparks, open flames and other sources of ignition

Dow Corning® Silky Wax 10 [Dow Corning http://www.dowcorning.com]
Chem. Descrip.: Stearoyxtrimethylsilane and stearyl alcohol
CAS 18748-98-6; 112-92-5; EINECS/ELINCS 242-554-8; 204-017-6
Uses: Excipient, detackifier, thickener, water repellent, emollient in pharmaceutical topicals
Features: Nonocclusive; compat. with organic ingreds.
Properties: Soft wh. to lt. straw semicryst. wax @ R.T.; characteric odor; misc. with isopropanol, lanolin, mineral oil; sp. gr. 0.800; m.p. 53 C; acid no. 0.0-0.05 max.; flash pt. (CC) 100 C; flamm.
NFPA: Health 1, Flammability 1, Reactivity 0
Storage: 30 mos. shelf-life from date of prod.; store in original unopened containers @ ≤ R.T.

Dow Corning® Silmogen Carrier [Dow Corning http://www.dowcorning.com]
Chem. Descrip.: Hexamethyldisiloxane
CAS 107-46-0; EINECS/ELINCS 203-492-7
UN UN 1993
Uses: Excipient, film former in pharmaceutical topicals; carrier for actives in sprays
Features: Nonocclusive; resistant to wash off or rub off
Regulatory: SARA §311/312 Acute and Fire Hazard, §313 nonreportable
Properties: Cl., cryst. liq.; odorless; misc. with
isopropanol, sorbitol, mineral oil; sp. gr. 0.76; visc. 1.5-4.0 mPa.s; b.p. 100 C; acid no. < 0.05 max.; flash pt. (CC) -3.3 C; flamm.; > 60.0

Environmental: Expected to have low toxicity to aq. life

Precaution: Avoid oxidizing materials

NFPA: Health 1, Flammability 3, Reactivity 0

Storage: 12 mos. shelf-life from date of prod.; store in original containers @ ≤ R.T.

Dow Corning® ST Wax 30  [Dow Corning http://www.dowcorning.com]
Chem. Descrip.: Alkyl siloxane wax (40-70%); C24-54 alpha-Alkene (40-70%)
CAS ; 131459-42-2
Uses: Thickener; excipient for pharmaceutical topical formulations; in oral care, skin care, sun care; reduces tackiness; moisturizing agent
Features: High melting pt. matifying effect; non-greasy; occlusive; compat. with many non-polar cosmetic raw materials

Regulatory: NF, RCRA nonhazardous; SARA §312 Reactive Hazard; NJ. PA Right-to-Know
Properties: Wh. to off-wh. wax; char. odor; m.p. 70 C

Toxicology: Repeated, prolonged exposure may cause skin irritation; direct eye contact may cause temporary redness, discomfort
Precaution: Wear safety glasses; incompat. with oxidizers

Hazardous Decomp. Prods.: Carbon oxides, silicon dioxide, formaldehyde

NFPA: Health 1, Flammability 1, Reactivity 0

Storage: Keep container closed; store away from moisture

Dow Corning® ST Elastomer 10  [Dow Corning http://www.dowcorning.com]
Chem. Descrip.: Cyclomethicone >60.0% and dimethicone crosspolymer See Decamethylcyclopentasiloxane
Chem. Analysis: Octamethylcyclotetrasiloxane < 1%
CAS 541-02-6; EINECS/ELINCS 208-764-9
UN 1325
Uses: Thickener; excipient for pharmaceutical topical formulations
Features: Cold processing; non-greasy; quick absorption

Regulatory: NF, RCRA nonhazardous; SARA §312 Fire Hazard; NJ. PA Right-to-Know
Properties: Crystal cl. to sl. transluscent gel; sp.gr. 0.94; visc. 350,000-490,000 cSt; flash pt. (Seta CC) 91 C

Toxicology: May cause temporary eye discomfort

Precaution: Wear safety glasses; avoid contact with oxidizers and avoid eye contact

Hazardous Ingredients: Decamethylcyclopentasiloxane

Hazardous Decomp. Prods.: Carbon oxides, silicon dioxide, formaldehyde

NFPA: Health 0, Flammability 1, Reactivity 0

Storage: Keep from heat, sparks, flame

Dow Corning® Antifoam 1520-US  [Dow Corning http://www.dowcorning.com]
Chem. Descrip.: Silicone emulsion
Uses: Foam control agent for pharmaceuticals
Features: Effective for hot and cold systems


Properties: Milky-wh. thin cream; water-dilutable; sp.gr. 1.0; visc. 6000 cp; pH 4.0; nonionic; 20% act.

Toxicology: May cause temporary eye discomfort

Precaution: Keep away from heat, sparks, flame

Dow Corning® Antifoam M Compd.  [Dow Corning http://www.dowcorning.com]
Chem. Descrip.: Polydimethylsiloxane fluid (94%) and silica
Uses: Antifoam in pharmaceutical and biotechnological processes; act. ingred. in antiflatulent formulations (liq. dosage)

Regulatory: FDA 21CFR §332.10
Properties: < 0.5% volatiles

Dow Corning® Dimethiconol Blend 20  [Dow Corning http://www.dowcorning.com]
Chem. Descrip.: Dimethiconol and polydimethylsiloxane
CAS 70131-67-8; 63148-62-9
Uses: Spreading agent, excipient, water repellent for pharmaceutical topicals

Regulatory: FDA 21CFR §332.10
Properties: Cl., odorless liq.; very low water solubility < 100 ppb; sp. gr. 0.951; visc. 475 cP; vapor pressure <1 mm Hg; b.p. > 35 C; flash pt. (CC) > 188.6 F; 100% silicone content

Environmental: Low toxicity to aq. organisms

Precaution: Avoid oxidizing materials and avoid eye contact

Hazardous Decomp. Prods.: COx, SiO2, and formaldehyde

NFPA: Health 0, Flammability 1, Reactivity 0
Dow Corning® Emulsifier 10 [Dow Corning http://www.dowcorning.com]
Uses: Excipient in pharmaceutical topical; emulsifier for w/o emulsions in health care
Properties: Cl. to lt. straw transparent liq.; sp.gr. 0.900; kinetic visc. 25,000 cSt; 82% NV; < 5 ppm heavy metals

Dow Corning® Medical Antifoam AF Emulsion [Dow Corning http://www.dowcorning.com]
Chem. Descrip.: Simethicone USP emulsion with stearate emulsifiers, sorbic acid, and water
Uses: Defoamer and antifoam, esp. for aq. systems; suppressant for excessive GI gas; antiflatulent ingred. in antacids; adjunct to gastroscopic exams
Regulatory: FDA 21CFR §332.10 (OTC drug), 173.340 (to 33.3 ppm in foods)
Properties: Wh. creamy paste; water-dilutable; sp.gr. 1.0; pH 2.7; nonionic; 30% act.
Toxicology: Essentially no significant silicone absorption on ingestion
Storage: 12 mo shelf life stored in original unopened containers between 5 and 32 C; avoid freezing; freeze/thaw cycling may break emulsion

Dow Corning® Medical Antifoam C Emulsion [Dow Corning http://www.dowcorning.com]
Chem. Descrip.: Simethicone in methylcellulose
CAS 8050-81-5; 9004-67-5
Uses: Foam control in medical and pharmaceutical applications; OTC antiflatulents; biofermentation
Features: Water-dilutable emulsion
Regulatory: USP, FDA 21CFR §332.10 (OTC drug), 173.340
Properties: Nonionic; 30% Simethicone assay

Dowex™ 1 x 2 [Dow http://www.dow.com]
Chem. Descrip.: Ion exchange resin in styrene-DVB gel matrix
Uses: Ion exchange resin for recovery, isolation, and conc. of fermentation prods., such as flavor components, vitamins, pharmaceuticals
Features: 2% crosslinked strong base anion type
Regulatory: FDA 21CFR §332.10 (OTC drug), 173.340
Properties: Fine mesh avail. as beads in 3 sizes (50-100 mesh, 100-200 mesh, 200-400 mesh)

Dowex™ 1 x 4 [Dow http://www.dow.com]
Chem. Descrip.: Ion exchange resin in styrene-DVB gel matrix
Uses: Ion exchange resin for recovery, isolation, and conc. of fermentation prods., such as flavor components, vitamins, pharmaceuticals
Features: 2% crosslinked strong acid cation type
Regulatory: FDA 21CFR §332.10 (OTC drug), 173.340
Properties: Fine mesh avail. as beads in 3 sizes (50-100 mesh, 100-200 mesh, 200-400 mesh)
**Trade Name Reference**

**Features:** 4% crosslinked strong acid cation type  
**Properties:** Fine mesh avail. as beads in 3 sizes  
(50-100 mesh, 100-200 mesh, 200-400 mesh)

*Dowex™ 50W x 8* [Dow http://www.dow.com]  
Chem. Descrip.: Ion exchange resin in *styrene-DVB* gel matrix  
Uses: Ion exchange resin for recovery, isolation, and conc. of fermentation prods., such as flavor components, vitamins, pharmaceuticals  
Features: Strong acid cation type

**Dowex™ Marathon MR-3** [Dow http://www.dow.com]  
Chem. Descrip.: Ion exchange resin in *styrene-DVB* gel matrix  
Uses: Ion exchange resin for recovery, isolation, and conc. of fermentation prods., such as flavor components, vitamins, pharmaceuticals  
Features: Mixed bed resin; premium grade; uniform particle size

**Dowex™ Marathon A** [Dow http://www.dow.com]  
Chem. Descrip.: Ion exchange resin in *styrene-DVB* gel matrix  
Uses: Ion exchange resin for recovery, isolation, and conc. of fermentation prods., such as flavor components, vitamins, pharmaceuticals  
Features: Strong base anion type

**Dowex™ Marathon C** [Dow http://www.dow.com]  
Chem. Descrip.: Ion exchange resin in *styrene-DVB* gel matrix  
Uses: Ion exchange resin for recovery, isolation, and conc. of fermentation prods., such as flavor components, vitamins, pharmaceuticals  
Properties: Colorless visc. liq.; odorless; sweet taste; misc. with ethanol, IPA, water; immiscible with benzene, chloroform, ethyl ether, heptane; sp.gr. 1.25170; dens. 1.24770g/cm³; misc. 624 cps (20 C); f.p. 8 C; b.p. 175 C; flash pt. (PMCC) > 198.8 C; ref. index 1.46752 (20 C); 96% act., 4% water

**Dow Glycerine 96% USP** [Dow http://www.dow.com]  
Chem. Descrip.: *Glycerin* FCC, USP  
CAS 56-81-5; EINECS/ELINCS 200-289-5  
Uses: Humectant, solvent in pharmaceuticals  
Regulatory: FDA GRAS; E422 compliant; avail. in kosher grade  
Properties: Colorless visc. liq.; odorless; sweet taste; misc. with ethanol, IPA, water; immiscible with benzene, chloroform, ethyl ether, heptane; sp.gr. 1.25170; dens. 1.24770g/cm³; misc. 624 cps (20 C); f.p. 8 C; b.p. 175 C; flash pt. (PMCC) > 198.8 C; ref. index 1.46752 (20 C); 96% act., 4% water

**Dow Glycerine 99.5% USP/EP** [Dow Europe]  
Chem. Descrip.: *Glycerin* FCC, USP, EP  
CAS 56-81-5; EINECS/ELINCS 200-289-5  
Uses: Humectant, solvent in pharmaceuticals  
Regulatory: USP, Eur. Ph., FDA GRAS; E422 compliant; avail. in kosher grade  
Properties: Colorless visc. liq.; odorless; sweet taste; misc. with ethanol, IPA, water;
immiscible with benzene, chloroform, ethyl ether, heptane; m.w. 92.09; sp.gr. 1.26201; dens. 1.25802 g/cm³; visc. 1410 cps (20 C); vapor pressure 0.0025 mm Hg (50 C); f.p. 17 C; b.p. 290 C; flash pt. (PMCC) 195.5 C; ref. index 1.47399 (20 C); surf. tens. 63 dynes/cm (20 C); 99.5% act.


Chem. Descrip.: Propylene glycol dipelargonate
CAS 41395-83-9; EINECS/ELINCS 255-350-9

Uses: Emollient, spreading agent improving appearance in pharmaceuticals, topical emulsions, creams, lotions, alcoholic sol’s.

Features: Rancidless; provides drier feel

Properties: Gardner < 2 oily liq., faint odor; HLB 2.0; acid no. < 0.2; iodine no. < 1; sapon. no. 305-325

Toxicology: LD0 (oral, rat) > 16 g/kg; sl. irritating to eyes; nonirritating to skin

Drago-Oat-Active 2/060900 [Symrise USA http://www.symrise.com]

Chem. Descrip.: Water, butylene glycol, oat (avena sativa) kernel extract

Uses: Anti-irritant in skin care (for sensitive, dry, and problematic skin), after-sun and sun block prods., aftershave, shaving prods., face/body lotions, baby care, hair care

Dragosantol [Symrise USA http://www.symrise.com]

Chem. Descrip.: Bisabolol
CAS 515-69-5; EINECS/ELINCS 208-205-9

Uses: Anti-irritant in skin care (for sensitive, dry, and problematic skin), after-sun and sun block prods.

Dragowax SE [Symrise USA http://www.symrise.com]

Chem. Descrip.: Cetearyl alcohol, ceteareth-18

Uses: O/w emulsifier for ointments, esp. ointments with high oil content

Features: Exc. stability; requires no thickeners

Properties: Nonionic

Drakeol® 13 [Penreco http://www.penreco.com]

Chem. Descrip.: Lt. mineral oil NF
CAS 8042-47-5; EINECS/ELINCS 232-384-2

Uses: Base in pharmaceutical topical ointments

Regulatory: FDA 21CFR §172.878, 178.3620, 573.680; DOT nonregulated; OSHA nonhazardous; SARA §311/312/313 nonreportable; Australia, Canada DSL, China, EC, Japan, Korea listed

Properties: Water-wh. transparent liq., odorless; sol. in hydrocarbons; negligible sol. in water; sp.gr. 0.871 (60/60 F); dens. 7.14-7.31 lb/gal; visc. 34.9-37.3 cSt (40 C); vapor pressure < 1 mm Hg (70 F); b.p. 590 F; pour pt. -12 C; flash pt. 188 C

Toxicology: ACGIH TLV/TWA 5 mg/m³; STEL 10 mg/m³; relatively nontoxic by ingestion unless aspiration occurs; laxative props. may result in abdominal cramps, diarrhea; minimally irritating to eyes on direct contact; TSCA listed

Precaution: May react with strong oxidizing agents; spillages may be slippery

Hazardous Decomp. Prods.: Combustion may produce dense smoke, CO, CO₂, other oxides

HMIS: Health 0, Flammability 1, Reactivity 0

Storage: Store in closed containers away from heat, sparks, open flame, oxidizers

Drakeol® 19 [Penreco http://www.penreco.com]

Chem. Descrip.: White mineral oil USP
CAS 8042-47-5; EINECS/ELINCS 232-384-2

Uses: Base in pharmaceuticals (laxatives, topical ointments)

Regulatory: FDA 21CFR §172.878, 178.3620, 573.680; DOT nonregulated; OSHA nonhazardous; SARA §311/312/313 nonreportable; Australia, Canada DSL, China, EC, Japan, Korea listed

Properties: Water-wh. transparent liq., odorless; sol. in hydrocarbons; sp.gr. 0.88 (60/60 F); dens. 7.14-7.31 lb/gal; visc. 34.9-37.3 cSt (40 C); vapor pressure < 1 mm Hg (70 F); b.p. 590 F; pour pt. -12 C; flash pt. 188 C; ref. index 1.4725

Toxicology: ACGIH TLV/TWA 5 mg/m³; STEL 10 mg/m³; relatively nontoxic by ingestion unless aspiration occurs; laxative props. may result in abdominal cramps, diarrhea; minimally irritating to eyes on direct contact; TSCA listed

Precaution: May react with strong oxidizing agents

Hazardous Decomp. Prods.: Combustion may produce dense smoke, CO, CO₂, other oxides

HMIS: Health 0, Flammability 1, Reactivity 0
Trade Name Reference

Storage: Store in closed containers away from heat, sparks, open flame, oxidizers

Drakeol® 21 [Penreco
http://www.penreco.com]
Chem. Descrip.: Wh. mineral oil USP
CAS 8042-47-5; EINECS/ELINCS 232-384-2
Uses: Base for pharmaceutical laxatives
Regulatory: FDA 21CFR §172.878, 178.3620, 573.680; DOT nonregulated; OSHA nonhazardous; SARA §311/312/313 nonreportable; Australia, Canada DSL, China, EC, Japan, Korea listed
Properties: Water-wh. transparent liq., odorless; sol. in hydrocarbons; sp.gr. 0.876 (60/60 F); dens. 7.15-7.32 lb/gal; visc. 38.4-41.5 cSt (40 C); vapor pressure < 1 mm Hg (70 F); b.p. 600 F; pour pt. -12 C; flash pt. 193 C; ref. index 1.4733
Toxicology: ACGIH TLV/TWA 5 mg/m³; STEL 10 mg/m³; relatively nontoxic by ingestion unless aspiration occurs; laxative props. may result in abdominal cramps, diarrhea; minimally irritating to eyes on direct contact; TSCA listed
Precaution: May react with strong oxidizing agents
Hazardous Decomp. Prods.: Combustion may produce dense smoke, CO, CO₂, other oxides
HMIS: Health 0, Flammability 1, Reactivity 0
Storage: Store in closed containers away from heat, sparks, open flame, oxidizers

Drakeol® 34 [Penreco
http://www.penreco.com]
Chem. Descrip.: Wh. mineral oil USP
CAS 8042-47-5; EINECS/ELINCS 232-384-2
Uses: Lubricant for pharmaceuticals
Regulatory: FDA 21CFR §172.878, 178.3620, 573.680; DOT nonregulated; OSHA nonhazardous; SARA §311/312/313 nonreportable; Australia, Canada DSL, China, EC, Japan, Korea listed
Properties: Water-wh. transparent liq., odorless; sol. in hydrocarbons; sp.gr. 0.882 (60/60 F); dens. 7.25-7.35 lb/gal; visc. 65.8-71.0 cSt (40 C); vapor pressure < 1 mm Hg (70 F); b.p. 650 F; pour pt. -15 C; flash pt. 216 C; ref. index 1.4785
Toxicology: ACGIH TLV/TWA 5 mg/m³; STEL 10 mg/m³; relatively nontoxic by ingestion unless aspiration occurs; laxative props. may result in abdominal cramps, diarrhea; minimally irritating to eyes on direct contact; TSCA listed
Precaution: May react with strong oxidizing agents
Hazardous Decomp. Prods.: Combustion may produce dense smoke, CO, CO₂, other oxides
HMIS: Health 0, Flammability 1, Reactivity 0
Storage: Store in closed containers away from heat, sparks, open flame, oxidizers

Drakeol® 5 [Penreco
http://www.penreco.com]
Chem. Descrip.: Lt. mineral oil NF
CAS 8042-47-5; EINECS/ELINCS 232-384-2
Uses: Emollient for pharmaceutical ointments; lubricant for gelatin capsules
Regulatory: FDA 21CFR §172.878, 178.3620, 573.680; DOT nonregulated; OSHA nonhazardous; SARA §311/312/313 nonreportable; Australia, Canada DSL, China, EC, Japan, Korea listed
Properties: Water-wh. transparent liq., odorless; sol. in hydrocarbons; negligible sol. in water; sp.gr. 0.828-0.838; dens. 6.89-7.00 lb/gal; visc. 7.6-8.7 cSt (40 C); vapor pressure < 1 mm Hg (70 F); b.p. 320 F; pour pt. -9 C; flash pt. 154° F
Toxicology: ACGIH TLV/TWA 5 mg/m³; STEL 10 mg/m³; relatively nontoxic by ingestion unless aspiration occurs; laxative props. may result in abdominal cramps, diarrhea; minimally irritating to eyes on direct contact; TSCA listed
Precaution: May react with strong oxidizing agents
Hazardous Decomp. Prods.: Combustion may produce dense smoke, CO, CO₂, other oxides
HMIS: Health 0, Flammability 1, Reactivity 0
Storage: Store in closed containers away from heat, sparks, open flame, oxidizers
<table>
<thead>
<tr>
<th>Drakeol® 6 <a href="http://www.penreco.com">Penreco</a></th>
<th>Drakeol® 9 <a href="http://www.penreco.com">Penreco</a></th>
</tr>
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<tbody>
<tr>
<td><strong>Chem. Descrip.:</strong> Lt. mineral oil USP</td>
<td><strong>Chem. Descrip.:</strong> Lt. mineral oil NF</td>
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</tr>
<tr>
<td><strong>Uses:</strong> Base material for pharmaceuticals</td>
<td><strong>Uses:</strong> Emulsified lubricant for laxatives, topical ointments</td>
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<tr>
<td><strong>Regulatory:</strong> FDA 21CFR §172.878, 178.3620, 573.680; DOT nonregulated; OSHA nonhazardous; SARA §311/312/313 nonreportable; Australia, Canada DSL, China, EC, Japan, Korea listed</td>
<td><strong>Regulatory:</strong> FDA 21CFR §172.878, 178.3620, 573.680; DOT nonregulated; OSHA nonhazardous; SARA §311/312/313 nonreportable; Australia, Canada DSL, China, EC, Japan, Korea listed</td>
</tr>
<tr>
<td><strong>Properties:</strong> Water-wh. transparent liq., odorless; sol. in hydrocarbons; negligible sol. in water; sp.gr. 0.827-0.836; dens. 6.94-7.02 lb/gal; visc. 9.2-10.6 cSt (40 C); pour pt. 15 F; flash pt. 320 F; ref. index 1.4613.</td>
<td><strong>Properties:</strong> Water-wh. transparent liq., odorless; sol. in hydrocarbons; negligible sol. in water; sp.gr. 0.838-0.854; dens. 7.03-7.16 lb/gal; visc. 14.2-17.0 cSt (40 C); pour pt. 09 C; flash pt. 179 C; ref. index 1.4665.</td>
</tr>
<tr>
<td><strong>Toxicology:</strong> STEL 10 mg/m³ (as oil mist); relatively nontoxic by ingestion unless aspiration occurs (which may cause pneumonitis and may be fatal); laxative props. may result in abdominal cramps, diarrhea; minimally irritating to eyes on direct contact</td>
<td><strong>Toxicology:</strong> STEL 10 mg/m³ (as oil mist); relatively nontoxic by ingestion unless aspiration occurs (which may cause pneumonitis and may be fatal); laxative props. may result in abdominal cramps, diarrhea; minimally irritating to eyes on direct contact; TSCA listed</td>
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<td><strong>Storage:</strong> Store in closed containers away from heat, sparks, open flame, oxidizers</td>
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</tbody>
</table>

**Drakeol® 7 [Penreco](http://www.penreco.com)**

**Chem. Descrip.:** Lt. mineral oil NF

**CAS** 8042-47-5; EINECS/ELINCS 232-384-2

**Uses:** Carrier, base in topical pharmaceutical ointments, lotions; lubricant for gelatin capsules

**Regulatory:** FDA 21CFR §172.878, 178.3620, 573.680; DOT nonregulated; OSHA nonhazardous; SARA §311/312/313 nonreportable; Australia, Canada DSL, China, EC, Japan, Korea listed

**Properties:** Water-wh. transparent liq., odorless; sol. in hydrocarbons; negligible sol. in water; sp.gr. 0.828-0.843; dens. 6.94-7.08 lb/gal; visc. 10.8-13.6 cSt (40 C); pour pt. -9 C; flash pt. 177 C; ref. index 1.4632

**Toxicology:** STEL 10 mg/m³ (as oil mist); relatively nontoxic by ingestion unless aspiration occurs (which may cause pneumonitis and may be fatal); laxative props. may result in abdominal cramps, diarrhea; minimally irritating to eyes on direct contact; TSCA listed

**Precaution:** May react with strong oxidizing agents; spillages may be slippery

**Hazardous Decomp. Prods.:** Combustion may produce dense smoke, CO, CO₂, other oxides

**HMIS:** Health 0, Flammability 1, Reactivity 0

**Storage:** Store in closed containers away from heat, sparks, open flame, oxidizers

**Drakeol® 8 [Penreco](http://www.penreco.com)**

**Chem. Descrip.:** Lt. mineral oil NF

**CAS** 8042-47-5; EINECS/ELINCS 232-384-2

**Uses:** Base material for pharmaceuticals

**Regulatory:** FDA 21CFR §172.878, 178.3620, 573.680; DOT nonregulated; OSHA nonhazardous; SARA §311/312/313 nonreportable; Australia, Canada DSL, China, EC, Japan, Korea listed

**Properties:** Water-wh. transparent liq., odorless; sol. in hydrocarbons; negligible sol. in water; sp.gr. 0.827-0.836; dens. 6.94-7.02 lb/gal; visc. 9.2-10.6 cSt (40 C); pour pt. 15 F; flash pt. 320 F; ref. index 1.4613.

**Toxicology:** STEL 10 mg/m³ (as oil mist); relatively nontoxic by ingestion unless aspiration occurs (which may cause pneumonitis and may be fatal); laxative props. may result in abdominal cramps, diarrhea; minimally irritating to eyes on direct contact

**Precaution:** May react with strong oxidizing agents; spillages may be slippery

**Hazardous Decomp. Prods.:** Combustion may produce dense smoke, CO, CO₂, other oxides

**HMIS:** Health 0, Flammability 1, Reactivity 0

**Storage:** Store in closed containers away from heat, sparks, open flame, oxidizers
Trade Name Reference

**Drakeol® 350 [Penreco](http://www.penreco.com)**
Chem. Descrip.: White mineral oil USP
CAS **8042-47-5**; EINECS/ELINCS **232-384-2**
Uses: Base for laxatives and topical ointments
Regulatory: FDA 21CFR §172.878, 178.3620, 573.680; DOT nonregulated; OSHA nonhazardous; SARA §311/312/313 nonreportable; Australia, Canada DSL, China, EC, Japan, Korea listed
Properties: Water-wh. transparent liq., odorless; sol. in hydrocarbons; sp.gr. .857/.873 (60/60 F); visc. 66.7-71.2 cSt (40 C); pour pt. -15 C; flash pt. 227 C
Toxicology: ACGIH TLV/TWA 5 mg/m³; STEL 10 mg/m³; relatively nontoxic by ingestion unless aspiration occurs; laxative props. may result in abdominal cramps, diarrhea; minimally irritating to eyes on direct contact; TSCA listed
Precaution: May react with strong oxidizing agents
Hazardous Decomp. Prods.: Combustion may produce dense smoke, CO, CO₂, other oxides
HMIS: Health 0, Flammability 1, Reactivity 0
Storage: Store in closed containers away from heat, sparks, open flame, oxidizers

**Drakeol® 32 [Penreco](http://www.penreco.com)**
Chem. Descrip.: Wh. mineral oil USP
CAS **8042-47-5**; EINECS/ELINCS **232-384-2**
Uses: Lubricant
Regulatory: FDA 21CFR §172.878, 178.3620, 573.680; DOT nonregulated; OSHA nonhazardous; SARA §311/312/313 nonreportable; Australia, Canada DSL, China, EC, Japan, Korea listed
Properties: Water-wh. transparent liq., odorless; sol. in hydrocarbons; sp.gr. 0.856-0.876; dens. 7.18-7.35 lb/gal; visc. 60.0-63.3 cSt (40 C); pour pt. -12 C; flash pt. 213 C; ref. index 1.4770
Toxicology: ACGIH TLV/TWA 5 mg/m³; STEL 10 mg/m³; relatively nontoxic by ingestion unless aspiration occurs; laxative props. may result in abdominal cramps, diarrhea; minimally irritating to eyes on direct contact; TSCA listed
Precaution: May react with strong oxidizing agents
Hazardous Decomp. Prods.: Combustion may produce dense smoke, CO, CO₂, other oxides
HMIS: Health 0, Flammability 1, Reactivity 0
Storage: Store in closed containers away from heat, sparks, open flame, oxidizers

**Drakesol® 220 [Penreco](http://www.penreco.com)**
Chem. Descrip.: Mineral oil
CAS **8042-47-5**; EINECS/ELINCS **232-384-2**
Uses: Carrier in pet repellent spray
Regulatory: FDA 21CFR §172.884, 178.3650, 573.740; SARA §313 nonreportable; OSHA nonhazardous; Australia AICS; Canada DSL; China listed; Europe EINECS; Japan ENCs; Korea ECL; Philippines PICCS
Properties: Cl. liq.; sl hydrocarbon odor; sol. in hydrocarbons; insol. in water; m.w. 0.8; sp.gr. 0.804 (60/60 F); dens. 6.69 lb/gal (60 F); visc. 2.28 cSt (100 F); vapor pressure < 0.1 mm Hg; vapor dens. 6.7; i.b.p. 235 C min.; pour pt. -18
Trade Name Reference

C; b.p. 239.4-276.7 C; flash pt. 102 C; KB value 24.5; < 1% aromatics
Toxicology: TSCA listed
Precaution: Do not allow to enter sewers, watercourses; avoid breathing vapors or mist
Hazardous Decomp. Prods.: CO, CO₂, other oxides
HMIS: Health 0, Flammability 1, Reactivity 0
Storage: Store in closed containers away from heat, sparks, open flame, oxidizers

DREWMULSE® 200K [Stepan http://www.stepan.com]
Chem. Descrip.: Glyceryl stearate
CAS 123-94-4
Uses: Emulsifier, emollient, stabilizer, visc. builder, opacifier for pharmaceuticals (suppositories, ointments, cream bases)
Regulatory: FDA 21CFR §175.105, 175.300, 176.200, 176.210, 177.2800; kosher; Europe, Japan, Canada, Australia, Korea, Philippines, China listed
Properties: Ivory wh. flakes; sl. fatty odor; sp.gr. 0.9145; visc. 30 cSt (70 C); m.p. 60 C; HLB 2.8; iodine no. 170; flash pt. > 94 C; 0% RVOC; nonionic; 42% monoester; 0.17% moisture
Toxicology: LD₅₀ > 5 g/kg; TSCA listed
Environmental: Biodeg.
Storage: Store @ 18-32 C; avoid prolonged storage above 32 C

DREWMULSE® GMC-810 [Stepan http://www.stepan.com]
Chem. Descrip.: Mixture of caprylic acid monoglyceride, glyceryl monodecanoate, glyceryl dicaprylate, glyceryl dicaprate, triglycerides, mixed decanoate and octanoate and glycerin See Caprylic/capric triglyceride; Glyceryl caprate; Glyceryl caprylate
CAS 26402-26-6; 26402-22-2; 36354-80-0 20; 53988-07-1; 73398-61-5; 56-81-5; EINECS/ELINCS 247-668-1; 247-667-6; 252-992-1; 258-903-2; 277-452-2; 200-289-5
Uses: Emulsifier for vitamin and mineral preps.; solvent for many organic compounds including steroids
Regulatory: GRAS
Properties: Sl. yel. soft solid to liq.; fatty odor; dispersible in water; sol. in propylene glycol (10% w/v), ethyl acetate (10% w/v), and xylene (10% w/v); sp. gr. 0.992; m.p. 24-30 C; HLB 4.8; acid no. 1.0; iodine no 0.05; sapon. no.

DREWMULSE® GMO Kosher [Stepan http://www.stepan.com]
Chem. Descrip.: Glyceryl oleate
CAS 111-03-5; EINECS/ELINCS 203-827-7
Uses: Emulsifier, stabilizer, opacifier, and visc. builder in pharmaceuticals (vitamin carrier, ointment and cream bases)
Regulatory: Kosher
Properties: Gardner 6 liq.; HLB 3.4; nonionic; 40-45% conc.

DREWPOL® 10-10-O [Stepan http://www.stepan.com]
Chem. Descrip.: Polyglyceryl-10 decaoleate (95-100%) and oleic acid (0-5%)
CAS 11094-60-3; 112-80-1; EINECS/ELINCS 234-316-7; 204-007-1
Uses: Emulsifier for pharmaceuticals, creams, lotions; suspending agent for food colors; solubilizer for vitamins, flavors, medicaments
Regulatory: FDA 21 CFR §172.854, kosher
Properties: Amber cl. visc. liq.; fatty odor; sp. gr. 0.9014 g/ml; visc. 92.2 cSt @37 C; m.p. -37.2 C; acid no. 10.0 max.; HLB 3.0; flash pt. >94 C; nonionic
Toxicology: LD₅₀ (oral, rat) >5000-15,000 mg/kg; noncarcinogenic; pract. nontoxic orally; may cause mild irritation to eyes; inh. of vapors irritating to respiratory system; acute ing. may cause mild GI distress
Environmental: Biodegrad.
Precaution: Wear goggles and gloves
Hazardous Decomp. Prods.: COₓ and/or low molecular weight hydrocarbons
HMIS: Health 1, Flammability 1, Reactivity 0

Dri-Klear™ [Chr. Hansen A/S http://www.chr-hansen.com]
Chem. Descrip.: Cellulose polymer system with plasticizers
Uses: Coating system providing aq. film coating for pharmaceutical and vitamin tablets
Features: Rapid dissolution in water; min. foam generation; exc. substrate adhesion
Regulatory: GRAS
Properties: Wh. to off-wh. free-flowing powd., cl. to opaque when solubilized (formula dependent)
Storage: 3 yr. shelf life stored in tightly sealed containers in dry location
Trade Name Reference

Dritex S [ABITEC
http://www.abiteccorp.com]
Chem. Descrip.: Hydrogenated soybean oil
CAS 8016-70-4; EINECS/ELINCS 232-410-2
Uses: Filler, binder, lubricant, disintegrant, solubilizer, carrier, emulsifier, and emollient in tablets, capsules, suppositories; crystallization promoter, m.p. modifier, bodying agent, lubricant, moisturizer for clinical nutrition, coating, dermatologicals, nutritional/sports supplements, soft gelatin capsules, suppositories, sustained release applics., creams and lotions

Properties: Lovibond 3R max. liq., flake, bead; drop pt. 155 F; acid no. 0.2 max.; iodine no. 1-5; sapon. no. 189-197

Toxicology: Nontoxic

Dry-Flo® [Nat'l. Starch & Chem./Food Innovation
http://www.foodinnovation.com]
Chem. Descrip.: Food starch, modified
Uses: Processing aid, dusting aid, antisticking agent, lubricant for pharmaceuticals; processing aid for encapsulated vitamins

Features: Hydrophobic; extremely resist. to wetting in aq. media

Regulatory: FDA 21CFR §172.892; DOT nonregulated; SARA §313 nonreportable

Properties: Wh. to off-wh. free-flowing fine powd.; starch odor; insol. in water; m.w. > 10,000; sp.gr. 1.5; pH Ξ 6 (1%); ≤ 11% moisture

Toxicology: Possible physical irritant from dust particles; particulates may scratch eye surfs. and cause mech. irritation; possible nuisance dust by inh.; maintain below TWA 10 mg/m³; low oral toxicity; low toxicity by skin contact; TSCA listed

Precaution: Potential for dust explosion; minimize dust generation

Hazardous Decomp. Prods.: Does not undergo spontaneous decomp.; typ. combustion prods.: CO, CO₂, N, water

Storage: Store @ ambient temps.; sensitive to static electricity

Dry Vitamin D₃ Type 100 SD [DSM Nutritional Prods. USA http://www.nutraaccess.com]
Chem. Descrip.: Cholecalciferol compounded with dicalcium phosphate, lactose, acacia, coconut oil, BHT, and silicon dioxide
See Calcium phosphate dibasic dihydrate;

Properties: Sol. in cold water; 100,000 min. IU vitamin D/g

Toxicology: Vitamin D: potentially toxic esp. for young children; excessive ingestion may cause hypercalcemia, hypercalcuria

Storage: Store in cool, dry place in tightly closed container; sensitive to air, heat, light, and humidity

Dry Vitamin E 75™ HP [DSM Nutritional Prods. USA http://www.nutraaccess.com]
Chem. Descrip.: dl-α-Tocopheryl acetate finely dispersed in a matrix of gelatin; calcium silicate and silicon dioxide are used as processing aids. See Silica
CAS 7695-91-2;9000-70-8;1344-95-2;$; EINECS/ELINCS 231-710-0;232-554-6;215-710-8;231-545-4

Uses: Vitamin source for multivitamin and min. tablets (coated and uncoated), and for hard-shell gelatin capsules

Regulatory: USP, FCC, Ph. Eur.

Properties: Off-wh. to tan-greyish free-flowing particles (beadlets); 99% min. through sieve; 74% min. assay

Precaution: High level of Vitamin E should not be given to individuals with coagulation defects without advice of physician.

Storage: Store in cool, dry place in tightly closed container

Dry Vitamin E Acetate 50% SD [DSM Nutritional Prods. USA http://www.nutraaccess.com]
Chem. Descrip.: dl-α-Tocopheryl acetate USP, FCC compd. with hydrolyzed gelatin, 3% silicon dioxide
See Silica
CAS 7695-91-2;68410-45-7;$; EINECS/ELINCS 231-710-0;270-082-2;231-545-4

Uses: Vitamin E source for pharmaceuticals (multivitamin tablets, chewable or coated dietary supplements, hard shell capsules); esp. developed for direct compression tableting of chewable or coated tablets

Regulatory: FDA GRAS
Properties: Wh. to off-wh. free-flowing powd., acceptable odor and taste; 95% min. through
Trade Name Reference

20 mesh; sl. hygroscopic; disp. readily in cold or warm water; 50% min. dl-α-tocopheryl acetate

Storage: Store in dry place in tightly closed container; avoid excessive heat


Uses: Anti-inflammatory, moisturizing, tissue regenerating, and anti-free radical action for sun prods., slimming prods., cosmetic and health prods.

Properties: Colorless to very sl. pink limpid liq.; misc. with water @ R.T., alcohols, glycols; sp.gr. 1.0 (20 C); pH ≈ 5.5

Use Level: From 1%

Toxicology: Nontoxic; sl. eye irritant; nonirritating to skin

Storage: Do not expose to temps. below 0 C


Uses: Pharmaceutical surfactant, solubilizer, wetting agent, dispersant for use as adjuvant in tablet formulations (aids granulation, improves tablet and dissolution chars., maintains tablet hardness)

Features: Good stability; good compat. with many drug actives

Properties: Wh. crst. powd.; anionic

Toxicology: Direct contact may cause eye or skin irritation

Storage: Store in tightly closed containers below 24 C with < 60% r.h.

DSS Tablet Grade [Cytec Ind. http://www.cytec.com] Chem. Descrip.: Docusate sodium USP (70%), colloidal silicon dioxide NF (27.5%), absorbable dusting powd. USP (0.5%), magnesium stearate NF (2%) See Dioctyl sodium sulfo succinate; Silica

Uses: Pharmaceutical grade surfactant, solubilizer, wetting agent, dispersant for medicaments, as adjuvant in tablet formulation (improves tablet and dissolution chars.), esp. for constipation treatments/preventives

Features: Good stability, compat.

Properties: Wh. fine free-flowing powd.; 100% through 20 mesh; anionic; 68-72% assay

Use Level: 0.1-1% (adjuvant)

Toxicology: Direct contact may cause eye or skin irritation

Storage: Store in tightly closed containers below 24 C and < 60% r.h.

Duocrome® [Engelhard] Chem. Descrip.: Titanium dioxide-coated mica and a thin layer of colored pigment (iron blue, carmine, and/or iron oxide)

Uses: Iridescent colors producing dual-color effects derived from light interference and light absorption; used in analgesic body lotions, sunscreens, toothpaste

Features: Produces dual-color effects derived from light interference and light absorption

Properties: Colors incl. blue/red, blue/green, blue/gold, red/blue, red/violet, gold/green, green/blue, etc.; fine lustrous powd.; insol.; particle size 6-50 µm; sp.gr. ≈ 3.0


Uses: Taste masking agent, stabilizer, and carrier for pharmaceuticals; binding agent for medicinal agents onto an insol. polymeric matrix

Regulatory: SARA §311/312 acute health hazard; §313 nonreportable

Properties: Wh. fine powd.; ammonia odor; pract. insol. in water; sp. gr. > 1.0; vapor pressure 17.0 mm Hg; pH 4.0 - 7.0 (aq. slurry); >88.0% act.

Toxicology: LD50 (oral, rat) >5,000 mg/kg, LD50 (dermal, rabbit ) >5,000 mg/kg; severe irritant to eyes

Precaution: Avoid nitric acid and other strong oxidizers which can cause explosive reactions; avoid dust formation

Hazardous Decomp. Prods.: Monomer vapors HMIS: Health 2, Flammability 1, Reactivity 0

Dur-Em® 117 [Loders Croklaan Inc] Chem. Descrip.: Mono- and diglycerides with citric acid (preservative) See Mono- and diglycerides of fatty acids

Uses: Emulsifier for pharmaceutical creams and lotions

Regulatory: GRAS

Properties: Wh. beads, flakes, typ. odor/flavor; m.p. 62-65 C; HLB 2.8; iodine no. 5 max.; flash pt. 300 F min.; nonionic; 100% conc.; 40%

Handbook of Pharmaceutical Additives, Third Edition 238
Trade Name Reference

min. alpha monoglyceride

Storage: Store in cool, dry place away from odor-producing substances

Dur-Em® 207-E [Loders Croklaan Inc]
Chem. Descrip.: Mono- and diglycerides with citric acid to help protect flavor See Mono- and diglycerides of fatty acids
Uses: Emulsifier for pharmaceuticals
Regulatory: FDA 21CFR §136.110
Properties: Wh. free-flowing powd., bland odor/flavor; m.p. 140-146 F; HLB 4.2; iodine no. 5 max.; nonionic; 100% act.; 50% min. alpha mono
Storage: Store sealed in cool, dry area away from odor-producing substances; 90 days storage life @ 40-80 F

DVM 55 [Deltech http://www.deltechcorp.com]
Chem. Descrip.: Divinylbenzene See m-Divinylbenzene
CAS 108-57-6
Uses: Pharmaceuticals (polymers for enzyme immobilization, dental cements, prostheses)
Properties: Pale yel.; pract. insol. in water; m.w. 130.19; sp.gr. 0.9084; dens. 7.58 lb/gal; visc. 1 cps; vapor pressure 0.06 mm Hg; f.p. -50 C; b.p. 195 C; flash pt. (TCC) 68 C; ref. index 1.5585

DVB 63 [Deltech http://www.deltechcorp.com]
Chem. Descrip.: Divinylbenzene See m-Divinylbenzene
CAS 108-57-6
Uses: Pharmaceuticals (polymers for enzyme immobilization, dental cements, prostheses)
Properties: Pale yel.; pract. insol. in water; m.w. 130.19; sp.gr. 0.9111; dens. 7.6 lb/gal; visc. 1 cps; vapor pressure 0.06 mm Hg; f.p. -50 C; b.p. 197 C; flash pt. (TCC) 69 C

Chem. Descrip.: 1,1,1,3,3,3-Heptafluoropropane See 1,1,1,2,3,3,3-Heptafluoropropane
CAS 431-89-0; UN 3296
Uses: Aerosol propellant for aerosol drugs including metered dose inhalers for treatment of asthma and other respiratory disorders
Features: Non-CFC, chemically inert
Regulatory: CGMP compliance; SARA §311/312 acute
Properties: Liq. dens. 1.39 g/cm3; vapor pressure 4.55 bars; b.p. -16.4 C; m.p. -133 C; 99% min. act.
Toxicology: AEL 1000 ppm (8- and 12-h TWA); LC50 (inh., 4 h, rat) ≈ >800,000 ppm; TSCA listed
Environmental: Nonozone depleting; global warming potential (100 year time horizon) 2900
Precaution: Wear chemical splash goggles and impervious gloves; incompatible with strong reducing agents
Hazardous Decomp. Prods.: Hydrogen fluoride, carbonyl fluoride, COx
NFPA: Health 1, Flammability 0, Reactivity 1
Trade Name Reference

Dymel® 236fa [DuPont Fluorochems.  
http://www.dupont.com/dymel]  
Chem. Descrip.: 1,1,1,3,3,3-Hexafluoropropane  
CAS 690-39-1  
Uses: Propellant in topical anesthetic and skin refrigerant  
Features: Non-CFC, chemically inert, low pressure, nonflammable  
Regulatory: CGMP compliance  
Properties: Liq. dens. 1.36 g/cm³; vapor pressure 272.4 kPa; b.p. -1.4°C  
Toxicology: AEL 1000 ppm (8- and 12-h TWA); LC 4 h, rat ≈ >189,000 ppm; TSCA listed  
Environmental: Nonozone depleting; global warming potential (100 year time horizon) 2900

Dynacerin® 660 [Sasol Germany  
http://www.sasol.com;  
http://www.sasololefinssurfactants.com;  
Sasol N. Am.  
http://www.sasolnorthamerica.com]  
Chem. Descrip.: Oleyl erucate  
CAS 17673-56-2; EINECS/ELINCS 241-654-9  
Uses: Emollient, lubricant, dispersant, solubilizer for pharmaceuticals; carrier, vehicle and solvent for topical ointments, creams, lotions  
Features: Oxidation-stable; environmentally compat.; jojoba oil substitute; high polarity with superior solvent characteristics for active drugs  
Regulatory: JCIC  
Properties: Ylsh. liq. wax; sol. in alcohol, min. oil, acetone; visc. 15-18 mPa·s (40°C); acid no. 1 max.; iodine no. 95 max.; sapon. no. 95-110; cloud pt. 15°C

Dynacerin® CP [Sasol Germany  
http://www.sasol.com;  
http://www.sasololefinssurfactants.com;  
Sasol N. Am.  
http://www.sasolnorthamerica.com]  
Chem. Descrip.: Cetyl palmitate  
CAS 540-10-3; EINECS/ELINCS 208-736-6  
Uses: Carrier in capsule fillings, inlets, ointments and creams and in dental products; surface treatment and binder in tablets; replacement for natural spermaceti, consistency agent in creams, for coatings, sustained release  
Features: Neutral, stable  
Regulatory: USP, EP, JCIC  
Properties: Solid; m.p. 50°C; hyd. no. 6 max.

Dynacerin® DO [Sasol Germany  
http://www.sasol.com;  
http://www.sasololefinssurfactants.com;  
Sasol N. Am.  
http://www.sasolnorthamerica.com]  
Chem. Descrip.: Decyl oleate  
CAS 3687-46-5; EINECS/ELINCS 222-981-6  
Uses: Petrolatum substitute in topical pharmaceuticals  
Features: Neutral, stable  
Regulatory: EP  
Properties: Liq. wax; visc. ≈ 18 mPa·s

Dynacerin® 211P [Sasol Germany  
http://www.sasol.com;  
http://www.sasololefinssurfactants.com;  
Sasol N. Am.  
http://www.sasolnorthamerica.com]  
Chem. Descrip.: Acetylated monoglycerides of edible fatty acids See Acetylated mono- and diglycerides of fatty acids  
CAS 68990-55-6  
Uses: Consistency regulator and emulsion stabilizer in ointments and creams  
Regulatory: USP, E472a  
Properties: Waxy solid; nonionic

Dynacerin® 212P [Sasol Germany  
http://www.sasol.com;  
http://www.sasololefinssurfactants.com;  
Sasol N. Am.  
http://www.sasolnorthamerica.com]  
Chem. Descrip.: Acetylated monoglycerides of edible fatty acids See Acetylated mono- and diglycerides of fatty acids  
CAS 68990-55-6  
Uses: Consistency regulator and emulsion stabilizer in ointments and creams  
Properties: Waxy solid; m.p. 35°C; acid no. 1 max.; iodine no. 3 max.; sapon. no. 350; nonionic; 100% conc.

Dynacerin® 285 [Sasol Germany  
http://www.sasol.com;  
http://www.sasololefinssurfactants.com;  
Sasol N. Am.  
http://www.sasolnorthamerica.com]  
Chem. Descrip.: Diacetylated monoglycerides  
Uses: Consistency regulator and emulsion stabilizer in ointments and creams  
Properties: Cl. liq.; dens. 0.98 kg/dm³; visc. 45 mPa·s; acid no. 0.3 max.; iodine no. 2 max.; sapon. no. 385-415

Dynasan® 110 [Sasol N. Am.  
http://www.sasolnorthamerica.com;  
http://www.sasol.com;  
http://www.sasololefinssurfactants.com]
Che

Chem. Descrip.: Tricaprin
CAS 621-71-6; EINECS/ELINCS 210-702-0
Uses: Lubricant for pharmaceutical tablets
Features: Environmentally compat.
Properties: Wh. block; m.p. 28-31 C; cl. pt. 30 C;
acid no. 0.2 max.; iodine no. 1 max.; sapon. no. 295-305

Environmental: Environmentally compat.

Dynasan® 112 [Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: Trilaurin
CAS 538-24-9; EINECS/ELINCS 208-687-0
Uses: Consistency agent for pharmaceutical creams, lotions;
lubricant, mold release agent, binder, retarding agent, powd. base
for tablets
Features: Environmentally compat.
Properties: Wh. powd.; m.p. 43-47 C; cl. pt. 45 C;
acid no. 0.2 max.; iodine no. 1 max.; sapon. no. 257-266

Environmental: Environmentally compat.

Dynasan® 114 [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com;
Eigenmann & Veronelli
http://www.eigver.it]
Chem. Descrip.: Trimyristin
CAS 555-45-3; EINECS/ELINCS 209-099-7
Uses: Preservative, stabilizer for pharmaceuticals; consistency agent for pharmaceutical creams, lotions; carrier in parenteral pharmaceuticals; lubricant, binder, mold release agent, retarding agent for tablets; powd. base
Features: Environmentally compat.
Properties: Wh. powd./flakes; m.p. 55-58 C; cl. pt. 57 C;
acid no. 1.0 max.; iodine no. 1 max.; sapon. no. 230-238

Environmental: Environmentally compat.

Dynasan® 116 [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: Tripalmitin
CAS 555-44-2; EINECS/ELINCS 209-098-1
Uses: Lubricant, mold release agent, binder, retarding agent, flow aid, and consistency agent in pharmaceutical tablets; carrier in parenteral pharmaceuticals
Features: Environmentally compat.
Regulatory: JCIC
Properties: Wh. microcryst. powd.; sol. in ether and benzene; m.p. 61-65 C; cl. pt. 63 C; acid no. 0.5 max.; iodine no. 1 max.; sapon. no. 205-215

Environmental: Environmentally compat.

Dynasan® 118 [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: Tristearin
CAS 555-43-1; EINECS/ELINCS 209-097-6
Uses: Lubricant, mold release agent, binder, retarding agent, flow aid, and consistency agent in pharmaceutical tablets; carrier in parenteral pharmaceuticals
Features: Environmentally compat.
Regulatory: CFR 21 §172.811, JCIC
Properties: Wh. microcryst. powd./flakes; sol. in ether and benzene; m.p. 69-73 C; cl. pt. 71 C;
acid no. 0.5 max.; iodine no. 1 max.; sapon. no. 186-192; nonionic

Environmental: Environmentally compat.

Dynasan® P60 [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: Hydrogenated palm oil
EINECS/ELINCS 271-056-3
Uses: Consistency regulator for pharmaceutical preps.
Regulatory: USP
Properties: Wh. to off-wh. powd.; m.p. 58-62 C;
acid no. 0.3 max.; iodine no. 3 max.; sapon. no. 190-210; hydroxyl no. 10 max.

Environmental: Environmentally compat.

Dynasylan® BSA [Degussa/Aerosil & Silanes
http://www.aerosil.com; http://www.sivento-silanes.com; Degussa AG/Aerosil & Silanes
http://www.degussa-bioactives.com]
Chem. Descrip.: Bis (trimethylsilyl) acetamide
CAS 10416-59-8; EINECS/ELINCS 233-892-7
Uses: Silylating agent in the pharmaceutical industry
Properties: Liq.; m.w. 203.4; sp.gr. 0.83 (20 C);
b.p. 71-73 C (35 mm); flash pt. 17 C; ref. index 1.418 (20 C); 95% purity

Dynasylan® HMDS [Degussa/Aerosil &
Handbook of Pharmaceutical Additives, Third Edition

Trade Name Reference

Chem. Descrip.: Hexamethyldisilazane
CAS 999-97-3; EINECS/ELINCS 213-668-5
Uses: Silylating agent in pharmaceuticals
Properties: Liq.; m.w. 161.4; sp.gr. 0.77 (20 C); b.p. 126-127 C; flash pt. 27 C; ref. index 1.408 (20 C); 98% purity
Precaution: Wear safety glasses, impervious clothing; combustible; incompat. with strong oxidants; dec. with heat; do not get in eyes; do not breathe vapor or mist; forms a carbamate on exposure to air; decomposes with heat
Hazards Decomp. Prods.: Emits toxic fumes of CO and nitrogen oxides on decom.
NFPA: Health 3, Flammability 2, Reactivity 0
Storage: Store in tightly closed container in a cool, dry place under nitrogen padding to prevent air intrusion; keep away from heat, flame

Eashave [Pentapharm Ltd http://www.pentapharm.com; Centerchem http://www.centerchem.com]
Chem. Descrip.: Water, wheat (Tricicum vulgare) germ extract, saccharomyces cerevisiae extract, sodium hyaluronate See Wheat (Tricicum vulgare) germ oil
Uses: Anti-irritant, soothing agent, moisturizer for after-shave prods.
Properties: Yel. cl. to sl. opalescent liq.; sp.gr. 1.01-1.03 (20 C); ref. index 1.347-1.351 (25 C); pH 5.5-6.5
Storage: 2 yr. shelf life when stored in the original sealed containers protected from light in a clean and cool place at temps. between 15-25 C; in order to avoid secondary microbial contamination after opening, containers should be handled with special care

Eastacryl 30D [Eastman http://www.eastman.com]
Chem. Descrip.: Acrylic copolymer aq. disp. See Acrylates copolymer
Uses: Excipient for pharmaceutical tablets or granules, coatings, enteric coatings
Features: pH-sensitive; withstands prolonged contact with acidic gastric fluids, but dissolves readily in the mildly acidic to neutral pH environment of the sm. intestine
Regulatory: DOT nonregulated; SARA §311/312 immediate health hazard, §313 nonreportable
Properties: Milky disp.; char. odor; disp. in water; sp.gr.1.01-1.03 (20 C); pH 2.3-2.7
Toxicology: Causes eye irritation; ing. may cause GI irritation; TSCA listed
Precaution: Combustible solid when dry; can dec. @ elevated temps.; reacts with strong oxidizing agents

Eastar™ PETG Copolyester 6763 [Eastman http://www.eastman.com]
Chem. Descrip.: Amorphous glycol-modified PET See Polyethylene terephthalate
Uses: Used for medical containers, pharmaceuticals
**Trade Name Reference**

**Features:** Offers sparkling clarity in film and sheet form, easy thermoformability, toughness, sterilizability with ethylene oxide or gamma rays for medical applics.

**Regulatory:** FDA compliance

**Properties:** 10-mil film props.: sp.gr. 1.27; haze 0.5%; tens. str. 50 MPa (break, MD); Elmendorf tear str. 125 g (MD); Dart impact 425 g.

**Eastman® 18-99** [Eastman http://www.eastman.com]

Chem. Descrip.: Canola oil glyceride

Uses: Emulsifier for w/o phases in pharmaceutical sustained-release formulations and microspheres, topical permeation enhancement, solubilization

**Regulatory:** GRAS

**Properties:** Semiplastic; sp.gr. 0.93 (80 C); m.p. 35 C; HLB 3.8-4.0; acid no. 3 max.; iodine no. 90-95; 90% min. monoester

Storage: 6 mo shelf life

**Eastman® CA** [Eastman http://www.eastman.com]

Chem. Descrip.: Cellulose acetate

CAS 9004-35-7

Uses: Excipient for formulation of microparticles for controlled-release pharmaceutical apps.

**Eastman® CAB** [Eastman http://www.eastman.com]

Chem. Descrip.: Cellulose acetate butyrate

CAS 9004-36-8

Uses: Excipient for formulation of drug-loaded microparticles

**Eastman® EAA** [Eastman http://www.eastman.com]

Chem. Descrip.: Ethyl acetoacetate

See Ethylacetocetate

CAS 141-97-9; EINECS/ELINCS 205-516-1

Uses: Solvent for pharmaceuticals

**Regulatory:** SARA §311/312 acute health/chronic health/fire hazard, §313 nonreportable; Canada DSL, EINECS, Australia AICS, Japan MITI, Korea ECL listed

**Properties:** Colorless liq.; ester odor; sol. in alcohol, ether, 12% in water (20 C); m.w. 130.14; sp.gr. 1.03 (20 C); dens. 8.54 lb/gal; vapor pressure 1.3 mbar (14 C); f.p. -43 C; b.p.170 C; flash pt. (Seta CC) 68 C; 100% act.

**Toxicology:** LD50 (oral, rat) > 6400 mg/kg, (skin, guinea pig) > 20 ml/kg; LC50 (inh., rat, 6 h) > 1129 ppm; causes mod. eye irritation; sl. skin irritant; nonsensitizing to skin; TSCA listed

**Environmental:** BOD5 0.60 g/g; COD 1.71 g/g; LC50 (fathead minnow, 96 h) > 100 mg/l, (golden orfe, 48 h) 275-515 mg/l; EC50 (daphnia, 24 h) 800 mg/l; prevent runoff from entering drains, sewers, streams

**Precaution:** Combustible liq. and vapor; reacts with strong oxidizing agents

**Hazardous Decomp. Prods.:** Combustion: CO, CO2

**HMIS:** Health 2, Flammability 2, Reactivity 0

Storage: Store in closed container

**Eastman® HQMME** [Eastman http://www.eastman.com]

Chem. Descrip.: Hydroquinone monomethyl ether

CAS 150-76-5; EINECS/ELINCS 205-769-8

Uses: Chemical intermediate for mfg. pharmaceuticals

**Properties:** Wh. flakes; sol. (g/100 g): > 350 g acetone and ethanol, > 200 g ethyl acetate, 35 g cottonseed oil, 32 g toluene, 4 g water; m.w. 124.14; bulk dens. 36.5 lb/ft3; b.p. 246 C; solid. pt. 54 C; flash pt. (COC) 132 C; fire pt. 135 C; 99% act.

**Eastman® MAA** [Eastman http://www.eastman.com]

Chem. Descrip.: Methyl acetoacetate

CAS 105-45-3; EINECS/ELINCS 203-299-8

Uses: Solvent for fragrances, pharmaceuticals; copromoter for unsat. polyesters; pharmaceutical intermediate

**Regulatory:** SARA §311/312 acute health/chronic health/fire hazard, §313 nonreportable; Canada DSL, EINECS, Australia AICS, Japan MITI, Korea ECL listed

**Properties:** Colorless liq.; pleasant odor; sol. (@ 20 C) in water (44.5%), alcohol, ether, ethyl acetate; m.w. 116.12; sp.gr. 1.078 (20 C); dens. 8.95 lb/gal (20 C); visc. 1.74 mPa•s (20 C); vapor pressure 1.32 mbar (20 C); f.p. -55 C; b.p. 170 C; flash pt. (COC) 74 C; pH 4.1; 100% act.

**Toxicology:** LD50 (oral, rat) 3200 mg/kg, (skin, rabbit) > 10 ml/kg; LC50 (inh., rat, 6 h) > 6.5 mg/l; harmful by ing.; may cause blindness if swallowed; causes eye irritation; high vapor concs. may cause eye/respiratory tract irritation; sl. skin irritant; mod. to strong eye irritant; TSCA listed

**Environmental:** BOD5 0.31 g/g; BOD20 0.77 g/g; COD 1.45 g/g; LC50 (fathead minnow, Drug Name Reference)
Precaution: Combustible liq. and vapor; reacts violently with strong oxidizing agents
Hazardous Decomp. Prods.: Combustion: CO, CO₂
HMIS: Health 2, Flammability 2, Reactivity 0
Storage: Store in closed containers away from heat and flame

Eastman® Butyraldehyde, Dry [Eastman http://www.eastman.com]
Chem. Descrip.: Butyraldehyde See n-Butyraldehyde
CAS 123-72-8; EINECS/ELINCS 204-646-6
Uses: Syn. flavoring agent in pharmaceuticals
Properties: Colorless liq.; pungent odor; sp.gr. 0.805 (20 C); vapor pressure 91 mm Hg (20 C); m.p. -99 C; b.p. 75 C; flash pt. (SCC) -13 C; autoignition temp. 199 C

Eastman® Hydroquinone USP [Eastman http://www.eastman.com]
Chem. Descrip.: Hydroquinone USP
CAS 123-31-9; EINECS/ELINCS 204-617-8
Uses: Skin bleaching agent for pharmaceuticals
Regulatory: USP
Properties: Wh. cryst. solid; sol. 36% in ethanol, 23% in propylene glycol, 16% in glycerol, 7% in water; m.w. 110.1; m.p. 172-174 C; autoignition temp. 199 C

Eastman® Isopropanol [Eastman http://www.eastman.com]
Chem. Descrip.: Isopropyl alcohol
CAS 67-63-0; EINECS/ELINCS 200-661-7
Uses: Solvent for pharmaceuticals
Regulatory: SARA §311/312 acute health/fire hazard, §313 nonreportable; Canada DSL, EINECS, Australia AICS, Japan MITI, Korea ECL listed
Properties: Colorless liq.; alcohol odor; sol. in water (20 C); m.w. 60.1; sp.gr. 0.79 (20 C); dens. 0.783 lb/gal (20 C); vis. 2.4 cp (20 C); vapor pressure 32.8 mm Hg (20 C); f.p. -88 C; b.p. 80.8-83.8 C (760 mm Hg); flash pt. (TCC) 13 C; fire pt. 16 C; autoignition temp. 360 C; surf. tens. 21.3 dynes/cm (20 C); 100% act.
Toxicology: LD50 (oral, rat) 5800 mg/kg, (skin, rabbit) 16.4 ml/kg; LC50 (inh., rat, 8 h) 12,000 ppm; ACGIH TLV/TWA 400 ppm; mod. eye irritant; high vapor concs. may cause drowsiness, eye/respiratory tract irritation; sl. skin irritant; prolonged/repeated skin contact may cause drying, cracking, irritation; TSCA listed

Environmental: BOD5 1190-1720 mg/g; BOD20 1680 mg/g; COD 2230 mg/g; LC50 (fathead minnow, 96 h) > 1000 µl/l, (golden orfe, 48 h) 8970-9280 mg/l, (daphnia, 96 h) > 1000 µl/l; prevent runoff from entering drains, sewers, streams
Precaution: Flamm. liq. and vapor; flamm. limits 2.31-12.75 vol.% in air (93 C); vapors may cause flash fire, ignite explosively, or flash back; residual vapors may explode on ignition; forms explosive peroxides which may be shock-sensitive; material may accumulate a static charge which could act as an ignition source; reacts violently with strong oxidizing agents
Hazardous Decomp. Prods.: Combustion: CO, CO₂
HMIS: Health 2, Flammability 3, Reactivity 1
Storage: Store in tightly closed container in well-ventilated area away from heat, sparks, flame, light; after opening, purge container with nitrogen before reclosing

Eastman® Propionic Anhydride, Kosher [Eastman http://www.eastman.com]
Chem. Descrip.: Propionic anhydride
CAS 123-62-6
Uses: Anesthetics; pharmaceuticals; vitamins
Regulatory: SARA §311/312 immediate (acute) health hazard, fire hazard, §313 nonreportable
Properties: Colorless liq.; pungent odor; dec. in water; m.w. 130.14; sp.gr. 1.007 (24 C); dens. 8.44 lb/gal (20 C); vis. 1.16 cP; vapor pressure 1.33 mbar (21 C); f.p. -45 C; b.p. 167 C; flash pt. (TCC) 63 C; ref. index 1.4022
Toxicology: LD50 (oral, rat) 2360 mg/kg, (skin, rabbit) 10.07 g/kg; causes eye and skin burns; harmful if swallowed; mist or vapor irritating to eyes and respiratory tract; TSCA listed
Environmental: Mod. acidic aq. sol'n.; may cause adverse environmental effects
Precaution: Combustible liq. and vapor; reacts with water; contents may develop pressure if exposed to water; reacts with metals, strong bases, amines; reacts violently with strong oxidizing agents
HMIS: Health 3, Flammability 2, Reactivity 1
Trade Name Reference

Storage: Keep container closed; keep away from heat and flame

Eastman® Triacetin USP/FCC [Eastman http://www.eastman.com]
Chem. Descrip.: Glyceryl triacetate USP See Triacetin
CAS 102-76-1; EINECS/ELINCS 203-051-9
Uses: Plasticizer for film coatings on pharmaceutical tablets, beads, and gran., in topical antifungal creams and ointments; fragrance fixing agent
Features: Compat. with cellulosics, methacrylic acid copolymers, and PVAP; high solvent power
Properties: Pt-Co 10 max. liq.; sol. 61.20 g/l in water (20 C); misc. with alcohol, ether, chloroform; m.w. 218.21; sp.gr. 1.1540; dens. 9.65 lb/gal (20 C); visc. 17.4 cP; vapor pressure 1.33 mbar (100 C); supercools to ≈ -70 C; m.p. -78 C; b.p. 258 C (760 mm); ref. index 1.4290
Use Level: 10-35% (tablet coatings)

Eastman® Triacetin, Food Grade [Eastman http://www.eastman.com]
Chem. Descrip.: Triacetin
CAS 102-76-1; EINECS/ELINCS 203-051-9
Uses: Syn. flavoring agent
Regulatory: FDA 21 CFR §184.1901, GRAS; avail. in kosher grade; DOT nonregulated; SARA §313 nonreportable; Canada DSL listed
Properties: Colorless liq.; sl. odor; mod. sol. in water; sp.gr. 1.16 (24 C); visc. 17.4 cps; vapor pressure 1.33 mbar (100 C); f.p. 3 C; b.p. 258 C; decom. pt. 265 C; flash pt. (Seta CC) 324 C; 100% act.
Toxicology: LD50 (oral, rat) > 7 g/kg, (skin, rat) > 2 g/kg; expected to be low ing. hazard; very sl. skin irritant
Precaution: Can react with strong oxidizing agents
Hazardous Decomp. Prods.: Combustion prods.: CO2, CO
HMIS: Health 0, Flammability 1, Reactivity 0
Storage: Keep container closed; protect from contamination

Chem. Descrip.: Sodium aliphatic ester sulphonate
Uses: Wetting agent, penetrant, dispersant, solubilizer, emulsifier for topical pharmaceuticals
Properties: Cl. to lt. amber visc. liq.; mild alcoholic odor; sol. in electrolytes, glycols, ketones, other oxygenated prods.; misc. with water; sp.gr. 1.011; b.p. 210 F; flash pt. (COC) 204 F; pH 8.0±0.3 (1%); Draves wetting 20-25 s (0.075%); 21% min. act.
Use Level: 0.5-1.0% on total wt. of bath
Toxicology: Eye irritant; may cause mild skin irritation; not absorbed through skin; may be harmful if swallowed; may cause nausea, vomiting; overexposure may cause liver/kidney damage; inh. may cause nasal/respiratory irritation; hot vapors may cause coughing
Precaution: Avoid alkaline materials; spills may be slippery
Hazardous Ingredients: IPA (< 1%)
Hazardous Decomp. Prods.: Thermal decomp.
Trade Name Reference

**Economix Gelatin**  [Vyse Gelatin](http://www.vyse.com)
Chem. Descrip.: Type A porkskin gelatin, 150 bloom  See Gelatin
CAS  9000-70-8; EINECS/ELINCS  232-554-6
Uses: Pharmaceuticals
Features: General purpose grade

**Edenor® C 6 98-100**  [Cognis](http://www.cognis.de)
Chem. Descrip.: Caproic acid
CAS  142-62-1; EINECS/ELINCS  205-550-7
Uses: Pharmaceuticals; flavors
Properties: Lt. liq.; typ. odor; acid no. 476-484; iodine no. 0-0.5; sapon. no. 268-275; 0-0.2% water
Storage: 2 wks shelf life when stored in original bags @ R.T.; 8 wks shelf life when stored under nitrogen blanket

**Edenor® C 12 70**  [Cognis](http://www.cognis.de)
Chem. Descrip.: Lauric acid
CAS  143-07-7; EINECS/ELINCS  205-582-1
Uses: Pharmaceuticals; flavors
Properties: Wh. liq.; typ. odor; acid no. 268-274; iodine no. 0-0.5; sapon. no. 268-275; 0-0.2% water
Storage: 2 wks shelf life when stored in refined steel or aluminum tank; 8 wks shelf life when stored under nitrogen blanket

**Edenor® C 12 98-100**  [Cognis](http://www.cognis.de)
Chem. Descrip.: Lauric acid
CAS  143-07-7; EINECS/ELINCS  205-582-1
Uses: Pharmaceuticals; flavors
Properties: Wh. liq.; typ. odor; acid no. 279-282; iodine no. 0-0.3; sapon. no. 279-283; 0-0.2% water
Storage: 2 wks shelf life when stored in refined steel or aluminum tanks @ 60 C max.; 8 wks shelf life when stored under nitrogen blanket; 2 yrs. shelf life when stored cool, dry, below 30 C (flaked form)

**Edenor® C 16 98-100**  [Cognis](http://www.cognis.de)
Chem. Descrip.: Palmitic acid
CAS  57-10-3; EINECS/ELINCS  200-312-9
Uses: Pharmaceuticals; flavors
Properties: Lt. liq.; lt. odor; acid no. 217-221; iodine no. 0-0.5; sapon. no. 217-222; 0-0.2% water
Storage: 2 wks shelf life when stored in refined steel or aluminum tanks @ 70-80 C; 8 wks shelf life when stored under nitrogen blanket; 2 yrs. shelf life when stored below 55 C (flaked form)

**Edenor® C 22 85 R**  [Cognis](http://www.cognis.de)
Chem. Descrip.: Behenic acid
CAS  112-85-6; EINECS/ELINCS  204-010-8
Uses: Pharmaceuticals; flavors
Properties: Lt. solid; typ. odor; acid no. 163-168; iodine no. 0-2; sapon. no. 163-169; 0.2% max. water
Storage: 2 yrs. shelf life when stored in original sealed bags below 35 C; 2 wks shelf life when stored in refined steel or aluminum tanks @ 95 C max. and kept under nitrogen blanket

**Edible Beef Gelatin**  [GMI Prods.](http://www.gmi-originates.com)
Chem. Descrip.: Type B or calfskin gelatin  See Gelatin
CAS  9000-70-8; EINECS/ELINCS  232-554-6
Uses: Edible protein for pharmaceuticals; carrier, base, stabilizer for capsules, enteric capsules, suppositories, topicals; adhesive substitute; binder, disintegrant in tablets; hemorrhage control agent; dusting powd. for surgical gloves; therapeutic use
Regulatory: GRAS
Properties: Pale yel. vitreous brittle solid, nearly odorless and tasteless; sol. in warm water; swells due to hydration in cold water; sp.gr. 1.2; dens. 1.3-1.4; b.p. > 100 C (dec.); pH 5.0-7.5; flash pt. nonflamm.; 9-13% moisture
Toxicology: Nuisance dust; contact with dust causes mild eye irritation; inhaling dust may cause respiratory irritation
Environmental: Biodeg.
Storage: Store in airtight containers @ R.T.; avoid exposure to water or excessive heat

**Edible Kosher Beef Gelatin**  [GMI Prods.](http://www.gmi-originates.com)
Chem. Descrip.: Gelatin
CAS  9000-70-8; EINECS/ELINCS  232-554-6
Uses: Buffer against humidity and air temp. in pharmaceutical soft and hard gel capsules; processing aid for microencapsulation of colors, flavors, vitamins; nutraceuticals
Properties: Completely sol. in hot water; pH 5.2-6.2; 8-12% moisture
Trade Name Reference

**Storage:** Store in airtight containers @ R.T.; avoid exposure to water or excessive heat

**Edicol® [Lucid Colloids [http://www.lucidgroup.com]]**

Chem. Descrip.: Guar gum See Guar (Cyanois tetragonoloba) gum
CAS 9000-30-0; EINECS/ELINCS 232-536-8

Uses: Rheology control agent (by water-phase management) in foods, feeds, and pharmaceuticals, diabetic formulations, antacids, suspensions, syrups, laxatives, toothpaste; binder and disintegrant in tablets; controlled release agent in drug formulations; slimming and appetite control agent

Properties: Wh. to cream-wh. powd., sl. char. grassy or beany odor, neutral taste; sol. in hot and cold water; nonionic

**Effer-Soda™ [SPI Pharma [http://www.spipharma.com]]**

Chem. Descrip.: Sodium bicarbonate (10-17%) with 'desiccant skin' of sodium carbonate (8-12%) surrounding the core

Uses: Effervescent agent, stabilizer in pharmaceutical tablets and powds. (antacids, analgesics, cough/cold formulations)

Features: Highly sol./stable; nonhygroscopic; compressible; fast dissolving; reacts with an acid to produce CO₂ which creates bubbling or fizzing of the effervescent prod.; ease of carrying a tablet, while giving the bioavailability of ingesting a sol'n.

Properties: Free-flowing wh.powd.; 98% > 74 µ particle size; dens. 0.97 g/cc (loose), 1.12 g/cc (tapped); pH 8.9-9.2

**Elestab® HP 100 [Laboratoires Sérobiologiques [http://www.laboratoires-serobiologiques.com]]**

Chem. Descrip.: Hexamidine diisethionate
CAS 659-40-5; EINECS/ELINCS 211-533-5

Uses: Antimicrobial and preservative for pharmaceuticals; cutaneous asepticizer for oily, acneic skin care, antidandruff care

Features: Broad-spectrum; effective against Gram-positive and Gram-negative bacteria; good against yeast, fungi

Properties: Wh. microcryst. powd.; weak odor; water-sol.; acid no. 1 max.

Use Level: 0.03-0.10%


Chem. Descrip.: Soybean (glycine soja) protein with Phenonip® preservative (0.8%)

See Ethylparaben; Methylparaben; Phenoxyethanol; Propylparaben

CAS 9010-10-0; EINECS/ELINCS 232-720-8

Uses: Anti-irritant for skin care prods.

Features: Inhibitor of the enzyme elastase; contributes to keeping skin elastic, smooth, and soft; prevents irritation and inflam.

Properties: Ylsh. cl. to sl. opalescent sol’n.; sp.gr. 1.052-1.062 (20 C); ref. index 1.359-1.362; pH 5.2-6.0

Use Level: 3-7% (skin care)


Chem. Descrip.: p-Toluene sulfonic acid monohydrate
CAS 1019-95-4; EINECS/ELINCS 203-180-0

Uses: Catalyst in mfg. of pharmaceutical prods.

Properties: Wh. to pale pink crystals; m.p. 103.5 C; anionic; 97.5% act.

**Emal 0 [Kao Corp. [http://www.kao.co.jp]]**

Chem. Descrip.: Sodium lauryl sulfate
CAS 151-21-3; EINECS/ELINCS 205-788-1

Uses: Surfactant, foaming agent, detergent, emulsifier, dispersant in pharmaceuticals, dentifrices

Features: High foaming; excellent biodegradability

Properties: Wh. powd.; anionic; 99% act.

**Emal 10G [Kao Corp. [http://www.kao.co.jp]]**

Chem. Descrip.: Sodium lauryl sulfate
CAS 151-21-3; EINECS/ELINCS 205-788-1

Uses: Surfactant, foaming agent, detergent, emulsifier, dispersant in pharmaceuticals, dentifrices

Features: High foaming; excellent biodegradability

Properties: Wh. needle; anionic; 94% act.

**Emal 10PT [Kao Corp. [http://www.kao.co.jp]]**

Chem. Descrip.: Sodium lauryl sulfate
CAS 151-21-3; EINECS/ELINCS 205-788-1

Uses: Surfactant, foaming agent, detergent, emulsifier, dispersant in pharmaceuticals, dentifrices

Features: High foaming; excellent biodegradability

Properties: Wh. needle; anionic; 94% act.

**Emal 20C [Kao Corp. [http://www.kao.co.jp]]**

Chem. Descrip.: Sodium lauryl ether sulfate
## Trade Name Reference

**See Sodium laureth sulfate**  
CAS 9004-82-4; EINECS/ELINCS 221-416-0  
**Uses:** Surfactant, foaming agent for pharmaceuticals  
**Properties:** Lt. yel. liq.; anionic; 25% act.

**Emal 20CM**  
[Kao Corp.](http://www.kao.co.jp)  
**Chem. Descrip.:** Sodium alkyl ether sulfate  
**Uses:** Surfactant, foaming agent for pharmaceuticals  
**Properties:** Lt. yel. liq.; anionic; 25% act.

**Emal 20T**  
[Kao Corp.](http://www.kao.co.jp)  
**Chem. Descrip.:** Triethanolamine polyoxyethylene alkyl ether sulfate  
**Uses:** Surfactant, foaming agent for pharmaceuticals  
**Properties:** Lt. yel. liq.; anionic; 25% act.

**Emal 270**  
[Kao Corp.](http://www.kao.co.jp)  
**Chem. Descrip.:** Sodium lauryl ether sulfate  
**See Sodium laureth sulfate**  
CAS 9004-82-4; EINECS/ELINCS 221-416-0  
**Uses:** Surfactant, foaming agent for pharmaceuticals  
**Properties:** Lt. yel. liq.; anionic; 70% act.

**Emalex C-20**  
[Nihon Emulsion](http://www.nihon-emulsion.co.jp)  
**Chem. Descrip.:** PEG-20 castor oil  
CAS 61791-12-6  
**Uses:** Emulsifier, solubilizer, dispersant in medical pharmaceuticals  
**Regulatory:** JSCI compliance  
**Properties:** Pale yel. oil; HLB 9; nonionic

**Emalex C-30**  
[Nihon Emulsion](http://www.nihon-emulsion.co.jp)  
**Chem. Descrip.:** PEG-30 castor oil  
CAS 61791-12-6  
**Uses:** Emulsifier, solubilizer, dispersant in medical pharmaceuticals  
**Regulatory:** JSCI compliance  
**Properties:** Pale yel. oil; HLB 11; nonionic

**Emalex C-40**  
[Nihon Emulsion](http://www.nihon-emulsion.co.jp)  
**Chem. Descrip.:** PEG-40 castor oil  
CAS 61791-12-6  
**Uses:** Emulsifier, solubilizer, dispersant in medical pharmaceuticals  
**Regulatory:** JSCI compliance  
**Properties:** Pale yel. oil; HLB 12; nonionic

**Emalex C-50**  
[Nihon Emulsion](http://www.nihon-emulsion.co.jp)  
**Chem. Descrip.:** PEG-50 castor oil  
CAS 61791-12-6  
**Uses:** Emulsifier, solubilizer, dispersant in medical pharmaceuticals  
**Regulatory:** JSCI compliance  
**Properties:** Pale yel. oil; HLB 13; nonionic

**Emalex ET-2020**  
[Nihon Emulsion](http://www.nihon-emulsion.co.jp)  
**Chem. Descrip.:** Polysorbate 20  
CAS 9005-64-5  
**Uses:** Emulsifier, solubilizer in medical pharmaceuticals  
**Regulatory:** JSCI compliance
Trade Name Reference

Properties: Pale yel. oil; HLB 16; nonionic
Emalex ET-8020 [Nihon Emulsion http://www.nihon-emulsion.co.jp]
Chem. Descrip.: Polysorbate 80
CAS 9005-65-6
Uses: Emulsifier, solubilizer in medical pharmaceuticals
Regulatory: JSCI compliance
Properties: Pale yel. oil; HLB 14; nonionic
Emalex ET-8040 [Nihon Emulsion http://www.nihon-emulsion.co.jp]
Chem. Descrip.: PEG-40 sorbitan oleate
CAS 9005-65-6
Uses: Surfactant for medical pharmaceuticals
Features: Self-emulsifying
Properties: Cream-colored wax; HLB 6; nonionic
Emalex GMS-8C [Nihon Emulsion http://www.nihon-emulsion.co.jp]
Chem. Descrip.: Glyceryl stearate SE
See Glyceryl stearate SE
CAS 11099-07-3
Uses: Surfactant for medical pharmaceuticals
Features: Self-emulsifying
Properties: Cream-colored wax; HLB 6; nonionic
Emalex GMS-10SE [Nihon Emulsion http://www.nihon-emulsion.co.jp]
Chem. Descrip.: Glyceryl monostearate, SE
See Glyceryl stearate SE
CAS 11099-07-3
Uses: Surfactant for medical pharmaceuticals
Features: Self-emulsifying
Regulatory: JSCI compliance
Properties: Cream-colored wax; HLB 7; anionic
Emalex GMS-355SE [Nihon Emulsion http://www.nihon-emulsion.co.jp]
Chem. Descrip.: Glyceryl stearate SE
See Glyceryl stearate SE
CAS 11099-07-3
Uses: Surfactant for medical pharmaceuticals
Properties: HLB 6; nonionic
Emalex GMS-45RT [Nihon Emulsion http://www.nihon-emulsion.co.jp]
Chem. Descrip.: Glyceryl monostearate, SE
See Glyceryl stearate SE
CAS 11099-07-3
Uses: Surfactant for medical pharmaceuticals
Features: Self-emulsifying; produces emulsions with creamy, lotion-like appearance
Regulatory: JSCI compliance
Properties: Cream-colored wax; HLB 5; anionic
Emalex GMS-50 [Nihon Emulsion http://www.nihon-emulsion.co.jp]
Chem. Descrip.: Glyceryl monopalmitate
See Glyceryl stearate SE
CAS 11099-07-3
Uses: Surfactant for medical pharmaceuticals
Features: Lipophilic
Regulatory: JSCI compliance
Properties: Cream-colored beads; HLB 5; nonionic
Emalex GMS-55FD [Nihon Emulsion http://www.nihon-emulsion.co.jp]
Chem. Descrip.: Glyceryl monostearate, SE
See Glyceryl stearate SE
CAS 11099-07-3
Uses: Surfactant for medical pharmaceuticals
Features: Self-emulsifying
Regulatory: JSCI compliance
Properties: Cream-colored wax; HLB 7; anionic
Chem. Descrip.: Glyceryl stearate SE
CAS 11099-07-3
Uses: Surfactant for medical pharmaceuticals
Features: Self-emulsifying
Properties: Cream-colored wax; nonionic
Emalex GMS-195 [Nihon Emulsion http://www.nihon-emulsion.co.jp]
Chem. Descrip.: Glyceryl monostearate, SE
See Glyceryl stearate SE
CAS 11099-07-3
Uses: Surfactant for medical pharmaceuticals
Features: Self-emulsifying
Regulatory: JSCI compliance
Properties: Cream-colored wax; HLB 6; anionic
Emalex GMS-B [Nihon Emulsion http://www.nihon-emulsion.co.jp]
Chem. Descrip.: Glyceryl stearate
See Glyceryl stearate
CAS 123-94-4
Uses: Surfactant for medical pharmaceuticals
Features: Lipophilic
Regulatory: JSCI compliance
Properties: Cream-colored beads; HLB 5; nonionic
Emalex GMS-F [Nihon Emulsion http://www.nihon-emulsion.co.jp]
Chem. Descrip.: Glyceryl monostearate
See Glyceryl stearate
CAS 123-94-4
Uses: Surfactant for medical pharmaceuticals
Properties: Cream beads, HLB 5; nonionic
Emalex GMS-P [Nihon Emulsion http://www.nihon-emulsion.co.jp]
Chem. Descrip.: Glyceryl monopalmitate
See Glyceryl stearate

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Glyceryl palmitate
CAS 26657-96-5; EINECS/ELINCS 247-887-2
Uses: Surfactant for medical pharmaceuticals
Features: Lipophilic
Regulatory: JCID compliance
Properties: Cream-colored beads; HLB 4; nonionic

Emalex GWIS-100EX [Nihon Emulsion
http://www.nihon-emulsion.co.jp]
Chem. Descrip.: Glyceryl isostearate
CAS 32057-14-0; EINECS/ELINCS 262-710-9
Uses: Surfactant for medical pharmaceuticals
Properties: Pale yel. oil; nonionic

Emalex GWIS-110EX [Nihon Emulsion
http://www.nihon-emulsion.co.jp]
Chem. Descrip.: PEG-10 glyceryl isostearate
Uses: Emulsifier and solubilizer for medical ingredients
Features: Provides smoothness and good spreading props.
Regulatory: JCID compliance
Properties: Pale yel. oil; HLB 10; nonionic

Emalex GWIS-115EX [Nihon Emulsion
http://www.nihon-emulsion.co.jp]
Chem. Descrip.: PEG-15 glyceryl monoisostearate See PEG-15 glyceryl isostearate
CAS 68958-58-7
Uses: Emulsifier and solubilizer for medical ingredients
Features: Provides smoothness and good spreading props.
Regulatory: JCID compliance
Properties: Pale yel. oil; HLB 12; nonionic

Emalex GWIS-115 [Nihon Emulsion
http://www.nihon-emulsion.co.jp]
Chem. Descrip.: PEG-15 glyceryl isostearate
CAS 68958-58-7
Uses: Emulsifier and solubilizer for medical ingredients
Regulatory: JCID compliance
Properties: Pale yel. oil; HLB 12; nonionic

Emalex GWIS-120EX [Nihon Emulsion
http://www.nihon-emulsion.co.jp]
Chem. Descrip.: PEG-20 glyceryl monoisostearate See PEG-20 glyceryl isostearate
CAS 68958-58-7
Uses: Emulsifier and solubilizer for medical ingredients
Features: Provides smoothness and good spreading props.

Emalex GWIS-125 [Nihon Emulsion
http://www.nihon-emulsion.co.jp]
Chem. Descrip.: PEG-25 glyceryl isostearate
CAS 69468-44-6
Uses: Emulsifier and solubilizer for medical ingredients
Features: Provides smoothness and good spreading props.
Regulatory: JCID compliance
Properties: Pale yel. oil; HLB 15; nonionic

Emalex GWIS-130EX [Nihon Emulsion
http://www.nihon-emulsion.co.jp]
Chem. Descrip.: PEG-30 glyceryl monoisostearate See PEG-30 glyceryl isostearate
CAS 69468-44-6
Uses: Emulsifier and solubilizer for medical ingredients
Features: Provides smoothness and good spreading props.
Regulatory: JCID compliance
Properties: Pale yel. oil; HLB 16; nonionic

Emalex GWIS-140EX [Nihon Emulsion
http://www.nihon-emulsion.co.jp]
Chem. Descrip.: PEG-40 glyceryl isostearate
CAS 69468-44-6
Uses: Emulsifier and solubilizer for medical ingredients
Features: Provides smoothness and good spreading props.
Regulatory: JCID compliance
Properties: Pale yel. soft paste; HLB 15; nonionic

Emalex GWIS-150EX [Nihon Emulsion
http://www.nihon-emulsion.co.jp]
Chem. Descrip.: PEG-50 glyceryl isostearate
CAS 69468-44-6
Uses: Emulsifier and solubilizer for medical ingredients
Features: Provides smoothness and good spreading props.
Regulatory: JCID compliance
Properties: Cream-colored soft wax; HLB 18; nonionic

Emalex GWIS-160EX [Nihon Emulsion
http://www.nihon-emulsion.co.jp]
Chem. Descrip.: PEG-60 glyceryl isostearate
CAS 68958-58-7
Uses: Emulsifier and solubilizer for medical ingredients
Features: Provides smoothness and good spreading props.
Trade Name Reference

spreading props.
Regulatory: JCID compliance
Properties: Cream-colored soft wax; HLB 16; nonionic

Emalex GWIS-200EX [Nihon Emulsion http://www.nihon-emulsion.co.jp]
Chem. Descr.: Glyceryl diisostearate See Glycerin mono/diisostearate
Uses: Surfactant for medical pharmaceuticals
Properties: Pale yellow oil; HLB 2; nonionic

Emalex GWS-304 [Nihon Emulsion http://www.nihon-emulsion.co.jp]
Chem. Descr.: PEG-4 glyceryl tristearate See PEG-4 glyceryl stearate
Uses: Oil-phase cosmetic ingredient for ointments
Regulatory: JCID compliance
Properties: Cream-colored wax; HLB 2

Emalex GWS-305 [Nihon Emulsion http://www.nihon-emulsion.co.jp]
Chem. Descr.: PEG-5 glyceryl tristearate See PEG-5 glyceryl stearate
Uses: Oil-phase ingredient for ointments
Regulatory: JCID compliance
Properties: Cream-colored wax; HLB 3

Emalex HC-5 [Nihon Emulsion http://www.nihon-emulsion.co.jp]
Chem. Descr.: PEG-5 hydrogenated castor oil
CAS 61788-85-0
Uses: Oil-phase ingredient, w/o emulsifier, dispersant for medical products
Regulatory: JSCI compliance
Properties: Pale yellow oil; HLB 3; nonionic

Emalex HC-7 [Nihon Emulsion http://www.nihon-emulsion.co.jp]
Chem. Descr.: PEG-7 hydrogenated castor oil
CAS 61788-85-0
Uses: Oil-phase ingredient, w/o emulsifier, dispersant for medical products
Regulatory: JSCI compliance
Properties: Pale yellow oil; HLB 5; nonionic

Emalex HC-10 [Nihon Emulsion http://www.nihon-emulsion.co.jp]
Chem. Descr.: PEG-10 hydrogenated castor oil
CAS 61788-85-0
Uses: Oil-phase ingredient, w/o emulsifier, dispersant for medical products
Regulatory: JSCI compliance
Properties: Pale yellow oil; HLB 6; nonionic

Emalex HC-40 [Nihon Emulsion http://www.nihon-emulsion.co.jp]
Chem. Descr.: PEG-40 hydrogenated castor oil
CAS 61788-85-0
Uses: Solubilizer for oily components and perfumes in alcoholic tonics, oil-sol. vitamins; emulsifier, reforming agent, thickener for creams, lotions
Regulatory: JSCI compliance
Properties: Cream-colored soft paste; HLB 12; nonionic

Emalex HC-50 [Nihon Emulsion http://www.nihon-emulsion.co.jp]
Chem. Descr.: PEG-50 hydrogenated castor oil
CAS 61788-85-0
Uses: Solubilizer for oily components and perfumes in alcoholic tonics, oil-sol. vitamins; emulsifier, reforming agent, thickener for creams, lotions
Regulatory: JSCI compliance
Properties: Cream-colored soft wax; HLB 13; nonionic

Emalex HC-60 [Nihon Emulsion http://www.nihon-emulsion.co.jp]
Chem. Descr.: PEG-60 hydrogenated castor oil
CAS 61788-85-0
Uses: Solubilizer for oily components and perfumes in alcoholic tonics, oil-sol. vitamins; emulsifier, reforming agent, thickener for creams, lotions
Regulatory: JSCI compliance
Properties: Cream-colored soft wax; HLB 14; nonionic

Emalex LWS-3 [Nihon Emulsion http://www.nihon-emulsion.co.jp]
Chem. Descr.: PEG-3 lauryl ether stearate
Uses: Self-emulsifying ingredient, ointment base, emollient, spreading agent for medical ointments
Properties: Cream-colored soft wax; HLB 1

Emalex LWS-5 [Nihon Emulsion http://www.nihon-emulsion.co.jp]
Chem. Descr.: PEG-5 lauryl ether stearate
Uses: Self-emulsifying ingredient, ointment base, emollient, spreading agent for medical ointments
Properties: Cream-colored paste; HLB 3
Trade Name Reference

Emalex LWS-8 [Nihon Emulsion http://www.nihon-emulsion.co.jp]
Chem. Descrip.: PEG-8 lauryl ether stearate
Uses: Self-emulsifying ingred., dispersant, emulsion stabilizer, gloss aid, water repellent for medical ointments
Properties: Cream-colored paste; HLB 5

Emalex LWS-10 [Nihon Emulsion http://www.nihon-emulsion.co.jp]
Chem. Descrip.: PEG-10 lauryl ether stearate
Uses: Self-emulsifying ingred., dispersant, emulsion stabilizer, gloss aid, water repellent for medical ointments
Properties: Cream-colored soft wax; HLB 7

Emalex LWS-15 [Nihon Emulsion http://www.nihon-emulsion.co.jp]
Chem. Descrip.: PEG-15 lauryl ether stearate
Uses: Self-emulsifying ingred., dispersant, emulsion stabilizer, gloss aid, water repellent for medical ointments
Properties: Cream-colored soft wax; HLB 9

Emalex SEF-320(A) [Nihon Emulsion http://www.nihon-emulsion.co.jp]
Chem. Descrip.: Mixt. of nonionic surfactants
Uses: Emulsifier for ointments
Properties: Cream-colored wax; HLB 7; nonionic

Emalex TPS-203 [Nihon Emulsion http://www.nihon-emulsion.co.jp]
Chem. Descrip.: PEG-3 trimethylolpropane distearate
Uses: Oil-phase ingred. in ointments
Regulatory: JCID compliance
Properties: Cream-colored wax; HLB 0

Emalex TPS-204 [Nihon Emulsion http://www.nihon-emulsion.co.jp]
Chem. Descrip.: PEG-4 trimethylolpropane distearate
Uses: Oil-phase ingred. in ointments
Properties: Cream-colored wax; HLB 1

Emalex TPS-205 [Nihon Emulsion http://www.nihon-emulsion.co.jp]
Chem. Descrip.: PEG-5 trimethylolpropane distearate
Uses: Oil-phase ingred. in ointments
Properties: Cream-colored wax; HLB 4

Emalex TPS-303 [Nihon Emulsion http://www.nihon-emulsion.co.jp]
Chem. Descrip.: PEG-3 trimethylolpropane tristearate
Uses: Oil-phase ingred. in ointments
Regulatory: JCIDID compliance
Properties: Cream-colored wax; HLB 2

Emanon 3299R [Kao Corp. SA]
Chem. Descrip.: PEG distearate
CAS 9005-08-7
Uses: Emulsifier, thickener for pharmaceuticals
Regulatory: JSCI compliance
Properties: Lt. ylsh. wh. flakes; sol. in water, xylene; disp. in ethanol; insol. in n-hexane; visc. 1950 mPa*s (70 C); m.p. 55-58 C; acid no. 5 max.; sapon. no. 10.5-12.0; HLB 18.9; nonionic

Emanon 3299 [Kao Corp. http://www.kao.co.jp]
Chem. Descrip.: PEG monostearate
Uses: Emulsifier, thickener for pharmaceuticals
Features: Highly hydrophilic
Regulatory: JSCI, JHOSPA compliance
Properties: Lt. ylsh. wh. flakes; sol. in water, xylene; disp. in ethanol; insol. in n-hexane; visc. 1950 mPa*s (70 C); m.p. 56.5-61.5 C; HLB 19.4; acid no. 3 max.; sapon. no. 5.5-10.5

Emanon 3299 [Kao Corp. SA]
Chem. Descrip.: PEG distearate
CAS 9005-08-7
Uses: Emulsifier, thickener for pharmaceuticals
Features: Highly hydrophilic
Regulatory: JSCI, JHOSPA compliance
Properties: Lt. ylsh. wh. flakes; sol. in water, xylene; disp. in ethanol; insol. in n-hexane; visc. 1950 mPa*s (70 C); m.p. 56.5-61.5 C; HLB 19.4; acid no. 3 max.; sapon. no. 5.5-10.5

Emanon 3199 [Kao Corp. SA]
Chem. Descrip.: PEG monostearate
See PEG stearate
CAS 9004-99-3
Uses: Emulsifier, thickener for pharmaceuticals
Properties: Pale yel. soft paste; HLB 14; nonionic
Trade Name Reference

**Emanon 4110** [Kao Corp. SA]
Chem. Descrip.: PEG monooleate  See PEG oleate
CAS 9004-96-0
Uses: Emulsifier for pharmaceuticals
Features: Highly hydrophilic
Regulatory: JHOSPA compliance
Properties: Lt. yel. liq.; sol. in ethanol, xylene; sol. hazy in water; insol. in hexane; visc. 60 mPa•s (30 C); HLB 11.6; acid no. 2 max.; ester no. 81-91

**Emasol O-15R** [Kao Corp. http://www.kao.co.jp]
Chem. Descrip.: Sorbitan sesquioleate
CAS 9005-65-6
Uses: Emulsifier for pharmaceuticals
Properties: Brn. visc. liq.; sol. in ethanol, n-hexane; sl. sol. in xylene; acid no. 10 max.; HLB 10.0

**Emasol O-105R** [Kao Corp. http://www.kao.co.jp]
Chem. Descrip.: POE 6 sorbitan monooleate  See PEG-6 sorbitan oleate
CAS 8007-43-0; EINECS/ELINCS 232-360-1
Uses: Emulsifier, dispersant for pigments; emulsifier in pharmaceuticals
Properties: Lt. br. oily liq.; HLB 3.7; nonionic

**Emasol S-20** [Kao Corp. http://www.kao.co.jp]
Chem. Descrip.: Sorbitan distearate
CAS 36521-89-8; EINECS/ELINCS 247-707-2
Uses: Emulsifier, dispersant for pigments; emulsifier in pharmaceuticals
Properties: Pale ylsh. wh. flake; HLB 4.4; nonionic

**Emcocel® HD90** [JRS Pharma http://www.jrspharma.com]
Chem. Descrip.: Microcrystalline cellulose NF, JP, Ph.Eur., BP
CAS 9004-34-6; EINECS/ELINCS 232-674-9
Uses: Binder, vehicle, disintegrant, flow aid for pharmaceutical tablets
Features: High binding capacity, tablet strength, compactibility; able to initiate disintegration; low friability; inherent lubricity; enhanced compression of other excipients
Regulatory: NF, BP, EP, JP
Properties: 91 µ avg. particle size; 45% min +200 mesh; dens. (tapped) 0.40 g/ml max.; pH 5.5-7.0; 100% conc.

**Emcocel® LM50** [JRS Pharma http://www.jrspharma.com]
Chem. Descrip.: Microcrystalline cellulose
CAS 9004-34-6; EINECS/ELINCS 232-674-9
Uses: Binder, diluent, disintegrant for pharmaceutical tablets
Features: Low moisture content; improved water scavenging for formulations where free moisture might be troublesome; high compactibility; low friability; inherent lubricity
Regulatory: NF, BP, EP, JP
Properties: Wh. fine powd.; 50 µm median particle size; > 0.25% on #60 screen; < 30% on #200 screen particle size; prac. insol. in water, acetone, ethanol, and toluene; dens. 0.25-0.37 g/ml (bulk), dens. 0.37-0.50 g/ml (tapped); pH 5-7
Storage: 3 yr. shelf life in well-closed containers @ < 25 C and 60% r.h.

**Emcocel® LP200** [JRS Pharma http://www.jrspharma.com]
Chem. Descrip.: Microcrystalline cellulose
CAS 9004-34-6; EINECS/ELINCS 232-674-9
Uses: Binder, diluent, disintegrant for pharmaceutical tablets
Features: Low friability; inherent lubricity; enhanced compression of other excipient; able to initiate disintegration
Regulatory: NF, BP, EP, JP
Properties: Wh. or practically wh. fine powd.; 185 µm median particle size; > 10% on #60 screen; > 50% on #100 screen; complete sol. in ammonical copper tetramine sol'n.; insol. in
Trade Name Reference

water, acetone, ethanol, and toluene; dens. 0.35-0.50 g/ml (tapped), 0.20-0.37 g/ml (bulk); pH 5-7

Storage: 3 yr. shelf life in unopened tightly closed containers @ < 25 C and 60% r.h.

Emcocel® SP15  [JRS Pharma http://www.jrspharma.com]
Chem. Descrip.: Partly depolymerized microcrystalline cellulose
CAS 9004-34-6; EINECS/ELINCS 232-674-9
Uses: Excipient, binder, diluent, disintegrant for pharmaceutical tablets
Features: High binding capacity, tablet strength, compactibility; able to initiate disintegration; low friability; inherent lubricity
Regulatory: NF, EP, JP
Properties: Wh. to almost wh., fine or gran. powd.; 15 µm median particle size; pract. insol in water, acetone, ethanol, tol. and dilute acids sodium hydroxide.(50g/l sol'n.); bulk dens. > 0.13 g/ml; pH 5-7

Emcocel® XLM90  [JRS Pharma http://www.jrspharma.com]
Chem. Descrip.: Microcrystalline cellulose
CAS 9004-34-6; EINECS/ELINCS 232-674-9
Uses: Binder, diluent, disintegrant for pharmaceutical tablets, esp. for moisture-sensitive components
Features: Very low moisture content; high compactibility; low friability; inherent lubricity; enhanced compression of other excipients; able to initiate disintegration
Regulatory: NF, BP, EP, JP
Properties: Wh. or practically wh. fine powd.; 90 µm median particle size; < 8% on #60 screen; complete sol. in ammonical copper tetramine sol'n.; insol. in water, acetone, ethanol, and tol. and dens. 0.37-0.50 g/ml (tapped), 0.25-0.37 g/ml (bulk); pH 5-7
Storage: Hygroscopic; 2 y. shelf life in unopened tightly closed containers @ < 25 C and 60% r.h.

Emcompress®  [JRS Pharma http://www.jrspharma.com]
Chem. Descrip.: Dibasic calcium phosphate dihydrate USP, FCC, BP  See Calcium phosphate dibasic dihydrate
CAS 7789-77-7; EINECS/ELINCS 231-826-1
Uses: Excipient, binder, filler, flow aid for direct compression of pharmaceutical tablets and capsules
Features: Storage-stable; compat. with broad range of drug actives
Regulatory: USP/NF, EP, BP
Properties: Wh. free-flowing, monoclinic crytals; avg. particle size 136 µ; 15% max. through 200 mesh; readily sol. in dilute hydrochloric and nitric acids; relatively insol. in water and alcohol; m.w. 172.1; dens. (tapped) 0.91 g/ml; 98.0-105.0% assay
Use Level: 20-50% (tablets, capsules)

EmCon™ CO  [Fanning http://www.fanncorp.com]
Chem. Descrip.: Castor oil USP  See Castor (Ricinus communis) oil
CAS 8001-79-4; EINECS/ELINCS 232-293-8
Uses: Skin conditioner, occlusive solvent for pharmaceuticals
Features: Occlusive
Properties: Gardner 1 oil; sp.gr. 0.957-0.961; acid no. 2 max.; iodine no. 83-88; sapon. no. 176-182; hyd. no. 160-168

EmCon™ Olive  [Fanning http://www.fanncorp.com]
Chem. Descrip.: Olive oil USP  See Olive (Olea europaea) oil
CAS 8001-25-0; EINECS/ELINCS 232-277-0
Uses: Conditioning agent, occlusive solv. for pharmaceutical ointments
Features: Occlusive
Properties: Pale straw cl. liq., bland odor; sp.gr. 0.910-0.915; acid no. 3.5 max.; iodine no. 79-88; sapon. no. 190-195

EmCon™ Rice Bran  [Fanning http://www.fanncorp.com]
Chem. Descrip.: Rice bran oil  See Rice (Oryza sativa) bran oil
CAS 68553-81-1; EINECS/ELINCS 271-397-8
Uses: Conditioning agent, occlusive solv. for pharmaceutical ointments
Features: Occlusive
Properties: Sp.gr. 0.971-0.973; acid no. 0.10 max.; iodine no. 185-195

EmCon™ SAF  [Fanning http://www.fanncorp.com]
Chem. Descrip.: Safflower oil  See Safflower (Carthamus tinctorius) oil
CAS 8001-23-8; EINECS/ELINCS 232-276-5
Uses: Emollient, lubricant for balms
Features: Rich, lubricating, yet nontacky feel
Properties: Yel. to amber oil; mild char. odor; sol. in isopropyl esters, min. oil; insol. in water; acid no. 2 max.; iodine no. 135-155; sapon. no. 182-202

EmCon™ Tea Tree  [Fanning
Chem. Descrip.: Tea tree oil distilled from leaves of *Melaleuca alternifolia*. See *Tea tree (Melaleuca alternifolia)* oil CAS 68647-73-4; EINECS/ELINCS 285-377-1
Uses: Fragrance, antimicrobial in pharmaceutical ointments
Properties: Sp.gr. 0.920-0.930; ref. index 1.472-1.482

EmCon™ W [Fanning http://www.fanncorp.com]
Chem. Descrip.: Wheat germ oil USP. See *Wheat (Triticum vulgare)* germ oil CAS 8006-95-9
Uses: External lubricant, conditioner, occlusive solvent for pharmaceuticals; lubricant for topical ointments
Features: Occlusive
Properties: Gardner 10 max. oil; acid no. 0.5 max.; iodine no. 88-93; flash pt. (CC) 184-189 C

Emcosoy STS IP® [JRS Pharma http://www.jrspharma.com]
Chem. Descrip.: Soy polysaccharides. See *Soybean (Glycine soja)* flour CAS 68513-95-1
Uses: Disintegrant for direct compression of pharmaceutical tablets, esp. low calorie and diabetic prods.
Features: Improved dissolution; very low (< 5%) sol. carbohydrates
Regulatory: GRAS; kosher
Properties: Wh. to lt. tan gran. powd.; 50 µ avg. particle size; 90% -100 mesh; dens. 0.54 g/ml max. (tapped); pH 6.5-7.5 (5% slurry); nonionic; 75% dietary fiber
Use Level: 4-10% (tablets)

Emdex® [JRS Pharma http://www.jrspharma.com]
Chem. Descrip.: Dextrates NF. Dextrose (95%), isomaltose (2%), gentiobiose (2%), maltose (1%), maltotriose (< 0.1%), panose (< 0.5%) See *Glucose; D-Panose*
Uses: Binder, diluent, vehicle, flow aid for direct compression and wet granulation of pharmaceutical tablets, chewable and nonchewable tablets
Features: High compressibility; controlled particle size; rapid dissolution; cool mouthfeel; stable to heat and moisture
Properties: Sweet noncloying taste; 211 µ avg. particle size; 25% max. through 100 mesh; sol. 100 g/100 ml in water; insol. in alcohol and common org. solvs.; dens. 0.77 g/ml (tapped);

Emersol® 6313 NF [Cognis http://www.cognis.de]
Chem. Descrip.: Low-titer oleic acid USP/NF CAS 112-80-1; EINECS/ELINCS 204-007-1
Uses: Emulsifier, solubilizer for pharmaceuticals
Features: Food grade fatty acid
Regulatory: FDA 21CFR §172.860; EPA exempt
Properties: Lt. yel. cl. liq., fatty acid odor; insol. in water; sp.gr. 0.891 (25/20 C); m.p. 14 C; b.p. 286 C (100 mm); acid no. 201-204; iodine no. 88-93; flash pt. (CC) 184-189 C
Toxicology: LD50 (oral, rat) > 21.5 ml/kg; mild eye and skin irritant
Storage: Store in closed containers away from heat and open flames; avoid contact with strong oxidizers, alkalis

Chem. Descrip.: Low-titer wh. oleic acid USP/NF CAS 112-80-1; EINECS/ELINCS 204-007-1
Features: Food grade fatty acid
Regulatory: FDA 21CFR §172.860; EPA exempt
Properties: Lt. cl. liq., fatty acid odor; insol. in water; sp.gr. 0.891 (25/20 C); m.p. 14 C; b.p. 286 C (100 mm); acid no. 201-204; iodine no. 87-92; flash pt. (CC) 184-189 C
Toxicology: LD50 (oral, rat) > 21.5 ml/kg; mild eye, moderate skin irritant
Storage: Store in closed containers away from heat and open flames; avoid contact with strong oxidizers, alkalis

Emersol® 6332 [Cognis http://www.cognis.de]
Chem. Descrip.: Stearic acid, triple pressed USP/NF CAS 57-11-4; EINECS/ELINCS 200-313-4
Uses: Lubricant, emulsifier in pharmaceuticals, suppositories, ointments
Features: Food grade fatty acid
Regulatory: FDA 21CFR §172.860; EPA exempt
Properties: Wh. waxy solid, fatty acid odor; insol. in water; sp.gr. 0.85 (75/20 C); m.p. 52-57 C; b.p. 383 C; acid no. 205-211; iodine no. 0.5 max.; flash pt. (COC) 185 C
Toxicology: LD50 (oral, rat) > 10 g/kg; mild eye and skin irritant
Storage: Store in closed containers away from heat and open flames; avoid contact with
Trade Name Reference

strong oxidizers, alkalis

Emersol® 6333 [Cognis
http://www.cognis.de]
Chem. Descrip.: Low-linoleic content oleic acid
USP/NF
CAS 112-80-1; EINECS/ELINCS 204-007-1
Uses: Emulsifier, solubilizer for pharmaceuticals
Features: Food grade fatty acid
Regulatory: FDA 21CFR §172.860; EPA exempt
Properties: Lt. cl. liq., fatty acid odor; insol. in water; sp.gr. 0.891 (25/20 C); m.p. 14 C; b.p. 286 C (100 mm); acid no. 200-204; iodine no. 86-91; flash pt. (CC) 184-189 C
Toxicology: LD50 (oral, rat) > 21.5 ml/kg; mild eye, moderate skin irritant
Storage: Store in closed containers away from heat and open flames; avoid contact with strong oxidizers, alkalis

Emersol® 917 [Cognis/Chems. Group
http://www.cognis-us.com]
Chem. Descrip.: Glycerin CP/USP kosher
CAS 56-81-5; EINECS/ELINCS 200-289-5
Uses: Visc. modifier, flavor enhancer, moisturizer, solvent, humectant, thickener, and solubilizer in drug vehicles
Properties: Water-wh. liq.; sol. in water; sp.gr. 1.2607; m.p. 18 C; b.p. 171 C; flash pt. (CC) 199 C; 99.7% min. glycerol
Toxicology: TLV:TWA 10 mg/m3 (mist); LD50 (oral, rat) 12.6 g/kg; mild eye irritant, moderate skin irritant; inhalation of mist may cause respiratory irritation
Storage: Store in cool, dry area; avoid excessive heat, open flames; incompat. with strong acids and oxidizers

Emery® 1650 [Cognis/Care Chems.
http://www.cognis.com; Cognis Canada]
Chem. Descrip.: Anhyd. lanolin USP
CAS 8006-54-0; EINECS/ELINCS 232-348-6
Uses: Emulsifier, emollient, conditioner, lubricant for pharmaceuticals, sun care prods.
Properties: Yel. amber paste; sol. @ 5% in IPM; disp. in min. oil, triolein; HLB 10.0; dens. 7.9 lb/gal; m.p. 36-42 C; flash pt. 530 F; nonionic; 100% conc.

Emery® 1740 [Cognis/Chems. Group
http://www.cognis-us.com; Cognis/Care Chems.; Cognis Canada]
Chem. Descrip.: Petrolatum, lanolin, lanolin oil, and mineral oil
Uses: Absorption base; emulsifier for w/o systems, emollient, moisturizer for pharmaceutical ointments
Features: Very high water absorp.
Properties: Yel. to straw colored soft solid; sol. in min. oil, IPM; disp. in triolein; dens. 7.4 lb/gal; m.p. 40-46 C; flash pt. 450 F; nonionic; 100% conc.

Empigen® OB [Huntsman Perf. Prods.]
Chem. Descrip.: Lauramine oxide
CAS 1643-20-5; EINECS/ELINCS 216-700-6
Uses: Foaming agent for surgical scrubs
Properties: Pale straw liq.; dens. 0.98 g/cc; visc. 25 cs (20 C); pH 7.5±0.5 (5% aq.); nonionic; 30.0 ± 1.5% act.

Emulgade® 1000 NI [Cognis/Care Chems.; Cognis Canada; Cognis GmbH/Care Chems. http://www.cognis.com]
Chem. Descrip.: Cetearyl alcohol and ceteareth-20
Uses: Emulsifier, SE base for pharmaceutical o/w emulsions, creams, lotions, esp. suitable for processing cationics
Regulatory: BP compliance for Cetomacrogol emulsifying wax
Properties: Wh. flakes, faint char. odor; solid. pt. 48-53 C; acid no. 0.5 max.; sapon. no. 1 max.; hyd. no. 175-190; ref. index 1.435-1.439 (60 C); pH 6-8 (1%); nonionic; 100% conc.
Storage: 1 yr. min. storage life in closed containers at temps. below 40 C, protected from moisture

Emulgade® F [Cognis/Care Chems.; Cognis Canada; Cognis GmbH/Care Chems.
http://www.cognis.com]
Chem. Descrip.: Cetearyl alcohol, PEG-40 castor oil, and sodium cetearyl sulfate
Uses: SE raw material for pharmaceutical creams, ointments, o/w emulsions
Properties: Wh. to sl. yel. gran.; sapon. no. 10-
Trade Name Reference

15; hyd. no. 160-175; pH 6.5-8.0 (1%); anionic; 95% fatty matter
Storage: 1 yr. min. storage life in closed containers at temps. below 30 C, protected against moisture

Chem. Descrip.: Cetearyl glucoside and cetearyl alcohol
Uses: Self-emulsifying base in pharmaceutical o/w emulsions
Features: Vegetable origin
Properties: Wh. to ivory pelletized wax; mild char. odor; insol. in water; m.p. 64 C; hyd. no. 400; flash pt. 168 C; pH 5-7 (10% in ethanol/water 1:2); nonionic
Toxicology: Nonhazardous
Storage: 1 yr. min. storage life in closed containers at temps. below 30 C, protected against moisture

Chem. Descrip.: Glyceryl stearate, ceteareth-20, ceteareth-12, cetearyl alcohol, and cetyl palmitate
Uses: Emulsifier for heat- and visc.-stable pharmaceutical o/w emulsions
Features: Self-emulsifying wax mixt. with nonionic emulsifiers
Properties: Acid no. 1 max.; sapon. no. 90-100; hyd. no. 145-160
Storage: 1 yr. storage stability in sealed original containers at temps. below 30 C

Emulgade® SE-PF [Cognis/Care Chems.]
Chem. Descrip.: Glyceryl stearate, ceteareth-20, ceteareth-12, cetearyl alcohol, cetyl palmitate
Uses: Self-emulsifying base for pharmaceutical o/w creams/lotions
Regulatory: Australia AICS; JCIC; Korea ECL; Europe EINECS
Properties: Wh. to sl. ylsh. pellet; char. odor
Toxicology: Harmful by ing.; risk of serious damage to eyes; TSCA listed

Emulgen 123P [Kao Corp. http://www.kao.co.jp]
Chem. Descrip.: POE lauryl ether See Laureth
CAS 9002-92-0
Uses: Surfactant, emulsifier for pharmaceuticals
Properties: Wh. solid; cloud pt. >100 C; HLB 16.9; nonionic

Emulsifying Wax NF SP-210 [Strahl & Pitsch http://www.strahlpitsch.com]
Chem. Descrip.: Emulsifying wax NF
CAS 97069-99-0
Uses: Consistency improver and emulsion stabilizer for pharmaceutical ingreds.
Regulatory: NF
Properties: M.p. 50-54 C; iodine no. 3.5 max.; sapon. no. 14 max.; hyd. no. 178-192
Toxicology: TSCA listed

Chem. Descrip.: Polyglyceryl-4 oleate, PEG-8 propylene glycol cocoate
CAS 9007-48-1; 126645-98-5
Uses: Emulsifier for w/o creams and lotions, pharmaceutical ointments; stabilizer and aux. emulsifier for o/w systems; solubilizer for fragrances
Properties: Lt. amber liq.; mild odor; sol. @ 5% in peanut and min. oils, 95% ethanol, IPM, oleyl alcohol; gels in glycerin; insol. in water; sp.gr. 0.960-0.980; b.p. 380 C; acid no. 5 max.; iodine no. 58-68; sapon. no. 142-152; flash pt. 500 F; nonionic; 100% conc.
Toxicology: Causes moderate skin irritation.
Precaution: Avoid contact with eyes; wash thoroughly with soap and water after handling.
Hazardous Decomp. Prods.: None
NFPA: Health 2, Flammability 1, Reactivity 0
Storage: Keep containers tightly closed when not in use; store in a cool, dry place, out of direct light

Epicutin-TT [CLR http://www.clr-berlin.de; Actives Int’l.]
Chem. Descrip.: Cyclodextrin and tea tree (Melaleuca alternifolia) oil
Uses: For emulsified and facial care sticks for problem skin (blemished skin, excess sebum, acne)
Properties: Wh. powd.; odorless; suspendible, not sol. in water; pH 3.5-4.5 (10% aq.); 9-10% tea tree oil; residual moisture 8% max.
Use Level: 5-10%
**Trade Name Reference**

**Epikuron™ 100** [Cargill Texturizing Solutions](http://www.cargilltexturizing.com]
Chem. Descrip.: Soybean lecithin, deoiled See Lecithin
CAS 8002-43-5; EINECS/ELINCS 232-307-2
Uses: Emulsifier for pharmaceuticals, aerosols, ointments, suppositories, tablets, tonics
Properties: Powd.

**Epikuron™ 100 G** [Cargill Texturizing Solutions](http://www.cargilltexturizing.com]
Chem. Descrip.: Deoiled soy lecithin See Lecithin
CAS 8002-43-5; EINECS/ELINCS 232-307-2
Uses: Surfactant, nutritional supplement for tonics, tablets, powd. mixes
Properties: Gran.

**Epikuron™ 130** [Cargill Texturizing Solutions](http://www.cargilltexturizing.com]
Chem. Descrip.: Phosphatidylcholine-enriched (30% min.) deoiled soy lecithin See Lecithin
CAS 8002-43-5; EINECS/ELINCS 232-307-2
Uses: Emulsifier, choline enrichment, carrier for tonics, tablets, nutritional supplements, powd. mixes, ointments, dermatological prods., suppositories
Properties: Powd.

**Epiol M-0** [NOF](http://www.nof.co.jp]
Chem. Descrip.: α-Monochlorohydrine
Uses: Intermediate for pharmaceuticals

**Epiol OH** [NOF](http://www.nof.co.jp]
Chem. Descrip.: Glycidol
CAS 556-52-5; EINECS/ELINCS 209-128-3
Uses: Intermediate for pharmaceuticals; stabilizer halogenated hydrocarbons; surf. act. compd.

**Ervol®** [Chemtura](http://www.chemtura.com]
Chem. Descrip.: Wh. mineral oil NF
CAS 8020-83-5; EINECS/ELINCS 232-384-2
Uses: Emulsifier, lubricant, emollient, carrier for pharmaceuticals
Regulatory: FDA 21CFR §172.878, §178.3620a
Properties: Water-wh., odorless, tasteless; sp.gr. 0.849-0.865; visc. 24-26 cSt (40 C); pour pt. -7 C; flash pt. 185 C

**Escalol® 507** [ISP](http://www.ispcorp.com]
Chem. Descrip.: Octyl dimethyl PABA
CAS 21245-02-3; EINECS/ELINCS 244-289-3
Uses: UV-B absorber for topical sunscreens
Features: Nonstaining

**Properties:** Pale yel. mobile liq., very mild char. odor; sol. in min. and peanut oil, ethanol, IPA; insol. in water; m.w. 277; sp.gr. 0.990-1.000; HLB 10-12; b.p. 362 C; acid no. 1 max.; sapon. no. 195-215; ref. index 1.5390-1.5430; 98% min. purity
Use Level: 1.8-8.0%
Toxicology: LD50 (oral, rat) 14.9 g/kg; pract. nonirritating to eyes; nonirritating, nonsensitizing to skin

**Escalol® 557** [ISP](http://www.ispcorp.com]
Chem. Descrip.: Octyl methoxycinnamate
CAS 5466-77-3; EINECS/ELINCS 226-775-7
Uses: Nonstaining UV-B absorber for sunscreens, esp. waterproof formulations; imparts emolliency to emulsions without being tacky or oily
Properties: Pale yel. liq.; sl. odor; sol. in peanut oil, min. oil, ethanol (95%, 100%), oleyl alcohol, castor oil, IPM, cyclomethicone; insol. in water, propylene glycol, glycerin; m.w. 290.4; sp.gr. 1.005-1.013; HLB 6-8; b.p. 198-200 C (3 mm); acid no. 1 max.; sapon. no. 189 min.; ref. index 1.542-1.548; 98% min. purity
Toxicology: Minimally irritating to eyes; mildly irritating to skin

**Escalol® 567** [ISP](http://www.ispcorp.com]
Chem. Descrip.: Benzophenone-3
CAS 131-57-7; EINECS/ELINCS 205-031-5
Uses: UV-A absorber for formulation of high-SPF sunscreens
Properties: Sl. ylsh. fine cryst. powd.; sol. in peanut oil, ethanol, oleyl alcohol, castor oil; m.w. 228.25; m.p. 62 C min.; 97% min. assay
Use Level: 2-6%

**Escalol® 587** [ISP](http://www.ispcorp.com]
Chem. Descrip.: Ocytl salicylate
CAS 6969-49-9; EINECS/ELINCS 230-190-2
Uses: UV-B sunscreen for high-SPF formulations; boosts efficacy of other sunscreen actives; solubilizer for benzophenone-3
Properties: Colorless to pale yel. liq., typ. bland odor; sol. in IPA, ethanol, min. oil, dimethicone, cyclomethicone, IPM, octyl palmitate; insol. in water; m.w. 250.34; sp.gr. 1.013-1.022; b.p. 150 C (3 mm); acid no. 2 max.; sapon. no. 200-230; ref. index 1.495-1.505
Use Level: 3-5%
Toxicology: LD50 (oral, rat) < 5 g/kg; minimally
### Escalol® 597 [ISP](http://www.ispcorp.com)

**Chem. Descrip.:** Octocrylene  
**CAS:** 6197-30-4; EINECS/ELINCS 228-250-8  
**Uses:** UV-B sunscreen used when high SPF values are required; esp. for water-resistant formulations  
**Properties:** Yel. cl. visc. liq., bland odor; sol. @ 5% in ethanol, castor oil, IPM, hexylene glycol, IPA; disp. in min. oil, dimethicone; insol. in water; m.w. 361; sp.gr. 1.048; m.p. -10 C; b.p. > 200 C (3 mm); 98% min. assay  
**Use Level:** 7-10%  
**Toxicology:** LD50 (oral, rat) > 64 ml/kg; nonirritating to eyes; minimally irritating to skin

### Escin/β-Sitosterol Phytosome® [Indena SpA](http://www.indena.it)

**Chem. Descrip.:** Complex of escin, β-sitosterol, and soybean phospholipids  
**Uses:** Skin lightener, as stringent, soothing/moisturizing agent, coadjuvant in external treatment of cellulitis, after-sun, after-depilation, dentifrices for swollen gums, prods. for oral cavity  
**Properties:** Lt. brn. amorphous powd.; water-disp.

### Estalan DOM [Lanaetex Prods.]

**Chem. Descrip.:** Dioctyl maleate  
**CAS:** 2915-53-9; EINECS/ELINCS 220-835-6  
**Uses:** Emollient with silky feel for hypoallergenic prods.  
**Features:** Nonsensitizing and noncomedogenic  
**Properties:** Colorless to pale yel. liq.; mild char. odor; sol. @ 5% in cyclomethicone, min. oil, IPM, ethanol, dimethicone, hexylene glycol; disp. in propylene glycol; insol. in water, glycerin; sp.gr. 0.960-0.970; acid no. 0.1 max.; iodine no. 1 max.; sapon. no. 310 min.; ref. index 1.4480-1.4500

### Estasan™ GT 8-60 3575 [Uniqema](http://www.uniqema.com)

**Chem. Descrip.:** Caprylic/capric triglyceride (60% C8 + 40% C10)  
**CAS:** 65381-09-1; EINECS/ELINCS 265-724-3  
**Uses:** Solvent and carrier for drugs, capsules, flavors, fragrances; nutrient, fat source in dietetic prods., adult and infant nutrition, enteral and parenteral feeding formulas; emollient, spreading agent, penetrant, solvent for topical pharmaceuticals, creams, lotions; lubricant for mfg. of soft gelatin capsules  
**Features:** Wide compat. with many drugs; min. oil replacement  
**Regulatory:** Ph.Eur., BP, DAB compliance; Japan approval  
**Properties:** Lovibond 5Y/0.5R oil, odorless, bland taste; visc. 23 mPa•s; acid no. 0.1 max.; iodine no. 0.5 max.; sapon. no. 325-345; hyd. no. 5 max.; cloud pt. -8 C

### Estasan™ GT 8-60 3578 [Uniqema](http://www.uniqema.com)

**Chem. Descrip.:** Caprylic/capric triglyceride (40% C8 + 60% C10)  
**CAS:** 65381-09-1; EINECS/ELINCS 265-724-3  
**Uses:** Solvent and carrier for drugs, capsules, flavors, fragrances; fat source in dietetic prods., enteral and parenteral feeding formulas; spreading agent, penetrant for creams and lotions  
**Regulatory:** BP, DAB compliance; Japan approval; kosher; DSL listed  
**Properties:** Lovibond 5Y/0.5R oil, odorless, bland taste; visc. 30 mPa•s; acid no. 0.1 max.; iodine no. 0.5 max.; sapon. no. 325-345; hyd. no. 5 max.; cloud pt. -8 C  
**Toxicology:** LD50 (oral, rat) > 2 g/kg; vapor can cause irritation; eye irritant; nonirritant to soft gelatin capsules

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**Environmental:** Readily biodeg.  
**Storage:** Store @ R.T. in dry atmosphere

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**Estasan™ GT 8-60 3580 MCT Oil [Uniqema](http://www.uniqema.com)**

**Chem. Descrip.:** Caprylic/capric triglyceride (60% C8 + 40% C10)  
**CAS:** 65381-09-1; EINECS/ELINCS 265-724-3  
**Uses:** Solvent and carrier for drugs, capsules, flavors, fragrances; nutrient, fat source in dietetic prods., adult and infant nutrition, enteral and parenteral feeding formulas; spreading agent, penetrant, solvent for topical pharmaceuticals, creams, lotions; lubricant for mfg. of soft gelatin capsules  
**Features:** Wide compat. with many drugs; min. oil replacement  
**Regulatory:** Ph.Eur., BP, DAB compliance; Japan approval  
**Properties:** Lovibond 5Y/0.5R oil, odorless, bland taste; visc. 30 mPa•s; acid no. 0.1 max.; iodine no. 0.5 max.; sapon. no. 325-345; hyd. no. 5 max.; cloud pt. -8 C  
**Environmental:** Readily biodeg.  
**Storage:** Store @ R.T. in dry atmosphere
Trade Name Reference

skin; non mutagenic; TSCA listed

Environmental: Readily biodeg.; LC50 48 h, fish) >100 mg/l

Precaution: Avoid strong oxidizing agents

Storage: Store @ R.T. in dry atmosphere


Chem. Descrip.: Caprylic/capric triglyceride (65% C8 + 35% C10)

CAS 65381-09-1; EINECS/ELINCS 265-724-3

Uses: Solvent and carrier for drugs, capsules, flavors, fragrances; nutrient, fat source in dietetic prods., adult and infant nutrition, enteral and parenteral feeding formulas; emollient, spreading agent, penetrant, solvent for topical pharmaceuticals; lubricant for soft gelatin capsules

Features: Wide compat. with many drugs; min. oil replacement

Regulatory: Ph.Eur., BP, DAB compliance; Japan approval

Properties: Lovibond 5Y/0.5R oil, odorless, bland taste; visc. 23 mPa•s; acid no. 0.1 max.; iodine no. 0.5 max.; sapon. no. 325-360; hyd. no. 5 max.; cloud pt. -5 C

Environmental: Readily biodeg.

Storage: Store @ R.T. in dry atmosphere

Estasan™ GT 8-99 3596 MCT Oil [Uniqema http://www.uniqema.com]

Chem. Descrip.: Glycerol tricaprylate See Tricaprylin

CAS 538-23-8; EINECS/ELINCS 208-686-5

Uses: Solvent or suspension media for various drugs; fat source in formulation of dietetic prods., enteral and parenteral feeding formulas

Features: Very stable towards oxidation

Properties: APHA 70 oil; odorless; insol. in water; sol. in many organic solvents; dens. 950 kg/m³; visc. 30 mPa•s; m.p. 8 C; acid no. 0.1 max.; iodine no. 0.5 max.; flash pt. (CC) 250 C

Toxicology: LD50 (oral, rat) >2 g/kg; nonmutagenic

Environmental: Biodeg.; LC50 (fish, 48 h)

Precaution: Avoid oxidizing agents

Hazardous Decomp. Prods.: Irritating vapors

Estasan™ GT 10-99 3599 [Uniqema http://www.uniqema.com]

Chem. Descrip.: MCT multifunctional oil

Uses: Solvent or suspension media for various drugs; fat source in formulation of dietetic prods., enteral and parenteral feeding formulas

Features: Very stable towards oxidation

Properties: APHA 70 oil; odorless; visc. 17 mPa•s (40 C); m.p. 31 C; acid no. 0.1 max.; iodine no. 0.5 max.

Environmental: Biodeg.
**Estol 1511**  [Uniqema](http://www.uniqema.com)  
Chem. Descrip.:  *Isopropyl myristate*  
CAS 110-27-0; EINECS/ELINCS 203-751-4  
Uses:  *Emollient for pharmaceuticals*  
Properties:  Colorless liq.; faint odor; insol. in water; sol. in many organic solvents; dens. 0.85 g/ml; vapor pressure < 0.1 hPa; b.p. 170 C @ 10 hPa; flash pt. (CC) 150 C  
Toxicology:  *LD50 (oral, rat) > 2000 mg/kg; unlikely skin irritant*  
Environmental:  *Biodeg., no toxicity to fish at the solubility limit*  
Precaution:  Use safety goggles with shields; avoid strong oxidizing agents  
Hazardous Decomp. Prods.:  None  
Storage:  Store in original containers

**Estol 1526**  [Uniqema](http://www.uniqema.com)  
Chem. Descrip.:  *Propylene glycol dicaprylate/dicaprate*  
CAS 68583-51-7; EINECS/ELINCS 271-516-3  
Uses:  Coupling agent, solvent, vehicle, diluent, carrier for flavors, fragrance oils, sol. colorants, vitamins, medicinals; emollient for pharmaceuticals, creams, lotions  
Regulatory:  SARA §313 nonreportable; DSL, ENCS compliant  
Properties:  Colorless liq.; faint odor; insol. in water; sol. in many org. solvents; visc. 5 mPa.s; vapor pressure < 1 hPa; cloud pt. <-10 C; flash pt. (COC) 180 C  
Toxicology:  *LD50 (oral, rat) > 2 g/kg; irritant to eyes; nonirritating to skin; vapors can cause irritation*  
Environmental:  *Biodeg., low aquatic toxicity*  
Precaution:  Avoid oxidizing agents  
Storage:  Store in original containers

**Estol 3607 HF**  [Uniqema](http://www.uniqema.com); Uniqema Am.  
Chem. Descrip.:  *Hard fat*  
Uses:  *Oily vehicle for pharmaceutical preps.*  
Regulatory:  USP/NF, EP  
Properties:  Waxy solid

**Estol 3659**  [Uniqema](http://www.uniqema.com)  
Chem. Descrip.:  *Ethyl oleate*  
CAS 111-62-6; EINECS/ELINCS 203-889-5  
Uses:  *Excipient, emollient, carrier for pharmaceuticals*  
Regulatory:  SARA §313 nonreportable  
Properties:  Liq.; APHA 70 max. color; acid no. 0.5 max.; iodine no. 78-90; sapon. no. 180-190; cloud pt. -24 C; flash pt. (COC) 180 C  
Toxicology:  *Nonirritating by ing., inh., or skin contact*  
Environmental:  *Nontoxic to aquatic organisms*  
Precaution:  Wear safety goggles with side shields and impervious gloves  
Hazardous Decomp. Prods.:  CO2  
HMIS:  Health 1, Flammability 1, Reactivity 0

**Estol 3660**  [Uniqema](http://www.uniqema.com)  
Chem. Descrip.:  *Ethyl oleate*  
CAS 111-62-6; EINECS/ELINCS 203-889-5  
Uses:  *Excipient and solubilizer for drug delivery systems for poorly water-sol. drugs, nutrition and dietary products, and veterinary products*  
Regulatory:  EP, DSL, ENCS compliant  
Properties:  Colorless liq.; faint odor; insol. in water; sol. in many org. solvents; visc. 5 mPa.s; vapor pressure < 1 hPa; cloud pt. -10 C; flash pt. (COC) 180 C  
Toxicology:  *LD50 (oral, rat) > 2 g/kg; LD50 (dermal, rabbit) > 2 g/kg; irritant to eyes; nonirritating to skin; vapors can cause irritation*  
Environmental:  *Biodeg.*  
Precaution:  Avoid oxidizing agents  
Storage:  Store in original containers

**Estol 3684**  [Uniqema](http://www.uniqema.com)  
Chem. Descrip.:  *PEG-6 caprylic/capric glycerides*  
CAS 52504-24-2  
Uses:  *Excipient, emollient, carrier, emulsifier for pharmaceuticals*  
Properties:  APHA 150 max. color; sp.gr. 1.068; acid no. 1 max.; iodine no. 1 max.; sapon. no. 90-110; nonionic

**Estol 3748**  [Uniqema](http://www.uniqema.com)  
Chem. Descrip.:  *Glycerol distearate, type II*  
See Glycerol distearate  
CAS 1323-83-7; EINECS/ELINCS 215-359-0  
Uses:  *Emulsifier, coemulsifier, stabilizer, wetting agent, oily vehicle for pharmaceuticals*  
Regulatory:  USP/NF, EP  
Properties:  Solid
Trade Name Reference

Chem. Descrip.: Glyceryl distearate
CAS 1323-83-7; EINECS/ELINCS 215-359-0
Uses: Emulsifier, emollient for pharmaceuticals
Properties: Nonionic

Estol IPM [Uniqema
Chem. Descrip.: Isopropyl myristate
CAS 110-27-0; EINECS/ELINCS 203-751-4
Uses: Emollient, consistency agent, solvent for topical pharmaceuticals

Estol IPM 1509 (BIO-IPM) [Uniqema
Chem. Descrip.: Isopropyl myristate, veg.
Uses: Penetrant, emollient, solvent, spreading agent for topical medicinals, skin creams
Features: Reduces heaviness and oiliness of prods. containing triglycerides, liq. waxes, and min. oils
Properties: Colorless low-visc. liq., odorless; sp.gr. 0.850-0.855; acid no. 0.1 max.; iodine no. 0.5 max.; sapon. no. 206-211; cloud pt. 0 C max.; 98% min. act.

Ethocel™ Standard 4 Premium [Dow
Chem. Descrip.: Ethylcellulose NF, FCC, JP
CAS 9004-57-3
Uses: Excipient, binder, film-former in pharmaceuticals (controlled release and sustained release tablets, taste masking, granulation, microencapsulation); binder in dry and direct compression tablets; binder, filler in dry vitamin preps.; water vapor barrier to improve shelf life, prevent hydrolysis of ingreds., mask taste; color diluent in pharmaceuticals; fixing agent for flavors
Features: Improves tablet integrity, appearance; chemically inert; broad compat.; good stability @ pH 3-11
Regulatory: FDA 21CFR §73.1, 73.1001(b), 172.868, 573.420
Properties: Wh. to lt. tan gran. powd.; essentially odorless and tasteless; insol. in water; bulk dens. 0.4 g/cc; visc. 6-8 cP (5% in 80/20 toluene:alcohol); nonionic; 48.0-49.5% ethoxyl content
Toxicology: Dust may cause temporary mech. irritation to eyes under extreme conditions; considered nuisance dusts when inhaled
Environmental: Nonbiodeg.
Precaution: Will burn under certain conditions; melts on exposure to open flame; supports combustion; can form explosive mixts. in air; store away from peroxides or other oxidizing agents
Storage: 2 yr. shelf life when stored below 32 C in dry area away from heat sources

Ethocel™ Standard 7 Premium [Dow
Chem. Descrip.: Ethylcellulose NF, FCC, JP
CAS 9004-57-3
Uses: Excipient, binder, film-former in pharmaceuticals (controlled release and sustained release tablets, taste masking, granulation, microencapsulation); binder in dry and direct compression tablets; binder, filler in dry vitamin preps.; water vapor barrier to improve shelf life, prevent hydrolysis of ingreds., mask taste; color diluent in pharmaceuticals; fixing agent for flavors
Features: Improves tablet integrity, appearance; chemically inert; broad compat.; good stability @ pH 3-11
Regulatory: FDA 21CFR §73.1, 73.1001(b), 172.868, 573.420
Properties: Wh. to lt. tan gran. powd.; essentially odorless and tasteless; insol. in water; bulk dens. 0.4 g/cc; visc. 6-8 cP (5% in 80/20 toluene:alcohol); nonionic; 48.0-49.5% ethoxyl content
Toxicology: Dust may cause temporary mech. irritation to eyes under extreme conditions; considered nuisance dusts when inhaled
Environmental: Nonbiodeg.
Precaution: Will burn under certain conditions; melts on exposure to open flame; supports combustion; can form explosive mixts. in air; store away from peroxides or other oxidizing agents
Storage: 2 yr. shelf life when stored below 32 C in dry area away from heat sources

Ethocel™ Standard 14 Premium [Dow
Chem. Descrip.: Ethylcellulose NF, FCC, JP
CAS 9004-57-3
Uses: Excipient, binder, film-former in pharmaceuticals (controlled release and sustained release tablets, taste masking, granulation, microencapsulation); binder in dry and direct compression tablets; binder, filler in dry vitamin preps.; water vapor barrier to improve shelf life, prevent hydrolysis of ingreds., mask taste; color diluent in pharmaceuticals; fixing agent for flavors
Features: Improves tablet integrity, appearance; chemically inert; broad compat.; good stability @ pH 3-11
Regulatory: FDA 21CFR §73.1, 73.1001(b), 172.868, 573.420
Properties: Wh. to lt. tan gran. powd.; essentially odorless and tasteless; insol. in water; bulk dens. 0.4 g/cc; visc. 6-8 cP (5% in 80/20 toluene:alcohol); nonionic; 48.0-49.5% ethoxyl content
Toxicology: Dust may cause temporary mech. irritation to eyes under extreme conditions; considered nuisance dusts when inhaled
Environmental: Nonbiodeg.
Precaution: Will burn under certain conditions; melts on exposure to open flame; supports combustion; can form explosive mixts. in air; store away from peroxides or other oxidizing agents
Storage: 2 yr. shelf life when stored below 32 C in dry area away from heat sources
Trade Name Reference

**Ethocel™ Standard 20 Premium**

**Uses:** Excipient, binder, film-former in pharmaceuticals (controlled release and sustained release tablets, taste masking, granulation, microencapsulation); binder in dry and direct compression tablets; binder, filler in dry vitamin preps.; water vapor barrier to improve shelf life, prevent hydrolysis of ingreds., mask taste; color diluent in pharmaceuticals; fixing agent for flavors

**Features:** Improves tablet integrity, appearance; chemically inert; broad compat.; good stability @ pH 3-11

**Regulatory:** FDA 21CFR §73.1, 73.1001(b), 172.868, 573.420

**Properties:** Wh. to lt. tan gran. powd.; essentially odorless and tasteless; insol. in water; visc. 12.6-15.4 (5% soln of 80% toluene and 20% alcohol); nonionic; 48.0-49.5% ethoxyl content

**Toxicology:** Dust may cause temporary mech. irritation to eyes under extreme conditions; considered nuisance dusts when inhaled

**Environmental:** Nonbiodeg.

**Precaution:** Will burn under certain conditions; melts on exposure to open flame; supports combustion; can form explosive mixts. in air; store away from peroxides or other oxidizing agents

**Storage:** 2 yr. shelf life when stored below 32 C in dry area away from heat sources

**Ethocel™ Standard 45 Premium**

**Uses:** Excipient, binder, film-former in pharmaceuticals (controlled release and sustained release tablets, taste masking, granulation, microencapsulation); binder in dry and direct compression tablets; binder, filler in dry vitamin preps.; water vapor barrier to improve shelf life, prevent hydrolysis of ingreds., mask taste; color diluent in pharmaceuticals; fixing agent for flavors

**Features:** Improves tablet integrity, appearance; chemically inert; broad compat.; good stability @ pH 3-11

**Regulatory:** FDA 21CFR §73.1, 73.1001(b), 172.868, 573.420

**Properties:** Wh. to lt. tan gran. powd.; essentially odorless and tasteless; insol. in water; bulk dens. 0.4 g/cc; visc. 41-49 cP (5% in 80/20 toluene:alcohol); nonionic; 48.0-49.5% ethoxyl content

**Toxicology:** Dust may cause temporary mech. irritation to eyes under extreme conditions; considered nuisance dusts when inhaled

**Environmental:** Nonbiodeg.

**Precaution:** Will burn under certain conditions; melts on exposure to open flame; supports combustion; can form explosive mixts. in air; store away from peroxides or other oxidizing agents

**Storage:** 2 yr. shelf life when stored below 32 C in dry area away from heat sources

**Ethocel™ Standard 100 Premium**

**Uses:** Excipient, binder, film-former in pharmaceuticals (controlled release and sustained release tablets, taste masking, granulation, microencapsulation); binder in dry and direct compression tablets; binder, filler in dry vitamin preps.; water vapor barrier to improve shelf life, prevent hydrolysis of ingreds., mask taste; color diluent in pharmaceuticals; fixing agent for flavors

**Features:** Improves tablet integrity, appearance; chemically inert; broad compat.; good stability @ pH 3-11

**Regulatory:** FDA 21CFR §73.1, 73.1001(b), 172.868, 573.420

**Properties:** Wh. to lt. tan gran. powd.; essentially odorless and tasteless; insol. in water; bulk dens. 0.4 g/cc; visc. 18-22 cP (5% in 80/20 toluene:alcohol); nonionic; 48.0-49.5% ethoxyl content

**Toxicology:** Dust may cause temporary mech. irritation to eyes under extreme conditions; considered nuisance dusts when inhaled

**Environmental:** Nonbiodeg.

**Precaution:** Will burn under certain conditions; melts on exposure to open flame; supports combustion; can form explosive mixts. in air; store away from peroxides or other oxidizing agents

**Storage:** 2 yr. shelf life when stored below 32 C in dry area away from heat sources
pharmaceuticals (controlled release and sustained release tablets, taste masking, granulation, microencapsulation); binder in dry and direct compression tablets; binder, filler in dry vitamin preps.; water vapor barrier to improve shelf life, prevent hydrolysis of ingreds., mask taste; color diluent in pharmaceuticals; fixing agent for flavors

Features: Improves tablet integrity, appearance; chemically inert; broad compat.; good stability @ pH 3-11

Regulatory: FDA 21CFR §73.1, 73.1001(b), 172.868, 573.420

Properties: Wh. to lt. tan gran. powd.; essentially odorless and tasteless; insol. in water; bulk dens. 0.4 g/cc; visc. 90-110 cP (5% in 80/20 toluene:alcohol); nonionic; 48.0-49.5% ethoxyl content

Toxicology: Dust may cause temporary mech. irritation to eyes under extreme conditions; considered nuisance dusts when inhaled

Environmental: Nonbiodeg.

Precaution: Will burn under certain conditions; melts on exposure to open flame; supports combustion; can form explosive mixts. in air; store away from peroxides or other oxidizing agents

Storage: 2 yr. shelf life when stored below 32 C in dry area away from heat sources


Chem. Descrip.: PEG-15 cocamine

CAS 61791-14-8

Uses: Emulsifier in topical pharmaceuticals

Regulatory: FDA approved for topicals

Properties: Gardner < 10 liq.; sol. @ 5% in alcohols, propylene glycol, water, xylene; dens. 1045 kg/m³; visc. 200 mPa·s; cloud pt. 48 C (1% in 10% NaCl); surf. tens. 38 mN/m (0.1%); Draves wetting > 600 s (0.1%); Ross-Miles foam 110 mm (initial, 0.05%, 50 C); cationic; 100% conc.

Toxicology: Corrosive to eyes; severely irritating to skin; TSCA listed

Environmental: Biodegrad.; EC50 (daphnia, 48 h) 12 mg/l

Precaution: Wear splash goggles, gloves, and lab coat; reactive with oxidizers, acids.

Hazardous Decomp. Prods.: COx; NOx

Storage: Keep in a tightly closed container in a cool, well-ventilated area
Trade Name Reference

**Ethosperse® SL-20** [Lonza](http://www.lonza.com)
Chem. Descrip.: Sorbeth-20
CAS 53694-15-8
Uses: Emulsifier, humectant for pharmaceuticals
Properties: Lt. yel. cl. liq.; sol. in water, methanol, ethanol, aceton; sp.gr. 1.16; visc. 460 cps; HLB 17; acid no. 0.5 max.; hyd. no. 385-430; pH 7 (5%); nonionic; 100% act.

**Ethoxylan® 1685** [Cognis/Care Chems.](http://www.cognis.com; Cognis Canada]
Chem. Descrip.: PEG-75 lanolin
CAS 61790-81-6
Uses: Emollient, emulsifier, dispersant for antiperspirants, pharmaceutical vehicles
Properties: Yel. to lt. amber liq.; sol. @ 5% in water, IPA; dens. 8.9 lb/gal; m.p. 39 C; cloud pt. 85 C; flash pt. 530 F; nonionic; 50% aq. sol'n.

**Ethyl Diglyme** [Ferro](http://www.ferro.com]
Chem. Descrip.: Diethylene glycol diethyl ether
CAS 112-36-7: EINECS/ELINCS 203-963-7
Uses: Solvent for pharmaceuticals
Features: Tends to solvate cations
Properties: Colorless; mild, nonresidual odor; water-sol.; misc. with ethanol, acetone, benzene, diethyl ether, octane; m.w. 162.23; sp.gr. 0.9082; dens. 7.56 lb/gal; visc. 1.4 cP; f.p. -44.3 C; b.p. 189 C; flash pt. 129-136 C; pour pt. -90 C; clip pt. (Abel) 42 C; autoignition temp. 255 C; ref. index 1.404; surf. tens. 27.2 dynes/cm; 98.0% min. purity
Toxicology: Expected LD50 (oral) > 2000 mg/kg, (skin) > 2000 mg/kg; LC50 (inh.) > 5 mg/l; narcotic at high vapor concs.; causes CNS depression; expected to be sl. eye and skin irritant
Environmental: Readily biodeg.; does not bioaccumulate significantly; nonhazardous under EC criteria; LC50 (fish) > 1000 mg/l; pract. nontoxic to fish, algae, bacteria; prevent contamination of soil and water; prevent entry into drains, ditches, rivers
Precaution: Flamm.; LEL 1.3 vol.%; UEL 12 vol.%; may form flamm./explosive vapor-air mixt.; vapor is heavier than air, spreads along ground; distant ignition is possible; reacts with strong oxidizing agents; oxidizes on contact with air; avoid exposure to air
Hazardous Decomp. Prods.: CO
Storage: Hygroscopic; 12 mos. shelf life under proper storage; store in tightly closed containers @ ambient temps. in well-ventilated area, away from direct sunlight, other heat/ignition sources

**Etocas 35 HV** [Croda Chem. Europe Ltd](http://www.croda.co.uk]
Chem. Descrip.: Ethoxy (35) castor oil See PEG-35 castor oil
CAS 61791-12-6
Uses: Solubilizer for volatile oil, fat soluble vitamins and hydrophobic substances; Solvent in proprietary injectables; surfactant used in oral, topical and parenteral preparations; solubilizer, emulsifier, coemulsifier in topical creams and lotions and glycerin suppositories
Regulatory: EP, FDA Inactive Ingredients Guide listed
Properties: Pale yel. cl. liq.; sol. in water, alcohol, naphtha, MEK, oleic acid,
Trade Name Reference
trichloroethylene; HLB 12.7; cloud pt. 35-40 C; acid no. 1.0 max.; sapon. no. 62-72; surf. tens. 41.5 dynes/cm (0.1% aq.); pH 6-7.5; nonionic

Etocas 35 NF [Croda Inc
http://www.croda.com;
http://www.crodausa.com]
Chem. Descrip.: PEG-35 castor oil NF
CAS 61791-12-6
Uses: Surfactant, emulsifier, solvent, wetting agent, emollient, lubricant for oral, topical, and parenteral pharmaceuticals
Features: Tends to yield clear sol’ns.
Properties: Pale yel. liq.; sol. in water, IPA; disp. in propylene glycol; insol. in min. oil; HLB 12.5; nonionic
Use Level: 0.5-5%

Eudragit® E 12.5 [Röhm GmbH
http://www.roehm.de; Röhm Am.
http://www.rohmamerica.com]
Chem. Descrip.: Acrylic polymer org. sol’n. in IPA/acetone See Acrylic resin; Isopropyl alcohol
Uses: Excipient for controlled-release pharmaceutical apps., rapidly disintegrating coatings, taste- and odor-masking
Properties: Liq.; sol. in gastric fluid up to pH 5, swellable and permeable above pH 5; flash pt. -15 C; 12.5% polymer
Storage: 36 mos. min. shelf life @ < 30 C

Eudragit® E 100 [Röhm GmbH
http://www.roehm.de; Röhm Am.
http://www.rohmamerica.com]
Chem. Descrip.: Acrylic polymer See Acrylic resin
Uses: Excipient for controlled-release pharmaceutical apps., rapidly disintegrating coatings, taste- and odor-masking
Properties: Gran.; sol. in gastric fluid up to pH 5, swellable and permeable above pH 5; flash pt. none; 98% polymer
Storage: 36 mos. min. shelf life @ < 30 C

Eudragit® E PO [Röhm GmbH
http://www.roehm.de; Röhm Am.
http://www.rohmamerica.com]
Chem. Descrip.: Eudragit E 100 (acylic polymer) See Acrylic resin
Uses: Excipient for pharmaceutical protective coatings, fast disintegrating aq. formulations; taste and odor masking; protection against moisture
Properties: Powd.

Eudragit® FS 30 D [Röhm GmbH
http://www.roehm.de; Röhm Am.
http://www.rohmamerica.com]
Chem. Descrip.: Copolymer based on methyl acrylate, methyl methacrylate and methacrylic acid See Acrylic resin
Uses: Excipient for pharmaceutical solid oral formulations, for sustained release formulations, immediate release coatings
Properties: Milky wh. liq.; faint characteristic odor; miscible with water; m.w. = 220,000; pH 2.0 - 3.5; anionic
Storage: Store in tightly closed containers @ 5-10 C

Eudragit® L 12.5 [Röhm GmbH
http://www.roehm.de; Röhm Am.
http://www.rohmamerica.com]
Chem. Descrip.: Methacrylic acid copolymer, Type A, USP/NF in isopropyl alcohol
Uses: Excipient for controlled-release pharmaceutical apps., enteric coatings, coatings resist. to tropical conditions, lozenges, sealing coats
Properties: Powd.; sol. in intestinal fluid from pH 6; flash pt. 13.5 C; 12.5% polymer
Storage: 36 mos. min. shelf life @ < 30 C

Eudragit® L 30 D-55 [Röhm GmbH
http://www.roehm.de; Röhm Am.
http://www.rohmamerica.com]
Chem. Descrip.: Methacrylic acid copolymer, Type C, USP/NF aq. disp.
Uses: Excipient for controlled-release pharmaceutical apps., enteric coatings, coatings resist. to tropical conditions, lozenges, sealing coats
Properties: Aq. disp.; sol. in intestinal fluid from pH 5.5; flash pt. none; 30% polymer
Storage: 18 mos. min. shelf life @ 5-25 C

Eudragit® L 100 [Röhm GmbH
http://www.roehm.de; Röhm Am.
http://www.rohmamerica.com]
Chem. Descrip.: Methacrylic acid copolymer, Type A, USP/NF
Uses: Excipient for controlled-release pharmaceutical apps., enteric coatings, coatings resist. to tropical conditions, lozenges, sealing coats
Properties: Powd.; sol. in intestinal fluid from pH 6; flash pt. none; 95% polymer
Storage: 36 mos. min. shelf life @ < 30 C

Eudragit® L 100-55 [Röhm GmbH
http://www.roehm.de; Röhm Am.
http://www.rohmamerica.com]
Eudragit NE 30 D [Röhm GmbH
http://www.roehm.de; Röhm Am.
http://www.rohmamerica.com]
Uses: Excipient for controlled-release permeable film coatings
Regulatory: Ph.Eur, DAB compliance
Properties: Aq. disp.; sol.: swellable, permeable; nonflamm.; 30% polymer
Storage: 18 mos. min. shelf life @ 0-30 C (preferably @ 5-25 C)

Eudragit NE 40 D [Röhm GmbH
http://www.roehm.de; Röhm Am.
http://www.rohmamerica.com]
Uses: Excipient for wet granulation for sustained release pharmaceuticals; delayed drug release
Features: Swellable; permeable; insoluble; pH independent

Eudragit® RL 12.5 [Röhm GmbH
http://www.roehm.de; Röhm Am.
http://www.rohmamerica.com]
Chem. Descrip.: Ammonio methacrylate copolymer, Type B USP/NF in isopropyl alcohol/acetone
Uses: Excipient for sustained-release (delayed-release) pharmaceutical apps.
Features: Insoluble; permeable or dispersible; pH-independent
Properties: Liq.; sparingly permeable; flash pt. -15 C; 12.5% polymer
Storage: 36 mos. min. shelf life @ < 30 C

Eudragit® RS 30 D [Röhm GmbH
http://www.roehm.de; Röhm Am.
http://www.rohmamerica.com]
Chem. Descrip.: Ammonio methacrylate copolymer, Type B USP/NF in isopropyl alcohol/acetone
Uses: Excipient for sustained-release (delayed-release) pharmaceutical apps.
Features: Insoluble; permeable or dispersible; pH-independent
Properties: Liq.; highly permeable; flash pt. -15 C; 12.5% polymer
Storage: 36 mos. min. shelf life @ < 30 C
**Trade Name Reference**

**Eudragit® RS 100** [Röhm GmbH
http://www.roehm.de; Röhm Am.
http://www.rohmamerica.com]

Chem. Descrip.: Ammonio methacrylate
copolymer Type B USP/NF aq. disp.
Uses: Excipient for sustained-release
(delayed-release) pharmaceutical apps.
Features: Insoluble; permeable or dispersible;
pH-independent
Properties: Liq.; sparingly permeable;
nonflamm.; 30% polymer
Storage: 18 mos. min. shelf life @ 0-30 C
(preferably @ 5-25 C)

**Eudragit® RS PO** [Röhm GmbH
http://www.roehm.de; Röhm Am.
http://www.rohmamerica.com]

Chem. Descrip.: Ammonio methacrylate
copolymer Type B USP/NF
Uses: Excipient for sustained-release
(delayed-release) pharmaceutical apps.
Features: Insoluble; permeable or dispersible;
pH-independent
Properties: Gran.; sparingly permeable; flash pt.
none; 97% polymer
Storage: 36 mos. min. shelf life @ < 30 C

**Eudragit® S 100** [Röhm GmbH
http://www.roehm.de; Röhm Am.
http://www.rohmamerica.com]

Chem. Descrip.: Methacrylic acid copolymer
Type B USP/NF
Uses: Excipient for controlled-release
pharmaceuticals, enteric coatings
Features: pH-dependent
Properties: Powd.; sol. in intestinal fluid from pH
7; 95% polymer
Storage: 36 mos. min. shelf life @ < 30 C

**Eudragit® S 12.5** [Röhm GmbH
http://www.roehm.de; Röhm Am.
http://www.rohmamerica.com]

Chem. Descrip.: Methacrylic acid copolymer
Type B USP/NF in isopropyl alcohol
Uses: Excipient for controlled-release
pharmaceuticals, enteric coatings; resistant
to gastric fluid so that release occurs in the
colon
Features: pH-dependent
Properties: Liq.; sol. in intestinal fluid from pH 7;
flash pt. 13.5 C; 12.5% polymer
Storage: 36 mos. min. shelf life @ 10-30 C; do
not store @ < 5 C

**Eumulgin® B1** [Cognis/Care Chems.; Cognis
Canada]

Chem. Descrip.: Ceteareth-12 JCID
CAS 68439-49-6
Uses: Emulsifier for pharmaceutical o/w
emulsions; emollient, bodying agent,
conditioner for ointments, creams
Properties: Waxy solid; sol. in alcohols,
hydrocarbons, and most org. solvs.; sp.gr.
0.95; solid. pt. 50-68 F; HLB 12.0; hyd. no. 69-
74; pH 6.0-7.5 (1%); nonionic; 100% conc.
Storage: 1 yr. min. storage stability in sealed
original containers at temps. below 30 C

**Eumulgin® B2** [Cognis/Care Chems.; Cognis
Canada; Cognis Iberica
http://www.es.cognis.com]

Chem. Descrip.: Ceteareth-20 NF/BP
CAS 68439-49-6
Uses: Emulsifier for pharmaceutical o/w
emulsions; emulsifier, emollient, bodying
agent, conditioner for ointments, creams
Regulatory: NF, BP, JCIC compliance
Properties: Wh. to sh. waxy flakes; sol. in
alcohols, hydrocarbons, and most org. solvs.;
dens. 1.001-1.005 g/cm3 (70 C); solid. pt. 39-
42 C; HLB 15.5; acid no. 0.5 max.; sapon. no.
1 max.; hyd. no. 49-55; cloud pt. 90-94 C (1%
in 5% NaCl); pH 6.0-7.5 (1%); nonionic; 1% max.
water
Toxicology: TSCA listed
Storage: 1 yr. min. storage stability in sealed
original containers at temps. below 40 C,
under dry conditions

**Eumulgin® B3** [Cognis
http://www.cognis.de; Cognis Canada]

Chem. Descrip.: Ceteareth-30
CAS 68439-49-6
Uses: Emulsifier for pharmaceutical w/o
emulsions, transparent gels and creams
Regulatory: NF, BP, JCIC compliance
Properties: Waxy solid; sp.gr. 1.001-1.005;
sol. in alcohols, hydrocarbons, and most org. solvs.;
dens. 1.001-1.005 g/cm3 (70 C); solid. pt. 39-
42 C; HLB 15.5; acid no. 0.5 max.; sapon. no.
1 max.; hyd. no. 49-55; cloud pt. 90-94 C (1%
in 5% NaCl); pH 6.0-7.5 (1%); nonionic; 1% max.
water
Toxicology: TSCA listed
Storage: 1 yr. min. storage stability in closed
original containers at temps. below 40 C,
under dry conditions
Trade Name Reference

original containers at temps. below 40 C, under dry conditions

Eumulgin® HRE 40 PH [Cognis
http://www.cognis.de]
Chem. Analysis: Dioxan ≤ 10 ppm; heavy metals ≤ 10 ppm; water ≤ 3%; ash ≤ 0.3%
CAS 61788-85-0
Uses: Emulsifier, solubilizer for the production of aq. pharmaceutical preparations
Properties: Wh. to sl. yel., lard-like fat mass; mild odor; acid value ≤ 2.0; hydroxyl value 60-80; iodine value ≤ 5.0; sapon. value 45-69; nonionic

Eumulgin® L [Cognis/Care Chems.; Cognis GmbH/Care Chems.
http://www.cognis.com]
Chem. Descrip.: PPG-2-ceteareth-9
Uses: Emulsifier, solubilizer for pharmaceuticals, esp. low alcohol content formulas
Properties: Lt. yel. cl. free-flowing liq., faint char. odor; sol. in alcohols, hydrocarbons, and most org. solvs.; acid no. 1 max.; hyd. no. 145-155; pH 6.0-7.5 (1%); nonionic; 100% conc.
Storage: 1 yr. min. storage life in sealed containers @ R.T., protected from dampness and frost

Eumulgin® RO 35 PH [Cognis
http://www.cognis.de]
Chem. Analysis: Ethylene oxide ≤ 1 ppm; dioxan ≤ 10 ppm; heavy metals ≤ 10 ppm; water ≤ 3%; ash ≤ 0.3%
CAS 61791-12-6
Uses: Emulsifier, solubilizer for fat sol. vitamins and essential oils
Properties: Yellowish liq.; mild odor; acid value ≤ 2.0; hydroxyl value 65-82; iodine value 25-35; sapon. value 60-75; nonionic

Eumulgin® SML 20 [Cognis/Care Chems.; Cognis Iberica http://www.es.cognis.com]
Chem. Descrip.: Polysorbate 20 NF/BP/DAB
CAS 9005-64-5
Uses: Solubilizer and emulsifier for pharmaceutical preps.
Properties: Lt. yel. liq.; HLB 16.7; acid no. 2 max.; iodine no. 5 max.; sapon. no. 40-50; hyd. no. 96-108; pH 7.5-8.0 (10%); nonionic; 100% conc.
Toxicology: Nontoxic
Storage: 1 yr. min. storage stability in sealed original containers at temps. below 30 C, protected from humidity and frost

Eumulgin® SMO 20 [Cognis/Care Chems.]
Chem. Descrip.: Polysorbate 80 BP, German pharmacopoeia
CAS 9005-65-6
Uses: Emulsifier, solubilizer for pharmaceutical creams, ointments, o/w emulsions
Properties: Ylsh. brn. visc. liq. to paste; acid no. 2 max.; iodine no. 18-24; sapon. no. 45-55; hyd. no. 65-80; nonionic
Toxicology: Nontoxic
Storage: 1 yr. min. storage life in sealed, moisture-protected original containers at temps. below 30 C

Eumulgin® SMS 20 [Cognis/Care Chems.]
Chem. Descrip.: Polysorbate 60 BP, NF, German pharmacopoeia
CAS 9005-67-8
Uses: Emulsifier, solubilizer for pharmaceutical creams, ointments, liq. o/w emulsions
Properties: Cloudy med.-visc. to pasty wax, almost odorless; acid no. 2 max.; iodine no. 5 max.; sapon. no. 45-55; hyd. no. 81-96; nonionic
Storage: 1 yr. min. storage life in sealed moisture-protected original containers at temps. below 30 C

Eumulgin® VL 75 [Cognis GmbH/Care Chems.
http://www.cognis.com]
Chem. Descrip.: Lauryl glucoside, polyglyceryl-2 dipolyhydroxystearate, and glycerin
Uses: Emulsifier for pharmaceutical o/w emulsions
Features: Vegetable origin
Properties: Ylsh. cl. visc. liq.; typ. odor; visc. 4000 mPa•s; sapon. no. 50; flash pt. > 110 C; pH 5.5; nonionic; 25% water
Toxicology: Skin, eye and mucous membranes irritant
Environmental: Readily biodeg.; LC50 (fish) > 10-100 mg/l; EC0 (bacteria) > 100 mg/l
Precaution: Avoid open flames
Hazardous Decomp. Prods.: None
Storage: 1 yr. min. shelf life in sealed original containers stored below 30 C and protected from moisture; may become turbid below 15 C; heat to 45 C and stir to reverse
Trade Name Reference

**Eupergit® C** [Röhm GmbH
_http://www.roehm.de_]
Chem. Descrip.:  N,N’-Methylenebis (methacrylamide)/glycidyl methacrylate/allyl glycidyl ether/methacrylamide copolymer
Chem. Analysis:  0.93% min. oxirane content
Uses:  Carrier for enzyme immobilization in prod. of semisyn. antibiotics and chiral pharmaceuticals
Features:  Provides stable covalent binding of enzymes via oxirane groups
Properties:  Dry beads; 170 µm avg. particle size; bulk dens. 0.6 g/ml; water uptake ≈ 3 ml/g
Storage:  6 mos. min. storage stability @ < 8 C; 12 mos. min. storage stability @ < -15 C

**Eupergit® C M** [Röhm GmbH
_http://www.roehm.de_]
Chem. Descrip.:  N,N’-Methylenebis (methacrylamide)/glycidyl methacrylate/allyl glycidyl ether/methacrylamide copolymer
Chem. Analysis:  0.3% min. oxirane content
Uses:  Carrier for enzyme immobilization in prod. of semisyn. antibiotics and chiral pharmaceuticals
Features:  Provides stable covalent binding of enzymes via oxirane groups
Properties:  Spherical dry beads; 200 µm avg. particle size; bulk dens. 0.3 g/ml; water uptake ≈ 2 ml/g
Storage:  6 mos. min. storage stability @ < 8 C

**Eupergit® C250 L** [Röhm GmbH
_http://www.roehm.de_]
Chem. Descrip.:  N,N’-Methylenebis (methacrylamide)/glycidyl methacrylate/allyl glycidyl ether/methacrylamide copolymer
Chem. Analysis:  0.36% min. oxirane content
Uses:  Carrier for enzyme immobilization in prod. of semisyn. antibiotics and chiral pharmaceuticals
Features:  Provides stable covalent binding of enzymes via oxirane groups
Properties:  Spherical dry beads; 190 µm avg. particle size; bulk dens. 0.3 g/ml; water uptake ≈ 3 ml/g
Storage:  6 mos. min. storage stability @ < 23 C, 12 mos. @ < 8 C, 18 mos. @ < -15 C

**Eur-Amid ME** [EOC Belgium
_http://www.eocgroup.com_]
Chem. Descrip.:  Cocamide DEA
Chem. CAS:  68603-42-9; EINECS/ELINCS 271-657-0
Uses:  Anti-irritant for anionic surfactants
Features:  Glycerin-free; softens aggressive props. of anionic surfactants
Properties:  Golden yel. cl. liq.; char. odor; sol. in IPA, xylene; disp. in water; sp.gr. 1.02 (20 C); visc. 2250 cps max. (20 C); m.p. 0 C; b.p. 185 C; flash pt. none; pH 9-11; nonionic; 89% min. amide
Toxicology:  LD50 (oral, rat) 2700 mg/kg; eye irritant; mildly irritating to skin; contains diethanolamine (5% max.);
Environmental:  > 90% biodeg.
Precaution:  Incompat. with strong oxidizers, copper and copper alloys
Hazardous Ingredients:  Diethanolamine (5% max.)
Hazardous Decomp. Prods.:  CO, CO2, NOx (caused by fire); possible formation of nitrosamine vapors
Storage:  Store above 0 C

**Eur-Amid V** [EOC Belgium
_http://www.eocgroup.com_]
Chem. Descrip.:  Cocamide DEA
Chem. CAS:  68603-42-9; EINECS/ELINCS 271-657-0
Uses:  Anti-irritant for anionic surfactants
Features:  Softens aggressive props. of anionic surfactants
Properties:  Golden yel. cl. liq.; char. odor; sol. in IPA, xylene; disp. in water; sp.gr. 1.02 (20 C); visc. 2250 cps max. (20 C); m.p. 0 C; b.p. 185 C; flash pt. none; pH 9-11; nonionic; 81% min. amide
Toxicology:  LD50 (oral, rat) 2700 mg/kg; eye irritant; mildly irritating to skin; contains diethanolamine (5% max.);
Environmental:  > 90% biodeg.
Precaution:  Incompat. with strong oxidizers, copper and copper alloys
Hazardous Ingredients:  Diethanolamine (5% max.)
Storage:  Store above 0 C

**Eutanol® G** [Cognis/Care Chems.; Cognis Canada; Cognis GmbH/Care Chems.
_http://www.cognis.com_]
Chem. Descrip.:  Octyldodecanol
Uses:  Lubricant, emollient, spreading agent for pharmaceuticals, creams, lotions, depilatories, antiperspirants; carrier for oil-sol. active ingreds.; pigment dispersant
Features:  Stable to hydrolysis
Regulatory:  NF, DAB, JCIC compliance
Trade Name Reference

Properties: Lt. yel. cl. oily liq., pract. odorless and tasteless; sol. in alcohols, esters, cosmetic oils, glycols, ketones, aromatics; insol. in water; m.w. 300; dens. 0.835-0.845 (20 C); visc. 58-64 mPa*s (20 C); acid no. 0.1 max.; iodine no. 8 max.; sapon. no. 5.0; hyd. no. 175-190; cloud pt. < -20 C; ref. index 1.4535-1.4555 (20 C); 90% min. conc.

Storage: 1 yr. min. storage stability in original sealed containers at temps. below 30 C

Eutanol® G16 [Cognis/Care Chems.; Cognis Canada; Cognis GmbH/Care Chems. http://www.cognis.com]

Chem. Descrip.: Hexyldecanol
CAS 2425-77-6; EINECS/ELINCS 219-370-1
Uses: Emollient for pharmaceuticals; carrier for oil-sol. active ingreds.; dispersant for pigments; spreading agent

Features: Stable to hydrolysis

Properties: Lt. yel. cl. oily liq.; m.w. 250; sp.gr. 0.835-0.840; visc. 40-45 mPa*s; acid no. 0.5 max.; iodine no. 10 max.; sapon. no. 10 max.; hyd. no. 200-225; cloud pt. < -40 C; ref. index 1.4400-1.4600; 85% min. conc.

Storage: 1 yr. min. storage stability in original sealed containers at temps. below 30 C; protect against humidity

Evatek™ #174 [Rhodia Organics http://www.rhodia-ppa.com/ppa/home.jsp]

Chem. Descrip.: Ethylvanillin See Ethyl vanillin
CAS 121-32-4; EINECS/ELINCS 204-464-7
Uses: Pharmaceutical synthesis
Features: Not intended for food applics.

Regulatory: Australia AICS; China; Canada DSL; Europe EINECS; Japan ENCS; Philippines PICCS; South Korea

Properties: Flakes

Toxicology: TSCA listed

Exceparl BB [Kao Corp. http://www.kao.co.jp]

Chem. Descrip.: Behenyl behenate
CAS 17671-27-1; EINECS/ELINCS 241-646-5
Uses: Solvent for pharmaceuticals
Properties: Wh. solid; insol. in ethanol; very sl. sol. in n-hexane, xylene; m.p. 73 C; acid no. 1 max.; iodine no. 2 max.; sapon. no. 84-90; hyd. no. 7 max.

Exceparl BS [Kao Corp. http://www.kao.co.jp]

Chem. Descrip.: Butyl stearate
CAS 123-95-5; EINECS/ELINCS 204-666-5

Uses: Solvent for pharmaceuticals

Properties: APHA color 25 max. solid; sol. in n-hexane, xylene, ethanol; m.p. 21-24 C; visc. 7.7 cp (30 C); acid no. 1 max.; iodine no. 2 max.; sapon. no. 167-178

Exceparl EH-P [Kao Corp. http://www.kao.co.jp]

Chem. Descrip.: 2-Ethyl hexyl palmitate See Octyl palmitate
CAS 29806-73-3; EINECS/ELINCS 249-862-1
Uses: Solvent for pharmaceuticals

Properties: APHA color 100 max. liq.; sol. in n-hexane, xylene (10%); very sl. sol. in ethanol (10%); visc. 13 cst (30 C); acid no. 1 max.; sapon. no. 147-157

Exceparl EH-S [Kao Corp. http://www.kao.co.jp]

Chem. Descrip.: 2-Ethyl hexyl stearate See Octyl stearate
CAS 22047-49-0; EINECS/ELINCS 244-754-0
Uses: Solvent for pharmaceuticals

Properties: APHA color 100 max. liq.; sol. in n-hexane, xylene (10%); very sl. sol. in ethanol (10%); visc. 13 cst (30 C); acid no. 1 max.; sapon. no. 140-150; hyd. no. 3 max.

Exceparl HO [Kao Corp. http://www.kao.co.jp]

Chem. Descrip.: Cetyl octanoate
CAS 59130-69-7; EINECS/ELINCS 261-619-1
Uses: Emollient for pharmaceuticals

Properties: Lt. ylsh. cl. liq.; sol. (@ 10%) in ethanol, n-hexane, xylene; visc. 14 mPa•s (20 C); acid no. 0.2 max.; iodine no. 1 max.; hyd. no. 3 max.; cloud pt. 5 C max.; 100% act.

Toxicology: TSCA listed

Exceparl IB-OL [Kao Corp. http://www.kao.co.jp]

Chem. Descrip.: Isobutyl oleate
CAS 84988-79-4; EINECS/ELINCS 284-868-8
Uses: Solvent for pharmaceuticals

Properties: G5 max. color liq.; sol. in n-hexane, xylene, ethanol; f.p. 10 C max.; visc. 14 mPa*s (20 C); acid no. 0.2 max.; iodine no. 1 max.; hyd. no. 3 max.; cloud pt. 5 C max.; 100% act.

Toxicology: TSCA listed

Exceparl IPM [Kao Corp. http://www.kao.co.jp]

Chem. Descrip.: Isopropyl myristate
CAS 110-27-0; EINECS/ELINCS 203-751-4
Uses: Emollient for pharmaceuticals

Properties: G5 max. color liq.; sol. in n-hexane, xylene, ethanol; f.p. 10 C max.; visc. 9.0 cp (20 C); acid no. 1 max.; iodine no. 78-88; sapon. no. 163-165 (ester v.); hyd. no. 5 max.

Exceparl IPM [Kao Corp. http://www.kao.co.jp]

Chem. Descrip.: IPM See Isopropyl myristate
CAS 110-27-0; EINECS/ELINCS 203-751-4
Uses: Emollient for pharmaceuticals

Properties: APHA 20 max. cl. liq.; sol. (@ 10%) in ethanol, n-hexane, xylene; visc. 10 mPa*s (20 C); f.p. 2-8 C; acid no. 0.5 max.; iodine no.
Trade Name Reference

Exceparl IPP [Kao Corp.  
http://www.kao.co.jp]

Chem. Descrip.:  IPP  See Isopropyl palmitate
CAS 142-91-6; EINECS/ELINCS 205-571-1

Uses:  Emollient for pharmaceuticals
Properties:  APHA 20 max. cl. liq.; sol. (@ 10%) in ethanol, n-hexane, xylene; visc. 10 mPa•s (20 C); f.p. 8-15 C; acid no. 0.5 max.; iodine no. 1 max.

Exceparl L-OL [Kao Corp.  
http://www.kao.co.jp]

Chem. Descrip.:  Lauryl oleate
CAS 36078-10-1; EINECS/ELINCS 252-862-4

Uses:  Solvent for pharmaceuticals
Properties:  APHA color 250 max. liq.; sol. in n-hexane, xylene; very sl. sol. in ethanol; visc. 17 cst (30 C); acid no. 5 max.; iodine no. 49-50; sapon. no. 120-130; hyd. no. 10 max.

Exceparl MC [Kao Corp.  
http://www.kao.co.jp]

Chem. Descrip.:  Methyl coconate  See Methyl cocoate
CAS 61788-59-8; EINECS/ELINCS 262-988-1

Uses:  Solvent for pharmaceuticals
Properties:  APHA color 120 max. liq.; sol. in ethanol, xylene (10%); clearly sol. to hazy in n-hexane (10%); visc. 2.9 cp; m.p. -5 C max.; acid no. 0.1 max.; iodine no. 10 max.; sapon. no. 244-260

Exceparl ML-85 [Kao Corp.  
http://www.kao.co.jp]

Chem. Descrip.:  Methyl laurate
CAS 111-82-0; EINECS/ELINCS 203-911-3

Uses:  Solvent for pharmaceuticals
Properties:  APHA color 20 max. liq.; sol. in ethanol, xylene, n-hexane (10%); visc. 2.6 cp; m.p. -5 C max.; acid no. 0.1 max.; iodine no. 0.5 max.; sapon. no. 258-268

Exceparl M-OL [Kao Corp.  
http://www.kao.co.jp]

Chem. Descrip.:  Methyl oleate
CAS 112-62-9; EINECS/ELINCS 203-992-5

Uses:  Solvent for pharmaceuticals
Properties:  APHA color 100 max. liq.; sol. in ethanol, xylene, n-hexane (10%); visc. 5.5 cp; m.p. -5 C max.; acid no. 1 max.; iodine no. 80-90; sapon. no. 189-199

Exceparl MS [Kao Corp.  
http://www.kao.co.jp]

Chem. Descrip.:  Methyl stearate
CAS 112-61-8; EINECS/ELINCS 203-990-4

Uses:  Solvent for pharmaceuticals
Properties:  APHA color 100 max. solid; sol. in ethanol, xylene, n-hexane (10%); visc. 5.5 cp; m.p. 31-35 C; acid no. 1 max.; iodine no. 0.7 max.; sapon. no. 189-195

Exceparl MT [Kao Corp.  
http://www.kao.co.jp]

Chem. Descrip.:  Methyl tallowate
CAS 61788-61-2; EINECS/ELINCS 262-989-7

Uses:  Solvent for pharmaceuticals
Properties:  APHA color 150 max. liq.; sol. in ethanol, xylene, n-hexane (10%); iodine no. 45-55; sapon. no. 190-200

Exceparl MY-M [Kao Corp.  
http://www.kao.co.jp]

Chem. Descrip.:  Myristyl myristate
CAS 3234-85-3; EINECS/ELINCS 221-787-9

Uses:  Solvent for pharmaceuticals
Properties:  APHA color 50 max. solid; sl. sol. in ethanol; m.p. 36-46 C; acid no. 1 max.; iodine no. 1 max.; sapon. no. 115-135; hyd. no. 6 max.

Exceparl OD-B [Kao Corp.  
http://www.kao.co.jp]

Chem. Descrip.:  Octyldodecyl behenate
Uses:  Solvent for pharmaceuticals
Properties:  Lt. yel. solid; sol. in n-hexane, xylene; m.p. 20 C; acid no. 1 max.; iodine no. 0.4; sapon. no. 90.7; hyd. no. 3.2

Exceparl OD-M [Kao Corp.  
http://www.kao.co.jp]

Chem. Descrip.:  Octyldodecyl myristate
CAS 22766-83-2; EINECS/ELINCS 255-623-2

Uses:  Emollient for pharmaceuticals
Properties:  APHA color 100 max. cl. liq.; disp. in ethanol; sol. in n-hexane, xylene; visc. 22 mPa•s (30 C); acid no. 1 max.; iodine no. 5 max.; hyd. no. 5 max.; cloud pt. 7 C max.

Exceparl OL-OL [Kao Corp.  
http://www.kao.co.jp]

Chem. Descrip.:  Oleyl oleate
CAS 3687-45-4; EINECS/ELINCS 222-980-4

Uses:  Solvent for pharmaceuticals
Properties:  GP max. color liq.; sol. in n-hexane, xylene; very sl. sol. in ethanol; visc. 24 cst (30 C); acid no. 1 max.; iodine no. 70-79; sapon. no. 101-111; hyd. no. 10 max.

Exceparl O-OL [Kao Corp.  
http://www.kao.co.jp]

Chem. Descrip.:  Octyl oleate
Uses:  Solvent for pharmaceuticals
Properties:  G10 max. color liq.; sol. in ethanol, n-
hexane, xylene; acid no. 5-10; iodine no. 61-71; sapon. no. 140-150

**Exceparl SS** [Kao Corp.](http://www.kao.co.jp)

Chem. Descrip.: **Stearyl stearate**
CAS 2778-96-3; EINECS/ELINCS 220-476-5
Uses: **Solvent for pharmaceuticals**
Properties: APHA color 100 max. solid; sl. sol. in n-hexane, xylene; very sl. sol. in ethanol; m.p. 56-66 C; acid no. 1 max.; iodine no. 1 max.; sapon. no. 97-107 (ester v.); hyd. no. 7 max.

**Exceparl TD-S** [Kao Corp.](http://www.kao.co.jp)

Chem. Descrip.: **Isotridecyl stearate**
CAS 31565-37-4; EINECS/ELINCS 250-703-3
Uses: **Solvent for pharmaceuticals**
Properties: APHA color 100 max. cl. liq.; sol. in n-hexane, xylene; very sl. sol. in ethanol; visc. 24 cst (30 C); acid no. 1 max.; sapon. no. 115-125

**Explocel®** [Blanver Farmoquimica](http://www.blanver.com.br); Blanver USA

Chem. Descrip.: **Sodium salt of carboxymethyl starch** See Sodium starch glycolate
CAS 9063-38-1
Uses: **Disintegrant, dissolution aid in pharmaceutical tablets, capsules, pellets, wet and dry granulation, dry blends, foods, veterinary prods.**
Features: Absorbs water rapidly; resulting swelling causes rapid disintegration of tablets and granules
Properties: Wh. to sl. yel. relatively free-flowing powd.; ≤ 10% on 200 mesh; odorless; tasteless; visc. 24 cps; pH 6.90 (1 g/30 ml water); 3.56% loss on drying
Use Level: 0.5-5%

**Explosol® SSG-1** [Blanver Farmoquimica](http://www.blanver.com.br); Blanver USA

Chem. Descrip.: **Sodium starch glycolate**
CAS 9063-38-1
Uses: **Disintegrant, dissolution aid in pharmaceutical tablets, capsules, pellets, wet and dry granulation, dry blends, foods, veterinary prods.**
Features: Rapid disintegration; enhanced dissolution
Regulatory: FDA registered
Properties: Wh. powd.; 42 µ avg. particle size; 100% -140 mesh; insol. in org. solvs.; disp. in cold water (2% aq.); m.w. 500,000-1,000,000; bulk dens. 0.780 g/cc; visc. 200 cps max. (4% disp.); m.p. chars at 200 C; pH 5.5-7.5
Use Level: 2-4% (tablets)
Storage: 4 yr. shelf-life stability when stored in tightly closed containers at 75-80 F and 65-70% r.h.

**Explostat® CLV** [JRS Pharma](http://www.jrspharma.com)

Chem. Descrip.: **Sodium starch glycolate**
CAS 9063-38-1
Uses: **Disintegrant for direct compression or wet or dry granulation of pharmaceutical tablets**
Features: Enhanced dissolution; compat. with aspirin
Regulatory: NF, JPE, Type A BP, Type A Ph.Eur. compliance
Properties: Wh. fine powd.; 35-55 µm median particle size; 100% through #140 screen; insol. in org. solvs.; disperses in cold water @ 2% w/v and forms highly sat. layer; m.w. ≈ 500,000-1,000,000; dens. 0.85-0.99 g/ml
Trade Name Reference

(tapped); visc. ≤ 40 cps; pH 5.5-7.5; 2.8-4.2% assay; sodium glycolate (< 2.0%); total sodium (< 10%)
Use Level: 2-4%
Storage: 3 yr. shelf life in unopened tightly closed containers @ < 25°C and 60% r.h.

Explotab® Low pH [JRS Pharma http://www.jrspharma.com]
Chem. Descrip.: Sodium starch glycolate NF, BP, Ph.Eur.
CAS 9063-38-1
Uses: Disintegrant for direct compression or wet or dry granulation of pharmaceutical tablets
Features: Rapid disintegration; enhanced dissolution; enhanced stability and shelf life; compat. with aspirin; high bulk dens.
Regulatory: NF, BP, Type B Ph.Eur. compliance
Properties: Wh. fine powd.; 35-55 µm avg. particle size; 100% through #140 screen; insol. in org. solvs.; disperses in cold water @ 2% w/v and forms highly sat. layer; m.w. ~ 500,000-1,000,000; dens. 0.85-0.99 g/ml (tapped); visc. ≤ 100 cps; pH 3-5; 2.8-4.2% assay (NF), 2-3.4% (Ph.Eur. & BP); < 8% total sodium content
Use Level: 2-4%
Storage: 3 yr. shelf life in unopened tightly closed containers @ < 25°C and 60% r.h.

Chem. Descrip.: Stearic acid
CAS 67701-03-5; EINECS/ELINCS 266-928-5
Uses: Emollient, emulsifier, thickener in pharmaceuticals
Regulatory: Not regulated for transport
Environmental: Biodeg. (28 d) > 90%
Precaution: Wear gloves, goggles, overall skin protection; avoid entry to sewers, drain and surface water
Storage: Store @ R.T. in original sealed container protected from heat sources

Chem. Descrip.: Stearic acid
CAS 67701-03-5; EINECS/ELINCS 266-928-5
Uses: Emollient, emulsifier, thickener in pharmaceuticals
Regulatory: Not regulated for transport
Environmental: Biodeg. (28 d) > 90%
Precaution: Wear gloves, goggles, overall skin protection; avoid entry to sewers, drain and surface water
Storage: Store @ R.T. in original sealed container protected from heat sources

Chem. Descrip.: Stearic acid
CAS 67701-03-5; EINECS/ELINCS 266-928-5
Uses: Emollient, emulsifier, thickener in pharmaceuticals
Regulatory: Not regulated for transport
Environmental: Biodeg. (28 d) > 90%
Precaution: Wear gloves, goggles, overall skin protection; avoid entry to sewers, drain and surface water
Storage: Store @ R.T. in original sealed container protected from heat sources

Extract of Hog Bile [Am. Labs http://www.americanlaboratories.com]
Chem. Descrip.: Hog bile extract contg. hydeoxycholic acid, sodium glycohyodeoxycholate, sodium taurohydeoxycholate
Uses: Nutritive pharmaceutical additive
Storage: Preserve in tight containers with moisture-proof liners, in cool, dry place

Extract of Ox Bile NF XI [Am. Labs http://www.americanlaboratories.com]
Chem. Descrip.: Ox bile extract contg. 45-50% sodium taurocholate, 25% sodium glycocholate
EINECS/ELINCS 206-643-5
Uses: Nutritive pharmaceutical additive
Properties: Lt. color; sol. in water, alcohol; pH 6.5-7.5
Storage: Preserve in tight containers with moisture-proof liners, in cool, dry place

Extra Olein™ 99 [NOF http://www.nof.co.jp]
Chem. Descrip.: Purified oleic acid
CAS 112-80-1; EINECS/ELINCS 204-007-1
**Trade Name Reference**

**Uses:** Emulsifier, solubilizer, stabilizer, solvent in pharmaceuticals, inhalants, orals, topicals

**Features:** High-purity grade

**Regulatory:** JPE

**Properties:** > 99% oleic acid

**Extrapone Avocado Special** [Symrise USA](http://www.symrise.com)
- **Chem. Descrip.:** Water, avocado (Persea gratissima) extract, ethoxydiglycol, propylene glycol, butylene glycol
- **Uses:** Anti-irritant, skin protectant, soothing agent in cosmetics

**Extra White Maize Starch** [Roquette](http://www.roquette.fr)
- **Chem. Descrip.:** Corn starch **See Corn (Zea mays) starch**
- **CAS:** 9005-25-8; EINECS/ELINCS 232-679-6
- **Uses:** Diluent and disintegrant for pharmaceutical tablets and capsules

**Exxal® 11** [ExxonMobil](http://www.exxonmobilchemical.com)
- **Chem. Descrip.:** Undecyl alcohol
- **CAS:** 112-42-5; EINECS/ELINCS 203-970-5
- **Uses:** Syn. flavoring agent in pharmaceuticals

**EZA®** [Albemarle](http://www.albemarle.com)
- **Chem. Descrip.:** Zeolite A, a hydrated sodium aluminosilicate **See Sodium silicoaluminate**
- **CAS:** 1344-00-9; EINECS/ELINCS 215-684-8
- **Uses:** Anticaking agent in dentifrices

**Fancol™ ALA** [Fanning](http://www.fanncorp.com)
- **Chem. Descrip.:** Cetyl acetate, acetylated lanolin alcohol
- **Uses:** Conditioner, emollient, pigment binder, spreading agent, oil coupling agent, solvent, lubricant for topical pharmaceutical ointments

**Fancol™ CB** [Fanning](http://www.fanncorp.com)
- **Chem. Descrip.:** Cocoa butter obtained from roasted seeds of *Theobroma cacao* **See Cocoa (Theobroma cacao) butter**
- **CAS:** 8002-31-1; EINECS/ELINCS 310-127-6
- **Uses:** Skin conditioner, occlusive solvent, skin protectant for OTC drug prods.

**Fancol™ CB Extra** [Fanning](http://www.fanncorp.com)
- **Chem. Descrip.:** Cocoa butter USP obtained from roasted seeds of *Theobroma cacao* **See Cocoa (Theobroma cacao) butter**
- **CAS:** 8002-31-1; EINECS/ELINCS 310-127-6
- **Uses:** Skin conditioner, occlusive solvent, skin protectant for OTC drug prods.

**Fancol™ CH** [Fanning](http://www.fanncorp.com)
- **Chem. Descrip.:** Cholesterol NF
- **CAS:** 57-88-5; EINECS/ELINCS 200-353-2
- **Uses:** Film-former, lubricant, protectant, anti-irritant, cell regeneration aid, emulsifier for w/o formulations, pharmaceuticals; precursor for prod. of vitamin D

**Fancol™ CO-30** [Fanning](http://www.fanncorp.com)
- **Chem. Descrip.:** PEG-30 castor oil
- **CAS:** 61791-12-6
- **Uses:** Surfactant, emulsifier for pharmaceutical ointments

**Fancol™ HL** [Fanning](http://www.fanncorp.com)
- **Chem. Descrip.:** Hydrogenated lanolin
- **CAS:** 8031-44-5; EINECS/ELINCS 232-452-1
- **Uses:** Emollient, moisturizer, lubricant, plasticizer, humectant, mold release agent, chemical intermediate for pharmaceuticals

**Fancol™ HL-20** [Fanning](http://www.fanncorp.com)
- **Properties:** Amber cl. liq.; acid no. 2 max.; sapon. no. 70-80; hyd. no. 70-80; nonionic
Trade Name Reference

Fancol™ LA [Fanning
http://www.fanncorp.com]
Chem. Descrip.: Lanolin alcohol
CAS 8027-33-6; EINECS/ELINCS 232-430-1
Uses: Emollient, thickener, emulsifier,
stabilizer, plasticizer, superfatting agent,
dye dispersant, lubricant, humectant, mold
release agent, conditioner, chemical
intermediate for pharmaceuticals
Properties: Lt. amber to yel. wax-like solid, faint
char. odor; sol. in CCl4, chloroform, IPM (@ 75
C), min. oil (@ 75 C), oleyl alcohol; insol.
water; m. p. 56 C; acid no. 3 max.; sapon. no.
12 max.; nonionic; 100% act.

Fancol™ HL-24 [Fanning
http://www.fanncorp.com]
Chem. Descrip.: PEG-20 hydrogenated lanolin
CAS 68648-27-1
Uses: Solubilizer, superfatting agent, gellant
for pharmaceuticals, microemulsions
Properties: Pale cream soft waxy solid, very sl.
odor; m. p. 40-50 C; sapon. no. 7 max.; hyd.
no. 55 max.

Fancol™ Karite Butter [Fanning
http://www.fanncorp.com]
Chem. Descrip.: Shea butter See Shea butter
(Butyrospermum parkii)
CAS 977026-99-5; EINECS/ELINCS 293-515-7
Uses: Skin anti-irritant for body lotions,
winter sports prods., wrinkle creams,
soaps, shave foams, shampoos, balmsams
Features: Occlusive; melts at body temp.; good
spreadability
Properties: Pale off-wh. to ylsh. pasty solid;
odorless; insol. in water; m. p. 32-45 C; b. p. >
500 F; acid no. 0.5 max.; iodine no. 60-70;
sapon. no. 178-190; hyd. no. 5; flash pt. > 200
F
Toxicology: Fine oil mists may be hazardous
(nuisance particulates)
Precaution: Oil-soaked rags may
spontaneously heat and ignite when
exposed to air; incompat. with strong
oxidizing agents
Hazardous Decomp. Prods.: None

Fancol™ Karite Extract [Fanning
http://www.fanncorp.com]
Chem. Descrip.: Shea butter extract See Shea
butter (Butyrospermum parkii) extract
CAS 68424-59-9
Uses: Emollient, spreading agent for
ointments, suppositories
Properties: Gardner 3 max. color; sol. in castor
oil; sl. sol. in min. oil, propylene glycol,
glycerin, ethyl acetate, isopropyl lanolate;
isol. in water; iodine no. 63-70

Fancol™ LAO [Fanning
http://www.fanncorp.com]
Chem. Descrip.: Laneth-15
CAS 61791-20-6
Uses: Emollient, emulsifier for stable o/w
pharmaceutical emulsions and
microemulsions
Properties: Yel. solid; HLB 12.7; acid no. 5 max.;
hyd. no. 85; nonionic; 100% act.

Fancol™ VB [Fanning
http://www.fanncorp.com]
Chem. Descrip.: Meadowfoam (Limnanthes alba) seed oil; Shea butter
(Butyrospermum parkii) extract
Uses: Primary w/o emulsifier, sec. o/w
emulsifier/stabilizer, moisturizer,
humectant in pharmaceuticals, creams,
lotions, ointments
Features: Where non-animal derived ingreds.
are important; exc. water absorb.
Properties: Gardner 3 max. color; sol. in castor
oil, min. oil (70 visc.), ethyl acetate, IPM; insol.
in propylene glycol, glycerin, water; acid no.
0.5 max.; iodine no. 85 max.; sapon. no. 165
max.; nonionic

Fancor® Lanwax [Fanning
http://www.fanncorp.com]
Chem. Descrip.: Lanolin wax
CAS 68201-49-0; EINECS/ELINCS 269-220-4
Uses: Firming agent, emollient, consistency agent, bodying agent, stabilizer in pharmaceutical w/o systems
Properties: M.p. 42-52 C; iodine no. 18-36; sapon. no. 80-110; hyd. no. 8-35

Fancor® Uni-enbase [Fanning http://www.fanncorp.com]
Chem. Descrip.: Cetearyl alcohol, polysorbate 65, PEG-8 dimethicone meadowfoamate, meadowfoam amidopropylidimethyl betaine See Dimethicone copolyol eicosanate
CAS 8005-44-5; 9005-67-8; 157479-51-1; 412328-58-6
Uses: Emulsifying wax for antiperspirants, depilatories
Properties: M.p. 50-54 C; pH (3% aq.) 5.5-7.0; acid value 2.0 max.; sapon. value 20 max.; iodine value 3.5 max.; hydroxyl value 130-165

Chem. Descrip.: Cyclomethicone and dimethicone
Uses: Pharmaceutials (topical ointments, emulsions)
Regulatory: Japanese approvals
Properties: Cl. gel, odorless; sl. sol. in castor oil, glycerin, ethanol, dist. water; insol. in IPM, min. oil, propylene glycol; visc. > 10^6 cps; pH 4.5-5.5

Fancorsil HA Super [Fanning http://www.fanncorp.com]
Chem. Descrip.: Glycereth polyacrylate copolyol
Uses: Pharmaceuticals (topical ointments, emulsions)
Properties: Cl. visc. liq.; sp.gr. 0.960; visc. 5000 cps min.; 100% solids

Fancorsil LIM 1 [Fanning http://www.fanncorp.com]
Chem. Descrip.: Dimethicone copolyol meadowfoamate
Uses: Softener and conditioner for topical pharmaceutical ointments
Properties: Yel. liq.; sol. in water; acid no. 8 max.

Fancorsil LIM 2 [Fanning http://www.fanncorp.com]
Chem. Descrip.: Dimethicone copolyol meadowfoamate
Uses: Softener and conditioner for topical pharmaceutical ointments
Properties: Sl. yel. wax; insol. in water; acid no. 5 max.

Fancorsil LIM 3 [Fanning http://www.fanncorp.com]
Chem. Descrip.: Dimethicone copolyol meadowfoamate
Uses: Softener and conditioner for topical pharmaceutical ointments
Properties: Yel. liq.; disp. in water; acid no. 5 max.

Fancorsil P [Fanning http://www.fanncorp.com]
Chem. Descrip.: Cyclomethicone, dimethicone, and polyisobutene
Uses: Conditioner, emollient, lubricant for pharmaceuticals
Features: Exc. afterfeel
Properties: Cl. liq.; sol. in ethyl acetate, IPM; sl. sol. in castor and min. oils, propylene glycol, glycerin; insol. in water; iodine no. 40-50; sapon. no. 80-90

Fanoliv™ Butter [Fanning http://www.fanncorp.com]
Chem. Descrip.: Hydrogenated olive oil See Olive (Olea europaea) oil
CAS 68334-28-1; EINECS/ELINCS 269-820-6
Uses: Emollient, stabilizer, visc. adjuster in skin cleansers, sunscreen creams, depilatories and APD sticks
Properties: Ivory solid; low, char. odor; m.p. 50-58 C; acid value 2.0 max.; sapon value 175-200; iodine value 50-70

Fanoliv™ Wax [Fanning http://www.fanncorp.com]
Chem. Descrip.: Olive oil See Olive (Olea europaea) oil
CAS 68334-28-1; EINECS/ELINCS 269-820-6
Uses: Emollient, stabilizer, visc. adjuster in skin cleansers, sunscreen creams, depilatories and APD sticks
Properties: Off-wh. to ivory solid; low, char. odor; m.p. 54-60 C; acid value 2.0 max.; sapon value 175-200; iodine value 5.0 max.; peroxide value 5.0 max.
antidandruff shampoos

**Fascat® 9100** [Arkema/Additives http://www.arkema.com]
Chem. Descrip.: Butylstannoic acid See Hydroxybutyltin oxide
CAS 2273-43-0
Uses: Esterification, transesterification, and polycondensation catalyst for mfg. of prods. intended for pharmaceutical apps. (e.g., coatings, epoxies, hybrid resins)
Regulatory: FDA 21CFR §175.105, 175.300, 176.170, 177.1210, 177.2420; SARA Title II Immediate Hazard
Properties: Amorphous wh. powd.; insol. in water and org. solvs.; dissolves in acids with reaction; sp.gr. 1.46; bulk dens. 0.84 g/cc; m.p. 300 C (dec.); 57% tin
Toxicology: LD50 (oral, rat) > 20,000 mg/kg; OSHA TWA PEL 0.1 mg/m³ (organic tin compounds); minimally irritating to eyes and skin; TSCA listed
Environmental: LC50 (red killfish, 48 h) 54.9 mg/l; slightly toxic
Precaution: Wear safety goggles and gloves; avoid breathing in dust; avoid contact with bases and reducing agents
Hazardous Decomp. Prods.: COₓ and SnOₓ upon thermal decomposition
Storage: Store in closed containers, in a secure area to prevent container damage and subsequent spillage

**Fascat® 9120** [Arkema/Additives http://www.arkema.com]
Chem. Descrip.: Butyltin tris-2-ethylhexoate See Butyltin tris (2-ethylhexoate)
CAS 23850-94-4; EINECS/ELINCS 245-912-1
Uses: Esterification, transesterification, and polycondensation catalyst for mfg. of prods. intended for pharmaceutical apps. (e.g., coatings, epoxies, hybrid resins)
Regulatory: FDA 21CFR §175.105, 175.300, 176.170, 177.1210, 177.2420; SARA Title II Immediate Hazard
Properties: Pale yel. liq.; sol. in toluene, hydrocarbons, halocarbons, esters, etc.; insol. in water; m.w. 605; sp.gr. 1.13; m.p. -27.4 C; 20% tin
Toxicology: LD50 (oral, rat) 3,200 to >5,000 mg/kg; LD50 (dermal, rabbit) >8,000 mg/kg; ACGIH STEL 0.2 mg/m³ (organic tin compounds); may cause eye and skin irritation; TSCA listed
Precaution: Avoid contact with eyes, skin and clothing; avoid breathing dust
Hazardous Decomp. Prods.: None
Storage: Store in a cool, dry place; upon exposure to direct sunlight, product may degrade to an organic tin salt

**Dibutyltin oxide**

**Fascat® 9201** [Arkema/Additives http://www.arkema.com]
Chem. Descrip.: Dibutyltin oxide
CAS 818-08-6; EINECS/ELINCS 212-449-1
Uses: Esterification, transesterification, and polycondensation catalyst for mfg. of prods. intended for pharmaceutical apps. (e.g., coatings, epoxies, hybrid resins)
Regulatory: FDA 21CFR §175.105, 175.300, 176.170, 177.1210, 177.2420; SARA Title II Immediate Hazard
Properties: Wh. powd. no characteristic odor; insol. in water, org. solvs.; will dissolve in acids, alcohols, esters with reaction; sp.gr. 1.62; bulk dens. 0.70 g/cc; m.p. > 290 C (dec.); > 97% act.
Toxicology: LD50 (oral, rat) 260 to >794 mg/kg; LD50 (dermal, rabbit) >2,000 mg/kg; ACGIH STEL 0.2 mg/m³ (organic tin compounds); moderately toxic; may cause eye and skin burns on contact; TSCA listed
Environmental: LC50 (red killfish, 48 h) 1 ppm; LC50 (zebra fish, 96 h) >3.10 mg/l
Precaution: Avoid contact with eyes, skin and clothing
Hazardous Decomp. Prods.: COₓ and SnOₓ upon thermal decomposition
Storage: Store in closed containers, in a secure area to prevent container damage and subsequent spillage

**Cetearyl alcohol**, **ceteareth-3**, **hydrogenated lard**, **sodium lauryl sulfate**

**Fattylan** [Esperis http://www.esperis.it]
Chem. Descrip.: Cetearyl alcohol, ceteareth-3, hydrogenated lard, sodium lauryl sulfate
Uses: Humectant, emulsifier for pharmaceuticals

**Fermax® Adjuvant 27** [GE Silicones http://www.gesilicones.com]
Chem. Descrip.: Organomodified silicone
Uses: Antifoam in fermentation (pharmaceuticals)

**Ferronyl®** [ISP http://www.ispcorp.com]
Chem. Descrip.: Carbonyl iron FCC See Iron
CAS 7439-89-6; EINECS/ELINCS 231-096-4
Uses: Dietary iron supplement for vitamins, pharmaceuticals, multivitamins, iron supplements, children's chewable multivitamins, elixirs
Trade Name Reference

Filmex® A-2 190 Proof \[Equistar http://www.equistarchem.com\]

Chem. Descrip.: Ethyl alcohol (79.6%), methyl alcohol (13.0%), MIBK (0.9%), water (6.5%)

See Alcohol; Methyl isobutyl ketone

UN 1987

Uses: Solvent in chemical/pharmaceutical processing

Regulatory: SARA §311/312 acute health/chronic health/fire hazard, §313 reportable (MIBK, methanol); Calif. Prop. 65 reportable (ethanol, benzene); TSCA export notification required (MIBK)

Properties: Colorless liq.; invisible vapor; sweet alcohol-like odor; sol. in water; sp.gr. 0.7946 (60/60 F), 1.59 (vapor); dens. 6.768-6.778 lb/gal (60 F); vapor pressure 44.6 mm Hg; f.p. -144 C; b.p. 78.4 C; flash pt. (TCC) 13 C; autoignition temp. 363 C

Toxicology: May be irritating to eyes, upper respiratory tract; short-term exposure above 1000 ppm by inh. may cause CNS effects, headache, eye/nose/throat irritation; exposure > 1 h may cause dizziness, drowsiness, loss of appetite, inability to conc., GI effects, nausea, vomiting; prolonged/repeated skin contact may cause dermatitis; ing. may cause drunkenness, CNS depression, nausea, vomiting, diarrhea, liver damage, death; TSCA listed

Environmental: On land, apt to volatilize, biodegrade, or leach to ground water; in water, photolysis, oxidation, biodegradation expected to occur; not expected to bioconcentrate in aquatic organisms; LC50 (rainbow trout, 96 h) 10,400 ppm; prevent entry into sewers

Precaution: Flamm. liq.; flamm. limits 3.3-19 vol.%; material can burn with little or no visible flame; vapors are heavier than air, may flash back; prevent entry into basements, confined areas; ground and bond containers; avoid static discharges; avoid strong oxidizers, excessive heat, sparks, open flame; contact with acetyl chloride or other oxidizing agents may result in violent reaction

Hazardous Decomp. Prods.: Combustion: CO

HMIS: Health 1, Flammability 3, Reactivity 0

Filmex® A-2 Anhydrous \[Equistar http://www.equistarchem.com\]

Chem. Descrip.: Ethyl alcohol (85.8%), methyl alcohol (13.3%), MIBK (1.0%) See Alcohol; Methyl isobutyl ketone

UN 1987

Uses: Solvent in chemical/pharmaceutical processing

Regulatory: SARA §311/312 acute health/chronic health/fire hazard, §313 reportable (MIBK, methanol); Calif. Prop. 65 reportable (ethanol, benzene); TSCA export notification required (MIBK)

Properties: Colorless liq.; invisible vapor; sweet alcohol-like odor; sol. in water; sp.gr. 0.7936-0.7946 (60/60 F), 1.59 (vapor); dens. 6.768-6.778 lb/gal (60 F); vapor pressure 44.6 mm Hg; f.p. -144 C; b.p. 78.4 C; flash pt. (TCC) 13 C; autoignition temp. 363 C

Toxicology: May be irritating to eyes, upper respiratory tract; short-term exposure above 1000 ppm by inh. may cause CNS effects, headache, eye/nose/throat irritation; exposure > 1 h may cause dizziness, drowsiness, loss of appetite, inability to conc., GI effects, nausea, vomiting; prolonged/repeated skin contact may cause dermatitis; ing. may cause drunkenness, CNS depression, nausea, vomiting, diarrhea, liver damage, death; TSCA listed

Environmental: On land, apt to volatilize, biodegrade, or leach to ground water; in water, photolysis, oxidation, biodegradation expected to occur; not expected to bioconcentrate in aquatic organisms; LC50 (rainbow trout, 96 h) 10,400 ppm; prevent entry into sewers

Precaution: Flamm. liq.; flamm. limits 3.3-19 vol.%; material can burn with little or no visible flame; vapors are heavier than air, may flash back; prevent entry into basements, confined areas; ground and bond containers; avoid static discharges; avoid strong oxidizers, excessive heat, sparks, open flame; contact with acetyl chloride or other oxidizing agents may result in violent reaction

Hazardous Decomp. Prods.: Combustion: CO

HMIS: Health 1, Flammability 3, Reactivity 0

Storage: 1 yr. shelf life; store under ambient conditions out of direct sunlight
Trade Name Reference

Filmex® B 190 Proof [Equistar http://www.equistarchem.com]
Chem. Descrip.: Ethyl alcohol (79.6%), methyl alcohol (8.6%), isopropyl alcohol (4.4%), MIBK (0.9%), water (6.5%) See Alcohol; Methyl isobutyl ketone
UN 1987
Uses: Solvent in chemical/pharmaceutical processing
Regulatory: FDA 27CFR §20.112; SARA §311/312 acute health/chronic health/fire hazard, §313 reportable (MIBK, methanol, IPA); Calif. Prop. 65 reportable (ethanol, benzene); TSCA export notification required (MIBK)
Properties: Colorless liq.; invisible vapor; mild sweet alcohol-like nonresidual odor; sol. in water; sp.gr. 0.8058-0.8070 (77/77 F), 1.59 (vapor); dens. 6.766-6.776 lb/gal (60 F); vapor pressure 44.6 mm Hg; f.p. -144 C; b.p. 78.4 C; flash pt. (TCC) 16 C; autoignition temp. 363 C
Toxicology: May be irritating to eyes, upper respiratory tract; short-term exposure above 1000 ppm by inh. may cause CNS effects, headache, eye/nose/throat irritation; exposure > 1 h may cause dizziness, drowsiness, loss of appetite, inability to conc., GI effects, nausea, vomiting; prolonged/repeated skin contact may cause dermatitis; ing. may cause drunkenness, CNS depression, nausea, vomiting, diarrhea, liver damage, death; TSCA listed
Environmental: On land, apt to volatilize, biodegrade, or leach to ground water; in water, photolysis, oxidation, biodegradation expected to occur; not expected to bioconcentrate in aquatic organisms; LC50 (rainbow trout, 96 h) 10,400 ppm; prevent entry into sewers
Precaution: Flamm. liq.; flamm. limits 3.3-19 vol.%; material can burn with little or no visible flame; vapors are heavier than air, may flash back; prevent entry into basements, confined areas; ground and bond containers; avoid static discharges; avoid strong oxidizers, excessive heat, sparks, open flame; contact with acetyl chloride or other oxidizing agents may result in violent reaction
Hazardous Decomp. Prods.: Combustion: CO
HMIS: Health 1, Flammability 3, Reactivity 0

Filmex® B Anhydrous [Equistar http://www.equistarchem.com]
Chem. Descrip.: Ethyl alcohol (85.8%), methyl alcohol (8.8%), isopropyl alcohol (4.5%), MIBK (1.0%) See Alcohol; Methyl isobutyl ketone
UN 1987
Uses: Solvent for pharmaceutical processing
Regulatory: FDA 27CFR §20.112; SARA §311/312 acute health/chronic health/fire hazard, §313 reportable (MIBK, methanol, IPA); Calif. Prop. 65 reportable (ethanol, benzene); TSCA export notification required (MIBK)
Properties: Colorless liq.; invisible vapor; mild sweet alcohol-like nonresidual odor; sol. in water; sp.gr. 0.7869-0.7879 (77/77 F), 1.59 (vapor); dens. 6.608-6.616 lb/gal (60 F); vapor pressure 44.6 mm Hg; f.p. -144 C; b.p. 78.4 C; flash pt. (TCC) 13 C; autoignition temp. 363 C
Toxicology: May be irritating to eyes, upper respiratory tract; short-term exposure above 1000 ppm by inh. may cause CNS effects, headache, eye/nose/throat irritation; exposure > 1 h may cause dizziness, drowsiness, loss of appetite, inability to conc., GI effects, nausea, vomiting; prolonged/repeated skin contact may cause dermatitis; ing. may cause drunkenness, CNS depression, nausea, vomiting, diarrhea, liver damage, death; TSCA listed
Environmental: On land, apt to volatilize, biodegrade, or leach to ground water; in water, photolysis, oxidation, biodegradation expected to occur; not expected to bioconcentrate in aquatic organisms; LC50 (rainbow trout, 96 h) 10,400 ppm; prevent entry into sewers
Precaution: Flamm. liq.; flamm. limits 3.3-19 vol.%; material can burn with little or no visible flame; vapors are heavier than air, may flash back; prevent entry into basements, confined areas; ground and bond containers; avoid static discharges; avoid strong oxidizers, excessive heat, sparks, open flame; contact with acetyl chloride or other oxidizing agents may result in violent reaction
Hazardous Decomp. Prods.: Combustion: CO
HMIS: Health 1, Flammability 3, Reactivity 0

Film® C 190 Proof [Equistar http://www.equistarchem.com]
Chem. Descrip.: Ethyl alcohol (83.36%),
methyl alcohol (4.4%), ethyl acetate (4.47%), MIBK (0.93%), water (6.84%) See Alcohol; Methyl isobutyl ketone

UN 1170
Uses: Solvent for pharmaceutical processing

Regulatory: FDA 27CFR §20.112; SARA §311/312 acute health/chronic health/fire hazard, §313 reportable (MIBK, methanol); Calif. Prop. 65 reportable (ethanol, benzene); TSCA export notification required (MIBK, ethyl acetate)

Properties: Colorless liq.; invisible vapor; mild sweet alcohol-like nonresidual odor; sol. in water; sp.gr. 0.7914-0.7923 (77/77 F), 1.59 (vapor); dens. 6.645-6.653 lb/gal (60 F); vapor pressure 44.6 mm Hg; f.p. -144 C; b.p. 78.4 C; flash pt. (TCC) 13 C; autoignition temp. 363 C

Toxicology: May be irritating to eyes, upper respiratory tract; short-term exposure above 1000 ppm by inh. may cause CNS effects, headache, eye/nose/throat irritation; exposure > 1 h may cause dizziness, drowsiness, loss of appetite, inability to conc., GI effects, nausea, vomiting; prolonged/repeated skin contact may cause dermatitis; ing. may cause drunkenness, CNS depression, nausea, vomiting, diarrhea, liver damage, death; TSCA listed

Environmental: On land, apt to volatilize, biodegrade, or leach to ground water; in water, photolysis, oxidation, biodegradation expected to occur; not expected to bioconcentrate in aquatic organisms; LC50 (rainbow trout, 96 h) 10,400 ppm; prevent entry into sewers

Precaution: Flamm. liq.; flamm. limits 3.3-19 vol.%; material can burn with little or no visible flame; vapors are heavier than air, may flash back; prevent entry into basements, confined areas; ground and bond containers; avoid static discharges; avoid strong oxidizers, excessive heat, sparks, open flame; contact with acetyl chloride or other oxidizing agents may result in violent reaction

Hazardous Decomp. Prods.: Combustion: CO
HMIS: Health 1, Flammability 3, Reactivity 0

Filmex® C Anhydrous  [Equistar http://www.equistarchem.com]
Chem. Descrip.: Ethyl alcohol (90.0%), methyl alcohol (4.5%), ethyl acetate (4.6%), MIBK (1.0%) See Alcohol; Methyl isobutyl ketone

Uses: Solvent for pharmaceutical processing
Filmex® D-2 190 Proof  [Equistar
http://www.equistarchem.com]

Chem. Descrip.:  Ethyl alcohol (76.2%), methyl alcohol (16.7%), MIBK (0.9%), water (6.3%)
See Alcohol; Methyl isobutyl ketone

UN 1170
Uses:  Solvent in chemical/pharmaceutical processing

Regulatory:  SARA §311/312 acute health/chronic health/fire hazard, §313 reportable (MIBK, methanol); Calif. Prop. 65 reportable (ethanol, benzene); TSCA export notification required (MIBK)

Properties:  Colorless liq.; invisible vapor; mild sweet alcohol-like nonresidual odor; sol. in water; sp.gr. 0.7871-0.7882 (77/77 F), 1.59 (vapor); dens. 6.609-6.618 lb/gal (60 F); vapor pressure 44.6 mm Hg; f.p. -144 C; b.p. 78.4 C; flash pt. (TCC) 13 C; autoignition temp. 363 C

Toxicology:  May be irritating to eyes, upper respiratory tract; short-term exposure above 1000 ppm by inh. may cause CNS effects, headache, eye/nose/throat irritation; exposure > 1 h may cause dizziness, drowsiness, loss of appetite, inability to conc., GI effects, nausea, vomiting; prolonged/repeated skin contact may cause dermatitis; ing. may cause drunkenness, CNS depression, nausea, vomiting, diarrhea, liver damage, death; TSCA listed

Environmental:  On land, apt to volatilize, biodegrade, or leach to ground water; in water, photolysis, oxidation, biodegradation expected to occur; not expected to bioconcentrate in aquatic organisms; LC50 (rainbow trout, 96 h) 10,400 ppm; prevent entry into sewers

Precaution:  Flamm. liq.; flamm. limits 3.3-19 vol.%; material can burn with little or no visible flame; vapors are heavier than air, may flash back; prevent entry into basements, confined areas; ground and bond containers; avoid static discharges; avoid strong oxidizers, excessive heat, sparks, open flame; contact with acetyl chloride or other oxidizing agents may result in violent reaction

Hazardous Decomp. Prods.:  Combustion: CO
HMIS:  Health 1, Flammability 3, Reactivity 0

Filmtec® [Dow
http://www.dow.com]

Chem. Descrip.:  Spiral wound, composite thin film membranes consisting of ultrathin polyamide barrier, polysulfone interlayer, and polyester web  See Polysulfone resin

Uses:  Membrane for liq. separations for medical applics., pharmaceutical mfg. for reverse osmosis and nanofiltration processes
Trade Name Reference

**Features:** Superior resist. to chem. hydrolysis and microbiological attack
**Regulatory:** Meets all FDA requirements for food contact

**Finlac™ DC** [Danisco Sweeteners](http://www.daniscosweeteners.com)
**Chem. Descrip.:** Lactitol
**CAS** 585-86-4; **EINECS/ELINCS** 209-566-6
**Uses:** Nutritive sweetener and excipient for directly compressible pharmaceutical tablets
**Features:** Reduced caloric level; requires no binders; nonhygroscopic
**Regulatory:** EP

**Flojel® 60** [Nat'l. Starch & Chem./Food Innovation](http://www.foodinnovation.com)
**Chem. Descrip.:** Modified food starch derived from corn [See Food starch, modified](#)
**Uses:** Gellant, film-former for pharmaceutical tablets
**Features:** Thin boiling; low hot visc.; used at higher solids than conventional starches; produces jellies with exc. sheen and desirable stringy texture
**Regulatory:** OSHA nonhazardous; DOT not regulated

**Flojel® 65** [Nat'l. Starch & Chem./Food Innovation](http://www.foodinnovation.com)
**Chem. Descrip.:** Food starch modified derived from corn [See Food starch, modified](#)
**Uses:** Gellant, film-former for pharmaceutical tablets
**Features:** Thin boiling; low hot visc.; used at higher solids than conventional starches; produces jellies with exc. sheen and desirable stringy texture
**Regulatory:** FDA 21 CFR §172.892; DOT nonregulated; SARA §313 nonreportable

**Fizul MD-318C** [Finetex](http://www.finetexinc.com)
**Chem. Descrip.:** Disodium oleamido MIPA sulfosuccinate [See Disodium oleamido MIPA-sulfosuccinate](#)
**CAS** 43154-85-4; **EINECS/ELINCS** 256-120-0
**Uses:** Detergent, cleanser, conditioner for hand cleansers, i.e., liq. soaps, antibacterial washes
**Features:** Cosmetic grade; high foam; compat. with cationics
**Regulatory:** FD 21 CFR §172.892; DOT nonregulated; SARA §313 nonreportable

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**Properties:** Liqu.; anionic; 35% conc.
**Toxicology:** Low toxicity
Trade Name Reference

static electricity

Flojel® G [Nat'l. Starch & Chem./Food Innovation
http://www.foodinnovation.com]
Chem. Descrip.: Food starch modified derived from corn See Food starch, modified
Uses: Gellant, film-former for pharmaceutical tablets
Features: Thin boiling; low hot visc.; used at higher solids than conventional starches; produces clear jellies with exc. sheen and desirable stringy texture
Properties: Wh. to off-wh. powd.; starch odor; insol. in water; m.w. > 10,000; sp.gr. 1.5; pH ≈ 5.5 (1%); = 11% moisture
Toxicology: Possible physical irritant from dust particles; particulates may scratch eye surfs. and cause mech. irritation; possible nuisance dust by inh.; maintain below TWA 10 mg/m³; low oral toxicity; low toxicity by skin contact; TSCA listed
Precaution: Potential for dust explosion; minimize dust generation
Hazardous Decomp. Prods.: Does not undergo spontaneous decomp.; typ. combustion prod.: CO, CO₂, N, water
Storage: Store @ ambient temps.; sensitive to static electricity

Florence Green Seal-8 [Horsehead Corp. http://www.horsehead.com]
Chem. Descrip.: French process zinc oxide (99.9%), cadmium (0.005%), lead (0.001%)
CAS 1314-13-2; 7440-43-9; 7439-92-1; EINECS/ELINCS 215-222-5; 231-152-8; 231-100-4
Uses: Pigment in pharmaceuticals
Features: High chem. purity; exc. phys. props.; superior color and brightness
Regulatory: DOT nonregulated
Properties: Wh. powd.; odorless; 0.33 μ mean particle size; 99.99% through 325 mesh; negligible sol. in water; sp.gr. 5.6; apparent dens. 40 lb/ft³; dens. 46.7 lb/solid gal; b.p. 3587 F; surf. area 3.2 m²/g; oil absorp. 12 lb/100 lb pigment; 99.8% act.
Toxicology: ZnO: OSHA-PEL TWA total dust 15 mg/m³, respirable 5 mg/m³; ACGIH TLV TWA total dust 10 mg/m³, TWA respirable 5 mg/m³, STEL respirable 10 mg/m³; inhalation of high levels of ZnO may be harmful; chronic exposure may cause respiratory tract irritation, nasopharyngitis, laryngitis
Precaution: Use safety eyewear; protective gloves rec. to prevent skin irritation in hypersensitive individuals; practice good hygiene; avoid prolonged contact with skin
NFPS: Health 0, Flammability 0, Reactivity 0

Fluilan [Croda Inc http://www.croda.com; http://www.crodausa.com; Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: Lanolin oil
CAS 70321-63-0; EINECS/ELINCS 274-559-6
Uses: Conditioner, emollient, penetrant, superfatting agent for topical pharmaceuticals, ointments, creams, and lotions
Properties: Pale yel. visc. liq., pleasant char. odor; sol. in min. oils, IPA, fatty alcohol, hydrocarbons, and aerosol propellants; cloud pt. 18 C max.; pour pt. 8 C max.; acid no. 2 max.; iodine no. 24-40; sapon. no. 80-100; nonionic; 100% act.
Use Level: 2-10%
Toxicology: LD₅₀ (oral, rat) > 20 g/kg; mild skin and eye irritant

Fluilan AWS [Croda Inc http://www.croda.com; http://www.crodausa.com]
Chem. Descrip.: PPG-12-PEG-65 lanolin oil
Uses: Emollient, cleanser, and solubilizer for topical pharmaceuticals; solubilizes actives into hydroalcoholic systems
Properties: Amber visc. liq., nearly odorless; sol. in water and alcohol; disp. in propylene glycol; cloud pt. 18 C max.; pour pt. 8 C max.; acid no. 3 max.; iodine no. 7-15; sapon. no. 10-25; pH 5-7 (10%); nonionic
Use Level: 0.1-2%
Toxicology: LD₅₀ (oral, rat) > 5 g/kg; moderate skin irritant, minimal eye irritant

F-Melt™ C [Fuji Chem. Ind. USA]
Chem. Descrip.: Proprietary formulation of carbohydrates, disintegrants and inorganic ingredients
Uses: Fast-dissolving excipient system for direct compression oral tablets containing active pharmaceutical ingredients and lubricants
Features: Faster disintegration time than Type M
Regulatory: USP/NF, JP, EP
Properties: Wh. spherical powd.; avg. particle size 100-120 μ; ≤ 6% loss on drying

F-Melt™ M [Fuji Chem. Ind. USA]
Chem. Descrip.: Proprietary formulation of
Trade Name Reference

**carbohydrates, disintegrants and inorganic ingredients**

*Uses:* Fast-dissolving excipient system for direct compression oral tablets containing active pharmaceutical ingredients and lubricants

*Features:* Higher flowable and improved tablet quality needs than Type C

*Properties:* Wh. spherical powd.; avg. particle size 100-120 μ; ≤ 6% loss on drying

**Foam Blast® 5** [Lubrizol Perf. Prods.]

*Chem. Descrip.:* Silicone antifoam compd.

*Uses:* Antifoam, foam control agent in the synthesis of pharmaceuticals

*Properties:* Solv. disp.; emulsifiable in water; 100% act.

**Foam Blast® 7** [Lubrizol Perf. Prods.]

*Chem. Descrip.:* Silicone antifoam compd.

*Uses:* Antifoam, foam control agent in the synthesis of pharmaceuticals

*Properties:* Solv. disp.; emulsifiable in water; 100% act.

**Foam Blast® 10** [Lubrizol Perf. Prods.]

*Chem. Descrip.:* Silicone defoamer

*Uses:* Defoamer for starch and proteinaceous systems, pharmaceuticals

*Features:* Food-grade; rec. for systems requiring an acid or alkaline tolerant defoamer

*Properties:* Wh. emulsion; disp. in water; dens. 8.50 lb/gal; visc. 2100 cps; flash pt. (PMCC) none; pH 6.5-7.5; nonionic; 10% act.

**Foam Blast® 102K** [Lubrizol Perf. Prods.]

*Chem. Descrip.:* Silicone defoamer

*Uses:* Defoamer for pharmaceuticals

*Features:* Food-grade; rec. for systems requiring an acid or alkaline tolerant defoamer

*Properties:* FDA §173.340, 33 ppm max., kosher compliance

**Foamkill® 8G** [Crucible]

*Chem. Descrip.:* Silicone compd.

*Uses:* Defoamer for nonaq. systems, drug extraction and separation, drug processing, vitamins, fermentation

*Regulatory:* FDA §173.340

*Properties:* Gray sl. hazy liq., bland odor; insol. in water; sp.gr. 1.020; b.p. > 300 F; flash pt. (TOC) > 300 F; 100% act.

**Foamkill® 618** [Crucible]

*Chem. Descrip.:* Org. and organo-silicone conc.

*Uses:* Defoamer for pharmaceuticals

*Regulatory:* FDA §175.105, 176.210, 178.3120

*Properties:* Pale yel.; hydrocarbon odor; disp. in water; sp.gr. 0.930; visc. 1000 cps; flash pt. (PMCC) none; pH 6.5-7.5; nonionic; 10% act.

**Foamkill® 810F** [Crucible]

*Chem. Descrip.:* Dimethicone emulsion

*Uses:* Defoamer for aq. systems, pharmaceuticals

*Regulatory:* FDA §173.340, 175.105, 176.210, 178.3120

*Properties:* Pale yel.; hydrocarbon odor; disp. in water; sp.gr. 0.930; visc. 1000 cps; flash pt. (TOC) 250 F; nonionic; 100% act.

*Storage:* 1 yr. min. shelf stability

**Foamkil® 150K** [Lubrizol Perf. Prods.]

*Chem. Descrip.:* Silicone emulsion

*Uses:* Defoamer for starch and proteinaceous systems, pharmaceuticals

*Features:* Food-grade; rec. for systems requiring an acid or alkaline tolerant defoamer

*Regulatory:* FDA §173.340

*Properties:* Wh. emulsion; disp. in water; dens. 8.30 lb/gal; visc. 2100 cps; flash pt. (PMCC) none; pH 7.0; nonionic; 30% act.

**Foamkill® 618** [Crucible]

*Chem. Descrip.:* Org. and organo-silicone conc.

*Uses:* Defoamer for pharmaceuticals

*Regulatory:* FDA §175.105, 176.210

*Properties:* Pale yel.; hydrocarbon odor; disp. in water; sp.gr. 0.930; visc. 1000 cps; flash pt. (PMCC) none; pH 6.5-7.5; nonionic; 10% act.

*Storage:* 1 yr. min. shelf stability
Trade Name Reference

visc. 300 cps; b.p. 212 F; flash pt. (TOC) > 212 F; pH 7.0; nonionic; 10% act.

Toxicology: May cause eye irritation, mild skin irritation on prolonged/repeated contact

Foamkill® 830 [Crucible]
Chem. Descrip.: Organo-silicone emulsion  See Silicone emulsion
Uses: Defoamer for pharmaceuticals
Properties: Emulsion; very sm. particle size
Use Level: 0.1-0.4%

Foamkill® 830F [Crucible]
Chem. Descrip.: Dimethicone
CAS 9006-65-9
Uses: Defoamer for aq. systems, pharmaceuticals
Properties: Wh. pourable visc. liq.; bland odor; disp. in water; sp.gr. 0.993; dens. 8.3 lb/gal; visc. 3500 cps; b.p. 212 F; flash pt. (TOC) > 212 F; pH 7.0; nonionic; 30% act.
Toxicology: May cause eye irritation, mild skin irritation on prolonged/repeated contact
Hazardous Decomp. Prods.: Produces SiO2 upon burning
Storage: Avoid freezing

Foamkill® 836A [Crucible]
Chem. Descrip.: Silicone emulsions  See Silicone emulsion
Uses: Defoamer for pharmaceuticals
Regulatory: FDA §175.105, 175.300, 176.200, 176.210
Properties: Wh. pourable viscous liq.; sp.gr. 1.00; visc. 3000 cps; pH 8.0; nonionic

Foamox DML [Alzo  http://www.alzointernational.com]
Chem. Descrip.: Lauramine oxide
CAS 1643-20-5; EINECS/ELINCS 216-700-6
Uses: Emollient, lubricant for skin acne prods.
Properties: Gardner 1 max. cl. liq.; sol. in water, most hydrophilic solvs. such as alcohols, glycols, triols, polyols, glycol ethers; m.w. 235; sp.gr. 0.99; pH 6-8 (1%); Ross-Miles foam 210 mm (initial); nonionic; 29% min. amine oxide in water
Environmental: Fully biodeg.

Foamtaine SCAB [Alzo  http://www.alzointernational.com]
Chem. Descrip.: Cocamidopropyl hydroxy sulfate  See Cocamidopropyl hydroxysultaine

Folic Acid 10% Trituration [DSM Nutritional Prods. USA  http://www.nutraaccess.com]
Chem. Descrip.: Folic acid USP, FCC in calcium phosphate dibasic carrier
Uses: Vitamin essential for forming certain body proteins and genetic materials for cell nucleus; for pharmaceutical formulations
Properties: Lt. yel. to ylsh. orange powd.; 100% through 80 mesh; insol. in water and org. solvs.; m.w. 441.40; 10% min. assay
Precaution: Fairly stable in presence of air and heat, but destroyed by light and uv radiation
Storage: Store in tight, light-resist. containers; avoid exposure to moisture and excessive heat

Foamtaine SCAB [Alzo  http://www.alzointernational.com]
Chem. Descrip.: Cocamidopropyl hydroxy sulfate  See Cocamidopropyl hydroxysultaine

Fonoline® White [Chembura  http://www.chemtura.com]
Chem. Descrip.: Petrolatum USP
CAS 8027-32-5; EINECS/ELINCS 232-373-2
Uses: Lubricant, process aid in pharmaceuticals; emollient in petrol. jelly, ointments, sun care prods., suppositories
Features: Soft, low m.p.
Regulatory: FDA 21CFR §172.880
Properties: Wh., odorless; visc. 9-14 cSt (100 C); m.p. 53-58 C; pour pt. 20 F

Fonoline® Yellow [Chembura  http://www.chemtura.com]
Chem. Descrip.: Petrolatum USP
CAS 8027-32-5; EINECS/ELINCS 232-373-2
Uses: Emollient in petrol. jelly, ointments, sun care prods., suppositories
Features: Soft, low m.p.
Regulatory: FDA 21CFR §172.880
Properties: Yel., odorless; visc. 9-14 cSt (100 C); m.p. 53-58 C; pour pt. 20 F; HLB 8.4; 99% solids

Foremost® NF Lactose 310 [Foremost Farms USA http://www.foremostfarms.com]
Chem. Descrip.: Lactose monohydrate
Chem. Analysis: 0.5% max. loss on drying
CAS 10039-26-6
Uses: Excipient for pharmaceuticals
Features: Does not contain milk or whey proteins
Regulatory: USP/NF, EP, JP
Properties: Wh. crystalline powd.; sl. sweet taste; 2% max. through USS #80 mesh; bulk dens. 0.60 g/ml (min.); tapped dens. 0.85 g/ml (min.)
Storage: Store away from moisture and excessive heat

Foremost® NF Lactose 312 [Foremost Farms USA http://www.foremostfarms.com]
Chem. Descrip.: Lactose monohydrate
Chem. Analysis: 0.5% max. loss on drying
CAS 10039-26-6
Uses: Excipient for pharmaceuticals
Features: Does not contain milk or whey proteins
Regulatory: USP/NF, EP, JP
Properties: Wh. crystalline powd.; sl. sweet taste; 1% max. through USS #140 mesh; bulk dens. 0.45 g/ml (min.); tapped dens. 0.70 g/ml (min.)
Storage: Store away from moisture and excessive heat

Foremost® NF Lactose 313 [Foremost Farms USA http://www.foremostfarms.com]
Chem. Descrip.: Lactose monohydrate
Chem. Analysis: 0.5% max. loss on drying
CAS 10039-26-6
Uses: Excipient for pharmaceuticals
Features: Does not contain milk or whey proteins
Regulatory: USP/NF, EP, JP
Properties: Wh. crystalline powd.; sl. sweet taste; particle size range 60-1230 μ; 20% min. through USS #140 mesh; bulk dens. 0.50 g/ml (min.); tapped dens. 0.60 g/ml (min.)
Storage: Store away from moisture and excessive heat

Foremost® NF Lactose 315 [Foremost Farms USA http://www.foremostfarms.com]
Chem. Descrip.: Spray-dried mixture of crystalline and amorphous lactose
Chem. Analysis: 1.0% max. loss on drying
CAS 63-42-3; EINECS/ELINCS 200-559-2
Uses: Excipient for pharmaceuticals
Features: Does not contain milk or whey proteins
Regulatory: USP/NF, EP, JP
Properties: Lt. yel. cream; Gardner color 6 max.; bland odor; insol. in water; b.p. >500 F; m.p. 42-52 C; sapon. value 2.0 max; acid value 1.0; flash pt. >500 F (COC)
Toxicology: Nonirritant to eyes; not likely to be absorbed through human skin
Environmental: Biodegrad.
Precaution: Avoid heat, flames, and oxidizing materials; wear goggles and gloves
Hazardous Decomp. Prods.: None

Forlan 200 [RITA http://www.ritacorp.com]
Chem. Descrip.: Petrolatum, lanolin alcohol
Chem. Analysis: 0.2% ash
CAS 8009-03-8; 8027-33-6; EINECS/ELINCS 232-373-2; 232-430-1
Uses: Emollient in topical pharmaceuticals
Features: Processed in pure USP hydrocarbons
Regulatory: USP
Properties: Lt. yel. cream; Gardner color 6 max.; bland odor; insol. in water; b.p. >500 F; m.p. 42-52 C; sapon. value 2.0 max; acid value 1.0; flash pt. >500 F (COC)
Toxicology: Nonirritant to eyes; not likely to be absorbed through human skin
Environmental: Biodegrad.
Precaution: Avoid heat, flames, and oxidizing materials; wear goggles and gloves
Hazardous Decomp. Prods.: None

Forlan 300 [RITA http://www.ritacorp.com]
Chem. Descrip.: Petrolatum, lanolin, lanolin alcohol
CAS 2009-03-8, 8006-54-0, 8027-33-6;
Trade Name Reference

EINECS/ELINCS 232-373-2, 232-348-6, 232-430-1
Uses: Emollient for pharmaceutical topicals
Features: Recommended for hypoallergenic preps.; processed in pure USP hydrocarbons
Properties: Lt. yel. cream; bland odor; insol. in water; m.p. 40-46 C; b.p. >500 F; acid no. 1.0 max; sapon. no. 25 max.; nonionic
Toxicology: Nonirritant to eyes; not likely to be absorbed through human skin
Environmental: Biodegrad.
Precaution: Avoid heat, flames, and oxidizing materials; wear goggles and gloves
Hazardous Decomp. Prods.: None

Forlan C-24 [RITA http://www.ritacorp.com]
Chem. Descrip.: Choleth-24 and ceteth-24
CAS 27321-96-6; 9004-95-9
Uses: Emulsifier, emulsion stabilizer, emollient, moisturizer, solubilizer, visc. modifier, pigment dispersant, plasticizer for pharmaceuticals
Properties: Wh. flakes; bland odor; sol. in alcohol, water; sp.gr. 0.98; vapor dens. > 1; b.p. > 212 F; flash pt. (COC) > 300 F; volatiles < 1%; nonionic; 100% conc.
Toxicology: LD50 (oral, albino rat) > 50 cc/kg
Precaution: Wear rubber gloves, safety glasses; incompat. with oxidizers
Hazardous Decomp. Prods.: Oxides of carbon
Storage: Keep away from heat, flames

Formaxx™ CaCO₃ 70 [Merck KGaA http://www.merck.de]
Chem. Descrip.: Calcium carbonate and sorbitol
Chem. Analysis: < 1% moisture content
CAS 471-34-1; 50-70-4; EINECS/ELINCS 207-439-9; 200-061-5
Uses: Excipient in antacids; calcium supplement in vitamin/mineral blends; taste masking agent
Features: Superior compaction props.; friability of tablets 0.2% max.
Regulatory: NF, EP, BP
Properties: Powd.; particle size < 212 μ < 10%; partially sol. in water; bulk dens. 70 g/100 ml; 67.0-72.0 % (calcium carbonate); 28.5-31.5 % (sorbitol)

Chem. Descrip.: Dried defatted powd. processed from beef livers
Properties: Nutritive pharmaceutical additive in tablets, capsules, and powders; diagnostic applications; taste masking of veterinary foods and drugs
Precaution: Avoid combustible substances
Storage: Store in cool, dry place

Freeze Dried Pork Liver Powder Undefatted [Am. Labs http://www.americanlaboratories.com]
Chem. Descrip.: Dried powd. processed from pork livers
Chem. Analysis: 6% max. loss on drying
Uses: Nutritive pharmaceutical additive in tablets, capsules, and powders; diagnostic applications; taste masking of veterinary foods and drugs
Properties: Powd.
Storage: Store in a cool dry place

Chem. Descrip.: Dried powd. processed from pork livers
Chem. Analysis: 6% max. loss on drying
Uses: Nutritive pharmaceutical additive in tablets, capsules, and powders; diagnostic applications; taste masking of veterinary foods and drugs
Properties: Powd.
Storage: Store in a cool dry place

Freeze Dried Pork Liver Powder Undefatted [Am. Labs http://www.americanlaboratories.com]
Chem. Descrip.: Dried powd. processed from pork livers
Chem. Analysis: 6% max. loss on drying
Uses: Nutritive pharmaceutical additive in tablets, capsules, and powders; diagnostic applications; taste masking of veterinary foods and drugs
Properties: Powd.
Storage: Store in a cool dry place

Chem. Descrip.: Dried powd. processed from pork livers
Chem. Analysis: 6% max. loss on drying
Uses: Nutritive pharmaceutical additive in tablets, capsules, and powders; diagnostic applications; taste masking of veterinary foods and drugs
Properties: Powd.
Storage: Store in a cool dry place

Frescolat MGA [Symrise USA http://www.symrise.com]
Chem. Descrip.: Menthone glycerin acetal
Chem. Analysis: 6% max. loss on drying
Uses: Cooling agent, flavoring agent in oral care prods.
Features: Mild cooling flavor
Regulatory: FEMA/GRAS approved
Properties: Colorless cl. liq.; faintly minty odor, easily masked by perfume oils; virtually tasteless; oil-sol.; m.w. 228.4; dens. 1.030; congeal pt. < -30 C; acid no. 1 max.; flash pt. > 100 C; ref. index 1.473-1.480; 98% min. assay
Use Level: 0.1-2.0%
Precaution: Avoid combustible substances
Storage: 1 yr. min. storage stability when stored in tightly sealed containers under cool
Trade Name Reference
conditions

Frescolat® ML [Symrise USA http://www.symrise.com]
Chem. Descrip.: Menthy lactate
CAS 59259-38-0; EINECS/ELINCS 261-678-3
Uses: Cooling agent, flavoring agent in oral care prods.
Features: Mild cooling flavor; good skin and mucous membrane compat.
Properties: Colorless liq. or solid, faintly minty odor, pract. tasteless; sol. in ethanol (50 vol. %), diethyl phthalate, min. oil, 1,2-propanediol; m.w. 228.4; acid no. 1 max.; flash pt. > 100 C; pH 4-8
Precaution: Avoid combustible substances

Fructofin® CM [Danisco Sweeteners http://www.daniscosweeteners.com]
Chem. Descrip.: Fructose, milled
CAS 57-48-7; EINECS/ELINCS 200-333-3
Uses: Sweetener for foods, pharmaceuticals
Properties: White crystalline powder with a very sweet taste

Fructofin® C [Danisco Sweeteners http://www.daniscosweeteners.com]
Chem. Descrip.: Fructose FCC, USP, NF
CAS 57-48-7; EINECS/ELINCS 200-333-3
Uses: Sweetener for pharmaceuticals
Features: Food grade; stable to air and heat
Properties: Wh. cryst. powd.; pract. odorless; very sweet taste; very sol. in water (≈ 3.5 g/ml); sol. in ethanol; sparingly sol. in ether; m.w. 180.16; m.p. 102-105 C; pH 4.5-7 (10%); 98% min. act.; 0.1% max. moisture
Toxicology: Relatively nontoxic by ing.; may cause skin/eye irritation; prolonged inh. (nuisance particle) may cause respiratory irritation
Precaution: Sl. fire hazard when exposed to heat or flame; may burn but does not ignite readily; dust-air mixts. may ignite or explode; avoid contact with strong oxidizers, excessive heat, sparks, open flame
Hazardous Decomp. Prods.: Thermal decomp. may release toxic/hazardous gases
Storage: 1 yr. shelf life in original sealed pkg. stored below 25 C and < 60% r.h.; hygroscopic

Fruisana [Danisco Sweeteners http://www.daniscosweeteners.com]
Chem. Descrip.: Fructose
CAS 57-48-7; EINECS/ELINCS 200-333-3
Uses: Sweetener for foods, pharmaceuticals

Fujicalin [Fuji Chem. Ind. USA]
Chem. Descrip.: Dibasic calcium phosphate anhyd. USP, JP, EP See Calcium phosphate dibasic
CAS 7757-93-9; EINECS/ELINCS 231-826-1
Uses: Excipient, flow aid, adsorbent for pharmaceutical direct compression tableting; tablet disintegrant
Features: Improved compressibility and flowability; easy blending; nonabrasive; exc. oil adsorption; partial or total replacement for microcryst. cellulose; nonflamm.
Regulatory: USP, JP, EP
Properties: Wh. powd.; 115 µm mean particle size; odorless; tasteless; sol. in dil. HCl, nitric acid, acetic acid, ammonium citrate sol's., min.acids; partly insol. in water, alcohol; m.w. 136.06; sp.gr. 2.78; sp. vol. 2.5 ml/g (loose), 2.2 ml/g (tapped); surf. area 40 m²/g; oil adsorp. 0.94 ml/g; water adsorp. 0.98 ml/g; pH neutral (4% susp.); 100% act.
Toxicology: May be irritating to skin/eyes; may be irritating if lg. amts. are inhaled; if lg. amts. are ingested, may cause nausea, vomiting, diarrhea, difficulty breathing
Precaution: Incompat. with strong oxidizing agents
Hazardous Decomp. Prods.: Thermal decomp. may release toxic POx
Storage: May absorb moisture; keep container closed; avoid high temp. and humidity

Chem. Descrip.: PEG-6 sorbitan beeswax
CAS 8051-15-8
Uses: Emulsifier and emulsion stabilizer for pharmaceuticals
Features: Lipophilic; adds hydrophilic props. to natural beeswax
Regulatory: JSCI listed
Properties: Yel. plate; HLB 7.5; nonionic; 100%
GBW-125 [Nikko Chems. Co. Ltd
http://www.nikkol.co.jp/index.html]
Chem. Descrip.: PEG-20 sorbitan beeswax
CAS 8051-73-8
Uses: Emulsifier and emulsion stabilizer for pharmaceuticals
Features: Adds hydrophilic props. to natural beeswax
Regulatory: JSCI listed
Properties: Yel. plate; HLB 9.5; nonionic; 100% conc.

GM-18IS [Nikko Chems. Co. Ltd
http://www.nikkol.co.jp/index.html]
Chem. Descrip.: Batyl isostearate
Uses: Emollient, emulsion stabilizer, texturizer for medicated ointments; solubilizer for sl. sol. materials
Regulatory: JSCI listed
Properties: Wh. paste; nonionic; 100% conc.

GM-18S [Nikko Chems. Co. Ltd
http://www.nikkol.co.jp/index.html]
Chem. Descrip.: Batyl stearate
CAS 13232-26-3
Uses: Emollient, emulsion stabilizer, texturizer for medicated ointments; solubilizer for sl. sol. materials
Regulatory: JSCI listed
Properties: Wh. solid; sol. in warm ethanol, castor oil, olive oil, oleyl alcohol; insol. in water; m.p. 56 C; nonionic; 100% conc.

GO-430V [Nikko Chems. Co. Ltd
http://www.nikkol.co.jp/index.html]
Chem. Descrip.: PEG-30 sorbitan tetraoleate
CAS 63089-86-1
Uses: Emulsifier, solubilizer, superfatting agent for pharmaceuticals
Features: Hydrophilic
Regulatory: JSCI listed
Properties: Pale yel. liq.; sol. in ethanol, ethyl acetate, xylene; partly sol. in water, propylene glycol; sp.gr. 1.054; HLB 12.5; nonionic; 100% conc.
Toxicology: TSCA listed

GO-440V [Nikko Chems. Co. Ltd
http://www.nikkol.co.jp/index.html]
Chem. Descrip.: PEG-40 sorbitan tetraoleate
CAS 63089-86-1
Uses: Emulsifier, solubilizer, superficial agent for pharmaceuticals
Features: Hydrophilic
Regulatory: JSCI listed
Properties: Pale yel. liq.; sol. in ethanol, ethyl acetate, xylene; partly sol. in water, propylene glycol; sp.gr. 1.060; HLB 14.0; nonionic; 100% conc.
Toxicology: TSCA listed

GPG™ 3565 [Avatar
http://www.avatarcorp.com]
Chem. Descrip.: Glycerin and propylene glycol
CAS 56-81-5; 57-55-6; EINECS/ELINCS 200-289-5; 200-338-0
Uses: Humectant, solvent, viscosity modifier, conditioner, freeze-point depressant, stabilizer, anticaking agent, emulsifier in pharmaceuticals
Regulatory: USP; SARA §311/312, 313 nonreportable; CERCLA nonreportable
Properties: Colorless, odorles visc. liq.; completely sol. in water; sp. gr. > 1; vapor pressure < 0.08 mm Hg; b.p. > 340 F; flash pt. ≥ 101 C
Toxicology: Minor eye irritant; inh. of mists can cause respiratory tract irritation
Environmental: Biodegrad.
Precaution: Avoid excessive heat, open flames, chlorine, fluorine, and other strong oxidizers
Hazardous Decomp. Prods.: COx
NFPA: Health 1, Flammability 1, Reactivity 0

GPG™ 7030 [Avatar
http://www.avatarcorp.com]
Chem. Descrip.: Glycerin and propylene glycol
CAS 56-81-5; 57-55-6; EINECS/ELINCS 200-289-5; 200-338-0
Uses: Humectant, solvent, viscosity modifier, conditioner, freeze-point depressant, stabilizer, anticaking agent, emulsifier in pharmaceuticals
Regulatory: USP; SARA §311/312, 313 nonreportable; CERCLA nonreportable
Properties: Colorless, odorles visc. liq.; completely sol. in water; sp. gr. > 1; vapor pressure < 0.08 mm Hg; b.p. > 340 F; flash pt. ≥ 101 C
Toxicology: Minor eye irritant; inh. of mists can cause respiratory tract irritation
Environmental: Biodegrad.
Precaution: Avoid excessive heat, open flames, chlorine, fluorine, and other strong oxidizers
Hazardous Decomp. Prods.: COx
NFPA: Health 1, Flammability 1, Reactivity 0
GRINDSTED®Xanthan 80 [Danisco Textural Ingredients
http://www.danisco.com/texturalingredients]
Chem. Descrip.: Xanthan gum USP, EP
CAS 11138-66-2; EINECS/ELINCS 234-394-2
Uses: Thickener, stabilizer, suspending agent for solids and oil droplets, emulsion stabilizer, foam stabilizer in pharmaceuticals
Features: Pseudoplastic behavior; antisyneresis effect; absence of thixotropy; stable in acidic and alkaline solns.; temp.-resist.; synergistic with guar, locust bean gums; freeze-thaw and pH stable (3-9); very fast visc. buildup, very good dispersibility
Regulatory: Kosher
Properties: Creamy-wh. fine powd.; 100% min. through 60 mesh, 95% min. through 80 mesh; almost neutral odor; sol. in cold water; sp.gr. 0.8; visc. 1200-1600 mPa•s; pH 6-8 (1%); 91-108% assay; 8-14% loss on drying
Storage: 2 yr. shelf life when stored cool and dry

Galacید Excel 50 [Galactic http://www.lactic.com]
Chem. Descrip.: L(+) Lactic acid (49.5-50.5%)
See Lactic acid
Chem. Analysis: Heavy metals 10 ppm max.; iron 10 ppm max.; calcium 10 ppm max.; chloride 10 ppm max.; sulfate 10 ppm max.; sulphated ash 0.05% max.; cyanide 5 ppm max.; lead 0.5 ppm max.; arsenic 1 ppm max.; mercury 1 ppm max.
Uses: pH control agent, bacteriostatic, flavoring agent, chemical synthesis raw material, chiral intermediate, exfoliant; in food, cosmetic, pharmaceutical applics.
Features: Hygroscopic
Regulatory: GRAS; Europe E270; complies with Food Chemical Codex V
Properties: Cl. liq.; Hazen color 50 max.; sl. acid odor, taste; m.w. 90.08; dens. 1.11-1.13

Galacید Excel 80 [Galactic http://www.lactic.com]
Chem. Descrip.: L(+) Lactic acid (49.5-50.5%)
See Lactic acid
Chem. Analysis: Heavy metals 10 ppm max.; iron 10 ppm max.; calcium 10 ppm max.; chloride 10 ppm max.; sulfate 10 ppm max.; sulphated ash 0.05% max.; cyanide 5 ppm max.; lead 0.5 ppm max.; arsenic 1 ppm max.; mercury 1 ppm max.
Uses: pH control agent, bacteriostatic, flavoring agent, chemical synthesis raw material, chiral intermediate, exfoliant; in food, cosmetic, pharmaceutical applics.
Trade Name Reference

**Galacid Excel 88** [Galactic http://www.lactic.com]

*Chem. Descrip.*: L(+) Lactic acid (87.5-88.5%)

*See Lactic acid*

**Galacid Feed 80 - XT** [Galactic http://www.lactic.com]

*Chem. Descrip.*: L(+) Lactic acid (80% min.)

**Galacid Food 80** [Galactic http://www.lactic.com]

*Chem. Descrip.*: L(+) Lactic acid (79.5-80.5%)

**Galacid Food 88** [Galactic http://www.lactic.com]

*Chem. Descrip.*: L(+) Lactic acid (87.5-88.5%)

**Galacid Food 80 Improved** [Galactic http://www.lactic.com]

*Chem. Descrip.*: L(+) Lactic acid (79.5-80.5%)

**Galacid Food 88 Improved** [Galactic http://www.lactic.com]

*Chem. Descrip.*: L(+) Lactic acid (87.5-88.5%)

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**Galacid Excel 88**

*Features*: Hygroscopic

*Regulatory*: GRAS; Europe E270; complies with Food Chemical Codex V

*Properties*: Cl. liq.; Hazen color 50 max.; sl. acid odor, taste; m.w. 90.08; dens. 1.18-1.19

**Galacid Excel 88**

*Chem. Analysis*: Heavy metals 10 ppm max.; iron 10 ppm max.; calcium 10 ppm max.; chloride 10 ppm max.; sulfate 10 ppm max.; sulphated ash 0.05% max.; cyanide 5 ppm max.; lead 0.5 ppm max.; arsenic 1 ppm max.; mercury 1 ppm max.

*Uses*: pH control agent, bacteriostatic, flavoring agent, chemical synthesis raw material, chiral intermediate, exfoliant; in food, cosmetic, pharmaceutical applics.

**Galacid Feed 80 - XT**

*Features*: Hygroscopic

*Regulatory*: GRAS; Europe E270; complies with Food Chemical Codex V

*Properties*: Cl. liq.; Hazen color 50 max.; sl. acid odor, taste; m.w. 90.08; dens. 1.20-1.22

**Galacid Feed 80 - XT**

*Chem. Analysis*: Heavy metals 10 ppm max.; iron 150 ppm max.; calcium 120 ppm max.; chloride 40 ppm max.; sulfate 150 ppm max.; sulphated ash 1% max.; lead 5 ppm max.; arsenic 1 ppm max.; mercury 1 ppm max.

*Uses*: pH control agent, bacteriostatic, flavoring agent, chemical synthesis raw material, chiral intermediate, exfoliant; in food, cosmetic, pharmaceutical applics.

**Galacid Food 80**

*Chem. Descrip.*: L(+) Lactic acid (79.5-80.5%)

**Galacid Food 88**

*Chem. Descrip.*: L(+) Lactic acid (87.5-88.5%)

**Galacid Food 88 Improved**

*Chem. Descrip.*: L(+) Lactic acid (87.5-88.5%)

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**Regulatory**: GRAS; Europe E270; complies with Food Chemical Codex V

**Properties**: Sl. yel. liq.; Hazen color 150 max.; sl. acid odor, taste; m.w. 90.08; dens. 1.18-1.19

**Galacid Food 88 Improved**

*Chem. Descrip.*: L(+) Lactic acid (79.5-80.5%)

**Galacid Food 88 Improved**

*Chem. Descrip.*: L(+) Lactic acid (87.5-88.5%)

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**Galacid Food 88 Improved**

*Features*: Hygroscopic

*Regulatory*: GRAS; Europe E270; complies with Food Chemical Codex V

*Properties*: Sl. yel. liq.; Hazen color 100 max.; sl. acid odor, taste; m.w. 90.08; dens. 1.18-1.19

**Galacid Food 88**

*Chem. Analysis*: Heavy metals 10 ppm max.; iron 10 ppm max.; calcium 10 ppm max.; chloride 10 ppm max.; sulfate 10 ppm max.; sulphated ash 0.1% max.; cyanide 5 ppm max.; lead 0.5 ppm max.; arsenic 1 ppm max.; mercury 1 ppm max.

*Uses*: pH control agent, bacteriostatic, flavoring agent, chemical synthesis raw material, chiral intermediate, exfoliant; in food, cosmetic, pharmaceutical applics.

**Galacid Food 88**

*Features*: Hygroscopic

*Regulatory*: GRAS; Europe E270; complies with Food Chemical Codex V

*Properties*: Sl. yel. liq.; Hazen color 100 max.; sl. acid odor, taste; m.w. 90.08; dens. 1.195-1.205

**Galacid Food 88 Improved**

*Chem. Descrip.*: L(+) Lactic acid (87.5-88.5%)

**Galacid Food 88 Improved**

*Chem. Descrip.*: L(+) Lactic acid (87.5-88.5%)

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**Galacid Food 88**

*Chem. Analysis*: Heavy metals 10 ppm max.; iron 10 ppm max.; calcium 10 ppm max.; chloride 10 ppm max.; sulfate 10 ppm max.; sulphated ash 0.1% max.; cyanide 5 ppm max.; lead 0.5 ppm max.; arsenic 1 ppm max.; mercury 1 ppm max.

*Uses*: pH control agent, bacteriostatic, flavoring agent, chemical synthesis raw material, chiral intermediate, exfoliant; in food, cosmetic, pharmaceutical applics.

**Galacid Food 88**

*Features*: Hygroscopic

*Regulatory*: GRAS; Europe E270; complies with Food Chemical Codex V

*Properties*: Sl. yel. liq.; Hazen color 150 max.; sl. acid odor, taste; m.w. 90.08; dens. 1.18-1.19

**Galacid Food 88 Improved**

*Chem. Descrip.*: L(+) Lactic acid (79.5-80.5%)

**Galacid Food 88 Improved**

*Chem. Descrip.*: L(+) Lactic acid (87.5-88.5%)

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**Galacid Food 88 Improved**

*Chem. Analysis*: Heavy metals 10 ppm max.; iron 10 ppm max.; calcium 10 ppm max.; chloride 10 ppm max.; sulfate 10 ppm max.; sulphated ash 0.1% max.; cyanide 5 ppm max.; lead 0.5 ppm max.; arsenic 1 ppm max.; mercury 1 ppm max.
Trade Name Reference

Chem. Descrip.: L(+) Lactic acid (79.5-80.5%)
See Lactic acid

Chem. Descrip.: L(+) Lactic acid (87.5-88.5%)
See Lactic acid

Chem. Descrip.: L(+) Lactic acid (89.5-90.5%)
See Lactic acid

Galacid Injectable 90 [Galactic http://www.lactic.com]
Chem. Descrip.: L(+) Lactic acid (89.5-90.5%)
See Lactic acid

Galacid Pharma 90 [Galactic http://www.lactic.com]
Chem. Descrip.: L(+) Lactic acid (89.5-90.5%)
See Lactic acid

Uses: pH control agent, bacteriostatic, flavoring agent, chemical synthesis raw material, chiral intermediate, exfoliant; in food, cosmetic, pharmaceutical applics.

Features: Hygroscopic
Regulatory: GRAS; Europe E270; complies with Food Chemical Codex V, EP 2002, USP 27
Properties: Sl. yel. liq.; Hazen color 50 max.; sl. acid odor, taste; m.w. 90.08; dens. 1.195-1.205

Chem. Descrip.: L(+) Lactic acid (87.5-88.5%)
See Lactic acid

Chem. Analysis: Heavy metals 5 ppm max.; iron 10 ppm max.; calcium 10 ppm max.; chloride 10 ppm max.; sulfate 10 ppm max.; sulphated ash 0.05% max.; cyanide 5 ppm max.; lead 0.5 ppm max.; arsenic 1 ppm max.; mercury 1 ppm max.

Uses: pH control agent, bacteriostatic, flavoring agent, chemical synthesis raw material, chiral intermediate, exfoliant; in food, cosmetic, pharmaceutical applics.

Features: Hygroscopic
Regulatory: GRAS; Europe E270; complies with Food Chemical Codex V, EP 2002, USP 27
Properties: Sl. yel. liq.; Hazen color 50 max.; sl. acid odor, taste; m.w. 90.08; dens. 1.18-1.19

Chem. Descrip.: L(+) Lactic acid (89.5-90.5%)
See Lactic acid

Chem. Analysis: Heavy metals 5 ppm max.; iron 10 ppm max.; calcium 10 ppm max.; chloride 10 ppm max.; sulfate 10 ppm max.; sulphated ash 0.05% max.; cyanide 5 ppm max.; lead 0.5 ppm max.; arsenic 1 ppm max.; mercury 1 ppm max.

Uses: pH control agent, bacteriostatic, flavoring agent, chemical synthesis raw material, chiral intermediate, exfoliant; in food, cosmetic, pharmaceutical applics.

Features: Hygroscopic
Regulatory: GRAS; Europe E270; complies with Food Chemical Codex V, EP 2002, USP 27
Properties: Sl. yel. liq.; Hazen color 50 max.; sl. acid odor, taste; m.w. 90.08; dens. 1.20-1.21

Galacid Injectable 90 [Galactic http://www.lactic.com]
Chem. Descrip.: L(+) Lactic acid (89.5-90.5%)
See Lactic acid

Chem. Analysis: Heavy metals 5 ppm max.; iron 10 ppm max.; calcium 10 ppm max.; chloride 10 ppm max.; sulfate 10 ppm max.; sulphated ash 0.05% max.; cyanide 5 ppm max.; lead 0.5 ppm max.; arsenic 1 ppm max.; mercury 1 ppm max.

Uses: pH control agent, bacteriostatic, flavoring agent, chemical synthesis raw material, chiral intermediate, exfoliant; in pharmaceutical applics.

Features: Hygroscopic
Regulatory: USP, EP
Properties: Cl. syrupy liq.; Hazen color 10 max. fresh sol'n, 50 max. after heating; sl. acid odor, mild acid taste; m.w. 90.08; dens. 1.20-1.21; 89.5-90.5% (wt)

Galacid Pharma 90 [Galactic http://www.lactic.com]
Chem. Descrip.: L(+) Lactic acid (89.5-90.5%)
See Lactic acid

Chem. Analysis: Heavy metals 5 ppm max.; iron 10 ppm max.; calcium 10 ppm max.; chloride 10 ppm max.; sulfate 10 ppm max.; sulphated ash 0.05% max.; cyanide 5 ppm max.; lead 0.5 ppm max.; arsenic 1 ppm max.; mercury 1 ppm max.

Uses: pH control agent, bacteriostatic, flavoring agent, chemical synthesis raw material, chiral intermediate, exfoliant; in pharmaceutical applics.

Features: Hygroscopic
Properties: Cl. liq.; Hazen color 10 max. fresh sol'n, 50 max. after heating; sl. acid odor, taste; m.w. 90.08; dens. 1.20-1.21
Chem. Descrip.: Nat. lactic acid (25%) with carriers of maltodextrine, arabic gum
Chem. Analysis: Heavy metals 10 ppm max.
Uses: pH control agent, bacteriostatic, flavoring agent, chemical synthesis raw material, chiral intermediate, exfoliant; in food, cosmetic, pharmaceutical applics.
Regulatory: Europe E270
Properties: Wh. powd.; freely sol. in water; m.w. 90.08; pH 2.6-2.8 (1% sol’n)

Galactasol® 650 [Hercules/Aqualon http://www.aqualon.com]
Chem. Descrip.: Carboxymethyl hydroxypropyl guar
CAS 68130-15-4
Uses: Emulsion stabilizer, visc. control agent, thickener, suspending agent in cosmetics, pharmaceuticals
Features: Performs well in cold environments; self-hydrating; alcohol tolerant
Properties: Pale yel. color; 99% min. through U.S. 100 mesh; bulk dens. 40-44 lb/ft³ (loose); pH 7-9; anionic; 10% max. moisture
Use Level: 0.14-0.57%
Precaution: Sensitive to salts

Chem. Descrip.: Sodium lactate
CAS 72-17-3; EINECS/ELINCS 200-772-0
Uses: Electrolyte and sodium carrier, mineral supplement in pharmaceuticals incl. dialysis sol’ns. and parenteral sol’n; raw material for drug synthesis

Galanium [Galactic http://www.lactic.com]
Chem. Descrip.: Ferrous, zinc, magnesium, manganese, and aluminum lactates
Uses: Mineral supplement, nutrient for pharmaceuticals
Features: High bioavailability
Properties: Mild taste

Chem. Descrip.: Calcium lactate
Chem. Analysis: Calcium 13.1-14.5%; heavy metals 5 ppm max.; iron 80 ppm max.; chloride 80 ppm max.; sulfate 400 ppm max.; phosphate 150 ppm max.; lead 2 ppm max.; arsenic 3 ppm max.; mercury 1 ppm max.; fluoride 15 ppm max.; madnesium and alkali salts 1.0% max.
Uses: Calcium supplement
Regulatory: GRAS; Europe E327; complies with FCC V
Properties: Wh. crystalline powd.; highly sol.; mild taste; m.w. 308; pH 6-8

Chem. Descrip.: Sodium lauryl sulfate
CAS 151-21-3; EINECS/ELINCS 205-788-1
Uses: Emulsifier for toothpaste, tooth powds., pharmaceuticals
Properties: Powd.; pH 7.5-10.5; anionic; 88% min. act.; 6.5% max. sulfate; 1.5% max. unsulfated alcohol; 1% max. chloride

Chem. Descrip.: Sodium lauryl sulfate
CAS 151-21-3; EINECS/ELINCS 205-788-1
Uses: Emulsifier for toothpaste, tooth powds., pharmaceuticals
Properties: Powd.; pH 7.5-10.5; anionic; 88% min. act.; 6.5% max. sulfate; 1.5% max. unsulfated alcohol; 1% max. chloride

Chem. Descrip.: Sodium lauryl sulfate
CAS 151-21-3; EINECS/ELINCS 205-788-1
Uses: Emulsifier for toothpaste, tooth powds., pharmaceuticals
Properties: Needles; pH 7.5-10.5; anionic; 88% min. act.; 6.5% max. sulfate; 1.5% max. unsulfated alcohol; 1% max. chloride

Chem. Descrip.: Sodium lauryl sulfate
CAS 151-21-3; EINECS/ELINCS 205-788-1
Uses: Emulsifier for toothpaste, tooth powds., pharmaceuticals
Properties: Needles; pH 7.5-10.5; anionic; 88% min. act.; 6.5% max. sulfate; 1.5% max. unsulfated alcohol; 1% max. chloride
Chem. Descrip.: Cetearyl alcohol (80%) and ceteareth-20 (20%)
Uses: Self-emulsifying pharmaceutical raw material, o/w emulsion base for creams, ointments, liniments, and lotions
Regulatory: Complies with EP, BP, USP, German Pharmacopeia, JSCID, JCID
Properties: Flakes; m.p. 47-50 C; ≈ 20% act.

Chem. Descrip.: Cetearyl alcohol (90%) and sodium lauryl sulfate (10%)
Uses: Self-emulsifying pharmaceutical raw material, o/w emulsion base for creams, ointments, liniments, and lotions
Regulatory: USP, EP, BP, German Pharmacopeia, JSCID, JCID
Properties: Flakes; m.p. 48-52 C; 8.5-9.35% act.

Galenol® 1618 DSN [Sasol Germany http://www.sasol.com; http://www.sasololefinssurfactants.com]
Chem. Descrip.: Cetearyl alcohol (90%) and sodium C12-C18 alkyl sulfate (10%) See Sodium C12-18 alkyl sulfate
Uses: Self-emulsifying pharmaceutical raw material, o/w emulsion base for creams, ointments, liniments, and lotions
Regulatory: Complies with EP, BP, USP, German Pharmacopeia, JSCID, JCID
Properties: Flakes; m.p. 48-52 C; 8.5-9.35% act.

Chem. Descrip.: Cetearyl alcohol (90%) and sodium C12-C18 alkyl sulfate (10%)
Uses: Self-emulsifying pharmaceutical raw material, o/w emulsion base for creams, ointments, liniments, and lotions
Regulatory: Complies with EP, BP, USP, German Pharmacopeia, JSCID, JCID
Properties: Flakes; m.p. 48-52 C; 8.5-9.35% act.

Ganex® V-216 [ISP http://www.ispcorp.com]
Chem. Descrip.: 2-Pyrrolidinone, 1-ethenyl, hexadecyl homopolymer
CAS 63132-81-2
Uses: Moisture barrier, adhesive, protective colloid, and microencapsulating resin in OTC prods
Regulatory: Not regulated for transport; Canada DSL; Australia AICS
Properties: Pale yel. visc. liq.; sol. in min. oil, kerosene, castor oil, org. solvs., and other polymers; m.w. 7300; sp.gr. 0.90; flash pt. > 220 F; HLB 10.0; 100% act.
Toxicology: LD (oral, rat) > 64 g/kg; sl. irritating to skin, minimal eye irritation; TSCA listed
Environmental: Not readily biodeg.
Precaution: Wear gloves, safety glasses; incompat. with strong oxidizers, strong reducers
NFPA: Health 1, Flammability 0, Reactivity 0

Ganex® V-220 [ISP http://www.ispcorp.com]
Chem. Descrip.: PVP/eicosene copolymer
CAS 28211-18-9
Uses: Moisture barrier, adhesive, protective colloid, and microencapsulating resin in OTC prods
Regulatory: Not regulated for transport; Canada DSL; Australia AICS
Properties: Off-wh. waxy solid; insol. in water; sol. in min. oil, kerosene, org. solvs., and other polymers; m.w. 8600; sp.gr. 0.95; solid. pt. 35-40 C; HLB 8.0; 100% act.
Toxicology: LD (oral, rat) > 17.1 g/kg; nonirritating to skin; TSCA listed
Precaution: Wear gloves, safety glasses; incompat. with strong oxidizers, strong reducers
Hazardous Decomp. Prods.: Oxides of nitrogen
NFPA: Health 1, Flammability 0, Reactivity 0

Gantrez® AN-119 [ISP http://www.ispcorp.com]
Chem. Descrip.: PVM/MA copolymer and benzene (< 2%)
CAS 9011-16-9; 71-43-2
Uses: Thickener, dispersant, stabilizer, gellant, coupling agent, protective colloid, suspending agent in pharmaceuticals; film-former in spray bandages; complexing agent for sustained-release iron preps.; bioadhesives; ostomy adhesives; denture adhesives/stabilizers; dentifrices; thickener for aq. or org. solv. systems
Features: Produces clear films of high tens. and cohesive str.
Regulatory: Not regulated for transport; SARA §313, RCRA reportable; WHMIS D2A, D2B; Canada DSL; Japan ENCS; Australia AICS
Trade Name Reference

**Gantrez® AN-139** [ISP
http://www.ispcorp.com]
Chem. Descrip.: 2,5-Furandione, polymer with methoxyethene and benzene (<2%)  
See PVM/MA copolymer  
CAS 9011-16-9; 71-43-2
Uses: Thickener, dispersant, foam stabilizer, coupling agent for pharmaceuticals; film-former in spray bandages; complexing agent for sustained-release iron preps.; ostomy adhesives; denture adhesives/stabilizers; dentifrices; thickener for aq. or org. solv. systems

**Regulatory:** Not regulated for transport; RCRA reportable (benzene); Canada DSL; Japan ENCS; Australia AICS; WHMIS D2A, D2B
Properties: Wh. fluffy powd.; sol. in water, alcohols, phenols, pyridine, aldehydes, ketones, acid, caustic, and org. solvs.; essentially insol. in aliphatic, aromatic, or halogenated hydrocarbons, ethyl ether; m.w. 41,000; anionic; 98% min. conc.
Toxicology: LD50 (oral, rat) > 5 g/kg; possible cancer risk; TSCA listed

**Precaution:** Wear gloves, safety glasses; incompat. with strong oxidizers, strong reducers

**NFPA:** Health 1, Flammability 1, Reactivity 0
**Storage:** Keep container tightly closed in cool, dry place out of direct sunlight

**Gantrez® AN-139 BF** [ISP
http://www.ispcorp.com]
Chem. Descrip.: 2,5-Furandione, polymer with methoxyethene and toluene (<2%)  
See PVM/MA copolymer  
CAS 9011-16-9; 108-88-3
Uses: Dispersant, coupling agent, stabilizer; film-former in spray bandages; complexing agent for sustained-release iron preps.; ostomy adhesives; denture adhesives/stabilizers; dentifrices; thickener for aq. or org. solv. systems

**Regulatory:** Not regulated for transport; RCRA reportable (benzene); Canada DSL; Japan ENCS; Australia AICS
Properties: Wh. free-flowing fluffy powd.; sol. in water, alcohols, phenols, pyridine, aldehydes, ketones, acid, caustic, and org. solvs.; essentially insol. in aliphatic, aromatic, or halogenated hydrocarbons, ethyl ether; m.w. 20,000; anionic; 100% conc.
Toxicology: LD50 (oral, rat) > 5 g/kg; possible cancer risk; TSCA listed

**Precaution:** Wear gloves, safety glasses; incompat. with strong oxidizers, strong reducers

**NFPA:** Health 1, Flammability 1, Reactivity 0
**Storage:** Keep container tightly closed in cool, dry place out of direct sunlight
Gantrez® AN-169 [ISP  
http://www.ispcorp.com]
Chem. Descrip.: PVM/MA copolymer (98%) and benzene (< 2%)
CAS 52229-50-2; 71-43-2
Uses: Thickener, dispersant, foam stabilizer, coupling agent for pharmaceuticals; film-former in spray bandages; complexing agent for sustained-release iron preps.; ostomy adhesives; denture adhesives/stabilizers; dentifrices; thickener for aq. or org. solv. systems
Regulatory: Not regulated for transport; RCRA reportable (benzene); Canada DSL; Japan ENCS; Australia AICS; WHMIS D2A, D2B
Properties: Wh. fluffy powd.; sol. in water, alcohols, phenols, pyridine, aldehydes, ketones, acid, caustic, and org. solvs.; essentially insol. in aliphatic, aromatic, or halogenated hydrocarbons, ethyl ether; m.w. 67,000; anionic; 100% conc.
Toxicology: LD50 (oral, rat) > 5 g/kg (25% suspension); possible cancer hazard; TSCA listed
Precaution: Wear gloves, safety glasses; incompat. with oxidizers, reducers
NFPA: Health 1, Flammability 3, Reactivity 0
Storage: Keep container tightly closed in cool, dry place out of direct sunlight

Gantrez® S-95 [ISP  
http://www.ispcorp.com]
Chem. Descrip.: Calcium/sodium PVM/MA copolymer.
CAS 62386-95-2
Uses: Film-former in spray bandages; visc. modifier/stabilizer; enteric sustained-release tablet coating; bioadhesives; dentifrices
Properties: Wh. to off-wh. powd.; slowly sol. in water; bulk dens. > 0.7 g/cc (tapped); flash pt. none; pH 6-7 (1 g/100 ml water); 6-15% water
Toxicology: LD50 (oral, rat) 7000 mg/kg; sl. skin irritant; minimal eye irritant; nuisance dust: TLV/TWA 10 mg/m³ total, 5 mg/m³ respirable; avoid breathing dust
Precaution: Incompat. with strong oxidizing or reducing agents

Gardiquat 1450 [Albright & Wilson Australia  
Chem. Descrip.: Benzalkonium chloride USP
CAS 8001-54-5
Uses: Germicide in pharmaceuticals
Properties: Almost water wh. cl. liq.; cloud pt. 1 C; pH 7.0±0.5 (1%); 16.5% solids
Toxicology: Low order of toxicity
Precaution: Flamm.
### Trade Name Reference

**GBL**  [Lyondell](http://www.lyondell.com)  
*Chem. Descrip.*: γ-Butyrolactone  
See Butyrolactone  
CAS 96-48-0; EINECS/ELINCS 202-509-5  
*Uses*: Solvent in synthesis of vitamins; derivs. as relaxants, antispasmodics, antibacterial agents, surgical sutures, and injectable sedative, hypnotic, and aesthetic solns.  
*Features*: No ODP; HAPS-free, recyclable; replacement for regulated solvs.; exc. chem. and thermal stability  
*Properties*: Completely misc. with water; sp.gr. 1.13 (20 C); vapor pressure < 1.5 mm Hg (20 C); m.p. 43 C; b.p. 204 C; flash pt. 98 C; nonflamm.  
*HMIS*: Health 1, Flammability 1, Reactivity 0

**Gelcarin® DG 3252**  [FMC Biopolymer](http://www.fmcbiopolymer.com)  
*Chem. Descrip.*: Carrageenan, sucrose, potassium chloride  
See Carrageenan (Chondrus crispus)  
CAS 9000-07-1; 57-50-1; 7447-40-7; EINECS/ELINCS 232-524-2; 200-334-9; 231-211-8  
*Uses*: Gellant, stabilizer, thickener for water, foodstuffs, pharmaceutical applcs.  
*Features*: Provides short texture, creamy mouthfeel  
*Regulatory*: CERCLA nonreportable; Canada DSL; Australia AICS; China; Philippines PICCS  
*Properties*: Powd.; sl. marine odor; sol. in water 10% max.; sp.gr. ≈ 1; pH 6-10.5 (1% sol’n.)  
*Toxicology*: LD50 (oral, rat) > 2600 mg/kg; TSCA listed

**Gelcarin® GP-812NF**  [FMC Biopolymer](http://www.fmcbiopolymer.com)  
*Chem. Descrip.*: Kappa-Carrageenan USP/NF  
See Carrageenan (Chondrus crispus)  
CAS 9000-07-1; EINECS/ELINCS 232-524-2  
*Uses*: Excipient, gellant, viscosifier for pharmaceuticals, encapsulation/delivery systems  
*Features*: Low visc.; brittle, firm gel type; polyol reactive; protein reactive; provides creamy mouthfeel, loaf structure, sliceability, smoothness, opacity  
*Regulatory*: FDA 21CFR §182.7255; GRAS; kosher  
*Properties*: Sol. in hot water; partly sol. in cold water  
*Use Level*: 0.25-2.0%  
*Storage*: 14 mos. shelf life

**Gelcarin® GP-911NF**  [FMC Biopolymer](http://www.fmcbiopolymer.com)  
*Chem. Descrip.*: Kappa-Carrageenan USP/NF  
See Carrageenan (Chondrus crispus)  
CAS 9000-07-1; EINECS/ELINCS 232-524-2  
*Uses*: Excipient, gellant, viscosifier for pharmaceuticals, encapsulation/delivery systems  
*Features*: Low visc.; brittle, firm gel type; polyol reactive; protein reactive; provides creamy mouthfeel, loaf structure, sliceability, smoothness, opacity  
*Regulatory*: FDA 21CFR §182.7255; GRAS; kosher  
*Properties*: Sol. in hot water; partly sol. in cold water  
*Use Level*: 0.25-2.0%  
*Storage*: 14 mos. shelf life

**Geleol®**  [Gattefosse](http://www.gattefossecorp.com; Gattefosse Spain](http://www.gattefosse.es)  
*Chem. Descrip.*: Glyceryl stearate  
CAS 31566-31-1  
*Uses*: Emulsifier, consistency agent, opacifier for pharmaceuticals, veterinary prods.; thickener for pharmaceutical ointments, creams, and lotions; excipient, vehicle for dermal and oral dosage forms; stabilizer in soft gelatin capsule oily formulations  
*Regulatory*: EP, USP/NF compliance; E471, FCC, PSFA compliance; DMF no. 9052  
*Properties*: Gardner < 3 waxy solid, faint odor; m.p. 53-57 C; HLB 3.0; acid no. < 3; iodine no. < 3; sapon. no. 160-180; nonionic; 100% conc.  
*Toxicology*: Sl. irritating to eyes, nonirritating to skin

**Gelot 64®**  [Gattefosse](http://www.gattefossecorp.com; Gattefosse Spain](http://www.gattefosse.es)

### Storage

- **GBL**  [Lyondell](http://www.lyondell.com)  
  *Use Level*: 0.3-1.0%  
  *Storage*: 14 mos. shelf life

- **Gelcarin® GP-812NF**  [FMC Biopolymer](http://www.fmcbiopolymer.com)  
  *Use Level*: 0.3-1.0%  
  *Storage*: 14 mos. shelf life

- **Gelcarin® GP-911NF**  [FMC Biopolymer](http://www.fmcbiopolymer.com)  
  *Use Level*: 0.3-1.0%  
  *Storage*: 14 mos. shelf life

- **Geleol®**  [Gattefosse](http://www.gattefossecorp.com; Gattefosse Spain](http://www.gattefosse.es)  
  *Use Level*: 0.3-1.0%  
  *Storage*: 14 mos. shelf life

- **Gelot 64®**  [Gattefosse](http://www.gattefossecorp.com; Gattefosse Spain](http://www.gattefosse.es)  
  *Use Level*: 0.3-1.0%  
  *Storage*: 14 mos. shelf life
Trade Name Reference

http://www.gattefossecorp.com; Gattefosse
Spain http://www.gattefosse.es

Chem. Descrip.: Glyceryl stearate and PEG-75 stearate

Uses: Base, o/w emulsifier for pharmaceutical emulsions; o/w emulsifier for difficult-to-emulsify actives; excipient for dermal/transdermal pharmaceuticals; stabilizer; protects the drug, improves stability of the dosage form

Features: Self-emulsifying; compat. with high percentages of essential oils, menthol, camphor; protects the drug, improves stability of the dosage form

Regulatory: DMF no. 9052

Properties: Gardner < 5 waxy solid; weak odor; HLB 10; m.p. 59-65 C; acid no. < 6; iodine no. < 3; sapon. no. 105-125; nonionic; 100% conc. Use Level: 15-25%

Toxicology: LD50 (oral, rat) > 5 g/kg; nonirritating to skin and eyes

Gelrite® [CP Kelco http://www.cpkelco.com]

Chem. Descrip.: Gellan gum

CAS 71010-52-1; EINECS/ELINCS 275-117-5

Uses: Gellan in microbiological media, plant tissue culture; immunological applics.; agar replacer

Properties: Wh. to tan powd., sl. odor; water-sol.; bulk dens. ≈ 50 lb/ft3; pH neutral (1%)

Toxicology: LD50 (oral, rat) > 5000 mg/kg; excessive dust inhalation may cause respiratory irritation; dry prod. may cause eye irritation

Environmental: Readily biodeg.

Precaution: Not flamm., but powd. will burn if involved in a fire; spills are slippery when wet; incompat. with strong oxidizers

Storage: Store in cool, dry place

Gelucire 33/01 [Gattefosse France http://www.gattefosse.fr]

Chem. Descrip.: Glycerol esters of sat. C8-C18 fatty acids USP/NF

Uses: Excipient, carrier, vehicle for hard and soft gelatin capsules, low dens. prods., low dose or toxic drugs; consistency agent; fatting agent; oily phase for ointments; stabilizer; vehicle protecting act. ingreds. from light, moisture, and oxidation

Features: Protects the drug, improves stability of the dosage form

Regulatory: USP/NF; DMF no. 5538

Properties: Doughy solid; faint odor; drop pt. 33-38 C; HLB 1.0; acid no. < 2; iodine no. ≤ 3; sapon. no. 240-260

Toxicology: LD0 (oral, rat) > 20 g/kg


Chem. Descrip.: Glycerol esters of sat. C12-C18 fatty acids

Uses: Excipient, carrier, vehicle, consistency agent, fatting agent for pharmaceutical hard gelatin capsules, low dens. prods., low dose or toxic drugs; oily phase for ointments; carrier protecting act. ingreds. from light, moisture, oxidation

Regulatory: EP, JP, USP/NF approved; DMF no. 6028

Properties: Waxy pellets; faint odor; m.p. 37.5-41.5 C; HLB 1

Gelucire 43/01 [Gattefosse http://www.gattefossecorp.com]

Chem. Descrip.: Glycerol esters of sat. C12-C18 fatty acids

Uses: Excipient, carrier, vehicle, consistency agent, fatting agent for pharmaceutical hard gelatin capsules, low dens. prods., low dose or toxic drugs; oily phase for ointments; carrier protecting act. ingreds. from light, moisture, and oxidation

Regulatory: EP, USP/NF, JP approved; DMF no. 6028

Properties: Waxy pellets; faint odor; m.p. 42-46 C; HLB 1

Gelucire 44/14 [Gattefosse France http://www.gattefosse.fr]

Chem. Descrip.: PEG-32 glyceryl laurate EP

Uses: Excipient for semisolid formulations for hard gelatin capsules; solubilizer, release agent, bioavailability enhancer of poorly water-sol. drugs; emulsifier for self-microemulsifying drug delivery systems

Features: Provides fast release

Regulatory: EP, FP compliance; DMF no. 5253

Properties: Gardner < 5 waxy solid, faint odor; sol. in chloroform, methylene chloride, ethanol; disp. in water; insol. in min. oil; drop pt. 42.5-47.5 C; HLB 14.0; acid no. < 2; iodine no. < 2; sapon. no. 79-93; hyd. no. 36-56; nonionic

Toxicology: LD0 (oral, rat) > 20 g/kg; nontoxic

Storage: Store in orig. container, prevent exposure to air, light, heat, and moisture


Chem. Descrip.: PEG-32 glyceryl palmitostearate
Trade Name Reference

**Uses:** Excipient, bioavailability enhancer, solubilizer, emulsifier, controlled release agent for poorly-sol. drugs in hard gelatin capsules; stabilizer

**Features:** Must be used in combination with other excipients; protects the drug, improves stability of the dosage form

**Regulatory:** EP, FP compliance; DMF no. 5253

**Properties:** Drop pt. 46-51 C; HLB 13.0; acid no. < 2; iodine no. < 2; sapon. no. 65-80

**Toxicology:** LD0 (oral, rat) > 20 g/kg


**Chem. Descr.:** Bentonite USP/NF

**Chem. Analysis:** SiO₂ (66.5%), Al₂O₃ (14.7%), Na₂O (3.3%), MgO (3.2%), CaO (2.2%), Fe₂O₃ (0.8%)

**CAS 1302-78-9;** EINECS/ELINCS 215-108-5

**Uses:** Thixotrope for pharmaceuticals, acne creams/lotions, calamine lotion

**Features:** Low acid demand

**Properties:** Wh. fine powd.; odorless; brightness 82; pH 9.5-10.5 (2% slurry); 5-8% moisture

**Precaution:** Wear safety glasses or chemical goggles; do not breathe dust; avoid dust generation

**Storage:** Store in dry place in closed container


**Chem. Descr.:** Bentonite USP-NF

**Chem. Analysis:** SiO₂ (66.5%), Al₂O₃ (14.7%), MgO (3.2%), Fe₂O₃ (0.8%), CaO (2.2%), Na₂O (3.3%), K₂O (0.1%), TiO₂ (0.2%)

**CAS 1302-78-9;** EINECS/ELINCS 215-108-5

**Uses:** Suspending agent, syneresis control agent in pharmaceuticals

**Features:** Low acid demand; interacts with inorg. and org. cations

**Properties:** Wh. fine powd.; odorless; visc. 40-200 cps (5% slurry); brightness 82; pH 9-10 (5% slurry); 8% max. moisture

**Precaution:** Wear safety glasses or chemical goggles; do not breathe dust; avoid dust generation

**Storage:** Store in dry place in closed container


**Chem. Descr.:** Magnesium aluminum silicate

**Chem. Analysis:** SiO₂ (62.2%), Al₂O₃ (14.4%), MgO (4.1%), CaO (1.7%), Na₂O (3.1%), K₂O (0.1%), TiO₂ (0.2%)

**CAS 1327-43-1;** EINECS/ELINCS 235-374-6

**Uses:** Rheology control agent in pharmaceuticals

**Regulatory:** Not regulated for transport

**Properties:** Wh. flakes; odorless; hydrates readily in water; insol. in water, org. solvs.; bulk dens. 2.6; visc. 800-2200 cps (5% slurry); brightness 82; pH 9-10 (3% slurry); 8% max. moisture

**Toxicology:** LD50 (oral, rat) > 5 g/kg; may cause drying of the skin; may cause nose, mouth, GI irritation

**Precaution:** Wear safety glasses or chemical goggles; do not breathe dust; avoid dust generation

**Storage:** Store in dry place in closed container


**Chem. Descr.:** Magnesium aluminum silicate

**Chem. Analysis:** SiO₂ (62.2%), Al₂O₃ (14.4%), MgO (4.1%), Fe₂O₃ (1.5%), CaO (1.7%), Na₂O (3.1%), K₂O (0.1%), TiO₂ (0.2%)

**CAS 1327-43-1;** EINECS/ELINCS 235-374-6

**Uses:** Rheology control agent in pharmaceuticals, acne scrubs

**Features:** Synergistic with org. thickeners to improve gel formation and visc. and reduce syneresis; improves high temp. stability at low concs.

**Regulatory:** Not regulated for transport

**Properties:** Wh. flakes; odorless; hydrates readily in water; insol. in water, org. solvs.; bulk dens. 2.6; visc. 800-2200 cps (5% slurry); brightness 82; pH 9-10 (3% slurry); 8% max. moisture

**Toxicology:** LD50 (oral, rat) > 5 g/kg; may cause drying of the skin; may cause nose, mouth, GI irritation

**Precaution:** Wear safety glasses or chemical goggles; do not breathe dust; avoid dust generation

**Storage:** Store in dry place in closed container
Trade Name Reference

Gelwhite® MAS 103 [Southern Clay Prods.  
http://www.scprod.com]
Chem. Descrip.: Magnesium aluminum silicate
CAS 1327-43-1; EINECS/ELINCS 235-374-6
Uses: Rheology control agent in
  pharmaceuticals, acne creams/lotions,
  calamine lotion, kaolin-pectin suspension,
  antacids, pectin liqs.
Features: Low acid demand; interacts with inorg.
  and org. cations
Regulatory: Not regulated for transport
Properties: Wh. flakes; odorless; insol. in water,
  org. solvs.; bulk dens. 2.6; brightness 82; pH
  9-10 (3% slurry); 8% max. moisture
Toxicology: LD50 (oral, rat) > 5 g/kg; may
  cause drying of the skin; may cause nose,
  mouth, GI irritation
Precaution: Wear safety glasses or chemical
  goggles; do not breathe dust; avoid dust
  generation
Storage: Store in dry place in closed container
GEM [Sanyo Chem. Ind.  
http://www.sanyo-chemical.co.jp]
Chem. Descrip.: Lauryl dimethyl benzyl
  ammonium chloride sol'n.  See
Lauralkonium chloride
CAS 139-07-1; EINECS/ELINCS 205-351-5
Uses: Bactericide used for sanitation and
  disinfection in hospitals, institutions,
  veterinary apps
Features: Highly effective at low concentrations
Regulatory: JP compliance
Properties: Lt. yel. liq.; mild odor, odorless when
  diluted; freely sol. in water, lower alcohols,
  ketones, and glycols; pH 8 (10%); cationic;
  50.1-52.5% act.
Toxicology: LD50 (oral, rat) 350 mg/kg; skin
  and eye irritant; prolonged/repeated skin
  contact causes dermatitis
Precaution: Corrosive to iron, steel, brass
Storage: Stable after prolonged storage in tightly
  closed containers in cool, dry, well-ventilated
  area away from heat, sparks, flame, strong
  oxidizing agents
Gemtone® [Engelhard]
Chem. Descrip.: Titanium dioxide-coated mica
  with iron oxides, iron blue, carmine,
  or chromium oxide
Uses: Rich, lustrous pigments deriving color
  from both light interference and light
  absorption; for analgesic body lotions,
  sunscreens, toothpaste
Properties: Powd.; insol.; avg. particle size 25 µ;
  sp.gr. 3.0
Genesolv® D [Honeywell Spec. Chems.
  http://www.honeywell.com/sites/sm/index.jsp]
Chem. Descrip.: Trichlorotrifluoroethane
CAS 76-13-1; EINECS/ELINCS 200-936-1
UN NA3082
Uses: Solvent for biomedical parts; isolates
  viruses in biomedical
Features: Selective solvency; compat. with most
  metals, plastics, elastomers; less toxic than
  chlorinated solvs.; nonflamm.; nonexplosive;
  chemically stable; economical; recoverable
Regulatory: DOT nonregulated below 5000 lb;
  SARA §311 immediate/delayed hazard, §313
  reportable; subject to EPA Clean Air Act
  Regs.; EINECS, Japan MITI, Korea MOE,
  Canada DSL, Australia AICS listed
Properties: Colorless volatile liq.; ethereal faint
  sweetish odor; sol. 0.028% in water (21.1 C);
  m.w. 187.4; sp.gr. 1.47 (21.1 C); dens. 31.1
  lb/gal (21.1 C, liq.); f.p. -35 C; b.p. 47.6 C; KB
  value 32; sp. heat 0.21 Btu/lb° F (liq.); dielec.
  str. 37 kV (0.1 in.); dielec. const. 2.41 (60 Hz);
  vol. resist. 1016 ohm-cm; 100% act.
Toxicology: LC50 (inh., rat 2 h) 110,000 ppm;
  ACGIH TLV/TWA (8 h) 1000 ppm, STEL 1250
  ppm; overexposure may cause dizziness;
  loss of concentration, and at higher levels,
  CNS depression, cardiac arrhythmia;
  vapors displace air and can cause
  asphyxiation in confined spaces; may cause
  skin irritation, defatting on
  prolonged/repeated contact; may cause eye
  irritation, conjunctivitis; TSCA listed
Environmental: LC50 (flathead minnow, 96 h)
  1250 ppm; ozone depleting; minimal
  biodeg.; prevent contamination of ground-
  and surf. waters; do not vent to the
  atmosphere
Precaution: Vapors in the flamm. range, esp.
  in confined or poorly ventilated spaces, can be
  ignited with a flame or strong ignition
  sources; contact with some finely divided
  reactive metals may cause
  explosive/exothermic reactions; incompat.
  with strong acids and alkalis, reactive
  metals (e.g., powd. aluminum, sodium,
  potassium, calcium, magnesium, zinc,
  barium, lithium), strong oxidizing agents
Hazardous Decomp. Prods.: At high temps. (> 250 C),
  decomp. prods. may incl. hydrochloric acid,
  hydrofluoric acid,
Trade Name Reference

**Carbonyl halides such as phosgene**

**HMIS:** Health 1, Flammability 0, Reactivity 0
**Storage:** Store in closed containers in cool, dry, well-ventilated area away from direct flame, heat, sparks


Chem. Descrip.: **Trichlorofluoromethane**
CAS 75-69-4; EINECS/ELINCS 200-892-3
Uses: Aerosol propellant in pharmaceutical metered dose inhalers

Properties: Colorless liq.; faint ethereal, sweetish odor; m.w. 137.35; sp. gr. 1.47; vapor pressure 12.8 psia; f.p. -168 F (1 atm); b.p. 74.5 F (1 atm); 100%

Toxicology: LC50 (inh., 4 h, rat) 26,000 ppm; nonteratogenic; TSCA listed

Environmental: Minimal biodegrad.
Precaution: Wear goggles and impervious gloves; avoid strong acids and alkalis, reactive metals e.g., powdered or freshly abraded Al (may cause strong exothermic reaction), Na, K, Ca, Mg, Zn, molten Al, Ba, Li; avoid strong oxidizers

Hazardous Decomp. Prods.: Hydrochloric and hydrofluoric acids; and carbonyl halides, such as phosgene.

Storage: Store enclosed container in cool, well-ventilated area of low fire risk


Chem. Descrip.: **Dichlorodifluoromethane**
CAS 75-71-8; EINECS/ELINCS 200-893-9
Uses: Aerosol propellant in pharmaceutical metered dose inhalers

Properties: Colorless liq. and vapor; faint ethereal odor; m.w. 120.9; sp. gr. 1.34; vapor pressure 94.9 psia; f.p. -252 F (1 atm); b.p. -21.6 F (1 atm)

Toxicology: OSHA PEL 1000 ppm (8hr); LC50 (4 h rat) > 760,000 ppm; severe eye irritant and frostbite; TSCA listed

Precaution: Freshly abraded Al (may cause strong exothermic reactions; chemically active with K, Ca, Mg, Zn

Hazardous Decomp. Prods.: Halogens, halogen acids and possibly carbonyl halides.

Storage: Store in cool, well-ventilated area of low fire risk out of direct sunlight

**Genu® USP/100** [CP Kelco http://www.cpkelco.com]

Chem. Descrip.: **Pectin** USP/NF, FCC, EEC
CAS 9000-69-5; EINECS/ELINCS 232-553-0
Uses: Gellant, visc. builder, stabilizer, suspending agent, protective colloid, water-binder, bioadhesive in pharmaceuticals, esp. ostomy, emulsions, suspensions

Regulatory: GRAS

Properties: Wh. free-flowing gran.; fine 100-mesh particle size; free from off-flavors and odors; essentially flavorless; completely sol. in deionized water (4%, 60 C); pH 3.6-4.1 (1% aq.); < 10% moisture

**Genu® USP/200** [CP Kelco http://www.cpkelco.com]

Chem. Descrip.: **Pectin** USP/NF, FCC, EEC
CAS 9000-69-5; EINECS/ELINCS 232-553-0
Uses: Gellant, visc. builder, stabilizer, suspending agent, protective colloid, water-binder, bioadhesive in pharmaceuticals, esp. ostomy, emulsions, suspensions

Regulatory: GRAS

Properties: Wh. free-flowing gran.; fine 200-mesh particle size; free from off-flavors and odors; essentially flavorless; completely sol. in deionized water (4%, 60 C); pH 3.6-4.4 (1% aq.); < 10% moisture

**Genu® USP-L/200** [CP Kelco http://www.cpkelco.com]

Chem. Descrip.: **Pectin** USP/NF, FCC, EEC
CAS 9000-69-5; EINECS/ELINCS 232-553-0
Uses: Gellant, visc. builder, stabilizer,
suspending agent, protective colloid, water-binder, bioadhesive in pharmaceuticals, esp. emulsions, suspensions

Regulatory: GRAS

Properties: Wh. free-flowing gran.; fine 200-mesh particle size; free from off-flavors and odors; essentially flavorless; completely sol. in deionized water (4%, 60°C); visc. 80-180 cps (2%); pH 3.6-4.4 (1% aq.); < 10% moisture

Genu® VV-11PF [CP Kelco http://www.cpkelco.com]
Chem. Descrip.: Iota-Carrageenan USP/NF, FCC, EEC See Carrageenan (Chondrus crispus)
CAS 9000-07-1; EINECS/ELINCS 232-524-2
Uses: Thickener, stabilizer, suspending agent, gellant, water-binder in pharmaceuticals
Properties: Completely sol. in hot water (60°C); visc. > 5 cps; pH 7-10 (0.5%); < 12.5% moisture

Genu® VV-41PF [CP Kelco http://www.cpkelco.com]
Chem. Descrip.: Kappa-lambda-Carrageenan USP/NF, FCC, EEC See Carrageenan (Chondrus crispus)
CAS 9000-07-1; EINECS/ELINCS 232-524-2
Uses: Thickener, stabilizer, suspending agent, gellant, water-binder in pharmaceuticals
Properties: Completely sol. in hot water (60°C); visc. > 5 cps; pH 7-10 (0.5%); < 12.5% moisture

Genu® VV-71PF [CP Kelco http://www.cpkelco.com]
Chem. Descrip.: Kappa-Carrageenan USP/NF, FCC, EEC See Carrageenan (Chondrus crispus)
CAS 9000-07-1; EINECS/ELINCS 232-524-2
Uses: Thickener, stabilizer, suspending agent, gellant, water-binder in pharmaceuticals
Properties: Completely sol. in hot water (60°C); visc. > 5 cps; pH 7-10 (0.5%); < 12.5% moisture

Genu® Carrageenan [CP Kelco http://www.cpkelco.com]
Chem. Descrip.: Carrageenan See Carrageenan (Chondrus crispus)
CAS 9000-07-1; EINECS/ELINCS 232-524-2
Uses: Gellant, thickener, stabilizer, suspending agent, water binder in pharmaceuticals

Genugel® X-902-02 [CP Kelco http://www.cpkelco.com]
Chem. Descrip.: Carrageenan See Carrageenan (Chondrus crispus)
CAS 9000-07-1; EINECS/ELINCS 232-524-2
Uses: Gellant, thickener, stabilizer, and suspender used in pharmaceuticals; water binder; imparts desirable body and mouthfeel
Features: Nat.; resistant to enzymatic degradation
and dry conditions in unopened pkg.

**Genu® Pectin (citrus) type USP-H** [CP Kelco http://www.cpkelco.com]

*Chem. Descrip.:* Pectin USP

*CAS:* 9000-69-5; *EINECS/ELINCS* 232-553-0

*Uses:* Thickener and stabilizer in pharmaceutical emulsions and suspensions

*Regulatory:* USP compliance

*Properties:* Cream to lt. tan free-flowing gran.; essentially odorless and flavorless; sol. in water; visc. 200-450 cP (2%); pH 3.6-4.4 (1% aq.)

**Genu® Pectin (citrus) type USP-L/200** [CP Kelco http://www.cpkelco.com]

*Chem. Descrip.:* Pectin USP

*CAS:* 9000-69-5; *EINECS/ELINCS* 232-553-0

*Uses:* Thickener and stabilizer in pharmaceutical emulsions and suspensions

*Regulatory:* USP compliance

*Properties:* Cream to lt. tan free-flowing gran.; essentially odorless and flavorless; sol. in water; visc. 80-180 cP (2%); pH 3.6-4.4 (1% aq.)

**Genu® Pectin USP/100** [CP Kelco http://www.cpkelco.com]

*Chem. Descrip.:* Pectin USP

*CAS:* 9000-69-5; *EINECS/ELINCS* 232-553-0

*Uses:* Visc. builder, bodying agent, suspending agent, protective colloid, and stabilizer for pharmaceuticals; stabilizer, water binder, adhesive for pharmaceutical suspensions, emulsions, ostomy adhesives, wound care dressings

*Regulatory:* FCC, EEC compliance; GRAS

*Properties:* Free-flowing granulate; essentially odorless and flavorless; sol. in water as 4% sol'n. @ 60 C; high m.w.; whiteness > 88; pH 3.6-4.4 (1% aq.)

**Genu® Pectin USP/200** [CP Kelco http://www.cpkelco.com]

*Chem. Descrip.:* Pectin USP

*CAS:* 9000-69-5; *EINECS/ELINCS* 232-553-0

*Uses:* Visc. builder, bodying agent, suspending agent, protective colloid, and stabilizer for pharmaceuticals; stabilizer, water binder, adhesive for pharmaceutical suspensions, emulsions, ostomy adhesives, wound care dressings

*Regulatory:* FCC, EEC compliance; GRAS

*Properties:* Free-flowing granulate; essentially odorless and flavorless; sol. in water as 4% sol'n. @ 60 C; visc. 80-180 cs (2%); pH 3.6-4.4 (1% aq.)

**Genuvisco®** [CP Kelco http://www.cpkelco.com]

*Chem. Descrip.:* Carrageenan See Carrageenan (Chondrus crispus)

*CAS:* 9000-07-1; *EINECS/ELINCS* 232-524-2

*Uses:* Gellant, thickener, stabilizer, and suspender used in pharmaceuticals; water binder; imparts desirable body and mouthfeel

**Germaben® II** [ISP Sutton Labs]

*Chem. Descrip.:* Diazolidinyl urea (30%), propylene glycol (56%), methylparaben (11%), and propylparaben (3%)

*Uses:* Antimicrobial preservative for pharmaceuticals, topicals, medicated shampoos, emulsion prods., germicidal creams/ointments

*Features:* Broad-spectrum; effective over wide pH range, against Gram-positive and -negative bacteria, yeast, molds

*Regulatory:* USA and Europe approvals

*Properties:* Pale to lt. yel. cl. visc. liq.; char. mild odor; sol. @ 1% in aq. sol'n. and oil-water emulsions; sp.gr. 1.1731-1.1839; vapor pressure 0.22 mm Hg (20 C); b.p. 187.2 C; flash pt. (TCC) > 93.3 C; 42.5-45.5% total solids; 5.8-6.4% N

*Use Level:* 1% max.; 0.25-1% (medicated shampoos, emulsions), 1% (topicals)

*Toxicology:* LD50 (oral, rat) > 2000 mg/kg, (dermal, rabbit) > 2000 mg/kg; low acute oral toxicity; moderate skin irritant; severe
Trade Name Reference

- **Germall® 115** [ISP Sutton Labs]
  Chem. Descrip.: Imidazolidinyl urea USP/NF
  CAS 39236-46-9; EINECS/ELINCS 254-372-6
  Uses: Germicide, antimicrobial preservative for topical pharmaceuticals, germicidal creams/ointments, esp. cold mix formulations
  Features: Effective against Gram-positive and -negative bacteria, yeast, mold; active over wide pH range; synergistic with other preservatives
  Regulatory: EC approved
  Properties: Wh. free-flowing fine powd., char. mild odor or odorless; hygroscopic; sol. (g/100 g): 200 g in water, 50 g in propylene glycol, 16 g in glycerin; m.w. 406.33; pH 6.0-7.5 (1% aq.); 26-28% N
  Use Level: 0.2-0.6%
  Toxicology: LD50 (oral, rat) 5200 mg/kg, low acute oral toxicity; nonirritating to skin and eyes as aq. sol'n.; mild transient eye irritant as powd.; inh. of powd. may cause respiratory irritation
  Precaution: Conc. powd. in presence of ignition source may cause a dust explosion
  Storage: Keep container closed when not in use; store in cool, dry location

- **Germall® II** [ISP Sutton Labs]
  Chem. Descrip.: Diazolidinyl urea
  CAS 78491-02-8; EINECS/ELINCS 278-928-2
  Uses: Antimicrobial preservative for topical pharmaceuticals, germicidal creams/ointments
  Features: Broad-spectrum; effective against Gram-negative and -positive, and house isolate bacteria; synergistic with other preservatives; effective at low conc. levels
  Regulatory: EC approved
  Properties: Wh. free-flowing fine powd., char. mild odor or odorless; hygroscopic; very sol. in water, sol. in propylene glycol, glycerin; m.w. 278.23; 19-21% N
  Use Level: Up to 0.5%
  Toxicology: LD50 (oral, rat) 2570 mg/kg, (dermal, rabbit) > 2000 mg/kg; low acute oral toxicity; nonirritating to skin and eyes @ 5% aq. sol'n.; powd. may cause eye irritation; inh. of powd. may cause respiratory irritation

- **Germall® Plus** [ISP Sutton Labs]
  Chem. Descrip.: Diazolidinyl urea (99%) and iodopropynyl butylcarbamate (1%)
  Uses: Antimicrobial preservative for personal care prods., pharmaceuticals, OTC topical drugs, medical devices, veterinary prods.
  Features: Broad spectrum
  Properties: Wh. fine powd.; char. mild odor; sol. 1.0 g/100 g water, < 0.1 g/100 g EtOH, < 0.1 g/100 g MeOH, < 0.1 g/100 g isopropanol, 69 g/100 g PG, 0.25 g/100 g butylene glycol; pH 6-7.5 (1%)
  Use Level: 0.05-0.2%
  Toxicology: Nonirritating to skin, eyes
  Storage: Hygroscopic; store in sealed, orig. container in cool, dry location

- **Glicepol 560** [Canamex](http://www.canamex.com.mx)
  Chem. Descrip.: Glycerol stearate self-emulsifying
  See Glycerol stearate SE
  CAS 11099-07-3
  Uses: Emulsifier for pharmaceutical o/w emulsions
  Properties: Wh. creamy flakes; HLB 10.0; anionic; 100% conc.

- **Glicerina USP** [Undesa](http://www.undesa.com)
  Chem. Descrip.: 1,2,3-Propanetriol See Glycerin
  CAS 56-81-5; EINECS/ELINCS 200-289-5
  Uses: Plasticizer, solvent, solubilizer; preservative, emollient, sweetener, humectant in pharmaceuticals
  Regulatory: USP
  Properties: Colorless, odorless liq.; sol. in water; insol. in fat; dens. ≈ 1.26 g/ml; vapor pressure < 1 mbar; m.p. 18 C; b.p. ≈ 290 C; flash pt. > 180 C
  Toxicology: LD50 (oral, rat) > 10 g/kg; relatively nontoxic
  Environmental: Biodeg.; considered to be low toxicity for aquatic life
  Precaution: Wear gloves, goggles, overalls; avoid contact with flames and strong oxidants; keep out of sewers, drains, surface water currents
Trade Name Reference

Hazardous Decomp. Prods.: Acrolein
Storage: Store in closed container @ R.T.

Glicerina USP V [Undesa http://www.undesa.com]
Chem. Descrip.: 1,2,3-Propanetriol See Glycerin
CAS 56-81-5; EINECS/ELINCS 200-289-5
Uses: Plasticizer, solvent, solubilizer; preservative, emollient, sweetener, humectant in pharmaceuticals
Regulatory: USP
Properties: Colorless, odorless liq.; sol. in water; insol. in fat; dens. ≈ 1.26 g/ml; vapor pressure < 1 mbar; m.p. 18 C; b.p. ≈ 290 C; flash pt. > 180 C
Toxicology: LD50 (oral, rat) > 10 g/kg; relatively nontoxic
Environmental: Biodeg.; considered to be low toxicity for aquatic life
Precaution: Wear gloves, goggles, overalls; avoid contact with flames and strong oxidants; keep out of sewers, drains, surface water currents
Hazardous Decomp. Prods.: Acrolein
Storage: Store in closed container @ R.T.

Chem. Descrip.: Glyceryl dilaurate
CAS 27638-00-2; EINECS/ELINCS 248-586-9
Uses: Vehicle for injectable substances; facilitates the incorporation of liposoluble active ingredients
Properties: Nonionic

Chem. Descrip.: PEG 400 cocoate See PEG-8 cocoate
CAS 61791-29-5
Uses: O/w emulsifier, thickener, antifoam, dispersant, base for pharmaceuticals
Regulatory: Not classified as dangerous for transport
Properties: Lt. yel. liq.; typical odor; sol. in water, fat; dens. ≈ 1.03; m.p. ≈ 10 C; flash pt > 250 C; nonionic
Environmental: Biodeg.; keep out of sewers, drains, surface and underground water; considered to be low toxicity to aquatic life
Precaution: Wear gloves, goggles, overalls; avoid contact with flames
Hazardous Decomp. Prods.: Can generate adductors of ethylene oxide
Storage: Store in original, closed container @ R.T.; protect from dampness, heat sources

Chem. Descrip.: PEG-12 laurate
CAS 9004-81-3
Uses: O/w emulsifier, thickener, antifoam, dispersant, base for pharmaceuticals
Regulatory: Not classified as dangerous for transport
Properties: Lt. yel. liq.; typical odor; sol. in water, fat; dens. ≈ 1.03; m.p. ≈ 12 C; flash pt > 235 C; nonionic
Environmental: Biodeg.; keep out of sewers, drains, surface and underground water; considered to be low toxicity to aquatic life
Precaution: Wear gloves, goggles, overalls; avoid contact with flames
Hazardous Decomp. Prods.: Can generate adductors of ethylene oxide
Storage: Store in original, closed container @ R.T.; protect from dampness, heat sources

Hazardous Decomp. Prods.: Can generate adductors of ethylene oxide
Storage: Store in original, closed container @ R.T.; protect from dampness and heat sources
Trade Name Reference

Glicopol 225 [Undesa
http://www.undesa.com; S. Black
http://www.sblack.com]
Chem. Descrip.: PEG-8 dilaurate
CAS 9005-02-1
Uses: O/w emulsifier, thickener, antifoam, dispersant, base for pharmaceuticals
Properties: Nonionic

Gloria® [Chemtura
http://www.chemtura.com]
Chem. Descrip.: Wh. mineral oil USP
CAS 8020-83-5; EINECS/ELINCS 232-384-2
Uses: Emollient, lubricant, carrier for pharmaceuticals, ointments, creams, veterinary preps.
Regulatory: FDA 21CFR §172.878, §178.3620a
Properties: Water-wh., odorless, tasteless; sp.gr. 0.859-0.880; visc. 39-42 cSt (40 C); pour pt. -12 C; flash pt. 204 C

Glucam® E-10 [Noveon
http://www.carbopol.com;
http://www.noveoncoatings.com]
Chem. Descrip.: Methyl gluceth-10
CAS 68239-42-9
Uses: Humectant, solvent, and solubilizer for topical pharmaceuticals; humectant, moisturizer, gloss aid, conditioner for emulsions; emollient in aq. and hydroalcoholic prods.
Properties: Pale yel. med. visc. syrups; pract. odorless; sol. in water, alcohol, hydroalcoholic systems; acid no. 1.5 max.; iodine no. 1 max.; sapon. no. 1.5 max.; hyd. no. 350-370; nonionic; 100% conc.
Toxicology: LD50 (acute oral) > 5 ml/kg; nonirritating to eyes and skin

Glucam® E-20 [Noveon
http://www.carbopol.com;
http://www.noveoncoatings.com]
Chem. Descrip.: Methyl gluceth-20
CAS 68239-43-0
Uses: Humectant, solvent, and solubilizer for topical pharmaceuticals; emollient in aq. and hydroalcoholic prods.
Properties: Pale yel. thin syrup; pract. odorless; sol. in water, alcohol, hydroalcoholic systems; acid no. 1.0 max.; iodine no. 1 max.; sapon. no. 1.0 max.; hyd. no. 205-225; nonionic; 100% conc.

Glucam® P-10 [Noveon
http://www.carbopol.com;
http://www.noveoncoatings.com]
Chem. Descrip.: PPG-10 methyl glucose ether
cas 61849-72-7
Uses: Solvent and solubilizer for topical pharmaceuticals; emollient in aq. and hydroalcoholic prods.
Properties: Pale yel. heavy visc. syrups; pract. odorless; sol. in water, alcohol, hydroalcoholic systems, castor oil, IPM, IPP; visc. 8500 cps; acid no. 1.0 max.; iodine no. 1 max.; sapon. no. 1.0 max.; hyd. no. 285-305; nonionic; 100% conc.
Toxicology: LD50 (acute oral) > 5 ml/kg; nonirritating to skin; mild transient irritation to eyes

Glucam® P-20 [Noveon
http://www.carbopol.com;
http://www.noveoncoatings.com]
Chem. Descrip.: PPG-20 methyl glucose ether
CAS 61849-72-7
Uses: Solvent and solubilizer for topical pharmaceuticals; emollient in aq. and hydroalcoholic prods.
Properties: Pale yel. med. visc. syrup; pract. odorless; sol. in water, alcohol, hydroalcoholic systems, castor oil, IPM, IPP; visc. 1700 cps; acid no. 1.0 max.; iodine no. 1 max.; sapon. no. 1.0 max.; hyd. no. 160-180; nonionic; 100% conc.
Toxicology: LD50 (acute oral) > 3 ml/kg; nonirritating to skin; mild transient irritation to eyes

Glucam® P-20 Distearate [Noveon
http://www.carbopol.com;
http://www.noveoncoatings.com]
Chem. Descrip.: PPG-20 methyl glucose ether distearate
CAS 93821-74-0
Uses: Skin moisturizer, conditioner, slip agent, and emollient for pharmaceuticals
Features: Barrier to reduce water loss from stratum corneum
Properties: Pale amber liq.; sol. in IPM, castor oil, corn oil, ethanol, hot min. oil; insol. in water, propylene glycol, aq. ethanol; acid no. 2.5 max.; sapon. no. 58-72; hyd. no. 50-70; flash pt. (COC) 545 F
Toxicology: LD50 (acute oral) > 5 g/kg; not a primary skin irritant; pract. nonirritating to
Glucamate® DOE-120 [Noveon
http://www.carbopol.com;
http://www.noveoncoatings.com]
Chem. Descrip.: PEG-120 methyl glucoside dioleate See PEG-120 methyl glucose dioleate
CAS 86893-19-8
Uses: Thickener, emulsifier, solubilizer for topical pharmaceuticals; anti-irritant for surfactants
Properties: Lt. yel. waxy solid, faint char. odor; water-sol.; flash pt. (COC) 695 F; acid no. 1 max.; iodine no. 5-15; hyd. no. 14-26; sapon. no. 14-26; pH 4.5-7.5 (10% aq.); nonionic; 100% conc.
Toxicology: LD50 (acute oral) > 5 g/kg; not a primary skin irritant; nonirritating to eyes

Glucamate® SSE-20 [Noveon
http://www.carbopol.com;
http://www.noveoncoatings.com]
Chem. Descrip.: PEG-20 methyl glucose sesquistearate
CAS 68389-70-8
Uses: O/w emulsifier, solubilizer for topical pharmaceuticals
Features: Used with Glucate SS; effective at low concs.
Properties: Pale yel. soft solid; sol. in water, IPA, ethanol, castor oil, corn oil; HLB 15.0; cloud pt. 74 C (1% in 5% NaCl); flash pt. 570 F (OC); sapon. no. 47; pH 6.5 (10% aq.); nonionic; 100% conc.
Toxicology: LD50 (acute oral) > 5 g/kg; mild transient eye irritant; not a primary skin irritant

Glucate® DO [Noveon
http://www.carbopol.com;
http://www.noveoncoatings.com]
Chem. Descrip.: Methyl glucose dioleate
CAS 83933-91-3; EINECS/ELINCS 280-069-3
Uses: Conditioner, emollient, lubricant, plasticizer, and pigment dispersant for topical pharmaceuticals; w/o emulsifier, aux. emulsifier for o/w systems
Properties: Amber visc. liq.; HLB 5.0; nonionic; 100% conc.
Toxicology: LD50 (acute oral) > 5 g/kg; nonirritating to eyes; not a primary skin irritant

Glucate® SS [Noveon
http://www.carbopol.com;]
**Trade Name Reference**

**Features:** Highly compressible; easier handling and processing; better flowability; quick disp. and dissolution; consistent particle size

**Regulatory:** USP/NF, EP

**Properties:** Spherical, wh. free-flowing microgran. powd.; odorless; almost instantaneous dispersal and dissolution in water

**Glucidex® IT19** [Roquette](http://www.roquette.fr)

**Chem. Descrip.:** Maltodextrin

**CAS** 9050-36-6; EINECS/ELINCS 232-940-4

**Uses:** Excipient, binder for pharmaceuticals, direct compression tableting; carrier for flavors and fragrances

**Features:** Highly compressible; easier handling and processing; better flowability; quick disp. and dissolution; consistent particle size

**Regulatory:** USP/NF, EP

**Properties:** Spherical, wh. free-flowing microgran. powd.; odorless; almost instantaneous dispersal and dissolution in water

**Glucidex® IT21** [Roquette](http://www.roquette.fr)

**Chem. Descrip.:** Dried glucose syrup  See Glucose, liquid

**Uses:** Excipient, binder for pharmaceuticals, direct compression tableting; carrier for flavors and fragrances

**Features:** Highly compressible; easier handling and processing; better flowability; quick disp. and dissolution; consistent particle size

**Regulatory:** USP/NF, EP

**Properties:** Spherical, wh. free-flowing microgran. powd.; odorless; almost instantaneous dispersal and dissolution in water

**Glucidex® IT29** [Roquette](http://www.roquette.fr)

**Chem. Descrip.:** Dried glucose syrup  See Glucose, liquid

**Uses:** Excipient, binder for pharmaceuticals, direct compression tableting; carrier for flavors and fragrances

**Features:** Highly compressible; easier handling and processing; better flowability; quick disp. and dissolution; consistent particle size

**Regulatory:** USP/NF, EP

**Properties:** Spherical, wh. free-flowing microgran. powd.; odorless; almost instantaneous dispersal and dissolution in water

**Glucidex® IT33** [Roquette](http://www.roquette.fr)

**Chem. Descrip.:** Dried glucose syrup  See Glucose, liquid

**Uses:** Excipient, binder for pharmaceuticals, direct compression tableting; carrier for flavors and fragrances

**Features:** Highly compressible; easier handling and processing; better flowability; quick disp. and dissolution; consistent particle size

**Regulatory:** USP/NF, EP

**Properties:** Spherical, wh. free-flowing microgran. powd.; odorless; almost instantaneous dispersal and dissolution in water

**Glucidex® IT38** [Roquette](http://www.roquette.fr)

**Chem. Descrip.:** Dried glucose syrup  See Glucose, liquid

**Uses:** Excipient, binder for pharmaceuticals, direct compression tableting; carrier for flavors and fragrances

**Features:** Highly compressible; easier handling and processing; better flowability; quick disp. and dissolution; consistent particle size

**Regulatory:** USP/NF, EP

**Properties:** Spherical, wh. free-flowing microgran. powd.; odorless; almost instantaneous dispersal and dissolution in water

**Glucidex® IT47** [Roquette](http://www.roquette.fr)

**Chem. Descrip.:** Dried glucose syrup  See Glucose, liquid

**Uses:** Excipient, binder for pharmaceuticals, direct compression tableting; carrier for flavors and fragrances

**Features:** Highly compressible; easier handling and processing; better flowability; quick disp. and dissolution; consistent particle size

**Regulatory:** USP/NF, EP

**Properties:** Spherical, wh. free-flowing microgran. powd.; odorless; almost instantaneous dispersal and dissolution in water

**Gluconal® CAA-P-IN** [PURAC Am.](http://www.purac.com)

**Chem. Descrip.:** Calcium gluconate anhydrous FCC/USP

**CAS** 299-28-5; EINECS/ELINCS 206-075-8

**Uses:** Mineral source for human and veterinary pharmaceuticals intended for use in the preparation of injectable
Trade Name Reference

dosages.
Regulatory: USP, FDA 21CFR §184.1199; US
GRAS, E 578 California Proposition 65
compliance
Properties: Wh. free-flowing powd.; odorless;
pract. tasteless; sol. 30 g/l water; m.w. 430.4;
bulk dens. 250-350 kg/m³; pH 7.4 (1%); 98-
102% assay
Toxicology: LD50 (oral, rat) > 5000 mg/kg;
nontoxic; nonhazardous at current use
levels; extremely high levels may result in
hypercalcemia and possible renal
impairment
Environmental: Readily biodegradable;
noncotoxic under normal circumstances
Storage: Store in well-closed containers in dry
place at ambient temps. (15-20 C); material
should be retested after 3 yrs. storage
Gluconal® CADS [PURAC Am.
http://www.purac.com]
Chem. Descrip.: Calcium D-saccharate USP
See Calcium saccharate
CAS 5793-88-4; EINECS/ELINCS 227-334-1
Uses: Stabilizer for calcium gluconate sol’ns.
Features: High solubility, bioavailability,
biocompatibility; neutral taste
Regulatory: USP
Properties: Wh. cryst. powd.; odorless; tasteless;
pract. insol. in water; m.w. 320.3; bulk dens.
≈ 600 kg/m³; 98.5-102% assay
Toxicology: LD50: (oral, rat) > 2000 mg/kg;
nontoxic; nonhazardous at current use
levels; extremely high levels may result in
hypercalcemia and possible renal
impairment
Storage: Store in well-closed containers in dry
place at ambient temps. (15-20 C); material
should be retested after 3 yrs. storage
Gluconal® CAMB [PURAC Am.
http://www.purac.com]
Chem. Descrip.: Calcium borogluconate
CAS 5743-34-0
Uses: Mineral source for veterinary
pharmaceuticals, dietary supplements
Features: High solubility, bioavailability,
biocompatibility; neutral taste
Regulatory: USP. EP, E 579; FDA GRAS
Properties: Lt. blue powd.; faint char. odor;
amost tasteless; sol. 400-600 g/l water;
m.w. 482.2; bulk dens. 650-850 kg/m³; pH 4.50.5%
(10 g/90 g water); decomp. temp. ≈ 100 C; 97.0-102.0% assay
Toxicology: LD50 (oral, rat) 4600 mg/kg;
harmful if swallowed; nonhazardous at
current use levels
Environmental: Readily biodegradable; no
bioaccumulation
Precaution: Avoid strong oxidizers
Hazardous Decomp. Prods.: COx
Storage: Store in well-closed containers,
protected from light, in dry place at ambient
temps. (15-20 C); material should be retested
after 3 yrs. storage
Gluconal® K-G [PURAC Am.
http://www.purac.com]
Trade Name Reference

**Gluconal® MN-P** [PURAC Am.

Chem. Descrip.: Manganese gluconate
FCC/USP
CAS 6485-39-8; EINECS/ELINCS 229-350-4
Uses: Mineral source for human and veterinary pharmaceuticals, dietary supplements
Features: High solubility, bioavailability, biocompatibility; neutral taste
Regulatory: USP, FDA 21CFR §184.1452, 582.5452; US GRAS compliant
Properties: Off-wh. odorless powd. or gran.; astringent taste; sol. 110 g/l cold water; m.w. 481.3; bulk dens. 500-600 kg/m³; pH ≈ 6.5 (50 g/l H₂O, sol’n.); 90.5-100% act.
Toxicology: LD₅₀ (oral, rat) > 5000 mg/kg; nonhazardous at current use levels; nontoxic
Environmental: Readily biodegrad.; no bioaccumulation
Precaution: Use dust mask, safety glasses; avoid strong oxidizers
Hazardous Decomp. Prods.: COₓ
Storage: Store in well-closed containers in dry place at ambient temps. (15-20 C); material should be retested after 3 yrs. storage

**Gluconal® ZN-G** [PURAC Am.

Chem. Descrip.: Zinc gluconate
FCC/USP
CAS 4468-02-4; EINECS/ELINCS 224-736-9
Uses: Mineral source for human and veterinary pharmaceuticals, dietary supplements; act. ingred. in lozenges and other hygienic preps.; mineral source, bacteriostat in oral treatments
Features: High solubility, bioavailability, biocompatibility; neutral taste
Regulatory: USP, FCC, FDA 21CFR §182.8988; US GRAS, California Proposition 65 compliant
Properties: Wh. to off-wh. powd./gran.; almost tasteless; faint characteristic odor; sol. 100 g/l cold water; m.w. 455.7; bulk dens. 600-800 kg/m³; pH 6.5 (1%); decomp. temp. ≈155 C; 85.5-100% act.
Toxicology: LD₅₀ (oral, rat) > 5000 mg/kg; nonhazardous at current use levels
Environmental: Readily biodegrad.; no bioaccumulation
Precaution: Use dust mask, safety glasses; avoid strong oxidizers
Hazardous Decomp. Prods.: COₓ
Storage: Store in well-closed containers in dry place at ambient temps. (15-20 C); material should be retested after 3 yrs. storage

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**Gluconal® MG-P** [PURAC Am.

Chem. Descrip.: Magnesium gluconate
FCC/USP
CAS 3632-91-5; EINECS/ELINCS 222-848-2
Uses: Mineral source for human and veterinary pharmaceuticals, dietary supplements
Features: High solubility, bioavailability, biocompatibility; neutral taste
Regulatory: USP, US GRAS, E 580 compliant
Properties: Wh. to off-wh. powd./gran.; sol. 160 g/l cold water; m.w. 414.6; bulk dens. 500-750 kg/m³; pH 7.3 ((50 g/l H₂O, solution)); 86-99% act.
Toxicology: LD₅₀ (oral, rat) > 5000 mg/kg; nonhazardous at current use levels
Environmental: Readily biodegrad.; no bioaccumulation
Precaution: Use dust mask, safety glasses; avoid strong oxidizers
Hazardous Decomp. Prods.: COₓ
Storage: Store in well-closed containers in dry place at ambient temps. (15-20 C); material should be retested after 3 yrs. storage

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**Gluconal® ZN-G** [PURAC Am.

Chem. Descrip.: Zinc gluconate
FCC/USP
CAS 4468-02-4; EINECS/ELINCS 224-736-9
Uses: Mineral source for human and veterinary pharmaceuticals, dietary supplements; act. ingred. in lozenges and other hygienic preps.; mineral source, bacteriostat in oral treatments
Features: High solubility, bioavailability, biocompatibility; neutral taste
Regulatory: USP, FCC, FDA 21CFR §182.8988; US GRAS, California Proposition 65 compliant
Properties: Wh. to off-wh. powd./gran.; almost tasteless; faint characteristic odor; sol. 100 g/l cold water; m.w. 455.7; bulk dens. 600-800 kg/m³; pH 6.5 (1%); decomp. temp. ≈155 C; 85.5-100% act.
Toxicology: LD₅₀ (oral, rat) > 5000 mg/kg; nonhazardous at current use levels
Environmental: Readily biodegrad.; no bioaccumulation
Precaution: Use dust mask, safety glasses; avoid strong oxidizers
Hazardous Decomp. Prods.: COₓ
Storage: Store in well-closed containers in dry place at ambient temps. (15-20 C); material should be retested after 3 yrs. storage
Trade Name Reference

place at ambient temps. (15-20 C); material should be retested after 3 yrs. storage

Glucona® ZN-P [PURAC Am.  
http://www.purac.com]  
Chem. Descrip.: Zinc gluconate anhydrous  
Chem. Analysis: 11.6% max. moisture  
CAS 4468-02-4; EINECS/ELINCS 224-736-9  
Uses: Mineral source for human and veterinary pharmaceuticals, dietary supplements; act. ingred. in lozenges and other hygienic preps.; mineral source, bacteriostat in oral treatments  
Features: High solubility, bioavailability, biocompatibility; neutral taste  
Regulatory: USP, FCC, FDA 21CFR §182.8988; US GRAS, California Proposition 65 compliant  
Properties: Wh. to off-wh. powd.; almost tasteless; faint characteristic odor; sol. in water (10 g/100 ml); m.w. 455.7; bulk dens. 600-800 kg/m³; pH 6.5 (1%); decomp. temp. ≈155 C; 97.0-102.0% assay  
Toxicology: LD50 (oral, rat) > 5000 mg/kg; nonhazardous at current use levels  
Environmental: Readily biodegrad.; no bioaccumulation  
Precaution: Use dust mask, safety glasses; avoid strong oxidizers  
Hazardous Decomp. Prods.: COx  
Storage: Store in well-closed containers in dry place at ambient temps. (15-20 C); material should be retested after 3 yrs. storage

Glycerox 767 [Croda Inc  
http://www.croda.com;  
http://www.crodausa.com; Croda Chem. Europe Ltd http://www.croda.co.uk]  
Chem. Descrip.: PEG-6 caprylic/capric glycerides, naturally derived  
Uses: Solubilizer for pharmaceutical hydroalcoholic systems; emollient, humectant in topical pharmaceuticals  
Features: Mild; minimal effect on foaming; can lower visc. of some systems  
Properties: Pale yel. cl. liq.; low char. odor; sol. in water, alcohol, oleyl alcohol, propylene glycol; partly sol. in IPM; insol. in min. oil; HLB 13.2; acid no. 1 max.; iodine no. 1 max.; sapon. no. 90-100; nonionic; 0.5% max. moisture  
Use Level: 2-10%

Glycerox HE [Croda Inc  
http://www.croda.com;  
http://www.crodausa.com; Croda Chem. Europe Ltd http://www.croda.co.uk]  
Chem. Descrip.: PEG-7 glyceryl cocoate  
Uses: Emulsifier, solubilizer in topical pharmaceuticals; o/w emulsifier, solubilizer, emollient for antiperspirants  
Features: Mildness additive  
Regulatory: EP  
Properties: Colorless to pale yel. cl. liq.; sol. in water, min. oil, IPA; insol. in propylene glycol; HLB 10.6; nonionic  
Glycerox L15 [Croda Chem. Europe Ltd http://www.croda.co.uk]  
Chem. Descrip.: PEG-15 glyceryl laurate  
Uses: O/w emulsifier, solubilizer, emollient for pharmaceutical topicals  
Features: Good alcohol/aqueous alcohol solubility  
Properties: Colorless to pale yel. cl. liq.; water-sol.; HLB 14.0; nonionic; 100% conc.  
Glycolys® [Roquette  
http://www.roquette.fr]  
Chem. Descrip.: Sodium carboxymethyl starch  
Uses: Superdisintegrant for tablets and medicinal soaps; protects against surfactant irritancy

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Trade Name Reference

capsules
Features: Can be used either in wet granulation or direct compression processes
Regulatory: USP/NF, EP, JPE
Properties: In water, swells to 280-320 times its original granule volume; sparingly sol. in ethanol; completely insol. in water
Use Level: 2-4% recommended use level
Storage: 3 yr shelf life; store in well-closed container to protect it from moisture uptake

Glycolys® LV Low viscosity [Roquette http://www.roquette.fr]
Chem. Descrip.: Sodium carboxymethyl starch See Sodium starch glycolate
CAS 9063-38-1
Uses: Superdisintegrant for tablets and capsules
Features: Optimized to withstand high-shear wet granulation processes
Regulatory: USP/NF, EP, JPE
Properties: In water, swells to 280-320 times its original granule volume; sparingly sol. in ethanol; completely insol. in water
Use Level: 2-4% recommended use level
Storage: 3 yr shelf life; store in well-closed container to protect it from moisture uptake

Glycolys® Low pH Acid stable [Roquette http://www.roquette.fr]
Chem. Descrip.: Sodium carboxymethyl starch See Sodium starch glycolate
CAS 9063-38-1
Uses: Superdisintegrant for tablets and capsules
Features: Can be used either in wet granulation or direct compression processes; designed to resist acidic pH and maintain stability in formulations containing strongly acidic drugs
Regulatory: USP/NF, EP, JPE
Properties: In water, swells to 280-320 times its original granule volume; sparingly sol. in ethanol; completely insol. in water
Use Level: 2-4% recommended use level
Storage: 3 yr shelf life; store in well-closed container to protect it from moisture uptake

Glycomul® L K [Lonza http://www.lonza.com]
Chem. Descrip.: Sorbitan laurate
CAS 1338-39-2; EINECS/ELINCS 215-663-3
Uses: Emulsifier for pharmaceuticals
Regulatory: Kosher
Properties: Amber cl. liq.; sol. in methanol, ethanol, naphtha; disp. in water; sp.gr. 1.0; visc. 3100 cps (30 C); HLB 9; acid no. 7 max.; sapon. no. 158-170; hyd. no. 330-358; flash pt. 204 C; pH 6.5 (5%); nonionic; 99% min. conc.

Glycomul® S [Lonza http://www.lonza.com]
Chem. Descrip.: Sorbitan stearate (also avail. in veg. and kosher grade)
CAS 1338-41-6; EINECS/ELINCS 215-664-9
Uses: Emulsifier for pharmaceuticals
Properties: Lt. tan solid or beads; sol. in veg. oil; HLB 5.0; acid no. 5-10; sapon. no. 147-157; hyd. no. 235-260; nonionic; 100% conc.

Glycomul® TS [Lonza http://www.lonza.com]
Chem. Descrip.: Sorbitan tristearate
CAS 26658-19-5; EINECS/ELINCS 247-891-4
Uses: Emulsifier for pharmaceuticals
Properties: Lt. tan beads; poorly sol. in ethyl acetate, toluol, disp. in acetone, naphtha, min. and veg. oils; HLB 2.1; sapon. no. 175-190; nonionic; 100% conc.

Glycon® G-100 [Lonza http://www.lonza.com]
Chem. Descrip.: Glycerin
CAS 56-81-5; EINECS/ELINCS 200-289-5
Uses: Humectant, bodying agent, moisture control agent for toothpaste
Properties: Cl., colorless liq.; odorless; APHA 12 max. color; sol. in water; sp.gr. 1.2607; vapor pressure < 0.1 mm Hg; vapor dens. 3.17; b.p. 290 C; flash pt. (COC) 177 C; autoignition temp. 370 C; 99.5% act.

Glycon® G-300 [Lonza http://www.lonza.com]
Chem. Descrip.: Glycerin (96%)
CAS 56-81-5; EINECS/ELINCS 200-289-5
Uses: Humectant, bodying agent, moisture control agent for toothpaste
Properties: Cl., colorless liq.; odorless; APHA 12 max. color; sol. in water; sp.gr. 1.2607; vapor pressure < 0.1 mm Hg; vapor dens. 3.17; b.p. 290 C; flash pt. (COC) 177 C; autoignition temp. 370 C; 99.5% act.
Toxicology:
- LD50 (oral, rat) 12,600 mg/kg, (oral, mouse) 4090 mg/kg, (oral, guinea pig) 7750 mg/kg, (oral, rabbit) 27 g/kg, (dermal, rabbit) > 10 g/kg; mild skin, eye irritant

Environmental:
- ERC50 (mycrostic sp.) 2900 mg/l, (entosiphon sp.) 3200 mg/l

Precaution:
- Spills may be slippery; wear adequate protective clothing; incompat. with strong oxidizers

Hazardous Decomp. Prods.:
- CO2

Storage:
- Keep container until use; protect from heat, direct sunlight

Chem. Descrip.:
- Polysorbate 20
- Polysorbate 80 NF FCC
- Glycyrrhetinic Acid Phytosome®
- Granular Gum Arabic Type A-1 NF Premium

Uses:
- Emulsifier for pharmaceuticals; flavor solubilizer and dispersant
- Solubilizer, dispersant for vitamin-min. preps.
- Protective colloid, stabilizer, suspending agent, visc. builder for pharmaceuticals (suspensions, emulsions, demulcent in cough drops/syrups, tablet binder/adhesive)

Properties:
- Yel. cl. liq.; sol. in water, alcohol, acetone; sp.gr. 1.1; visc. 400 cps; HLB 16.7; acid no. 2 max.; sapon. no. 40-50; hyd. no. 96-108; pH 7 (5%); nonionic; 3% max. moisture
- Amber cl. liq., mild odor; HLB 15.0; acid no. 2 max.; sapon. no. 45-55; hyd. no. 65-80; nonionic; 3% max. moisture
- Wh. gran., almost odorless and tasteless; sol. in hot or cold water
- Wh. to sl. yel. granules or powd.; visc. 27-33 mPa-s; flash pt. > 70 C; ignition pt. 440 C (layered), 550 C (floated); dust explosion lower limit 39 g/m3; sapon. degree 86.5-89.0%; ref. index 1.55; ash content 0.7%
- Lt. yel. amorphous powd.; water-disp.
- Wh., sl. yel. granules; visc. 4.8-5.8 mPa-s; flash pt. > 70 C; ignition pt. 440 C (layered), 550 C (floated); dust explosion lower limit 39 g/m3; sapon. degree 86.5-89.0%; ref. index 1.55; ash content 0.7%
- Lt. amorphous powd.; water-disp.
- Wh. gran., almost odorless and tasteless; sol. in hot or cold water
Granular Gum Arabic Type A-2 NF Premium

[Granular Gum Arabic Type A-2 NF Premium]
Chem. Descrip.: Gum Arabic See Acacia
CAS 9000-01-5; EINECS/ELINCS 232-519-5
Uses: Protective colloid, stabilizer, suspending agent, viscosifier for pharmaceuticals (suspensions, emulsions, demulcent in cough drops/syrups, tablet binder/adhesive); flavoring agent
Properties: Wh. gran., almost odorless and tasteless; sol. in hot or cold water

Granular Gum Ghatti #1

[Granular Gum Ghatti #1]
Chem. Descrip.: Gum ghatti
CAS 9000-28-6
Uses: Stabilizer, binder, emulsifier forming o/w emulsions; tablet binder and thick mucilage coatings in pharmaceuticals
Properties: Water-sol.

Great Lakes Gelatin/Medical 235 USP

[Great Lakes Gelatin]
Chem. Descrip.: Type A gelatin USP
CAS 9000-70-8; EINECS/ELINCS 232-554-6
Uses: Emulsifier, vehicle, binder, suspending agent designed for use in wound care and ostomy products.
Properties: Fine powder
Storage: 3 yrs. shelf life when stored in tightly closed containers in cool, dry place

Great Lakes 0-Bloom Gelatin™

[Great Lakes Gelatin]
Chem. Descrip.: Hydrolyzed gelatin USP/NF
CAS 68410-45-7; EINECS/ELINCS 270-082-2
Uses: Excipient for pharmaceuticals
Features: Will not gel
Properties: pH 5.3-6.2; 90-96% protein content; 5-7% loss on drying
Storage: 3 yrs. shelf life when stored in tightly closed containers in cool, dry place

Gum Arabic CSP Spray Dried

[Gum Arabic CSP Spray Dried]
Chem. Descrip.: Gum arabic NF from Acacia senegal See Acacia
CAS 9000-01-5; EINECS/ELINCS 232-519-5
Uses: Binder used in pharmaceutical tableting industry
Properties: Creamy wh. powd., 98% through 120 mesh; sol. 1 g/2 ml of water yielding lt. amber sol'n.; pH 4.0-4.5

Gum Arabic G-150 Powdered

[Gum Arabic G-150 Powdered]
Chem. Descrip.: Gum Arabic See Acacia
CAS 9000-01-5; EINECS/ELINCS 232-519-5
Uses: Protective colloid, stabilizer, thickener, binder; pharmaceutical emulsions, antiseptics, to mask bitter or acid taste of medicaments, tablet binder, excipient
Properties: Colorless, odorless, tasteless; water-sol.

Gum Arabic NF/FCC Clean Amber Sorts

[Gum Arabic NF/FCC Clean Amber Sorts]
Chem. Descrip.: Gum Arabic See Acacia
CAS 9000-01-5; EINECS/ELINCS 232-519-5
Uses: Protective colloid, stabilizer, thickener; pharmaceutical emulsions, antiseptics, to mask bitter or acid taste of medicaments, tablet binder, excipient; flavoring agent
Properties: Colorless, odorless, tasteless; water-sol.

Gum Guar Type M Powdered

[Gum Guar Type M Powdered]
Chem. Descrip.: Guar gum See Guar (Cyanopsis tetragonoloba) gum
CAS 9000-30-0; EINECS/ELINCS 232-536-8
Uses: Pharmaceutical tablet binder
Properties: Water-sol.

Gum Guar Type MM Powdered (HV)

[Gum Guar Type MM Powdered (HV)]
Chem. Descrip.: Guar gum See Guar (Cyanopsis tetragonoloba) gum
CAS 9000-30-0; EINECS/ELINCS 232-536-8
Uses: Pharmaceutical tablet binder
Properties: Water-sol.

Gum Guar Type MM Powdered

[Gum Guar Type MM Powdered]
Chem. Descrip.: Guar gum See Guar (Cyanopsis tetragonoloba) gum
CAS 9000-30-0; EINECS/ELINCS 232-536-8
Uses: Pharmaceutical tablet binder
Properties: Water-sol.

Gumixan K

[Gumixan K]
Chem. Descrip.: Xanthan gum
CAS 11138-66-2; EINECS/ELINCS 234-394-2
Uses: Hydrophilic colloid, thickener, suspending agent, emulsion stabilizer for pharmaceuticals (syrups, emulsions, to suspend actives)
Regulatory: FDA 21CFR §172.695; FCC; E-415;
k kosher

**Properties:** Cream to wh. powd., std. particle size; readily sol. in hot or cold water, common acidulants; sol. hot in glycerol, ethylene glycol

**Use Level:** 0.1-0.5% (syrups, emulsions), 0.2-1% (suspending of actives); 1% (cosmetics)

**Gumixan KF** [Gumix Int’l.]
**Chem. Descrip.:** Xanthan gum
**CAS** 11138-66-2; EINECS/ELINCS 234-394-2
**Uses:** Hydrophilic colloid, thickener, suspending agent, emulsion stabilizer for pharmaceuticals (syrups, emulsions, to suspend actives)
**Regulatory:** FDA 21CFR §172.695; FCC; E-415; kosher

**Properties:** Cream to wh. fine powd.; readily sol. in hot or cold water, common acidulants; sol. hot in glycerol, ethylene glycol

**Use Level:** 0.1-0.5% (syrups, emulsions), 0.2-1% (suspending of actives); 1% (cosmetics)

**Gum Tragacanth Ribbons and Flakes** [Gumix Int’l.]
**Chem. Descrip.:** Tragacanth gum See Tragacanth (Astragalus gummifer) gum
**CAS** 9000-65-1; EINECS/ELINCS 232-552-5
**Uses:** Emulsifier, suspending agent, thickener, stabilizer, binder in pharmaceuticals (emulsions, jellies, creams, toothpaste)
**Properties:** Ylsh. wh. to tan powd.; odorless, insipid taste; swells rapidly in hot or cold water; insol. in alcohol, other org. solvs.

**HCO-20** [Nikko Chems. Co. Ltd http://www.nikkol.co.jp/index.html]
**Chem. Descrip.:** PEG-20 hydrogenated castor oil
**CAS** 61788-85-0
**Uses:** Hydrotrope, emulsifier in pharmaceuticals
**Features:** Hydrophilic
**Regulatory:** JSCI listed
**Properties:** Pale yel. liq.; HLB 6.5; nonionic; 100% conc.
**Toxicology:** TSCA listed

**HCO-30** [Nikko Chems. Co. Ltd http://www.nikkol.co.jp/index.html]
**Chem. Descrip.:** PEG-30 hydrogenated castor oil
**CAS** 61788-85-0
**Uses:** Hydrotrope, emulsifier in pharmaceuticals
**Features:** Hydrophilic
**Regulatory:** JSCI listed
**Properties:** Pale yel. liq.; HLB 10.5; nonionic; 100% conc.
**Toxicology:** TSCA listed

**Chem. Descrip.:** PEG-40 hydrogenated castor oil
**CAS** 61788-85-0
**Uses:** Hydrotrope, solubilizer, emulsifier in pharmaceuticals
**Features:** Rec. for systems with high alcohol content
**Regulatory:** JSCI listed
**Properties:** Pale yel. liq.; HLB 12.5; nonionic; 100% conc.
**Toxicology:** TSCA listed

**Chem. Descrip.:** PEG-40 hydrogenated castor oil
**CAS** 61788-85-0
**Uses:** Emulsifier for pharmaceuticals
**Features:** Improved sol. in aq. systems
**Regulatory:** JSCI listed
**Properties:** Pale yel. liq.; high water sol.; HLB 12.5; nonionic
**Toxicology:** TSCA listed

**HCO-50** [Nikko Chems. Co. Ltd
Chem. Descrip.: PEG-50 hydrogenated castor oil
CAS 61788-85-0
Uses: Hydrotrope, solubilizer, emulsifier in pharmaceuticals; solubilizer for injections
Features: Rec. for systems with low alcohol content
Regulatory: JSCI listed
Properties: Wh. paste; HLB 13.5; nonionic; 100% conc.
Toxicology: TSCA listed

Chem. Descrip.: PEG-50 hydrogenated castor oil
CAS 61788-85-0
Uses: Emulsifier for pharmaceuticals; solubilizer for injections
Features: Improved sol. in aq. systems
Regulatory: JSCI listed
Properties: Wh. paste; high water sol.; HLB 13.5; nonionic
Toxicology: TSCA listed

Chem. Descrip.: PEG-60 hydrogenated castor oil
CAS 61788-85-0
Uses: Hydrotrope, solubilizer, emulsifier in pharmaceuticals; solubilizer for injections
Features: Rec. for systems with low alcohol content
Regulatory: JSCI listed
Properties: Wh. paste; HLB 14.0; nonionic; 100% conc.
Toxicology: TSCA listed

Chem. Descrip.: PEG-60 hydrogenated castor oil
CAS 61788-85-0
Uses: Emulsifier for pharmaceuticals; solubilizer for injections
Features: Improved sol. in aq. systems
Regulatory: JSCI listed
Properties: Wh. paste; high water sol.; HLB 14.0; nonionic
Toxicology: TSCA listed

Chem. Descrip.: PEG-80 hydrogenated castor oil
CAS 61788-85-0
Uses: Hydrotrope, solubilizer, thickener for aq. systems; emulsifier in pharmaceuticals
Regulatory: JSCI listed
Properties: Pale yel. liq.; HLB 15.0; nonionic; 100% conc.
Toxicology: TSCA listed

Chem. Descrip.: Alumina trihydrate See Aluminum hydroxide
Chem. Analysis: Al₂O₃ (64.8%); total Na₂O (0.29%); sol. Na₂O (0.03%); SiO₂ (0.01%); Fe₂O₃ (0.01%)
CAS 21645-51-2; EINECS/ELINCS 244-492-7
Uses: Polishing agent for dentifrices; approved for internal use
Properties: Wh. free-flowing powd.; 5.0 µ median particle size; 99% < 11 µ; sp.gr. 2.42; bulk dens. (loose) 0.6 g/cm³; surf. area 5 m²/g; oil absorp. 27; TAPPI brightness 90+; ref. index 1.57; hardness (Mohs) 3; 0.4% free moisture

Chem. Descrip.: Alumina trihydrate See Aluminum hydroxide
Chem. Analysis: Al₂O₃ (64.8%); total Na₂O (0.29%); sol. Na₂O (0.04%); SiO₂ (0.01%); Fe₂O₃ (0.01%)
CAS 21645-51-2; EINECS/ELINCS 244-492-7
Uses: Polishing agent for dentifrices; approved for internal use
Properties: Wh. free-flowing powd.; 3.6 µ median particle size; 99% < 11 µ; sp.gr. 2.42; bulk dens. (loose) 0.56 g/cm³; surf. area 6 m²/g; oil absorp. 27; TAPPI brightness 90+; ref. index 1.57; hardness (Mohs) 3; 0.4% free moisture
Trade Name Reference

Aluminum hydroxide
Chem. Analysis: $\text{Al}_2\text{O}_3$ (65%); total $\text{Na}_2\text{O}$ (0.39%); sol. $\text{Na}_2\text{O}$ (0.10%); $\text{SiO}_2$ (0.02%); $\text{Fe}_2\text{O}_3$ (0.02%)
CAS 21645-51-2; EINECS/ELINCS 244-492-7
Uses: Polishing agent for dentifrices; approved for internal use
Properties: Wh. free-flowing powd.; 1.2 µ median particle size; 99% < 6 µ; sp.gr. 2.42; bulk dens. (loose) 0.2 g/cm$^3$; surf. area 4-8 m$^2$/g; oil absorp. 30; TAPPI brightness 92+; ref. index 1.57; hardness (Mohs) 3; 0.3% free moisture
HMIS: Health 1, Flammability 1, Reactivity 0
Storage: Store in tightly closed containers in dry, well-ventilated area away from oxidizing materials

Dipropylene Glycol Monoisostearate
Chem. Descip.: Butyloctyl salicylate
CAS 190085-41-7; EINECS/ELINCS 431-090-3
Uses: Emollient, moisturizer, solvent, carrier for lip balms
Regulatory: DOT nonhazardous; SARA §311/312/313 nonreportable; Calif. Prop. 65 nonreportable; Canada DSL, Australia AICS, EINECS listed
Properties: Dk. brn. liq.; herbal odor; sol. in water and water-alcohol mixts. (< 50% v/v alcohol); dens. 1.003-1.009 g/ml (20 C); pH 5.5-6.5; ref. index 1.360-1.362
Use Level: 3-5%

HallBrite® OS [C.P. Hall http://www.cphall.com]
Chem. Descip.: Ethylhexyl salicylate
CAS 118-60-5; EINECS/ELINCS 204-263-4
Uses: Emollient, moisturizer, solvent, carrier for lip balms
Regulatory: DOT nonhazardous; SARA §311/312/313 nonreportable; Calif. Prop. 65 nonreportable; Canada DSL, Australia AICS, EINECS listed
Properties: C. liq.; mild odor; insol. in water; sp.gr. 1.014; b.p. 400 F; flash pt. (COC) 310 F
Toxicology: LD50 (oral) > 5 g/kg; may be harmful if swallowed; may irritate mouth, throat, stomach; inh. may cause dizziness; minimal eye, sl. skin irritant; nonsensitizing; TSCA listed
Environmental: No ozone depleting compds.; keep spills out of sewers and watercourses
Precaution: Incompat. with strong oxidizing agents
HMIS: Health 1, Flammability 0, Reactivity 0
Storage: Store in tightly closed containers in dry, well-ventilated area, away from oxidizing materials

HallStar™-IPM [C.P. Hall http://www.cphall.com]
Chem. Descip.: Isopropyl myristate
CAS 110-27-0; EINECS/ELINCS 203-751-4
Uses: Emollient, spreading agent, penetrant for ointments
Regulatory: NJ Right-to-Know
Properties: Colorless cl. liq.; pract. odorless; sol. in ethanol, IPA, cyclomethicone, most org. solvs. and oils; insol. in water, glycine, propylene glycol; sp.gr. 0.850; vapor pressure < 0.001 mm Hg; b.p. 190-199 C; flash pt. 330 F; HLB 11-12; acid no. 1.0; sapon. no. 210; ref. index 1.4320
Toxicology: LD50 (oral, rat) > 50 ml/kg, (oral, mouse) > 100 ml/kg, (skin, rabbit) > 79 ml/kg; TSCA listed
<table>
<thead>
<tr>
<th>Trade Name Reference</th>
<th>Chemical Reference</th>
<th>Description</th>
<th>Uses</th>
<th>Features</th>
<th>Properties</th>
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</thead>
<tbody>
<tr>
<td>HallStar™ MM <a href="http://www.cphall.com">C.P. Hall</a></td>
<td></td>
<td>Myristyl myristate</td>
<td>Emollient, viscosity builder, feel enhancer, spreading agent, pearlescent for lip balms</td>
<td>Imports rich afterfeel; melts at body temp.; reduces watery feel of low-oil emulsions</td>
<td>White to slightly yellow waxy flakes; bland char. odor; sol. in min. oil, IPM; misc. in fats and waxes; insol. in water, glycerin, IPA, ethanol, propylene glycol; sp.gr. 0.834; m.p. 37-39 C; iodine no. 1 max.; sapon. no. 131</td>
</tr>
<tr>
<td>HA-Quat™ <a href="http://www.colloid.com">Engelhard</a></td>
<td>Hygroxypropyltrimonium hyaluronate</td>
<td>Anti-irritant, oily skin and sebum control agent in skin care</td>
<td>Emulsifier, thickener, suspending agent in pharmaceuticals</td>
<td>Effective at low solids levels</td>
<td>White powd.; 90% min. through 200 mesh; visc. 3000 cps (4% disp.); pH 9.5-10.5 (2% disp.); dry brightness (GE) 82-86</td>
</tr>
<tr>
<td>Hartolan <a href="http://www.croda.com">Croda Inc</a>; <a href="http://www.croda.co.uk">Croda Chem. Europe Ltd</a></td>
<td>Lanolin alcohol</td>
<td></td>
<td>Stabilizer and suspending agent for pharmaceuticals; emulsifier and thickener for low solids formulations</td>
<td>Very high visc.</td>
<td></td>
</tr>
</tbody>
</table>
Properties: Wh. fine powd.; 90% min. through 200 mesh; visc. 2000 cps (5% disp.); pH 9.5-10.5 (2% disp.)

Chem. Descrip.: Hectorite USP/NF
CAS 12173-47-6; EINECS/ELINCS 235-340-0
Uses: Visc. builder, suspending agent and binder for pharmaceuticals
Features: Higher visc. than Hectalite® 200

Properties: Powd.

Hectorite BC 840 [MPSI http://www.mp-solutionsinc.com]
Chem. Descrip.: Hectorite
CAS 12173-47-6; EINECS/ELINCS 235-340-0
Uses: Binder, suspending agent, thickener in acne lotions, medicinal skin creams, ointments, skin creams, salves, tablet binding, powder preparations
Regulatory: NF
Properties: 95% through 325 mesh; 99.5% through 200 mesh; visc. 3000 @ 4% solids; dry brightness 70.0; 5.0-8.0% max. moisture

Hedipin-SHO/500 [Dr. W. Kolb AG http://www.kolb.ch]
Chem. Descrip.: PEG-50 sorbitan hexaoleate
CAS 57171-56-9
Uses: Surfactant for pharmaceuticals
Properties: Liq.; HLB 10; nonionic

HEP® [ISP http://www.ispcorp.com]
Chem. Descrip.: N-Hydroxyethyl pyrrolidone
See N-Hydroxyethylpyrrolidone
CAS 3445-11-2; EINECS/ELINCS 222-359-4
Uses: Reaction solvent for prep. of retinoid esters for skin treatment
Features: Offers reactive hydroxyl group
Properties: Cl. liq.; water-sol.; m.w. 129; sp.gr. 1.139; visc. 53 cps; f.p. 20 C; b.p. 295 C; flash pt. (CC) 320 F; ref. index 1.4951; surf. tens. 49 dynes/cm; 98% min. purity
Toxicology: LD50 (oral, rat) > 14.43 g/kg; low acute toxicity; minimally irritating to eyes; nonirritating to skin
Environmental: Biodeg.

HEPPS [Raschig AG http://www.raschig.de]
Chem. Descrip.: 3-[4-(Hydroxyethyl)-1-piperaziny1]-propanesulfonic acid
CAS 16052-06-5; EINECS/ELINCS 240-198-8
Uses: Biological buffer for cell cultures, biological productions, electrophoresis, diagnostics, tissue studies, blotting techniques, chromatography

Herbasol Complex GU-61 [Cosmetochem http://www.cosmetochem.ch/index]
Chem. Descrip.: A glycolic extract from alpine lichen and liquorice root
Uses: Botanical extract with bactericial, fungicial, antiphlogistic, and anti-inflammatory props. used in skin care and anti-acne preps.

Hest CO [Global-Seven http://www.global-seven.com]
Chem. Descrip.: Cetyl octanoate
CAS 59130-69-7; EINECS/ELINCS 261-619-1
Uses: Emollient, skin softener, moisture retention aid, emulsifier, thickener, stabilizer, opacifier, pearlescent in creams/lotions, topical pharmaceuticals
Properties: Gardner 2 max. cl. liq.; sp.gr. 0.852-0.856; acid no. 1.0 max.; sapon. no. 130-155; 0.5% max. moisture

Hetol SA [Global-Seven http://www.global-seven.com]
Chem. Descrip.: Stearyl alcohol
CAS 112-92-5; EINECS/ELINCS 204-017-6
Uses: For antiperspirant sticks
Properties: Gardner 1 max. flake; acid no. 1.0 max.; iodine no. 2.0 max.; sapon. no. 2.0 max.; hyd. no. 200-215; 1% max. moisture

Hetoxol P [Global-Seven http://www.global-seven.com]
Chem. Descrip.: Emulsifying wax NF
CAS 97069-99-0
Uses: Emulsifier, opacifier, visc. builder, emulsion base for pharmaceuticals
Properties: Flake; acid no. 2. max.; sapon. no. 14.0 max.; hyd. no. 178-192; nonionic; 99% conc.

Hetsorb S-20 [Global-Seven http://www.global-seven.com]
Chem. Descrip.: Polysorbate 60
CAS 9005-67-8
Uses: Emulsifier for vitamins; solubilizer; surfactant
Properties: Gardner 6 max. liq. to gel; sol. in water, misc. in IPA; HLB 14.9; acid no. 2 max.; sapon. no. 45-55; hyd. no. 81-96; nonionic; 97% conc.

Heyplast NC 90 Z [H.A. Astlett http://www.astlettrubber.com]
Chem. Descrip.: cis-Polyisoprene with about 3% zinc stearate
Uses: For producing transparent or pure white
Handbook of Pharmaceutical Additives, Third Edition

Trade Name Reference

adhesive systems including medical plaster

**Features:**
- Easily dissolved in organic solvents;
- high heat resistance; high stability

**Properties:**
- Wh. granules; char. odor; particle size 3-5 mm; insol. in water; dens. 0.934; bulk dens. 400 kg/m³; decomposition temp. > 200 C; Mooney visc. 80±5; ash content < 0.5%; 0.5% volatiles

**Precaution:** Do not empty into drains

**Hazardous Decomp. Prods.:** CO, CO₂, carbon black

**Storage:**
- Keep dry and cool; prevent higher temp., humidity, sunlight and pressure on the cartons; do not store on public depositories

Hi-Sweet® 42 [Roquette http://www.roquette.fr]

**Chem. Descrip.:** High fructose corn syrup See Corn syrup, high fructose

**Chem. Analysis:** 42% fructose (DSB)

**CAS 977042-84-4**

**Uses:** Bulk sweetener and viscosifier in medicated syrups and suspensions

**Regulatory:** 1 CFR 184.1866 (GRAS)

**Properties:**
- Clear liq.; odorless; sweet, clean taste; 70.5% act. (DSB)

**Storage:** Store @ 26-32 C

Hi-Sweet® 55 [Roquette http://www.roquette.fr]

**Chem. Descrip.:** High fructose corn syrup See Corn syrup, high fructose

**Chem. Analysis:** 55% fructose (DSB)

**CAS 977042-84-4**

**Uses:** Bulk sweetener and viscosifier in medicated syrups and suspensions

**Features:** Exhibits less tendency to crystallize at low temperatures than Hi-Sweet® 42 due to its lower dextrose and higher fructose level

**Regulatory:** 1 CFR 184.1866 (GRAS)

**Properties:**
- Clear liq.; odorless; sweet, clean taste; 76.5% act. (DSB)

**Storage:** Store @ 26-32 C

Hi-Cap™ 100 [Nat'l. Starch & Chem./Food Innovation http://www.foodinnovation.com]

**Chem. Descrip.:** Food starch modified derived from waxy maize See Food starch, modified

**Uses:** Film-former, encapsulating agent for flavors, clouds, vitamins in pharmaceuticals

**Features:** Rec. at high oil loading; exc. resist. to oxidation; total replacement for gum Arabic and gelatin; forms very stable o/w emulsions at higher solids; reduced losses during spray-drying

**Regulatory:** FDA 21CFR §172.892; DOT nonregulated; SARA §313 nonreportable

**Properties:**
- Wh. fine powd.; starch odor; sol. in water; m.w. > 10,000; sp.gr. 1.5; pH ≈ 4 (1%); ≈ 6% moisture

**Toxicology:** Possible physical irritant from dust particles; particulates may scratch eye surfs. and cause mech. irritation; possible nuisance dust by inh.; maintain below TWA 10 mg/m³; low oral toxicity; low toxicity by skin contact; TSCA listed

**Precaution:** Potential for dust explosion; minimize dust generation

**Hazardous Decomp. Prods.:** Does not undergo spontaneous decom.; typ. combustion prods.: CO, CO₂, N, water

**Storage:**
- Store @ ambient temps.; sensitive to static electricity


**Chem. Descrip.:** Syn. silica, amorphous

**CAS 112926-00-8; EINECS/ELINCS 231-545-4**

**Uses:** Thickener used to increase visc. and provide thixotropic action for liqs.; used in pharmaceuticals, toothpaste

**Properties:**
- Wh. powd., 0.021 µ particle size; 0.002% 325-mesh wet sieve residue; sp.gr. 2.1; dens. 17.5 lb/gal; dens. 2-4 lb/ft³; ref. index 1.455; pH 6.5-7.3 (5%); 97.5% SiO₂


**Chem. Descrip.:** Glycerin and glyceryl polyacrylate

**Uses:** Vehicle for topical dermatological prods.

**Features:**
- Exc. moisture retention; forms permeable film on skin that is easily washed away; provides max. slip and lubricity

**Properties:**
- Colorless transparent visc. gel, odorless; sol. in water; sp.gr. 1.15; visc. < 200,000 cps; b.p. > 250 F; pH 5-6; 43% water


**Chem. Descrip.:** Glycerin and glyceryl polyacrylate

**Uses:** Vehicle for topical dermatological prods.

**Features:**
- Exc. moisture retention; forms permeable film on skin that is easily washed
Trade Name Reference

away; provides max. slip and lubricity; for use where higher visc. is desired

Properties: Colorless transparent visc. gel, odorless; sol. in water; sp.gr. 1.15; visc. > 250,000 cps; pH 5-6; 48% water


Chem. Descrip.: n-Butyl stearate See Butyl stearate

CAS 123-95-5; EINECS/ELINCS 204-666-5
Uses: Lubricant in pharmaceutical ointments

Properties: APHA 60 max.; wh. pasty solid; colorless oily liq. on heating; insol. in water; sp. gr. 0.850; m.p. 20-24 C; acid no. (mgKOH/g) 0.5 max.; sapon no. (mgKOH/g) 165-175; flash pt. (COC) 180 C min.

Toxicology: LD50 (oral, rat) 32 g/kg; irritating to eyes, skin, mucous membranes, upper respiratory tract; may be harmful by inh., ing., or skin absorp.; avoid prolonged/repeated exposure

Hazardous Decomp. Prods.: Toxic fumes of CO, CO2; emits toxic fumes under fire conditions

Storage: Store in cool, dry place; keep tightly closed

HLA-198 [Am. Casein http://www.americancasein.com]


Uses: Binder, emulsifier, film-former for cosmetics, medical, pharmaceutical, nutritional, biological applics.

Regulatory: Kosher

Properties: Cream-colored fine spray-dried powd.; bland flavor; sol. in water; 6% moisture

Storage: Store in cool, dry place below 25 C

Dytek® HMI [Invista http://www.invista.com]

Chem. Descrip.: Hexamethyleneimine

CAS 111-49-9; EINECS/ELINCS 203-875-9
UN 2493

Uses: Intermediate for pharmaceuticals

Properties: Colorless cl. liq.; ammonia-like odor; m.w. 99.2; sp.gr. 0.88; vapor pressure 9 mm Hg; m.p. -37 C; b.p. 138 C; amine no. 560; flash pt. (CC) 22 C; ref. index 1.463 (20 C); 99.5% act.

Precaution: DOT: Flamm. liq., corrosive


Chem. Descrip.: Polydimethylsiloxane emulsion See Dimethylsiloxane

CAS 63148-62-9
Uses: Antifoam for pharmaceuticals

Features: Avail. as kosher grade, Hodag FD-62 K

Regulatory: Kosher, FDA 21CFR §173.340(a)(2); SARA §311/312 possible chronic health effects, §313 nonreportable

Properties: Wh. creamy emulsion; mild odor; disp. in water with mild agitation; sp.gr. 0.98-1.02; dens. 8.3 lb/gal; visc. 2100 cSt; vapor pressure 20 mm Hg (20 C); b.p. > 100 C; pour pt. 10 C; flash pt. (COC) 221 C; 10% act.; 80-90% volatiles by vol.

Use Level: 20-50 ppm

Toxicology: Vapors/finely misted material may irritate mucous membranes and cause irritation, dizziness, nausea; may cause eye irritation: thermal burns possible on skin contact; TSCA listed

Precaution: Incompat. with strong oxidizing agents; keep away from excessive heat, ignition sources

Hazardous Decomp. Prods.: Combustion: CO, CO2, thick smoke

NFPA: Health 0, Flammability 0, Reactivity 0

Storage: 6 mos. shelf life when stored in closed original containers @ 20-32 C; protect from freezing; store and use in well-ventilated areas; store out of sun


Chem. Descrip.: Polydimethylsiloxane emulsion See Dimethylsiloxane

CAS 63148-62-9
Uses: Antifoam for pharmaceuticals

Features: Avail. as kosher grade, Hodag FD-62 K

Regulatory: FDA approved, 30 ppm max. in final prod.

Properties: Wh. creamy emulsion; mild odor; disp. in water with mild agitation; sp.gr. 0.99-1.02; dens. 8.3 lb/gal; visc. 2100 cSt; vapor pressure 15 mm Hg (20 C); i.b.p. 100 C; pour pt. 10 C; flash pt. (COC) > 20 F; 30% act.; 50-70% volatiles (water)

Toxicology: Vapors/finely misted material may irritate mucous membranes and cause irritation, dizziness, nausea; may cause eye irritation; ing. may irritate digestive tract; prolonged/repeated skin contact may irritate hair follicles and block sebaceous glands; TSCA listed

Precaution: Incompat. with strong oxidizing agents
Trade Name Reference

agents; keep away from excessive heat, ignition sources; spillages may be slippery Hazardous Decomp. Prods.: Combustion: CO, CO2, thick smoke

NFPA: Health 1, Flammability 1, Reactivity 0
Storage: 6 mos. shelf life when stored in closed original containers @ 20-32 C; protect from freezing; store and use in well-ventilated areas; store out of sun

Chem. Descrip.: Polyglyceryl-2 sesquioleate
Uses: W/o emulsifier for pharmaceuticals
Properties: Yel. liq.; weakly fatty odor; sol. in most org. solv., paraffin and neutral oil, warm fatty alcohols, fatty acid esters and their mixtures; dens. 0.97 g/cm3; visc. 400-800 cps; HLB 4.0; flash pt. 250 C; sapon. no. 165±15; anionic; 100% act.

Chem. Descrip.: Ceteareth-3
CAS 68439-49-6
Uses: Emulsifier, superfatting agent, base for ointments
Properties: Wh. soft, wax-like substance; sol. in all hydrocarbons, fatty alcohols; sp.gr. 0.905 (50 C); visc. 15±3 cps (50 C); HLB 7-8; cloud pt. 54 C (in butyl diglycol); flash pt. 220 C; sapon. no. 1 max.; nonionic; 100% act.

Chem. Descrip.: Polyglyceryl-2 sesquioleate
Uses: W/o emulsifier for pharmaceuticals
Properties: Yel. liq.; weakly fatty odor; sol. in most org. solv., paraffin and neutral oil, warm fatty alcohols, fatty acid esters and their mixtures; dens. 0.97 g/cm3; visc. 400-800 cps; HLB 4.0; flash pt. 250 C; sapon. no. 165±15; anionic; 100% act.

Chem. Descrip.: Ceteareth-3
CAS 68439-49-6
Uses: Emulsifier, superfatting agent, base for ointments
Properties: Wh. soft, wax-like substance; sol. in all hydrocarbons, fatty alcohols; sp.gr. 0.905 (50 C); visc. 15±3 cps (50 C); HLB 7-8; cloud pt. 54 C (in butyl diglycol); flash pt. 220 C; sapon. no. 1 max.; nonionic; 100% act.

HTL HYP Hyaluronic Acid 85% [Lipo http://www.lipochemicals.com]
Chem. Descrip.: Hyaluronic acid
CAS 9004-61-9; EINECS/ELINCS 232-678-0
Uses: Film-former, humectant for pharmaceutical creams/lotions
Properties: Wh. to cream free-flowing powd.; mild char. odor; sol. in water; pH 6-9
Toxicology: Not considered a toxic substance
Environmental: Biodeg.
Precaution: Avoid strong oxidizing agents and alkalis; possible combustible dust hazard; container may be hazardous when emptied
Hazardous Decomp. Prods.: None known
Storage: Keep containers closed until use; do not store in heat or direct sunlight

HTL MYP Hyaluronic Acid 93% [Lipo http://www.lipochemicals.com]
Chem. Descrip.: Hyaluronic acid
CAS 9004-61-9; EINECS/ELINCS 232-678-0
Uses: Humectant for pharmaceutical creams/lotions

HuberCal 150 Elite [Huber Engineered Materials http://www.hubermaterials.com]
Chem. Descrip.: Calcium carbonate
Chem. Analysis: Lead levels < 125 ppb
CAS 1317-65-3; EINECS/ELINCS 207-439-9
Uses: Calcium source for dietary supplements and antacids
Features: High purity; low abrasivity
Properties: Wh. odorless powd.; particle size, median 20 μ; screen residue, 325 mesh 35%; sol. in water (1.3 mg/l); bulk dens., tamped 1.6 g/cc; decomp. temp. 700-900 C; pH 8.4-10.2 (5% aq. suspension); <1% moisture loss on drying; 100% act.
Toxicology: ACGIH 10 mg/m3 total dust; dust may cause mechanical irritation to eyes; dries skin and mucous membranes; inh. causes respiratory tract irritation; no evidence of mutagenic, reproductive or carcinogenic effects.; TSCA listed
Environmental: Nonbiodeg.; LC50 (fish) > 200 mg/l; not considered to be harmful to aquatic life
Precaution: Wear safety glasses with side shields and impervious gloves; avoid contact with strong acids
Hazardous Decomp. Prods.: None
NFPA: Health 1, Flammability 0, Reactivity 0
Storage: 1 yr shelf life when stored in original protective pkg. away from moisture, and extremes in temperature (> 90 F) and humidity (> 80% relative humidity)

HuberCal 250 Elite [Huber Engineered Materials http://www.hubermaterials.com]
Chem. Descrip.: Calcium carbonate
Chem. Analysis: Lead levels < 125 ppb
CAS 471-34-1; EINECS/ELINCS 207-439-9
Uses: Calcium source for dietary supplements and antacids
Features: High purity; low abrasivity
Properties: Wh. odorless powd.; particle size, median 12 μ; screen residue, 325 mesh 30%; sol. in water (1.3 mg/l); bulk dens., tamped 1.5
Trade Name Reference

Calcium source for dietary supplements and antacids

Storage: 1 yr shelf life when stored in original protective pkg. away from moisture, and extremes in temperature (> 90 F) and humidity (> 80% relative humidity)

HuberCal 850 Elite [Huber Engineered Materials http://www.hubermaterials.com]

Chem. Descrip.: Calcium carbonate
Chem. Analysis: Lead levels < 125 ppb
CAS 471-34-1; EINECS/ELINCS 207-439-9
Uses: Calcium source for dietary supplements and antacids

Features: High purity; low abrasivity


Properties: Wh. odorless powd.; particle size, median 4 μ; screen residue, 325 mesh 0.005%; bulk dens., tamped 1.2 g/cc; decomp. temp. 700-900 C; pH 8.4-10.2 (5% aq. suspension); <1% moisture loss on drying

Toxicology: ACGIH 10 mg/m^3 total dust; dust may cause mechanical irritation to eyes; dries skin and mucous membranes; inh. causes respiratory tract irritation; no evidence of mutagenic, reproductive or carcinogenic effects.; TSCA listed

Environmental: Nonbiodeg.; LC50 (fish) > 200 mg/l; not considered to be harmful to aquatic life

Precaution: Wear safety glasses with side shields and impervious gloves; avoid contact with strong acids

Hazardous Decomp. Prods.: None

NFPA: Health 1, Flammability 0, Reactivity 0

HuberCal CCG 4000 USP [Huber Engineered Materials http://www.hubermaterials.com]

Chem. Descrip.: Calcium carbonate (Hubercal 150 Elite) with binder system of 2.6% maltodextrin and 2.6% acacia
Chem. Analysis: 94.5% calcium carbonate; 2.6% maltodextrin; 2.6% acacia
CAS 471-34-1; 9050-36-6; 9000-01-5; EINECS/ELINCS 207-439-9; 232-940-4; 232-519-5
Uses: Calcium source for dietary supplements and antacids

Features: High purity; low abrasivity


Properties: Wh. odorless powd.; particle size, median 4 μ; screen residue, 325 mesh 0.005%; bulk dens., tamped 1.2 g/cc; decomp. temp. 700-900 C; pH 8.4-10.2 (5% aq. suspension); <1% moisture loss on drying

Toxicology: ACGIH 10 mg/m^3 total dust; dust may cause mechanical irritation to eyes; dries skin and mucous membranes; inh. causes respiratory tract irritation; no evidence of mutagenic, reproductive or carcinogenic effects.; TSCA listed

Environmental: Nonbiodeg.; LC50 (fish) > 200 mg/l; not considered to be harmful to aquatic life

Precaution: Wear safety glasses with side shields and impervious gloves; avoid contact with strong acids

Hazardous Decomp. Prods.: None

NFPA: Health 1, Flammability 0, Reactivity 0

HuberCal 500 Elite [Huber Engineered Materials http://www.hubermaterials.com]

Chem. Descrip.: Calcium carbonate
Chem. Analysis: Lead levels < 125 ppb
CAS 471-34-1; EINECS/ELINCS 207-439-9
Uses: Calcium source for dietary supplements and antacids

Features: High purity; low abrasivity


Properties: Powd.; particle size, median 6 μ; screen residue, 325 mesh 0.10%; bulk dens., tamped 1.3 g/cc; decomp. temp. 700-900 C; pH 8.4-10.2 (5% aq. suspension); <1% moisture loss on drying

Toxicology: ACGIH 10 mg/m^3 total dust; dust may cause mechanical irritation to eyes; dries skin and mucous membranes; inh. causes respiratory tract irritation; no evidence of mutagenic, reproductive or carcinogenic effects.; TSCA listed

Environmental: Nonbiodeg.; LC50 (fish) > 200 mg/l; not considered to be harmful to aquatic life

Precaution: Wear safety glasses with side shields and impervious gloves; avoid contact with strong acids

Hazardous Decomp. Prods.: None

NFPA: Health 1, Flammability 0, Reactivity 0

Downloadable Content
Trade Name Reference

Regulatory: USP, SARA §311/312, 313 nonreportable
Properties: Wh. odorless granules.; US mesh 100% thru 16; sol. in water (1.3 mg/l); dens. 2.7 g/cm³; pH 8.4-10.2 (5% aq. suspension)
Toxicology: ACGIH 10 mg/m³ total dust; dust may cause mechanical irritation to eyes; dries skin and mucous membranes; inh. causes respiratory tract irritation; no evidence of mutagenic, reproductive or carcinogenic effects.; TSCA listed
Environmental: No risk to the environment
Precaution: Wear safety glasses with side shields and impervious gloves; avoid contact with strong acids
Hazardous Decomp. Prods.: None
NFPN: Health 1, Flammability 0, Reactivity 0
Storage: Store in original protective pkg. away from moisture

HuberCal CCG 4100 USP [Huber Engineered Materials http://www.hubermaterials.com]
Chem. Descrip.: Calcium carbonate (Hubercal 150 Elite) with binder system of acacia
Chem. Analysis: 95.5% calcium carbonate; 4% acacia
CAS 471-34-1; 9000-01-5; EINECS/ELINCS 207-439-9; 232-519-5
Uses: Calcium source for dietary supplements and antacids
Features: High purity; low abrasivity
Regulatory: USP, SARA §311/312, 313 nonreportable
Properties: Wh. odorless granules.; US mesh 100% thru 16; sol. in water (1.3 mg/l); dens. 2.7 g/cm³; pH 8.4-10.2 (5% aq. suspension); noncombustible; <1% moisture loss on drying
Toxicology: ACGIH 10 mg/m³ total dust; dust may cause mechanical irritation to eyes; dries skin and mucous membranes; inh. causes respiratory tract irritation; no evidence of mutagenic, reproductive or carcinogenic effects; TSCA listed
Environmental: No risk to the environment
Precaution: Wear safety glasses with side shields and impervious gloves; avoid contact with strong acids
Hazardous Decomp. Prods.: None
NFPN: Health 1, Flammability 0, Reactivity 0
Storage: Store in original protective pkg. away from moisture

HuberCal CCG 4300 USP [Huber Engineered Materials http://www.hubermaterials.com]
Chem. Descrip.: Calcium carbonate (Hubercal 150 Elite) with binder system of acacia
Chem. Analysis: 95.5% calcium carbonate; 4% acacia
CAS 471-34-1; 9000-01-5; EINECS/ELINCS 207-439-9; 232-519-5
Uses: Calcium source for dietary supplements and antacids
Features: High purity; low abrasivity
Regulatory: USP, SARA §311/312, 313 nonreportable
Properties: Wh. odorless granules.; US mesh 100% thru 16; sol. in water (1.3 mg/l); dens. 2.7 g/cm³; pH 8.4-10.2 (5% aq. suspension); noncombustible; <1% moisture loss on drying
Toxicology: ACGIH 10 mg/m³ total dust; dust may cause mechanical irritation to eyes; dries skin and mucous membranes; inh. causes respiratory tract irritation; no evidence of mutagenic, reproductive or carcinogenic effects; TSCA listed
Environmental: No risk to the environment
Precaution: Wear safety glasses with side shields and impervious gloves; avoid contact with strong acids
Hazardous Decomp. Prods.: None
NFPN: Health 1, Flammability 0, Reactivity 0
Storage: Store in original protective pkg. away from moisture

Huber Engineered Materials http://www.hubermaterials.com

Hyamine® 1622 50% [Lonza http://www.lonza.com]
Chem. Descrip.: Benzethonium chloride, isopropyl alcohol, water
Uses: Germicide, bactericide, disinfectant,
Trade Name Reference

preservative for veterinary prods., pharmaceutical topicals, surgical applics.

Regulatory:  EPA reg. no. 6836-93
Properties:  Lt. amber liq.; sol. in water, lower alcohols, glycols, ethoxylates, tetrachloroethane; misc. with ethylene dichloride, CCl4; sp.gr. 1.03; dens. 8.56 lb/gal; pour pt. 25 F; flash pt. (Seta) 110 F; pH 8-10 (5%); surf. tens. 30 dynes/cm (0.1%); cationic; 50% act.

Toxicology:  LD50 (oral, rat) 420 mg/kg, (dermal, rabbit) > 3 g/kg; may cause eye and skin irritation

Hyamine® 1622 Crystals  [Lonza http://www.lonza.com]
Chem. Descrip.:  Benzethonium chloride
CAS 121-54-0; EINECS/ELINCS 204-479-9
Uses:  Bactericide, deodorant, preservative for veterinary and pharmaceutical prods.
Regulatory:  EPA reg. no. 6836-91
Properties:  APHA 40 max. powd.; sol. in water, lower alcohols, glycols, ethoxylates, tetrachloroethane; misc. with ethylene dichloride, CCl4; sp.gr. 0.44 g/cc; dens. 27.5 lb/ft3; 100% act.

Hyamine® 3500 50%  [Lonza http://www.lonza.com]
Chem. Descrip.:  Benzalkonium chloride [n-alkyl = 50% C14, 40% C12, 10% C16], ethanol, water  See Alcohol
Uses:  Bactericide, disinfectant for pharmaceuticals
Regulatory:  EPA reg. no. 6836-94; FDA approved: sanitizer for food processing equip.
Properties:  Pale yel. cl. liq., mild odor; misc. with water, lower alcohols, ketones; m.w. 359.6; sp.gr. 0.96; dens. 8.0 lb/gal; visc. 42 cps; pour pt. 15 F; flash pt. (PM) 105 F; pH 7-9 (5%); surf. tens. 34 dynes/cm (0.1%); cationic; 50% act.
Toxicology:  LD50 (oral, rat) 894 mg/kg; toxic to fish
Precaution:  Do not mix with oxidizing/reducing agents

Hyamine® 3500 80% NF  [Lonza http://www.lonza.com]
Chem. Descrip.:  Benzalkonium chloride NF
CAS 68424-85-1
Uses:  Bactericide, disinfectant, sanitizer, deodorant, preservative, humectant in liq. and powd. formulations, pharmaceuticals
Regulatory:  EPA reg. no. 6836-95
Properties:  Liq.; 80% act.

Chem. Descrip.:  Hydrolyzed casein
CAS 65072-00-6; EINECS/ELINCS 265-363-1
Uses:  Microbiological nutrient in laboratory media, fermentations, and tissue culture applics.; nutrient for vaccine and toxin prod.
Features:  Minimal inorg. ions; high clarity in sol'n.
Properties:  Lt. colored free-flowing spray-dried powd.; highly sol.
Storage:  24 mos. min. shelf life in unopened container; store in cool, dry area in closed container

Hydagen® B  [Cognis/Care Chems.]
Chem. Descrip.:  α-Bisabolol  See Bisabolol
CAS 515-69-5; EINECS/ELINCS 208-205-9
Uses:  Antiphlogistic active agent for emulsions, oils, lotions, and oral hygiene preps.
Properties:  Liq.; sp.gr. 0.922-0.928; ref. index 1.492-1.498; 85% min. act.

Hydrajel® PL  [United-Guardian http://www.u-g.com]
Chem. Descrip.:  Water, glycerin, propylene glycol, PEG-45M, polyacrylic acid, sodium polycrylate, aloe vera (Aloe barbadensis) gel 40X  See Aloe barbadensis gel
Uses:  Lubricant, moisturizer to alleviate vaginal dryness
Features:  pH balanced; stable; nonstaining; condom-compat.; does not contain nonoxynol-9 which may cause skin irritation
Regulatory:  DOT nonregulated
Properties:  Colorless cl. visc. gel; char. odor; completely water-sol.; dens. 1.01 g/cm3; flash pt. none; pH 5.0-5.5
Toxicology:  No known hazards
Precaution:  Incompat. with oxidizers, salts, strong acids or bases; avoid extreme temps.
Hazardous Ingredients:  None
Hazardous Decomp. Prods.:  COx NOx
HMIS:  Health 0, Flammability 0, Reactivity 0

Hydrajel® VM  [United-Guardian http://www.u-g.com]
Chem. Descrip.:  Water, glycerin, polyacrylic acid, aloe vera (Aloe barbadensis) gel, sodium polycrylate, propylene glycol, PVM/MA copolymer  See Aloe barbadensis gel
Trade Name Reference

Uses: Lubricant, moisturizer to alleviate vaginal dryness and irritation
Features: pH balanced; stable; nonstaining
Regulatory: DOT nonregulated
Properties: Colorless cl. visc. gel; char. odor; completely water-sol.; dens. 1.09 g/cm³; flash pt. none; pH 5.0
Toxicology: No known hazards
Precaution: Incompat. with oxidizers, salts, strong acids or bases; avoid extreme temps.
Hazardous Ingredients: None
Hazardous Decomp. Prods.: COx NOx
HMIS: Health 0, Flammability 0, Reactivity 0

Hydral® 710 [Almatis
http://www.almatis.com]
Chem. Descrip.: Aluminum trihydroxide See Aluminum hydroxide
Chem. Analysis: Al₂O₃ (65.1%)
CAS 21645-51-2; EINECS/ELINCS 244-492-7
Uses: Polishing agent in dentifrices
Regulatory: DOT nonregulated; SARA §302/311/312/313 nonreportable; CERCLA nonreportable
Properties: Wh. cryst. powd.; 0.003% on 325 mesh; odorless; insol. in water; dens. 2.42 g/cm³; bulk dens. 0.22 g/cm³ (loose), 0.37 g/cm³ (packed); surf. area 5.0 m²/g; brightness 99+; m.p. 2040 C; pH 8.5-10.2 (20 C, 20%aq.); ref. index 1.57; hardness (Mohs) 2.5-3.5; 99% solids
Toxicology: Low toxicity; can cause mild irritation to eyes, skin, upper respiratory tract; exposure can aggravate asthma, chronic lung disease, skin rashes; TSCA listed
Environmental: Generally not hazardous for water
Precaution: Prevent formation of dust
Hazardous Decomp. Prods.: Exposed to fire or heat, aluminum trihydroxide dec. forming aluminum oxide and water vapor beginning at 200 C
Storage: Keep material dry

Hydral® PGA-HD [Almatis
http://www.almatis.com]
Chem. Descrip.: Spray-dried alumina trihydrate See Aluminum hydroxide
Chem. Analysis: Al₂O₃ (65%)
CAS 21645-51-2; EINECS/ELINCS 244-492-7
Uses: Polishing agent in dentifrices
Regulatory: DOT nonregulated; SARA §302/311/312/313 nonreportable; CERCLA nonreportable
Properties: Wh. crys. powd.; 0.002% on 325 mesh; odorless; insol. in water; dens. 2.42 g/cm³; bulk dens. 0.35 g/cm³ (loose), 0.61 g/cm³ (packed); surf. area 5.2 m²/g; brightness 99+; m.p. 2040 C; pH 8.5-10.2 (20 C, 20%aq.); ref. index 1.57; hardness (Mohs) 2.5-3.5; 99% solids
Toxicology: No known hazards
Precaution: Incompat. with oxidizers, salts, strong acids or bases; avoid extreme temps.
Hazardous Ingredients: None
Hazardous Decomp. Prods.: COx NOx
HMIS: Health 0, Flammability 0, Reactivity 0

Hydrine® [Gattefosse
Chem. Descrip.: PEG-2 stearate
Chem. Analysis: Al₂O₃ (65%)
CAS 9004-99-3; EINECS/ELINCS 203-363-5
Uses: Thickener, gellant, consistency agent, stabilizer for pharmaceuticals, topical emulsions, ointments, creams, lotions
Regulatory: EP, JP compliance
Properties: Gardner < 3 waxy solid, faint odor; drop pt. 45.5-48.5 C; HLB 5.0; acid no. < 6; iodine no. < 3; sapon. no. 150-160; nonionic; 100% conc.
Toxicology: Nonirritating to skin and eyes

Hydrobrite® 200PO [Chemtura
http://www.chemtura.com]
Chem. Descrip.: Wh. mineral oil USP (100%) with trace amounts of Vitamin E (5-10 ppm)
See D-α-Tocopherol
Chem. Analysis: Al₂O₃ (65%)
CAS 8020-83-5; 59-02-9; EINECS/ELINCS 232-384-2; 200-412-2
Uses: Binder, carrier, conditioner, dispersant, extender, lubricant, moisture barrier, protectant softener in pharmaceuticals
Regulatory: FDA 21 CFR §172.878, 178.3620(a); DOT, IMDG, ICAO nonregulated; SARA §311/312/313 nonreportable; NJ Right-to-Know; Canada DSL; Australia AICS; Japan ENCS; Korea ECL
Properties: Water-wh. liq.; odorless, tasteless; insol. in water; sol. in oil, organic solvents; sp.gr. 0.845-0.885; visc. 33.5-46 cst (40 C);
Hydrobrite® 300PO [Chemptra http://www.chemtura.com]
Chem. Descrip.: Wh. mineral oil USP
CAS 8020-83-5; EINECS/ELINCS 232-384-2
Uses: Binder, carrier, conditioner, dispersant, extender, lubricant, moisture barrier, protectant softener in pharmaceuticals
Regulatory: FDA 21CFR §172.878, 178.3620(a)
Properties: Odorless, tasteless; sp.gr. 0.850-0.880; visc. 48-60 cSt (40 C); distill. pt. 260 C min. (10 mm, 2.5%); pour pt. 10 F

Hydrobrite® 380PO [Chemptra http://www.chemtura.com]
Chem. Descrip.: Wh. mineral oil USP (100%) with trace amounts of Vitamin E (5-10 ppm)
See D-α-Tocopherol
CAS 8020-83-5; 59-02-9; EINECS/ELINCS 232-384-2; 200-412-2
Uses: Binder, carrier, conditioner, dispersant, extender, lubricant, moisture barrier, protectant softener in pharmaceuticals
Regulatory: FDA 21CFR §172.878, 178.3620(a); DOT, ICAO, IMDG nonregulated; SARA §311/312/313 nonreportable; NJ Right-to-Know; Canada DSL; Australia AICS; Japan ENCS; Korea ECL
Properties: Odorless, tasteless; insol. in water; sol. in oil, organic solvents; m.w. 540; sp.gr. 0.860-0.880; visc. 100-125 cSt (40 C); vapor pressure < 0.008 hPa; distill. pt. 295 C min. (10 mm, 2.5%); pour pt. 15 F max.; b.p. > 230 C; flash pt. (COC) > 188 C; ref. index 1.470-1.478; partitioning coefficient log POW > 6; 0% volatiles

Toxicology: LD50 (ing., rat) > 5000 mg/kg; mineral oil mist: ACGIH TWA 5.0 mg/m³; STEL 10.0 mg/m³; chronic inh. may cause pulmonary edema or aspiration pneumonia; oil deposits in the lung from inh. may lead to fibrosis and reduced pulmonary function; prolonged or repeated skin contact may cause irritation or oil acne; TSCA listed
Precaution: Use oil resistant gloves, face shield, protective clothing; prevent from
entering drains or sewers; spills may be slippery; residual vapors may explode on ignition; incompat. with strong oxidizing agents

Hazardous Decomp. Prods.: COx, soot

NFPA: Health 0, Flammability 1, Reactivity 0

Storage: Keep drums tightly closed; ground all containers and equipment; keep away from heat and flame; avoid sunlight or ultraviolet light

Hydrokote® 102 [ABITEC http://www.abiteccorp.com]

Chem. Descrip.: Hydrogenated vegetable oil with lecithin
CAS 68334-28-1; EINECS/ELINCS 269-820-6; 232-307-2

Uses: Specialty base, replacement for cocoa butter in pharmaceuticals (suppositories), antiperspirant sticks, emollient creams and lotions

Features: Replacement for cocoa butter

Regulatory: FDA 21CFR §182.1, GRAS

Properties: Off-wh. waxy solid; insol. in water; vapor pressure <1 mm Hg; m.p. 38.3-39.4 C; b.p. >500 F; iodine no. 5 max.; sapon. no. 230-250; flash pt. (COC) >390 F

Toxicology: Contact with eyes and skin not expected to cause serious irritation

Precaution: Wear chemical splash goggles and neoprene gloves for hot oil; incompat. with strong oxidizers

Storage: Retest and re-qualify 12 mos. from the date of manufacture; store in a dry, odor-free location @ R.T.

Hydrokote® 112 [ABITEC http://www.abiteccorp.com]

Chem. Descrip.: Hydrogenated vegetable oil with lecithin
CAS 68334-28-1; EINECS/ELINCS 269-820-6; 232-307-2

Uses: Specialty base, replacement for cocoa butter in pharmaceuticals (suppositories), antiperspirant sticks, emollient creams and lotions

Features: Replacement for cocoa butter

Regulatory: FDA 21CFR §182.1, GRAS

Properties: Lt. yel. oil when melted; sp.gr. ≈ 0.9; vapor pressure < 1 mm Hg; m.p. 36.1-37.2 C; b.p. > 500 F; iodine no. 5 max.; sapon. no. 238-255; flash pt. (COC) > 390 C

Precaution: Incompat. with strong oxidizers

Hydrokote® AP-5 [ABITEC http://www.abiteccorp.com]

Chem. Descrip.: Hydrogenated vegetable oil
CAS 68334-28-1; EINECS/ELINCS 269-820-6

Uses: Bodying agent, emollient, lubricant, moisturizer, visc. modifier in pharmaceuticals (clinical nutrition, coating, dermatologicals, encapsulation, nutritional/sports supplements, soft gelatin capsules, suppositories, sustained-release applics.)

Features: Replacement for cocoa butter

Properties: Lt. yel. solid; Lovibond R3.0 max.; sp.gr. ≈ 0.9; vapor pressure < 1 mm Hg; m.p. 95-99 F; b.p. > 500 F

Toxicology: Contact with eyes and skin not expected to cause serious irritation

Precaution: Wear chemical splash goggles; incompat. with strong oxidizers

Storage: Retest and re-qualify 12 mos. from the date of manufacture; store in a dry, odor-free location @ R.T.

Hydrokote® M [ABITEC http://www.abiteccorp.com]

Chem. Descrip.: Hydrogenated vegetable oil
CAS 68334-28-1; EINECS/ELINCS 269-820-6

Uses: Bodying agent, emollient, lubricant, moisturizer, visc. modifier in pharmaceuticals (clinical nutrition, coating, dermatologicals, encapsulation, nutritional/sports supplements, soft gelatin capsules, suppositories, sustained-release applics.)

Features: Replacement for cocoa butter

Properties: Lt. yel. oil when melted; fatty odor; sp.gr. ≈ 0.9; vapor pressure < 1 mm Hg; m.p. 36.1-37.2 C; b.p. > 500 F; iodine no. 5 max.; sapon. no. 238-255; flash pt. (COC) > 390 C

Precaution: Incompat. with strong oxidizers

Hydrotriticum™ QL [Croda Inc http://www.croda.com; http://www.crodausa.com; Croda Chem. Europe Ltd http://www.croda.co.uk]

Chem. Descrip.: Laurdimonium hydroxypropyl hydrolyzed wheat protein and water
CAS 130381-06-5

Uses: Film-forming conditioner for medicated hair care products

Properties: Lt. amber cl. liq., mild char. odor; sol. @ 10% in water, water/ethanol, glycerin, propylene glycol, surfactants; m.w. 3500; sp.gr. 1.05; b.p. > 300 F; pH 4.0-5.0; cationic; 26% act.
Hyflo Super-Cel® [Celite
http://www.worldminerals.com]
Chem. Descrip.: Diatomaceous earth
CAS 7631-86-9; EINECS/ELINCS 231-545-4
Uses: Filter aid for pharmaceuticals
Properties: Wh. powd.; 7 µ median pore size;
5% 150 mesh residue; sp.gr. 2.3; dens. 10
lb/ft³ (dry); pH 10

Hystar® 3375 [SPI Polyols
http://www.spipolyols.com]
Chem. Descrip.: Hydrogenated starch
hydrolysate
Chem. Analysis: Water 25%
CAS 68425-17-2
Uses: Humectant, bodying agent, moisture
control agent for toothpaste
Features: Rec. where sweet taste and low
hygroscopicity are required
Regulatory: Kosher certification
Properties: Water-wh. cl. liq.; sp.gr. 1.32; visc.
7000 cps (25 C), 1500 cps (40 C); pH neutral;
75% act.

Hystar® 4075 [SPI Polyols
http://www.spipolyols.com]
Chem. Descrip.: Hydrogenated starch
hydrolysate
CAS 68425-17-2
Uses: Humectant, bodying agent, moisture
control agent for toothpaste
Features: Rec. where sweet taste and low
hygroscopicity are required
Regulatory: Kosher certification
Properties: Water-wh. cl. liq.; sp.gr. 1.33; visc.
1000 cps (40 C); pH neutral; 75% act.

Hystar® 5875 [SPI Polyols
http://www.spipolyols.com]
Chem. Descrip.: Hydrogenated starch
hydrolysate
CAS 68425-17-2
Uses: Humectant, bodying agent, moisture
control agent for toothpaste
Features: Rec. where texture and taste are
important
Properties: Water-wh. cl. liq.; sp.gr. 1.35; visc.
1700 cps (25C), 500 cps (40 C); pH 5.0-7.5
(14% w/w in water); 75% act.

Hystar® 6075 [SPI Polyols
http://www.spipolyols.com]
Chem. Descrip.: Hydrogenated starch
hydrolysate
CAS 68425-17-2
Uses: Humectant, bodying agent, moisture
control agent for toothpaste
Features: Rec. where very low hygroscopicity is
required
Regulatory: Kosher certification
Properties: Water-wh. cl. liq., bland taste; sp.gr.
1.35; visc. 2000 cps (40 C); pH neutral; 75%
act.

Hystar® 8070 [SPI Polyols
http://www.spipolyols.com]
Chem. Descrip.: Sorbitol sol'n.
EINECS/ELINCS 200-061-5
Uses: Bodying agent for liq. pharmaceuticals;
humectant, plasticizer, nutritive sweetener,
vehicle, excipient for pharmaceuticals
Features: Noncrystallizing
Properties: Colorless, visc. liq.; odorless; sol. in
water @ 60 C; sp.gr. 1.3; visc. 380 cP @ 40 C;
b.p. 104 C
Precaution: Spills may be slippery
Hazardous Decomp. Prods.: Toxic org.
vapors./fumes, COx
Storage: Keep container closed when not in use;
store in cool, dry, well-ventilated place; keep
away from heat, direct sunlight

Hystar® CG [SPI Polyols
http://www.spipolyols.com]
Chem. Descrip.: Hydrogenated starch
hydrolysate
CAS 68425-17-2
Uses: Lubricant, humectant for dentifrices
Properties: Water-wh. cl. liq.; sp.gr. 1.30; visc.
380 cps; ref. index 1.46; pH neutral; 70% act.
Trade Name Reference

Uses: Humectant, lubricant, moisture control agent in oral hygiene prods.
Regulatory: Kosher certification
Properties: Water-wh. cl. liq.; sp.gr. 1.30; visc. 380 cps; pH neutral; 75% act. in water

Hystrene® 3022 [Chemtura http://www.chemtura.com]
Chem. Descrip.: Hydrogenated menhaden acid
Uses: Chemical intermediate, emulsifier for pharmaceuticals
Properties: Flakes; solid. pt. 50-54 C; acid no. 193-202; iodine no. 5; sapon. no. 193-202; 100% conc.

Hystrene® 4516 [Chemtura http://www.chemtura.com]
Chem. Descrip.: Stearic acid
CAS 57-11-4; EINECS/ELINCS 200-313-4
Uses: Lubricant, emulsifier, plasticizer in pharmaceuticals
Properties: Solid; acid no. 203-209; iodine no. 1 max.; sapon. no. 204-210; 100% conc.

Hystrene® 5012 [Chemtura http://www.chemtura.com; Thornley http://www.thornleycompany.com]
Chem. Descrip.: Hydrogenated stripped coconut acid See Hydrogenated coconut acid
CAS 68938-15-8; EINECS/ELINCS 273-118-5
Uses: Chemical intermediate, emulsifier for pharmaceuticals
Properties: Liq.; solid. pt. 24-33 C; acid no. 250-266; iodine no. 2 max.; sapon. no. 250-266; 100% conc.

Hystrene® 5016 NF [Chemtura http://www.chemtura.com; Thornley http://www.thornleycompany.com]
Chem. Descrip.: Stearic acid NF, triple pressed
CAS 57-11-4; EINECS/ELINCS 200-313-4
Uses: Stabilizer, lubricant, emulsifier, plasticizer in pharmaceuticals
Properties: Solid; acid no. 206-210; iodine no. 0.5 max.; sapon. no. 206-211; 100% conc.

Hystrene® 7022 [Chemtura http://www.chemtura.com; Thornley http://www.thornleycompany.com]
Chem. Descrip.: Behenic fatty acid See Behenic acid
CAS 112-85-6; EINECS/ELINCS 204-010-8
Uses: Lubricant, emulsifier, plasticizer in pharmaceuticals
Properties: Solid; acid no. 170-180; iodine no. 3.5; sapon. no. 170-181; 100% conc.

Hystrene® 9016 [Chemtura http://www.chemtura.com; Thornley http://www.thornleycompany.com]
Chem. Descrip.: Palmitic acid (90%)
CAS 57-10-3; EINECS/ELINCS 200-312-9
Uses: Lubricant, emulsifier, plasticizer in pharmaceuticals
Properties: Solid; acid no. 216-220; iodine no. 0.5 max.; sapon. no. 216-221; 100% conc.

Hystrene® 9022 [Chemtura http://www.chemtura.com; Thornley http://www.thornleycompany.com]
Chem. Descrip.: Behenic acid (90%)
CAS 112-85-6; EINECS/ELINCS 204-010-8
Uses: Lubricant, emulsifier, plasticizer in pharmaceuticals
Properties: Solid; acid no. 165-175; iodine no. 3; sapon. no. 165-176; 100% conc.

Hystrene® 9512 [Chemtura http://www.chemtura.com; Thornley http://www.thornleycompany.com]
Chem. Descrip.: Lauric acid (95%)
CAS 143-07-7; EINECS/ELINCS 205-582-1
Uses: Lubricant, emulsifier, plasticizer in pharmaceuticals
Properties: Solid; acid no. 276-281; iodine no. 0.5 max.; sapon. no. 276-282; 100% conc.

Hystrene® 9718 NF [Chemtura http://www.chemtura.com; Thornley http://www.thornleycompany.com]
Chem. Descrip.: Stearic acid NF(92%)
CAS 57-11-4; EINECS/ELINCS 200-313-4
Uses: Lubricant, emulsifier, plasticizer in pharmaceuticals
Properties: Solid; acid no. 196-201; iodine no. 0.8 max.; sapon. no. 196-202; 100% conc.

Idromag® ERB [Solvay SA http://www.solvay.com]
Chem. Descrip.: Magnesium hydroxide
Chem. Analysis: 99.0-100.5% of magnesium hydroxide
CAS 1309-42-8; EINECS/ELINCS 215-170-3
Uses: Antacid and alkaline buffer in pharmaceuticals
Regulatory: EP
Properties: Wh. fine amorphous powd.; pract. insol. in water; dissolves in dilute acids
Storage: Keep in bags tightly closed and stored in original packaging
Idromag® ERM [Solvay SA
http://www.solvay.com]
Chem. Descrip.: Magnesium hydroxide
Chem. Analysis: 95.0-100.5% of magnesium hydroxide
CAS 1309-42-8; EINECS/ELINCS 215-170-3
Uses: Antacid and alkaline buffer in pharmaceutical tablet and powder dosage systems
Regulatory: EP
Properties: Wh. fine amorphous powd.; pract. insol. in water; dissolves in dilute acids
Storage: Keep in bags tightly closed and stored in original packaging

Igepal® CO-630 Special [Rhodia HPCII
http://www.rhodia-hpcii.com; Rhodia HPCII France http://www.hpcii.rhodia.com]
Chem. Descrip.: Nonoxynol-9 USP-NF
CAS 9016-45-9
Uses: Spermicide, microbicid, emulsifier, solubilizer for pharmaceuticals
Features: GMP grade
Properties: Liq.; HLB 13.0; nonionic; 100% act.

Imbentin-PEG/300 [Dr. W. Kolb AG
http://www.kolb.ch]
Chem. Descrip.: PEG-6
CAS 25322-68-3; EINECS/ELINCS 220-045-1
Uses: Surfactant for pharmaceuticals
Properties: Liq.; hyd. no. 375; nonionic

Imbentin-PEG/400 [Dr. W. Kolb AG
http://www.kolb.ch]
Chem. Descrip.: PEG-8
CAS 25322-68-3; EINECS/ELINCS 225-856-4
Uses: Surfactant for pharmaceuticals
Properties: Liq.; hyd. no. 280; nonionic

Imbentin-PEG/600 [Dr. W. Kolb AG
http://www.kolb.ch]
Chem. Descrip.: PEG-12
CAS 25322-68-3; EINECS/ELINCS 229-859-1
Uses: Surfactant for pharmaceuticals
Properties: Liq.; hyd. no. 185; nonionic

Imbentin-PEG/1500 G [Dr. W. Kolb AG
http://www.kolb.ch]
Chem. Descrip.: PEG-32
CAS 25322-68-3; EINECS/ELINCS 203-989-9
Uses: Surfactant for pharmaceuticals
Properties: Pellets; hyd. no. 75; nonionic

Imperial 400 [Luzenac Am.
http://www.luzenac.com; MPSI http://www.mp-solutionsinc.com]
Chem. Descrip.: Talc USP/FCC
CAS 14807-96-6; EINECS/ELINCS 238-877-9
Uses: Filler in pharmaceuticals (tablets, medicated foot powds., creams/lotions/ointments); lubricant, glidant in tablet coatings; release agent in tablet molds
Features: Inert
Regulatory: FDA approved for food-contact apps.; DOT nonhazardous
Properties: Wh. to grayish-wh. fine powd.; 4.5 µ median particle size; 99.9% through 325 mesh; sl. earthy odor; sol. in hot, conc. phosphoric acid; insol. in water, cold acids and alkalis; sp.gr. 2.7-2.8; dens. 38 lb/ft³ (tapped), 14 lb/ft³ (loose); oil absorp. 35; brightness 90; pH sl. alkaline; hardness (Mohs) 1.0-1.5; 0.4% max. moisture
Toxicology: ACGIH TWA/TLV 2 mg/m³ (respirable dust); inh. of lg. amts. of dust may cause mucous membranes/respiratory tract irritation; chronic exposure may cause pulmonary fibrosis, shortness of breath, chronic cough, heart failure, pneumoconiosis; tumorigen; TSCA listed
Precaution: Very slippery when wet
Hazardous Ingredients: May contain 0-3% of: dolomite, chlorite, calcite, magnesite
Hazardous Decomp. Prods.: None
HMIS: Health 1, Flammability 0, Reactivity 0
Storage: Store in sealed containers

Imwitor® 191 [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: Glyceryl stearate
CAS 31566-31-1
Uses: Lubricant, binder, suspending agent, stabilizer, thickener for pharmaceuticals; emulsifier in o/w and w/o emulsions
Features: Environmentally compat.
Regulatory: E471
Properties: Ylsh. powd.; sol. in oils, molten fats, acetone, ether; m.p. 66-71 C; solid. pt. 63-68 C; HLB 4.4; acid no. 3 max.; iodine no. 3 max.; sapon. no. 155-170; nonionic; 90% monoglycerides
Environmental: Environmentally compat.

Imwitor® 308 [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: Glyceryl caprylate
Trade Name Reference

Imwitor® 312 [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: Glyceryl laurate
CAS 142-18-7; EINECS/ELINCS 205-526-6
Uses: Coemulsifier for o/w emulsions;
solubilizer, carrier for lipophilic
pharmaceuticals (oral, topical, rectal);
surfactant; bacteriostat
Features: Environmentally compat.
Properties: Wh. cryst. solid; sol. in water/ethanol
(50/50), acetone, ether, heptane; m.p. 56-60
C; HLB 4.0; acid no. 2 max.; iodine no. 2 max.;
sapon. no. 195-205; nonionic; 90% min.
monoglycerides

Imwitor® 370 [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: Glyceryl stearate citrate
CAS 39175-72-9; EINECS/ELINCS 259-855-5
Uses: O/w emulsifier for highly polar fats and
oils for topical and oral pharmaceuticals;
dispersant, solubilizer for actives; hard fat
Features: Food-grade; exc. consistency and
melting chars.; compat. to skin and mucous
membranes; optimizes skin feeling;
environmentally compat.
Regulatory: E 472 b/c, JCIC
Properties: Flakes; oil-sol.; HLB ≈ 10-12

Imwitor® 377 [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: Mono- and diglycerides,
esterified with citric acid and mono- and
diglycerides, esterified with lactic acid
See Citric acid esters of mono- and diglycerides
of fatty acids; Lactic acid esters of mono-
and diglycerides of fatty acids
Uses: O/w emulsifier in pharmaceuticals
Regulatory: E472c, E472b compliance
Properties: Elastic solid; oil-sol.; HLB ≈ 10-12

Imwitor® 380 [Sasol Germany
http://www.sasol.com;
Chem. Descrip.: Propylene glycol caprylate
Chem. Analysis: 50% min. monoglyceride content
CAS 31565-12-5
Uses: Coemulsifier, solubilizer, absorp. promoter for topical and rectal pharmaceuticals; solvent for lipophilic drugs
Features: Environmentally compat.
Regulatory: CFR* 21, § 178.856, GRAS, E 477
Properties: Sl. yel. liq.; neutral coconut odor; sol. in all fats and oils; acid no. 2 max.; iodine no. 1 max.; sapon. no. 250-275; hyd. no. 130-210; 50% monoglycerides

Chem. Descrip.: Propylene glycol laurate
Chem. Analysis: > 50% monoester content
CAS 142-55-2; EINECS/ELINCS 205-542-3
Uses: Coemulsifier, solubilizer, absorp. promoter for topical and rectal pharmaceuticals; solvent for lipophilic drugs
Features: Environmentally compat.
Regulatory: CFR* 21, § 178.856, GRAS, E 477
Properties: Sl. yel. solid; dispersible in water; sol. in all oils and fats; readily sol. in ethanol, acetone and n-hexane.; acid no. 2 max.; iodine no. 1 max.; sapon. no. 220-235; hyd. no. 110-140; nonionic; 50% monoglycerides

Chem. Descrip.: Glyceroyl stearate
CAS 123-94-4
Uses: Lipophilic matrix for oral solid dosage forms; tablet lubricant, emulsion stabilizer, dispersing agent for pigments
Regulatory: USP/NF
Properties: Off-wh. powd.; m.p. 66-77; nonionic; 90% conc.

Chem. Descrip.: Polyglyceryl-3 polyrincinoleate
CAS 29894-35-7
Uses: W/o emulsifier for low-viscosity pharmaceuticals
Regulatory: E476
Properties: Liq.; HLB ≈ 4

Chem. Descrip.: Caprylic/capric glycerides
CAS 85409-09-2; EINECS/ELINCS 287-075-5
Uses: Coemulsifier, solubilizer, carrier, solvent for lipophilic pharmaceuticals (oral, topical, rectal); compressing aid, lubricant in tablets; dispersant; surfactant; absorp. promoter; bacteriostat; filler for hard and soft gelatin capsules; release agent and bioavailability enhancer for drugs
Features: Environmentally compat.
Regulatory: DAB 1999, USP/ NF, JCIC
Properties: Wh-ylsh. cryst. solid, sl. coconut odor, fatty bitter taste; sol. in ethanol, acetone, ether, heptane, hexane; misc. with oils and fats; m.p. 25 C; HLB 3-4; acid no. 2 max.; iodine no. 1 max.; sapon. no. 250-280; nonionic; 45% min. monoglycerides
Toxicology: LD50 (oral, rat) > 5 g/kg; moderate skin irritant (undiluted)

Imwitor® 780 K [Sasol Germany http://www.sasol.com;
Trade Name Reference

http://www.sasololefinssurfactants.com; Sasol N. Am.
http://www.sasolnorthamerica.com
Chem. Descrip.: Isostearyl diglyceryl succinate

Uses: W/o emulsifier for highly polar oils and fats, topical pharmaceuticals
Features: Produces very heat-stable emulsions with Miglyol Gel; environmentally compat.
Properties: Yel., med. visc. liq., sl. char. odor;
sol. in chloroform, benzene, ethanol, oils; insol. in water; m.w. 580; sp.gr. 0.96-0.98; visc. 700-900 mPa•s; HLB 3.7; acid no. 3 max.; iodine no. 10 max.; sapon. no. 240-260; nonionic; 100% conc.
Use Level: 3-5%
Toxicology: LD50 (oral, rat) > 5 g/kg (nontoxic); nonirritating to skin and eyes
Environmental: Environmentally compat.

Imwitor® 900 [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: Glyceryl stearate
CAS 85666-92-8; EINECS/ELINCS 234-325-6
Uses: Lubricant, binder, retarding agent,
suspended agent, stabilizer, thickener,
emulsifier for pharmaceuticals;
consistency agent, aux. dispersant for creams and
lotions; compressing aid, lubricant in
tablets; emulsifier in o/w and w/o emulsions
Features: Environmentally compat.
Regulatory: E471 compliant
Properties: Ylsh. powd.; sol. in fats, oils, waxes;
m.p. 56-61 C; HLB 3.0; acid no. 3 max.; iodine
no. 3 max.; sapon. no. 160-175; nonionic; 40-50% monoglycerides
Environmental: Environmentally compat.

Imwitor® 900 K [Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: Glyceryl stearate
CAS 123-94-4
Uses: Lipophilic matrix for oral solid dosage
forms; tablet lubricant, emulsion stabilizer,
dispersing agent for pigments; solvent for
hard to solubilize drugs
Regulatory: USP, Ph.Eur., JCIC
Properties: Wh. powd.; sl. fatty odor; sol. in all
fats, oils, waxes, chloroform, ether, ethanol (@
60 C); m.p. 56-60 C; acid no. 3 max.; HLB 3.8;
sapon. no. 160-176; nonionic; 100% conc., 42-
48% monoglycerides

Imwitor® 900 P [Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: Glyceryl stearate
CAS 123-94-4
Uses: Lipophilic matrix for oral solid dosage
forms; tablet lubricant, emulsion stabilizer,
dispersing agent for pigments; solvent for
hard to solubilize drugs
Regulatory: USP, EP, JCIC
Properties: Off-wh. powd.; m.p. 54-64 C; acid
no. 3 max.; iodine no. 3 max.; sapon. no. 155-
175; nonionic; 40-55% monoglycerides

Imwitor® 928 [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: Glyceryl cocoate
CAS 61789-05-7; EINECS/ELINCS 263-027-9
Uses: Surfactant, emulsifier, solubilizer,
dispersant, plasticizer, lubricant,
consistency agent, skin and mucous
membrane protectant, refatting agent,
penetrant, carrier, adsorp. promoter for
pharmaceuticals, nutritional fields;
emulsion stabilizer, lubricant in
tablets
Features: Environmentally compat.
Regulatory: DAB 1999, USP/NF, JCIC
Properties: Soft wh. substance; sol. in acetone,
ether, water/ethanol; m.p. 33-37 C; acid 2
max.; iodine no. 3 max.; sapon. no. 200-220;
nonionic
Environmental: Environmentally compat.

Imwitor® 948 [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: Mono- and diglycerides
derived from unsat. edible oils
Uses: W/o emulsifier, o/w stabilizer, forms
gels in excess water for pharmaceutical
preps.
Regulatory: E473 compliant; USP, Ph. Eur.
Properties: Ylsh. liq.; > 40% monoglyceride
content

Imwitor® 960 [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: Glyceryl stearate SE
Trade Name Reference

CAS 11099-07-3
Uses: O/w emulsifier for topical pharmaceuticals; suspending agent in creams, lotions, emulsions
Regulatory: E471 compliant
Properties: Ylsh. flakes; sol. in fats, oils, waxes; m.p. 56-61 C; HLB 12.0; acid no. 5 max.; iodine no. 3 max.; sapon. no. 150-180; anionic; 35% monoglycerides

Chem. Descrip.: Glyceryl stearate SE
CAS 85666-92-8
Uses: Emulsifier and ointment base for pharmaceutical o/w creams
Properties: Ylsh. flakes; typical odor; sol. in all fats, oils, waxes, in chloroform, benzene, ether, ethanol; m.p. 56-61 C; HLB 12.0; acid no. 6 max.; iodine no. 3 max.; sapon. no. 150-175; anionic; 30% min. monoglycerides; 100% conc.

Chem. Descrip.: Glyceryl stearate SE containing sodium stearate
CAS 31566-31-1; 822-16-2; EINECS/ELINCS 234-325-6; 212-490-5
Uses: O/w emulsifier for topical pharmaceuticals; solubilizer for actives; bacteriostat; penetrant
Features: Self-emulsifying; gives uniform stable o/w emulsion structure; imparts pleasant skin feel; environmentally compat.
Regulatory: B.P., JCIC
Properties: Ylsh. flakes; m.p. 56-61 C; HLB 12; acid no. 6 max.; iodine no. 3 max.; sapon. no. 150-175; anionic; 30% min. monoglycerides; 7% max. free glycerol
Environmental: Environmentally compat.

Chem. Descrip.: Glyceryl caprylate
CAS 26402-26-6; EINECS/ELINCS 247-668-1
Uses: Surfactant, emulsifier, solubilizer, dispersant, plasticizer, lubricant, consistency regulator, skin/mucous membrane protectant, refatting agent, penetrant, carrier, absorp. promoter, bacteriostat for pharmaceuticals (oral, topical, rectal), nutritional fields
Features: Environmentally compat.
Regulatory: E472 compliant; USP/ NF, JCIC
Properties: Almost colorless liq./semisolid; sol. in water/ethanol (25/75), acetone, ether, heptane; acid no. 3 max.; iodine no. 3 max.; sapon. no. 275-300; nonionic; 50% monoglycerides
Environmental: Environmentally compat.

Incrocas 30 [Croda Inc http://www.croda.com; http://www.crodausa.com]
Chem. Descrip.: PEG-30 castor oil
CAS 61791-12-6
Uses: Surfactant, solvent, wetting agent, emollient, emulsifier, lubricant for topical pharmaceuticals
Features: Tends to yield clear sol’ns.
Properties: Pale yel. liq.; sol. in water, ethanol, oleyl alcohol, naphtha, MEK, oleic acid, trichloroethylene; HLB 11.7; cloud pt. 35-40 C (1% in 10% brine); sapon. no. 72-82; pH 6.0-7.5 (3% aq.); surf. tens. 41.5 dynes/cm (0.1% DW); nonionic; 100% act.
Use Level: 0.5-5%

Incrocas 40 [Croda Inc http://www.croda.com; http://www.crodausa.com]
Chem. Descrip.: PEG-40 castor oil
CAS 61791-12-6
Uses: Surfactant, solvent, wetting agent, emollient, emulsifier, lubricant for topical and parenteral pharmaceuticals
Properties: Pale yel. liq.; sol. @ 10% water, ethanol, oleyl alcohol, naphtha, MEK, oleic acid, trichloroethylene; HLB 11.7; cloud pt. 50 C (1% in 10% brine); sapon. no. 60-65; pH 6.0-7.5 (3% aq.); surf. tens. 40.90 dynes/cm (0.1% DW); nonionic; 100% act.
Use Level: 0.5-5%

Incromega DHA 500TG SR [Croda Inc http://www.croda.com; http://www.crodausa.com]
Chem. Descrip.: Omega 3 essential fatty acids derived from marine oils (eicosapentaenoic acid and docosahexaenoic acid (10:50))
EINECS/ELINCS 309-181-3
Uses: Nutrition; drug delivery; oral and topical pharmaceuticals; chem. intermediate
Features: High purity; excellent taste and odor
Properties: Liq.
Use Level: 0-100%
Trade Name Reference

**Incromega DHA700E SR** [Croda Inc
  
  [http://www.crodausa.com](http://www.crodausa.com)]

Chem. Descrip.:  
Docosahexaenoic acid

CAS:  
25167-62-8; EINECS/ELINCS: 309-181-3

Uses:  
Therapeutic use for eye health and CNS disorders

Features:  
Low level of trace impurities; low peroxide and para-anisidine values

Regulatory:  
EP

Properties:  
Cl. pale liq.

Use Level: 0-100%

**Incromega E3322** [Croda Inc
  
  [http://www.crodausa.com](http://www.crodausa.com)]

Chem. Descrip.:  
Omega 3 essential fatty acids derived from marine oils [eicosapentaenoic acid and docosahexaenoic acid (33:22)]

Chem. Analysis:  
33% min. EPA and 22% min. DHA

Uses:  
Nutrition; drug delivery; oral and topical pharmaceuticals; chem. intermediate

Features:  
Lower calories per dose than standard fish oil

Regulatory:  
EP

Properties:  
Sol. in min. oil, IPA; insol. in water, propylene glycol

Use Level: 0-100%

**Incromega TG3322** [Croda Inc
  
  [http://www.crodausa.com](http://www.crodausa.com)]

Chem. Descrip.:  
Omega 3 essential fatty acids derived from marine oils [eicosapentaenoic acid and docosahexaenoic acid (33:22)]

EINECS/ELINCS: 309-181-3

Uses:  
Nutrition; drug delivery; oral and parenteral pharmaceuticals; chem. intermediate

Regulatory:  
Eu.Ph. compliant

Properties:  
Liq., sol. in min. oil; partly sol. in IPA; insol. in water, propylene glycol

Use Level: 0-100%

**Incropol CS-20** [Croda Inc
  
  [http://www.crodausa.com](http://www.crodausa.com)]

Chem. Descrip.:  
Ceteareth-20

CAS:  
68439-49-6

Uses:  
O/w emulsifier, coupling agent, antistat, and solubilizer for topical pharmaceuticals

Features:  
Synergistic with Volpo series

Properties:  
Gardner 1 max. wh. solid; sol. in water, IPA; disp. in propylene glycol; insol. in min. oil; pH 5.5-7.5 (3%); HLB 15.5; nonionic; 100% conc.

Use Level: 0.5-10%

Toxicology:  
LD50 (oral, rat) 2.1 g/kg; mild skin irritant; moderate eye irritant

**Incroquat B65C** [Croda Inc
  
  [http://www.crodausa.com](http://www.crodausa.com)]

Chem. Descrip.:  
Behenalkonium chloride, cetyl alcohol

Uses:  
Emulsifier for topical pharmaceutical creams and emulsions

Features:  
Mild; substantive; smooth afterfeel

Properties:  
Wh. flake; disp. in water, warm min. oil; insol. in IPA, propylene glycol; m.p. 80 C; cationic; 65% act.

Use Level: 1-5%

**Incroquat Behenyl TMS** [Croda Inc
  
  Croda Chem. Europe Ltd  [http://www.croda.co.uk](http://www.croda.co.uk)]

Chem. Descrip.:  
Behentrimonium methosulfate, cetearyl alcohol

Uses:  
Suspending agent, structural agent in topical pharmaceuticals

Features:  
Produces excellent cationic emulsions; capable of emulsifying silicone

Properties:  
Wh. flake, char. odor; disp. in water, warm propylene glycol and min. oil; insol. in IPA; m.p. 58-62 C; pH 6.0-7.0 (1%); cationic; 25% act.

Use Level: 1-10%

**Industrene® 106** [Chemtura
  
  [http://www.chemtura.com](http://www.chemtura.com);  
  Thornley  [http://www.thornleycompany.com](http://www.thornleycompany.com)]

Chem. Descrip.:  
Oleic acid NF, low titer

CAS:  
112-80-1; EINECS/ELINCS: 204-007-1

Uses:  
In pharmaceuticals

Properties:  
Solid. pt. 6 C max.; acid no. 198-204; iodine no. 95 max.; sapon. no. 199-205

**Industrene® 206** [Chemtura
  
  [http://www.chemtura.com](http://www.chemtura.com);  
  Thornley  [http://www.thornleycompany.com](http://www.thornleycompany.com)]

Chem. Descrip.:  
Oleic acid NF

CAS:  
112-80-1; EINECS/ELINCS: 204-007-1

Uses:  
Intermediate for pharmaceuticals

Properties:  
Liq.; solid. pt. 6 C max.; acid no. 199-204; iodine no. 95 max.; sapon. no. 200-205; 100% conc.
Trade Name Reference

Chem. Descrip.: Hydrogenated coconut acid
CAS 68938-15-8; EINECS/ELINCS 273-118-5
Uses: Emulsifier for pharmaceuticals; chemical intermediate
Properties: Solid. pt. 23-26 C; acid no. 266-274; iodine no. 3 max.; sapon. no. 267-276

Industrene® 5016 NF [Chembura http://www.chemtura.com]
Chem. Descrip.: Stearic acid NF
CAS 57-11-4; EINECS/ELINCS 200-313-4
Uses: Lubricant, release agent, binder, defoamer in pharmaceuticals
Properties: Acid no. 206-210; iodine no. 0.5 max.; sapon. no. 206-211

Instant Pure-Cote™ B793 [Grain Processing http://www.grainprocessing.com]
Chem. Descrip.: Food starch modified See Food starch, modified
Uses: Film-former for pharmaceuticals, esp. aq. film coatings, barriers, texture modification, binding, adhesives; filler, humectant for pharmaceutical cleansers; film-former, encapsulation aid for spray drying
Features: Low hygroscopicity; nonirritating; low visc.
Properties: Neutral flavor; sol. in cold water

Insta*Thick® Gum Arabic [Primer Foods http://www.primerafoods.com]
Chem. Descrip.: Gum Arabic See Acacia
CAS 9000-01-5; EINECS/ELINCS 232-519-5
Uses: Flavoring agent in pharmaceuticals
Features: Low visc.; rapid disp. and dissolution
Regulatory: Kosher approved
Properties: Off-wh. powd.; 35% max. on 40 mesh, 905 min.on 200 mesh; bland odor/taste; bulk dens. 0.22-0.32 g/cc; 10% max. moisture
Storage: 12 mos. shelf life when stored in a cool, dry place

Chem. Descrip.: BHT
CAS 12837-0; EINECS/ELINCS 204-881-4
Uses: Antioxidant for rubber, paraffin, and plastic used in drug prods.
Properties: Pt-Co 15 max.; solid. pt. 69.4 C min.; 99.0% min. purity

Irgacare MP [Ciba Spec. Chems./Home & Personal Care]
Uses: Antimicrobial, bactericide, fungicide, yeast inhibitor for toothpaste, mouthwash
Features: Broad spectrum act. against gram-positive and Gram-negative bacteria, fungi, yeasts, viruses; stable to hydrolysis
Properties: Powd., faint aromatic odor; sol. in org. solvs., surfactants
Toxicology: Safe for humans
Environmental: Environmentally friendly

Irgasan DP300 [Ciba Spec. Chems./Home & Personal Care]
Chem. Descrip.: Triclosan
CAS 3380-34-5; EINECS/ELINCS 222-182-2
Uses: Bacteriostat, preservative for pharmaceuticals
Features: Broad spectrum
Properties: 99% min. act.
Environmental: Environmentally friendly

Iricalmin [Pentapharm Ltd http://www.pentapharm.com; Centerchem http://www.centerchem.com]
Chem. Descrip.: Water, wheat (triticum vulgare) germ extract, saccharomyces cerevisiae extract, sodium hyaluronate See Wheat (Triticum vulgare) germ oil
Uses: Anti-irritant, soothing agent, moisturizer for cosmetics, skin care
Properties: Yel. cl. to sl. opalescent liq.; sp.gr. 1.01-1.03 (20 C); ref. index 1.347-1.351 (25 C); pH 5.5-6.5
Storage: 2 yr. shelf life when stored in the original sealed containers protected from light in a clean and cool place at temps. between 15-25 C; in order to avoid secondary microbial contamination after opening, containers should be handled with special care

Chem. Descrip.: Blend of ox bile with a source of ferric iron
Uses: Nutritive pharmaceutical additive
Properties: Brnsh.-yel. powd.; hygroscopic; pH 6.6

Chem. Descrip.: 2-Butyl octanoic acid
CAS 27610-92-0; EINECS/ELINCS 248-570-1
Uses: Emollient for pharmaceutical creams,
Trade Name Reference

**ointment, emulsions, sticks**

**Regulatory:** CERCLA, §SARA §302 and §313 nonreportable

**Properties:** Colorless cl. liq.; odor;less m.w. 200; sp.gr. 0.887 (20 C); vapor pressure $\approx 1,000$ hPa; m.p. -13 to -9 C; b.p. 270-298 C; acid no. 276-284; iodine no. 0.2 max.; flash pt. 157 C; 96% act.; 0.1% max. water

**Toxicology:** LD50 (acute oral, rat): > 2,000 mg/kg; eye irritant; not significantly toxic or irritating to skin; ing. may cause gastrointestinal irritation, nausea, vomiting and diarrhea; prolonged inh. of vapors may be irritating; noncarcinogenic

**Environmental:** EC50 (Daphnia magna, 48 h) 10 - 100 mg/l; readily biodegrad.

**Precaution:** Avoid contact with skin, eyes and clothing; avoid build-up of electrostatic charge; keep away from heat and sources of ignition; keep away from oxidizing agents and strongly acid or alkaline materials.; wear safety goggles and gloves

**Hazardous Decomp. Prods.:** COx

**HMIS:** Health 1, Flammability 1, Reactivity 0

**IsoClear® 42 High Fructose Corn Syrup**

[**Cargill Foods**](http://www.cargillfoods.com)

**Chem. Descrip.:** High fructose corn syrup

**See Corn syrup**

**Chem. Analysis:** Moisture 28.5-29.5%; sulfated ash 0.05% max.; sulfur dioxide 3 ppm max.

**CAS 8029-43-4; EINECS/ELINCS 232-436-4**

**Uses:** Sweetener for pharmaceuticals

**Features:** Replaces sucrose and invert syrup; clean, nonmasking taste

**Regulatory:** GRAS 21CFR §184.1866

**Properties:** Water-wh. cl. liq.; char. odor; sweet, bland taste; sp.gr. 1.3372 (100/60 F); dens. 11.15 lb/gal (100 F); visc. 220 cps (80 F); ref. index 1.4643 (20 C); pH 4.0; 94% solids (fructose 42%, dextrose 52%); 71% total solids

**IsoClear® 55 High Fructose Corn Syrup**

[**Cargill Foods**](http://www.cargillfoods.com)

**Chem. Descrip.:** High fructose corn syrup

**See Corn syrup**

**Chem. Analysis:** Moisture 22.5-23.5%; sulfated ash 0.05% max.; sulfur dioxide 3 ppm max.

**CAS 8029-43-4; EINECS/ELINCS 232-436-4**

**Uses:** Sweetener for pharmaceuticals

**Features:** Replaces sucrose and invert syrup; clean, nonmasking taste; easy handling; stable

**Regulatory:** GRAS 21CFR §184.1866

**Properties:** Cl. liq.; char. odor; sweet, bland taste; sp.gr. 1.3746 (100/60 F); dens. 11.46 lb/gal (100 F); visc. 760 cps (80 F); ref. index 1.4786 (20 C); pH 4.0; 96% solids (fructose 55%, dextrose 41%); 77% total solids

**ISOFOLO® 12**

[**Sasol Germany**](http://www.sasol.com)

**Chem. Descrip.:** 2-Butyl-1-octanol

**See Butyloctanol**

**Chem. Analysis:** Moisture 22.5-23.5%; sulfated ash 0.05% max.; sulfur dioxide 3 ppm max.

**CAS 3913-02-8; EINECS/ELINCS 223-470-0**

**Uses:** Solubilizer for lipid-sol. actives, pharmaceutical creams, ointments, emulsions, sticks

**Properties:** Colorless cl. oily liq.; odorless; m.w. 186; sp.gr. 0.833; visc. 23 mPa•s; m.p. < -30 C; b.p. 243 C; acid no. 0.05 max.; iodine no. 0.5 max.; sapon. no. 1.0 max.; hyd. no. 286-305; flash pt. 120 C; ref. index 1.443; surf.
Trade Name Reference

ISOFOL® 16 [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: Hexyl decanol See Hexyldecanol
CAS 2425-77-6; EINECS/ELINCS 219-370-1
Uses: Solubilizer for lipid-sol. actives, pharmaceutical creams, ointments, emulsions, sticks
Properties: Colorless cl. oily liq.; odorless; m.w. 242; sp.gr. 0.836; visc. 38 mPa•s; m.p. -21 to -15 C; b.p. 294 C; acid no. 0.05 max.; iodine no. 0.5 max.; sapon. no. 1.0 max.; hyd. no. 225-235; flash pt. 156 C; ref. index 1.450; surf. tens. 30 mN/m; 97% min. act.
Toxicology: Nontoxic; nonirritating to skin; TSCA listed
Environmental: Biodeg.

ISOFOL® 20 [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: 2-Octyl-1-dodecanol See Octyldodecanol
CAS 5333-42-6; EINECS/ELINCS 226-242-9
Uses: Solubilizer for lipid-sol. actives, pharmaceutical creams, ointments, emulsions, sticks
Properties: Colorless cl. oily liq.; odorless; m.w. 298; sp.gr. 0.838; visc. 60 mPa•s; m.p. -1 to +1 C; b.p. 324 C; acid no. 0.05 max.; iodine no. 0.5 max.; sapon. no. 1.0 max.; hyd. no. 184-190; flash pt. 180 C; ref. index 1.454; surf. tens. 31 mN/m; 97% min. act.
Toxicology: Nontoxic; nonirritating to skin; TSCA listed
Environmental: Biodeg.

ISOFOL® 24 [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: 2-Decyl-1-tetradecanol
CAS 58670-89-6; EINECS/ELINCS 216-385-0
Uses: Solubilizer for lipid-sol. actives, pharmaceutical creams, ointments, emulsions, sticks
Properties: Oily liq.; almost odorless and colorless; visc ≈ mPa.s; 97% assay
Features: Light skin feel
Regulatory: EP

ISOFOL® 18 [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: Mixt. of 2-hexyl-1-decanol, 2-hexyl-1-dodecanol, 2-octyl-1-decanol, and 2-octyl-1-dodecanol See Hexyldecanol; Hexyl dodecanol; Octyldodecanol
CAS 58670-89-6; EINECS/ELINCS 216-385-0
Uses: Solubilizer for lipid-sol. actives, pharmaceutical creams, ointments, emulsions, sticks
Properties: Colorless cl. oily liq.; odorless; m.w. 298; sp.gr. 0.838; visc. 60 mPa•s; m.p. -1 to +1 C; b.p. 324 C; acid no. 0.05 max.; iodine no. 0.5 max.; sapon. no. 1.0 max.; hyd. no. 184-190; flash pt. 180 C; ref. index 1.454; surf. tens. 31 mN/m; 97% min. act.
Toxicology: Nontoxic; nonirritating to skin; TSCA listed
Environmental: Biodeg.
Trade Name Reference

Uses: Solubilizer for lipid-sol. actives, pharmaceutical creams, ointments, emulsions, sticks

Properties: Colorless cl. oily liq.; odorless; m.w. 354; sp.gr. 0.842; visc. 86 mPa•s; m.p. 17-20 C; b.p. > 300 C; acid no. 0.1 max.; iodine no. 1.0 max.; sapon. no. 1.0 max.; hyd. no. 154-160; flash pt. 230 C; ref. index 1.457; surf. tens. 32 mN/m; 97% min. act.

Toxicology: Nontoxic; nonirritating to skin; TSCA listed

Environmental: Biodeg.

ISOFOL® 32 [Sasol Germany http://www.sasol.com; http://www.sasololefinssurfactants.com]
Chem. Descrip.: 2-Tetradecyl-1-octadecanol
See 2-Tetradecyloctadecanol
CAS 32582-32-4; EINECS/ELINCS 251-110-2
Uses: Skin softener in stick formulations, e.g., lip salves

Properties: Wh. waxy substance; odorless; m.w. 470; sp.gr. 0.830; visc. 53 mPa•s; m.p. 42-45 C; b.p. > 300 C; acid no. 2 max.; iodine no. 1.5 max.; sapon. no. 5 max.; hyd. no. 110-126; flash pt. 266 C; ref. index 1.4527; surf. tens. 30 mN/m (50 C); 90% conc.

Toxicology: TSCA listed

Isolan® GI 34 [Degussa Care Spec.]
Chem. Descrip.: Polyglyceryl-3 isostearate
CAS 127512-63-4
Uses: W/o emulsifier for topical pharmaceuticals

Features: Low odor, easy to use; forms emulsions with good heat and freeze/thaw stability; good oxidative stability

Regulatory: JCIC registered

Properties: Yel. liq.; sol. @ 10% in veg. and paraffin oils; insol. in water; HLB 5±1; acid no. 10 max.; iodine no. 5 max.; sapon. no. 150-190; hyd. no. 60-110; nonionic

Use Level: 2.5-4.0%

Isolan® GO 33 [Degussa Care Spec.]
Chem. Descrip.: Polyglyceryl-3 oleate
CAS 9007-48-1
Uses: W/o emulsifier for topical pharmaceuticals

Features: Forms emulsions with good heat and freeze/thaw stability

Regulatory: JCIC registered

Properties: Yel. liq.; sol. @ 10% in veg. and paraffin oils; insol. in water; HLB 5.5±1; acid no. 3 max.; iodine no. 65-80; sapon. no. 150-170; hyd. no. 80-130; nonionic

Use Level: 2.5-4.0%

Isostearate Isostearyl [Gattefosse http://www.gattefossecorp.com]
Chem. Descrip.: Isostearyl isostearate
CAS 41669-30-1; EINECS/ELINCS 255-485-3
Uses: Emollient, oil substitute for pharmaceutical creams, ointments, gels, and lotions; excipient for dermal/transdermal pharmaceuticals

Features: Nonrancidable

Properties: Oily liq.; HLB 5.5-10

Use Level: 2.5-4.0%

Chem. Descrip.: Isocetyl isostearate
CAS 52006-45-8; EINECS/ELINCS 257-598-3
Uses: Solubilizer, vehicle for medicines; excipient for injectable substances; emollient in antiperspirants

Features: Changes skin feel, rub out props. and greasiness; veg. oil substitute; vaseline substitute

Isosweet 5500 [Tate & Lyle N. Am. http://www.tlna.com]
Chem. Descrip.: Corn syrup with the principal sugars contained being fructose and dextrose See Glucose
Chem. Analysis: 55% high fructose
CAS 57-48-7; 50-99-7; EINECS/ELINCS 200-333-3; 200-075-1
Uses: Carrier, microbial stabilizer, sweetener and viscosity control in liq. pharmaceutical prods.

Jaguar® 308NB [Rhodia HPCII http://www.rhodia-hpcii.com]
Chem. Descrip.: Guar gum See Guar (Cyanopsis tetragonoloba) gum
CAS 9000-30-0; EINECS/ELINCS 232-536-8
Uses: Protective colloid, emulsifier, thickener, water-binder, stabilizer, lubricant for pharmaceuticals

Properties: Cream-colored free-flowing powd.; bean-like odor; <100 mesh particle size; gels i water; bulk dens. 40±5 lb/ft3; flash pt. (Seta CC) > 93 C; pH 6-8.

Toxicology: Eye irritant; nonirritating to skin; pract. nontoxic by ing.; TSCA listed

Precaution: Avoid dust, extreme heat, open flame, and sparks

HMIS: Health 2, Flammability 1, Reactivity 0

Storage: 360 day shelf life; store in dry area in closed containers
Trade Name Reference

Japan Wax SP 69 [Strahl & Pitsch
http://www.strahlpitsch.com]
Chem. Descrip.: Japan wax See Japan (Rhus succedanea) wax
CAS 8001-39-6; EINECS/ELINCS 310-125-5
Uses: Wax for pharmaceuticals
Properties: Off-wh. color; m.p. 53 C; acid no. 22; iodine no. 13; sapon. no. 224
Toxicology: TSCA listed

Jarcol™ I-12 [Jarchem Ind.
http://www.jarchem.com]
Chem. Descrip.: 2-Butyl-octanol (95% min.) See Butyloctanol
CAS 3913-02-8; EINECS/ELINCS 223-470-0
Uses: Defoamer, hydrolytic stabilizer for pharmaceuticals
Properties: APHA 20 max. liq.; m.w. 186; sp.gr. 0.833; visc. 23 mPa•s; m.p. -30 C; b.p. 145-149 C; acid no. 0.1 max.; iodine no. 1.0 max.; sapon. no. 1.0 max.; hyd. no. 286-305; flash pt. 120 C; ref. index 1.443; 0.1% max. water

Jarcol™ I-14T [Jarchem Ind.
http://www.jarchem.com]
Chem. Descrip.: 2-Alkyl alkanol mixt., 2-butyl decanol/2-hexyl octanol 45/55 See 2-Butyl-1-decanol; 2-Hexyl-1-octanol
Uses: Pharmaceuticals
Properties: APHA 20 max. liq.; m.w. 212-223; sp.gr. 0.835; visc. 32 mPa•s; m.p. -25 C; b.p. 160-195 C; acid no. 0.1 max.; iodine no. 1.0 max.; sapon. no. 1.0 max.; hyd. no. 252-265; flash pt. 139 C; ref. index 1.447; 0.1% max. water

Jarcol™ I-16 [Jarchem Ind.
http://www.jarchem.com]
Chem. Descrip.: 2-Hexyl-decanol (97% min.) See Hexyldecanol
CAS 2425-77-6; EINECS/ELINCS 219-370-1
Uses: Extender, solvent for pharmaceuticals
Properties: APHA 20 max. liq.; m.w. 242; sp.gr. 0.836; visc. 38 mPa•s; m.p. -21 to -15 C; b.p. 193-197 C; acid no. 0.1 max.; iodine no. 1.0 max.; sapon. no. 1.0 max.; hyd. no. 225-235; flash pt. 156 C; ref. index 1.450; 0.1% max. water

Jarcol™ I-18T [Jarchem Ind.
http://www.jarchem.com]
Chem. Descrip.: 2-Octyl decanol/2-hexyl dodecanol 46/54 See Hexyl dodecanol; 2-Octyl-1-decanol
Uses: Defoamer, lubricant for pharmaceuticals
Features: Replacement for oleyl alcohol
Properties: APHA 20 max. liq.; m.w. 267-285; sp.gr. 0.837; visc. 50 mPa•s; m.p. -10 to -6 C; b.p. 207-236 C; acid no. 0.1 max.; iodine no. 1.0 max.; sapon. no. 1.0 max.; hyd. no. 197-210; flash pt. 170 C; ref. index 1.452; 0.1% max. water

Jarcol™ I-20 [Jarchem Ind.
http://www.jarchem.com]
Chem. Descrip.: 2-Octyl-dodecanol (97%min.) See Octylidodecanol
CAS 5333-42-6; EINECS/ELINCS 226-242-9
Uses: Carrier, lubricant, solubilizer for pharmaceuticals
Properties: APHA 20 max. liq.; m.w. 298; sp.gr. 0.838; visc. 60 mPa•s; m.p. -1 to 1 C; b.p. 234-238 C; acid no. 0.1 max.; iodine no. 1.0 max.; sapon. no. 1.0 max.; hyd. no. 184-190; flash pt. 180 C; ref. index 1.455; 0.1% max. water

Jarcol™ I-24 [Jarchem Ind.
http://www.jarchem.com]
Chem. Descrip.: 2-Decyl-tetradecanol (97% min.) See 2-Decyl-1-tetradecanol
CAS 58670-89-6; EINECS/ELINCS 216-385-0
Uses: Solvent, solubilizer for pharmaceuticals
Properties: APHA 20 max. liq.; m.w. 354; sp.gr. 0.842; visc. 86 mPa•s; m.p. -10 to 1 C; b.p. 234-238 C; acid no. 0.1 max.; iodine no. 1.0 max.; sapon. no. 1.0 max.; hyd. no. 184-190; flash pt. 230 C; ref. index 1.457; 0.1% max. water

Jarcol™ I-28 [Jarchem Ind.
http://www.jarchem.com]
Chem. Descrip.: 2-Decyl-1-hexadecanol (85% min.) See Dodecylhexadecanol
CAS 72388-18-2; EINECS/ELINCS 276-627-0
Uses: Pharmaceuticals
Properties: APHA 400 max. liq.; m.w. 415; sp.gr. 0.830; m.p. 29-31 C; b.p. > 300 C; acid no. 0.2 max.; hyd. no. 130-140; flash pt. 230 C; 0.2% max. water

Jarcol™ I-32 [Jarchem Ind.
http://www.jarchem.com]
Chem. Descrip.: 2-Tetradecyl-1-octadecanol (85% min.) See Dodecylhexadecanol
CAS 32582-32-4; EINECS/ELINCS 251-110-2
Uses: Emollient, visc. control agent for pharmaceuticals
Regulatory: CERCLA nonreportable; OSHA nonhazardous; DOT not regulated; Japan ENCS (2.237)
Properties: Wh. solid; APHA 470 max. liq.; odorless; m.w. 470; sp.gr. 0.830; visc. 53 mPa•s; m.p. 42-45 C; b.p. > 300 C; acid no. 0.2 max.; hyd. no. 110-126; flash pt. 266 C; 0.2% max. water

Toxicology: LD50 (oral, rat) > 39.1 g/kg; primary eye irritation index (rabbit) 2.7/110; primary skin irritation index (rabbit) 0.25/8.0; vapors may cause eye irritation; ing. of small amounts may result in nausea, vomiting; TSCA listed

Precaution: NFPA Class IIIIB combustible liq.; wear safety glasses with side shields or chemical goggles, protective clothing; incompat. with strong oxidizers, inorg. acids, halogens

Hazardous Decomp. Prods.: CO, CO2

NFPA: Health 1, Flammability 1, Reactivity 0

Chem. Descrip.: 2-Tetradecyl-1-octadecanol, 2-tetradecyl-1-eicosanol, 2-hexadecyl-1-octadecanol, 2-hexadecyl-1-eicosanol See Cetylarachidol; 2-Hexadecyl-1 octadecanol; Tetradecyleicosanol; 2-Tetradecyl octadecanol
Uses: Pharmaceuticals
Properties: APHA 400 max. liq.; m.w. 490; sp.gr. 0.820; m.p. 38-42 C; b.p. > 300 C; acid no. 0.2 max.; hyd. no. 105-120; flash pt. 278 C; 85% min. act.; 0.2% max. water

Chem. Descrip.: 2-Hexadecyl-1-eicosanol (85% min.) See Cetylarachidol
CAS 17658-63-8; EINECS/ELINCS 241-637-6
Uses: Emollient for pharmaceuticals
Properties: APHA 400 max. liq.; m.w. 510; sp.gr. 0.821; m.p. 52-55 C; b.p. > 300 C; acid no. 0.2 max.; hyd. no. 100-115; flash pt. 279 C; 0.2% max. water

Chem. Descrip.: 2-Butyl octanoic acid
CAS 27610-92-0; EINECS/ELINCS 248-570-1
Uses: Emollient for pharmaceuticals
Properties: APHA 400 max. liq.; odorless; m.w. 202-206; sp.gr. 0.887; visc. 30 mPa•s; m.p. -10 to -14 C; acid no. 273-283 max.; iodine no. 2 max.; flash pt. 160 C; ref. index 1.4394; 0.1% max. water

Chem. Descrip.: 2-Alkyl alkanoic mixt.
Uses: Pharmaceuticals
Properties: APHA 30 max. cl. liq.; odorless; m.w. 228-232; sp.gr. 0.882; visc. 40 mPa•s; m.p. -2 to -6 C; acid no. 238-248 max.; iodine no. 2 max.; flash pt. 163 C; ref. index 1.4434; 0.1% max. water

Chem. Descrip.: 2-Hexyl decanoic acid
CAS 25354-97-6
Uses: Emollient in pharmaceuticals
Properties: APHA 30 max. cl. liq.; m.w. 258-262; sp.gr. 0.878; visc. 53 mPa•s; m.p. 15 to 17 C; acid no. 211-221 max.; iodine no. 2 max.; flash pt. 192 C; ref. index 1.4498; 0.1% max. water

Chem. Descrip.: 2-Alkyl alkanoic mixt.
Uses: Pharmaceuticals
Properties: APHA 30 max. cl. liq.; m.w. 269-273; sp.gr. 0.874; visc. 60 mPa•s; m.p. 17 to 19 C; acid no. 223-233 max.; iodine no. 2 max.; flash pt. 204 C; ref. index 1.4508; 0.1% max. water

Chem. Descrip.: 2-Decyl tetradecanoic acid
CAS 93778-52-0
Uses: Pharmaceuticals
Properties: Wh. waxen substance; m.w. 327-331; sp.gr. 0.846 (60 C); visc. 17 mPa•s (60 C); m.p. 20 to 25 C; acid no. 173-183 max.; iodine no. 2 max.; flash pt. 210 C; ref. index 1.4444 (60 C); 0.1% max. water

Chem. Descrip.: 2-Octyl dodecanoic acid
CAS 40596-46-1; EINECS/ELINCS 254-992-7
Uses: Pharmaceuticals
Properties: Wh. waxen substance; m.w. 327-331; sp.gr. 0.846 (60 C); visc. 17 mPa•s (60 C); m.p. 20 to 25 C; acid no. 173-183 max.; iodine no. 2 max.; flash pt. 210 C; ref. index 1.4444 (60 C); 0.1% max. water

Chem. Descrip.: PEG-4
CAS 25322-68-3 (generic); EINECS/ELINCS 203-989-9
Uses: Base, coupling agent for pharmaceutical and oral care preps.
Properties: Water-wh. liq.; bland odor; sol. in
water; sp. gr. 1.1; flash pt. 300 F

Toxicology: Overexposure causes excessive watering, redness, and stinging to eyes; overexposure may cause skin rash; ing. can cause GI irritation, diarrhea, nausea, and vomiting

Hazardous Decomp. Prods.: COx

Jeechem 300 [Jeen Int'l.  
http://www.jeen.com]
Chem. Descrip.: PEG-6
CAS 25322-68-3 (generic)
Uses: Base, coupling agent for pharmaceutical and oral care preps.
Properties: Water-wh. liq.; bland odor; sol. in water; m.w. 285-315; sp. gr. 1.01

Toxicology: Overexposure causes excessive watering, redness, and stinging to eyes; overexposure may cause skin rash; noncarcinogenic

Precaution: Avoid contact with strong oxidizers

Hazardous Decomp. Prods.: COx

Jeechem 400 [Jeen Int'l.  
http://www.jeen.com]
Chem. Descrip.: PEG-8
EINECS/ELINCS 225-856-4
Uses: Base, coupling agent for pharmaceutical and oral care preps.
Properties: Water-wh. liq.; completely sol. in water; sp. gr. 1.01; flash pt. (COC) 485 F

Precaution: None

Hazardous Decomp. Prods.: None

Storage: Store at 60-100 F

Jeechem 600 [Jeen Int'l.  
http://www.jeen.com]
Chem. Descrip.: PEG-12
EINECS/ELINCS 229-859-1
Uses: Base, coupling agent for pharmaceutical and oral care preps.
Properties: Water-wh. liq., sp. gr. 1.125 sol. in water; b.p. >350 F; flash pt. (COC) >490 F

Precaution: None

Hazardous Decomp. Prods.: None

Storage: Store at 60-100 F

Jeechem 1450 NF [Jeen Int'l.  
http://www.jeen.com]
Chem. Descrip.: PEG-32
Chem. Analysis: <1% by wt. volatiles
EINECS/ELINCS 203-989-9
Uses: Base, coupling agent for pharmaceutical and oral care preps.
Properties: Wh. flakes; mild odor; sol. in water; m.w. 1450; sp. gr. 1.1; f.p. 50 C; m.p. 113 F; flash pt. (PM) >200 F; pH 4.5-7.5 (5% aq. sol'n.)

Toxicology: LD50 (oral, rat) 28gm/kg; (oral, mouse) 34gm/kg, (dermal, rabbit) >20 gm/kg; dust powd. may irritate eye tissue, nose, throat and respiratory tract; chronic overexposure may result in kidney and liver damage.; TSCA listed

Precaution: Wear chemicals goggles or full face shield, impervious gloves

Hazardous Decomp. Prods.: None

HMIS: Health 1, Flammability 0, Reactivity 0

Jeechem 1450 NF [Jeen Int'l.  
http://www.jeen.com]
Chem. Descrip.: Polysorbate 80 (95%), water (3%) and polyethylene glycol monooleate (1%)
CAS 9005-65-6; 9004-96-0
Uses: Surfactant; solubilizer for oils; emulsifier; lubricant

Features: Hydrophilic

Regulatory: DOT not regulated; kosher; FDA 21 CFR §73.1, 73.1001, 172.840, 173.340, 175.105, 175.300, 178.3400; CA Prop. 65; MA Right-to-Know

Properties: Yel. liq.; mild fatty odor; sol. in water; sp.gr. 1.09; visc. 425 cps; b.p. > 300; flash pt. > 300 C; pH (3% aq.) 6.5; nonionic

Toxicology: LD50 (oral, rat) > 5 g/kg

Precaution: Incompat. with strong oxidizers, acids, bases

HMIS: Health 0, Flammability 1, Reactivity 0

Jeffox® PPG-400 [Huntsman  
http://www.huntsman.com]
Chem. Descrip.: PPG 400  See PPG-9
CAS 25322-69-4
Uses: Intermediate yielding esters useful as lubricants, defoamers in pharmaceuticals
Properties: Water-wh. visc. liq., faint ether-like odor; m.w. 400; dens. 8.40 lb/gal; visc. 150-175 SUS (100 F); flash pt. (PMCC) 320 F; pour pt. -35 F; pH 5-7

Jeffox® PPG-2000 [Huntsman  
http://www.huntsman.com]
Chem. Descrip.: PPG-2000  See PPG-26
CAS 25322-69-4
Uses: Intermediate yielding esters useful as lubricants, defoamers in pharmaceuticals
Properties: Water-wh. visc. liq., faint ether-like odor; m.w. 2000; dens. 8.37 lb/gal; flash pt. (PMCC) 370 F; pour pt. -25 F; pH 5-7
Trade Name Reference

**Jungbunzlauer Xanthan Gum, Food Grade**
[Jungbunzlauer Int'l. AG  
http://www.jungbunzlauer.com]
Chem. Descrip.: Polysaccharide
Uses: Thickener and stabilizer for pharmaceuticals (suspensions, emulsions, tablets)
Regulatory: FDA 21CFR §172.695; EEC, FAO, FCC, USP, JSFA approved
Properties: Wh.- to cream-colored free-flowing powd., 100% < 250 µm (60 US mesh, normal), 100% < 180 µm (80 US mesh, fine); readily sol. in water; insol. in most org. solvs.; visc. 1300-1700 mPa•s; pH 7±1 (1%); anionic; 91-108% assay (dry basis); < 15% moisture
Use Level: 0.05-0.5% (food); 0.2-1.0% (cosmetics); 0.1-0.5% (pharm.); 0.05-0.4% (animal feed)
Storage: Store in cool, dry place; preservative rec. if stored > 24 h

**JustFiber® JF BF Granular** [Int'l. Fiber  
http://www.ifcfiber.com]
Chem. Descrip.: Dietary fiber from wheat, bamboo, or cottonseed
Uses: Excipient and binder for tableting; extender or carrier for active ingredients
Features: Inert; provides stable dimensional integrity; provides uniform fill volume for capsules
Properties: Dens., bulk 28.0 lb/ft³; water retention 1.5 g/g

**JustFiber® BF200** [Int'l. Fiber  
http://www.ifcfiber.com]
Chem. Descrip.: Dietary fiber from wheat, bamboo, or cottonseed
Uses: Excipient and binder for tableting; extender or carrier for active ingredients
Features: Inert; provides stable dimensional integrity; provides uniform fill volume for capsules
Properties: Avg. fiber length 35 µ; 90-100% through #100 mesh, 70-90% through #200 mesh; dens., bulk 15 lb/ft³; water retention 3.5 g/g

**JustFiber® JF BVF65** [Int'l. Fiber  
http://www.ifcfiber.com]
Chem. Descrip.: Dietary fiber from wheat, bamboo, or cottonseed
Uses: Excipient and binder for tableting; extender or carrier for active ingredients
Features: Inert; provides stable dimensional integrity; provides uniform fill volume for capsules
Properties: Avg. fiber length 55 µ; 80-95% through #100 mesh, 50-80% through #200 mesh; dens., bulk 14.0 lb/ft³; water retention 5.0 g/g

**JustFiber® WWF40** [Int'l. Fiber  
http://www.ifcfiber.com]
Chem. Descrip.: Dietary fiber from wheat, bamboo, or cottonseed
Uses: Excipient and binder for tableting; extender or carrier for active ingredients
Features: Inert; provides stable dimensional integrity; provides uniform fill volume for capsules
Properties: Avg. fiber length 60 µ; 60-90% through #100 mesh, 25-55% through #200 mesh; dens., bulk 8.0 lb/ft³; water retention 6.5 g/g

**Kalidone®** [Solabia  http://www.solabia.com]
Chem. Descrip.: Potassium PCA aq. sol'n.
CAS 4810-50-8; EINECS/ELINCS 225-373-9
Uses: Moisturizing agent for dermatological soap, shampoo, after-sun lotion, shower gel, nutritive and regenerative creams, hair comb-out balm
Properties: Liq., odorless; very water-sol.; m.w. 167.2; 50% act. in water
Use Level: 0.5-5%
Toxicology: Nontoxic; nonirritating to skin; very sl. irritating to eyes

**Kaopolite® 1147** [Kaopolite]
CAS 1327-36-2; EINECS/ELINCS 215-475-1
Uses: Abrasive for dentifrices
Properties: Powd.; 1.8 µ median particle size; 0.01% on 325 mesh; sp.gr. 2.62; dens. 21.91 lb/solid gal; bulking value 0.046 gal/lb; oil absorp. 65; brightness 93; ref. index 1.62; pH 5.5 (20% solids); hardness (Mohs) 5
Trade Name Reference

Kaopolite® SF [Kaopolite]
CAS 1327-36-2; EINECS/ELINCS 215-475-1
Uses: Gentle abrasive for dentifrices
Properties: Fine dry powd.; 0.7 µ median particle size; 0.01% on 325 mesh; sp.gr. 2.62; dens. 21.91 lb/solid gal; bulking value 0.046 gal/lb; oil absorp. 50; brightness 90; ref. index 1.62; pH 4.7 (20% solids); hardness (Mohs) 7

Chem. Descrip.: Glyceryl alginate
Uses: Moisturizer, carrier for other ingreds.
used in pharmaceuticals, medical applics., health-care prods.
Features: Stable
Regulatory: DOT nonregulated
Properties: Golden yel. gel; char. odor; sol. in water; dens. 1.07 g/cc; vapor pressure negligible; flash pt. none
Toxicology: Not considered toxic by normal routes of exposure
Precaution: Incompat. with strong oxidizers; spillages may be slippery; avoid extreme temps.
Hazardous Decomp. Prods.: COx, NOx
HMIS: Health 0, Flammability 0, Reactivity 0

Karaya Gum FCC [Frutarom http://www.frutarom.com]
Chem. Descrip.: Karaya gum See Karaya (Serculia urens) gum
CAS 9000-36-6; EINECS/ELINCS 232-539-4
Uses: Stabilizer, water binder, emulsifier in pharmaceuticals (bulk laxatives, denture adhesives)
Properties: Water-sol.

Kaydol® [Chemtura http://www.chemtura.com]
Chem Descirp.: Wh. mineral oil USP and Vitamin E (5-10 ppm) See Mineral oil; Acid red 18
CAS 8042-47-5; 59-02-9
Uses: Binder, carrier, conditioner, dispersant, extender, heat transfer agent, lubricant, moisture barrier, plasticizer, protective agent
Regulatory: DOT, IMDG, ICAo not regulated;
SARA §311/312/313 nonreportable; NJ Right-to-Know; Canada DSL; Australia AICS; Japan ENCS; Korea ECL
Properties: Water-wh. liq.; odorless; tasteless; insol. in water; sol. in organic solvents; sp.gr. 0.869-0.885; visc. 64-70 cSt (40 C); vapor pressure < 0.01 mm Hg; pour pt. -23 C; flash pt. > 188 C; partitioning coefficient log POW > 6; 0% volatiles

Laxatives
Regulatory: FDA 21CFR §172.878, §178.3620a; DOT, IMDG, ICAo nonregulated; SARA §311/312/313 nonreportable; NJ Right-to-Know; Canada DSL; Australia AICS; Japan ENCS; Korea ECL
Properties: Water-wh. liq.; odorless; insol. in water; sol. in organic solvs.; sp.gr. < 1; kinematic visc. > 30 mm²/s @ 40 C; vapor pressure <0.008 hPa; b.p. > 230 C; flash pt. (COC) > 188 C; partitioning coefficient greater than 6 log

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POW

**Toxicology:** LD50 (oral, rat) > 5000 mg/kg; prolonged, repeated contact may cause skin, respiratory tract irritation; inh. may be harmful; TSCA listed

**Precaution:** Wear oil resistant gloves, face shield or chemical goggles, protective clothing; incompat. with oxidizers, sunlight, ultraviolet light, heat, high temps.

**Hazardous Decomp. Prods.:** Oxides of carbon, soot

**HMIS:** Health 0, Flammability 1, Reactivity 0

**Storage:** Keep tightly closed away from heat, flame, strong sunlight in dry place

**KELACID® NF** [ISP Alginates]

**Chem. Descrip.:** Alginic acid

**CAS:** 9005-32-7; EINECS/ELINCS 232-680-1

**Uses:** Gellant, emulsifier, stabilizer for pharmaceuticals; tablet disintegrant, hemostatic agent; antacid tablets; primary reagent

**Features:** Starch-free; low sodium content (0.5-1.5%)

**Regulatory:** FDA 21CFR §184.1011, GRAS; FCC/NF compliance; Kosher approved

**Properties:** Wh. fibrous particles, odorless and tasteless; 93% min. through 80 mesh, 88% min. through 100 mesh; sol. in alkaline sol’n.; swells in water; bulk dens. ≈ 50 lb/ft³; pH 2.6-3.2 (3% aq. slurry); surf. tens. 53 dynes/cm; 7% moisture

**Toxicology:** LD50 (oral, rat) > 5000 mg/kg; excessive dust inhalation may cause respiratory irritation; dry powd. may cause eye irritation

**Precaution:** Not flamm., but powd. will burn if involved in a fire; spills are slippery when wet; incompat. with strong oxidizers

**Storage:** Store in cool, dry place

**Kelcogel®** [CP Kelco]

**Chem. Descrip.:** Purified gellan gum FCC

**CAS:** 71010-52-1; EINECS/ELINCS 275-117-5

**Uses:** Gellant in pharmaceuticals (liq., semisolid, and solid dosage forms, oral, mucosal, and transdermal drug delivery, encapsulation, tablet disintegration/controlled release)

**Regulatory:** FDA 21CFR §172.665; EU E418, JECFA, Japan, Canada approvals

**Properties:** Wh. to tan powd., sl. odor; 100 mesh; water-sol.; bulk dens. ≈ 50 lb/ft³; pH 4.5-7.5

**Toxicology:** LD50 (oral, rat) > 5000 mg/kg; excessive dust inhalation may cause respiratory irritation; dry powd. may cause eye irritation

**Environmental:** Readily biodeg.

**Precaution:** Not flamm., but powd. will burn if involved in a fire; spills are slippery when wet; incompat. with strong oxidizers

**Storage:** Store in cool, dry place

**Kelcogel® F** [CP Kelco]

**Chem. Descrip.:** Gellan gum

**CAS:** 71010-52-1; EINECS/ELINCS 275-117-5

**Uses:** Gellant in pharmaceuticals (liq., semisolid, and solid dosage forms, oral, mucosal, and transdermal drug delivery, encapsulation, tablet disintegration/controlled release)

**Regulatory:** FDA 21CFR §172.665; EU E418, JECFA, Japan, Canada approvals

**Properties:** Wh. to tan powd., sl. odor; 100 mesh; water-sol.; bulk dens. ≈ 50 lb/ft³; pH 4.5-7.5

**Toxicology:** LD50 (oral, rat) > 5000 mg/kg; excessive dust inhalation may cause respiratory irritation; dry powd. may cause eye irritation

**Environmental:** Readily biodeg.

**Precaution:** Not flamm., but powd. will burn if involved in a fire; spills are slippery when wet; incompat. with strong oxidizers

**Storage:** Store in cool, dry place

**KELCOLOID® HVF** [ISP Alginates]

**Chem. Descrip.:** Propylene glycol alginate

**CAS:** 9005-37-2

**Uses:** Gellant, emulsifier, and stabilizer in pharmaceuticals; thickener for low pH prods. such as cough syrups

**Regulatory:** FDA 21CFR §172.858, EU E405 compliance

**Properties:** Cream fibrous particles, sl. odor; 175 µ particle size; 80 mesh; sol. in water; sp.gr. 1.46; dens. 33.71 lb/ft³; visc. 400 cps (1%), 7000 cps (2%); ref. index 1.3343; pH 3.7; surf. tens. 58 dynes/cm

**Toxicology:** LD50 (oral, rat) > 5000 mg/kg; dry powd. may cause eye irritation
Trade Name Reference

**Precaution:** Incompat. with strong oxidizers

**KELCOLOID® LVF** [ISP Alginates http://www.ispcorp.com]
Chem. Descrip.: Propylene glycol alginate
CAS 9005-37-2
Uses: Gellant, emulsifier, and stabilizer for pharmaceuticals, vitamin emulsions in low pH or neutral prods., oral min. oil emulsions

**Regulatory:** FDA 21CFR §172.858, EU E405 compliance

**Properties:** Cream fibrous particles; 175 µ particle size; 80 mesh; sp.gr. 1.46; dens. 33.71 lb/ft³; visc. 120 cps (1%), 1200 cps (2%); ref. index 1.3343; pH 3.7; surf. tens. 58 dynes/cm

**Toxicology:** LD50 (oral, rat) > 5000 mg/kg; dry powd. may cause eye irritation

**Precaution:** Incompat. with strong oxidizers

**KELCOLOID® O** [ISP Alginates http://www.ispcorp.com]
Chem. Descrip.: Propylene glycol alginate
CAS 9005-37-2
Uses: Gellant, emulsifier, and stabilizer in pharmaceuticals

**Regulatory:** FDA 21CFR §172.858, EU E405 compliance

**Properties:** Cream fibrous particles; 175 µ particle size; sp.gr. 1.46; dens. 33.71 lb/ft³; visc. 25 cps (1%), 130 cps (2%); ref. index 1.3343; pH 4.0; surf. tens. 58 dynes/cm

**Toxicology:** LD50 (oral, rat) > 5000 mg/kg; dry powd. may cause eye irritation

**Precaution:** Incompat. with strong oxidizers

**KELCOLOID® S** [ISP Alginates http://www.ispcorp.com]
Chem. Descrip.: Propylene glycol alginate
CAS 9005-37-2
Uses: Gellant, emulsifier, and stabilizer in pharmaceuticals

**Regulatory:** FDA 21CFR §172.858, EU E405 compliance

**Properties:** Cream fibrous particles; 175 µ particle size; sp.gr. 1.46; dens. 33.71 lb/ft³; visc. 20 cps (1%), 120 cps (2%); ref. index 1.3343; pH 4.1; surf. tens. 58 dynes/cm

**Toxicology:** LD50 (oral, rat) > 5000 mg/kg; dry powd. may cause eye irritation

**Precaution:** Incompat. with strong oxidizers

**KELCOSOL®** [ISP Alginates http://www.ispcorp.com]
Chem. Descrip.: Algin
CAS 9005-38-3
Uses: Gellant, suspending agent, emulsifier, thickener, and stabilizer in pharmaceuticals, surgical jellies; tablet binder; control agent in sustained release tablets

**Features:** High visc.

**Regulatory:** FDA 21CFR §184.1724, GRAS; EU E401 compliance

**Properties:** Cream fibrous particles, sl. odor; 80 mesh; water-sol.; sp.gr. 1.59; dens. 54.62 lb/ft³; visc. 300 cps (1%), 4000 cps (2%); pH 7; surf. tens. 62 dynes/cm; 13% moisture

**Toxicology:** LD50 (oral, rat) > 5000 mg/kg; dry powd. may cause eye irritation

**Precaution:** Incompat. with strong oxidizers

**Keldent®** [CP Kelco http://www.cpkelco.com]
CAS 11138-66-2; EINECS/ELINCS 234-394-2
Uses: Water binder in toothpaste

**Features:** Rec. when compat. with other hydrocolloids is required

**Regulatory:** FDA 21CFR §184.1724, GRAS; EU E401 compliance

**Properties:** Cream fibrous particles; 30 mesh; water-sol.; sp.gr. 1.59; dens. 54.62 lb/ft³; visc. 300 cps (1%), 4000 cps (2%); ref. index 1.3343; pH 7; surf. tens. 62 dynes/cm; 13% moisture

**Toxicology:** LD50 (oral, rat) > 5000 mg/kg; dry powd. may cause eye irritation

**Precaution:** Incompat. with strong oxidizers
Trade Name Reference

Precaution: Incompat. with strong oxidizers

KELGIN® LV [ISP Alginates http://www.ispcorp.com]
Chem. Descrip.: Algin
CAS 9005-38-3
Uses: Gellant, emulsifier, thickener, and stabilizer for pharmaceutical applics., surgical jellies; gellant in wound healing films
Features: Low-visc.
Regulatory: FDA 21CFR §184.1724, GRAS; EU E401 compliance
Properties: Ivory gran., sl. odor; 42 mesh; water-sol.; sp.gr. 1.59; dens. 54.62 lb/ft³; visc. 60 cps (1%), 500 cps (2%); ref. index 1.3343; pH 7; surf. tens. 62 dynes/cm; 13% moisture
Toxicology: LD₅₀ (oral, rat) > 5000 mg/kg; dry powd. may cause eye irritation
Precaution: Incompat. with strong oxidizers

KELGIN® MV [ISP Alginates http://www.ispcorp.com]
Chem. Descrip.: Algin
CAS 9005-38-3
Uses: Gellant, emulsifier, thickener, and stabilizer for pharmaceuticals, ointments, suppositories, lubricating/surgical jellies; bulk laxative
Features: Med.-visc.
Regulatory: FDA 21CFR §184.1724, GRAS; EU E401 compliance
Properties: Ivory gran., sl. odor; 30 mesh; water-sol.; sp.gr. 1.59; dens. 54.62 lb/ft³; visc. 400 cps (1%), 6000 cps (2%); ref. index 1.3343; pH 7; surf. tens. 62 dynes/cm; 13% moisture
Toxicology: LD₅₀ (oral, rat) > 5000 mg/kg; dry powd. may cause eye irritation
Precaution: Incompat. with strong oxidizers

KELGIN® QL [ISP Alginates http://www.ispcorp.com]
Chem. Descrip.: Sodium alginate blend See Algin
CAS 9005-38-3
Uses: Gelling agent, emulsifier, and stabilizer in pharmaceutical applics.
Properties: Ivory gran. particles; visc. 30 cps; pH neutral.

KELGIN® XL [ISP Alginates http://www.ispcorp.com]
Chem. Descrip.: Refined sodium alginate See Algin
CAS 9005-38-3
Uses: Gellant, emulsifier, thickener, and stabilizer for pharmaceuticals, lotions, ointments
Features: Self-gelling gum
Regulatory: FDA 21CFR §184.1724, GRAS; EU E401 compliance
Properties: Lt. ivory soft gel, sl. odor; 177 µ

Kelisema Shea Butter [Kelisema Srl http://www.kelisema.it; Delta Tècnic http://www.deltatecnic.com]
Chem. Descrip.: Shea butter See Shea butter (Butyrospermum parkii)
CAS 68424-60-2; EINECS/ELINCS 293-515-7
Uses: Emollient, fatting agent for skin-protecting treatments and in preps. against dry skin, dermatitis, dermatosis, eczema, solar erythema, burns, and gingivitis
Features: Natural ingred.

KELMAR® [ISP Alginates http://www.ispcorp.com]
Chem. Descrip.: Potassium alginate
CAS 9005-36-1
Uses: Gellant in dental impression compds.; suspending agent, thickener in low- or no-sodium pharmaceuticals
Regulatory: FDA 21CFR §184.1610, GRAS; EU E402 compliance
Properties: Cream gran., sl. odor; 100 mesh; water-sol.; bulk dens. ≈ 50 lb/ft³; visc. 270 cps (1%), 3200 cps (2%); pH 7.0
Toxicology: LD₅₀ (oral, rat) > 5000 mg/kg; excessive dust inhalation may cause respiratory irritation; dry powd. may cause eye irritation
Precaution: Not flamm., but powd. will burn if involved in a fire; spills may be slippery; incompat. with strong oxidizers

KELSET® [ISP Alginates http://www.ispcorp.com]
Chem. Descrip.: Sodium alginate See Algin
CAS 9005-38-3
Uses: Gellant, emulsifier, and stabilizer for pharmaceuticals, lotions, ointments
Features: Self-gelling gum
Regulatory: FDA 21CFR §184.1724, GRAS; EU E401 compliance
Properties: Lt. ivory soft gel, sl. odor; 177 µ
Trade Name Reference

KELTONE® HV [ISP Alginates http://www.ispcorp.com]
Chem. Descrip.: Low calcium sodium alginate NF See Algin
CAS 9005-38-3
Uses: Gellant, thickener, stabilizer, suspending agent, film-former in pharmaceuticals, surgical jellies, denture adhesives; gellant in dental impression compds.; encapsulant for controlled-release drugs, enzyme immobilization
Features: Med. visc.
Regulatory: FDA 21CFR §184.1724, GRAS; EU E401 compliance; Kosher approved
Properties: Wh. to tan powd., sl. odor; 95% min. through 60 mesh, 90% min. through 80 mesh; water-sol.; bulk dens. ≈ 50 lb/ft³; pH 7; 90.8-106.0% assay
Toxicology: LD50 (oral, rat) > 5000 mg/kg; dry powd. may cause eye irritation
Precaution: Incompat. with strong oxidizers
Storage: Store in cool, dry place @ 46-59 F

KELTONE® HVCR [ISP Alginates http://www.ispcorp.com]
Chem. Descrip.: Sodium alginate NF/PhEur See Algin
CAS 9005-38-3
Uses: Thickener, suspending agent, and gellant for pharmaceuticals, sustained-release tablets
Features: High-visc.; rec. for drugs with greater sol. in gastric than in intestinal fluid
Regulatory: Kosher approved
Properties: Powd.; 95% min. through 60 mesh, 90% min. through 80 mesh; visc. 600-900 cP (1-1.25%); pH 6.4-8.0 (1-1.25%)
Storage: Store in cool, dry place @ 46-59 F

KELTONE® LVCR [ISP Alginates http://www.ispcorp.com]
Chem. Descrip.: Sodium alginate NF/PhEur See Algin
CAS 9005-38-3
Uses: Thickener, suspending agent, and gellant for pharmaceuticals, sustained-release tablets
Features: Low-visc.; rec. where rapid release in intestinal fluid is desirable
Regulatory: NF/Ph.Eur; Kosher approved
Properties: Powd.; 95% min. through 100 mesh, 85% min. through 150 mesh; visc. 100-300 cP (2%); pH 6.4-8.0 (2%); 90.8-106.0% assay
Storage: Store in cool, dry place @ 46-59 F

KELTOSE® [ISP Alginates http://www.ispcorp.com]
Chem. Descrip.: Calcium alginate and ammonium alginate
Uses: Tablet binder and disintegrant for pharmaceuticals; bulk laxatives (contributes bulk and lubrication to the intestines)
Regulatory: FDA GRAS
Properties: Ivory gran., sl. odor; 177 µ particle size; 80 mesh; water-sol.; dens. ≈ 50 lb/ft³; visc. 250 cps; pH 7.0
Toxicology: LD50 (oral, rat) > 5000 mg/kg; dry powd. may cause eye irritation, skin irritation on prolonged contact; excessive dust inhalation may cause respiratory irritation
Environmental: Readily biodeg.
Precaution: Not flamm., but powd. will burn if involved in a fire; spills may be slippery; incompat. with strong oxidizers, alkaline sol'ns.
Storage: Store in cool, dry place
Keltrol® [CP Kelco http://www.cpkelco.com]  
Chem. Descrip.: Food-grade xanthan gum  
CAS 11138-66-2; EINECS/ELINCS 234-394-2  
Uses: Thickener, emulsion stabilizer, suspending agent in creams, lotions, pharmaceuticals; binder in toothpaste  
Features: Stable in acid systems; salt compatibility  
Regulatory: FDA 21CFR §172.695; EU E415 compliance  
Properties: Cream to wh. powd., sl. odor; ≥ 95% through 80 mesh; sol. in hot and cold water; swells in glycerin and propylene glycol; sp.gr. 1.5; bulk dens. ≈ 52.2 lb/ft³; visc. 1200-1600 cps (1% gum in 1% KCl sol’n.); pH 7.0; surf. tens. 75 dynes/cm; 11% moisture  
Toxicology: LD50 (oral, rat) > 5000 mg/kg; excessive dust inhalation may cause respiratory irritation; dry powd. may cause eye irritation  
Environmental: Readily biodeg.  
Precaution: Not flamm., but powd. will burn if involved in a fire; spills are slippery; incompat. with strong oxidizers  

Keltrol® 1000 [CP Kelco http://www.cpkelco.com]  
Chem. Descrip.: Xanthan gum  
CAS 11138-66-2; EINECS/ELINCS 234-394-2  
Uses: High microbiological purity grade thickener, stabilizer for toothpaste, pharmaceuticals  
Features: High microbiological purity grade  
Regulatory: FDA 21CFR §172.695; EU E415 compliance  
Properties: Wh. to tan powd., sl. odor; 175 µ particle size; water-sol.; bulk dens. ≈ 50 lb/ft³; visc. 1400 cps (1%); pH 7.0  
Toxicology: LD50 (oral, rat) > 5000 mg/kg; excessive dust inhalation may cause respiratory irritation; dry powd. may cause eye irritation  
Environmental: Readily biodeg.  
Precaution: Not flamm., but powd. will burn if involved in a fire; spills are slippery; incompat. with strong oxidizers  

Keltrol® BT [CP Kelco http://www.cpkelco.com]  
Chem. Descrip.: Xanthan gum  
CAS 11138-66-2; EINECS/ELINCS 234-394-2  
Uses: Thickener, suspending agent, emulsifier, stabilizer for toothpaste, pharmaceuticals; excipient for OTC drugs  
Features: Brine tolerant; improved sol. in high salt systems  
Regulatory: FDA 21CFR §172.695; FCC, NF, EU E415 compliance; Kosher approved  
Properties: Cream to wh. gran. powd., sl. odor; ≥ 95% through 80 mesh; sol. in hot or cold water; bulk dens. ≈ 50 lb/ft³; visc. 1200-1600 cps (1% gum in 1% KCl sol’n.); pH 6.1-8.1 (1% aqu.); 6-14% moisture  
Toxicology: LD50 (oral, rat) > 5000 mg/kg; excessive dust inhalation may cause respiratory irritation; dry powd. may cause eye irritation  
Environmental: Readily biodeg.  
Precaution: Not flamm., but powd. will burn if involved in a fire; spills are slippery; incompat. with strong oxidizers  

Storage: Store in sealed containers in cool, dry place @ 46-59 F  

Keltrol® CG [CP Kelco http://www.cpkelco.com]  
Chem. Descrip.: Xanthan gum NF  
CAS 11138-66-2; EINECS/ELINCS 234-394-2  
Uses: Stabilizer, pigment suspending agent in pharmaceuticals; stabilizer for oil phase in o/w emulsions used in lotions  

Keltrol® CG T [CP Kelco http://www.cpkelco.com]  
Chem. Descrip.: Xanthan gum  
CAS 11138-66-2; EINECS/ELINCS 234-394-2  
Uses: Stabilizer, pigment suspending agent in pharmaceuticals  
Properties: Clarified grade  

Keltrol® CR [CP Kelco http://www.cpkelco.com]  
Chem. Descrip.: Xanthan gum NF  
CAS 11138-66-2; EINECS/ELINCS 234-394-2  
Uses: Emulsifier, thickener, suspending and gelling agent for pharmaceuticals, high dosage drugs, intermediate and low sol. drugs  
Regulatory: FDA 21CFR §172.695; EU E415 compliance; Kosher approved  
Properties: Wh. to tan powd., sl. odor; 100% min. through 80 mesh, 92% min. through 200 mesh; water-sol.; bulk dens. ≈ 50 lb/ft³; visc. 1200-1600 cP (1% salt sol’n.); pH 6.1-8.1 (1%); 91-108% assay  
Toxicology: LD50 (oral, rat) > 5000 mg/kg; excessive dust inhalation may cause respiratory irritation; dry powd. may cause eye irritation  
Environmental: Readily biodeg.  

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Precaution: Not flamm., but powd. will burn if involved in a fire; spills are slippery; incompat. with strong oxidizers
Storage: Store in sealed containers in cool, dry place @ 46-59 F

Keltrol® F [CP Kelco](http://www.cpkelco.com)
Chem. Descrip.: Food-grade xanthan gum
CAS 11138-66-2; EINECS/ELINCS 234-394-2
Uses: Stabilizer, thickener, emulsion stabilizer in creams, lotions, pharmaceuticals; binder in toothpaste; suspending agent
Features: Rapidly soluble
Regulatory: FDA 21CFR §172.695; EU E415 compliance
Properties: Cream to wh. powd.; ≥ 92% through 200 mesh; sol. in cold and hot water; swells in glycerin and propylene glycol; sp.gr. 1.5; bulk dens. 52.2 lb/ft³; visc. 1200-1600 cps (1% gum in 1% KCl sol'n.); pH 7.0; surf. tens. 75 dynes/cm; 11% moisture
Toxicology: LD50 (oral, rat) > 5000 mg/kg; excessive dust inhalation may cause respiratory irritation; dry powd. may cause eye irritation
Environmental: Readily biodeg.
Precaution: Not flamm., but powd. will burn if involved in a fire; spills are slippery; incompat. with strong oxidizers

Keltrol® RD [CP Kelco](http://www.cpkelco.com)
Chem. Descrip.: Xanthan gum
CAS 11138-66-2; EINECS/ELINCS 234-394-2
Uses: Thickener, stabilizer for toothpaste, pharmaceuticals
Features: Readily dispersible
Regulatory: FDA 21CFR §172.695; EU E415 compliance
Properties: Wh. to tan powd., sl. odor; 990 µ particle size; water-sol.; bulk dens. ≈ 50 lb/ft³; visc. 1400 cps (%); pH 7.0
Toxicology: LD50 (oral, rat) > 5000 mg/kg; excessive dust inhalation may cause respiratory irritation; dry powd. may cause eye irritation
Environmental: Readily biodeg.
Precaution: Not flamm., but powd. will burn if involved in a fire; spills are slippery; incompat. with strong oxidizers

Keltrol® GM [CP Kelco](http://www.cpkelco.com)
Chem. Descrip.: Xanthan gum
CAS 11138-66-2; EINECS/ELINCS 234-394-2
Uses: Thickener, suspending agent, stabilizer for toothpaste, pharmaceuticals
Features: Dust-free
Regulatory: FDA 21CFR §172.695; FCC, NF, EU E415 compliance; kosher
Properties: Cream to wh. gran. powd., sl. odor; ≥ 95% through 42 mesh, ≤ 25% through 100 mesh; sol. in cold or hot water; bulk dens. ≈ 50 lb/ft³; visc. 1200-1600 cps (1% gum in 1% KCl sol'n.); pH 6.1-8.0 (1% aq.)
Toxicology: LD50 (oral, rat) > 5000 mg/kg; excessive dust inhalation may cause respiratory irritation; dry powd. may cause eye irritation
Environmental: Readily biodeg.
Precaution: Not flamm., but powd. will burn if involved in a fire; spills are slippery; incompat. with strong oxidizers

Keltrol® SF [CP Kelco](http://www.cpkelco.com)
Chem. Descrip.: Xanthan gum
CAS 11138-66-2; EINECS/ELINCS 234-394-2
Uses: Thickener, suspending agent, stabilizer for toothpaste, pharmaceuticals
Features: Altered rheology
Regulatory: FDA 21CFR §172.695; FCC, NF, EU E415 compliance; kosher
Properties: Wh. to cream powd., sl. odor; ≥ 100% through 60 mesh, ≥ 95% through 80 mesh; sol. in cold or hot water; bulk dens. ≈ 50 lb/ft³; visc. 800-1300 cps; pH 6.1-8.1
Toxicology: LD50 (oral, rat) > 5000 mg/kg; excessive dust inhalation may cause respiratory irritation; dry powd. may cause eye irritation
Environmental: Readily biodeg.
Precaution: Not flamm., but powd. will burn if involved in a fire; spills are slippery; incompat. with strong oxidizers

Keltrol® T [CP Kelco](http://www.cpkelco.com)
Chem. Descrip.: Xanthan gum
CAS 11138-66-2; EINECS/ELINCS 234-394-2
Uses: Emulsifier, thickener, suspending agent, flocculant, emulsion stabilizer, foam stabilizer for pharmaceuticals, medicated syrups, elixirs, antacids, lotions, creams, toothpaste, oral min. oil emulsions
Features: Produces clear sol'ns.
Regulatory: FDA 21CFR §172.695; FCC, NF, EU E415 compliance; kosher
Trade Name Reference

**Properties:** Cream to wh. powd., sl. odor; 100% through 60 mesh, ≥ 95% through 80 mesh; sol. in hot or cold water; bulk dens. ≈ 50 lb/ft³; visc. 1200-1600 cps (1% gum in 1% KCl sol'n.); pH 7.0±1.0

**Toxicology:** LD50 (oral, rat) > 5000 mg/kg; excessive dust inhalation may cause respiratory irritation; dry powd. may cause eye irritation

**Environmental:** Readily biodeg.

**Precaution:** Not flamm., but powd. will burn if involved in a fire; spills are slippery; incompat. with strong oxidizers

**Storage:** Store in sealed containers in cool, dry place @ 46-59 F

Keltrol® TF [CP Kelco http://www.cpkelco.com]

**Chem. Descrip.:** Xanthan gum

**CAS 11138-66-2; EINECS/ELINCS 234-394-2**

**Uses:** Emulsifier, thickener, suspending agent, emulsion stabilizer, foam stabilizer for pharmaceuticals, medicated syrups, antacids, lotions, creams, toothpaste

**Features:** Rapidly soluble; suitable for clear systems

**Regulatory:** FDA 21CFR §172.695; FCC, NF, EU E415 compliance; kosher

Kemester® EGDS [Chemtura http://www.chemtura.com]

**Chem. Descrip.:** Glycol distearate

**CAS 627-83-8; EINECS/ELINCS 211-014-3**

**Uses:** Opacifier, pearlescent, thickener for pharmaceuticals

**Regulatory:** FDA accepted

Kemester® S80 [Chemtura http://www.chemtura.com]

**Chem. Descrip.:** Sorbitan oleate

**CAS 1338-43-8; EINECS/ELINCS 215-665-4**

**Uses:** Emulsifier for pharmaceuticals

Kemester® S85 [Chemtura http://www.chemtura.com]

**Chem. Descrip.:** Sorbitan trioleate

**CAS 26266-58-0; EINECS/ELINCS 247-569-3**

**Uses:** Emulsifier for pharmaceuticals


**Chem. Descrip.:** Aluminum distearate

**CAS 6865-35-6; EINECS/ELINCS 229-966-3**

**Uses:** Lubricant and compactant in pharmaceutical prods.

**Properties:** Wh. powd.; typical odor; negligible sol. in water (4.7 mg/l); dens. 1.01 g/ml; m.p. ≈ 160 C

**Toxicology:** LD50 (oral, rat) > 2 g/kg

**Environmental:** Biodeg. (28 days) 6.5; COD 3100 mg O₂/g; BOD28 202 mg O₂/g

**Precaution:** Wear goggles, and gloves; use approved breathing mask; do not breathe the fumes, vapors, or dust; keep out of sewers, drains, surface and underground water and the ground; avoid sources of ignition and dust formation; dust-air mixt. can explode

**Storage:** Store in closed original packing in dry conditions @ R.T. away from direct sunlight and strong odors

**Chem. Descrip.:** Barium stearate

**CAS 6865-35-6; EINECS/ELINCS 229-966-3**

**Uses:** Gellant, suspending agent, emulsifier, and stabilizer for pharmaceuticals, dental release agents; stabilizer for dentures and adhesive pads

**Regulatory:** FDA 21CFR §184.1724, GRAS; EU E401 compliance
Trade Name Reference

UN 1564
Uses: Lubricant and compactant in pharmaceutical prods.

Properties: Wh. powd.; typical odor; insol. in water; apparent dens. ≈ 0.3-0.5 g/ml; m.p. > 200

Toxicology: LD50 (oral, rat) > 2.5 g/kg; LC50 (inhal. mammal, 4 h) >1200 mg/kg

Precaution: Wear goggles, and gloves; use approved breathing mask; do not breathe the fumes, vapors, or dust; keep out of sewers, drains, surface and underground water and the ground; avoid sources of ignition and dust formation; dust-air mixt. can explode

Storage: Store in closed original packing in dry conditions @ R.T. away from direct sunlight and strong odors


Chem. Descrip.: Zinc stearate
CAS 557-05-1; EINECS/ELINCS 209-151-9
Uses: Lubricant and compactant in pharmaceutical prods.

Properties: Wh. powd.; typical odor; negligibly sol. in water (0.9 mg/l); dens. ≈ 1.02 g/ml; m.p. ≈ 120 C; pH 7-9

Toxicology: LD50 (oral, rat) > 5 g/kg

Environmental: Biodeg. (28 d) 93%; LC50 (fish) > 100 mg/l; COD 145 mg O2/g

Precaution: Wear goggles, and gloves; use approved breathing mask; do not breathe the fumes, vapors, or dust; keep out of sewers, drains, surface and underground water and the ground; avoid sources of ignition and dust formation; dust-air mixt. can explode

Storage: Store in closed original packing in dry conditions @ R.T. away from direct sunlight and strong odors


Chem. Descrip.: Magnesium stearate
pharmaceutical grade
CAS 557-04-0; EINECS/ELINCS 209-150-3
Uses: Lubricant, release agent, and compactant in pharmaceutical prods.

Properties: Wh. powd.; typical odor; negligibly sol. in water; dens. ≈ 1.03 g/ml; m.p. ≈ 140 C

Toxicology: LD50 (oral, rat) > 2.0 g/kg

Environmental: Biodeg. (28 d) 95%; nontoxic to fish

Precaution: Wear goggles, and gloves; use approved breathing mask; do not breathe the fumes, vapors, or dust; keep out of sewers, drains, surface and underground water and the ground; avoid sources of ignition and dust formation; dust-air mixt. can explode

Storage: Store in closed original packing in dry conditions @ R.T. away from direct sunlight and strong odors


Chem. Descrip.: Sodium stearate
pharmaceutical grade
CAS 822-16-2; EINECS/ELINCS 212-490-5
Uses: Lubricant and compactant in pharmaceutical prods.

Properties: Wh. powd.; typical odor; sol. in water; dens. ≈ 1.02 g/ml; m.p. ≈ 215 C

Toxicology: LD50 (oral, rat) > 2.0 g/kg

Environmental: Biodeg. (28 d) 4.4%; LC50 (fish) > 100 mg/l

Precaution: Wear goggles, and gloves; use approved breathing mask; do not breathe the fumes, vapors, or dust; keep out of sewers, drains, surface and underground water and the

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Trade Name Reference

ground; avoid sources of ignition and dust formation; dust-air mixt. can explode
Storage: Store in closed original packing in dry conditions @ R.T. away from direct sunlight and strong odors

Kemistab EC-F [Undesa
http://www.undesa.com; S. Black
http://www.sblack.com]
Chem. Descrip.: Calcium stearate
pharmaceutical grade
CAS 1592-23-0; EINECS/ELINCS 216-472-8
Uses: Lubricant, gelling agent, and compactant in pharmaceutical prods.
Properties: Wh. powd.; typical odor; negligibly sol. in water (0.9 mg/l); dens. 1.03 g/ml; m.p. 130-156 C; pH 7-9
Precaution: Wear goggles, and gloves; use approved breathing mask; do not breathe the fumes, vapors, or dust; keep out of sewers, drains, surface and underground water and the ground; avoid sources of ignition and dust formation; dust-air mixt. can explode
Storage: Store in closed original packing in dry conditions @ R.T. away from direct sunlight and strong odors

Kemistrene EC-F

Chem. Descrip.: Calcium stearate
pharmaceutical grade
CAS 1592-23-0; EINECS/ELINCS 216-472-8
Uses: Lubricant, gelling agent, and compactant in pharmaceutical prods.
Properties: Wh. powd.; typical odor; negligibly sol. in water (0.9 mg/l); dens. 1.03 g/ml; m.p. 130-156 C; pH 7-9
Precaution: Wear goggles, and gloves; use approved breathing mask; do not breathe the fumes, vapors, or dust; keep out of sewers, drains, surface and underground water and the ground; avoid sources of ignition and dust formation; dust-air mixt. can explode
Storage: Store in closed original packing in dry conditions @ R.T. away from direct sunlight and strong odors

Kemistrene® 96.0% USP [Chemtura
http://www.chemtura.com]
Chem. Descrip.: Refined glycerin USP
CAS 56-81-5; EINECS/ELINCS 200-289-5
Uses: Humectant, solvent in pharmaceuticals
Properties: Sp.gr. 1.25165 min; 96.0% purity

Kemstrene® 99.7% USP [Chemtura
http://www.chemtura.com]
Chem. Descrip.: Refined glycerin USP
CAS 56-81-5; EINECS/ELINCS 200-289-5
Uses: Humectant, solvent in pharmaceuticals
Properties: Hazen 12 max. color; sp.gr. 1.26124; 99.7% purity

Kessco CP [Akzo Nobel bv
http://www2.akzonobel.nl/nl/home/]
Chem. Descrip.: Cetyl palmitate
CAS 540-10-3; EINECS/ELINCS 208-736-6
Uses: Emollient in pharmaceuticals
Features: Replaces native spermaceti
Properties: Flakes; nonionic

Kessco EGMS [Akzo Nobel bv
http://www2.akzonobel.nl/nl/home/]
Chem. Descrip.: Glycol stearate
CAS 111-60-4; EINECS/ELINCS 203-886-9
Uses: Emulsifier, opacifier, pearlescent for pharmaceuticals
Properties: Cream-colored flakes; mild fatty odor; disp. in hot water; dens. 1050 kg/m³; m.p. 60-65 C; pH 5 - 6; nonionic
Toxicology: LD50 (oral, rat) >5000 mg/kg; minimally irritating to eyes; nonirritating to skin
Hazardous Decomp. Prods.: None
Storage: Store in closed containers at ambient temps

Kester Wax® 48 [Koster Keunen
http://www.kosterkeunen.com]
Chem. Descrip.: Syn. spermaceti (cetyl esters)
CAS 13609-97-7
Uses: Ointment base
Properties: Pastilles; m.w. 478; m.p. 47-49 C; acid no. < 2

Kester Wax® K82P [Koster Keunen
http://www.kosterkeunen.com]
Chem. Descrip.: Synthetic beeswax
See Beeswax, synthetic

Kiccolate® ND-2HS [Asahi Kasei
http://www.asahi-kasei.co.jp]
Chem. Descrip.: Croscarmellose sodium
CAS 74811-65-7
Uses: Disintegrant for pharmaceutical tablets, capsules, and granules
Features: Rapid disintegration and dissolution
Regulatory: USP/NF, EP, JPE
Properties: Particle size ≤ 5% through #200 sieve; bulk dens. 0.45 g/cm³ (loose); bulk dens. 0.69 g/cm³ (tapped)

Kiccolate® ND-200 [Asahi Kasei
http://www.asahi-kasei.co.jp]
Chem. Descrip.: Croscarmellose sodium
CAS 74811-65-7
Uses: Disintegrant for pharmaceutical tablets, capsules, and granules
Features: Rapid disintegration and dissolution
Regulatory: USP/NF, EP, JPE
Properties: Particle size ≤ 5% through #200 sieve; bulk dens. 0.44 g/cm³ (loose); bulk dens. 0.65 g/cm³ (tapped)

Kirnol® Range [Cognis
http://www.cognis.de]
Chem. Descrip.: Fatty acid mono and
Trade Name Reference

**diglycerides** based or vegetable or animal sources  
See Mono- and diglycerides of fatty acids

Uses:  
Emulsifier for pharmaceuticals  
(capsules, powds., syrups, tablets)

Features: General purpose

Properties: Nonionic; < 60% mono content

**KLEA 508A** [INEOS Fluor Am.  
http://www.ineosfluor.com; INEOS Fluor UK  
http://www.ineosfluor.com]
Chem. Descrip.: Trifluoromethane (39%), hexafluoroethane (61%)
Uses:  
Azeotropic refrigerant for use in low temp. appls. such as biomedical freezing

Properties: Dens. 6.73 kg/m³; bubble pt. -85.69 C

**Klearol®** [Chemtura  
http://www.chemtura.com]
Chem. Descrip.: Wh. mineral oil NF  
CAS 8020-83-5; EINECS/ELINCS 232-384-2
Uses:  
Emollient, gloss aid, plasticizer, release agent, softener in pharmaceuticals

Regulatory: FDA 21CFR §172.878, §178.3620a

Properties: Water-wh., odorless, tasteless; sp.gr. 0.822-0.833; visc. 7-10 cSt (40 C); pour pt. -7 C; flash pt. 138 C

**Kleptose® DC** [Roquette  
http://www.roquette.fr]
Chem. Descrip.: β-Cyclodextrin See Cyclodextrin  
CAS 7585-39-9; EINECS/ELINCS 231-493-2
Uses:  
Encapsulating agent, bioavailability enhancer, compression aid, solubilizer, taste-masking agent for pharmaceutical tablets, capsules, sachets, syrups, solutions and oral suspensions

Features: Used in direct compression applications

Regulatory: USP/NF, JPE

Properties: Wh. crystalline powd.; odorless, sl. sweet taste; sol in water (1.6g / 100ml )

**Klucel® EF Pharm** [Hercules/Aqualon  
http://www.aqualon.com]
CAS 9004-64-2
Uses:  
Surfactant, thickener, stabilizer, film-former, suspending agent, protective colloid, coating agent in pharmaceuticals, tablet coatings, controlled-release prods., encapsulation; tablet binder

Regulatory: NF, EP, JP

Properties: Off-wh. powd., tasteless; 99% through 20 mesh; sol. in water (below 38 C) and many polar org. solvs.; m.w. 80,000; visc. 300-600 cps (10% aq.); bulk dens. 0.5 g/ml; soften. pt. 100-150 C; pH 5.0-7.5 (2%); nonionic; 5% max. moisture

**Klucel® E Pharm** [Hercules/Aqualon  
http://www.aqualon.com]
CAS 9004-64-2
Uses:  
Thickener, stabilizer, suspending agent in pharmaceutical tablet coatings, controlled-release prods., encapsulation, tablet binding

Features: Highly surf. active; low surf. and interfacial tensions; thermoplastic; extrudable; heat-sealable in films and coatings; inert

Regulatory: NF, EP, JP, DMF listed

Properties: Off-wh. powd.; tasteless; 85% min. through 30 mesh, 99% min. through 20 mesh;
sol. in water (below 38 C), polar org. solvs.;
insol. in water (above 45 C); sp.gr. 1.010 (2%,
30 C); visc. 200-600 cps (10% aq.); soften. pt.
100-150 C; pH 5.0-7.5; ref. index 1.337 (2%);
surf. tens. 43.6 dynes/cm (0.1%); nonionic; 5% max.
mor. moisture

Klucel® EXF Pharm [Hercules/Aqualon
http://www.aqualon.com]
Chem. Descrip.: Hydroxypropylcellulose NF,
EP, JP
CAS 9004-64-2
Uses: Surfactant, thickener, stabilizer,
suspending agent in pharmaceuticals,
tablet coatings, controlled-release prods.,
encapsulation; tablet binder
Features: Heat-sealable; extremely flexible; sm.
particle size contributes to rapid dissolution
and visc. development
Regulatory: NF, EP, JP
Properties: Off-wh. finely ground powd.; 10%
max. on 80 mesh, 20% max. on 100 mesh;
tasteless; sol. in water (below 38 C) and polar
org. solvs.; sp.gr. 1.010 (2% aq., 30 C); bulk
dens. 0.5 g/ml; visc. 200-600 cps (10% aq.);
soften. pt. 100-150 C; pH 5.0-7.5; surf. tens. 43.6 dynes/cm
(0.1% aq.); nonionic; 5% max. moisture
Use Level: 15-35% (controlled-release prods.)

Klucel® EX Pharm [Hercules/Aqualon
http://www.aqualon.com]
Chem. Descrip.: Hydroxypropylcellulose NF,
EP, JP
CAS 9004-64-2
Uses: Thickener, stabilizer, suspending agent in
pharmaceutical tablet coatings,
controlled-release prods., encapsulation,
tablet binding
Features: Highly surf. active; low surf. and
interfacial tensions; thermoplastic; extrudable;
heat-sealable in films and coatings; inert
Regulatory: NF, EP, JP, DMF listed
Properties: Off-wh. fine powd.; tasteless; 99.9%
min. through 60 mesh, 90% min. through 80
mesh, 80% min. through 100 mesh; sol. in
water (below 38 C), polar org. solvs.; insol. in
water (above 45 C); sp.gr. 1.010 (2%, 30 C);
soften. pt. 100-150 C; pH 5.0-7.5; ref. index
1.337 (2%); surf. tens. 43.6 dynes/cm (0.1%); nonionic; 5% max.
mor. moisture

Klucel® ‘F’ Grades [Hercules/Aqualon
http://www.aqualon.com]
Chem. Descrip.: Premium grades
hydroxypropylcellulose NF; grades
designated ‘FF’ also meet FCC specs.
CAS 9004-64-2
Uses: Surface-active thickener, stabilizer,
film-former, suspending agent, protective
colloid; inert ingred. in drug prods.; film
coating, binder for tablets; in medicinal
elixirs, lotions, emulsions capsules, sustained-
release dosage forms
Regulatory: FDA 21CFR §172.870
Properties: Off-wh. powd., tasteless; 85% min.
through 30 mesh, 99% min. through 20 mesh;
water-sol.; dissolves easily in many polar org.
solvs.; soften. pt. 100-150 C; pH 5.0-8.5; surf.
tens. 43.6 dynes/cm (0.1%); nonionic; 5% max. moisture
Toxicology: Nontoxic orally; nonirritating to
skin; may cause transient eye irritation

Klucel® G CS [Hercules/Aqualon
http://www.aqualon.com]
Chem. Descrip.: Hydroxypropylcellulose
CAS 9004-64-2
Uses: Thickener, film-former in denture
adhesive films, antiperspirants
Properties: Wh. to off-wh. free-flowing granular
solid; sol. in cellulose ethers, cold water,
alcohols, polar org. solvs., PEG, PG; sp.gr.
1.010 (2%); bulk dens. 0.5 g/ml; ref. index
1.337 (2%); pH 5.5-8.0 (1%); surf. tens. 43.6
dynes/cm (0.1%); nonionic

Klucel® G Pharm [Hercules/Aqualon
http://www.aqualon.com]
Chem. Descrip.: Hydroxypropylcellulose
CAS 9004-64-2
Uses: Surfactant, thickener, stabilizer,
suspending agent in pharmaceuticals,
tablet coatings, controlled-release prods.,
encapsulation; tablet binder
Features: Heat-sealable; extremely flexible
Regulatory: NF, EP, JP
Properties: Off-wh. powd.; 85% min. through 30
mesh, 99% min. through 20 mesh; tasteless;
sol. in water (below 38 C) and polar org. solvs.;
sp.gr. 1.010 (2% aq., 30 C); visc. 150-400 cps (2% aq.);
soften. pt. 100-150 C; pH 5.0-7.5; surf. tens. 43.6 dynes/cm
(0.1% aq.); nonionic; 5% max. moisture

Klucel® GF [Hercules/Aqualon
http://www.aqualon.com]
Chem. Descrip.: Hydroxypropylcellulose
CAS 9004-64-2
Uses: Thickener, stabilizer, suspending agent in
pharmaceutical tablet coatings,
controlled-release prods., encapsulation,
tablet binding
Features: Highly surf. active; low surf. and
interfacial tensions; thermoplastic; extrudable;
heat-sealable in films and coatings; inert
Regulatory: NF, EP, JP, DMF listed
Properties: Off-wh. fine powd.; tasteless; 99.9%
min. through 60 mesh, 90% min. through 80
mesh, 80% min. through 100 mesh; sol. in
water (below 38 C), polar org. solvs.; insol. in
water (above 45 C); sp.gr. 1.010 (2%, 30 C);
soften. pt. 100-150 C; pH 5.0-7.5; ref. index
1.337 (2%); surf. tens. 43.6 dynes/cm (0.1%); nonionic; 5% max.
mor. moisture

Klucel® ‘G’ Grades [Hercules/Aqualon
http://www.aqualon.com]
Chem. Descrip.: Hydroxypropylcellulose NF,
EP, JP
CAS 9004-64-2
Uses: Thickener, film-former in denture
adhesive films, antiperspirants
Properties: Wh. to off-wh. free-flowing granular
solid; sol. in cellulose ethers, cold water,
alcohols, polar org. solvs., PEG, PG; sp.gr.
1.010 (2%); bulk dens. 0.5 g/ml; ref. index
1.337 (2%); pH 5.5-8.0 (1%); surf. tens. 43.6
dynes/cm (0.1%); nonionic

Handbook of Pharmaceutical Additives, Third Edition
Klucel® H CS [Hercules/Aqualon http://www.aqualon.com]
Chem. Descrip.: Hydroxypropylcellulose
CAS 9004-64-2
Uses: Rheology modifier, clarifier topical gels and ointments
Properties: Wh. to off-wh. free-flowing granular solid; sol. in cellulose ethers, cold water, alcohols, polar org. solvs., PEG, PG; sp.gr. 1.010 (2%); bulk dens. 0.5 g/ml; ref. index 1.337 (2%); pH 5.5-8.0 (1%); surf. tens. 43.6 dynes/cm (0.1%); nonionic

Klucel® HF [Hercules/Aqualon http://www.aqualon.com]
CAS 9004-64-2
Uses: Surfactant, thickener, stabilizer, suspending agent in pharmaceuticals, tablet coatings, controlled-release prods., encapsulation; tablet binder
Features: Heat-sealable; extremely flexible; sm. particle size contributes to rapid dissolution and visc. development
Regulatory: NF, EP, JP
Properties: Off-wh. fine powd.; 10% max. on 80 mesh, 20% max. on 100 mesh; tasteless; sol. in water (below 38 C) and polar org. solvs.; sp.gr. 1.010 (2% aq., 30 C); bulk dens. 0.5 g/ml; visc. 1500-3000 cps (1% aq.); soft. pt. 100-150 C; ref. index 1.337 (2% aq.); pH 5.0-7.5; surf. tens. 43.6 dynes/cm (0.1% aq.); nonionic; 5% max. moisture
Use Level: 15-35% (controlled-release prods.)

Klucel® HX Pharm [Hercules/Aqualon http://www.aqualon.com]
CAS 9004-64-2
Uses: Thickener, stabilizer, suspending agent in pharmaceutical tablet coatings, controlled-release prods., encapsulation, tablet binding
Features: Highly surf. active; low surf. and interfacial tensions; thermoplastic; extrudable; heat-sealable in films and coatings; inert
Regulatory: NF, EP, JP, DMF listed
Properties: Off-wh. powd.; 99% min. through 30 mesh, 99% min. through 20 mesh; tasteless; sol. in water (below 38 C) and polar org. solvs.; ins. in water (above 38 C); sp.gr. 1.010 (2%, 30 C); visc. 150-400 cps (2% aq.); soft. pt. 100-150 C; pH 5.0-7.5; ref. index 1.337 (2%); surf. tens. 43.6 dynes/cm (0.1%); nonionic; 5% max. moisture
Use Level: 15-35% (controlled-release prods.)
Trade Name Reference

water (below 38 C), polar org. solvs.; insol. in water (above 45 C); sp.gr. 1.010 (2%, 30 C); soften. pt. 100-150 C; pH 5.0-7.5; ref. index 1.337 (2%); surf. tens. 43.6 dynes/cm (0.1%); nonionic; 5% max. moisture

Klucel® J CS [Hercules/Aqualon
http://www.aqualon.com]
Chem. Descrip.: Hydroxypropylcellulose
CAS 9004-64-2
Uses: Thickener, film-former in denture adhesive films, antiperspirants
Properties: Wh. to off-wh. free-flowing granular solid; sol. in cellulose ethers, cold water, alcohols, polar org. solvs., PEG, PG; sp.gr. 1.010 (2%); bulk dens. 0.5 g/ml; ref. index 1.337 (2%); pH 5.5-8.0 (1%); surf. tens. 43.6 dynes/cm (0.1%); nonionic

Klucel® JF [Hercules/Aqualon
http://www.aqualon.com]
CAS 9004-64-2
Uses: Surfactant, thickener, stabilizer, suspending agent in pharmaceuticals, tablet coatings, controlled-release prods., encapsulation; tablet binder
Features: Heat-sealable; extremely flexible
Regulatory: NF, EP, JP
Properties: Off-wh. powd.; 85% min. through 30 mesh, 99% min. through 20 mesh; tasteless; sol. in water (below 38 C) and polar org. solvs.; sp.gr. 1.010 (2% aq., 30 C); bulk dens. 0.5 g/ml; visc. 75-150 cps (5% aq.); soften. pt. 100-150 C; ref. index 1.337 (2% aq.); pH 5.0-7.5; surf. tens. 43.6 dynes/cm (0.1% aq.); nonionic; 5% max. moisture

Klucel® J Pharm [Hercules/Aqualon
http://www.aqualon.com]
CAS 9004-64-2
Uses: Thickener, stabilizer, suspending agent in pharmaceutical tablet coatings, controlled-release prods., encapsulation; tablet binding
Features: Highly surf. active; low surf. and interfacial tensions; thermoplastic; extrudable; heat-sealable in films and coatings; inert
Regulatory: NF, EP, JP, DMF listed
Properties: Off-wh. powd.; 85% min. through 30 mesh, 99% min. through 20 mesh; tasteless; sol. in water (below 38 C) and polar org. solvs.; sp.gr. 1.010 (2%, 30 C); visc. 150-400 cps (5% aq.); ref. index 1.337 (2%); surf. tens. 43.6 dynes/cm (0.1% aq.); nonionic; 5% max. moisture

Klucel® L CS [Hercules/Aqualon
http://www.aqualon.com]
Chem. Descrip.: Hydroxypropylcellulose
CAS 9004-64-2
Uses: Rheology modifier, clarifier topical gels and ointments
Properties: Wh. to off-wh. free-flowing granular solid; sol. in cellulose ethers, cold water, alcohols, polar org. solvs., PEG, PG; sp.gr. 30 C; visc. 150-400 cps (5% aq.); soften. pt. 100-150 C; pH 5.0-7.5; ref. index 1.337 (2%); surf. tens. 43.6 dynes/cm (0.1%); nonionic; 5% max. moisture
Trade Name Reference

1.010 (2%); bulk dens. 0.5 g/ml; ref. index 1.337 (2%); pH 5.5-8.0 (1%); surf. tens. 43.6 dynes/cm (0.1%); nonionic

Klucel® MF [Hercules/Aqualon http://www.aqualon.com]

Chem. Descrip.: Hydroxypropylcellulose NF, EP
CAS 9004-64-2
Uses: Surfactant, thickener, stabilizer, suspending agent in pharmaceuticals, tablet coatings, controlled-release prods., encapsulation; tablet binder
Features: Heat-sealable; extremely flexible
Regulatory: NF, EP
Properties: Off-wh. powd.; 85% min. through 30 mesh, 99% min. through 20 mesh; tasteless; sol. in water (below 38 C) and polar org. solvs.; sp.gr. 1.010 (2% aq., 30 C); bulk dens. 0.5 g/ml; visc. 4000-6500 cps (2% aq.); soften. pt. 100-150 C; ref. index 1.337 (2% aq.); pH 5.0-7.5; surf. tens. 43.6 dynes/cm (0.1% aq.); nonionic; 5% max. moisture

Klucel® M Pharm [Hercules/Aqualon http://www.aqualon.com]

CAS 9004-64-2
Uses: Thickener, stabilizer, suspending agent in pharmaceutical tablet coatings, controlled-release prods., encapsulation, tablet binding
Features: Highly surf. active; low surf. and interfacial tensions; thermoplastic; extrudable; heat-sealable in films and coatings; inert
Regulatory: NF, EP , DMF listed
Properties: Off-wh. powd.; 85% min. through 30 mesh, 99% min. through 20 mesh; tasteless; sol. in water (below 38 C) and polar org. solvs.; insol. in water (above 45 C); sp.gr. 1.010 (2%, 30 C); bulk dens. 0.5 g/ml; visc. 4000-6500 cps (2% aq.); soften. pt. 100-150 C; ref. index 1.337 (2% aq.); pH 5.0-7.5; surf. tens. 43.6 dynes/cm (0.1% aq.); nonionic; 5% max. moisture

Kollicoat® EMM 30 D [BASF AG http://www.basf.de]

Chem. Descrip.: Ethyl acrylate/methyl methacrylate copolymer aq. disp. with emulsifier (1.5% nonoxynol-100)
Uses: Film-former for sustained-release pharmaceuticals and transdermal therapeutic systems; taste masking agent
Features: pH-independent sustained-release effect; forms very flexible, extensible, water-sol. films
Properties: Wh. cloudy low visc.; weak char. odor; sol. in water (cloudy wh. appearance); yields opalescent visc. sol'n. mixed with acetone, ethanol, or IPA @ 1:5; insol. in dil. alkaline sol'ns.; m.w. 800,000; sp.grt. 1.037-1.047; visc. 50 mPa•s max.; 30% solids
Storage: 18 mos. shelf life when stored in unopened original container @ R.T.; store above freezing and below 30 C; may coagulate if exposed to heat or frost; opened containers must be used up ASAP or preserved with sodium hypochlorite sol'n.

Kollicoat® IR [BASF AG http://www.basf.de]

Chem. Descrip.: Polyvinyl alcohol-polyethylene glycol copolymer
CAS 96734-39-3
Uses: Highly flexible film-former coating system applied in instant-release coatings of tablets and pellets; taste and odor masking agent for tablets; binder for very rapidly dispersible/soluble granules or tablets; suspending agent and emulsion stabilizer in pharmaceuticals; film former in sprays and transdermal therapeutic systems; protective colloid
Features: Rapid rate of dissolution
Properties: Wh. to pale yel. free-flowing powd.; sol. in water; Brookfield visc. (20% w/w sol'n.) 50-250 mPas; pH 5.0-8.0 (20% w/w sol'n. in water)
Storage: Shelf life ≥ 2 yr in the original sealed containers @ R.T.

Kollicoat® IR White [BASF AG http://www.basf.de]

Chem. Descrip.: Polyvinyl alcohol-polyethylene glycol copolymer, copovidone, titanium dioxide, kaolin, sodium lauryl sulfate, silicon dioxide mixture See Copolyvidone; Silica, amorphous hydrated
CAS 96734-39-3; 25086-89-9; 13463-67-7; 1332-58-7; 151-21-3; 7631-86-9
Uses: Highly flexible film-former coating system applied in instant-release coatings of tablets and pellets
Features: Films disperse very rapidly in water; adheres extremely well to tablet surfaces of varying lipophilic character; can be used to make colored tablets
Properties: Wh. to off-wh. free-flowing powd.; disp. in water; Brookfield visc. (20% w/w sol'n.) 50-250 mPas; pH 5.0-8.5 (20% w/w sol'n. in water)
Trade Name Reference

**Kollicoat® MAE 30 DP** [BASF AG](http://www.basf.de)

Chem. Descrip.: **Methacrylic acid/ethyl acrylate copolymer** aq. disp. USP/NF, Ph.Eur., JP with emulsifiers (0.7% sodium lauryl sulfate, 2.3% polysorbate 80)

Uses: Pharmaceutical excipient, film-former for enteric coating of solid oral dosage forms, esp. for controlled release of drugs; masks unpleasant tastes and odors; barrier between incompat. active substances; moisture barrier protecting against atmospheric humidity

Features: Effective barrier to gastric juice; protects acid-sensitive drugs; releases active at site of action

Properties: Milky wh. aq. disp.; faint char. odor; sol. in dil. alkaline sol'n.; misc. with water; yields opalescent visc. sol'n. with acetone, ethanol, or IPA @ 1.5; sp.gr. 1.062-1.072; visc. < 15 mPa•s; acid no. 300-330; pH 2-3; 30% act.

Use Level: 4-6 mg/cm² of tablet surface; 10-30% by wt. on pellets, granules or crystals (0.5-3.0 mm size)

Storage: 18 mos. shelf life when stored in unopened original drums @ R.T.; store below 30 C; protect from frost; may coagulate if exposed to heat or frost; once drum is opened, use contents within a few wks

**Kollicoat® MAE 100P** [BASF AG](http://www.basf.de)

Chem. Descrip.: **Methacrylic acid/ethyl acrylate copolymer** treated with sodium hydroxide and contg. emulsifiers (0.7% sodium lauryl sulfate, 2.3% polysorbate 80)

CAS 25212-88-8; 1310-73-2; 151-21-3; 9005-65-6 (generic)

Uses: Pharmaceutical excipient, film-former for enteric coating of solid oral dosage forms, esp. for controlled release of drugs; masks unpleasant tastes and odors; barrier between incompat. active substances; moisture barrier protecting against atmospheric humidity

Features: Effective barrier to gastric juice; protects acid-sensitive drugs; releases active at site of action

Properties: Wh. powd.; faint char. odor; redisp. in water; dissolves in methanol and ethanol to yield cl. to sl. cloudy sol'ns.; visc. < 100 mPa•s (20% aq. disp.); acid no. 280-310; ≥ 95% solids

**Kollicoat® Protect** [BASF AG](http://www.basf.de)

Chem. Descrip.: **Polyvinyl alcohol-polyethylene glycol copolymer, polyvinyl alcohol, and silicon dioxide** See Silica, amorphous hydrated

Chem. Analysis: 55-65% polyvinyl alcohol-polyethylene glycol graft copolymer, 35-45% polyvinyl alcohol; 0.1-0.3% silicon dioxide

CAS 96734-39-3; 9002-89-5; 7631-86-9

Uses: Moisture protection and taste masking agent; wet granulation binder or as a pore former in sustained release coatings; protects act. ingreds.

Features: Peroxide-free; adheres extremely well to tablet surfaces of varying lipophilic character; fine engravings on tablets are uniformly coated and no bridging occurs

Properties: Wh. to off-wh. free-flowing powd.; misc. with water; insol. in dilute alkaline or acidic sol'n.; sp. gr. 1.045-1.065; visc. < 100 mPas; pH 3.5-5.5; 30% (20% w/w sol'n. in water)

Storage: Shelf life ≥ 3 yr in the original sealed containers @ R.T.

**Kollicoat® SR 30 D** [BASF AG](http://www.basf.de)

Chem. Descrip.: Polyvinyl acetate stabilized with polyvinylpyrrolidone, and sodium lauryl sulfate See PVP

CAS 9003-20-7; 9003-39-8; 151-21-3

Uses: Manufacture of pharmaceutical sustained-release dosages; odor and taste masking agent; used as a subcoating, for isolating active ingredients to prevent their interactions

Features: Peroxide-free; adheres extremely well to tablet surfaces of varying lipophilic character; fine engravings on tablets are uniformly coated and no bridging occurs

Properties: Wh. to off-wh. free-flowing powd.: misc. with water; insol. in dilute alkaline or acidic sol'n.; sp. gr. 1.045-1.065; visc. < 100 mPas; pH 3.5-5.5; 30%

Storage: Shelf life ≥ 18 months in the original sealed containers @ R.T.; on exposure to heat and frost and if foaming occurs, aq. dispersions may form rendering it unusable

**Kollidon® 12PF** [BASF](http://www.basf.com; BASF AG](http://www.basf.de)

Chem. Descrip.: **Povidone** See PVP

CAS 9003-39-8; EINECS/ELINCS 201-800-4
Trade Name Reference

**Kollidon® 17PF** [BASF http://www.basf.com; BASF AG http://www.basf.de]

Chem. Descrip.: Povidone See PVP
CAS 9003-39-8; EINECS/ELINCS 201-800-4

**Uses:** Solubilizer, crystallization inhibitor, suspension stabilizer for pharmaceutical injectables, ophthalmics; binder in tablets, capsules, granules; bioavailability enhancer in tablets, capsules, granules, pellets, suppositories, transdermal preps.; film-former in ophthalmic sol'n's., tablet cores, medical plastics; solubilizer in orals, parenterals, topicals; taste masking agent in orals, chewing tablets; adhesives in transdermal systems, adhesive gels

**Features:** Pyrogen-free

**Regulatory:** EP, USP/NF, JP compliance

**Properties:** Sol. (> 10%) in water, diethylene glycol, alcohol, propanol, IPA, butanol, chloroform, methylene chloride, propylene glycol, 1,4-butanediol, glycerol, triethanolamine, propionic acid, acetic acid; m.w. 2000-3000; bulk dens. 0.55-0.65 g/l; visc. 1.3-2.3 mPa*s (10% aq., 20 C); pH 3-5 (5% aq.); 11.5-12.8% N

**Storage:** Hygroscopic; 3 yrs. min. shelf life

**Kollidon® 30** [BASF http://www.basf.com; BASF AG http://www.basf.de]

Chem. Descrip.: Povidone See PVP
CAS 9003-39-8; EINECS/ELINCS 201-800-4

**Uses:** Solubilizer, crystallization inhibitor, suspension stabilizer for pharmaceutical injectables, ophthalmics; binder in tablets, capsules, granules; bioavailability enhancer in tablets, capsules, granules, pellets, suppositories, transdermal preps.; film-former in ophthalmic sol'n's., tablet cores, medical plastics; solubilizer in orals, parenterals, topicals; taste masking agent in orals, chewing tablets; adhesives in transdermal systems, adhesive gels

**Features:** Pyrogen-free

**Regulatory:** EP, USP/NF, JP compliance

**Properties:** Sol. (> 10%) in water, diethylene glycol, alcohol, propanol, IPA, butanol, chloroform, methylene chloride, propylene glycol, 1,4-butanediol, glycerol, triethanolamine, propionic acid, acetic acid; m.w. 28,000-34,000; bulk dens. 0.40-0.50 g/l; visc. 3.5-5.5 mPa*s (10% aq., 20 C); pH 3-5 (5% aq.); 12.0-12.8% N

**Storage:** Hygroscopic; 3 yrs. min. shelf life

**Kollidon® 25** [BASF http://www.basf.com; BASF AG http://www.basf.de]

**Uses:** Solubilizer, crystallization inhibitor, suspension stabilizer for pharmaceutical injectables, ophthalmics; binder in tablets, capsules, granules; bioavailability enhancer in tablets, capsules, granules, pellets, suppositories, transdermal preps.; film-former in ophthalmic sol'n's., tablet cores, medical plastics; solubilizer in orals, parenterals, topicals; taste masking agent in orals, chewing tablets; adhesives in transdermal systems, adhesive gels

**Features:** Pyrogen-free

**Regulatory:** EP, USP/NF, JP compliance

**Properties:** Sol. (> 10%) in water, diethylene glycol, alcohol, propanol, IPA, butanol, chloroform, methylene chloride, propylene glycol, 1,4-butanediol, glycerol, triethanolamine, propionic acid, acetic acid; m.w. 7000-11,000; bulk dens. 0.40-0.50 g/l; visc. 1.5-3.5 mPa*s (10% aq., 20 C); pH 3-5 (5% aq.); 12.0-12.8% N

**Storage:** Hygroscopic; 3 yrs. min. shelf life

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Trade Name Reference

enhancer in tablets, capsules, granules, pellets, suppositories, transdermal preps.; film-former in ophthalmic sol’ns., tablet cores, medical plastics; solubilizer in orals, parenterals, topicals; taste masking agent in orals, chewing tablets; adhesive in transdermal systems, adhesive gels

Features: Pyrogen-free
Regulatory: EP, USP/NF, JP compliance
Properties: Sol. (> 10%) in water, diethylene glycol, alcohol, propanol, IPA, butanol, chloroform, methylene chloride, propylene glycol, 1,4-butanediol, glycerol, triethanolamine, propionic acid, acetic acid; m.w. 1,000,000-1,500,000; bulk dens. 0.40-0.50 g/l; visc. 300-700 mPa•s (10% aq., 20 C); pH 4-7 (5% aq.); 12.0-12.8% N; ≤ 5% loss on drying
Storage: Hygroscopic; 1 yr. min. shelf life

Kollidon® CL [BASF http://www.basf.com; BASF AG http://www.basf.de]
Chem. Descrip.: Crospovidone
CAS 9003-39-8
Uses: Bioavailability enhancer, suspension stabilizer, excipient for pharmaceuticals; aids release of act. substances from tablets, capsules, and granules; taste masking agent for acetaminophen; disintegrant for tablets, granules, hard gelatin capsules, suppositories; antidiarrheal agent; adsorbent, filtration aid for polyphenols, endotoxins, water
Regulatory: USP/NF, EP, JP
Properties: 60% max. < 50 µm; 95% min. < 250 µm; insol. but swells in water; bulk dens. 0.30-0.40 g/ml; surf. area 1 m²/g; pH 5.0-7.5 (1% aq.); swelling pressure > < 10 kPa; 12.0-12.8% N; [le] 5% loss on drying
Toxicology: LD50 (oral, rat) > 6.8 g/kg; no teratogenic, mutagenic or carcinogenic effects
Storage: Hygroscopic; 3 yrs. min. shelf life

Chem. Descrip.: Crospovidone
CAS 9003-39-8
Uses: Tablet disintegrant, bioavailability enhancer, suspension stabilizer, excipient for pharmaceuticals; stabilizer for pharmaceutical oral and topical suspensions, vitamins; aids release of act. substances from tablets, capsules, and granules; taste masking agent for acetaminophen; adsorbent for polyphenols, endotoxins, water
Features: Conc. of 5-10% hardly increase the viscosity of the suspension
Regulatory: USP/NF, EP, JP
Properties: Micronized; 90% min. < 15 µm; bulk dens. 0.15-0.25 g/ml; surf. area 6 m²/g; pH 5.0-7.5 (1% aq.); swelling pressure > < 100 kPa; 12.0-12.8% N; [le] 5% loss on drying
Storage: Hygroscopic; 3 yrs. min. shelf life

Kollidon® CL-SF [BASF http://www.basf.com; BASF AG http://www.basf.de]
Chem. Descrip.: Crospovidone
CAS 9003-39-8
Uses: Tablet disintegrant, bioavailability enhancer, suspension stabilizer, excipient for pharmaceuticals; stabilizer for pharmaceutical oral and topical suspensions, vitamins; aids release of act. substances from tablets, capsules, and granules; taste masking agent for acetaminophen; adsorbent for polyphenols, endotoxins, water

Regulatory: USP/NF, EP, JP
Properties: Micronized; ≥ 25% min. < 15 µm; bulk dens. 0.10-0.16 g/ml; surf. area ≈ 3 m²/g; pH 5.0-7.5 (1% aq.); swelling pressure ≈ < 35 kPa; 12.0-12.8% N; [le] 5% loss on drying
Storage: Hygroscopic; 3 yrs. min. shelf life

Kollidon® SR [BASF AG http://www.basf.de]
Chem. Descrip.: Polyvinyl acetate (80%)/povidone (19%) mixt. with stabilizers
(0.8% sodium lauryl sulfate, 0.2% colloidal silica) See PVP: Silica, colloidal
CAS 9003-20-7; 9003-39-8

Uses: Excipient, retarding agent for pH-independent sustained-release matrix tablets, pellets, granules by direct compression, roller compaction, wet granulation, and extrusion processes; flow aid for direct tableting of formulations contg. drug substances of poor flowability

Features: When tablets are introduced into gastric or intestinal fluid, the water-sol. povidone leaches out to form pores through which the active ingred. slowly diffuses; inert; exc. compressibility and flowability

Properties: Wh. or sl. ylsh. free-flowing powd.; 100 µm avg. particle size; completely sol. in N-methylpyrrolidone; bulk dens. ≥ 0.45 g/ml; pH 3.5-5.5 (10% aq.); ≤ 5% loss on drying

Storage: 24 mos. shelf life when stored in unopened, original drums below R.T.

Kollidon® VA 64 [BASF AG http://www.basf.de]

Chem. Descrip.: Copolyvidone
CAS 25086-89-9

Uses: Binder for direct compression and compacting of pharmaceutical tablets; binder for wet granulation in tablets, hard gelatin capsules, and granules; film-former for tablet coatings, topical sprays, transdermal and transmucosal systems; water barrier in subcoating of tablet cores; film-former, adhesive, crystallization retarder in sugar coatings; matrix forming agent in sustained-release/fast-release dosage forms

Features: Good flow props.; low hygroscopicity, particle size reduced resulting in increased hardness of finished tablets resulting in decreased friability and increased hardness

Regulatory: EP, USP/NF, JP compliance; DMF listed, GRAS)

Properties: Wh. or yel-wh. spray-dried powd.; 0% > 250 µm; sol. (> 10%) in water, methanol, ethanol, propanol, IPA, butanol, chloroform, methylene chloride, propylene glycol, 1,4-butanediol, glycerin; bulk dens. 0.08-0.2 g/ml; sapon. no. 230-270; pH 3-7 (5% aq.)

Use Level: 3-15% conc. use level

Storage: 3 yrs. shelf life when stored in sealed, original containers @ R.T.

Koster Keunen Orange Wax [Koster Keunen http://www.kosterkeunen.com]

Chem. Descrip.: Orange (Citrus aurantium dulcis) peel wax
CAS 144514-51-2

Uses: Emollient, UV-A and -B absorber, antioxidant, anti-inflammatory for creams, lotions, sun care; analgesic (on burns); solubilizer; water resist. aid

Features: Mild; natural

Properties: Lt. brn. to lt. orange semisolid, char. odor; very sl. sol. in water; sp.gr. 0.92-0.97; m.p. 45-57 C; congeal pt. 45-55 C; b.p. > 200 C; acid no. 8-20; sapon. no. 70-110; hyd. no. 20-50; flash pt. > 200 C

Use Level: 1-5% (creams, lotions, makeup, shampoo, conditioners, shaving creams), 1-10% (anhyd. gels/lipsticks, soaps)

Toxicology: Virtually no irritation potential; molten wax may burn skin, cause mild upper respiratory irritation

Kosteran-L/1 [Dr. W. Kolb AG http://www.kolb.ch]

Chem. Descrip.: Sorbitan laurate
CAS 1338-39-2; EINECS/ELINCS 215-663-3

Uses: Emulsifier, dispersant, and consistency agent for pharmaceutical creams and lotions
Trade Name Reference

**Kosteran-O/1 VL** [Dr. W. Kolb AG](http://www.kolb.ch)
Chem. Descrip.: Sorbitan oleate
CAS 1338-43-8; EINECS/ELINCS 215-665-4
Uses: Emulsifier, dispersant, and solubilizer for pharmaceutical creams and lotions
Regulatory: EP
Properties: Liq.; HLB 8.6; nonionic

**Kosteran-O/3 VH** [Dr. W. Kolb AG](http://www.kolb.ch)
Chem. Descrip.: Sorbitan trioleate
CAS 26266-58-0; EINECS/ELINCS 247-569-3
Uses: Emulsifier, dispersant, consistency agent, and solubilizer for pharmaceutical creams and lotions
Regulatory: EP
Properties: Liq.; HLB 4.3; nonionic

**Kosteran-P/1 G** [Dr. W. Kolb AG](http://www.kolb.ch)
Chem. Descrip.: Sorbitan palmitate
CAS 1338-41-6; EINECS/ELINCS 215-664-9
Uses: Emulsifier, dispersant, and consistency agent for pharmaceutical creams and lotions
Regulatory: Eur. Ph.
Properties: Pellets; HLB 4.7; nonionic

**Kosteran-S/1 G** [Dr. W. Kolb AG](http://www.kolb.ch)
Chem. Descrip.: Sorbitan stearate
CAS 1338-41-6; EINECS/ELINCS 215-664-9
Uses: Emulsifier, dispersant, and consistency agent for pharmaceutical creams and lotions
Regulatory: Eur. Ph.
Properties: Pellets; HLB 4.7; nonionic

**Kosteran-S/3** [Dr. W. Kolb AG](http://www.kolb.ch)
Chem. Descrip.: Sorbitan tristearate
CAS 26658-19-5; EINECS/ELINCS 247-891-4
Uses: Emulsifier, dispersant, and consistency agent for pharmaceutical creams and lotions
Regulatory: Eur. Ph.
Properties: Pellets; HLB 2.1; nonionic

**Koster Keunen Beeswax 100** [Koster Keunen](http://www.kosterkeunen.com)
Chem. Descrip.: White beeswax
CAS 8006-40-4; 8012-89-3; EINECS/ELINCS 232-383-7
Uses: Emulsifier, thickener, emollient, opacifier, oil gellant in creams, lotions, depilatories, ointments, salves, sustained-release pharmaceuticals
Properties: Wh. wax; m.p. 62-65 C; acid no. 17-24; cloud pt. < 65 C
Precaution: Incompat. with strong oxidizers, acids
HMIS: Health 1, Flammability 1, Reactivity 1

**Koster Keunen Beeswax AO2535** [Koster Keunen](http://www.kosterkeunen.com)
Chem. Descrip.: Oxidized beeswax
CAS 138724-55-7
Uses: Plasticizer, thickener, and wetting agent for depilatories
Properties: Slabs

**Koster Keunen Carnauba** [Koster Keunen](http://www.kosterkeunen.com)
Chem. Descrip.: Carnauba (Copernicia cerifera) wax
CAS 8015-86-9; EINECS/ELINCS 232-399-4
Uses: Ingred. in salves, creams, ointments, pill
Koster Keunen Carnauba, Powd. [Koster Keunen http://www.kosterkeunen.com]
Chem. Descrip.: Carnauba (Copernicia cerifera) wax See Carnauba (Copernica cerifera) wax
CAS 8015-86-9; EINECS/ELINCS 232-399-4
Uses: Ingr. for pharmaceuticals, creams, lotions, ointments, salves
Properties: Powd.; 120 mesh

Koster Keunen Ceresine [Koster Keunen http://www.kosterkeunen.com]
Chem. Descrip.: Ceresin CAS 8001-75-0; EINECS/ELINCS 232-290-1
Uses: Ingr. for pharmaceuticals, creams, lotions, ointments, salves
Properties: Wax; sp.gr. 0.88-0.92; m.p. various grades from 133-163 F; acid no. 0; sapon. no. < 1; ref. index 1.4416-1.4465; dielec. const. 2.15-2.33

Koster Keunen Emulsifying Wax [Koster Keunen http://www.kosterkeunen.com]
Chem. Descrip.: Emulsifying wax prepared from cetearyl alcohol contg. a POE deriv. of a fatty acid ester of sorbitan See Emulsifying wax NF
CAS 97069-99-0
Uses: Emulsifier, thickener for topical pharmaceutical creams, lotions, ointments, salves
Properties: Creamy-wh. solid, char. odor; sol. in hydrocarbons, ether, chloroform, alcohol; m.p. 48-52 C; acid no. < 2.5; iodine no. < 3.5; sapon. no. < 14; hyd. no. 178-192; pH 5.5-7.0 (3% disp.); nonionic

Chem. Descrip.: Microcrystalline wax CAS 64742-42-3; EINECS/ELINCS 264-038-1
Uses: Wax, coating agent for pharmaceuticals
Properties: Wh. to amber wax; sp.gr. 0.90-0.94; visc. 50-100 (210 F); m.p. 140-190 F; acid no. 0-0.2; iodine no. 0-1.5; sapon. no. 0-2; flash pt. > 425 F; fire pt. > 550 F

Chem. Descrip.: Microcrystalline wax
CAS 63231-60-7; EINECS/ELINCS 264-038-1
Uses: Stabilizer, emollient, and thickener for ointments, lip balms, and sunscreens
Features: Compatible in all proportions with mineral hydrocarbon waxes and their oils
Properties: Wh. slabs; visc. ≥11 cps (ASTM 3236-88); m.p. 168-180 F (ASTM Mettler); acid value (USP 401) <1; sapon. no. (USP 401) <1
Toxicology: Nontoxic

Koster Keunen Paraffin Wax [Koster Keunen http://www.kosterkeunen.com]
Chem. Descrip.: Paraffin
CAS 8002-74-2; EINECS/ELINCS 232-315-6
Uses: Wax for pharmaceutical ointments and salves
Properties: Wax; sol. (g/100 cc): 40 g benzene, 9 g min. oil, 3 g dichloroethane, 0.4 g IPA; m.p. various grades from 118-165 F; ref. index 1.4219-1.4357

Koster Keunen Synthetic Beeswax [Koster Keunen http://www.kosterkeunen.com]
Chem. Descrip.: Syn. beeswax See Beeswax, synthetic
CAS 97026-94-0; EINECS/ELINCS 275-286-5
Uses: Gellant, emulsifier, and thickener for sun care, depilatories, ointments, salves,
sustained-release pharmaceuticals

Properties: Wax; m.p. 62-65 C; acid no. 17-24

Koster Keunen Synthetic Japan Wax  [Koster Keunen  http://www.kosterkeunen.com]
Chem. Descrip.: Syn. Japan wax  See Japan wax, synthetic
Uses: Gellant, thickener, emulsifier for pharmaceuticals
Properties: Wax; sol. in hot alcohol, carbon disulfide, chloroform, ether, benzene, petrol. ether, isopropyl ether, naphtha, pyridine, toluene, xylene, turpentine; insol. in water; sp.gr. 0.975-0.984; m.p. 50-56 C; acid no. 6-20; iodine no. 4-15; sapon. no. 116-125; flash pt. > 240 C; ref. index 1.440-1.4560 (60 C);
dielec. const. 3.1-3.2

Chem. Descrip.: Syn. spermaceti (cetyl palmitate and other esters)  See Cetyl esters
CAS 136097-97-7
Uses: Emollient, moisturizer, thickener, gellant for mfg. of ointments, pharmaceuticals
Regulatory: FDA approved
Properties: Pastilles; sol. in boiling alcohol, chloroform, carbon disulfide, volatile oils; sp.gr. 0.940-0.946; visc. 6.7-7.4 (100 C); m.p. 45-49 C; acid no. 0-0.5; iodine no. < 3; sapon. no. 116-125; flash pt. > 240 C; ref. index 1.440 (60 C)

Kotilen-L/1  [Dr. W. Kolb AG  http://www.kolb.ch]
Chem. Descrip.: Polysorbate 20
CAS 9005-64-5
Uses: Emulsifier, dispersant, cleaning agent, and solubilizer for pharmaceutical creams and lotions
Regulatory: Eur. Ph.
Properties: Liq.; HLB 16.7; nonionic

Kotilen-S/1  [Dr. W. Kolb AG  http://www.kolb.ch]
Chem. Descrip.: Polysorbate 60
CAS 9005-67-8
Uses: Emulsifier, dispersant, and solubilizer for pharmaceutical creams and lotions
Regulatory: Eur. Ph.
Properties: Pasty solid; HLB 14.9; nonionic

Kotilen-S/3  [Dr. W. Kolb AG  http://www.kolb.ch]
Chem. Descrip.: Polysorbate 65
CAS 9005-71-4

Chem. Descrip.: Castor oil USP contg. an antioxidant  See Castor (Ricinus communis) oil
CAS 8001-79-4; EINECS/ELINCS 232-293-8
Uses: Gloss aid, emollient, dye solvent in pharmaceuticals
Features: High quality oil
Properties: Gardner 1 color; sp.gr. 0.959; dens. 7.98 lb/gal; visc. 7.5 stokes; acid no. 1; iodine no. 86; sapon. no. 180; hyd. no. 164

Krystar® 300  [Tate & Lyle N. Am.  http://www.tlna.com]
Chem. Descrip.: Fructose
Uses: Sweetener in dietary and nutritional supplements, liq. pharmaceutical prods.
Properties: Wh. free-flowing crystalline material or water wh. liq.

Chem. Descrip.: Fructose
Uses: Sweetener in dietary and nutritional supplements, liq. pharmaceutical prods.
Properties: Wh. free-flowing crystalline material or water wh. liq.

Chem. Descrip.: Kukui nut oil  See Kukui (Aleurites moluccana) nut oil
CAS 8015-80-3; EINECS/ELINCS 273-313-5
Uses: Emollient for treatment of superficial burns, chapped skin, and some minor skin diseases (psoriasis, acne, eczema)
Properties: Pale yel. liq.; sl. char. odor; insol. in water; sp.gr. 0.92-0.93; m.p. < -12 C; b.p. 500 C; solid. pt. < -22 C; acid no. < 1.0%; iodine no. 155-175; sapon. no. 185-195; 41.8% linoleic acid; 28.9% linolenic acid; 19.8% oleic acid; 6.4% palmitic acid

L-45 Series  [GE Silicones  http://www.gesicones.com]
Chem. Descrip.: Dimethicone
CAS 9006-65-9
Uses: Heat transfer fluid for drug mfg.; lubricant in antiperspirants, deodorants; lubricant, emollient for creams and lotions
Regulatory: 350 cSt grade: FDA 21CFR
Trade Name Reference

§173.340, 175.300, 175.390, 176.170, 176.180, 177.1210, 177.2260, 177.2800, 178.3570, 178.3910, 181.28

Properties: Cl. liq.; sol. in most nonpolar solvs.; visc. 10-100,000 cstk grades

L-Carnipure® ALC [Lonza http://www.lonza.com]
Chem. Descr.: Acetyl-L-carnitine hydrochloride
CAS 5080-50-2
Uses: Antioxidant in dietary supplements
Properties: Wh. crystalline powd.; m.w. 239.70; amphoteric; 98.0-101.0% assay
Toxicology: LD50 (oral, rat): > 5000 mg/kg; nonirritant to skin; nonmutagenic
Environmental: Biodeg.
Storage: 2 yr shelf life

Chem. Descr.: Caprylic/capric triglyceride
CAS 65381-09-1; EINECS/ELINCS 265-724-3
Uses: Excipient, carrier, vehicle for oral, topical, rectal, and parenteral pharmaceuticals, capsules; vehicle, filler, lubricant for soft gelatin capsules; antisticking agent for tablets; oily phase for w/o and o/w emulsions; vehicle for veterinary injectable preps.
Features: Nonrancidifying fluid oil
Regulatory: BP and EP approved
Properties: Crystal-cl. oily liq.; neutral odor; visc. 25-33 mPa•s (20 C); HLB 1; nonionic

Chem. Descr.: Caprylic/capric triglycerides PEG-4 esters See Caprylic/capric triglyceride PEG-4 esters
Uses: Surfactant, solubilizer, permeation enhancer, bioavailability enhancer for pharmaceuticals; solubilizer and surfactant for microemulsions
Features: Hydrophilic
Regulatory: DMF listed; EP compliance
Properties: Oily liq.; HLB 4.0; acid no. < 2; iodine no. < 2; sapon. no. 265-285; nonionic; 100% conc.
Toxicology: LD50 (oral, rat) > 20 ml/kg; sl. irritating to skin and eyes

Spain http://www.gattefosse.es]
Chem. Descr.: Caprylic/capric triglyceride PEG-4 complex See Caprylic/capric triglyceride PEG-4 esters
Uses: Bioavailability enhancer, emulsifier, solvent, solubilizer for pharmaceutical orals, topicals, vaginals, rectals, and nasals, creams, lotions, veterinary prods.
Features: Hydrophilic; rancidless
Properties: Gardner < 5 oily liq., faint odor; sol. in veg. oil, alcohol; partly disp. in water; HLB 4-5; acid no. < 2; iodine no. < 3; sapon. no. 265-285; nonionic
Toxicology: LD0 (oral, rat) > 20 ml/kg; sl. skin and eye irritant

Chem. Descr.: Caprylic/capric triglyceride
Uses: Excipient for pharmaceutical gelatin capsules; oily vehicle for oral, topical, rectal, and parenteral uses; solvent, superfatting agent for pharmaceutical, or veterinary emulsions and microemulsions, aerosols, capsules, gels, creams/lotions, ointment
Features: Nonrancidifying; temp. stable
Regulatory: DAB/BP/EP compliance
Properties: Gardner < 1 oily liq., odorless to faint odor; HLB 1; acid no. < 0.2; iodine no. < 2; sapon. no. 320-340
Toxicology: LD50 (oral, rat) > 10 ml/kg; sl. eye irritant, nonirritating to skin

Labrafac PC [Gattefosse http://www.gattefossecorp.com]
Chem. Descr.: Propylene glycol caprylate/caprate
Uses: Excipient, amphiphilic oil, permeation enhancer; coemulsifier for dermal/transdermal pharmaceuticals, creams, ointments, gels, and lotions
Properties: Liq.; HLB 2

Chem. Descr.: Triisostearin PEG-6 esters
Uses: Solvent, amphiphilic agent for improving drug delivery; excipient for aerosols, nasal preps., creams, veterinary preps.
Features: Hydrophilic; nonrancidifying
Properties: Gardner < 5 oily liq., faint odor; HLB
Trade Name Reference

3-4; acid no. < 2; iodine no. < 15; sapon. no. 150-170; nonionic

Toxicology: LD50 (oral, rat) > 20 ml/kg; nonirritating to skin and eyes

Chem. Descrip.: Apricot kernel oil PEG-6 esters
CAS 97488-91-0
Uses: Excipient, coemulsifier, solubilizer, bioavailability enhancer, vehicle for pharmaceuticals (topicals, injectables, orals, nasals, sprays, emulsions, hard shell capsules, soft gel capsules), cosmetics, veterinary preps.; cosurfactant in microemulsions; coemulsifier, penetrant for topical emulsions
Features: Hydrophilic
Regulatory: U.S., Japan, Europe, French pharmacopoeia compliance; DMF no. 4644
Properties: Gardner < 5 oily liq. (40 C), faint odor; very sol. in chloroform, methylene chloride, min. oils; sol. in n-hexane; disp. in water; sp.gr. 0.935-0.955 (20 C); visc. 70-90 mPa•s (20 C); HLB 4.0; acid no. < 2; iodine no. 79-89; sapon. no. 190-204; hyd. no. 65-85; ref. index 1.465-1.475; pH 4.5-6.0 (10% aq.); nonionic; 100% conc.
Toxicology: LD0 (oral, rat) > 2 g/kg; nonirritating to skin and eyes
Storage: Store in orig. container; prevent exposure to air, light, heat, and moisture; if partial crystallization occurs, reheat to 45 C

Chem. Descrip.: Corn oil PEG-6 esters
CAS 61789-25-1
Uses: Excipient, solubilizer, bioavailability enhancer, coemulsifier, vehicle for pharmaceuticals (topicals, injectables, orals, nasals, sprays, emulsions, hard shell capsules, soft gel capsules), cosmetics, veterinary preps.; amphiphilic agent improving drug delivery; coemulsifier in topical emulsions; lipid phase or cosurfactant in microemulsions
Features: Hydrophilic; amphiphilic
Regulatory: U.S., Japan, Europe, French pharmacopoeia compliance; DMF no. 5849
Properties: Gardner < 5 oily liq. (45 C), faint odor; sol. in chloroform, methylene chloride, min. oils; disp. in water; insol. in ethanol; sp.gr. 0.935-0.955; visc. 70-90 mPa•s; HLB 4.0; acid no. < 2; iodine no. 100-110; sapon. no. 156-170; hyd. no. 45-65; ref. index 1.465-1.475; nonionic; 100% conc.
Toxicology: LD0 (oral, rat) > 20 ml/kg
Storage: Store in orig. container; prevent exposure to air, light, heat, and moisture; if partial crystallization occurs, reheat to 45 C

Chem. Descrip.: Palm kernel oil, palm oil, PEG-6, and hydrogenated palm/palm kernel oil PEG-6 esters See Palm (Elaeis guineensis) kernel oil; Palm (Elaeis guineensis) oil
Uses: Coemulsifier, penetrant, stabilizer, thickener for pharmaceutical topical emulsions, veterinary preps.; excipient, bioavailability enhancer for oral use (hard shell capsule); absorption enhancer for penetration of active drugs through the skin (creams, lotions), rectal and vaginal suppositories
Features: Hydrophilic; amphiphilic
Regulatory: EP compliance; DMF no. 5182
Properties: Gardner < 5 doughy solid, faint odor; sol. in chloroform, methylene chloride; partly sol. in ethanol; disp. in water; insol. in min. oils; drop pt. 33-38 C; HLB 4.0; acid no. < 2; iodine no. < 2; sapon. no. 190-204; hyd. no. 65-85; nonionic; 100% conc.
Toxicology: LD0 (oral, rat) > 2 g/kg; nonirritating to skin and eyes

Chem. Descrip.: PEG-8 caprylic/capric glycerides
CAS 85536-07-8
Uses: Solvent, excipient, solubilizer, bioavailability enhancer for pharmaceuticals (oral liq., capsules), veterinary preps.; surfactant for microemulsions; wetting agent, penetration enhancer, absorp. enhancer for topical, rectal, and oral pharmaceuticals
Features: Hydrophilic; amphiphilic
Regulatory: EP compliance; DMF no. 5734
Properties: Gardner < 5 oily liq., faint odor; sol. in water, veg. oil, propylene glycol; very sol. in ethanol, chloroform, methylene chloride; sp.gr.
Lac-Coat 40E-2 [Japan Shellac
http://www.japan-shellac.co.jp]

Chem. Descrip.: Bleached dewaxed
shellac/ethanol See Alcohol

Uses: Moisture barrier, enteric coating,
disintegration control agent, granulating
agent, finishing coating over wax for
pharmaceutical tablets and sustained-
release capsules

Features: Protects core ingreds. from subcoating
sol'n's.

Properties: Ylsh. brn.; 40 ± 2% NV

Lactitol AC [Danisco Sweeteners
http://www.daniscosweeteners.com]

Chem. Descrip.: Lactitol anhyd. (98-102%)
See Lactitol

CAS 585-86-4; EINECS/ELINCS 209-566-5

Uses: Sweetener in pharmaceutical preps.

Features: Stable to air and heat

Properties: Wh. cryst. powd.; odorless; mild
sweet taste; highly sol. in water (≈ 1.9 g/ml);
sparingly sol. to insol. in most org. solvs.; m.w.
344.37; m.p. 147-154 C; pH 4.5-7.0 (10%);
0.5% max. moisture

Toxicology: LD50 (oral, rat) 27.5 g/kg; (skin,
rabbit) > 4.5 g/kg; relatively nontoxic by
ing.; may cause skin/eye irritation; prolonged
inh. (nuisance particle) may cause respiratory
irritation; excessive consumption can cause laxation

Environmental: LC50 (daphnia magna) >
10,000 mg/l; biodeg. complete in 5 days

Precaution: Sl. fire hazard when exposed to
heat or flame; may burn but does not ignite readily; dust-air mixts. may ignite or
explode; avoid contact with strong oxidizers, strong acids, excessive heat, sparks, open flame

Hazardous Decomp. Prods.: Thermal decomp.
may release toxic/hazardous fumes of furfural, CO2, CO

Storage: Only marginally hygroscopic; 2 yrs.
shelf life when stored in original, sealed pkgs.
below 25 C and < 65% r.h.

Lactochem® [Friesland Foods Domo
http://www.domo.nl]

Chem. Descrip.: Lactose monohydrate, EP,
USP/NF, JP

EINECS/ELINCS 200-559-2

Uses: Excipient in pharmaceutical solid
dosage forms, capsules, sachet fillings, wet
granulation tablets; diluent for direct
compression

Features: Nonhygroscopic; chemically,
physically, and microbiologically stable; inert;
good compactibility

Properties: Wh. cryst. powd.; avail. in coarse to
microfine grades; odorless; tasteless; freely
sol. in water; m.p. 202 C

Toxicology: Nontoxic

Storage: 36 mos. shelf life when stored
unopened in cool, dry place, away from
odorous materials

Lactohale® 100, 200, 300 [Friesland Foods
Domo http://www.domo.nl]

Chem. Descrip.: Lactose
CAS 63-42-3; EINECS/ELINCS 200-559-2

Uses: Excipient for pharmaceutical dry powd.
inhalers
Trade Name Reference

**Features:** Nonhygroscopic; inert; chemically, physically, and microbiologically stable
**Regulatory:** USP/NF, EP, JP, DMF file
**Properties:** Wh. cryst. powd.
**Toxicology:** Non toxic

**Lactopress® Anhydrous** [Friesland Foods Domo http://www.domo.nl]
**Chem. Descrip.:** Anhydrous lactose USP/NF, EP, JP See Lactose
**CAS:** 63-42-3; EINECS/ELINCS 200-559-2
**Uses:** Excipient, flow aid, binder for direct compression pharmaceutical tableting and moisture-sensitive active drugs
**Features:** Exc. compactibility; nonhygroscopic; inert; chemically, physically, and microbiologically stable
**Properties:** Wh. cryst. powd.; freely sol. in water
**Toxicology:** Non toxic
**Storage:** 36 mos. shelf life when stored unopened; store in cool, clean, dry conditions, away from odorous materials

**Lactopress® Spray-Dried** [Friesland Foods Domo http://www.domo.nl]
**Chem. Descrip.:** α-Monohydrate lactose USP/NF, EP, JP See Lactose monohydrate
**EINECS/ELINCS:** 200-559-2
**Uses:** Excipient, flow aid, binder for direct compression pharmaceutical tableting
**Features:** Exc. compactibility; rec. for apps. requiring superior flow chars.; nonhygroscopic; inert; chemically, physically, and microbiologically stable
**Properties:** Wh. cryst. powd.; freely sol. in water
**Toxicology:** Non toxic
**Storage:** 12 mos. shelf life when stored unopened; store in cool, clean, dry conditions, away from odorous materials

**Lacty® M** [PURAC biochem http://www.purac.com]
**Chem. Descrip.:** Lactitol monohydrate USP/NF, EP, JP See Lactose monohydrate
**CAS:** 81025-04-9; EINECS/ELINCS 209-566-5
**Uses:** Sweetener for diabetic products
**Features:** Stable
**Regulatory:** USP, FCC, E 966 compliance
**Properties:** Wh. to lt. brn. cryst. powd.; 1000 µm max. particle size; odorless; sweet taste; very sol. in water; m.w. 362; bulk dens. 0.6-0.8 kg/m³; m.p. 98-102 C; flash pt. (CC) > 100 C; pH 4.5-7.0 (10% aq.); 96% min. assay
**Toxicology:** LD50 (oral, rat) > 10 g/kg; health injuries are not known or expected under normal use; nontoxic; noncarcinogenic; nonmutagenic

**Environmental:** Readily biodeg.; no special environmental precautions required; BOD5 550 mg/g; COD 955 mg/g; bioaccumulation is unlikely; ecological injuries are not known or expected under normal use
**Hazardous Decomp. Prods.:** COx
**Storage:** Store @ R.T.; keep container tightly closed in dry place

**Lameform® TGI** [Cognis/Care Chems.]
**Chem. Descrip.:** Polyglyceryl-3 diisostearate
**CAS:** 66082-42-6; EINECS/ELINCS 291-548-1
**Uses:** Emulsifier, emollient for pharmaceutical w/o emulsions and creams
**Features:** Good stability to oxidation
**Regulatory:** DAC compliance
**Properties:** Yel. visc. liq., sl. fatty odor; HLB 6.0; acid no. 3 max.; sapon. no. 140-160; hyd. no. 190-220; nonionic; 100% conc.
**Storage:** 1 yr. min. storage life in sealed original containers under dry conditions; if cream is removed in portions and at low temps., care should be taken to ensure that the prod. is removed evenly

**Lamegin® EE Range** [Cognis http://www.cognis.de]
**Chem. Descrip.:** Acetic acid esters of mono- and diglycerides of fatty acids
**CAS:** 68990-55-6
**Uses:** Coating agent, emulsifier for pharmaceuticals
**Properties:** Nonionic

**Lamegin® Range** [Cognis http://www.cognis.de]
**Chem. Descrip.:** Esters of mono- and diglycerides
**Uses:** Emulsifier for pharmaceuticals (capsules, powds., syrups, tablets)

**Lamepo® UD** [Cognis/Care Chems.]
**Chem. Descrip.:** Potassium undecylenoyl hydrolyzed collagen
**CAS:** 68951-92-8
**Uses:** Detergent for hair preparations, shampoos, skin cleansers for damaged skin, antidianduff shampoos
**Properties:** Sl. amber cl. liq.; anionic; 32% act.

**Lamesorb® Range** [Cognis http://www.cognis.de]
**Chem. Descrip.:** Sorbitan esters of fatty acids/polysorbates
**Uses:** Emulsifier for pharmaceuticals
### Trade Name Reference

(aerosols, injectables, capsules, powds., syrups, tablets)  
*Properties:* Nonionic

<table>
<thead>
<tr>
<th>Trade Name</th>
<th>Manufacturer</th>
<th>Chemical Description</th>
<th>CAS</th>
<th>EINECS/ELINCS</th>
<th>Uses</th>
<th>Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lanetex CO</td>
<td>Lanaetex Prods.</td>
<td>Castor (Ricinus communis) oil USP</td>
<td>8001-79-4; 232-293-8</td>
<td>Uses: Emollient, lubricant, oleaginous vehicle in pharmaceuticals</td>
<td>Nonionic</td>
<td>Gardner 10 max. color, faint odor; sol. in ethanol, water; sp.gr. 1.00-1.04 (50/4 C); acid no. 3 max.; sapon. no. 9 max.; pH 5.5-7.0 (4% aq.); nonionic</td>
</tr>
<tr>
<td>Lan-Aqua-Sol 75:50</td>
<td>Fanning</td>
<td>PEG-75 lanolin</td>
<td>8039-09-6</td>
<td>Uses: Emulsifier for pharmaceutical emulsions; emollient, superfatting agent, conditioner for skin care prod.s.; solubilizer; wetting agent; dispersant</td>
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<td>8039-09-6</td>
<td>Uses: Emulsifier for pharmaceutical emulsions; emollient, superfatting agent, conditioner for skin care prod.s.; solubilizer; wetting agent; dispersant</td>
<td>Gardner 12 max. pastille or solid, faint odor; sol. in ethanol, water; sp.gr. 1.02-1.07 (50/4 C); m.p. 45-51 C; acid no. 5 max.; sapon. no. 18 max.; pH 5.5-7.0 (4% aq.); nonionic</td>
<td></td>
</tr>
<tr>
<td>Laneto 50</td>
<td>RITA</td>
<td>PEG-75 lanolin</td>
<td>68458-88-8</td>
<td>Uses: Aux. emulsifier, moisturizer, emollient, conditioner, stabilizer, and solubilizer for ointments, sun preps., veterinary prods.</td>
<td>Amber liq., char. odor; water-sol.; sp.gr. 1.02-1.07 (50/4 C); m.p. 45-51 C; acid no. 5 max.; sapon. no. 18 max.; pH 5.5-7.0 (4% aq.); nonionic</td>
<td></td>
</tr>
<tr>
<td>Laneto 100</td>
<td>RITA</td>
<td>PEG-75 lanolin</td>
<td>61790-81-6</td>
<td>Uses: Emulsifier, emollient, conditioner, moisturizer, stabilizer, and solubilizer for ointments, sun preps., veterinary prods.</td>
<td>Amber solid; nonionic</td>
<td></td>
</tr>
<tr>
<td>Laneto 100-Flaked</td>
<td>RITA</td>
<td>PEG-75 lanolin</td>
<td>61790-81-6</td>
<td>Uses: Emollient, lubricant, solubilizer, emulsifier, plasticizer for pharmaceuticals, ointments, sun preps.; emollient and surfactant in aq. and hydroalcoholic systems; imparts soft, nonsticky feel in creams and ointments</td>
<td>Yel. flakes, char. odor; water-sol.; sp.gr. 1.00-1.10; acid no. 1 max.; sapon. no. 10 max.; flash pt. 148 C; nonionic; 100% conc.</td>
<td></td>
</tr>
<tr>
<td>Laneto AWS</td>
<td>RITA</td>
<td>PPG-12-PEG-50 lanolin</td>
<td>61790-81-6</td>
<td>Uses: Emollient, lubricant, solubilizer, emulsifier, plasticizer for pharmaceuticals, ointments, sun preps.; emollient and surfactant in aq. and hydroalcoholic systems; imparts soft, nonsticky feel in creams and ointments</td>
<td>Amber liq., char. odor; water-sol.; sp.gr. 1.02-1.07 (50/4 C); m.p. 45-51 C; acid no. 5 max.; sapon. no. 18 max.; flash pt. 148 C; nonionic; 100% conc.</td>
<td></td>
</tr>
<tr>
<td>Lanette® 14</td>
<td>Cognis/Care Chems.</td>
<td>Myristyl alcohol</td>
<td>61790-81-6</td>
<td>Uses: Emollient, consistency agent for pharmaceutical o/w and w/o creams, emulsions, sticks</td>
<td>Wh. to lt. ylsh. waxy flakes; sp.gr. 0.82-0.83 (40 C); m.p. 35-38 C; acid no. &lt; 0.1; iodine no. &lt; 0.3; sapon. no. &lt; 0.3; hyd. no. 255-262; flash pt. 148 C; nonionic; 100% conc.</td>
<td></td>
</tr>
<tr>
<td>Lanette® 18</td>
<td>Cognis/Care Chems.</td>
<td>Stearyl alcohol</td>
<td>61790-81-6</td>
<td>Uses: Emollient, consistency agent for pharmaceutical o/w and w/o creams, emulsions, sticks</td>
<td>Wh. to lt. ylsh. waxy flakes; sp.gr. 0.82-0.83 (40 C); m.p. 35-38 C; acid no. &lt; 0.1; iodine no. &lt; 0.3; sapon. no. &lt; 0.3; hyd. no. 255-262; flash pt. 148 C; nonionic; 100% conc.</td>
<td></td>
</tr>
</tbody>
</table>

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**Laneto 14** [Cognis/Care Chems.]
Chem. Descrip.: Myristyl alcohol  
CAS 112-72-1; EINECS/ELINCS 204-000-3  
*Uses:* Emollient, consistency agent for pharmaceutical o/w and w/o creams, emulsions, sticks  
*Features:* Hydrophilic  
*Properties:* Wh. to lt. ylsh. waxy flakes; sp.gr. 0.82-0.83 (40 C); m.p. 35-38 C; acid no. < 0.1; iodine no. < 0.3; sapon. no. < 0.3; hyd. no. 255-262; flash pt. 148 C; nonionic; 100% conc.  
*Storage:* 3 yr. min. storage life in original sealed containers at temps. below 40 C, protected from moisture

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**Lanette® 18** [Cognis/Care Chems.]
Chem. Descrip.: Stearyl alcohol  
CAS 112-92-5; EINECS/ELINCS 204-017-6  
*Uses:* Emollient, consistency agent, visc.
Trade Name Reference

- **control agent for pharmaceutical o/w creams, emulsions, sticks**
  - **Features:** Hydrophilic
  - **Regulatory:** Ph.Eur., NF, DAB, Italian Ph., French Ph., JSCI compliance
  - **Properties:** Off-wh. waxy flakes; m.p. 55-57.5 C; acid no. 0.1 max.; iodine no. 1 max.; sapon. no. 0.5 max.; hyd. no. 203-210; nonionic; 100% conc.
  - **Use Level:** 1-10%
  - **Storage:** 1 yr. min. storage life in original sealed containers at temps. below 40 C, protected from moisture

**Lanette® 22 Flakes** [Cognis/Care Chems.]
- **Chem. Descrip.:** Behenyl alcohol
- **CAS:** 661-19-8; EINECS/ELINCS 211-546-6
- **Uses:** Emollient, consistency agent for pharmaceutical o/w and w/o creams, emulsions, sticks
- **Properties:** Wh. to pale ylsh. hydrophilic waxy fused flakes; solid. pt. 64-67 C; acid no. 0.2 max.; iodine no. 1 max.; sapon. no. 0.5 max.; hyd. no. 170-180; nonionic; 100% conc.
- **Storage:** 1 yr. min. storage stability in sealed original containers at temps. below 40 C

**Lanette® E PH** [Cognis/Care Chems.]
- **Chem. Descrip.:** Sodium cetearyl sulfate
- **CAS:** 59186-41-3
- **Uses:** Emulsifier and wetting agent for pharmaceutical o/w emulsions, creams, and ointments
- **Regulatory:** DAB, Austrian pharmacopoeia compliance; SARA §311/312 reportable
- **Properties:** Pale yel. powd., faint char. odor; appreciable sol. in water; sp.gr. 0.18; dens. 150-250 g/l; flash pt. (PMCC) > 93 C; pH 6.5-7.5 (1%); anionic; 90% min. act.
- **Toxicology:** LD50 (oral, rat) > 10 g/kg; may cause GI irritation, nausea, vomiting; severe eye irritation; mild skin irritant; TSCA listed
- **Precaution:** Avoid creating explosive concs. of dust, incomp. with strong oxidizing agents
- **Hazardous Ingredients:** Sodium cetyl/stearyl sulfate, 100%
- **Hazardous Decomp. Prods.:** CO₂, CO, SOₓ
- **NFPA:** Health 2, Flammability 1, Reactivity 0
- **Storage:** 1 yr. storage stability in sealed orig. containers at temps. below 30 C in a dry environment

**Lanette® NPH** [Cognis/Care Chems.]
- **Chem. Descrip.:** Cetearyl alcohol (90%) and sodium cetearyl sulfate (10%), stabilized with 0.12% phosphate buffer
- **Uses:** Self-emulsifying base, consistency agent for pharmaceutical o/w creams, ointments, and liq. liniments
- **Regulatory:** DAB, Austrian Ph., JCID compliance
- **Properties:** Wh. flakes, faint char. odor; acid no. 1 max.; iodine no. 3 max.; hyd. no. 187-205; pH 6.5-8.0 (1%); anionic; 1.4% max. water
- **Storage:** 1 yr. storage stability in sealed orig. containers at temps. below 30 C in dry environment

**Lanexol AWS** [Croda Inc]
- **Chem. Descrip.:** PPG-12-PEG-50 lanolin
- **CAS:** 68458-88-8
- **Uses:** Emollient, conditioner, cleanser,
superfatting agent, foam stabilizer, and lubricant for alcoholic and aq. compositions, topical pharmaceuticals; o/w emulsifier, solubilizer

Properties: Amber visc. liq.; sol. in oil, water, ethanol and mixts.; disp. in propylene glycol; cloud pt. 65-80 C (1% aq.); pour pt. 13 C max.; acid no. 2 max.; iodine no. 10 max.; sapon. no. 10-20; pH 6.0-7.0 (1% aq.); nonionic; 97% conc.

Use Level: 1-5%

Toxicology: LD50 (oral, rat) 32 g/kg; moderate skin irritant, minimal eye irritant

Lanidrol [Esperis http://www.esperis.it]

Chem. Descr.: PEG-20 hydrogenated lanolin
CAS 68648-27-1
Uses: Emollient, emulsifier for pharmaceuticals, ointments

Lanocerina [Esperis http://www.esperis.it]

Chem. Descr.: Hydrogenated lanolin
CAS 8031-44-5; EINECS/ELINCS 232-452-1
Uses: Emollient for pharmaceuticals

Lanocerina Distilled [Esperis http://www.esperis.it]

Chem. Descr.: Hydrogenated lanolin distilled
CAS 8031-44-5; EINECS/ELINCS 232-452-1
Uses: Emollient for pharmaceuticals

Lanodant DM [RITA http://www.ritacorp.com]

Chem. Descr.: DMDM Hydantoin
CAS 6440-58-0; EINECS/ELINCS 229-222-8
Uses: Preservative for pharmaceutical preps. that is effective against gram negative and gram positive bacteria, as well as yeast, mold and fungi

Features: Highly effective against gram neg. and gram positive bacteria, as well as yeast, mold and fungi

Properties: Colorless cl. liq.; mild odor; freely sol. in water; pH 6.5-7.5 (55%); 55% act.; 17% min. total HCHC; 2.0% max. free HCHO

Toxicology: May irritate eyes and skin

Environmental: Biodegr.ade.

Precaution: Avoid strong oxidizing agents; wear goggles and gloves

Storage: Store in warm warehouse


Chem. Descr.: PEG-27 lanolin
CAS 61790-81-6
Uses: Emollient, emulsifier, dispersant, wetting agent, solubilizer, foam stabilizer in topical pharmaceuticals, antiperspirants, germicidal hand soaps

Properties: ASTM 3 max. gel; HLB 15.0; nonionic; 50% act.

Lanogen® 41 [Amerchol http://www.dow.com/ucc/amerchol/index.htm]

Chem. Descr.: PEG-75 lanolin
CAS 61790-81-6
Uses: Emollient, emulsifier, dispersant, wetting agent, solubilizer, foam stabilizer in topical pharmaceuticals, antiperspirants, germicidal hand soaps

Properties: Gardner 8, visc. liq.; mild pleasant odor; HLB 15.0; iodine no. 7; sapon. no. 9 mg/g; nonionic; 50% act.

Storage: Store in closed containers and protected from extreme temps.


Chem. Descr.: PEG-6 and PEG-32 (1:1 mixt.)
CAS 25322-68-3
Uses: Ointment base, thickener, solubilizer for act. ingreds. in pharmaceuticals

Features: Good skin compat.; neutral pH

Properties: Wh. soft paste; 100% act.


Chem. Descr.: Lanolin oil
CAS 70321-63-0; EINECS/ELINCS 274-559-6
Uses: Emollient, moisturizer, emulsifier, spreading agent in topical pharmaceuticals

Features: Imparts oil sol.; less tack than lanolin

Properties: Yel.-amber liq.; sl. char. odor; insol. in water; sol. in oils, esters, hydrocarbons, and IPA; sp. gr. 0.94; b.p. 316 C; acid no. 2 max.; sapon. no. 85-105; flash pt. (COC) 318 C; nonionic

Use Level: 0.5-3.0% use level

Toxicology: LD50 (oral, rat) > 5000 mg/kg; LD50 (dermal, rabbit) > 2000 mg/kg; may cause allergic skin reaction in susceptible individuals

Hazardous Decomp. Prods.: Thermal decomp. may produce smoke, CO, CO2, aldehydes and other products of incomplete combustion

HMIS: Health 0, Flammability 1, Reactivity 0

Storage: Store in closed containers and protected from extreme temps.

Lanolin USP AAA [Amerchol

Handbook of Pharmaceutical Additives, Third Edition 374
Trade Name Reference

**http://www.dow.com/ucc/amerchol/index.htm**

**Chem. Descrip.**: Lanolin, tech. **See Lanolin**

**CAS**: 8006-54-0; EINECS/ELINCS 232-348-6

**Uses**: Emollient and moisturizer for lip balms

**Regulatory**: USP

**Properties**: Gardner 8, yel. to amber soft wax; mild characteristic odor; insol. in water; sp. gr. 0.9; m.p. 38 C; b.p. 310 C; 100% act.

**Use Level**: 0.5-5.0% use level

**Toxicology**: LD50 (oral, rat) > 5000 mg/kg; LD50 (dermal, rabbit) > 2000 mg/kg; may cause allergic skin reaction in susceptible individuals

**Environmental**: Limited biodegradability; LC50 (fish) >1000 mg/l

**Hazardous Decomp. Prods.**: Thermal decomposition may produce smoke, CO, CO2, aldehydes and other products of incomplete combustion

**HMIS**: Health 0, Flammability 1, Reactivity 0

**Storage**: Store in closed containers and protect from extreme temps.

**Lanolin USP Superfine** **[Fanning http://www.fanncorp.com]**

**Chem. Descrip.**: Lanolin

**CAS**: 8006-54-0; EINECS/ELINCS 232-348-6

**Uses**: Emollient, moisturizer, protective film-former for pharmaceutical ointments, protective creams and lotions, burn aids

**Features**: Maintains skin hydration

**Regulatory**: FDA 21CFR §121.2562, 121.1059, 121.2514, 121.2519, 121.2526, 121.2531, 121.2507, 121.2557

**Properties**: Pale yel. tenacious, unctuous substance, faint char. odor; m.p. 36-42 C; iodine no. 18-36

**Lanolin USP Ultrafine** **[Fanning http://www.fanncorp.com]**

**Chem. Descrip.**: Lanolin

**CAS**: 8006-54-0; EINECS/ELINCS 232-348-6

**Uses**: Emollient, moisturizer, protective film-former for pharmaceutical ointments, protective creams and lotions, burn aids

**Features**: Maintains skin hydration

**Regulatory**: FDA 21CFR §121.2562, 121.1059, 121.2514, 121.2519, 121.2526, 121.2531, 121.2507, 121.2557

**Properties**: Pale yel. tenacious, unctuous substance, faint char. odor; m.p. 36-42 C; iodine no. 18-36

**Lanolina C 200** **[Esperis http://www.esperis.it]**

**Chem. Descrip.**: PEG-75 lanolin

**CAS**: 61790-81-6

**Uses**: Emollient for pharmaceuticals

**Lanolin USP** **[RITA http://www.ritacorp.com]**

**Chem. Descrip.**: Lanolin USP

**CAS**: 8006-54-0; EINECS/ELINCS 232-348-6

**Uses**: Skin moisturizer, lubricant, and emollient for pharmaceuticals; stabilizer for emulsions, dispersions, and suspensions; lubricant in waterless hand cleaners, printing inks, can coatings, corrosive inhibitors and lubricants

**Regulatory**: USP, RCRA nonreportable

**Properties**: Yel. grease; insol. in water; sp.gr. 0.9; vapor dens. > 1; b.p. decomposes; flash pt. (COC) > 500 F; volatiles < 0.2%

**Toxicology**: LD50 (oral, albino rat) > 43 cc/kg; Draize primary eye irritation index (rabbit) 0.7

**Precaution**: Wear safety glasses, rubber gloves, rubber apron; incompat. with oxidizers

**Storage**: Keep away from heat, flames

**Lanolin USP Cosmetic Grade** **[RITA http://www.ritacorp.com]**

**Chem. Descrip.**: Lanolin USP

**CAS**: 8006-54-0; EINECS/ELINCS 232-348-6

**Uses**: Emollient, water absorbent, emulsifier, emulsion stabilizer, and pigment dispersant for pharmaceuticals, topical formulations

**Regulatory**: USP

**Properties**: Gardner 9+ max. color; m.p. 38-44 C; iodine no. 18-36; sapon. no. 93-107; nonionic

**Use Level**: 0.1-50%

**Lanolin USP Extra Deodorized** **[RITA http://www.ritacorp.com]**

**Chem. Descrip.**: Lanolin USP

**CAS**: 8006-54-0; EINECS/ELINCS 232-348-6

**Uses**: Emollient, water absorbent, emulsifier, emulsion stabilizer, and pigment dispersant for pharmaceuticals, topical formulations

**Regulatory**: USP

**Properties**: Gardner 8+ max. color; ye. grease; characteristic odor; insol. in water; m.p. 38-44 C; iodine no. 18-36; sapon. no. 93-107; nonionic

**Use Level**: 0.1-50%

**Toxicology**: LD50 (acute toxicity, albino rat) >26 g/kg; Draize primary eye irritation index (rabbit) = 0.0 (rabbit)
Trade Name Reference

Environmental: Biodegrad.
Precaution: Avoid heat, flame, and oxidizing materials; wear safety goggles and gloves
Hazardous Decomp. Prods.: Noxious fumes of CO
Storage: Store at R.T.; keep containers closed in order to maintain performance

Lanolin USP Pharmaceutical Grade [RITA http://www.ritacorp.com]
Chem. Descrip.: Lanolin USP
CAS 8006-54-0; EINECS/ELINCS 232-348-6
Uses: Emollient, water absorbent, emulsifier, emulsion stabilizer, and pigment dispersant for pharmaceuticals, topical formulations
Regulatory: USP
Properties: Gardner > 10+ color; m.p. 38-44 C; iodine no. 18-36; sapon. no. 93-107; nonionic
Use Level: 0.1-50%

Lanolin USP Pharmaceutical [RITA http://www.ritacorp.com]
Chem. Descrip.: Lanolin
CAS 8006-54-0; EINECS/ELINCS 232-348-6
Uses: Skin moisturizer, lubricant, and emollient for pharmaceuticals; stabilizer for emulsions, dispersions, and suspensions
Regulatory: USP
Properties: Yel. grease; insol. in water; sp. gr. 0.9; m.p. 38-44 C; b.p. (COC) decomposes @ 350 F; iodine no. (Hanus) 18-36; flash pt. > 500 F
Toxicology: Nonirritant to eyes and skin; LD50 (ing., albino rat) > 26g/kg
Environmental: Biodegrad.
Precaution: Avoid heat, flames, and oxidizing
Hazardous Decomp. Prods.: May emit noxious fumes of CO

Chem. Descrip.: Hydrous sodium lithium magnesium silicate See Smectite
CAS 53320-86-8; EINECS/ELINCS 258-476-2
Uses: Used in conjunction with other thickeners for imparting a shea sensitive structure to clear gel and conventional toothpaste
Properties: Wh. free-flowing powd.; insol. in water but hydrates and swells to give cl. and colorless colloidal disp. in water or aq. alcohol sol'n.s.; bulk dens. 1000 kg/m³; surf. area 370 m²/g; pH 9.8 (2% susp.)
Toxicology: LD50 (oral, rat) > 8 g/kg; LC50 (inh., rat) > 1.66 g/m³; primary skin irritation index (rabbit) 0.5; may cause degreasing, dryness, cracking of skin; may cause nose, mouth, GI irritation
Precaution: Wear PVC or rubber gloves, chemical goggles; avoid excessive moisture; do not breathe dust
Hazardous Decomp. Prods.: Lithium salts if prod. dec. by min. acid
Storage: Store under dry conditions away from min. acids

Chem. Descrip.: PEG-8 caprylic/capric glycerides
CAS 85536-07-8
Uses: Excipient for creams, lotions; surfactant for microemulsions
Properties: Gardner < 5 oily liq., faint odor; sol. in water; very sol. in ethanol, chloroform, methylene chloride; sp.gr. 1.060-1.070; visc. 80-110 mPa•s; HLB 14.0; acid no. < 1; iodine no. < 2; sapon. no. 85-105; ref. index 1.450-1.470; nonionic
Toxicology: LD50 (oral, rat) > 20 ml/kg, nontoxic; sl. ocular irritant at 0.1 ml; nonirritating to skin

Chem. Descrip.: Lactoyl methylsilanol elastinate
Uses: Provides hydrating, anti-inflammatory action, tissue regeneration, slimming action for hand creams, slimming prods. and health prods.
Properties: Colorless to pale yel. sl. opalescent liq.; misc. with water, alcohols, glycols; sp.gr. 1.0; pH 5.5
Use Level: 3-4%
Toxicology: Nontoxic

Laurico 70% [Undesa http://www.undesa.com; S. Black http://www.sblack.com]
Chem. Descrip.: Lauric acid
CAS 143-07-7; EINECS/ELINCS 205-582-1
Uses: Emulsifier in pharmaceuticals
Environmental: Biodeg. (28 d) > 90%
Precaution: Wear gloves, goggles, overall skin protection; avoid entry to sewers, drain and surface water
Storage: Store @ R.T. in original sealed container protected from heat sources

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Trade Name</th>
<th>Chemical Description</th>
<th>CAS Number</th>
<th>EINECS/ELINCS</th>
<th>Uses</th>
<th>Environmental</th>
<th>Precaution</th>
<th>Storage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lauric Acid</td>
<td>Lebon 50</td>
<td>Sanyo Chem. Ind.</td>
<td>143-07-7</td>
<td>205-582-1</td>
<td>Emulsifier in pharmaceuticals</td>
<td>Biodeg. (28 d) &gt; 90%</td>
<td>Wear gloves, goggles, overall skin protection; avoid entry to sewers, drain and surface water</td>
<td>Store @ R.T. in original sealed container protected from heat sources</td>
</tr>
<tr>
<td>Lauroglycol® 90</td>
<td>Lebon LAG-40</td>
<td>Sanyo Chem. Ind.</td>
<td>142-55-2</td>
<td>205-542-3</td>
<td>Emulsifier in pharmaceuticals</td>
<td>Biodeg. (28 d) &gt; 90%</td>
<td>Wear gloves, goggles, overall skin protection; avoid entry to sewers, drain and surface water</td>
<td>Store @ R.T. in original sealed container protected from heat sources</td>
</tr>
<tr>
<td>Proplene glycol monolaurate</td>
<td>Lauroglycol® FCC</td>
<td>Sanyo Chem. Ind.</td>
<td>142-55-2</td>
<td>205-542-3</td>
<td>Excipient, bioavailability enhancer for pharmaceutical liq. and capsule formulations, esp. for poorly-sol. drugs; cosurfactant for microemulsions; penetrant in transdermal formulations</td>
<td>Biodeg. (28 d) &gt; 90%</td>
<td>Wear gloves, goggles, overall skin protection; avoid entry to sewers, drain and surface water</td>
<td>Store @ R.T. in original sealed container protected from heat sources</td>
</tr>
<tr>
<td>Sanyo Chem. Ind.</td>
<td>Lebon 15</td>
<td></td>
<td>143-07-7</td>
<td>205-582-1</td>
<td>Emulsifier in pharmaceuticals</td>
<td>Biodeg. (28 d) &gt; 90%</td>
<td>Wear gloves, goggles, overall skin protection; avoid entry to sewers, drain and surface water</td>
<td>Store @ R.T. in original sealed container protected from heat sources</td>
</tr>
<tr>
<td>Lauryl diaminoglycine</td>
<td>Lecigran™ 5750</td>
<td>Riceland Foods</td>
<td>8002-43-5</td>
<td>232-307-2</td>
<td>Emulsifier, dry blending/instanitzing agent for pharmaceuticals, dietary supplements; stabilizer, dispersant for color and flavor suspensions</td>
<td>Biodeg. (28 d) &gt; 90%</td>
<td>Wear gloves, goggles, overall skin protection; avoid entry to sewers, drain and surface water</td>
<td>Store @ R.T. in original sealed container protected from heat sources</td>
</tr>
<tr>
<td>Lebon 50</td>
<td>Lebon 50</td>
<td>Sanyo Chem. Ind.</td>
<td>143-07-7</td>
<td>205-582-1</td>
<td>Emulsifier in pharmaceuticals</td>
<td>Biodeg. (28 d) &gt; 90%</td>
<td>Wear gloves, goggles, overall skin protection; avoid entry to sewers, drain and surface water</td>
<td>Store @ R.T. in original sealed container protected from heat sources</td>
</tr>
<tr>
<td>Alkyldiaminoethylglycine hydrochloride</td>
<td>Lecigran™ 6750</td>
<td>Riceland Foods</td>
<td>8002-43-5</td>
<td>232-307-2</td>
<td>Emulsifier, dry blending/instanitzing agent for pharmaceuticals, dietary supplements; stabilizer, dispersant for color and flavor suspensions</td>
<td>Biodeg. (28 d) &gt; 90%</td>
<td>Wear gloves, goggles, overall skin protection; avoid entry to sewers, drain and surface water</td>
<td>Store @ R.T. in original sealed container protected from heat sources</td>
</tr>
<tr>
<td>Lecigran™ A</td>
<td>Lecigran™ C</td>
<td>Riceland Foods</td>
<td>8002-43-5</td>
<td>232-307-2</td>
<td>Emulsifier, dry blending/instanitzing agent for pharmaceuticals, dietary supplements; stabilizer, dispersant for color and flavor suspensions</td>
<td>Biodeg. (28 d) &gt; 90%</td>
<td>Wear gloves, goggles, overall skin protection; avoid entry to sewers, drain and surface water</td>
<td>Store @ R.T. in original sealed container protected from heat sources</td>
</tr>
</tbody>
</table>

**Trade Name Reference**

- [http://www.sblack.com](http://www.sblack.com)
- [http://www.gattefosse.fr](http://www.gattefosse.fr)
- [http://www.gattefossescorp.com](http://www.gattefossescorp.com)
- [http://www.riceland.com](http://www.riceland.com)
- [http://www.sanyo-chemical.co.jp](http://www.sanyo-chemical.co.jp)

**Chem. Descrip.**

- Lauric acid
- Propylene glycol monolaurate
- Propylene glycol laurate
- Sodium lauryldiaminoglycine
- Deoiled lecithin
- Alkyldiaminoethylglycine hydrochloride
- Alkylpolyaminoethylglycine hydrochloride
- Deoiled lecithin
- Propylene glycol
- Deoiled lecithin
- Deoiled lecithin
- Deoiled lecithin

**Properties**

- Oily liq.; faint odor; HLB 5.0; 90% monoesters
- Oily liq.; faint odor; HLB 4; nonionic
- Fine powd., superior odor and flavor profile; 97% min. phospholipid
- Extra fine powd.; 97% min. phospholipid
- Fine powd., superior odor and flavor profile; 97% min. phospholipid

**Regulatory**

- FDA 21CFR §172.856; E 477; DMF no. 7818; worldwide food additive status
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**Storage**

- Store @ R.T. in original sealed container protected from heat sources
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Trade Name Reference

**tricalcium phosphate** to enhance flowability
See Calcium phosphate tribasic

Uses: Emulsifier, blending agent for pharmaceuticals, dietary supplements; stabilizer, dispersant for color and flavor suspensions

Regulatory: FDA 21CFR §184.1400, GRAS
Properties: Lt. tan to med. yel. gran., superior odor and flavor profiles; 97% min. phospholipid
Storage: Hygroscopic; store in sealed containers below 25 C; protect from light and moisture

**Lecigran™ T** [Riceland Foods http://www.riceland.com]
Chem. Descrip.: Deoiled lecithin with **tricalcium phosphate** to enhance flowability
See Calcium phosphate tribasic
Uses: Emulsifier, blending agent for pharmaceuticals, dietary supplements; stabilizer, dispersant for color and flavor suspensions
Properties: Powd.; 97% min. phospholipid

**Lecigran™ T** [Riceland Foods http://www.riceland.com]
Chem. Descrip.: Deoiled lecithin with **tricalcium phosphate** to enhance flowability
See Calcium phosphate tribasic
Uses: Emulsifier, blending agent for pharmaceuticals, dietary supplements; stabilizer, dispersant for color and flavor suspensions
Properties: Powd.; 97% min. phospholipid

Chem. Descrip.: Octacosanol (30-35%), triacontanol (25-40%), dotriacontanol (10-18%), hexacosanol (2-10%) See 1-Dotriacontanol; 1-Hexacosanol; Myricyl alcohol
Uses: Ingr. in dietary supplements, healthy foods including nutraceutical vegetable oils and oil-based spreads
Features: Natural waxy alcohol blend; for the support of healthy cholesterol and energy levels
Properties: Wh. to off-wh. gran. powd.; sol. in aromatics and aliphatics @ 70-80 C; insol. in water; m.p. 70-82 C; 95% min. alcohols; 5% max. natural hydrocarbons
Use Level: 500-5000 micrograms/serving or dose
Storage: Store in cool, dry environment protected from heat sources and sunlight

Chem. Descrip.: Octacosanol (8.1%) in a base of maize syrup powd. (90-92%) See Corn syrup solids
Uses: Ingr. in nutritional supplement tablets
Trade Name Reference

- or capsules for dietetic and health food apps., e.g., sports endurance supplements, weight-loss prods., energy-boosting or stress-reducing supplements, pharmaceuticals

**Features:** Natural waxy alcohol blend

**Properties:** 10% max. moisture

**Storage:** Store in cool, dry environment protected from heat sources and sunlight

**Lexemul**

  
  **Chem. Descrip.:** Glyceryl stearate and stearamidoethyl diethylamine
  
  **Uses:** Emulsifier, stabilizer, opacifier, and emollient for cationic systems in topical pharmaceuticals, antiperspirants
  
  **Features:** Self-emulsifying, acid-stable
  
  **Properties:** Wh. to cream flakes; mild fatty odor; disp. in water (60 C); m.p. 60 C; HLB 4.1; acid no. 28; iodine no. 3 max.; sapon. no. 170; cationic; 100% conc.

- **Lexemul** EGMS [Inolex http://www.inolex.com; S. Black http://www.sblack.com]
  
  **Chem. Descrip.:** Glyceryl stearate, sodium lauryl sulfate
  
  **Uses:** Emulsifier, stabilizer, opacifier and emollient in topical pharmaceuticals
  
  **Features:** SE, acid-stable
  
  **Properties:** Wh. to cream flakes; mild char. odor; m.p. 59 C; HLB 4.9; acid no. 16; iodine no. 3 max.; sapon. no. 158; pH 5.5 (3% aq.); anionic; 100% conc.

  
  **Chem. Descrip.:** Glyceryl stearate
  
  **CAS 111-60-4:** EINECS/ELINCS 203-886-9
  
  **Uses:** Emulsifier, bodying agent, stabilizer, opacifier, pearlescent for creams, lotions, topical pharmaceuticals; sec. suspending agent in o/w systems
  
  **Properties:** Lovibond 20Y/3R flakes, mild fatty char. odor; sol. in hot min. and veg. oils; water-insol.; m.p. 57 C; HLB 2.3; acid no. 2 max.; iodine no. 1 max.; sapon. no. 185; nonionic; 100% conc.

- **Lexol** 3975 [Inolex http://www.inolex.com; S. Black http://www.sblack.com]
  
  **Chem. Descrip.:** Isopropyl palmitate, isopropyl myristate, isopropyl stearate
Trade Name Reference

Uses: **Emollient and solvent for topical pharmaceuticals**

Features: Replacement for IPM or IPP; oxidative resist.

Properties: Colorless liq., odorless; sol. in acetone, benzene, CCl₄, castor oil, chloroform, ethanol, heptane, IPA; insol. in water; sp.gr. 0.850-0.858; visc. 7 cps; f.p. 11 C; acid no. 1 max.; iodine no. 1 max.; sapon. no. 184-194; flash pt. (PMCC) 169 C; ref. index 1.4367; 100% conc.


Chem. Descrip.: **Octyl palmitate**

CAS 29806-73-3; EINECS/ELINCS 249-862-1

Uses: **Emollient for topical pharmaceuticals, antiperspirants, nonocclusive creams and lotions**, sun care prods.

Properties: Colorless cl. liq., odorless; sol. in acetone, benzene, CCl₄, chloroform, ether, heptane, alcohol, veg. and min. oils; insol. in water; sp.gr. 0.858; visc. 13 cps; f.p. -2 C; acid no. 1 max.; iodine no. 1 max.; sapon. no. 145-155; flash pt. (PMCC) 206 C; ref. index 1.4460; 100% conc.

Storage: Store in tightly closed original containers @ 13-38 C to avoid deterioration or contamination; store bulk liq. under dry inert atmosphere in SS or aluminum vessels

Lexol® GT-855 [Inolex http://www.inolex.com]

Chem. Descrip.: **Caprylic/capric triglyceride**

CAS 65381-09-1; EINECS/ELINCS 265-724-3

Uses: **Solv. for flavor ingrds.; vehicle for medicinals, antibiotics, vitamins; solubilizer; oxidative stability**

Features: Nonoily skin feel; oxidative stability

Properties: APHA 100 max. cl. liq., odorless; tasteless; alcohol-sol.; sp.gr. 0.943; visc. 27 cps; f.p. -19 C; acid no. 0.1 max.; iodine no. 1 max.; sapon. no. 325-355; flash pt. (PMCC) 224 C; ref. index 1.4479; 100% conc.


Chem. Descrip.: **Caprylic/capric triglyceride**

CAS 65381-09-1; EINECS/ELINCS 265-724-3

Uses: **Emollient, moisturizer, emulsion stabilizer, vehicle for creams, lotions; carrier for flavors; vehicle for medicinals, antibiotics, vitamins**

Properties: APHA 100 max. cl. liq., odorless, tasteless; sol. in alcohol; sp.gr. 0.947; visc. 25 cps; f.p. -19 C; acid no. 0.1 max.; iodine no. 1 max.; sapon. no. 335-355; flash pt. (PMCC) 233 C; ref. index 1.4471; 100% conc.


Chem. Descrip.: **Isopropyl myristate**

NF CAS 110-27-0; EINECS/ELINCS 203-751-4


Properties: Colorless cl. liq.; odorless; sol. in acetone, benzene, CCl₄, castor oil, chloroform, ethanol, heptane, IPA; insol. in water; m.w. 270; sp.gr. 0.847-0.854; dens. 7.1 lb/gal; visc. 4.8 cp; f.p. 3 C; b.p. 170 C; acid no. 1 max.; iodine no. 1 max.; sapon. no. 182-191; flash pt. 305 F; ref. index 1.437; 100% conc.


Chem. Descrip.: **Isopropyl palmitate**

CAS 142-91-6; EINECS/ELINCS 205-571-1

Uses: **Emollient, solubilizer, carrier, spreading agent for topical pharmaceuticals; extender for fragrances**

Properties: Colorless cl. liq.; odorless; sol. in acetone, benzene, CCl₄, castor oil, chloroform, ethanol, heptane, IPA; insol. in water; m.w. 298; sp.gr. 0.850-0.855; dens. 7.1 lb/gal; visc. 7 cps; f.p. 11 C; acid no. 1 max.; iodine no. 1 max.; sapon. no. 182-191; flash pt. (PMCC) 170 C; ref. index 1.437; 100% conc.

Storage: Store in tightly closed original containers @ 13-38 C to avoid deterioration or contamination; store bulk liq. under dry inert atmosphere in SS or aluminum vessels

Lexol® PG-800 [Inolex http://www.inolex.com]

Chem. Descrip.: **Propylene glycol dioctanoate**

CAS 56519-71-2; EINECS/ELINCS 301-185-3

Uses: **Emollient and moisturizer for pharmaceutical creams, lotions, topicals; solvent, carrier, vehicle for flavors, fragrances, vitamins, antibiotics, medicinals**

Features: Nonoily feel, oxidation stability

Properties: Colorless cl. liq., char. odor; sol. in alcohol, min. oil, acetone; sp.gr. 0.918; visc. 10 cps; f.p. -34 C; acid no. 1 max.; iodine no. 1 max.; sapon. no. 320-340; flash pt. (COC) 272 C; ref. index 1.4350; 100% conc.
Chem. Descrip.: Propylene glycol dicaprylate/dicaprate
CAS 68583-51-7; EINECS/ELINCS 271-516-3
Uses: Solubilizer, solvent, coupling agent, vehicle for flavors, fragrances, vitamins, antibiotics, medicinals; emollient, moisturizer, lubricant for creams, lotions
Features: Nonoily skin deposition
Properties: APHA 100 max. cl. liq., odorless; sol. in alcohol, min. and veg. oil, acetone; sp.gr. 0.922; visc. 10 cps; f.p. -38 C; acid no. 0.1 max.; iodine no. 1 max.; sapon. no. 315-335; flash pt. (PMCC) 195 C; ref. index 1.4391; 100% conc.
Storage: Store in tightly closed original containers @ 13-38 C to avoid deterioration or contamination; store bulk liq. under dry inert atmosphere in SS or aluminum vessels

Linoleato Etile [Esperis http://www.esperis.it]
Chem. Descrip.: Ethyl linoleate, ethyl linolenate
Uses: Humectant, emulsifier for cosmetics, pharmaceuticals

Linalol 95 [Millennium/F&F http://www.aromachem.com]
Chem. Descrip.: Linalool (98.5%)
CAS 78-70-6; EINECS/ELINCS 201-134-4
Uses: Raw material in synthesis of isophytol and vitamin E
Regulatory: FDA 21CFR §182.60; Australia AICS; Canada DSL; Japan IEC; Korea KECL/ECL; Philippines PICCS
Properties: Cl. liq.; floral odor; sol. 1 in 4 in 60% alcohol; m.w. 154.25; sp.gr. 0.861-0.870; dens. 7.20 lb/gal; vapor pressure ≈ 0.4 mm Hg; vapor dens. 5.3; b.p. 192.8 C; flash pt. (TCC) 80 C; ref. index 1.461-1.465 (20 C); 95% min. act.
Toxicology: LD50 (oral, rat) 720 mg/kg; corrosive
Environmental: COD 2523 mg O2/g; BOD5 96 mg O2/g

Lipacide™ C8CO [Seppic http://www.seppic.com]
Chem. Descrip.: Capryloyl collagen amino acids
CAS 68989-52-6
Uses: Antimicrobial, antiseborrheic, antiacneic, antiseptic for dermal preps., esp. for prevention and treatment of skin prone to acne
Properties: Paste; dough-like appearance, char. odor; very sl. sol. in water (20 C); sol. in alcohols, polyols, acetone, ether, and surfactants; m.w. ≈ 240; acid no. 215-250
Use Level: 1-2% (antimicrobial/antiseborrheic in cosmetics, skin prods.); 2-4% (antiacneic in skin prods., makeup), 4-6% (antiseptics)
Toxicology: Nontoxic; nonirritating to eyes and skin; hypoallergenic
Trade Name Reference

**Storage:** 3 yrs. storage life stored away from heat

**Lipacide™ C8G** [Seppic http://www.seppic.com]
Chem. Descrip.: Capryloyl glycine
CAS 14246-53-8; EINECS/ELINCS 238-122-3
Uses: Cleansing agent for acne control
Features: Used for wh. and transparent formulations
Properties: Powd.

**Lipacide™ UG** [Seppic http://www.seppic.com]
Chem. Descrip.: Undecylenoyl glycine
Uses: Sebum control agent for sensitive skins, oily skins, acne-prone skins

**Lipamine SPA** [Lipo http://www.lipochemicals.com]
Chem. Descrip.: Stearamidopropyl dimethylamine
CAS 7651-02-7; EINECS/ELINCS 231-609-1
Uses: Raw material for pharmaceuticals
Properties: Solid

**Lipase 8** [Am. Labs http://www.americanlaboratories.com]
Chem. Descrip.: Lipase
CAS 9001-62-1; EINECS/ELINCS 232-619-9
Uses: Fat-splitting enzyme; ingred. for vitamin-mineral mixes
Features: Min. 8 USP lipase units/mg
Properties: Lt. yel.-brown powd.; sl. peculiar odor and taste; sol. in water; insol. in ethanol; fat digestive act. 6000-7500 u/g (pH 7)
Toxicology: May be a skin irritant; inh. of aerosols or dust may induce sensitization and allergic reactions in sensitized individuals; nontoxic
Environmental: Biodegrad.; not harmful to aquatic and marine organisms when dissolved with copious amounts of water
Precaution: Wear respirator, protective glasses, and impervious gloves; avoid dust formation
Storage: Store container in a cool and dry place

**Lipase 16** [Am. Labs http://www.americanlaboratories.com]
Chem. Descrip.: Lipase
CAS 9001-62-1; EINECS/ELINCS 232-619-9
Uses: Fat-splitting enzyme; ingred. for vitamin-mineral mixes
Features: Min. 16 USP lipase units/mg
Properties: Lt. yel.-brown powd.; sl. peculiar odor and taste; sol. in water; insol. in ethanol; fat digestive act. 12000-15000 u/g (pH 7)
Toxicology: May be a skin irritant; inh. of aerosols or dust may induce sensitization and allergic reactions in sensitized individuals; nontoxic
Environmental: Biodegrad.; not harmful to aquatic and marine organisms when dissolved with copious amounts of water
Precaution: Wear respirator, protective glasses, and impervious gloves; avoid dust formation
Storage: Store container in a cool and dry place

**Lipase 24** [Am. Labs http://www.americanlaboratories.com]
Chem. Descrip.: Lipase
CAS 9001-62-1; EINECS/ELINCS 232-619-9
Uses: Fat-splitting enzyme; ingred. for vitamin-mineral mixes
Features: Min. 24 USP lipase units/mg
Properties: Lt. yel.-brown powd.; sl. peculiar odor and taste; sol. in water; insol. in ethanol; fat digestive act. 12000-15000 u/g (pH 7)
Toxicology: May be a skin irritant; inh. of aerosols or dust may induce sensitization and allergic reactions in sensitized individuals; nontoxic
Environmental: Biodegrad.; not harmful to aquatic and marine organisms when dissolved with copious amounts of water
Precaution: Wear respirator, protective glasses, and impervious gloves; avoid dust formation
Storage: Store container in a cool and dry place
aquatic and marine organisms when dissolved with copious amounts of water
Precaution: Wear respirator, protective glasses, and impervious gloves; avoid dust formation
Storage: Store container in a cool and dry place

Chem. Descrip.: Shea butter See Shea butter (Butyrospermum parkii)
CAS 194043-92-0; EINECS/ELINCS 270-311-6
Uses: Visc. builder, UV-B absorber for pharmaceuticals, emollient bases, creams and lotions
Properties: Lt. yel. solid; odorless; insol. in water; sol. in acetone/hexane; dens. 890 kg/m³; m.p. 31 C; iodine no. 53-56; sapon. no. 178-190; flash pt. >150 C; fire pt. > 150 C
Toxicology: Nontoxic
Environmental: Biodeg. > 98% after 21 days
Precaution: May cause slippery floors
Storage: Store in cool, dry area @ normal humidity; keep away from products with a strong or foreign odor

Chem. Descrip.: Hydrogenated cottonseed oil
CAS 68334-00-9; EINECS/ELINCS 269-804-9
Uses: Lubricant for pharmaceutical tablets

Chem. Descrip.: Shea butter See Shea butter (Butyrospermum parkii)
CAS 68424-60-2; EINECS/ELINCS 293-515-7
Uses: Anti-irritant, anti-inflammatory, UV-B protectant in personal care, cosmetics, sun protection prods.
Features: Inc. conc. of unsaponifiables
Properties: Liq.; SPF 2

Lipo 142 [Lipo http://www.lipochemicals.com]
Chem. Descrip.: PEG-8 tallate
CAS 61791-00-2
Uses: Solubilizer, spreading agent, emulsifier, dispersant, lubricant for creams/lotions, pharmaceuticals
Properties: Lt. amber liq.; mild char. odor; disp. in water; sp.gr. 0.98; b.p. > 200 F; flash pt. (COC) 415 F
Toxicology: Not considered a toxic substance; nonhazardous; TSCA listed
Environmental: Biodeg.

Precaution: Avoid strong oxidizing agents, alkalis, acids; container may be hazardous when emptied
Hazardous Decomp. Prods.: Thermal decomp. may produce CO, CO₂
Storage: Keep containers closed until use; do not store in heat or direct sunlight

Chem. Descrip.: Beta cyclodextrin, menthol (16%) See β-Cyclodextrin
Uses: Cooling agent in lotions, gels, pharmaceuticals
Properties: Colorless crystalline solid; bland char. odor; vapor pressure 0.80; m.p. 105 F; b.p. 450 F; flash pt. 212 F
Toxicology: Nontoxic
Precaution: Avoid strong oxidizing agents
Hazardous Decomp. Prods.: Thermal decomp. may produce acrid fumes
Storage: Keep containers closed until use; do not store in heat or direct sunlight; avoid excessive heat

Chem. Descrip.: Beta-cyclodextrin, ethylhexyl methoxycinnamate See β-Cyclodextrin; Octyl methoxycinnamate
Uses: UV-B absorber, delivery system for sunscreens, creams/lotions, personal care, pharmaceuticals
Properties: Wh. powd., char. odor; insol. in water, oil; sp.gr. ≈ 1.6
Toxicology: Nontoxic
Environmental: Biodeg.
Precaution: Avoid excessive heat and strong oxidizing agents
Hazardous Decomp. Prods.: None known
Storage: Keep containers closed until use; do not store in heat or direct sunlight

Chem. Descrip.: Hydroxypropyl cyclodextrin and triclosan See Hydroxypropyl-β-cyclodextrin
Uses: Antimicrobial for pharmaceuticals
Features: Encapsulated triclosan allows easier formulation
Properties: Lt. amber liq.; char. odor; sol. in water; sp.gr. ≈ 1.23
Environmental: Biodeg.
Precaution: Avoid strong oxidizing agents,
Trade Name Reference

acids, and bases
Hazardous Decomp. Prods.: Toxic fumes of CO, CO₂
Storage: Keep containers closed until use; do not store in heat or direct sunlight

Lipo DGS [Lipo http://www.lipochemicals.com]
Chem. Descrip.: PEG-2 stearate
CAS 106-11-6; EINECS/ELINCS 203-363-5
Uses: Visc. builder, opacifier, aux. emulsifier for w/o or o/w type pharmaceuticals; opacifier, thickener in creams, lotions
Properties: Wh. to off-wh. waxy bead or flake; bland char. odor; sol. in hot alcohol, esters, ketones, glycols, veg. oil; insol. in water; sp.gr. 1.0; m.p. 43-50 C; acid no. 5 max.; sapon. no. 150-165; flash pt. (COC) > 300 F
Toxicology: Not considered a toxic substance; TSCA listed
Environmental: Biodeg.
Precaution: Avoid strong oxidizing agents; container may be hazardous when emptied
Hazardous Decomp. Prods.: None known
Storage: Keep containers closed until use; do not store in heat or direct sunlight

Lipobee 102 Prills [Lipo http://www.lipochemicals.com]
Chem. Descrip.: Synthetic beeswax  See Beeswax, synthetic
CAS 71243-51-1; EINECS/ELINCS 275-286-5
Uses: Emulsifying wax for o/w pharmaceutical ointments
Features: Stable in both acid and alkaline formulations; compat. with cationic ingreds.
Properties: Nonionic
Toxicology: Not considered a toxic substance; TSCA listed
Environmental: Biodeg.
Precaution: Potential combustible dust in flaked form; avoid strong oxidizing agents; container may be hazardous when emptied
Hazardous Decomp. Prods.: Thermal decomp. may produce CO, CO₂
Storage: Keep containers closed until used; do not store in heat or direct sunlight

Lipocol CS-50 [Lipo http://www.lipochemicals.com]
Chem. Descrip.: Cetearyl alcohol
CAS 67762-27-0; EINECS/ELINCS 267-009-1
Uses: Emollient, emulsifier, emulsion stabilizer, opacifier, visc. control agent in pharmaceuticals
Properties: Wh. flake; char. odor; insol. in water; sp.gr. 0.8; b.p. > 350 C; flash pt. 330 F
Toxicology: Not considered a toxic substance; TSCA listed
Environmental: Biodeg.
Precaution: Avoid strong oxidizing agents; container may be hazardous when emptied
Hazardous Decomp. Prods.: Thermal decomp. may produce CO, CO₂
Storage: Keep containers closed until used; do not store in heat or direct sunlight

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Trade Name Reference

not store in heat or direct sunlight

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Trade Name Reference</th>
<th>Chem. Descr.:</th>
<th>CAS</th>
<th>Uses:</th>
<th>Properties:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lipocol HCO-40</td>
<td>[Lipo <a href="http://www.lipochemicals.com">http://www.lipochemicals.com</a>]</td>
<td>PEG-40 hydrogenated castor oil</td>
<td>61788-85-0</td>
<td>Surfactant, emulsifier, defoamer, wetting agent, solubilizer, and conditioner in antiperspirants, depilatories</td>
<td>Wh. waxy paste; HLB 15.0±1; acid no. 1.5 max.; hyd. no. 50-70; nonionic</td>
</tr>
<tr>
<td>Lipocol HCO-60</td>
<td>[Lipo <a href="http://www.lipochemicals.com">http://www.lipochemicals.com</a>]</td>
<td>PEG-60 hydrogenated castor oil</td>
<td>61788-85-0</td>
<td>Surfactant, emulsifier, defoamer, wetting agent, solubilizer, and conditioner in antiperspirants, depilatories</td>
<td>Wh. waxy paste; HLB 16.0±1; acid no. 1.0 max.; hyd. no. 60-80; nonionic</td>
</tr>
<tr>
<td>Lipocol L-4</td>
<td>[Lipo <a href="http://www.lipochemicals.com">http://www.lipochemicals.com</a>]</td>
<td>Laureth-4</td>
<td>5274-68-0; EINECS/ELINCS 226-097-1</td>
<td>Surfactant in antiperspirants, depilatories</td>
<td>Colorless liq.; HLB 9.7; acid no. 2 max.; hyd. no. 145-160; nonionic; 100% act.</td>
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<td>Lipocol L-12</td>
<td>[Lipo <a href="http://www.lipochemicals.com">http://www.lipochemicals.com</a>]</td>
<td>Laureth-12</td>
<td>3056-00-6; EINECS/ELINCS 221-286-5</td>
<td>Surfactant for antiperspirants, depilatories</td>
<td>Wh. waxy solid; HLB 14.5; acid no. 1 max.; hyd. no. 72-87; nonionic; 100% act.</td>
</tr>
<tr>
<td>Lipocol L-23</td>
<td>[Lipo <a href="http://www.lipochemicals.com">http://www.lipochemicals.com</a>]</td>
<td>Laureth-23</td>
<td>9002-92-0</td>
<td>Surfactant for antiperspirants, depilatories</td>
<td>Wh. waxy solid; HLB 16.9; acid no. 2 max.; hyd. no. 42-52; nonionic; 100% act.</td>
</tr>
<tr>
<td>Lipocol NP-20</td>
<td>[Lipo <a href="http://www.lipochemicals.com">http://www.lipochemicals.com</a>]</td>
<td>Nonoxynol-20</td>
<td>9016-45-9</td>
<td>Surfactant for pharmaceuticals</td>
<td>Wh. waxy solid; bland char. odor; sol. in water; flash pt. &gt; 515°F; pH 6.0-7.5 (1%)</td>
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<td>Toxicology:</td>
<td>Not considered a toxic substance; TSCA listed</td>
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<td>Environmental:</td>
<td>Biodeg.</td>
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<td>Precaution:</td>
<td>Container may be hazardous when emptied</td>
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<td>Hazardous Decomp. Prods.:</td>
<td>Thermal decomp. may produce CO, CO₂</td>
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<td>Storage:</td>
<td>Keep containers closed until use; do not store in heat or direct sunlight</td>
</tr>
<tr>
<td>Lipocol O-3</td>
<td>[Lipo <a href="http://www.lipochemicals.com">http://www.lipochemicals.com</a>]</td>
<td>Oleth-3</td>
<td>9004-98-2</td>
<td>Surfactant, emulsifier, defoamer, wetting agent, solubilizer, and conditioner in antiperspirants, depilatories</td>
<td>Yel. liq.; HLB 6.6±1; acid no. 1 max.; hyd. no. 135-150; nonionic</td>
</tr>
<tr>
<td>Lipocol O-5</td>
<td>[Lipo <a href="http://www.lipochemicals.com">http://www.lipochemicals.com</a>]</td>
<td>Oleth-5</td>
<td>9004-98-2</td>
<td>W/o emulsifier for depilatories</td>
<td>Yel. liq.; HLB 6.6±1; acid no. 1 max.; hyd. no. 120-135; nonionic</td>
</tr>
</tbody>
</table>
Lipocol O-20 [Lipo http://www.lipochemicals.com]
Chem. Descr.: Oleth-20
CAS 9004-98-2
Uses: Surfactant for antiperspirants, depilatories
Properties: Yel. liq.; HLB 12.4; acid no. 2 max.; hyd. no. 74-84; nonionic; 100% act.

Chem. Descr.: PPG-15 stearyl ether
CAS 25231-21-4
Uses: Surfactant, emulsifier, dispersant, solubilizer, visc. control agent, emollient, solvent, lubricant for pharmaceuticals
Properties: Wh. waxy solid; HLB 15.3; acid no. 1 max.; hyd. no. 45-65; nonionic; 100% act.

Chem. Descr.: Steareth-21
CAS 9005-00-9
Uses: Surfactant for antiperspirants, depilatories, pharmaceuticals
Properties: Wh. waxy solid; bland char. odor; insol. in water; sp.gr. 1.0; b.p. > 212 F; flash pt. (COC) > 300 F; nonionic
Toxicology: Nontoxic, nonhazardous; TSCA listed
Environmental: Biodeg.
Precaution: Container may be hazardous when emptied
Hazardous Decomp. Prods.: Thermal decomp. may produce CO, CO₂
Storage: Keep containers closed until use; do not store in heat or direct sunlight

Chem. Descr.: Cetearyl alcohol NF
CAS 67762-27-0; EINECS/ELINCS 267-009-1
Uses: Visc. builder with coemulsifier in pharmaceutical emulsions, antiperspirant sticks
Features:Compat. with anionic, cationic, and nonionic surfactants
Properties: Wh. waxy flakes; mild char. fatty odor; sol. in min. oil, most natural oils; insol. in water; sp.gr. 0.8; m.p. 48-55 C; b.p. > 350 C; acid no. 2 max.; iodine no. 4 max.; hyd. no. 205-220; flash pt. 330 F; 0.3% max. moisture
Toxicology: Not considered a toxic substance; TSCA listed
Environmental: Biodeg.
Precaution: Avoid strong oxidizing agents; container may be hazardous when emptied
Hazardous Decomp. Prods.: Thermal decomp. may produce CO, CO₂
Storage: Keep containers closed until use; do not store in heat or direct sunlight

Chem. Descr.: Ceteareth-4
CAS 68439-49-6
Uses: Surfactant for antiperspirants, depilatories
Properties: Wh. waxy solid; HLB 8.0; acid no. 1 max.; hyd. no. 120-140; nonionic; 100% conc.
Chem. Descrip.: Ceteareth-15
CAS 68439-49-6
Uses: Surfactant for antiperspirants, depilatories
Properties: Wh. waxy solid; HLB 14.3; acid no. 2 max.; hyd. no. 50-65; nonionic; 100% conc.

Chem. Descrip.: Ceteareth-20
CAS 68439-49-6
Uses: Surfactant for antiperspirants, depilatories
Properties: Wh. waxy solid; HLB 15.4; acid no. 1 max.; hyd. no. 45-60; nonionic; 100% conc.

Chem. Descrip.: Ceteareth-25
CAS 68439-49-6
Uses: Surfactant for creams/lotions, pharmaceuticals; pigment dispersant
Properties: Wh. waxy solid; bland char. odor; sol. in water; flash pt. (COC) > 300 F; pH 5.5-7.0; nonionic
Toxicology: Nontoxic; nonhazardous; TSCA listed
Environmental: Biodeg.
Precaution: Container may be hazardous when emptied
Hazardous Decomp. Prods.: Thermal decomp. may produce CO, CO₂
Storage: Keep containers closed until use; do not store in heat or direct sunlight

Chem. Descrip.: Stearyl alcohol
CAS 112-92-5; EINECS/ELINCS 204-107-6
Uses: Surfactant in pharmaceuticals
Properties: Wh. flake; pract. odorless; insol. in water; sp.gr. 0.80; m.p. 56-60 C; b.p. > 600 F; flash pt. (PMCC) 355 F
Toxicology: Not considered a toxic substance; TSCA listed
Environmental: Biodeg.
Trade Name Reference

stabilizer, conditioner, and moisturizer for pharmaceuticals, ointments, acne preps.

Properties: Yel. to amber liq.; mild char. odor; sol. in min. and veg. oils, isopropyl esters, and anhyd. IPA; insol. in water; acid no. 2 max.; iodine no. 18-36; sapon. no. 85-110; cloud pt. 18 C max.; nonionic

Lipolan Distilled [Lipo http://www.lipochemicals.com]
Chem. Descrip.: Dist. hydrogenated lanolin
CAS 8031-44-5; EINECS/ELINCS 232-452-1
Uses: Emollient, emulsifier, solubilizer, stabilizer, conditioner, and moisturizer for pharmaceuticals, sun care, ointments, acne preps., veterinary prods.
Properties: Nonionic

Lipomectant AL [Lipo http://www.lipochemicals.com]
Chem. Descrip.: Acetamide MEA and lactamide MEA
Uses: Humectant for antiperspirants, creams and lotions
Properties: Cl. liq.

Lipo Melanin 10% [Lipo http://www.lipochemicals.com]
Chem. Descrip.: Melanin
CAS 8049-97-6; EINECS/ELINCS 232-473-6
Uses: Raw material for pharmaceuticals
Properties: Liq.

Lipomic 601 [Lipo http://www.lipochemicals.com]
Chem. Descrip.: Mica
CAS 12001-26-2; EINECS/ELINCS 310-127-6
Uses: Filler, slip agent imparting elegant feel, longer wear, greaseproofing to pharmaceuticals, creams/lotions
Features: Controlled particle size distribution; talc replacement
Regulatory: FDA 21CFR §73.2496; DOT nonregulated
Properties: Off-wh. to gray shiny powd.; 36-40 µ particle size; odorless; insol. in water, most org. solvs.; sp.gr. 2.80; flash pt. none; pH 6-8 (10% aq.); 1% max. moisture
Use Level: 1-2% (creams/lotions)
Toxicology: Long-term overexposure to high concs. of dust may produce x-ray evidence of dust in the lungs, and may affect respiratory function
Environmental: Biodeg.
Precaution: Container may be hazardous when emptied

Chem. Descrip.: Fine platelet mica coated with boron nitride
Uses: Filler, antitackifier, skin adhesion promoter providing exc. afterfeel in skin care creams/lotions, pharmaceuticals
Properties: Wh. powd.; odorless; negligible sol. in water; sp.gr. 2.5; m.p. ≈ 1000 C; 1% max. moisture
Environmental: Biodeg.
Precaution: Avoid strong oxidizing agents, strong caustic or acidic sol’ns.; container may be hazardous when emptied
Hazardous Decomp. Prods.: Combustion prods.: NOx, CO, CO2
Storage: Keep containers closed until used; do not store in heat or direct sunlight

Liponate BS [Lipo http://www.lipochemicals.com]
Chem. Descrip.: Butyl stearate
CAS 123-95-5; EINECS/ELINCS 204-666-5
Uses: Emollient, thickener, visc. control agent, pigment dispersant for creams/lotions, pharmaceuticals
Regulatory: Japan listed
Properties: Pale yel. cl. semiliq.; sl. char. odor; insol. in water; sp.gr. 0.855; b.p. > 433 F; flash pt. > 350 F
Toxicology: Nontoxic; TSCA listed
Environmental: Biodeg.
Precaution: Avoid strong oxidizing agents, alkali, acids
Hazardous Decomp. Prods.: Thermal decomp. may produce CO, CO2
Storage: Keep containers closed until use; do not store in heat or direct sunlight

Liponate ICS [Lipo http://www.lipochemicals.com]
Chem. Descrip.: Isocetyl stearate
CAS 25339-09-7; EINECS/ELINCS 246-868-6
Uses: Emollient, thickener, visc. control agent, pigment dispersant for pharmaceuticals
Regulatory: Japan listed
Properties: Cl. oily liq.; sl. char. odor; insol. in water; sp.gr. 0.855; b.p. > 175 C; flash pt. (COC) 350 F
**Trade Name Reference**

**Toxicology:** Nontoxic; TSCA listed

**Environmental:** Partially biodeg.

**Precaution:** Avoid contact with strong oxidizing materials; container may be hazardous when emptied

**Hazardous Decomp. Prods.:** Thermal decomp. may produce CO, CO₂

**Storage:** Keep containers closed until use; do not store in heat or direct sunlight; keep away from heat and flames

**Liponate MM** [Lipo

http://www.lipochemicals.com]

**Chem. Descrip.:** Myristyl myristate

**CAS** 3234-85-3; EINECS/ELINCS 221-787-9

**Uses:** Emollient, thickener, visc. control agent, pigment dispersant for topical pharmaceuticals

**Features:** Adjusts rub-in and afterfeel

**Properties:** Wh. waxy flake; pract. odorless; sol. in veg. oils, min. oil, isopropyl esters; insol. in water, ethanol, glycerin, propylene glycol; m.p. 36-39 C; acid no. 3 max.; sapon. no. 120-130

**Liponic 70-NC** [Lipo

http://www.lipochemicals.com]

**Chem. Descrip.:** Sorbitol

**CAS** 50-70-4; EINECS/ELINCS 200-061-5

**Uses:** Humectant, plasticizer, softener, lubricant, sweetener for oral hygiene prods. such as dentifrices, mouthwashes, oral dosage pharmaceuticals

**Features:** Adds sweet taste and pleasant mouthfeel to orals

**Properties:** Cl. colorless sol'n.; water-sol.; sp.gr. 1.29-1.32; ref. index 1.455-1.470; pH neutral

**Liponic 76-NC** [Lipo

http://www.lipochemicals.com]

**Chem. Descrip.:** Sorbitol

**CAS** 50-70-4; EINECS/ELINCS 200-061-5

**Uses:** Humectant, plasticizer, softener, lubricant, sweetener for oral hygiene prods. such as dentifrices, mouthwashes, oral dosage pharmaceuticals

**Features:** Adds sweet taste and pleasant mouthfeel to orals

**Properties:** Colorless to pale yel. cl. syrup; odorless; sp.gr. 1.32-1.35; ref. index 1.468-1.475; 25% max. water

**Liponyl 10 BN 6058** [Lipo

http://www.lipochemicals.com]

**Chem. Descrip.:** Nylon-12 and boron nitride

**See Nylon 12**

**Uses:** Filler, softener with exc. adherence to skin for use in pharmaceuticals, creams/lotions, antiperspirant sticks

**Features:** Impart soft, silky feel

**Properties:** Wh. powd.; odorless; negligible sol. in water; sp.gr. 1.06; m.p. 345 F; pH 6.0-7.5

**Use Level:** 5-25%

**Toxicology:** Not considered a toxic substance

**Environmental:** Biodeg.

**Precaution:** Avoid strong oxidizing agents, strong caustic or acidic sol'ns.; container may be hazardous when emptied

**Hazardous Decomp. Prods.:** Combustion prods.: CO, CO₂, NOₓ

**Storage:** Store @ ambient conditions in sealed containers away from moisture, heat, direct sunlight; avoid extended storage above 70 C (may cause agglomeration)

**Liponyl 10 BN 6069** [Lipo

http://www.lipochemicals.com]

**Chem. Descrip.:** Nylon-12 and boron nitride

**See Nylon 12**

**Uses:** Lubricant, slip agent, adhesion promoter, oil absorbent for pharmaceuticals, skin care prods., creams/lotions

**Features:** Insol. in most cosmetic liqs.

**Properties:** Wh. free-flowing powd.; 7-12 µ particle size; odorless; negligible sol. in water; sp.gr. 1.06; m.p. 345 F; pH 6.0-7.5

**Use Level:** 5-25%

**Toxicology:** Not considered a toxic substance

**Environmental:** Biodeg.

**Precaution:** Avoid strong oxidizing agents, strong caustic or acidic sol'ns.; container may be hazardous when emptied

**Hazardous Decomp. Prods.:** Combustion prods.: CO, CO₂, NOₓ

**Storage:** Store @ ambient conditions in sealed containers away from moisture, heat, direct sunlight; avoid extended storage above 70 C (may cause agglomeration)

**Liponyl 20LL** [Lipo

http://www.lipochemicals.com]

**Chem. Descrip.:** Nylon-12 and lauroyl lysine

**See Nylon 12**

**Uses:** Filler, softener with exc. adherence to skin for use in pharmaceuticals, creams/lotions, antiperspirant sticks

**Features:** Insol. in most cosmetic liqs.

**Properties:** Wh. free-flowing powd.; 7-12 µ particle size; odorless; negligible sol. in water; sp.gr. 1.06; m.p. 345 F; pH 6.0-7.5

**Use Level:** 5-25%

**Toxicology:** Not considered a toxic substance

**Environmental:** Biodeg.

**Precaution:** Avoid strong oxidizing agents,
strong caustic or acidic sol'n.; container may be hazardous when emptied

Hazardous Decomp. Prods.: Combustion prods.: CO, CO₂, NOₓ

Storage: Keep containers closed until use; do not store in heat or direct sunlight

Chem. Descrip.: Nylon-6/12 (49-53%), glycereth-26 (29-33%), salicylic acid (12-18%), butylene glycol (3-5%) See Nylon 612
Uses: Emollient used in anti-acne preps.
Properties: Wh. to off-wh. powd.; sl. char. odor; sol. in min. acids, phenol; insol. in most org. solvs., chlorinated solvs., alkaline conditions; decomp. pt. 120 C; flash pt. >120 C
Use Level: 3-15% (creams, lotions, pressed powds., gels)
Toxicology: May produce eye, skin, or respiratory irritation
Environmental: Do not release into environment
Precaution: Potential dust explosion hazard; container may be hazardous when emptied; avoid container damage when handling and storing
Hazardous Decomp. Prods.: CO, hydrogen cyanide, hydrocarbons, butadiene, acrid smoke, irritating fumes; thermal decomp. may release toxic prods.
Storage: Store below 60 C away from moisture and heat; remove all sources of ignition; keep containers closed until use

Chem. Descrip.: PEG 20000  See PEG-20M
CAS 25322-68-3; EINECS/ELINCS 225-856-4
Uses: Humectant, fixing agent, viscosity control agent for cosmetics, pharmaceuticals
Regulatory: SARA §313 nonreportable; Japan listed
Properties: Wh. to off-wh. powd. or flake; bland, char. neutral odor; sol. in water; sp.gr. 1.13; flash pt. (COC) > 350 F
Toxicology: Nontoxic; nonirritating; nonhazardous; TSCA listed
Environmental: Biodeg.
Precaution: Avoid strong oxidizing agents, alkali, and acids; container may be hazardous when emptied
Hazardous Decomp. Prods.: None known
Storage: Keep containers closed until use; do not store in heat or direct sunlight

Lipo Polyglycol 20000 [Lipo http://www.lipochemicals.com]
Chem. Descrip.: PEG 20000  See PEG-20M
CAS 25322-68-3; EINECS/ELINCS 225-856-4
Uses: Humectant, fixing agent, viscosity control agent for cosmetics, pharmaceuticals
Regulatory: SARA §313 nonreportable; Japan listed
Properties: Wh. to off-wh. powd. or flake; bland, char. neutral odor; sol. in water; sp.gr. 1.13; flash pt. (COC) > 350 F
Toxicology: Nontoxic; nonirritating; nonhazardous; TSCA listed
Environmental: Biodeg.
Precaution: Avoid strong oxidizing agents, alkali, and acids; container may be hazardous when emptied
Hazardous Decomp. Prods.: CO, CO₂, SOₓ
Storage: Keep container closed until used; do not store in heat or direct sunlight

Lipoquat R [Lipo http://www.lipochemicals.com]
Chem. Descrip.: Ricinoleamidopropyl ethylidimonium ethosulfate
CAS 112324-16-0
Uses: Conditioner, antistat, emollient, gloss aid, softener for pharmaceuticals, anhyd. systems, clear and opacified prods.
Features: Leaves soft, nongreasy afterfeel on skin; exc. color stability; compat. with cationic surfactants in all proportions, with anionic surfactants < 5%
Properties: Yel. cl. visc. liq.; char. odor; sol. in water, acetone; insol. in veg. oils; sp.gr. 1.08; b.p. > 212 F; flash pt. (COC) > 300 F; pH 6.5-7.5 (3% aq.); cationic; 90% min. act.; 2.5% max. free amine
Toxicology: Not considered a toxic substance; not a primary skin irritant; pract. nonirritating to eyes
Environmental: Biodeg.
Precaution: Avoid strong oxidizing agents, alkali, and acids; container may be hazardous when emptied
Hazardous Decomp. Prods.: Thermal decomp. may produce CO, CO₂, SOₓ
Storage: Keep container closed until used; do not store in heat or direct sunlight

Liposorb O-20K [Lipo http://www.lipochemicals.com]
Chem. Descrip.: Polysorbate 80
CAS 9005-65-6
Trade Name Reference

Liposorb S-20K [Lipo http://www.lipochemicals.com]  
Chem. Descrip.: Polysorbate 60  
CAS 9005-67-8  
Uses: Surfactant, emulsifier, thickener, lubricant, antistat for pharmaceuticals; solubilizer for oils  
Features: Hydrophilic; used in conjunction with Liposorb sorbitan esters  
Regulatory: FDA 21CFR §172.836; kosher grade avail.  
Properties: Yel. liq. to gel; bland char. odor; sol. in water; sp.gr. 1.0; b.p. > 212 F; HLB 14.9±1; sapon. no. 45-55; hyd. no. 81-96; flash pt. > 300 F; pH 5.5-7.0  
Toxicology: LD50 (oral, rat) < 5 g/kg; nontoxic; nonirritating to eyes; TSCA listed  
Environmental: Biodeg.; no known ecological problems  
Precaution: Keep away from heat and flame  
Hazardous Decomp. Prods.: CO2, CO  
Storage: Keep containers closed until use; do not store in heat or direct sunlight

Liposorb TS-20K [Lipo http://www.lipochemicals.com]  
Chem. Descrip.: Polysorbate 65  
CAS 9005-71-4  
Uses: O/w emulsifier, dispersant, antifoam in pharmaceuticals  
Features:Compat. with anionic, nonionic, and cationic surfactants; mod. electrolyte tolerance  
Regulatory: Kosher; Japan listed  
Properties: Yel. to tan waxy solid; bland char. odor; sol. in ethanol; sl. sol. in veg. oils; disp. in water; misc. hot with min. oil; sp.gr. 1.1; b.p. > 212 F; flash pt. > 300 F; nonionic  
Toxicology: Nontoxic; nonhazardous; TSCA listed  
Environmental: Biodeg.  
Hazardous Decomp. Prods.: CO, CO2  
Storage: Keep containers closed until use; do not store in heat or direct sunlight; keep away from heat and flame

Lipothix™ 100-B [Lipo http://www.lipochemicals.com]  
Chem. Descrip.: Potassium polymetaphosphate and sodium bicarbonate See Potassium metaphosphate  
Uses: Visc. builder, skin softener for pharmaceuticals, skin care prods.  
Features: Leaves skin with soft, silky, slippery feel; mixt. of food-grade materials  
Properties: Wh. powd.; bland odor to odorless; partly sol. in water; insol. in alcohol, org. solvs., normal cosmetic emollients; pH 7-9; 10% max. moisture  
Toxicology: Not considered a toxic substance; no toxicity by ing. is to be expected; likely to be mildly irritating to the eye  
Environmental: Biodeg.  
Precaution: Avoid contact with acids and oxidizing agents; container may be hazardous when emptied  
Hazardous Decomp. Prods.: None known  
Storage: Keep containers closed until use; do not store in heat or direct sunlight

Chem. Descrip.: Corn (Zea mays) starch, potassium polymetaphosphate See Potassium metaphosphate  
Uses: Visc. builder, foaming agent, slip agent for pharmaceuticals  
Features: Leaves skin with soft, silky, slippery feel; mixt. of food-grade materials
Trade Name Reference

Properties: Wh, powd.; odorless; insol. in water, alcohol, org. solvs., normal cosmetic emollients; pH 4.0-6.0 (3% aq.); 10% max. moisture
Toxicology: Not considered a toxic substance; no toxicity by ing. is to be expected; likely to be mildly irritating to the eye
Environmental: Biodeg.
Precaution: Avoid contact with acids and oxidizing agents; container may be hazardous when emptied
Hazardous Decomp. Prods.: None known
Storage: Keep containers closed until use; do not store in heat or direct sunlight

Lipovol HNO [Lipo http://www.lipochemicals.com]
Chem. Descrip.: Hazel (Corylus avellana) nut oil
CAS 84012-21-5; EINECS/ELINCS 281-667-7
Uses: Ingred. in pharmaceuticals
Properties: Amber oily liq.; nutty odor; negligible sol. in water; sp.gr. 0.918
Toxicology: Not considered a toxic substance
Environmental: Biodeg.
Precaution: Avoid contact with acids and oxidizing agents; container may be hazardous when emptied
Hazardous Decomp. Prods.: Combustion prods.: CO2
Storage: Keep containers closed until use; do not store in heat or direct sunlight

Lipovol P [Lipo http://www.lipochemicals.com]
Chem. Descrip.: Apricot (Prunus armeniaca) kernel oil
CAS 72869-69-3
Uses: Emollient in pharmaceuticals
Features: Soft, nontacky afterfeel and high film gloss
Properties: Straw oily liq.; bland char. fatty odor; sol. in min. oil and isopropyl esters; insol. in water; acid no. 1 max.; iodine no. 90-115; sapon. no. 185-195

Lipovol RB [Lipo http://www.lipochemicals.com]
Chem. Descrip.: Rice (Oryza sativa) bran oil
CAS 68553-81-1; EINECS/ELINCS 271-397-8
Uses: Emollient in pharmaceuticals
Properties: Cl. liq.; bland char. odor; insol. in water; sp.gr. 0.91
Toxicology: Not considered a toxic substance; TSCA listed
Environmental: Biodeg.
Precaution: Avoid strong oxidizing agents, alkali and acidic sol'n.s.
Hazardous Decomp. Prods.: None known
Storage: Keep containers closed until use; do not store in heat or direct sunlight

Lipovol SES [Lipo http://www.lipochemicals.com]
Chem. Descrip.: Sesame (Sesamum indicum) oil
CAS 8008-74-0; EINECS/ELINCS 232-370-6
Uses: Emollient, solvent, and vehicle in pharmaceuticals; gloss aid and spreading agent for pigmented sticks
Features: Offers lt. nontacky feel
Properties: Yel. cl. liq.; bland char. odor; sol. in isopropyl esters and min. oil; insol. in water; sp.gr. 0.916-0.921; acid no. 0.2 max.; iodine no. 103-116; sapon. no. 188-195

Lipowax AO [Lipo http://www.lipochemicals.com]
Chem. Descrip.: Cetearyl alcohol, ceteareth-30
Uses: Self-emulsifying wax for pharmaceuticals and ointments
Features: Compat. with anionic, cationic, and nonionic systems
Properties: Wh. waxy pastille or flake; char. fatty odor; insol. in water; m.p. 50-53 F; acid no. 1 max.; hyd. no. 173-187; flash pt. (CC) > 165 F; pH 6.5-8.0
Environmental: Biodeg.
Precaution: Avoid strong oxidizers, caustic or acidic sol'n.s.
Hazardous Decomp. Prods.: Toxic fumes of CO2, CO
Storage: Keep containers closed until use; do not store in heat or direct sunlight

Lipowax C [Lipo http://www.lipochemicals.com]
Chem. Descrip.: N,N´-Ethylenebisstearamide
Trade Name Reference

See Ethylene distearamide
CAS 110-30-5; EINECS/ELINCS 203-755-6
Uses: Emulsifying wax in cosmetics, pharmaceuticals
Regulatory: FDA approved for food pkg.
Properties: Lt. cream powd.; sol. in hot toluene, naphtha, kerosene, and turpentine; insol. in water, low boiling solvs. such as alcohol, benzol, acetone; m.p. 140-145 C; acid no. 10 max.; flash pt. 285 C (COC); nonionic; 100% act.
Toxicology: Not considered a toxic substance; nonhazardous; TSCA listed
Environmental: Biodeg.
Precaution: Avoid strong oxidizing agents, alkali, or acids; container may be hazardous when emptied
Hazardous Decomp. Prods.: Thermal decomp. may produce CO, CO2, NOx
Storage: Keep containers closed until use; do not store in heat or direct sunlight

Chem. Descrip.: Ethylene bisstearamide See Ethylene distearamide
CAS 110-30-5; EINECS/ELINCS 203-755-6
Uses: Emulsifying wax for o/w pharmaceutical ointments
Features: Stable in both acid and alkaline formulations; compat. with cationic ingreds.
Properties: Wh. to off-wh. waxy solid; bland, char. odor; sol. in alcohol; misc. warm with most oil phase ingreds.; readily disp. in hot water; disp. in warm water; sp.gr. < 1.0; m.p. 46-55 C; b.p. > 212 F; HLB 11; acid no. 2 max.; sapon. no. 2 max.; flash pt. (COC) > 300 F; nonionic; 0.5% max. moisture
Use Level: 5-7.5% (creams/lotions)
Toxicology: Not considered a toxic substance
Environmental: Biodeg.
Precaution: Avoid strong oxidizing agents, acids, and bases; container may be hazardous when emptied
Hazardous Decomp. Prods.: Thermal decomp. may produce CO2, CO
Storage: Keep containers closed until use; do not store in heat or direct sunlight

Lipowax D [Lipo http://www.lipochemicals.com]
Chem. Descrip.: Cetearyl alcohol, ceteareth-20
Uses: Emulsifier, emollient, lubricant, visc. control agent in o/w pharmaceutical ointments
Features: Stable in acid and alkaline formulations; compat. with cationic ingreds.
Properties: Wh. to off-wh. waxy solid; bland, char. odor; sol. in alcohol, misc. warm with most oil phase ingredients, disp. in warm water; m.p. 46-55 C; HLB 11; sapon. no. 2; nonionic; 100% act.
Chem. Descrip.: Cetearyl alcohol, ceteareth-20
Uses: Emulsifying wax for o/w pharmaceutical ointments
Features: Compat. with anionic, cationic, and nonionic surfactants; good electrolyte tolerance; stable and act. over typ. cosmetic pH range
Properties: Wh. waxy solid or flake; bland char. odor; sol. in alcohol; misc. warm with most oil phase ingreds.; readily disp. in hot water; disp. in warm water; sp.gr. < 1.0; m.p. 46-55 C; b.p. > 212 F; HLB 11; acid no. 1 max.; sapon. no. 2 max.; flash pt. (COC) > 300 F; nonionic; 0.5% max. moisture
Use Level: 5-7.5% (creams/lotions)
Toxicology: Not considered a toxic substance
Environmental: Biodeg.
Precaution: Avoid strong oxidizing agents, acids, and bases; container may be hazardous when emptied
Hazardous Decomp. Prods.: Thermal decomp. may produce CO2, CO
Storage: Keep containers closed until use; do not store in heat or direct sunlight

Chem. Descrip.: Cetearyl alcohol, ceteareth-20, polysorbate 60
Uses: Emulsifier, emollient, lubricant, visc. control agent in o/w pharmaceutical ointments
Features: Produces stable oil and water emulsions; provides rich, creamy afterfeel; stable @ 40 C and 50 C for 4 wks
Properties: Wh. pastilles; char. fatty odor; insol. in water; sp.gr. 0.8; m.p. 55-59 C; flash pt. > 200 F; 0.50% max. moisture
Environmental: Biodeg.
Precaution: Avoid strong oxidizing agents, acids, and bases; container may be hazardous when emptied
Hazardous Decomp. Prods.: Toxic fumes of CO2, CO
Storage: Keep containers closed until use; do not store in heat or direct sunlight

Trade Name Reference

http://www.lipochemicals.com]
Chem. Descrip.: Cetearyl alcohol, ceteareth-20, ricinoleamidopropyl ethyldimonomium ethosulfate, polysorbate 60
Uses: Emulsifier, emollient, lubricant, conditioner, visc. control agent o/w pharmaceutical ointments
Features: One-component system; stable @ 40 and 50 C for 4 wks; provides rich, creamy afterfeel and substantivity to skin
Properties: Wh. pastilles; char. fatty odor; m.p. 50-59 C; 0.50% max. moisture
Environmental: Biodeg.
Precaution: Avoid strong oxidizing agents, acids, and bases
Hazardous Decomp. Prods.: Toxic fumes of CO2, CO
Storage: Keep containers closed until use; do not store in heat or direct sunlight

Lipowax G [Lipo
http://www.lipochemicals.com]
Chem. Descrip.: Stearyl alcohol and ceteareth-20
Uses: Emulsifying wax for o/w pharmaceutical ointments
Features: Stable in acid and alkaline formulations; compat. with cationic ingreds.
Properties: Solid; water-disp.; nonionic; 100% conc.

Lipowax NI [Lipo
http://www.lipochemicals.com]
Chem. Descrip.: Cetearyl alcohol and ceteth-20
Uses: Emulsifying wax for o/w pharmaceutical ointments
Features: Stable in acid and alkaline formulations; compat. with cationic ingreds.
Properties: Solid; water-disp.; nonionic; 100% conc.

Lipowax P [Lipo
http://www.lipochemicals.com]
Chem. Descrip.: Emulsifying wax NF
CAS 97069-99-0
Uses: O/w SE wax for pharmaceuticals
Features: Stable in acid and alkaline formulations; compat. with cationic ingreds.
Properties: Flakes or pastilles; bland, char. odor; sol. in alcohol, misc. warm with most oil phase ingred., disp. in warm water; m.p. 48-52 C; HLB 9; sapon. no. 14; nonionic; 100% act.

Lipowax P-31 [Lipo
http://www.lipochemicals.com]
Chem. Descrip.: Emulsifying wax NF
CAS 97069-99-0
Uses: Emulsifier for formulation of creams, lotions, and ointments
Features: Stable in acid and alkaline formulations; compat. with cationic ingreds.
Properties: Flake; nonionic; 100% conc.

Lipowax PA [Lipo
http://www.lipochemicals.com]
Chem. Descrip.: Cetearyl alcohol, polysorbate 60
Uses: Self-emulsifying wax for o/w pharmaceutical ointments
Features: For neutral and mildly acidic and alkaline pH systems; compat. with anionic, nonionic, and cationic surfactants; mod. electrolyte tolerance
Properties: Wh. to off-wh. waxy solid or flake; bland char. odor; sol. in alcohol; misc. warm with most oil phase ingreds.; disp. in warm water; sp.gr. 0.90; m.p. 48-52 C; iodine no. 3 max.; sapon. no. 14 max.; hyd. no. 178-192; flash pt. (COC) > 300 F; pH 5.5-7.0 (3% aq. disp.); nonionic
Use Level: 2-3% (lotions); 5-15% (creams)
Toxicology: Not considered a toxic substance; TSCA listed
Environmental: Biodegradable
Precaution: Container may be hazardous when emptied

Lipowax PA Pastilles [Lipo
http://www.lipochemicals.com]
Chem. Descrip.: Cetearyl alcohol, polysorbate 60
Uses: Emulsifying wax for o/w pharmaceutical ointments
Features: Stable in both acid and alkaline formulations; compat. with cationic ingreds.
Regulatory: Japan listed
Properties: Wh. to off-wh. flake; bland char. odor; sol. in alcohol; misc. warm with most oil phase ingred., disp. in warm water; m.p. 48-52 C; acid no. 1 max.; iodine no. 3 max.; sapon. no. 14 max.; hyd. no. 178-192; pH 5.5-7.0 (3% aq. disp.); nonionic
Toxicology: Nontoxic; TSCA listed
Environmental: Biodegradable
Precaution: Container may be hazardous when emptied; avoid container damage while
Trade Name Reference

handling and storing

Hazardous Decomp. Prods.: CO, CO₂

Storage: Keep containers closed until use

Lipowax R2 [Lipo
http://www.lipochemicals.com]
Chem. Descrip.: Cetearyl alcohol,
polysorbate-60, oleth-10, PEG-75 lanolin,
PEG-150 stearate, steareth-20
See Polysorbate 60
Uses: Emulsifying wax for o/w pharmaceutical ointments
Features: Stable in both acid and alkaline formulations; compat. with cationic ingreds.; has mod. electrolyte tolerance
Properties: Wh. to pale yel. waxy solid; bland char. odor; sol. in alcohol; disp. in warm water; misc. with most oil phase ingreds.; m.p. ≈ 47 C; b.p. > 212 F; acid no. 2 max.; iodine no. 15 max.; sapon. no. 20 max.; flash pt. (COC) > 300 F; nonionic
Toxicology: Nontoxic
Environmental: Biodeg.
Precaution: Avoid strong oxidizing agents, alkali, and acids; container may be hazardous when emptied; avoid container damage while handling and storing
Hazardous Decomp. Prods.: CO, CO₂
Storage: Keep containers closed until use; do not store in heat or direct sunlight

Lipoxol® 200 [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: PEG-6
CAS 25322-68-3; EINECS/ELINCS 220-045-1
Uses: Moisture regulator, solubilizer, dispersant, consistency regulator, plasticizer, and lubricant in pharmaceutical preps.: excipients in oral tablets and caplets, solutions and syrups, topical, rectal and vaginal preps., ophthalmic, dental and parenteral systems.
Regulatory: USP, Ph.Eur., German pharmacopoeia compliance
Properties: Colorless cl. liq.; water-sol.; visc. 85-95 mPa•s; solid. pt. -10 to -20 C; acid no. 0.2 max.; pH 4-7 (10% aq.)

Lipoxol® 400 [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: PEG-8
CAS 25322-68-3; EINECS/ELINCS 225-856-4
Uses: Pharmaceutical coating, suppository base
Properties: Liq.; solid. pt. 4-8 C

Lipoxol® 400 MED [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com;
Eigenmann & Veronelli
http://www.eigver.it]
Chem. Descrip.: PEG-8, pharmaceutical quality
CAS 25322-68-3; EINECS/ELINCS 225-856-4
Uses: Moisture regulator, consistency regulator in pharmaceutical creams, lotions, toothpaste; lubricant, plasticizer for pharmaceuticals; excipients in oral tablets and caplets, solutions and syrups, topical, rectal and vaginal preps., ophthalmic, dental and parenteral systems.
Regulatory: USP, Ph. Eur., German pharmacopoeia compliance
Properties: Colorless cl. liq.; water-sol.; visc. 105-140 mPa•s; solid. pt. 4-8 C; acid no. 0.2 max.; pH 4-7 (10% aq.)

Lipoxol® 600 [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: PEG-12
CAS 25322-68-3; EINECS/ELINCS 229-859-1
Trade Name Reference

Lipoxol® 600 MED [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: PEG-12, pharmaceutical quality
CAS 25322-68-3; EINECS/ELINCS 229-859-1
Uses: Moisture regulator, solubilizer, dispersant, consistency regulator, plasticizer, lubricant, emulsion stabilizer, viscosity consistency builder in oral tablets and caplets, solutions and syrups, topical, rectal and vaginal preps., ophthalmic, dental and parenteral
Regulatory: USP/NF, German pharmacopoeia compliance
Properties: Colorless to wh. paste; water-sol.; visc. 15-20 mPa*s (50% aq.); solid. pt. 15-25 C; acid no. 0.2 max.; pH 4-7 (10% aq.)

Lipoxol® 1000 [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: PEG-20
CAS 25322-68-3; EINECS/ELINCS 229-859-1
Uses: Pharmaceutical coating, suppository base
Properties: Solid; solid. pt. 36-40 C

Lipoxol® 1000 MED [Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: PEG-20
CAS 25322-68-3; EINECS/ELINCS 203-989-9
Uses: Moisture regulator, consistency regulator in pharmaceutical creams, lotions, toothpaste; excipients in oral tablets and caplets, solutions and syrups, topical, rectal and vaginal preps., ophthalmic, dental and parenteral systems.
Regulatory: USP, Ph.Eur., German pharmacopoeia compliance
Properties: Wh. solid; water-sol.; visc. 24-29 mPa*s (50% aq.); solid. pt. 30-40 C; acid no. 0.2 max.; pH 4-7 (10% aq.)

Lipoxol® 1500 MED [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: PEG-32, pharmaceutical quality
CAS 25322-68-3; EINECS/ELINCS 203-989-9
Uses: Solubilizer, dispersing agent, plasticizer, lubricant, emulsion stabilizer, viscosity consistency builder in oral tablets and caplets, solutions and syrups, topical, rectal and vaginal preps., ophthalmic, dental and parenteral
Regulatory: USP/NF, German pharmacopoeia compliance
Properties: Wh. solid; water-sol.; solid. pt. 42-48 C

Lipoxol® 1550 [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: PEG-32
CAS 25322-68-3; EINECS/ELINCS 203-989-9
Uses: Pharmaceutical coating, ointment base, bulking agent
Properties: Flakes; solid. pt. 45-48 C

Lipoxol® 3000 [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: PEG-60
CAS 25322-68-3
Uses: Surfactant for suppository bases; humectant, consistency agent, bulking agent in pharmaceuticals
Properties: Flakes; solid. pt. 50-56 C

Lipoxol® 3350 MED [Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: PEG-75
CAS 25322-68-3 (generic); EINECS/ELINCS 203-989-9
Uses: Solubilizer, dispersing agent, plasticizer, lubricant, emulsion stabilizer, viscosity consistency builder in oral tablets and caplets, solutions and syrups, topical, rectal and vaginal preps., ophthalmic, dental and parenteral
Regulatory: USP, EP
Properties: Wh. flakes; water-sol.; visc. 83-120 mPa*s (50% aq.); solid. pt. 53-57 C; hyd. no. 30-38
**Lipoxol® 4000** [Sasol Germany

http://www.sasol.com;  
http://www.sasololefinssurfactants.com;  
Sasol N. Am.  
http://www.sasolnorthamerica.com]

Chem. Descrip.: PEG-75  
CAS 25322-68-3; EINECS/ELINCS 203-989-9  
Uses: Pharmaceutical coating, ointment and suppository base  
Properties: Flakes; solid. pt. 50-58 C

**Lipoxol® 4000 MED** [Sasol Germany

http://www.sasol.com;  
http://www.sasololefinssurfactants.com;  
Sasol N. Am.  
http://www.sasolnorthamerica.com;  
Eigenmann & Veronelli  
http://www.eigver.it]

Chem. Descrip.: PEG-75, pharmaceutical quality  
CAS 25322-68-3; EINECS/ELINCS 203-989-9  
Uses: Moisture regulator, solubilizer, dispersant, consistency regulator, plasticizer, and lubricant in pharmaceutical preps.; excipients in oral tablets and caplets, solutions and syrups, topical, rectal and vaginal preps., ophthalmic, and parenteral systems.  
Regulatory: USP, Ph.Eur., German pharmacopoeia compliance  
Properties: Wh. flakes/powd.; water-sol.; visc. 115-170 mPa*s (50% aq.); solid. pt. 50-58 C; acid no. 0.2 max.; pH 4-7 (10% aq.)

**Lipoxol® 6000** [Sasol Germany

http://www.sasol.com;  
http://www.sasololefinssurfactants.com;  
Sasol N. Am.  
http://www.sasolnorthamerica.com]

Chem. Descrip.: PEG-150  
CAS 25322-68-3; EINECS/ELINCS 203-989-9  
Uses: Pharmaceutical coating, ointment and suppository base  
Properties: Flakes; solid. pt. 55-58 C

**Lipoxol® 6000 MED** [Sasol Germany

http://www.sasol.com;  
http://www.sasololefinssurfactants.com;  
Sasol N. Am.  
http://www.eigver.it]

Chem. Descrip.: PEG-150 USP, pharmaceutical quality  
CAS 25322-68-3; EINECS/ELINCS 203-989-9  
Uses: Moisture regulator, solubilizer, dispersant, consistency regulator, plasticizer, and lubricant in pharmaceutical preps.  
Regulatory: USP, Ph.Eur.  
Properties: Wh. flakes, powd.; water-sol.; visc. 205-350 mPa*s (50% aq.); solid. pt. 55-62 C; acid no. 0.2 max.; pH 4-7 (10% aq.)

**LiquaPar® Oil** [ISP Sutton Labs

http://www.ispunet.com/sutton/sutton.html]

Chem. Descrip.: 40% isopropylparaben, 30% isobutylparaben, 30% n-butylparaben  
Uses: Preservative for topical pharmaceuticals, including creams, ointments, lotions, powders and lip products.  
Features: Broad-spectrum; effective against Gram-positive and Gram-negative bacteria, yeast, and mold even at low concs.  
Regulatory: USA, Japan (1% max. total parabens), and Europe (0.8% max.) approvals  
Properties: Yel. cl. visc. liq.; mild char. odor; sol. in alcohol, propylene glycol; insol. in water; sp.gr. 1.103; visc. 6450 cps; vapor pressure < 10 mm Hg; b.p. 268 C; acid no. 0.5 max.; sapon. no. 292-296; cloud pt. -12 C; flash pt. (PMCC) 118.3 C; ref. index 1.53; pH 5-8; 100% act.

**LiquaPar® PE** [ISP Sutton Labs

http://www.ispunet.com/sutton/sutton.html]

Chem. Descrip.: Phenoxethanol (70%), isopropylparaben, isobutylparaben, butylparaben  
Uses: Preservative for emulsions (oil-in-water and water-in- oil) used in topical formulations.  
Features: Protects oil and water phases of an emulsion system  
Properties: Colorless to pale yel. cl. liq.; sol. < 0.1% in water, 4.0% in glycerin, < 0.3% in dimethicone, < 0.1% in cyclomethicone and min. oil; misc. with PG, 1.3 butylene glycol, isopropyl myristate, octyl palmitate, and sesame oil; sp.gr. 1.08-1.12; 100% act.  
Use Level: 1.0%

**Liquid Absorption Base A** [Croda Inc

http://www.croda.com;  
http://www.crodausa.com]

Chem. Descrip.: Mineral oil, lanolin alcohol
Trade Name Reference

Uses: Surfactant for surgical scrubs; solubilizer for oil-sol. actives in pharmaceuticals; primary oil phase ingred. in o/w emulsions
Features: Mild; can absorb 20 times its wt. of water without separation on inversion
Properties: Cl. yel. liq.; sol. in min. oil, IPA
Use Level: 2-10%

Liquid Absorption Base T [Croda Inc http://www.croda.com; http://www.crodausa.com]
Chem. Descrip.: Mineral oil, lanolin alcohol
Uses: Surfactant; primary oil phase ingred. in o/w emulsions; solubilizer for oil-sol. actives in pharmaceuticals
Features: Synergistic Regulatory: DSL listed
Properties: Cl. odorless liq.; sol. in water; vapor pressure 0.072 mmHg; m.p. -83 F; b.p. 378 F
Toxicology: Mildly irritating to skin; nonmutagenic; TSCA listed
Environmental: EC50 (daphnia magna, 48 h) 34.9 mg/l; LC50 (bluegill, 96 h) NOEL 100 mg/L
NFPA: Health 1, Flammability 1, Reactivity 0

Liquid Germall® Plus [ISP http://www.ispcorp.com]
Chem. Descrip.: Propylene glycol, diazolidinyl urea, iodopropynyl butylcarbamate
CAS 57-55-6; 78491-02-8; 55466-53-6
Uses: Preservative for topical creams, lotions, and medicated shampoos
Features: Synergistic Regulatory: DSL listed
Properties: Cl. odorless liq.; sol. in water; vapor pressure 0.072 mmHg; m.p. -83 F; b.p. 378 F
Toxicology: Mildly irritating to skin; nonmutagenic; TSCA listed

Liquid Medilan™ Ultra [Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: Lanolin oil
EINECS/ELINCS 274-559-6
Uses: Solvent for actives in pharmaceutical preps.; visc. reducer for petrolatum bases; emollient and emulsifier in pharmaceutical topicals; skin barrier repair agent
Features: Excellent biocompatibility; prolonged hydration benefits; ideal wound healing environment
Regulatory: USP
Properties: Cl. yel. liq.; sol. in min. oil; insol. in water, IPA, propylene glycol; HLB 4.0
Use Level: 2-10%
Toxicology: LD50 (oral, rat) > 20 g/kg; mild skin/eye irritant

Liquid Medilan™ Ultra [Croda Inc http://www.croda.com; http://www.crodausa.com]
Chem. Descrip.: Lanolin oil
EINECS/ELINCS 274-559-6
Uses: Solvent for actives in pharmaceutical preps.; visc. reducer for petrolatum bases; emollient and emulsifier in pharmaceutical topicals; skin barrier repair agent
Features: Excellent biocompatibility; prolonged hydration benefits; ideal wound healing environment
Properties: Cl. liq.; odorless; sol. in min. oil; insol. in water, IPA, propylene glycol
Use Level: 2-10%
Toxicology: LD50 (oral, rat) > 20 g/kg; mild skin/eye irritant

Liquid Medilan™ Ultra [ISP http://www.ispcorp.com]
Chem. Descrip.: Propylene glycol, diazolidinyl urea, iodopropynyl butylcarbamate
CAS 57-55-6; 78491-02-8; 55466-53-6
Uses: Solvent for actives in pharmaceutical preps.; visc. reducer for petrolatum bases; emollient and emulsifier in pharmaceutical topicals; skin barrier repair agent
Features: Excellent biocompatibility; prolonged hydration benefits; ideal wound healing environment
Properties: Cl. yel. liq.; sol. in min. oil; insol. in water, IPA, propylene glycol
Use Level: 2-10%
Toxicology: LD50 (oral, rat) > 20 g/kg; mild skin/eye irritant

Liquid Vitamin D₃ [DSM Nutritional Prods. USA http://www.nutraaccess.com]
Chem. Descrip.: Cholecalciferol with edible corn oil See Corn (Zea mays) oil
CAS 67-97-0; 8001-30-7; EINECS/ELINCS 200-673-2; 232-281-2
Uses: Used in pharmaceuticals, oil dispersions, encapsulated prods.
Regulatory: USP, FCC, Ph. Eur.
Properties: Yel. cl. liq., sl. char. odor, bland fatty taste; misc. with edible oils/fats; sol. in ether, hydrocarbons, chlorinated hydrocarbons; sl. sol. in alcohol; insol. in water, m.w. 384.64; sp.gr. 0.9-0.95; visc. 50-90 cps; 100,000 min. IU vitamin D/g
Toxicology: Vitamin D: potentially toxic esp. for young children; excessive ingestion may cause hypercalcemia, hypercalcuria
Storage: Store @ 70 F; refrigerate if stored for several mos., then hold @ 24 h before opening; close tightly

Lite Natural Wax Jelly [Strahl & Pitsch http://www.strahlpitsch.com]
Chem. Descrip.: Ricinus communis (castor) seed oil, hydrogenated castor oil, beeswax, and Copernicia cerifera (carnauba) wax See Carnauba (Copernica cerifera) wax; Castor (Ricinus communis) oil
CAS 1323-38-2; 8001-78-3; 8006-40-4; 8015-86-9; EINECS/ELINCS 232-293-8; 232-292-2; 232-383-7; 232-399-4
Uses: Base for lip balms
Features: Alternative to petroleum-based petrolatum
Properties: M.p. 135-155 F; cone penetration @ 77 F 170 - 220
Toxicology: TSCA listed
Trade Name Reference

Chem. Descrip.: Aluminum chlorohydrate
CAS 12042-91-0; EINECS/ELINCS 234-933-1
Uses: Antiperspirant active

Chem. Descrip.: Aluminum chlorohydrate
CAS 12042-91-0; EINECS/ELINCS 234-933-1
Uses: Antiperspirant active
Properties: Colorless, cl. liq.; 100%

Chem. Descrip.: Aluminum chlorohydrate
CAS 12042-91-0; EINECS/ELINCS 234-933-1
Uses: Antiperspirant active
Properties: Colorless, cl. liq.; 100%

Locust Bean Gum Speckless Type D-200 [Frutarom http://www.frutarom.com]
Chem. Descrip.: Locust bean gum See Locust bean (Ceratonia siliqua) gum
CAS 9000-40-2; EINECS/ELINCS 232-541-5
Uses: Excipient for pharmaceutical tablets; thickener for toothpaste; thickener, stabilizer for creams and lotions
Properties: Wh. to cream-wh. powd., nearly odorless; 97% through 100 mesh, ≥ 25% through 200 mesh; visc. ≥ 2800 cps (1%); pH 5.0-6.4

Locust Bean Gum Type A-100 [Gumix Int'l.]
Chem. Descrip.: Locust bean gum See Locust bean (Ceratonia siliqua) gum
CAS 9000-40-2; EINECS/ELINCS 232-541-5
Uses: Thickener, visc. modifier, water binder, suspending agent, stabilizer for pharmaceuticals (creams, lotions, toothpaste, tablet excipient)
Properties: Off-wh. to lt. tan powd.; disp. in water; insol. in most org. liqs.

Locust Bean Gum Type A-250 [Gumix Int'l.]
Chem. Descrip.: Locust bean gum See Locust bean (Ceratonia siliqua) gum
CAS 9000-40-2; EINECS/ELINCS 232-541-5
Uses: Thickener, visc. modifier, water-binder, suspending agent, stabilizer for pharmaceuticals (creams, lotions, toothpaste, tablet excipient)
Properties: Off-wh. to lt. tan powd.; disp. in water; insol. in most org. liqs.

Locust Bean Gum Type A-270 [Gumix Int'l.]
Chem. Descrip.: Locust bean gum See Locust bean (Ceratonia siliqua) gum

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CAS 9000-40-2; EINECS/ELINCS 232-541-5
Uses: Thickener, visc. modifier, water-binder, suspending agent, stabilizer for pharmaceuticals (creams, lotions, toothpaste, tablet excipient)
Properties: Off-wh. to lt. tan powd.; disp. in water; insol. in most org. liqs.

Lonzest® GMS-C [Lonza http://www.lonza.com]
Chem. Descrip.: Glyceryl monostearate, cosmetic grade See Glyceryl stearate
Chem. Analysis: 42-48% alpha monoglycerides, 3% free glycerin
CAS 123-94-4
Uses: Surfactant, emulsifier for pharmaceutical o/w emulsions, OTC cream and lotion, skin and facial treatment products.
Properties: Lt.-tan beads or flakes; oil-sol.; HLB 5; acid no. 6 max.; iodine no. 3 max.; sapon. no. 168-176; nonionic; 2% max. moisture

Loralan-CH [Lanaetex Prods.]
Chem. Descrip.: Cholesterol USP
CAS 57-88-5; EINECS/ELINCS 200-353-2
Uses: Emulsifier, solubilizer for pharmaceuticals

Chem. Descrip.: Polyglycerylmethacrylate and propylene glycol See Glyceryl polymethacrylate
Uses: Lubricant, moisturizer for medical and surgical use, for pre-lubricating catheters, enema tips, thermometers
Features: Autoclavable; nondrying; highest conc. grade
Properties: Clear, colorless visc. gel; water-sol.; sp.gr. 1.3 g/ml; visc. 200,000-400,000 cps; ref. index 1.415-1.435 (20-24 C); pH 5.0-6.0: 0.153-0.216% methyl paraben; 0.042-0.060% propyl paraben
Toxicology: Not considered a carcinogen
Precaution: Incompat. with strong oxidizers, cationics, salts
Hazardous Ingredients: None
Hazardous Decomp. Prods.: CO, CO₂
HMIS: Health 0, Flammability 0, Reactivity 0
Storage: Avoid contact with strong acids, alkalis or oxidizing agents

Lubrajel® DV Free [ISP http://www.ispcorp.com; United-Guardian

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Trade Name Reference

http://www.u-g.com; S. Black
http://www.sblack.com

Chem. Descrip.: Glycerin and glyceryl acrylate/acrylic acid copolymer
CAS 56-81-5; 9003-01-4
Uses: Lubricant, moisturizer for medical and surgical use, for pre-lubricating catheters, enema tips, thermometers
Features: Autoclavable; nondrying; highest visc. grade

Properties: Clear, colorless visc. gel with characteristic odor; water-sol.; sp.gr. 1.3 g/ml; visc. 900,000-1,200,000 cps; ref. index 1.380-1.400 (20-24 C); pH 5.0-6.0; flash pt. >200 F; 0.091-0.130% methyl paraben; 0.025-0.036% propyl paraben
Toxicology: LD50 (oral, rat) > 5000 mg/kg; noncarcinogenic
Precaution: Avoid extreme temps.; incompat. with strong oxidizers, salts, strong acids or bases

HMIS: Health 0, Flammability 0, Reactivity 0


Chem. Descrip.: Glycerin, glyceryl acrylate/acrylic acid copolymer and propylene glycol
CAS 56-81-5; 9003-01-4; 57-55-6
Uses: Lubricant, moisturizer for medical and surgical use, for pre-lubricating catheters, enema tips, thermometers
Features: Autoclavable; nondrying; general purpose grade
Properties: Clear, colorless visc. gel; water-sol.; sp.gr. 1.3 g/ml; visc. 250,000-350,000 cps; ref. index 1.380-1.400 (20-24 C); pH 5.0-6.0; 0.091-0.130% methyl paraben; 0.025-0.036% propyl paraben
Precaution: Incompat. with strong oxidizers, salts, strong acids or bases


Chem. Descrip.: Polyglycerylmethacrylate, propylene glycol, and PVM/MA copolymer
See Glyceril polymethacrylate
Uses: Lubricant, moisturizer for medical and surgical use, for pre-lubricating catheters, enema tips, thermometers
Features: Liq. form with visc. similar to min. oil

Lubrajel® RC [United-Guardian http://www.u-g.com]

Chem. Descrip.: Water, glycerin, propylene glycol, polyacrylic acid, sodium polyacrylate
Uses: Lubricant for thermometers, enema tips, catheters, esp. urological catheters; lubricant, moisturizer, conditioner for skin care
Features: Sterilizable; may be applied to catheter prior to pkg. and sterilization providing convenient prelubricated device; cost-effective; pH balanced; stable
Regulatory: DOT nonregulated
Properties: Colorless cl. visc. gel; virtually odorless; completely water-sol.; dens. 1.0 g/cm³; visc. 300,000 cps; flash pt. none; pH 5.0-5.5
Toxicology: No known hazards; assumed to be > 5 g/kg orally based on similar prods.
Precaution: Incompat. with strong oxidizers, salts, strong acids or alkali; avoid extreme temps.

Lubrajel® RR [United-Guardian http://www.u-g.com]

Chem. Descrip.: Water, glycerin, propylene glycol, polyacrylic acid, sodium polyacrylate
Uses: Lubricating jelly for medical lubrication of catheters, as a sol. burn ointment on gauze pads (petrolatum replacement), as a soothing dressing
Features: γ radiation-resist.; stable
Regulatory: DOT nonregulated
Properties: Colorless cl. gel; char. odor; completely water-sol.; dens. 1.0 g/cm³; visc. 22,000 cps; flash pt. none; pH 5.2
Toxicology: No known hazards; assumed to be > 5 g/kg orally based on similar prods.
Precaution: Incompat. with strong oxidizers, salts, strong acids or alkali; avoid extreme temps.

Lubrajel® TW [ISP http://www.ispcorp.com;
Trade Name Reference

United-Guardian  [http://www.u-g.com; S. Black http://www.sblack.com]
Chem. Descrip.: Polyglycerylmethacrylate and propylene glycol  See Glyceryl polymethacrylate
Uses: Lubricant, moisturizer for medical and surgical use, for pre-lubricating catheters, enema tips, thermometers
Features: Autoclavable; nondrying
Properties: Colorless, sl. iridescent; water-sol.; sp.gr. 1.3 g/ml; visc. 200,000-275,000 cps; ref. index 1.380-1.400 (20-24 C); pH 5-6; viscid, nonirritating; odorless; very low odor; viscosity 30,000-40,000 cps; ref. sp.gr. 1.3 g/ml; pH 5.0-6.0; 0.122-0.173% methyl paraben; 0.034-0.048% propyl paraben

Chem. Descrip.: Polyglycerylmethacrylate, propylene glycol, and poloxamer 184  See Glyceryl polymethacrylate
Uses: Lubricant, moisturizer for medical and surgical use, for pre-lubricating catheters, enema tips, thermometers
Properties: Colorless, sl. iridescent; water-sol.; visc. 200,000-275,000 cps; pH 5-6; 25-70% conc.

Chem. Descrip.: Glyceryl polymethacrylate, water, cyclomethicone, dimethiconol, PEG-40 sorbitan diisostearate, imidazolidinyl urea, polysorbate 81, PEG-15 cocamine, and laureth-9
Uses: Cosmetic moisturizer for hand lotions, night creams, eye gels, shaving creams, after-sun gels, sunscreens, dandruff treatments, makeup, body moisturizers, and foot creams
Properties: Colorless sl. opalescent visc. gel; very low odor; visc. 30,000-40,000 cps; ref. index 1.4047 (20-25 C); pH 5-6
Toxicology: Nontoxic
Storage: Long shelf life

Lubritab®  [JRS Pharma http://www.jrsworth.com]
Chem. Descrip.: Hydrogenated cottonseed oil, Type 1 NF
CAS 68334-00-9; EINECS/ELINCS 269-804-9
Uses: Lubricant for pharmaceutical tablets, direct compression, controlled release applics.; aux. dry binder when tablets tend to cap or laminate

Features: Low in ash content; pract. no trace of heavy metals; less chemically reactive than other commonly used lubricants
Properties: Spray-dried free-flowing fine powd.; avg. particle size 104 µ; 25% - 200 mesh; dens. (tapped) 0.57 g/ml; m.p. 61-66 C; acid no. 2 max.; sapon. no. 188-198
Use Level: 0.5-2% (tablet lubricant); up to 5% (aux. dry binder in tablets); 20-40% (controlled release)

Lucarotin® 1 CWD [BASF AG http://www.basf.de]
Chem. Descrip.: Beta-carotene  See Carotene
CAS 7235-40-7; EINECS/ELINCS 230-636-6
Uses: Colorant for pharmaceuticals
Properties: Dry powd.

Lucarotin® 1 CWD/K [BASF AG http://www.basf.de]
Chem. Descrip.: Beta-carotene  See Carotene
CAS 7235-40-7; EINECS/ELINCS 230-636-6
Uses: Colorant and dietary supplement for pharmaceuticals
Properties: Red-orange dry powd.; disperses easily in cold water
Storage: 2 yr shelf life when stored in original unopened containers; sensitive light, heat, and moisture

Lucarotin® 10 CWD O [BASF AG http://www.basf.de]
Chem. Descrip.: Beta-carotene in a matrix of modified food starch and glucose syrup; stabilized with dl-alpha-Tocopherol with tricalcium phosphate as a flow aid  See Calcium phosphate tribasic; Carotene; Corn syrup; Food starch, modified; Tocopherol
CAS 7235-40-7; 53124-00-8; 8029-43-4; 1406-18-4; 7758-87-4; EINECS/ELINCS 230-636-6; $; 232-436-4; 215-798-8; 231-840-8
Uses: Dietary supplement for vitamin mixes as a source for Vitamin A
Features: Nonallergenic
Regulatory: Kosher
Properties: Free-flowing br. to red fine powd.; cold-water dispersible; m.w. 536.9; 10% min. act.
Storage: 2 yr shelf life when stored in tightly closed, original containers away from light and moisture @ ≤ 25 C

Lucarotin® 10 CWD S/Y [BASF AG http://www.basf.de]
Chem. Descrip.: Beta-carotene  See Carotene
CAS 7235-40-7; EINECS/ELINCS 230-636-6
Trade Name Reference

**Uses:** Colorant for pharmaceuticals  
**Properties:** Dry powd.

**Lucarotin® 20 CWD/R** [BASF AG  
[http://www.basf.de]]

Chem. Descrip.: Beta-carotene in a matrix of modified food starch and isomalt; stabilized with dl-alpha-Tocopherol, sodium ascorbate with tricalcium phosphate as an anticaking agent. See Calcium phosphate tribasic; Carotene; Food starch, modified; Isomalt; Tocopherol  
CAS: 7235-40-7; 53124-00-8; 64519-82-0; 1406-18-4; 134-03-2; 7758-87-4; EINECS/ELINCS 230-636-6; $; $; 215-798-8; 205-126-1; 231-840-8

**Uses:** Colorant for effervescent tablets and dietary supplements  
**Features:** Nonallergenic  
**Regulatory:** Kosher

**Lucarotin® 30 C** [BASF AG  
[http://www.basf.de]]

Chem. Descrip.: Beta-carotene (30%) in cottonseed oil  
CAS: 7235-40-7; 8001-29-4; EINECS/ELINCS 230-636-6; 232-280-7  
**Uses:** Gelatin capsule ingred.  
**Regulatory:** Kosher

**Properties:** Red oily disp.; odorless; sp. gr. 0.925; visc. 409 mPa*s; f.p. -5°C; flash pt. 143°C  
**Toxicology:** LD50 (oral, rat) > 2000 mg/kg; TSCA listed  
**Precaution:** Wear chemical goggles and gloves avoid heat, light, moisture, and pressure  
**Hazardous Decomp. Prods.:** None  
**Storage:** Store at mod. temp. in tight, light-resistant containers

**Lucarotin® 30 M** [BASF AG  
[http://www.basf.de]]

Chem. Descrip.: Beta-carotene dispersed in corn oil  
CAS: 7235-40-7; 8001-30-7; EINECS/ELINCS 230-636-6; 232-281-2

**Uses:** Emulsifier for topical pharmaceuticals  
**Regulatory:** Kosher

**Properties:** Yel. liq.; sol. in water, alcohol and methanol; sp.gr. 1.1; HLB 16.7; acid no. 2 max.; sapon. no. 40-50; hyd. no. 96-108; nonionic; 100% conc.; 3% max. moisture

**Lumisorb™ PSML-20 K** [Lambent Tech.  
[http://www.lambentcorp.com]]

Chem. Descrip.: Polysorbate 20  
CAS: 9005-64-5  
**Uses:** Emulsifier for topical pharmaceuticals  
**Regulatory:** Kosher

**Properties:** Yel. liq.; sol. in water, alcohol and methanol; sp.gr. 1.1; HLB 16.7; acid no. 2 max.; sapon. no. 40-50; hyd. no. 96-108; nonionic; 100% conc.; 3% max. moisture

**Lumisorb™ PSML-80** [Lambent Tech.  
[http://www.lambentcorp.com]]

Chem. Descrip.: PEG-80 sorbitan laurate

**Uses:** Gelatin capsule ingred.  
**Properties:** Oily disp.

**Ludipress®** [BASF  
[http://www.basf.com]; BASF AG  
[http://www.basf.de]]

Chem. Descrip.: Lactose monohydrate Ph.Eur. (93%), Kollidon® 30 USP (3.5%), Kollidon CL USP (3.5%); See Crospovidone; PVP  
**Uses:** Excipient, carrier, filler, binder, disintegrant for direct compression of pharmaceutical tablets, capsules; filler for hard gelatin capsules  
**Features:** Produces tablets with good hardness, low friability, rapid disintegration; provides fast release of act. ingreds.; exc. flowability  
**Properties:** Wh. free-flowing gran.: 55-75% < 200 μm, 90% min. < 400 μm; odorless; flavorless; bulk dens. 500±50 g/l; tap dens. 600±50 g/l  
**Storage:** Low hygroscopicity; store tightly closed in cool place; protect from light

**Ludipress® LCE** [BASF  
[http://www.basf.com]; BASF AG  
[http://www.basf.de]]

Chem. Descrip.: Lactose monohydrate Ph.Eur. (96.5%), Kollidon 30 (povidone) USP/Ph.Eur. (3.5%); See PVP  
**Uses:** Excipient, carrier, filler, binder for direct compression of chewable tablets and lozenges, effervescent tablets; bulking agent for modified release formulations  
**Features:** Exc. flowability; high crushing str. of tablets  
**Properties:** Wh. free-flowing gran.; 20% max. < 63 μm, 40-65% < 200 μm, 20% max. > 400 μm; odorless; neutral taste; completely sol. in water; bulk dens. 0.56±0.06 g/cm³  
**Storage:** Low hygroscopicity; 24 mos. shelf life when stored @ R.T. in tightly closed containers

**Lumisorb™ PSML-20 K** [Lambent Tech.  
[http://www.lambentcorp.com]]

Chem. Descrip.: Polysorbate 20  
CAS: 9005-64-5  
**Uses:** Emulsifier for topical pharmaceuticals  
**Regulatory:** Kosher

**Properties:** Yel. liq.; sol. in water, alcohol and methanol; sp.gr. 1.1; HLB 16.7; acid no. 2 max.; sapon. no. 40-50; hyd. no. 96-108; nonionic; 100% conc.; 3% max. moisture

**Lumisorb™ PSML-80** [Lambent Tech.  
[http://www.lambentcorp.com]]

Chem. Descrip.: PEG-80 sorbitan laurate
Trade Name Reference

(80%0 in water (28%)

CAS 9005-64-5
Uses: Emulsifier for pharmaceuticals

Properties: Yel. liq.; bland odor; water-sol.; sp.gr. 1.1; b.p. >100 C @ 760mm Hg; HLB 19.4; acid no. 3 max.; sapon. no. 7-15; hyd. no. 25-40; flash pt. >232 C (COC); nonionic; 27-29% moisture

Toxicology: May cause eye irritation; TSCA listed

Precaution: Avoid strong oxidizing agents

Hazardous Decomp. Prods.: CO, CO2 and thick smoke

NFPA: Health 1, Flammability 1, Reactivity 0

Chem. Descrip.: Polysorbate 80 FCC
CAS 9005-65-6
Uses: Solubilizer in vitamin preps.; dispersant for gelatins; syn. flavor adjuvant


Properties: Yel. cl. liq.; bland odor; sol. in water, alcohol, veg. oils, ethyl acetate, methanol, toluene; forms a gel @ 60% in water; insol. in min. oils; sp.gr. 1.07; dens. 9.0 lb/gal; visc. 400 cps; vapor pressure < 1 mm Hg; b.p. > 200 C; HLB 15; acid no. 2.0 max.; sapon. no. 45-55; hyd. no. 65-80; pour pt. -12 C; flash pt. (COC) 278 C; pH 7 (5% aq.); 3% max. moisture

Toxicology: May cause eye irritation; TSCA listed

Precaution: Keep away from oxidizing agents, excessive heat, ignition sources

Hazardous Decomp. Prods.: Combustion produces CO, CO2, thick smoke

NFPA: Health 1, Flammability 1, Reactivity 0

Storage: 1 yr. shelf life when stored in closed, factory-sealed containers at temps. >52 C

Chem. Descrip.: Sorbitan monooleate See Sorbitan olate

CAS 1338-43-8; EINECS/ELINCS 215-665-4
Uses: Surfactant; emulsifier and stabilizer for oil-based creams/lotions and ointments

Features: Lipophilic

Properties: Amber liq.; oil-sol.; sp.gr. 1.0; HLB 4.3; acid no. 7.5; sapon. no. 149-160; hyd. no. 193-209; nonionic; 100% conc.

Toxicology: Inh. of vapors or finely misted materials may cause irritation to mucosa, dizziness, and nausea; irritant to eyes, GI, and skin; TSCA listed

Hazardous Ingredients: Combustion: CO, CO2, thick smoke

NFPA: Health 1, Flammability 1, Reactivity 0

Storage: 1 yr. shelf life when stored in closed, factory sealed containers at temps. >32 C; store and use in well-ventilated area

Chem. Descrip.: Sorbitan oleate

CAS 1338-43-8; EINECS/ELINCS 215-665-4
Uses: Emulsifier, oil additive, corrosion inhibitor for pharmaceuticals

Regulatory: Also avail. kosher

Properties: Amber liq.; oil-sol.; sp.gr. 1.0; HLB 4.3; acid no. 7.5; sapon. no. 149-160; hyd. no. 193-209; nonionic; 100% conc.

Toxicology: May cause eye irritation

Precaution: Avoid strong oxidizing agents

Hazardous Decomp. Prods.: Combustion produces CO, CO2, thick smoke

NFPA: Health 1, Flammability 1, Reactivity 0

Storage: Store in well-ventilated areas @ 50-120 F; keep away from oxidizing agents, excessive heat, ignition sources

Chem. Descrip.: Sorbitan tristearate

CAS 1338-41-6; EINECS/ELINCS 215-664-9
Uses: Emulsifier for pharmaceuticals

Regulatory: FDA 21CFR §172.842, 173.310, 173.340, 175.105, 178.3400, 573.960; also avail. kosher

Properties: Cream flakes; insol. in water; sp.gr. 1.0; b.p. > 200 C (760 mm); HLB 4.7; acid no. 10 max.; sapon. no. 147-157; hyd. no. 235-260; flash pt. (COC) > 175 C; nonionic; 100% conc.

Toxicology: May cause eye irritation

Precaution: Avoid strong oxidizing agents

Hazardous Decomp. Prods.: Combustion produces CO2, CO, thick smoke

Storage: Store in well-ventilated areas @ 50-120 F; keep away from oxidizing agents, excessive heat, ignition sources

Chem. Descrip.: Sorbitan laurate

CAS 1338-41-6; EINECS/ELINCS 215-663-3
Uses: Emulsifier in pharmaceuticals

Properties: Yel. liq.; bland odor; water-disp.; oil-sol.; sp.gr. 1.0; HLB 8.6; acid no. 7 max.; sapon. no. 158-170; hyd. no. 330-358; nonionic; 100% conc.

Toxicology: May cause eye irritation; TSCA listed

Precaution: Keep away from oxidizing agents, excessive heat, ignition sources

Hazardous Decomp. Prods.: CO, CO2 and thick smoke

NFPA: Health 1, Flammability 1, Reactivity 0

Storage: 1 yr. shelf life when stored in closed, factory-sealed containers below 32 C; store and use in well-ventilated area

Chem. Descrip.: Sorbitan stearate

CAS 1338-41-6; EINECS/ELINCS 215-664-9
Uses: Emulsifier for pharmaceuticals

Regulatory: FDA 21CFR §172.842, 173.310, 173.340, 175.105, 178.3400, 573.960; also avail. kosher

Properties: Cream flakes; insol. in water; sp.gr. 1.0; b.p. > 200 C (760 mm); HLB 4.7; acid no. 10 max.; sapon. no. 147-157; hyd. no. 235-260; flash pt. (COC) > 175 C; nonionic; 100% conc.

Toxicology: May cause eye irritation

Precaution: Avoid strong oxidizing agents

Hazardous Decomp. Prods.: Combustion produces CO2, CO, thick smoke

Storage: Store in well-ventilated areas @ 50-120 F; keep away from oxidizing agents, excessive heat, ignition sources

Chem. Descrip.: Sorbitan laurate

CAS 1338-41-6; EINECS/ELINCS 215-663-3
Uses: Emulsifier in pharmaceuticals

Properties: Yel. liq.; bland odor; water-disp.; oil-sol.; sp.gr. 1.0; HLB 8.6; acid no. 7 max.; sapon. no. 158-170; hyd. no. 330-358; nonionic; 100% conc.

Toxicology: May cause eye irritation; TSCA listed

Precaution: Keep away from oxidizing agents, excessive heat, ignition sources

Hazardous Decomp. Prods.: CO, CO2 and thick smoke

NFPA: Health 1, Flammability 1, Reactivity 0

Storage: 1 yr. shelf life when stored in closed, factory sealed containers at temps. >52 C
Trade Name Reference


Chem. Descrip.: PEG-4 laurate
CAS 9004-81-3
Uses: Emulsifier, wetting agent, plasticizer for pharmaceuticals
Properties: Liq.; HLB 10.0; nonionic; 100% conc.


Chem. Descrip.: PEG-8 laurate
CAS 9004-81-3; EINECS/ELINCS 253-458-0
Uses: Emulsifier, wetting agent, plasticizer for pharmaceutical ointments
Properties: Yel. liq.; bland odor; disp. in water @ 5%; sp. gr. 1.01; vapor pressure < 1 mm Hg; b.p. > 200 C; HLB 12.8; acid no. 5 max.; sapon. no. 130-140; pour pt. 18 C; flash pt. (COC) > 175 C; pH 4.5-5.0 (3% aq.); nonionic; 100% conc.


Chem. Descrip.: PEG-8 dilaurate
CAS 9005-08-7
Uses: Emulsifier, wetting agent, plasticizer for pharmaceuticals
Properties: Waxy solid with bland odor; sol. in water @ >90% vol.; sp. gr. 1.02; vapor pressure <1 mm Hg; Sp. gr. 1.02; vapor pressure <1 mm Hg; Sp. gr. 1.02; flash pt. (COC) > 200 C @ 760mm Hg.; flash pt. 175 C (COC); nonionic; 100% conc.


Chem. Descrip.: PEG-20 stearate
CAS 9004-99-3
Uses: Emulsifier, wetting agent, plasticizer for pharmaceuticals
Properties: Paste; HLB 8.2; nonionic; 100% conc.


Chem. Descrip.: Glyceryl laurate SE
CAS 27215-38-9
Uses: Emulsifier, opacifier, stabilizer for drug industry
Properties: Also avail. in tech. grade
Regulatory: Kosher; SARA §311/312/313 nonreportable

**Toxicology:** May cause **eye irritation**; thermal burns possible on skin; if heated, vapors/finely misted material may cause **mucous membrane irritation, dizziness, nausea; TSCA listed**

**Precaution:** Spillages may be slippery; incompat. with strong oxidizing agents; keep away from excessive heat, ignition sources

**Hazardous Decomp. Prods.:** Combustion: CO, CO₂, thick smoke

**NFPA:** Health 1, Flammability 1, Reactivity 0

**Storage:** 1 yr. shelf life when stored in closed, factory-sealed containers below 90 F; store and use in well-ventilated areas; store out of sun

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**Uses:** Emulsifier for pharmaceuticals
**Regulatory:** Kosher; 21 CFR 178.3400

**Properties:** Tan flakes; insol. in water, veg. and mineral oils; oil-sol.; sp.gr. 1.0; HLB 2.1; acid no. 15 max.; sapon. no. 175-190; hyd. no. 65-80; nonionic; 100% conc.

**Storage:** Store in closed, factory-sealed containers at temps <32 C; when stored for prolonged periods of time should be kept under a nitrogen atmosphere


Chem. Descrip.: PEG-4 laurate
CAS 9004-81-3
Uses: Emulsifier, wetting agent, plasticizer for pharmaceuticals
Properties: Tan flakes; insol. in water, veg. and mineral oils; oil-sol.; sp.gr. 1.0; HLB 2.1; acid no. 15 max.; sapon. no. 175-190; hyd. no. 65-80; nonionic; 100% conc.


Chem. Descrip.: PEG-8 laurate
CAS 9004-81-3; EINECS/ELINCS 253-458-0
Uses: Emulsifier, wetting agent, plasticizer for pharmaceutical ointments
Properties: Yel. liq.; bland odor; sol. in water @ >90% vol.; sp. gr. 1.01; vapor pressure < 1 mm Hg; b.p. > 200 C; HLB 12.8; acid no. 5 max.; sapon. no. 130-140; pour pt. 18 C; flash pt. (COC) > 175 C; pH 4.5-7.0 (3% aq.); nonionic; 100% conc.

**Toxicology:** May cause **eye irritation**; thermal burns possible on skin; if heated, vapors/finely misted material may cause **mucous membrane irritation, dizziness, nausea; TSCA listed**

**Precaution:** Spillages may be slippery; incompat. with strong oxidizing agents; keep away from excessive heat, ignition sources

**Hazardous Decomp. Prods.:** Combustion: CO, CO₂, thick smoke

**NFPA:** Health 1, Flammability 1, Reactivity 0

**Storage:** 1 yr. shelf life when stored in closed, factory-sealed containers below 90 F; store and use in well-ventilated areas; store out of sun


Chem. Descrip.: PEG-8 dilaurate
CAS 9005-08-7
Uses: Emulsifier, wetting agent, plasticizer for pharmaceuticals
Properties: Waxy solid with bland odor; sol. in water @ >90% vol.; Sp. gr. 1.02; vapor pressure <1 mm Hg; Sp. gr. 1.02; vapor pressure <1 mm Hg; Sp. gr. 1.02; flash pt. (COC) > 200 C @ 760mm Hg.; flash pt. 175 C (COC); nonionic; 100% conc.

**Toxicology:** May cause **eye irritation**; thermal burns possible on skin; if heated, vapors/finely misted material may cause **mucous membrane irritation, dizziness, nausea; TSCA listed**

**Precaution:** Spillages may be slippery; incompat. with strong oxidizing agents; keep away from excessive heat, ignition sources

**Hazardous Decomp. Prods.:** Combustion: CO, CO₂, thick smoke

**NFPA:** Health 1, Flammability 1, Reactivity 0

**Storage:** 1 yr. shelf life when stored in closed, factory-sealed containers below 90 F; store and use in well-ventilated areas; store out of sun


Chem. Descrip.: PEG-8 distearate
CAS 9005-08-7
Uses: Emulsifier, wetting agent, plasticizer for pharmaceuticals
Properties: Paste; HLB 8.2; nonionic; 100% conc.

**Toxicology:** May cause **eye irritation**; thermal burns possible on skin; if heated, vapors/finely misted material may cause **mucous membrane irritation, dizziness, nausea; TSCA listed**

**Precaution:** Spillages may be slippery; incompat. with strong oxidizing agents; keep away from excessive heat, ignition sources

**Hazardous Decomp. Prods.:** Combustion: CO, CO₂, thick smoke

**NFPA:** Health 1, Flammability 1, Reactivity 0

**Storage:** 1 yr. shelf life when stored in closed, factory-sealed containers below 90 F; store and use in well-ventilated areas; store out of sun

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Chem. Descrip.: Glyceryl laurate SE
CAS 27215-38-9
Uses: Emulsifier, opacifier, stabilizer for drug industry
Properties: Also avail. in tech. grade
Regulatory: Kosher; SARA §311/312/313 nonreportable

**Properties:** Yel. liq.; bland odor; disp. in water @ 5%; sp. gr. 0.98; vapor pressure < 1 mm Hg; b.p. > 200 C; HLB 10.0; acid no. 10 max.; sapon. no. 130-140; pour pt. 18 C; flash pt. (COC) > 175 C; pH 3.5-5.0 (3% aq.); nonionic; 100% conc.

**Toxicology:** May cause **eye irritation**; thermal burns possible on skin; if heated, vapors/finely misted material may cause **mucous membrane irritation, dizziness, nausea; TSCA listed**

**Precaution:** Spillages may be slippery; incompat. with strong oxidizing agents; keep away from excessive heat, ignition sources

**Hazardous Decomp. Prods.:** Combustion: CO, CO₂, thick smoke

**NFPA:** Health 1, Flammability 1, Reactivity 0

**Storage:** Store in closed containers @ 50 F-120 F


Chem. Descrip.: Glyceryl laurate SE
CAS 27215-38-9
Uses: Emulsifier, opacifier, stabilizer for drug industry
Regulatory: Kosher
Properties: Cream paste; disp. in water; sp.gr. 0.95; HLB 3.0; pour pt. 23 C; nonionic; 100% conc.

Chem. Descrip.: Glyceryl oleate
CAS 25496-72-4; EINECS/ELINCS 203-827-7
Uses: Emulsifier, opacifier, stabilizer for pharmaceuticals
Regulatory: FDA 21CFR §166, 175.105, 175.320, 177.2800, 181.27; also avail. in kosher grade
Properties: Yel. opaque liq., bland odor; insol. in water; sol. in ethanol, propylene glycol, org. solvs., veg. and min. oils; sp.gr. 0.95; dens. 8.0 lb/gal; visc. 90 cSt (40 C); b.p. > 200 C; HLB 3.4; acid no. 2 max.; iodine no. 96; sapon. no. 160-170; pour pt. 0 C; flash pt. 215 C; nonionic; 100% conc.
Use Level: 0.1-0.5%
Toxicology: May cause eye irritation
Precaution: Avoid strong oxidizing agents
Storage: Store in well-ventilated areas @ 50-120 F; keep away from oxidizing agents, excessive heat, ignition sources

Chem. Descrip.: Glyceryl stearate
CAS 31566-31-1
Uses: Emulsifier, lubricant, solvent, vehicle, stabilizer, opacifier and thickener in topical creams and ointments.
Regulatory: GRAS; FDA 21CFR §166, 175.105, 175.320, 176.210, 181.27, 184.1324, 184.1505, 184.1(b)(1)
Properties: Wh. flakes; bland odor; sol. in fats, oils, waxes; insol. in water; dens. 7.6 lbs/gal; m.p. 51 C; HLB 3.9; acid no. 3 max.; iodine no. 1.0; sapon. no. 165-176; flash pt. (COC) > 175 C; nonionic
Storage: 1 yr. shelf life; store in closed, factory sealed container @ < 90 F

Chem. Descrip.: Glyceryl stearate, PEG-100 stearate
Chem. Analysis: Free glycerin 5%; mono ester content 20%
CAS 31566-31-1; 9004-99-3
Uses: Emollient, thickener, opacifier in topical creams, ointments
Features: Acid-stable
Regulatory: RCRA, CERCLA nonreportable

Properties: Off-wh. flake; Gardner color 3 max.; mild char. odor; sol. in isopropanol; sl. sol. in vegetable, minerals oils; disp. in water; sp.gr. 0.97; vapor pressure < 1 mm Hg; vapor dens. > 1; evaporation rate < 1; m.p. 50-60 C; b.p. > 200 C; acid no. 1 max.; sapon. no. 90-105; flash pt. (COC) > 350 C; pH 6.0-8.5 (1% disp.); HLB 11.2; nonionic
Hazardous Decomp. Prods.: CO, CO₂, thick smoke
NFPA: Health 1, Flammability 1, Reactivity 0
Storage: Store in closed, factory sealed container @ 50-120 F

Chem. Descrip.: PEG-25 castor oil
CAS 61791-12-6
Uses: Emulsifier, pigment dispersant, solubilizer, wetting agent in pharmaceuticals
Features: Resist. to hydrolysis; suitable in acidic and alkaline formulations
Properties: Yel. cl. liq.; sol. > 10% by vol. in water; sp.gr. 1.05; dens. 8.6 lb/gal; vapor pressure < 1 mm Hg; b.p. > 200 C; HLB 13.0; acid no. 2 max.; sapon. no. 75-88; pour pt. 5 C; flash pt. (COC) > 175 C; nonionic; 1% max. moisture
Toxicology: Vapors or finely misted materials may irritate mucous membranes and cause irritation, dizziness, nausea; may cause eye irritation; thermal burns are possible; not likely to cause significant skin irritation on prolonged/repeated contact; TSCA listed
Precaution: Incompat. with strong oxidizing agents; keep away from excessive heat, ignition sources
Hazardous Decomp. Prods.: Combustion: CO, CO₂, thick smoke
NFPA: Health 1, Flammability 1, Reactivity 0
Storage: 1 yr. shelf life when stored in closed original containers below 32 C; store and use in well ventilated areas

Chem. Descrip.: PEG-40 castor oil
CAS 61791-12-6
Uses: Emulsifier, pigment dispersant, solubilizer, wetting agent in pharmaceuticals
Lumulse® PEG 200 [Lambent Tech.  
http://www.lambentcorp.com]
Chem. Descrip.:  PEG-4
CAS 25322-68-3; EINECS/ELINCS 203-989-9
Uses: Humectant in pharmaceutical ointments
Properties: Cl. liq.; water-sol.; m.w. 190-210; sp.gr. 1.12; pH 4.5-7.5 (5%); flash pt. 224 C; pH 4.5-7.5 (5%); nonionic
Storage: Stored in closed, factory-sealed containers @ 50-120 F

Lumulse® PEG 300 [Lambent Tech.  
http://www.lambentcorp.com]
Chem. Descrip.:  PEG-6
CAS 25322-68-3; EINECS/ELINCS 220-045-1
Uses: Humectant in pharmaceutical formulation; plasticizer for spray-on bandages
Regulatory: NF, OSHA nonhazardous; CERCLA nonreportable; SARA §302/311/312/313; RCRA nonreportable
Properties: Cl. liq.; mild odor; sol. in water; m.w. 285-315; sp.gr. 1.13; visc. 5.4-6.4 cSt (210 F); vapor pressure < 1 mm Hg; vapor dens. > 1; b.p. > 200 C; flash pt. > 175 C; pH 4.5-7.5 (5%); evaporation rate < 1; nonionic
Toxicology: May cause eye irritation; TSCA listed

Lumulse® PEG 400 NF [Lambent Tech.  
http://www.lambentcorp.com]
Chem. Descrip.:  PEG-8
CAS 25322-68-3; EINECS/ELINCS 225-856-4
Uses: Humectant, coupling agent for pharmaceutical ointments
Regulatory: NF, FDA 21CFR §175.105, 177.1680, 178.3750, 178.3910, 180.1001(e)
Properties: Cl. liq.; water-sol.; m.w. 380-420; sp.gr. 1.13; visc. 6.8-8.0 cSt (210 F); m.p. 6 C; flash pt. 224 C; pH 4.5-7.5 (5%); nonionic
Storage: 1 year; store in closed container @ < 32 C; for prolonged storage, keep under nitrogen atmosphere

Lumulse® PEG 600 NF [Lambent Tech.  
http://www.lambentcorp.com]
Chem. Descrip.:  PEG-12
CAS 25322-68-3; EINECS/ELINCS 229-859-1
Uses: Humectant in pharmaceutical ointments
Properties: Liq.; water-sol.; m.w. 570-630; visc. 9.9-11.3 cSt (210 F); pH 4.5-7.5 (5%); nonionic

Lumulse® PEG 1000 [Lambent Tech.  
http://www.lambentcorp.com]
Chem. Descrip.:  PEG-20
CAS 25322-68-3; EINECS/ELINCS 203-989-9
Uses: Pharmaceutical formulation
Properties: Wh. waxy solid; water-sol.; m.w. 950-1050; visc. 16-19 cSt (210 F); f.p. 37-40 C; pH 4.5-7.5 (5%); nonionic

Lumulse® PEG 1450 [Lambent Tech.  
http://www.lambentcorp.com]
Chem. Descrip.:  PEG-32
CAS 25322-68-3; EINECS/ELINCS 203-989-9
Uses: Addition polymer in pharmaceutical formulations
Features: Available with "NF" designation
Regulatory: FDA 21CFR §175.105, 177.1680, 178.3750, 178.3910, 180.1001(e); OSHA nonhazardous; CERCLA nonreportable; SARA §302/311/312/313; RCRA nonreportable
Properties: Wh. waxy solid; mild odor; water-sol.; m.w. 1300-1600; sp.gr. 1.1; visc. 25-32 cSt
**Trade Name Reference**

(210 F); vapor pressure < 1; vapor dens. > 1; f.p. 43-46 C; m.p. 44 C; b.p. > 200 C; flash pt. 266 C; pH 4.5-7.5 (5%); evaporation rate < 1

**Toxicology:** May cause **eye irritation**; TSCA listed

**Precaution:** Use safety glasses, PVC coated gloves

**Hazardous Decomp. Prods.:** CO, CO₂, thick smoke

**NFPA:** Health 1, Flammability 1, Reactivity 0

**Storage:** 1 year; store in closed container @ 50-120 F; for prolonged storage, keep under nitrogen atmosphere; keep away from oxidizing agents, excessive heat, ignition sources; keep out of sun


**Chem. Descrip.:** PEG 1450 NF

**CAS** 25322-68-3

**Uses:** Addition polymer in pharmaceutical formulations

**Regulatory:** 21 CFR 175.105, 21 CFR 178.3750, 21 CFR 177.1680 and 21 CFR 180.1001(e)

**Properties:** Wh. solid; sol in water (10%, sl. hazy); m.w. 1305-1595; sp.gr. 1.21; visc. 25-32 cSt (210 F); m.p. 44 C; flash pt. 266 C; pH 4.5-7.5 (5% aq.)

**Storage:** Store in closed container @ 50-120 F; for prolonged storage, keep under nitrogen atmosphere; keep away from oxidizing agents, excessive heat, ignition sources; keep out of sun


**Chem. Descrip.:** PEG 3350 NF

**CAS** 25322-68-3; EINECS/ELINCS 203-989-9

**Uses:** Humectant in pharmaceutical formulation; tablet binder/lubricant

**Regulatory:** NF

**Properties:** Wh. waxy solid; water-sol.; m.w. 3015-3685; visc. 76-110 cSt (210 F); f.p. 53-56 C; pH 4.5-7.5 (5%); nonionic

**Storage:** 1 yr. shelf life when stored in closed, factory-sealed containers below 32 C; store and use in well-ventilated area


**Chem. Descrip.:** PEG-150

**CAS** 25322-68-3; EINECS/ELINCS 203-989-9

**Uses:** Pharmaceuticals

**Regulatory:** OSHA nonhazardous

**Properties:** Wh. waxy flakes; mild odor; sol. in water; avg. m.w. 7000-9000; sp.gr. 1.22; visc. 470-900 cSt @ 99 C; vapor pressure < 1 mm Hg; vapor dens. > 1; m.p. 61 C; b.p. > 200 C; flash pt. 269 C; pH 5% aq. 4.5-7.5; evaporation rate < 1; < 1% volatiles by vol.

**Toxicology:** May cause eye irritation; TSCA listed

**Precaution:** Use safety glasses, PVC coated gloves; incompat. with strong oxidizing agents

**Hazardous Decomp. Prods.:** CO, CO₂, thick smoke

**NFPA:** Health 1, Flammability 1, Reactivity 0

**Storage:** Store @ < 32 C; keep under nitrogen atmosphere for prolonged storage; avoid excessive heat, ignition sources


**Chem. Descrip.:** Triglyceryl monooleate FCC See Polyglyceryl-3 oleate

**CAS** 9007-48-1

**Uses:** Antifoam for vitamin concs.

**Regulatory:** FDA 21CFR §172.854; kosher; SARA §311/312/313 nonreportable

**Properties:** Yel. to amber liq.; bland odor and taste; disp. in water; sol. in veg. oil, min. oil, IPA; sp.gr. 0.98; dens. 8.1 lb/gal; vapor pressure < 1 mm Hg; HL 7.0; acid no. 6 max.; iodine no. 100; sapon. no. 125-150; flash pt. (COC) > 175 C; nonionic; 100% conc.; negligible volatiles

**Toxicology:** May cause eye irritation; not likely to cause significant skin irritation on prolonged/repeated contact, but thermal burns possible; inh. of vapors may irritate mucous membranes and cause dizziness, nausea

**Precaution:** Keep away from oxidizing agents, excessive heat, ignition sources

**Hazardous Decomp. Prods.:** Combustion produces CO, CO₂, thick smoke

**Storage:** 1 yr. shelf life when stored in closed, factory-sealed containers below 32 C; store and use in well-ventilated area

**Lumulse® POE (100) MS** [Lambent Tech. http://www.lambentcorp.com]

**Chem. Descrip.:** PEG-100 stearate See PEG-2 stearate

**Chem. Analysis:** Moisture 1% max.

**CAS** 9004-99-3

**Uses:** Emulsifier in pharmaceutical preps.

**Regulatory:** OSHA nonhazardous

**Properties:** Off-wh. solid; Gardner color 2 max.; bland odor; disp. in water; dens. 8.4 lbs/gal; vapor pressure < 1 mm Hg; vapor dens. >1; evaporation rate <1; m.p. 54-59 C; b.p. > 200
Trade Name Reference

Lumulse® S-2 [Lambent Tech.  
http://www.lambentcorp.com]  
Chem. Descrip.: Steareth-2  
CAS 9005-00-9  
Uses: Surfactant, coupling agent, detergent, dispersant, emulsifier, solubilizer, wetting agent in pharmaceuticals  
Features: Stable in acid and alkali ranges  
Properties: Wh. waxy solid; bland odor; insol. in water; sp.gr. 0.98; dens. 8.1 lb/gal; vapor pressure < 1 mm Hg; b.p. > 200 C; HLB 9.5; acid no. 1 max.; iodine no. 0.5; hyd. no. 155-170; pour pt. 175 C; cloud pt. 55 C (1%); flash pt. (COC) > 175 C; pH 7 (5% in 75% IPA); nonionic; 0.5% moisture  
Toxicology: May cause eye irritation; TSCA listed  
Precaution: Incompat. with strong oxidizers; keep away from excessive heat, ignition sources  
Hazardous Decomp. Prods.: Combustion: CO, CO₂, thick smoke  
NFPA: Health 1, Flammability 1, Reactivity 0  
Storage: 1 yr. shelf life when stored in closed original containers below 32 C; store and use in well-ventilated areas  

Luperox® A98 [Arkema/Organic Peroxides  
http://www.arkema.com]  
Chem. Descrip.: Benzoyl peroxide (98.5%), water and impurities  
CAS 94-36-0; EINECS/ELINCS 202-327-6  
UN 3102  
Uses: Active constituent in anti-acne creams and soaps  
Properties: Fine wh. granular solid; faint to no odor; insol. in water; sp.gr. 36 lbs/ft³; SADT 68 C; 98% act.; 6.5% act. oxygen; 0% volatile  
Toxicology: LD50 (oral, rat) > 950-500 mg/kg); LC50 (inh., rat 4 h) > 22.4 mg/l; causes eye, respiratory tract irritation; may cause allergic skin reaction; TSCA listed  
Environmental: LC50 (guppies, 96 h) 2.0 mg/l; EC50 (daphnia magna, 48 h) 2.9 mg/l, (algae, 72 h) 0.83 mg/l, (activated sludge) 35 mg/  
Precaution: Avoid contact with heat, sparks, ignition sources, contamination, strong acids, strong alkalis, strong oxidizers, amines, promoters, reducing agents  
Hazardous Ingredients: Benzoyl peroxide  
Storage: Store @ < 38 C out of direct sunlight in cool, well-ventilated area away from combustibles, incompat. materials  

LustreClear™ [FMC Biopolymer]
Trade Name Reference

http://www.fmcbiopolymer.com
Chem. Descr.: Microcrystalline cellulose, carrageenan and glycerin See Carrageenan (Chondrus crispus)
CAS 9004-34-6; 9000-07-1; 56-81-5;
EINECS/ELINCS 232-674-9; 232-524-2; 200-289-5
Uses: Clear film coating providing taste masking to tablets and other solid-dosage forms
Features: Easy-to-use, all-in-one coating allows short hydration time prior to coating and fast drying time; coats waxy matrixes or actives; easier to swallow; nonfoaming
Regulatory: USP, EP, JP; E 460(i) (microcrystalline cellulose); E 407 (carrageenan); E 422 (glycerin)
Properties: Wh. to off-wh. free-flowing powd.; sl. odor; partly sol./disp. in water; dens. 0.4-0.5 g/ml (loose), 0.6-0.8 g/ml (tapped); visc. 5000-9000 cps (9% solids); pH 5-8 (4% solids)
Hazardous Decomp. Prods.: SOx
NFPA: Health 0, Flammability 1, Reactivity 0
Lutrol® E 300 [BASF AG http://www.basf.de]
Chem. Descr.: Emulsifier, emollient, lubricant, and solvent for liq. preps.; solvent, solubilizer for act. substances and excipient in pharmaceuticals (liq. and semisolid preps.); carrier for dissolved or suspended drugs in soft gelatin capsules; base for ointments, suppositories; solvent for removal of phenol, cresol, aniline from surf. of skin burnt by any of these toxic compds.
Properties: Colorless liq.; pract. odorless and tasteless; sol. in water, ethanol, acetone, glycols, chloroform; insol. in ether, paraffin, oils, fats; m.w. 285-315; dens. 1.13 g/cm³; visc. 80-105 mPa•s (20 C); hyd. no. 340-394; pH 4.5-7.5 (5% aq.); nonionic; 100% conc.; ≤ 1% water
Storage: 24 mos. shelf life when stored dry in closed containers

Lutrol® E 400 [BASF AG http://www.basf.de]
Chem. Descr.: Nicotinic acid [BASF AG http://www.basf.de]
Chem. Descr.: Nicotinic acid
CAS 59-67-6; EINECS/ELINCS 200-441-0
Uses: Vitamin reinforcement for pharmaceuticals
Lutrol® E 600 [BASF AG http://www.basf.de]
Chem. Descr.: PEG-12
CAS 25322-68-3; EINECS/ELINCS 220-045-1
Uses: Emulsifier, emollient, lubricant, and solvent for liq. preps.; solvent, solubilizer for act. substances and excipient in pharmaceuticals (liq. and semisolid preps.); carrier for dissolved or suspended drugs in soft gelatin capsules; base for ointments, suppositories; solvent for removal of phenol, cresol, aniline from surf. of skin burnt by any of these toxic compds.
Properties: Colorless liq.; pract. odorless and tasteless; sol. in water, ethanol, acetone, glycols, chloroform; insol. in ether, paraffin, oils, fats; m.w. 380-420; dens. 1.13 g/cm³; visc. 105-130 mPa•s (20 C); hyd. no. 264-300; pH 4.5-7.5 (5% aq.); nonionic; 100% conc.
Storage: 24 mos. shelf life when stored dry in closed containers

Lutrol® E 600 [BASF AG http://www.basf.de]
Chem. Descr.: PEG-12
CAS 25322-68-3; EINECS/ELINCS 229-859-1
Uses: Solvent, solubilizer for act. substances and excipient in pharmaceuticals (liq. and semisolid preps.); carrier for dissolved or suspended drugs in soft gelatin capsules; base for ointments, suppositories; solvent for removal of phenol, cresol, aniline from surf. of skin burnt by any of these toxic compds.
Properties: Liq. or paste; sol. in water, ethanol,
Trade Name Reference

acetone, glycols, chloroform; insol. in ether, paraffin, oils, fats; m.w. 570-630; visc. 9.9-11.3 cSt; hyd. no. 178-197; pH 4.5-7.5 (5% aq.)

Storage: 24 mos. shelf life when stored dry in closed containers

Lutrol® E 1500 [BASF AG  http://www.basf.de]
Uses: Solvent, emulsifier, carrier, solubilizer, absorp. enhancer, bioavailability enhancer for drugs that are insol. or sparingly sol. in water, e.g., steroids, fat-sol. vitamins; binder in mfg. of sugar-coated and uncoated tablets; controls release in sustained-release formulations; used with buffers in laxative formulations; antisticking agent, gloss aid for sugar-coated tablets; film-former, plasticizer in tablet coatings; base for ointments and suppositories

Properties: Colorless microbeads; 100% < 1000 µm, 90% < 500 µm; almost odorless and tasteless; sol. in water, ethanol, acetone, glycols, chloroform; insol. in ether, paraffin, oils, fats; m.w. 1350-1650; bulk dens. 0.65 g/cm³; visc. 34-50 mPa•s (20 C, 50% aq.); f.p. 42-48 C; hyd. no. 70-80; pH 4.5-7.5 (5% aq.); nonionic; 100% conc.; ≤ 1% water

Storage: 24 mos. shelf life when stored dry in closed containers

Lutrol® E 3350 [BASF AG  http://www.basf.de]
Uses: Solvent, emulsifier, carrier, solubilizer, absorp. enhancer, bioavailability enhancer for drugs that are insol. or sparingly sol. in water, e.g., steroids, fat-sol. vitamins; binder in mfg. of sugar-coated and uncoated tablets; controls release in sustained-release formulations; used with buffers in laxative formulations; antisticking agent, gloss aid for sugar-coated tablets; film-former, plasticizer in tablet coatings; base for ointments and suppositories

Properties: Colorless microbeads; 99% min. < 710 µm, 85±15% < 250 µm; almost odorless and tasteless; sol. in water, ethanol, acetone, glycols, chloroform; insol. in ether, paraffin, oils, fats; m.w. 3015-3685; bulk dens. 0.60 g/cm³; visc. 83-120 mPa•s (20 C, 50% aq.);

f.p. 53-57 C; hyd. no. 30-38; pH 4.5-7.5 (5% aq.)

Storage: 24 mos. shelf life when stored dry in closed containers

Lutrol® E 4000 [BASF AG  http://www.basf.de]
Uses: Solvent, emulsifier, carrier, solubilizer, absorp. enhancer, bioavailability enhancer for drugs that are insol. or sparingly sol. in water, e.g., steroids, fat-sol. vitamins; binder in mfg. of sugar-coated and uncoated tablets; controls release in sustained-release formulations; used with buffers in laxative formulations; antisticking agent, gloss aid for sugar-coated tablets; film-former, plasticizer in tablet coatings; base for ointments and suppositories

Properties: Colorless microbeads; 95% < 1000 µm, 50% < 500 µm; almost odorless and tasteless; sol. in water, ethanol, acetone, glycols, chloroform; insol. in ether, paraffin, oils, fats; m.w. 3600-4400; bulk dens. 0.60 g/cm³; visc. 110-170 mPa•s (20 C, 50% aq.); f.p. 53-59 C; hyd. no. 25-32; pH 4.5-7.5 (5% aq.); nonionic; 100% conc.; ≤ 1% water

Storage: 24 mos. shelf life when stored dry in closed containers

Lutrol® E 6000 [BASF AG  http://www.basf.de]
Uses: Solvent, emulsifier, carrier, solubilizer, absorp. enhancer, bioavailability enhancer for drugs that are insol. or sparingly sol. in water, e.g., steroids, fat-sol. vitamins; binder in mfg. of sugar-coated and uncoated tablets; controls release in sustained-release formulations; used with buffers in laxative formulations; antisticking agent, gloss aid for sugar-coated tablets; film-former, plasticizer in tablet coatings; base for ointments and suppositories

Properties: Colorless microbeads; 90% < 1000 µm, 50% < 500 µm; almost odorless and tasteless; sol. in water, ethanol, acetone, glycols, chloroform; insol. in ether, paraffin, oils, fats; m.w. 5400-6600; bulk dens. 0.60 g/cm³; visc. 200-270 mPa•s (20 C, 50% aq.); f.p. 55-61 C; hyd. no. 16-22; pH 4.5-7.5 (5% aq.)

Storage: 24 mos. shelf life when stored dry in closed containers

Handbook of Pharmaceutical Additives, Third Edition 410
Trade Name Reference

aq.; nonionic; 100% conc.; ≤ 1% water
Storage: 24 mos. shelf life when stored dry in closed containers

Lutrol® F 68 [BASF AG http://www.basf.de]
Chem. Descrip.: Poloxamer 188 DAC, USP/NF
CAS 9003-11-6
Uses: Emulsifier, solubilizer, suspension stabilizer, thickener, gellant in liq. oral, topical, and parenteral pharmaceuticals; coemulsifier in creams, emulsions; tablet lubricant; plasticizer, dispersant, wetting agent, solubilizer, bioavailability enhancer, absorp. enhancer for low-sol. drugs in solid oral dosage forms
Properties: Wh. to sl. ylsh. waxy micropearls; weak odor; readily sol. in ethanol; dissolves readily in water to give opalescent sol'n.; sol. 40% in chloroform, 35% in methylene chloride, 20% in acetonitrile; insol. in diethyl ether, paraffin, fatty oils; m.w. 7680-9510; m.p. 52-57 C; hyd. no. 11-15; pH 6.0-7.5 (2.5% aq.); nonionic; ≤ 1% water
Storage: 2 yrs. shelf life when stored in unopened original containers @ R.T.

Lutrol® F micro 68 [BASF AG http://www.basf.de]
Chem. Descrip.: Poloxamer 407 (contains BHT)
CAS 9003-11-6; 128-37-0
Uses: Lubricant for actives incompatible with Mg-stearate, e.g. ibuprofen; dispersing/wetting agent; polishing agent for film-coated tablets; water-soluble lubricant for effervescent tablets
Regulatory: USP/NF, EP, JPE
Properties: Wh. micr. powd., weak odor; sol. in water, ethanol (95%), and other polar solvents; insol. in ether, paraffin, fatty oils; pH 5.0-7.5 (2.5% aq.); nonionic
Storage: 2 yrs. shelf life when stored in unopened original containers ≤ 30 C

Luviform® FA 119 [BASF AG http://www.basf.de]
Chem. Descrip.: PVM/MA copolymer
CAS 9011-16-9
Uses: Stabilizing and binding agent for toothpastes, denture retaining agents

Luviform® FA 139 [BASF AG http://www.basf.de]
Chem. Descrip.: PVM/MA copolymer (26% in water)
CAS 9011-16-9
Uses: Stabilizing and binding agent for toothpastes, denture retaining agents
Features: Neutralize with alkalis before use
Properties: Ylsh. cl. visc. liq.; sl. char. odor; misc. with water, ethanol; visc. 2500-4000 mPa•s; pH 1-2; 24-28% solids
Storage: 9 mos. shelf life in original unopened containers @ 25 C

Luvitol® EHO [BASF http://www.basf.com; BASF AG http://www.basf.de]
Chem. Descrip.: Cetearyl octanoate
CAS 5996-10-1; EINECS/ELINCS 200-075-1
Uses: Emollient for pharmaceuticals, creams, lotions, ointments
Properties: Liq.; nonionic; 100% conc.

Lycadex® PF [Roquette http://www.roquette.fr]
Chem. Descrip.: D-Glucose monohydrate
CAS 5996-10-1; EINECS/ELINCS 200-075-1

Trade Name Reference

**Lycasin®** [Roquette](http://www.roquette.fr)
Chem. Descr.: Maltitol
CAS 585-88-6; EINECS/ELINCS 209-567-0
Uses: Excipient for medicinal preps.; sucrose replacement in preparations such as pharmaceutical chewing gum, sugarless syrups, suspensions, oral ampoules in particular those for pediatric use
Features: Sugarless; 70-80% sweetening power of sucrose; noncariogenic
Regulatory: USP/NF, EP
Properties: Cl., visc., colorless liq.; sweet taste; miscible in water

**Lycasin® HBC** [Roquette](http://www.roquette.fr)
Chem. Descr.: Maltitol
CAS 585-88-6; EINECS/ELINCS 209-567-0
Uses: Excipient for medicinal preps.; sucrose replacement in preparations such as lozenges
Features: Sugarless; 70-80% sweetening power of sucrose; noncariogenic
Regulatory: USP/NF, EP
Properties: Cl., visc., colorless liq.; sweet taste; miscible in water

**Lycatab® C** [Roquette](http://www.roquette.fr)
Chem. Descr.: Partially pregelatinized maize starch
Uses: Excipient, filler, disintegrant, flow aid for pharmaceutical tablets and capsules, esp. two-piece hard gelatin capsules; binder, disintegrant in direct compression; binder for wet granulation
Features: Low lubricant requirement; ensures rapid disintegration and drug release; high bulk dens. allows homogenous filling of capsules; low friability; compat. with most act. substances; vegetable origin
Regulatory: USP, EP
Properties: Wh. to off-wh. free-flowing powd.; 100 µm mean particle size; odorless; partly sol. in cold water; bulk dens. 0.64 g/cm³; dens. 0.81 g/cm³ (taped); 7% water

**Lycatab® DSH** [Roquette](http://www.roquette.fr)
Chem. Descr.: Maltodextrin
CAS 9050-36-6; EINECS/ELINCS 232-940-4
Uses: Excipient and granulation binder for filling capsules or sachets, and of dense mixtures intended for compression into tablets; diluent for direct compression of smooth tablets
Features: Where high wetting properties are important; does not impede disintegration of the tablets or the dissolution kinetics of the active ingredients
Regulatory: USP/NF, EP
Properties: Wh. odorless powd.; neutral taste; 50 µm particle size 80% min.; completely sol. in cold water
Use Level: Dry incorporation or in a solution into the granulation mixture at levels of 2-10%

**Lycatab® Mineral** [Roquette](http://www.roquette.fr)
Chem. Descr.: Calcium carbonate and GMO-free maize starch
Uses: Filler, binder in direct compression pharmaceuticals; calcium source in neutraceuticals
Features: Pleasant organoleptic properties; fast disintegration, high density
Regulatory: USP/NF. EP
Properties: Wh. crystals with pseudo-cubic shape; 200 µm mean particle size; completely sol. in cold water
Use Level: Dry incorporation or in a solution into the granulation mixture at levels of 2-10%

**Lycatab® PGS** [Roquette](http://www.roquette.fr)
Chem. Descr.: Partially pregelatinized maize starch
Uses: Excipient, filler, disintegrant, flow aid for pharmaceutical tablets and capsules; binder for wet granulation
Features: Low lubricant requirement; ensures rapid disintegration and drug release; high bulk dens. allows homogenous filling of capsules; low friability; compat. with most act. substances; vegetable origin
Regulatory: USP/NF, EP
Properties: Wh. to pale cream pregel powd.; neutral taste; particle size > 80 µm (50% min.), > 315 µm (20% max.); disp. in cold water
Use Level: 5-20% levels into the granulation mixture

**LycoVit® Dispersion 10%** [BASF AG]
Lycoat™ RS 780 [Roquette  
http://www.roquette.fr]
Chem. Descrip.: Modified starch  
Uses: Aq. film coating for pharmaceutical immediate release, solid oral dosage forms  
Features: For lower viscosity formulations; imparts a smooth, glossy surface to tablets; does not affect the disintegration time of the tablets/capsules  
Regulatory: USP, EP monograph in progress, E1440 and 21 CFR compliant

LycoVit® 10% DC [BASF AG  
http://www.basf.de]
Chem. Descrip.: Lycopene in a matrix of modified food starch and gelatin; stabilized with sucrose; stabilized with tocopherol, sodium ascorbate, and ascorbyl palmitate with tricalcium phosphate as a flow aid  
Uses: Dietary supplement for use in multivitamin-mineral, and lycopene tablets, hard capsules and antioxidant formulations  
Features: Highly stable even in the presence of minerals  
Properties: Free-flowing dk. red fine fine powd.; particle size 20 μ, min 90%; water dispersible (35-40 C); m.w. 536.9; 10% min. act.  
Storage: 2 yr shelf-life when stored in tightly closed, original containers away from light and moisture @ 8-15 C; after opening, pad with nitrogen until reuse

Lycobeads® 5% [LycoRed Israel  
http://www.lycored.com]
Chem. Descrip.: Cryst. lycopene dispersed in natural tomato lipid phase  
Chem. Analysis: 8% moisture  
CAS 502-65-8; EINECS/ELINCS 207-949-1  
Uses: Lycopene source for mfg. of tablets and two-piece hard shell capsules; may be used in nutritional and nutraceutical industries  
Regulatory: Approved by USA FDA, European and Israeli Authorities; kosher  
Properties: Dk. red free-flowing beadlets; char. odor; particle size 800 μ; 100% through #20 U.S. Std. Sieve; bulk dens. ≈ 0.6 g/ml; 5% min. lycopene  
Storage: Sl. hygroscopic; store @ 4 C for optimum stability

Lyc-O-Mato® 6% [LycoRed Israel  
http://www.lycored.com]
Chem. Descrip.: Lycopene and other natural tomato phytonutrients extracted from tomatoes  
Chem. Analysis: < 0.5% moisture  
CAS 502-65-8; EINECS/ELINCS 207-949-1  
Uses: Natural tomato oleoresin for use dietary supplements  
Regulatory: USP/NF, GRAS, E 160d, kosher  
Properties: Visc. dark red liq.; characteristic odor; 6% lycopene  
Storage: 2 yr. shelf-life; store in original sealed container at 4 C

Lyc-O-Mato® 7% [LycoRed Israel  
http://www.lycorede.com]
Chem. Descrip.: Lycopene and other natural tomato phytonutrients extracted from tomatoes  
Chem. Analysis: < 0.5% moisture  
CAS 502-65-8; EINECS/ELINCS 207-949-1  
Uses: Natural tomato oleoresin for use dietary supplements  
Regulatory: USP/NF, GRAS, E 160d, kosher  
Properties: Visc. dark red liq.; characteristic odor; 7% lycopene
Trade Name Reference

Storage: 2 yr. shelf-life; store in original sealed container at 4 C

Lyc-O-Mato® 10% [LycoRed Israel http://www.lycored.com]
Chem. Descrip.: Lycopene and other natural tomato phytonutrients extracted from tomatoes
Chem. Analysis: < 0.5% moisture
CAS 502-65-8; EINECS/ELINCS 207-949-1
Uses: Natural tomato oleoresin for use dietary supplements
Regulatory: USP/NF, GRAS, E 160d, kosher
Properties: Visc. dark red liq.; characteristic odor; 10% min. lycopene
Storage: 2 yr. shelf-life; store in original sealed container at 4 C

Lyc-O-Mato® 15% [LycoRed Israel http://www.lycored.com]
Chem. Descrip.: Lycopene and other natural tomato phytonutrients extracted from tomatoes
Chem. Analysis: < 0.5% moisture
CAS 502-65-8; EINECS/ELINCS 207-949-1
Uses: Natural tomato oleoresin for use dietary supplements
Regulatory: USP/NF, GRAS, E 160d, kosher
Properties: Visc. dark red liq.; characteristic odor; 15% lycopene
Storage: 2 yr. shelf-life; store in original sealed container at 4 C

Lysidone® [Solabia http://www.solabia.com]
Chem. Descrip.: Lysine PCA
CAS 30657-38-6; EINECS/ELINCS 250-275-8
Uses: Moisturizer, cellular regenerative agent, antioxidant, free radical scavenger for pharmaceuticals, skin care, sun care, anti-age serums
Features: Stable in aq. and hydroalcoholic phases
Properties: Yel. liq., odorless; sol. in water; pract. insol. in ethanol, ether, chloroform; m.w. 275.3; sp.gr. 1.10-1.14; visc. 16-20 cps; pH 6.5-8.0; 40% aq. sol’n.
Use Level: 1-5%
Toxicology: LD50 (oral, rat) > 2000 mg/kg; nonirritating to skin, very sl. irritating to eyes

Mack™ CSF-CG [McIntyre http://www.mcintyregroup.com]
Chem. Descrip.: Sodium cocoamphopropionate
CAS 68919-41-5; EINECS/ELINCS 298-632-7
Uses: Anti-irritant
Features: Very mild; alcohol-free; salt-free; stable over wide pH range; compat. with most surfactants
Properties: Amber cl. sl. visc. liq.; typ. lt. org. odor; visc. 500 cps; pH 9.0-9.5 (10%); amphoteric; 38-40% solids
Environmental: Biodeg.

Mackamide™ ISA-D [McIntyre http://www.mcintyregroup.com]
Chem. Descrip.: Isostearamide DEA
CAS 26650-05-5; EINECS/ELINCS 247-873-6
Uses: Anti-irritant for w/o emulsions, lotions, shampoos, skin cleansers
Features: Imparts smooth feel; exc. visc. building at very low concs.
Properties: Amber liq.; typ. odor; oil-sol.; water-disp.; 11% max. DEA; 5% max. free fatty acid

Chem. Descrip.: Glycerin propoxylate
Uses: Lubricant for pharmaceuticals
Properties: Nearly colorless somewhat visc. liq.; acid no. 1 max.; hyd. no. 107-113; nonionic; 100% conc.; 0.2% max. water
Toxicology: Low toxicity

Chem. Descrip.: M,p-Cresol propoxylate
CAS 9064-13-5
Uses: Wetting agent, dispersant, defoamer, gellant, solubilizer, lubricant base for medical and pharmaceutical applics.
Regulatory: SARA nonreportable
Properties: Cl. liq., bland odor; sol. in aromatic solvs.; disp. in water; m.w. 4600; sp.gr. 1.00; visc. 100 cps; vapor pressure < 1 mm Hg; b.p. > 300 F; HLB 16.0; acid no. 1 max.; hyd. no. 120-138; pour pt. < 10 C; cloud pt. 85 C (1%)
Chem. Descrip.: Ceteareth-20
CAS 68439-49-6
Uses: Detergent, wetting agent, emulsifier, dispersant, solubilizer, and coupling agent for pharmaceuticals, creams, lotions, ointments
Properties: Wh. waxy solid, polyol odor; sol. @ 5% in water, IPA; insol. min. oil; sp.gr. 0.98 (70 C); vapor pressure < 0.1 mm Hg; m.p. 40 C; b.p. > 300 F; HLB 15.2; acid no. 0.5 max.; iodine no. 0.5; hyd. no. 52; flash pt. (PMCC) > 350 F; nonionic; 100% conc.
Toxicology: Contact with skin or eyes may cause temporary irritation
Precaution: Incompat. with strong oxidizing materials
Hazardous Ingredients: None
NFPA: Health 1, Flammability 1, Reactivity 0
Storage: Store in well-ventilated area below 120 F

Chem. Descrip.: Laureth-23
CAS 9002-92-0
Uses: Emulsifier, wetting agent in pharmaceutical creams, lotions, ointments
Properties: Wh. waxy solid, polyol odor; sol. @ 5% in water; disp. in min. spirits; sp.gr. 0.99; vapor pressure < 0.1 mm Hg; m.p. 40 C; HLB 16.4; acid no. 1 max.; iodine no. 0.1; hyd. no. 47; flash pt. (PMCC) > 350 F; nonionic; 100% conc.
Toxicology: Not expected to cause skin or eye irritation
Precaution: Incompat. with strong oxidizing materials

Hazardous Decomp. Prods.: Thermal decomp. may produce CO
Storage: Store in well-ventilated area below 120 F

Chem. Descrip.: PEG 200 See PEG-4
Uses: Ointment base, suppository base, tablet binder, solubilizer, lubricant, moisturizer for pharmaceuticals
Features: Good affinity to skin; easily washed out with water; not sticky; compat. with and solubilizer for various chem. substances
Regulatory: JP
Properties: Sol. in hard water, aq. salt sol'ns., acids, alkalis (except extremely conc. acids/alkalis); flash pt. 196 C
Toxicology: LD50 (oral, rat) 28 g/kg; low toxicity; low skin irritation
Storage: Hygroscopic

Chem. Descrip.: PEG 400 See PEG-8
Uses: Ointment base, suppository base, tablet binder, solubilizer, lubricant, moisturizer for pharmaceuticals
Features: Good affinity to skin; easily washed out with water; not sticky; compat. with and solubilizer for various chem. substances
Regulatory: JP
Properties: Visc. liq.; sol. in hard water, aq. salt sol'ns., acids, alkalis (except extremely conc. acids/alkalis); flash pt. 230 C
Toxicology: LD50 (oral, rat) 30.2 g/kg; low toxicity; low skin irritation
Storage: Hygroscopic

Chem. Descrip.: PEG 1000 See PEG-20
Uses: Ointment base, suppository base, tablet binder, solubilizer, lubricant, moisturizer for pharmaceuticals
Features: Good affinity to skin; easily washed out with water; not sticky; compat. with and solubilizer for various chem. substances
Regulatory: JP
Properties: Sol. in hard water, aq. salt sol'ns., acids, alkalis (except extremely conc. acids/alkalis); flash pt. 250 C
Toxicology: LD50 (oral, rat) 32 g/kg; low toxicity; low skin irritation
Storage: Hygroscopic
Macrogol 1500 [Sanyo Chem. Ind.  
http://www.sanyo-chemical.co.jp]
Chem. Descrip.: PEG 1500
Uses: Ointment base, suppository base,  
tablet binder, solubilizer, lubricant,  
moisturizer for pharmaceuticals
Features: Good affinity to skin; easily washed  
out with water; not sticky; compat. with and  
solubilizer for various chem. substances
Regulatory: JP
Properties: Powd.; sol. in hard water, aq. salt  
sofns., acids, alkalis (except extremely conc.  
acids/alkalis); flash pt. 256 C
Toxicology: LD50 (oral, rat) 50 g/kg; low  
toxicity; low skin irritation
Storage: Hygroscopic

Macrogol 4000 [Sanyo Chem. Ind.  
http://www.sanyo-chemical.co.jp]
Chem. Descrip.: PEG 4000  See PEG-75
Uses: Ointment base, suppository base,  
tablet binder, solubilizer, lubricant,  
moisturizer for pharmaceuticals
Features: Good affinity to skin; easily washed  
out with water; not sticky; compat. with and  
solubilizer for various chem. substances
Regulatory: JP
Properties: Powd.; sol. in hard water, aq. salt  
sofns., acids, alkalis (except extremely conc.  
acids/alkalis); flash pt. 270 C
Toxicology: LD50 (oral, rat) 50 g/kg; low  
toxicity; low skin irritation

Macrogol 6000 Flake [Sanyo Chem. Ind.  
http://www.sanyo-chemical.co.jp]
Chem. Descrip.: PEG 6000  See PEG-150
Uses: Ointment base, suppository base,  
tablet binder, solubilizer, lubricant,  
moisturizer for pharmaceuticals
Features: Good affinity to skin; easily washed  
out with water; not sticky; compat. with and  
solubilizer for various chem. substances
Regulatory: JP
Properties: Powd.; sol. in hard water, aq. salt  
sofns., acids, alkalis (except extremely conc.  
acids/alkalis); flash pt. 256 C
Toxicology: LD50 (oral, rat) 50 g/kg; low  
toxicity; low skin irritation

Macrogol 6000 Powder [Sanyo Chem. Ind.  
http://www.sanyo-chemical.co.jp]
Chem. Descrip.: PEG 6000  See PEG-150
Uses: Ointment base, suppository base,  
tablet binder, solubilizer, lubricant,  
moisturizer for pharmaceuticals
Features: Good affinity to skin; easily washed  
out with water; not sticky; compat. with and  
solubilizer for various chem. substances
Regulatory: JP
Properties: Powd.; sol. in hard water, aq. salt  
sofns., acids, alkalis (except extremely conc.  
acids/alkalis); flash pt. 256 C
Toxicology: LD50 (oral, rat) 50 g/kg; low  
toxicity; low skin irritation

Macrogol 20000 [Sanyo Chem. Ind.  
http://www.sanyo-chemical.co.jp]
Chem. Descrip.: PEG 20000  See PEG-350
Uses: Ointment base, suppository base,  
tablet binder, solubilizer, lubricant,  
moisturizer for pharmaceuticals
Features: Good affinity to skin; easily washed  
out with water; not sticky; compat. with and  
solubilizer for various chem. substances; very  
low hygroscopicity
Regulatory: JP
Properties: Powd.; sol. in hard water, aq. salt  
sofns., acids, alkalis (except extremely conc.  
acids/alkalis); flash pt. 296 C
Toxicology: Low toxicity; low skin irritation

Macrospherical® 95 [Reheis  
http://www.reheis.com]
Chem. Descrip.: Aluminum chlorohydrate  
CAS 12042-91-0; EINECS/ELINCS 234-933-1
Uses: Antiperspirant active for aerosols with  
controlled particle size
Features: Spray-dried to a relatively thick walled  
 hollow sphere
Properties: Spherical powd., 90% min. > 10 µ  
particle size; 47% Al2O3, 16.3% Cl

Mag-Gran™ DC [Barrington  
http://www.barringtonchem.com]
Chem. Descrip.: Magnesium oxide heavy  
CAS 1309-48-4; EINECS/ELINCS 215-171-9
Uses: Excipient for pharmaceuticals
Features: Directly compressible
Properties: Gran.

Magnabrite® F [Am. Colloid  
http://www.colloid.com]
Chem. Descrip.: Magnesium aluminum silicate  
USP/NF  
CAS 12199-37-0; EINECS/ELINCS 235-374-6
Uses: Disintegrant, binder, stabilizer, and  
suspending agent for pharmaceutical  
tablets, ointments, and pastes
Features: Rec. where dry blending is essential
Properties: Wh. fine powd.; 100% through 325  
mesh; insol. in water or alcohol; surf. area >  
750 m2/g; visc. 150-450 cps (5% solids); pH 9-
Magnabrite® HS [Am. Colloid
http://www.colloid.com]
Chem. Descrip.: Magnesium aluminum silicate
USP/NF
CAS 12199-37-0; EINECS/ELINCS 235-374-6
Uses: Suspending agent, gelant, and binder for pharmaceuticals
Features: Rec. where stability in acidic systems is essential
Properties: Wh. soft flakes, 20-100 mesh particle size; insol. in water and alcohol; surf. area > 750 m²/g; visc. 40-200 cps (5% solids); pH 9.0-10.0 (5% disp.); dry brightness (GE) 70 min.; 8% max. moisture

Magnabrite® HV [Am. Colloid
http://www.colloid.com]
Chem. Descrip.: Magnesium aluminum silicate
USP/NF
CAS 12199-37-0; EINECS/ELINCS 235-374-6
Uses: Emulsifier, thickener, stabilizer, and suspending agent for pharmaceuticals
Features: Rec. for low solids formulations
Properties: Wh. soft flakes, 20-100 mesh particle size; insol. in water and alcohol; surf. area > 750 m²/g; visc. 800-2200 cps (5% solids); pH 9-10 (5% disp.); dry brightness (GE) 83-87; 8% max. moisture

Magnabrite® K [Am. Colloid
http://www.colloid.com]
Chem. Descrip.: Magnesium aluminum silicate
USP/NF
CAS 12199-37-0; EINECS/ELINCS 235-374-6
Uses: Stabilizer and suspending agent for acidic pharmaceuticals; deflocculant
Features: Acid-stable
Properties: Wh. soft flakes.; 20-100 mesh particle size; insol. in water and alcohol; surf. area > 750 m²/g; visc. 100-300 cps (5% solids); pH 9-10 (5% disp.); dry brightness (GE) 83-87; 8% max. moisture

Magnabrite® S [Am. Colloid
http://www.colloid.com]
Chem. Descrip.: Magnesium aluminum silicate
USP/NF
CAS 12199-37-0; EINECS/ELINCS 235-374-6
Uses: Stabilizer and suspending agent for pharmaceuticals
Features: Rec. where good dispersibility, high visc., and wh. color are essential
Properties: Wh. soft flakes; 20-100 mesh particle size; insol. in water and alcohol; surf. area > 750 m²/g; visc. 225-600 cps (5% solids); pH 9-10 (5% disp.); dry brightness (GE) 83-87; 8% max. moisture

Magnasweet® 100 [Mafco Worldwide
http://www.magnasweet.com]
Chem. Descrip.: Monoammonium glycyrrhizinate See Ammonium glycyrrhizinate
CAS 1407-03-0; EINECS/ELINCS 258-887-7
Uses: Sweetener, masking agent for aftertaste, bitterness inhibitor for pharmaceutical preps. such as chewable tablets, cough and cold syrups, drops and lozenges, pediatric liquids, APAP syrups and chewables; in multivitamins, chewable and liq. supplements; local oral anesthetics, mouthwashes and lip balms
Features: Improves flavor delivery; reduces metallic characteristics; minimizes or eliminates bitterness; 50 times sweeter than sucrose
Regulatory: GRAS; Kosher; Parve
Properties: Wh. crystalline powd.

Magnasweet® 110 [Mafco Worldwide
http://www.magnasweet.com]
Chem. Descrip.: Monoammonium glycyrrhizinate See Ammonium glycyrrhizinate
CAS 1407-03-0
Uses: Sweetener, masking agent for aftertaste, bitterness inhibitor for pharmaceutical preps. such as chewable tablets, cough and cold syrups, drops and lozenges, pediatric liquids, APAP syrups and chewables; in multivitamins, chewable and liq. supplements; local oral anesthetics, mouthwashes and lip balms
Features: Improves flavor delivery; reduces metallic characteristics; minimizes or eliminates bitterness; 50 times sweeter than sucrose
Regulatory: GRAS; Kosher; Parve
Properties: Liq.
Magnasweet® 118  [Mafco Worldwide 
http://www.magnasweet.com]
Chem. Descrip.:  Monoammonium 
glycyrrhizinate  See Ammonium 
glycyrrhizinate
CAS 1407-03-0
Uses:  Sweetener, masking agent for 
aftertaste, bitterness inhibitor for 
pharmaceutical preps. such as chewable 
tablets, cough and cold syrups, drops and 
lozenges, pediatric liquids, APAP syrups 
and chewables; in multivitamins, chewable 
and liq. supplements;  local oral anesthetics, 
mouthwashes and lip balms
Features:  Improves flavor delivery; reduces 
metallic characteristics; minimizes or 
eliminates bitterness; 50 times sweeter than 
sucrose
Regulatory:  GRAS; Kosher; Parve
Properties:  Liq.

Magnasweet® 120  [Mafco Worldwide 
http://www.magnasweet.com]
Chem. Descrip.:  Monoammonium 
glycyrrhizinate  See Ammonium 
glycyrrhizinate
CAS 1407-03-0
Uses:  Sweetener, masking agent for 
aftertaste, bitterness inhibitor for 
pharmaceutical preps. such as chewable 
tablets, cough and cold syrups, drops and 
lozenges, pediatric liquids, APAP syrups 
and chewables; in multivitamins, chewable 
and liq. supplements;  local oral anesthetics, 
mouthwashes and lip balms
Features:  Improves flavor delivery; reduces 
metallic characteristics; minimizes or 
eliminates bitterness; 50 times sweeter than 
sucrose
Regulatory:  GRAS; Kosher; Parve
Properties:  Wh. powd.

Magnasweet® 125  [Mafco Worldwide 
http://www.magnasweet.com]
Chem. Descrip.:  Monoammonium 
glycyrrhizinate  See Ammonium 
glycyrrhizinate
CAS 1407-03-0
Uses:  Sweetener, masking agent for 
aftertaste, bitterness inhibitor for 
pharmaceutical preps. such as chewable 
tablets, cough and cold syrups, drops and 
lozenges, pediatric liquids, APAP syrups 
and chewables; in multivitamins, chewable 
and liq. supplements;  local oral anesthetics, 
mouthwashes and lip balms
Features:  Improves flavor delivery; reduces 
metallic characteristics; minimizes or 
eliminates bitterness; 50 times sweeter than 
sucrose
Regulatory:  GRAS; Kosher; Parve
Properties:  Wh. powd.

Magnasweet® 135  [Mafco Worldwide 
http://www.magnasweet.com]
Chem. Descrip.:  Monoammonium 
glycyrrhizinate  See Ammonium 
glycyrrhizinate
CAS 1407-03-0
Uses:  Sweetener, masking agent for 
aftertaste, bitterness inhibitor for 
pharmaceutical preps. such as chewable 
tablets, cough and cold syrups, drops and 
lozenges, pediatric liquids, APAP syrups 
and chewables; in multivitamins, chewable 
and liq. supplements;  local oral anesthetics, 
mouthwashes and lip balms
Features:  Improves flavor delivery; reduces 
metallic characteristics; minimizes or 
eliminates bitterness; 50 times sweeter than 
sucrose
Regulatory:  GRAS; Kosher; Parve
Properties:  Wh. powd.

Magnasweet® 136  [Mafco Worldwide 
http://www.magnasweet.com]
Chem. Descrip.:  Monoammonium 
glycyrrhizinate  See Ammonium 
glycyrrhizinate
CAS 1407-03-0
Uses:  Sweetener, masking agent for 
aftertaste, bitterness inhibitor for 
pharmaceutical preps. such as chewable 
tablets, cough and cold syrups, drops and 
lozenges, pediatric liquids, APAP syrups 
and chewables; in multivitamins, chewable 
and liq. supplements;  local oral anesthetics, 
mouthwashes and lip balms
Features:  Improves flavor delivery; reduces 
metallic characteristics; minimizes or 
eliminates bitterness; 50 times sweeter than 
sucrose
Regulatory:  GRAS; Kosher; Parve
Properties:  Wh. powd.
Trade Name Reference

mouthwashes and lip balms

Features: Improves flavor delivery; reduces metallic characteristics; minimizes or eliminates bitterness; 50 times sweeter than sucrose

Regulatory: GRAS; Kosher; Parve

Properties: Liq.

Magnasweet® 150 [Mafco Worldwide http://www.magnasweet.com]
Chem. Descrip.: Monoammonium glycyrrhizinate See Ammonium glycyrrhizinate
CAS 1407-03-0
Uses: Sweetener, masking agent for aftertaste, bitterness inhibitor for pharmaceutical preps. such as chewable tablets, cough and cold syrups, drops and lozenges, pediatric liquids, APAP syrups and chewables; in multivitamins, chewable and liq. supplements; local oral anesthetics, mouthwashes and lip balms
Features: Improves flavor delivery; reduces metallic characteristics; minimizes or eliminates bitterness; 50 times sweeter than sucrose
Regulatory: GRAS; Kosher; Parve
Properties: Wh. powd.

Magnasweet® 165 [Mafco Worldwide http://www.magnasweet.com]
Chem. Descrip.: Monoammonium glycyrrhizinate See Ammonium glycyrrhizinate
CAS 1407-03-0
Uses: Sweetener, masking agent for aftertaste, bitterness inhibitor for pharmaceutical preps. such as chewable tablets, cough and cold syrups, drops and lozenges, pediatric liquids, APAP syrups and chewables; in multivitamins, chewable and liq. supplements; local oral anesthetics, mouthwashes and lip balms
Features: Improves flavor delivery; reduces metallic characteristics; minimizes or eliminates bitterness; 50 times sweeter than sucrose
Regulatory: GRAS; Kosher; Parve
Properties: Wh. powd.

Magnasweet® 180 [Mafco Worldwide http://www.magnasweet.com]
Chem. Descrip.: Monoammonium glycyrrhizinate See Ammonium glycyrrhizinate
CAS 1407-03-0
Uses: Flavor enhancer, sweetness potentiator for artificial sweetener systems, masking agent for bitter aftertaste for pharmaceuticals, syrups (cough/cold, oral antiseptics, antibiotics), chewables (antacids), lozenges, vitamins, powds.
Features: Synergistic with natural sweeteners
Regulatory: FDA 21CFR §184.1408 GRAS
Properties: Powd. or presolubilized forms (glycerin or propylene glycol solns.), intense lingering sweetness; hygroscopic; sol. in most solvs.
Storage: Exc. long-term shelf stability; avoid

Magnasweet® 185 [Mafco Worldwide http://www.magnasweet.com]
Chem. Descrip.: Monoammonium glycyrrhizinate See Ammonium glycyrrhizinate
CAS 1407-03-0
Uses: Sweetener, masking agent for aftertaste, bitterness inhibitor for pharmaceutical preps. such as chewable tablets, cough and cold syrups, drops and lozenges, pediatric liquids, APAP syrups and chewables; in multivitamins, chewable and liq. supplements; local oral anesthetics, mouthwashes and lip balms
Features: Improves flavor delivery; reduces metallic characteristics; minimizes or eliminates bitterness; 50 times sweeter than sucrose
Regulatory: GRAS; Kosher; Parve
Properties: Wh. powd.
unwanted moisture accumulation

Magnesium Aluminum Silicate BC 100

Chem. Descrip.: Magnesium aluminum silicate NF
Chem. Analysis: SiO₂ (56.30%); Al₂O₃ (10.50%); MgO (9.20%); Fe₂O₃ (1.80%); Na₂O (2.40%); K₂O (1.00%); TiO₂ (0.10%)
CAS 12199-37-0; EINECS/ELINCS 235-374-6
Uses: Rheology control agent, thickener, binder, suspending agent in pharmaceuticals (tablets, acne creams/lotions, analgesic creams, antidiarrheal suspensions), antiperspirants, toothpaste
Properties: Wh. soft flakes; 99.75% through 325 mesh, 100% through 200 mesh; odorless; negligible sol. in water; sp.gr. 2.6; visc. 225-600 cps (5% solids); dry brightness 78; nonflamm.; pH 9-10; 8-9% moisture; 8% max. volatiles
Toxicology: Contains sm. amt. of cryst. silica which may cause delayed respiratory disease if inhaled over prolonged period; excessive inh. of dust may cause shortness of breath, reduced pulmonary function
Precaution: Slippery when wet
Hazardous Ingredients: Cryst. quartz (1-2%); cryst. cristobalite (6-8%)
Hazardous Decomp. Prods.: None
HMIS: Health 0, Flammability 0, Reactivity 0

Magnesium Aluminum Silicate BC 101

Chem. Descrip.: Magnesium aluminum silicate NF
Chem. Analysis: SiO₂ (56.30%); Al₂O₃ (10.50%); MgO (9.20%); Fe₂O₃ (1.80%); Na₂O (2.40%); K₂O (1.00%); TiO₂ (0.10%)
CAS 12199-37-0; EINECS/ELINCS 235-374-6
Uses: Rheology control agent, thickener, binder, suspending agent in pharmaceuticals (tablets, acne creams/lotions, analgesic creams, antidiarrheal suspensions), antiperspirants, toothpaste
Properties: Wh. soft flakes; 99.75% through 325 mesh, 100% through 200 mesh; odorless; negligible sol. in water; sp.gr. 2.6; visc. 150-450 cps (5% solids); dry brightness 78; nonflamm.; pH 9-10; 8% max. moisture
Toxicology: Contains sm. amt. of cryst. silica which may cause delayed respiratory disease if inhaled over prolonged period; excessive inh. of dust may cause shortness of breath, reduced pulmonary function
Precaution: Slippery when wet
Hazardous Ingredients: Cryst. quartz (1-2%); cryst. cristobalite (6-8%)
Hazardous Decomp. Prods.: None
HMIS: Health 0, Flammability 0, Reactivity 0

Magnesium Aluminum Silicate BC 102

Chem. Descrip.: Magnesium aluminum silicate NF
Chem. Analysis: SiO₂ (56.30%); Al₂O₃ (10.50%); MgO (9.20%); Fe₂O₃ (1.80%); Na₂O (2.40%); K₂O (1.00%); TiO₂ (0.10%)
CAS 12199-37-0; EINECS/ELINCS 235-374-6
Uses: Rheology control agent, thickener, binder, suspending agent in pharmaceuticals (tablets, acne creams/lotions, analgesic creams, antidiarrheal suspensions), antiperspirants, toothpaste
Properties: Wh. soft flakes; 99.75% through 325 mesh, 100% through 200 mesh; odorless; negligible sol. in water; sp.gr. 2.6; visc. 800-2200 cps (5% solids); dry brightness 78; nonflamm.; pH 9-10; 8% max. moisture
Toxicology: Contains sm. amt. of cryst. silica which may cause delayed respiratory disease if inhaled over prolonged period; excessive inh. of dust may cause shortness of breath, reduced pulmonary function
Precaution: Slippery when wet
Hazardous Ingredients: Cryst. quartz (1-2%); cryst. cristobalite (6-8%)
Hazardous Decomp. Prods.: None
HMIS: Health 0, Flammability 0, Reactivity 0

Magnesium Aluminum Silicate BC 103

Chem. Descrip.: Magnesium aluminum silicate NF
Chem. Analysis: SiO₂ (56.30%); Al₂O₃ (10.50%); MgO (9.20%); Fe₂O₃ (1.80%); Na₂O (2.40%); K₂O (1.00%); TiO₂ (0.10%)
CAS 12199-37-0; EINECS/ELINCS 235-374-6
Uses: Rheology control agent, thickener, binder, suspending agent in pharmaceuticals (tablets, acne creams/lotions, analgesic creams, antidiarrheal suspensions), antiperspirants, toothpaste
Properties: Wh. soft flakes; 99.75% through 325 mesh, 100% through 200 mesh; odorless; negligible sol. in water; sp.gr. 2.6; visc. 100-
Trade Name Reference

300 cps (5% solids); dry brightness 78; nonflamm.; pH 9-10; 8% max. moisture
Toxicology: Contains sm. amt. of cryst. silica which may cause delayed respiratory disease if inhaled over prolonged period; excessive inh. of dust may cause shortness of breath, reduced pulmonary function
Precaution: Slippery when wet
Hazardous Ingredients: Cryst. quartz (1-2%); cryst. cristobalite (6-8%)
Hazardous Decomp. Prods.: None
HMIS: Health 0, Flammability 0, Reactivity 0

Magnesium Carbonate 309-S Light [MPSI http://www.mp-solutionsinc.com]
Chem. Descrip.: Magnesium carbonate USP
Chem. Analysis: MgO (40-43.5%); CaO (0.45%); Fe (0.02%); EINECS/ELINCS 208-915-9
Uses: Antacid, alkaline buffer in pharmaceuticals; ingred. in toothpaste and dentifrices; prep. of magnesium citrate (pharmaceuticals)
Regulatory: USP, kosher, SARA §311/312 acute health hazard, §302/313 nonreportable
Properties: Wh. powd.; 97% through 325 mesh; 99.5% through 200 mesh; odorless; insol. in water; sp.gr. 2.22; dens. 15-22 lb/ft³ (loose); vapor pressure nil; decomp. pt. 250 C; pH sl. alkaline; > 98% NV
Toxicology: ACGIH TLV/TWA 5-10 mg/m³ respirable fraction (total particulate); nuisance dust; dust may cause eye irritation; inh. of dust may cause nose/throat irritation; ing. may cause diarrhea, abdominal pain; TSCA listed
Precaution: Incompat. with acids
Hazardous Ingredients: Magnesium carbonate (100%)
Hazardous Decomp. Prods.: If heated to high temps., may emit metallic oxides, CO, CO₂
Storage: Store in cool, dry, well-ventilated area

Magnesium Carbonate 302-S Heavy [MPSI http://www.mp-solutionsinc.com]
Chem. Descrip.: Magnesium carbonate USP
Chem. Analysis: MgO (40-43.5%); CaO (0.45%); Cl (0.07%); Fe (0.01%); SO₄ (0.30%)
CAS 546-93-0; EINECS/ELINCS 208-915-9
Uses: Antacid, alkaline buffer in pharmaceuticals; ingred. in toothpaste and dentifrices; prep. of magnesium citrate (pharmaceuticals)
Regulatory: USP, kosher, SARA §311/312 acute health hazard, §302/313 nonreportable
Properties: Wh. powd.; 97% through 325 mesh; 99.5% through 200 mesh; odorless; insol. in water; sp.gr. 2.22; dens. 15-22 lb/ft³ (loose); vapor pressure nil; decomp. pt. 250 C; pH sl. alkaline; > 98% NV
Toxicology: ACGIH TLV/TWA 5-10 mg/m³ respirable fraction (total particulate); nuisance dust; dust may cause eye irritation; inh. of dust may cause nose/throat irritation; ing. may cause diarrhea, abdominal pain; TSCA listed
Precaution: Incompat. with acids
Hazardous Ingredients: Magnesium carbonate (100%)
Hazardous Decomp. Prods.: If heated to high temps., may emit metallic oxides, CO, CO₂
Storage: Store in cool, dry, well-ventilated area

Magnesium Hydroxide 370-S7 Light [MPSI http://www.mp-solutionsinc.com]
Chem. Descrip.: Magnesium hydroxide USP
Chem. Analysis: Mg(OH)₂ (95-100.5%); CaO (0.70%); Cl (0.10%); Fe (0.03%); SO₄ (0.50%)
CAS 1309-42-8; EINECS/ELINCS 215-170-3
Uses: Antacid, alkaline buffer in
<table>
<thead>
<tr>
<th>Trade Name Reference</th>
<th>Magnesium Hydroxide 370-S12 Heavy [MPSI <a href="http://www.mp-solutionsinc.com">http://www.mp-solutionsinc.com</a>]</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>pharmaceuticals;</strong> mfg. of magnesium citrate, ‘milk of magnesia,’ and magnesium hydroxide tablets (pharmaceuticals)</td>
<td><strong>Chem. Descrip.:</strong> Magnesium hydroxide USP</td>
</tr>
<tr>
<td><strong>Regulatory:</strong> USP, Kosher, DOT nonregulated; SARA §311/312 acute health hazard, §302/313 nonreportable</td>
<td><strong>Chem. Analysis:</strong> Mg(OH)(_2) (95-100.5%); CaO (0.70%); Cl (0.10%); Fe (0.03%); SO(_4) (0.50%)</td>
</tr>
<tr>
<td><strong>Properties:</strong> Wh. powd.; odorless; insol. in water; sp.gr. 2.38; dens. 38.5-45.6 lb/ft(^3) (loose); vapor pressure none; decomp. pt. 350 C; &gt; 98% NV</td>
<td><strong>CAS 1309-42-8; EINECS/ELINCS 215-170-3</strong></td>
</tr>
<tr>
<td><strong>Toxicology:</strong> ACGIH TLV/TWA 5-10 mg/m(^3) resolvable fraction (total particulate); nuisance dust; may cause mech. irritation to eyes; high airborne levels of dust can cause nose/throat irritation; ing. may cause diarrhea, abdominal pain; TSCA listed</td>
<td><strong>Uses:</strong> Antacid, alkaline buffer in pharmaceuticals; mfg. of magnesium citrate, ‘milk of magnesia,’ and magnesium hydroxide tablets (pharmaceuticals)</td>
</tr>
<tr>
<td><strong>Precaution:</strong> Incompat. with acids</td>
<td><strong>Regulatory:</strong> USP, kosher, DOT nonregulated; SARA §311/312 acute health hazard, §302/313 nonreportable</td>
</tr>
<tr>
<td><strong>Hazardous Ingredients:</strong> Magnesium hydroxide (100%)</td>
<td><strong>Properties:</strong> Wh. powd.; odorless; insol. in water; sp.gr. 2.38; dens. 65.5-78.0 lb/ft(^3) (loose); vapor pressure none; decomp. pt. 350 C; &gt; 98% NV</td>
</tr>
<tr>
<td><strong>Hazardous Decomp. Prods.:</strong> If heated to high temps., may emit metallic oxides</td>
<td><strong>Toxicology:</strong> ACGIH TLV/TWA 5-10 mg/m(^3) resolvable fraction (total particulate); nuisance dust; may cause mech. irritation to eyes; high airborne levels of dust can cause nose/throat irritation; ing. may cause diarrhea, abdominal pain; TSCA listed</td>
</tr>
<tr>
<td><strong>Storage:</strong> Store in cool, dry, well-ventilated area</td>
<td><strong>Precaution:</strong> Incompat. with acids</td>
</tr>
</tbody>
</table>

### Magnesium Hydroxide 370-S9 Medium [MPSI http://www.mp-solutionsinc.com]

**Chem. Descrip.:** Magnesium hydroxide USP  
**Chem. Analysis:** Mg(OH)\(_2\) (95-100.5%); CaO (0.70%); Cl (0.10%); Fe (0.03%); SO\(_4\) (0.50%)  
**CAS 1309-42-8; EINECS/ELINCS 215-170-3**  
**Uses:** Antacid, alkaline buffer in pharmaceuticals; mfg. of magnesium citrate, ‘milk of magnesia,’ and magnesium hydroxide tablets (pharmaceuticals)  
**Regulatory:** USP, kosher, DOT nonregulated; SARA §311/312 acute health hazard, §302/313 nonreportable  
**Properties:** Wh. powd.; odorless; insol. in water; sp.gr. 2.38; dens. 53.0-59.3 lb/ft\(^3\) (loose); vapor pressure none; decomp. pt. 350 C; > 98% NV  
**Toxicology:** ACGIH TLV/TWA 5-10 mg/m\(^3\) resolvable fraction (total particulate); nuisance dust; may cause mech. irritation to eyes; high airborne levels of dust can cause nose/throat irritation; ing. may cause diarrhea, abdominal pain; TSCA listed  
**Precaution:** Incompat. with acids  
**Hazardous Ingredients:** Magnesium hydroxide (100%)  
**Hazardous Decomp. Prods.:** If heated to high temps., may emit metallic oxides  
**Storage:** Store in cool, dry, well-ventilated area

### Magnesium Hydroxide 370-S Xtra Light [MPSI http://www.mp-solutionsinc.com]

**Chem. Descrip.:** Magnesium hydroxide USP  
**Chem. Analysis:** Mg(OH)\(_2\) (95-100.5%); CaO (0.70%); Cl (0.10%); Fe (0.03%); SO\(_4\) (0.50%)  
**CAS 1309-42-8; EINECS/ELINCS 215-170-3**  
**Uses:** Antacid, alkaline buffer in pharmaceuticals; mfg. of magnesium citrate, ‘milk of magnesia,’ and magnesium hydroxide tablets (pharmaceuticals)  
**Regulatory:** USP, kosher, DOT nonregulated; SARA §311/312 acute health hazard, §302/313 nonreportable  
**Properties:** Wh. powd.; odorless; insol. in water; sp.gr. 2.38; dens. 25-38 lb/ft\(^3\) (loose); vapor pressure none; decomp. pt. 350 C; > 98% NV  
**Toxicology:** ACGIH TLV/TWA 5-10 mg/m\(^3\) resolvable fraction (total particulate); nuisance dust; may cause mech. irritation to eyes; high airborne levels of dust can cause nose/throat irritation; ing. may cause diarrhea, abdominal pain; TSCA listed  
**Precaution:** Incompat. with acids  
**Hazardous Ingredients:** Magnesium hydroxide (100%)  
**Hazardous Decomp. Prods.:** If heated to high temps., may emit metallic oxides  
**Storage:** Store in cool, dry, well-ventilated area
Trade Name Reference

Hazardous Decomp. Prods.: If heated to high temps., may emit metallic oxides
Storage: Store in cool, dry, well-ventilated area

Magnesium Oxide 310-FCC Heavy [MPSI http://www.mp-solutionsinc.com]
Chem. Descrip.: Magnesium oxide
Chem. Analysis: MgO (99%); CaO (0.08%); Cl (0.10%); Fe (0.004%)
CAS 1309-48-4; EINECS/ELINCS 215-171-9
Uses: Antacid, alkaline buffer, and laxative in pharmaceuticals; flow aid
Regulatory: USP, DOT nonregulated; SARA §311/312 acute health hazard, §302/313 nonreportable
Properties: Wh. powd.; odorless; insol. in water; sp.gr. 3.46; dens. 25 lb/ft³ (loose); vapor pressure nil; m.p. 5792 F; b.p. 3200 C (1 atm); ≈ 100%
Toxicology: TSCA listed
Precaution: Incomp. with acids; reacts exothermically with water to form insol. magnesium hydroxide
Hazardous Ingredients: Magnesium oxide (100%)
Hazardous Decomp. Prods.: None
Storage: Store in cool, dry, well-ventilated area

Magnesium Oxide 310-SH Heavy [MPSI http://www.mp-solutionsinc.com]
Chem. Descrip.: Magnesium oxide USP
Chem. Analysis: MgO (96.0-100.5%); CaO (1.00%); Cl (0.03%); Fe (0.05%); SO₄ (0.75%)
CAS 1309-48-4; EINECS/ELINCS 215-171-9
Uses: Antacid, alkaline buffer, and laxative in pharmaceuticals; flow aid
Regulatory: DOT nonregulated; SARA §311/312 acute health hazard, §302/313 nonreportable
Properties: Wh. powd.; 99% through 325 mesh; odorless; insol. in water; sp.gr. 3.46; dens. 25-31 lb/ft³ (bulk); vapor pressure nil; m.p. 5166 F; b.p. 3200 C (1 atm); > 96% NV
Toxicology: ACGIH TLV/TWA 10 mg/m³ respirable fraction (total particulate); nuisance dust; ing. may cause nausea, vomiting, GI upset, diarrhea; inh. of dust can cause nasal/respiratory tract irritation; may cause sl. eye irritation, redness, pain; TSCA listed
Precaution: Incomp. with acids; reacts exothermically with water to form insol. magnesium hydroxide
Hazardous Ingredients: Magnesium oxide (100%)
Hazardous Decomp. Prods.: None
Storage: Store in cool, dry, well-ventilated area
Magnesium Oxide 311-S Light [MPSI http://www.mp-solutionsinc.com]
Chem. Descrip.: Magnesium oxide USP
Chem. Analysis: MgO (96.0-100.5%); CaO (1.00%); Cl (0.03%); Fe (0.05%); SO₄ (0.75%)
CAS 1309-48-4; EINECS/ELINCS 215-171-9
Uses: Antacid, alkaline buffer, and laxative in pharmaceuticals; flow aid
Regulatory: DOT nonregulated; SARA §311/312 acute health hazard, §302/313 nonreportable
Properties: Wh. powd.; 99% through 325 mesh; odorless; insol. in water; sp.gr. 3.46; dens. 12-19 lb/ft³ (loose); vapor pressure nil; m.p. 516-66 F; b.p. 3200 C (1 atm); > 96% NV
Toxicology: ACGIH TLV/TWA 10 mg/m³ respirable fraction (total particulate); nuisance dust; ing. may cause nausea, vomiting, GI upset, diarrhea; inh. of dust can cause nasal/respiratory tract irritation; may cause si. eye irritation, redness, pain; TSCA listed
Precaution: Incompat. with acids; reacts exothermically with water to form insol. magnesium hydroxide
Hazardous Ingredients: Magnesium oxide (100%)
Hazardous Decomp. Prods.: None
Storage: Store in cool, dry, well-ventilated area

Glyceryl linoleate
CAS 2277-28-3; EINECS/ELINCS 218-901-4
Uses: Excipient, carrier, vehicle, solubilizer for pharmaceutical hard and soft gelatin capsules and liq. formulations
Regulatory: EP compliance; FDA 21CFR §184.1505 GRAS, FCC, E471, JSFA compliance; DMF no. 5797
Properties: Oily liq.; faint odor; HLB 3

Chem. Descrip.: Maitake mushroom extract from Grifola frondosa with 20% dextrose carrier See Glucose
Uses: Ingre. in health foods and pharmaceuticals, capsules
Properties: Brn. fine powd.; min. 20 mesh or finer; partly sol. in water
Storage: 24 mo shelf life
Trade Name Reference

effervescent.
Features: Sucrose substitute
Regulatory: USP/NF, EP, JECFA
Properties: Powd.; sweet taste; freely sol. in water; visc. 2400 mPa.s

Maltisorb® P 200 [Roquette http://www.roquette.fr]
Chem. Descrip.: Maltitol
CAS 585-88-6; EINECS/ELINCS 209-567-0
Uses: Diluent for pharmaceutical tablets and sachets; excipient for coatings and candying of lozenges; sweetener for pharmaceutical chewing gum
Features: Low hygroscopicity; noncariogenic; 95% sweetening power of sucrose
Regulatory: EP
Properties: Wh. crystalline, odorless powd.; sweet taste; particle size 200 µm; sol. in water (153g / 100ml)

Maltisorb® P 90 [Roquette http://www.roquette.fr]
Chem. Descrip.: Maltitol
CAS 585-88-6; EINECS/ELINCS 209-567-0
Uses: Diluent for pharmaceutical tablets and sachets; excipient for coatings and candying of lozenges; sweetener for pharmaceutical chewing gum
Features: Low hygroscopicity; noncariogenic; 95% sweetening power of sucrose
Regulatory: EP
Properties: Wh. crystalline, odorless powd.; sweet taste; particle size 90 µm; sol. in water (153g / 100ml)

Maltrin® M050 [Grain Processing http://www.grainprocessing.com]
Chem. Descrip.: Maltodextrin
CAS 9050-36-6; EINECS/ELINCS 232-940-4
Uses: Nutritive polymer, film-former, visc. builder, opacifier, mouthfeel enhancer for pharmaceuticals, for wet granulation
Features: Nonsweet
Properties: Wh. powd.; can be dissolved up to 40% in water yielding opaque syrup; bulk dens. 0.56 g/cc (packed); DE 5; pH 4-5

Maltrin® M100 [Grain Processing http://www.grainprocessing.com]
Chem. Descrip.: Maltodextrin
CAS 9050-36-6; EINECS/ELINCS 232-940-4
Uses: Visc. control agent; nutritive polymer, carrier, filler, extender, bulking agent, binder, disintegrant for pharmaceuticals (aq. film coatings, creams/lotions, dry and wet granulation, liq. pharmaceuticals, cleansers, spray drying); mouthfeel enhancer for chewable tablets; sweetness regulator, cryst. growth inhibitor in throat lozenges
Features: Nonsweet
Properties: Wh. powd., bland, low sweetness; disp. readily to produce cl. sol'n. at 30%; bulk dens. 0.56 g/cc (packed); DE 10; pH 4.0-4.7 (20%); 6% max. moisture

Maltrin® M150 [Grain Processing http://www.grainprocessing.com]
Chem. Descrip.: Maltodextrin
CAS 9050-36-6; EINECS/ELINCS 232-940-4
Uses: Nutritive polymer, bulking agent, bodying agent, diluent, binder, disintegrant, filler, film-former, humectant in pharmaceuticals (creams/lotions, dry granulation, liq. preps., medical nutritionals, cleansers, spray drying, direct compr. tableting), sweetness regulator, cryst. growth inhibitor in throat lozenges; visc. control agent
### Trade Name Reference

**Features:** Very slightly sweet; directly compressible  
**Properties:** Wh. powd.; disp. to produce cl. sol'n. at 50%; bulk dens. 0.61 g/cc (packed); DE 15; pH 4.0-4.7 (20%); 6% max. moisture

**Maltrin® M180**  
[Grain Processing](http://www.grainprocessing.com)  
Chem. Descrip.: Maltodextrin  
CAS 9050-36-6; EINECS/ELINCS 232-940-4  
**Uses:** Nutritive polymer, bulking agent, bodying agent, diluent, binder, film-former in pharmaceuticals (aq. film coatings, medical nutritionals); sweetness regulator, cryst. growth inhibitor in throat lozenges  
**Features:** Slightly sweet; directly compressible  
**Properties:** Wh. powd., bland; disp. easily to produce cl. sol'n.s. up to 60%; bulk dens. 0.63 g/cc (packed); DE 18; pH 4.0-4.7; 6% max. moisture

**Maltrin® M200**  
[Grain Processing](http://www.grainprocessing.com)  
Chem. Descrip.: Corn syrup solids  
CAS 68131-37-3  
**Uses:** Coating agent, binder, mouthfeel enhancer in pharmaceuticals (medical nutritionals); visc. control agent in pharmaceutical liqs.; sweetness regulator, cryst. growth inhibitor in throat lozenges  
**Features:** For prods. where clarity, blandness, and rapid dispersibility are important; directly compressible  
**Regulatory:** FDA 21CFR §168.121, 184.1865, GRAS  
**Properties:** Wh. powd.; disp. rapidly in cold or hot water to produce cl. sol'n. at 60%; bulk dens. 0.64 g/cc (packed); DE 20; pH 4.0-4.7 (20%); 6% max. moisture

**Maltrin® M250**  
[Grain Processing](http://www.grainprocessing.com)  
Chem. Descrip.: Corn syrup solids  
CAS 68131-37-3  
**Uses:** Binder, mouthfeel enhancer for pharmaceuticals; spray drying aid  
**Features:** Dried glucose syrup; directly compressible  
**Regulatory:** FDA 21CFR §168.121, 184.1865, GRAS  
**Properties:** Wh. powd., sl. sweet, no undesirable aftertaste; disp. rapidly in hot or cold water to produce cl. sol'n. at 70%; bulk dens. 0.67 g/cc (packed); DE 25; pH 4.5-5.5; 6% max. moisture

**Maltrin® M510**  
[Grain Processing](http://www.grainprocessing.com)  
Chem. Descrip.: Maltodextrin  
CAS 9050-36-6; EINECS/ELINCS 232-940-4  
**Uses:** Nutritive polymer, binder, carrier, diluent, sweetness regulator, cryst. growth inhibitor in throat lozenges  
**Features:** Flowable form of Maltrin M100; exc. dispersibility and dissolution; directly compressible; improves hardness, friability; low hygroscopicity  
**Properties:** Wh. free-flowing fine gran., bland; disp. easily to produce cl. sol'n.s. to 30%; bulk dens. 0.56 g/cc (packed); DE 10; pH 4.0-4.7

**Maltrin® M700**  
[Grain Processing](http://www.grainprocessing.com)  
Chem. Descrip.: Agglomerated maltodextrin  
CAS 9050-36-6; EINECS/ELINCS 232-940-4  
**Uses:** Nutritive polymer, bulking agent, carrier enhancing solubility and emulsification of absorbed components in pharmaceuticals  
**Features:** Agglomerated form of Maltrin M100; exc. dissolution; inert  
**Properties:** Free-flowing gran.; neutral flavor; disp. easily to cl. sol'n. @ 30% solids, opaque sol'n. > 40% solids; bulk dens. 0.13 g/cc (packed); DE 9-12; pH 6.0-7.0 (20%); 6% max. moisture
Maltrin® QD M440 [Grain Processing http://www.grainprocessing.com]  
Chem. Descrip.: Agglomerated maltodextrin  
CAS 9050-36-6; EINECS/ELINCS 232-940-4  
Uses: Nutritive polymer, binder, diluent, flow aid for pharmaceuticals (direct compr. tableting)  
Features: Agglomerated form of Maltrin M040; exc. dispersibility and dissolution  
Properties: Wh. free-flowing gran.; 87% on 200 mesh, 4% on 20 mesh; quickly disp. up to 50% solids; bulk dens. 0.37 g/cc (packed); DE 13-17; pH 4.0-5.1; 6% max. moisture

Chem. Descrip.: Agglomerated maltodextrin  
CAS 9050-36-6; EINECS/ELINCS 232-940-4  
Uses: Nutritive polymer, binder, diluent, flow aid for pharmaceuticals (direct compr. tableting, aq. film coating, medical nutritionals), foods  
Features: Quickly disp. carbohydrate with high rate of sol'n., exc. particulate str.  
Properties: Wh. free-flowing gran., bland; 10% max. on 20 mesh, 85% min. on 20 mesh; quickly disp. in water to 60% conc.; absorbs up to 10-11% moisture remaining free-flowing; bulk dens. 0.40 g/cc (packed); DE 16.5-19.5; pH 4.0-5.1; 6% max. moisture

Maltrin® QD M600 [Grain Processing http://www.grainprocessing.com]  
Chem. Descrip.: Agglomerated corn syrup solids  
CAS 68131-37-3  
Uses: Nutritive polymer, binder, carrier, bulking agent, diluent, flow aid for pharmaceuticals (direct compr. tableting, capsules, medical nutritionals)  
Features: Agglomerated form of Maltrin M200; quick dispersing; directly compressible  
Regulatory: FDA 21CFR §168.121, 184.1865, GRAS  
Properties: Wh. free-flowing gran., bland, sl. sweet; 87% on 200 mesh, 4% on 20 mesh; quickly disp. in water to 60% conc.; bulk dens. 0.40 g/cc (packed); DE 20-23; pH 4.0-5.1 (20%); 6% max. moisture

Mannogem™ [SPI Polyols http://www.spipolyols.com]  
Chem. Descrip.: Maltitol  
Uses: Sweetener for pharmaceutical tablets  
Features: Nonhygroscopic  
Regulatory: USP, FCC, FDA 21 CFR §180.25  
Properties: Wh. crystalline powd. particle size
Mannogem™ EZ [SPI Pharma
http://www.spipharma.com]

See D-Mannitol
CAS 69-65-8; EINECS/ELINCS 200-711-8
Uses: Excipient, disintegrant, sweetener for direct compression of pharmaceutical tablets, esp. chewable tablets and tablets with water-sensitive actives
Features: Rec. for difficult-to-use actives; highly compactable; smooth mouthfeel; cool taste sensation; nonhygroscopic; chemically inert; narrow particle size distribution; nonfriable; rapid disintegration
Regulatory: USP; FCC, Eur. Ph.
Properties: Free-flowing wh. odorless granules or powd.; 60% 75-150 µm particle size; sol. in water; m.w. 182.17; sp. gr. 1.52; 96-100% assay
Toxicology: LD50 (oral, rat) 13.5 g/kg; LD50 (oral, mouse) > 22 g/kg; dust may cause sl. eye irritation; no irritation to skin on short exposure; overexposure to dusts may produce irritation of the respiratory system.; ing. of small amounts not be expected to produce toxicity; ing. of large amounts may produce GI disturbances including a laxative action
Precaution: Avoid accumulation of airborne dusts; may react with oxidizing agents
Hazardous Decomp. Prods.: CO, CO2, and/or low molecular weight hydrocarbons
HMIS: Health 0, Flammability 0, Reactivity 0
Storage: Keep container tightly closed and store at room temperature.

Mannogem™ Getec Mannitol Pyrogen Free [SPI Pharma http://www.spipharma.com]

Chem. Descrip.: Mannitol USP, EP 
See D-Mannitol
CAS 69-65-8; EINECS/ELINCS 200-711-8
Uses: Excipient for injectable pharmaceuticals; excipient, binder, sweetener in wet granulation tableting
Features: Highly compressible; nonhygroscopic; chemically inert; sl. larger crystal morphology; produces softer tablets than Mannogem Powd.; pyrogen-free
Regulatory: Pyrogen-free certified, USP, EP
Properties: 0-150 µ particle size; sweet taste; 96-100% assay

Mannogem™ Mannitol Granular [SPI Pharma
http://www.spipharma.com]

Chem. Descrip.: Mannitol USP, EP 
See D-Mannitol
CAS 69-65-8; EINECS/ELINCS 200-711-8
Uses: Excipient, binder, flow aid for direct compression of pharmaceutical tablets, pharmaceutical sachets
Features: Highly compressible; nonhygroscopic; chemically inert
Regulatory: USP, EP
Properties: Coarse free-flowing powd.; 170-1190 µ particle size; sweet taste; 96-100% assay

Mannogem™ Mannitol Granular 2080 [SPI Pharma http://www.spipharma.com]

Chem. Descrip.: Mannitol USP, EP 
See D-Mannitol
CAS 69-65-8; EINECS/ELINCS 200-711-8
Uses: Excipient, binder, flow aid for wet granulation and direct compression of conventional and chewable pharmaceutical tablets
Features: Highly compressible; nonhygroscopic; chemically inert; tightly controlled particle size distribution
Properties: Free-flowing powd.; 150-590 µ particle size; sweet taste; 96-100% assay

Mannogem™ Mannitol Granular 3215 [SPI Pharma http://www.spipharma.com]

Chem. Descrip.: Mannitol USP, EP 
See D-Mannitol
CAS 69-65-8; EINECS/ELINCS 200-711-8
Uses: Excipient, binder, flow aid for direct compression of pharmaceutical tablets
Features: Highly compressible; nonhygroscopic; chemically inert; contains more fine particles (< 74 µ) than Mannogem™ Mannitol Granular 2080 to help bind extremely fine drug substances
Properties: Free-flowing powd.; 150-590 µ and < 74 µ particle size; sweet taste; 96-100% assay

Mannogem™ Mannitol Powd. [SPI Pharma http://www.spipharma.com]

Chem. Descrip.: Mannitol USP, EP 
See D-Mannitol
CAS 69-65-8; EINECS/ELINCS 200-711-8
Uses: Excipient, binder, flow aid for direct compression of pharmaceutical tablets
Features: Highly compressible; nonhygroscopic; chemically inert
Regulatory: USP, Eur. Ph.; Canada DSL
Trade Name Reference

**MANUCOL® DM** [ISP Alginates
http://www.ispcorp.com]
Chem. Descrip.: Sodium alginate  See Algin
CAS 9005-38-3
Uses: Gellant, suspending agent, thickener, stabilizer, film-former for pharmaceuticals
Features: Hygroscopic
Regulatory: DOT not regulated; FDA 21CFR §184.1724, GRAS; EU E401 compliance; Canada DSL; Japan ENCS; Australia AICS
Properties: Wh. to tan powd., sl. odor; 250 µ particle size; water-sol.; bulk dens. ≈ 50 lb/ft³; visc. 250 cps (1%), 5500 cps (2%); pH 6.0.
Toxicology: LD50 (oral, rat) > 5 g/kg; LC50 (inh., rat, 1 h) > 4.7; dry powd. may cause eye irritation; TSCA listed
Environmental: Biodeg.
Precaution: Wear gloves, safety glasses; slippery when wet; incompat. with strong oxidizers

**MANUCOL® Ester ER/K** [ISP Alginates http://www.ispcorp.com]
Chem. Descrip.: Propylene glycol alginate
CAS 9005-37-2
Uses: Emulsifier, thickener, stabilizer for pharmaceuticals
Features: Hydrates readily in hot or cold water; surf. active
Regulatory: FDA 21CFR §172.858, EU E405 compliance; Canada DSL; Japan ENCS; Australia AICS
Properties: Wh. to tan powd., sl. odor; 355 µ particle size; water-sol.; bulk dens. ≈ 50 lb/ft³; visc. 125 cps (1%), 1120 cps (2%); pH 4.0 (1% sol’n)

**MANUCOL® LB** [ISP Alginates http://www.ispcorp.com]
Chem. Descrip.: Sodium alginate  See Algin
CAS 9005-38-3
Uses: Gellant, suspending agent, thickener, stabilizer, film-former for pharmaceuticals, liq. antacids
Regulatory: FDA 21CFR §184.1724, GRAS; EU E401 compliance
Properties: Wh. to tan powd., sl. odor; 355 µ particle size; 40 mesh; water-sol.; bulk dens. ≈ 50 lb/ft³; visc. 150 cps (1%), 1500 cps (2%); pH 6
Toxicology: LD50 (oral, rat) > 5000 mg/kg; dry powd. may cause eye irritation
Precaution: Incompat. with strong oxidizers

**MANUCOL® LKX** [ISP Alginates http://www.ispcorp.com]
Chem. Descrip.: Sodium alginate  See Algin
CAS 9005-38-3
Uses: Ingred. in denture adhesives
Features: Hygroscopic
Regulatory: USP/NF, Ph. Eur.
Properties: White to yslsh.-brown powd.; 63 µ particle size; 250 mesh; sol. in water; visc. 4 cps (1%), 12 cps (2%)
Toxicology: LD50 (oral, rat) 5000 mg/kg, LC50 (inh., rat, 1 hr) 4.7 mg/l; TSCA listed
Environmental: Biodeg.
Precaution: Minimize dust generation and accumulation; avoid strong oxidizers

**MANUCOL® DMF** [ISP Alginates http://www.ispcorp.com]
Chem. Descrip.: Sodium alginate  See Algin
CAS 9005-38-3
Uses: Gellant, suspending agent, thickener, stabilizer, film-former for pharmaceuticals
Features: Hygroscopic
Regulatory: DOT not regulated; FDA 21CFR §184.1724, GRAS; EU E401 compliance; Canada DSL; Japan ENCS; Australia AICS
Properties: Wh. to tan powd., sl. odor; 105 µ particle size; water-sol.;bulk dens. ≈ 50 lb/ft³; visc. 250 cps (1%), 5500 cps (2%); pH 6.
Toxicology: LD50 (oral, rat) > 5 g/kg; LC50 (inh., rat, 1 h) > 4.7; dry powd. may cause eye irritation; nuisance dust; TSCA listed
Environmental: Biodeg.
Precaution: Wear gloves, safety glasses; slippery when wet; incompat. with strong oxidizers

**MANUCOL® Ester ER/K** [ISP Alginates http://www.ispcorp.com]
Chem. Descrip.: Propylene glycol alginate
CAS 9005-37-2
Uses: Emulsifier, thickener, stabilizer for pharmaceuticals
Features: Hydrates readily in hot or cold water; surf. active
Regulatory: FDA 21CFR §172.858, EU E405 compliance; Canada DSL; Japan ENCS; Australia AICS
Properties: Wh. to tan powd., sl. odor; 355 µ particle size; water-sol.; bulk dens. ≈ 50 lb/ft³; visc. 125 cps (1%), 1120 cps (2%); pH 4.0 (1% sol’n)
MANUGEL® DMB [ISP Alginates
http://www.ispcorp.com]
Chem. Descrip.: Sodium alginate  See Algin
CAS 9005-38-3
Uses: Gellant, suspending agent, thickener,
stabilizer, film-former for pharmaceuticals
Regulatory: FDA 21CFR §184.1724, GRAS; EU
E401 compliance
Properties: Wh. to tan powd., sl. odor; 105 µ
particle size; water-sol.; bulk dens. ≈ 50 lb/ft³;
visc. 300 cps (1%), 3000 cps (2%); pH 6.0

Mapeg® 200 DL [BASF/Perf. Chems.
http://www.basf.com/static/988804217008.html]
Chem. Descrip.: PEG-4 dilaurate
CAS 9005-02-1
Uses: Emulsifier, spreading agent, and
dispersant in pharmaceuticals
Properties: Yel. cl. liq.; sol. in IPA, toluol,
soybean and min. oil, water disp.; sp.gr. 0.95;
m.p. 10 C; HLB 7.6; acid no. 10 max.; sapon.
o. 176-192; flash pt. (PMCC) > 350 F;
nonionic; 100% conc.

Mapeg® 200 DO [BASF/Perf. Chems.
http://www.basf.com/static/988804217008.html]
Chem. Descrip.: PEG-4 dioleate
CAS 9005-07-6
Uses: Emulsifier, emollient, and dispersant in
pharmaceuticals
Properties: Yel. cl. liq.; sol. in IPA, toluol,
soybean and min. oil, water disp.; sp.gr. 0.95;
m.p. < -10 C; HLB 8.8; acid no. 10 max.; sapon.
o. 148-158; flash pt. (PMCC) > 350 F;
nonionic; 100% conc.

Mapeg® 200 MO [BASF/Perf. Chems.
http://www.basf.com/static/988804217008.html]
Chem. Descrip.: PEG-4 oleate
CAS 9004-96-0; EINECS/ELINCS 233-293-0
Uses: Emulsifier, dispersant in
pharmaceuticals
Properties: Yel. cl. liq.; sol. in IPA, toluol,
soybean oil; disp. hot in water; sp.gr. 0.97;
m.p. < -10 C; HLB 8.3; acid no. 5 max.; sapon.
o. 115-125; flash pt. (PMCC) > 350 F;
nonionic; 100% conc.
<table>
<thead>
<tr>
<th>Trade Name Reference</th>
<th>CAS</th>
<th>Uses</th>
<th>Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mapeg® 400 DS</td>
<td>9004-99-3</td>
<td>Emulsifier, dispersant in pharmaceuticals</td>
<td>Wh. solid; sol. in IPA, toluol, soybean oil, hot water disp.; m.p. 33 C; HLB 11.5; acid no. 5 max.; sapon. no. 84-93; flash pt. (PMCC) &gt; 350 F; nonionic; 100% conc.</td>
</tr>
<tr>
<td>Mapeg® 600 DO</td>
<td>9005-07-6</td>
<td>Emulsifier, dispersant in pharmaceuticals</td>
<td>Yel. liq.; sol. in IPA, toluol, soybean oil, water disp.; sp.gr. 1.00; m.p. 10.3; acid no. 10 max.; sapon. no. 92-102; flash pt. (PMCC) &gt; 350 F; nonionic; 100% conc.</td>
</tr>
<tr>
<td>Mapeg® 600 DOT</td>
<td>61791-01-3</td>
<td>Emulsifier, dispersant in pharmaceuticals</td>
<td>Amber liq.; sol. IPA, toluol, soybean oil; disp. water; sp.gr. 1.00; HLB 10.3; m.p. 15 C; acid no. 10 max.; sapon. no. 85-95; flash pt. (PMCC) &gt; 350 F; nonionic; 100% conc.</td>
</tr>
<tr>
<td>Mapeg® 600 MS</td>
<td>9004-99-3</td>
<td>Emulsifier, dispersant in pharmaceuticals</td>
<td>Visc. 175 cp s; HLB 13.6; nonionic</td>
</tr>
<tr>
<td>Mapeg® 600 MOT</td>
<td>61791-00-2</td>
<td>Emulsifier, dispersant in pharmaceuticals</td>
<td>Wh. solid or flake; sol. in IPA, toluol, soybean oil, hot water disp.; m.p. 41 C; HLB 10.6; acid no. 10 max.; sapon. no. 94-104; flash pt. (PMCC) &gt; 350 F; nonionic; 100% conc.</td>
</tr>
<tr>
<td>Mapeg® 600 MOT</td>
<td>61791-00-2</td>
<td>Emulsifier, dispersant in pharmaceuticals</td>
<td>Visc. 175 cps; HLB 13.6; nonionic</td>
</tr>
</tbody>
</table>

Handbook of Pharmaceutical Additives, Third Edition 431
Trade Name Reference

**PEG-12 stearate**
Chem. Descrip.: Emulsifier, dispersant in pharmaceuticals
Properties: Wh. solid; sol. in IPA, toluol, soybean oil, water, propylene glycol; disp. hot in min. oil; m.p. 36 C; HLB 13.6; acid no. 5 max.; sapon. no. 62-70; flash pt. (PMCC) > 350 F; nonionic; 100% conc.

**PEG-150 distearate**
Chem. Descrip.: Emulsifier, thickener, dispersant in pharmaceuticals
Properties: Wh. solid or flake; sol. in IPA, toluol, propylene glycol, water; m.p. 55 C; HLB 18.4; acid no. 9 max.; sapon. no. 14-20; flash pt. (PMCC) > 350 F; nonionic; 100% conc.

**PEG-40 stearate**
Chem. Descrip.: Emulsifier, dispersant for pharmaceuticals
Properties: Gardner 2 max. flake; sol. in IPA, toluol, propylene glycol, water; congeal pt. 37-47 C; HLB 17.2; acid no. 1 max.; sapon. no. 25-35; hyd. no. 27-40; flash pt. (PMCC) > 350 F; nonionic; 100% conc.

**Sodium n-lauroyl sarcosinate**
Chem. Descrip.: Detergent, wetting agent, foaming agent for pharmaceuticals
Properties: Liq.; sp.gr. 1.03; flash pt. > 200 F; anionic; 30% act.

**Magnesium oxide heavy**
Chem. Descrip.: Antacid and mild laxative
Properties: Flat platelets; 3 µm avg. particle size; 99.5% min. through 325 mesh; dens., tamped 0.35-0.65 g/ml; 98.4% act.

**Hydrogenated cocoglycerides**
Chem. Descrip.: Suppository bases for pharmaceuticals
Properties: Wh. odorless hard fat; m.p. 33.5-35.5 C; solid. pt. 32-34.5 C; acid no. 0.3 max.; iodine no. 3 max.; sapon. no. 240-255; hyd. no. 2 max.
Trade Name Reference

http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com;
Eigenmann & Veronelli
http://www.eigver.it
Chem. Descrip.: Hydrogenated
cocoglycerides  See Hydrogenated coco-
glycerides
Uses: Suppository bases for pharmaceuticals
Regulatory: USP/NF, EP
Properties: Wh. odorless hard fat; m.p. 33.5-35.5
C; solid. pt. 30.5-32.5 C; acid no. 0.3 max.; iodine
no. 3 max.; sapon. no. 225-240; hyd. no. 20-30

Massa Estarinum® BC  [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: Hydrogenated
cocoglycerides and glyceryl ricinoleate
See Hydrogenated coco-glycerides
Uses: Suppository bases for pharmaceuticals
Properties: Wh. odorless hard fat; m.p. 33.5-35.5
C; solid. pt. 30.5-32.5 C; acid no. 0.3 max.; iodine
no. 3 max.; sapon. no. 225-240; hyd. no. 30-40

Massa Estarinum® C  [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: Hydrogenated
cocoglycerides  See Hydrogenated coco-
glycerides
Uses: Suppository bases for pharmaceuticals
Regulatory: USP, EP
Properties: Wh. odorless hard fat; m.p. 36-38 C;
solid. pt. 33-35 C; acid no. 0.3 max.; iodine
no. 3 max.; sapon. no. 225-235; hyd. no. 20-30

Massa Estarinum® E  [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: Hydrogenated
cocoglycerides, ceteareth-25, and beeswax
See Hydrogenated coco-glycerides
Uses: Suppository bases for pharmaceuticals
Properties: Wh. odorless hard fat; m.p. 34-36 C;
solid. pt. 29-31 C; acid no. 1 max.; iodine no. 3
max.; sapon. no. 215-230; hyd. no. 45-60

Maxiren®  [DSM Food Spec.
http://www.dsm.com]
Chem. Descrip.: Chymosin  See Rennet
CAS 9001-98-3
Uses: Thickener in pharmaceuticals

Mazawax® 163R Flake  [BASF/Perf. Chems.
http://www.basf.com/static/988804217008.htm]
Chem. Descrip.: Cetearyl alcohol and
polysorbate 60
Uses: Emulsifier, base, emollient, thickener
for pharmaceuticals
Regulatory: CERCLA nonreportable
Properties: Wh. flake; bland odor; disp. in water;
vapor dens. > 1; vapor pressure < 1 mm Hg;
m.p. 51 C; b.p. > 300 F; acid no. 1; iodine no.
0.5; sapon. no. 12; flash pt. (PMCC) > 350 F;
volatile < 1%; nonionic; 100% conc.
Toxicology: TSCA listed
Environmental: Do no discharge into
waterways, sewers
Precaution: Wear safety glasses or goggles;
wear gloves, coveralls, apron, boots as
necessary to minimize contact
NFPA: Health 1, Flammability 1, Reactivity 0

Mazol® 159  [BASF/Perf. Chems.
http://www.basf.com/static/988804217008.htm]
Chem. Descrip.: PEG-7 glyceryl cocoate
CAS 68201-46-7
Uses: Emollient, solubilizer for
pharmaceuticals
Properties: Amber liq.; sol. in water, min. oil;
disp. in min. spirits, toluene, IPA; HLB 13.0;
acid no. 5 max.; sapon. no. 82-98; flash pt.
(PMCC) > 350 F; nonionic

Mazol® 165C  [BASF/Perf. Chems.
http://www.basf.com/static/988804217008.htm]
Chem. Descrip.: Glycerol stearate and PEG-
100 stearate
Uses: Emulsifier blend, thickener, and
opacifier for pharmaceutical o/w emulsions;
acid-stable
Properties: Tan flake; sol. in IPA; disp. in water;
sol. hot in min. oil, toluene; HLB 11.2; acid no.
2 max.; sapon. no. 90-100; flash pt. (PMCC) >
350 F; nonionic; 100% conc.

Mazol® GMO  [BASF/Perf. Chems.
http://www.basf.com/static/988804217008.htm]
Chem. Descrip.: Glycerol oleate
Trade Name Reference

CAS 111-03-5; EINECS/ELINCS 203-827-7
Uses: Base for ointments
Regulatory: GRAS
Properties: Yel. liq.; sol. in soybean oil, min. oil, toluene, IPA; disp. in ethanol, propylene glycol; HLB 3.8; acid no. 2 max.; sapon. no. 150-170; flash pt. (PMCC) > 350 F; nonionic; 100% conc.

Chem. Descrip.: Glycerol stearate SE
CAS 11099-07-3
Uses: Emulsifier, emollient for pharmaceuticals
Properties: Tan flake; sol. in IPA; sol. hot in min. oil, toluene; disp. in water; HLB 6.0; acid no. 3.5 max.; sapon. no. 145-160; flash pt. (PMCC) > 350 F

Chem. Descrip.: Decaglycerol tetraoleate See Polyglyceryl-10 tetraoleate
CAS 34424-98-1; EINECS/ELINCS 252-011-7
Uses: Emulsifier for pharmaceuticals; solubilizer and carrier for essential oils and flavors
Regulatory: FDA 21CFR §172.854; kosher
Properties: Dk. liq.; sol. in IPA, min. oil, veg. oil, toluene; disp. in ethanol, propylene glycol, min. spirits; insol. in water; HLB 6.2; acid no. 8 max.; iodine no. 61; sapon. no. 125-145; flash pt. (PMCC) > 350 F

Mazu® DF 204 [Noveon http://www.carbopol.com; http://www.noveoncoatings.com]
Uses: Defoamer for pharmaceuticals; enzyme, amino acid, and citric acid defoamer for fermentation apps.
Features: Modest wetting chars.
Properties: Cl. liq.; water-disp.; sp.gr. 1.010; visc. 400 cps; flash pt. (PMCC) > 350 F

Uses: O/w emulsifier, thickener, antifoam, dispersant, base for pharmaceuticals
Properties: Yel. liq.; typical odor; disp. in water; sol. in fat; dens. 0.98; f.p. 4 C max.; flash pt. > 200 C; nonionic
Environmental: Biodeg.; keep out of sewers, drains, surface and underground water; considered to be of low toxicity for aquatic life
Precaution: Wear glove, goggles, overalls; avoid contact with flames
Hazardous Decomp. Prods.: Can generate adductors of ethylene oxide
Storage: Store in original, closed container @ R.T.; protect from dampness, heat sources

MEA Commercial Grade [Dow http://www.dow.com]
Chem. Descrip.: Monoethanolamine See Ethanolamine
CAS 141-43-5; EINECS/ELINCS 205-483-3
Uses: Emulsifier in pharmaceuticals
Properties: Sp.gr. 1.0113 (25/4 C); dens. 8.45
Trade Name Reference

lb/gal; visc. 18.9 cps; f.p. 10 C; b.p. 171 C (760 mm Hg); flash pt. (Seta CC) 201 F; fire pt. 200 F; ref. index 1.4525

MEA Low Freeze Grade [Dow http://www.dow.com]
Chem. Descrip.: Monoethanolamine See Ethanolamine
CAS 141-43-5; EINECS/ELINCS 205-483-3
Uses: Emulsifier in pharmaceuticals
Properties: Sp.gr. 1.0113 (25/4 C); dens. 8.45 lb/gal; visc. 18.9 cps; f.p. 10 C; b.p. 171 C (760 mm Hg); flash pt. (Seta CC) 201 F; fire pt. 200 F; ref. index 1.4525

MEA Low Iron Grade [Dow http://www.dow.com]
Chem. Descrip.: Monoethanolamine See Ethanolamine
CAS 141-43-5; EINECS/ELINCS 205-483-3
Uses: Emulsifier in pharmaceuticals
Properties: Sp.gr. 1.0113 (25/4 C); dens. 8.45 lb/gal; visc. 18.9 cps; f.p. 10 C; b.p. 171 C (760 mm Hg); flash pt. (Seta CC) 201 F; fire pt. 200 F; ref. index 1.4525

MEA Low Iron-Low Freeze Grade [Dow http://www.dow.com]
Chem. Descrip.: Monoethanolamine See Ethanolamine
CAS 141-43-5; EINECS/ELINCS 205-483-3
Uses: Emulsifier in pharmaceuticals
Properties: Sp.gr. 1.0113 (25/4 C); dens. 8.45 lb/gal; visc. 18.9 cps; f.p. 10 C; b.p. 171 C (760 mm Hg); flash pt. (Seta CC) 201 F; fire pt. 200 F; ref. index 1.4525

MEA NF Grade [Dow http://www.dow.com]
Chem. Descrip.: Monoethanolamine NF See Ethanolamine
CAS 141-43-5; EINECS/ELINCS 205-483-3
Uses: Emulsifier in pharmaceuticals
Properties: Sp.gr. 1.0113 (25/4 C); dens. 8.45 lb/gal; visc. 18.9 cps; f.p. 10 C; b.p. 171 C (760 mm Hg); flash pt. (Seta CC) 201 F; fire pt. 200 F; ref. index 1.4525

Mearlmaid® AA [Engelhard]
Chem. Descrip.: Water, guanine, isopropyl alcohol, methylcellulose
Uses: Pearl colorant for analgesic body lotions, sunscreens
Properties: Paste

Medilan™ [Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: Anhydrous lanolin USP/BP/Ph.Eur. with 150 ppm BHT (as stabilizer)
CAS 8006-54-0; EINECS/ELINCS 232-348-6
Uses: Emollient, moisturizer, emulsifier for pharmaceuticals, skin and wound care prods., esp. for use on compromised skin
Features: Medical grade; hypoallergenic; low pesticides; low free alcohols; highly compatible with human skin; holds 200% of its own weight of water
Regulatory: FDA 21CFR §172.615
Properties: Lovibond 8-14Y/0.8-20.0R color; yel. soft grease, faint char. odor; sol. in min. oil; partly sol. in ethanol, min. oil, IPA, IPM; insol. in water; m.p. 38-44 C; HLB 9.49; acid no. 1 max.; sapon. no. 90-105; flash pt. > 100 C; nonionic; 100% conc.
Use Level: 1-100%
Toxicology: Extremely low toxicity; LD50 (oral, rat) > 20 g/kg; nonirritating to skin and eyes
Environmental: Substantially biodeg.
Precaution: Nonflamm., but will burn if strongly heated
Storage: Store in well-closed containers in cool place away from direct sunlight; avoid storage over 80 C, esp. for prolonged periods; 2 yrs. storage life

Medilan™ Ultra [Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: Modified lanolin USP
CAS 8006-54-0; EINECS/ELINCS 232-348-6
Uses: Moisturizer, emollient, active ingredient, and excipient in pharmaceutical ointments, creams such as eczema, psoriasis and open wounds, ophthalmics, infant products and skin care formulations for nursing mothers; also used in transdermals, drug delivery systems, and protective lip balms
Features: Ultra pure grade of medical lanolin; hypoallergenic; highly compatible with human skin; holds 200% of its own weight of water
Regulatory: USP
Properties: Wh. soft solid; odorless
Toxicology: Nonirritant

Melarrest™ L [Engelhard]
Chem. Descrip.: Decamethyl cyclopentasiloxane, dodecamethyl cyclohexasiloxane, water, licorice (Glycyrrhiza glabra) extract, butylene glycol, lecithin, hydrogenated lecithin See Decamethylcyclopentasiloxane; Dodecamethylcyclohexasiloxane
Uses: Anti-inflammatory, skin lightener, vehicle...
Trade Name Reference

for skin care
Features: Complete, multi-fraction extract of Licorice Root; easy-to-use, water-dispersible vehicle
Properties: Pale straw opaque liq.; char. odor; sol. in water, oils; disp. in water; sp.gr. 0.978-1.02; pH 4-5
Toxicology: Ocular irritation assay: produced minimal irritation at use levels up to 20%.
Storage: Keep sealed at room temperature in a dry place; protect from light; store at 20-25 C; do not freeze; 12 mos. shelf life

Merezan® 8 [Frutarom http://www.frutarom.com]
Chem. Descrip.: Xanthan gum FCC from Xanthomonas campestris
CAS 11138-66-2; EINECS/ELINCS 234-394-2
Uses: High m.w. polysaccharide for the pharmaceutical industry
Properties: Cream-colored powd., ≥ 97% through 80 mesh; readily sol. in hot and cold water; visc. ≥ 1200 cps (1%); pH 6.1-8.1 (1%)
Storage: Store in clean, cool, dry area; 1 yr. min. shelf life

Merezan® 20 [Frutarom http://www.frutarom.com]
Chem. Descrip.: Xanthan gum FCC from Xanthomonas campestris
CAS 11138-66-2; EINECS/ELINCS 234-394-2
Uses: High m.w. polysaccharide for the pharmaceutical industry
Properties: Cream-colored powd., ≥ 97% through 200 mesh; readily sol. in hot and cold water; visc. ≥ 1200 cps (1%); pH 6.1-8.1 (1%)
Storage: Store in clean, cool, dry area; 1 yr. min. shelf life

Merigel 100 [Tate & Lyle UK http://www.tateandlyle.com]
Chem. Descrip.: Pregelatinized corn starch See Corn starch, pregelatinized
Uses: Carrier, excipient in solid pharmaceutical prods.

Meriten 100 [Tate & Lyle UK http://www.tateandlyle.com]
Chem. Descrip.: Corn (Zea mays) starch CAS 9005-25-8; EINECS/ELINCS 232-679-6
Uses: Carrier, excipient in solid pharmaceutical prods.; diluent and moisture absorbent in talcum powders and other pharmaceutical powders

Meriten 141 [Tate & Lyle UK http://www.tateandlyle.com]
Chem. Descrip.: Corn (Zea mays) starch CAS 9005-25-8; EINECS/ELINCS 232-679-6
Uses: Carrier, excipient in pharmaceutical prods.; diluent and moisture absorbent in talcum powders and other pharmaceutical powders
Features: Low microbial count

Meritol 121 [Tate & Lyle UK http://www.tateandlyle.com]
Chem. Descrip.: Sorbitol CAS 50-70-4; EINECS/ELINCS 200-061-5
Uses: Sugar-free pharmaceutical syrups and suspensions; substrate for vitamin C mfg.; excipient, carrier, osmolality control agent, sweetener, polarity control agent, solvent, viscosity control agent in pharmaceutical preps.
Features: High purity
Regulatory: EP, USP, FCC, E420

Meritol 130 [Tate & Lyle UK http://www.tateandlyle.com]
Chem. Descrip.: Sorbitol CAS 50-70-4; EINECS/ELINCS 200-061-5
Uses: Sugar-free pharmaceutical syrups and suspensions; substrate for vitamin C mfg.; excipient, carrier, osmolality control agent, sweetener, polarity control agent, solvent, viscosity control agent in pharmaceutical preps.
Features: Intermediate purity
Regulatory: EP, USP, FCC, E420

Meritol 160 [Tate & Lyle UK http://www.tateandlyle.com]
Chem. Descrip.: Sorbitol CAS 50-70-4; EINECS/ELINCS 200-061-5
Uses: Excipient in pharmaceutical syrups and suspensions; carrier, osmolality control agent, sweetener, polarity control agent, solvent, viscosity control agent in pharmaceutical preps.
Regulatory: EP, USP, FCC, E420

Meritose 100 [Tate & Lyle N. Am. http://www.tlna.com]
Chem. Descrip.: D-Glucose monohydrate
Chem. Analysis: 99% dextrose and 0.5% other sugars
CAS 5996-10-1; EINECS/ELINCS 200-075-1
Uses: Carrier, sweetener, and excipient in pharmaceuticals for powdered and tableted dosages
Trade Name Reference

Properties: Cryst. solid

Chem. Descrip.: D-Glucose monohydrate
Chem. Analysis: 99% dextrose and 0.5% other sugars
CAS 5996-10-1; EINECS/ELINCS 200-075-1
Uses: Carrier, sweetener, and excipient in pharmaceuticals for powdered and tableted dosages

Chem. Descrip.: D-Glucose monohydrate
Chem. Analysis: 99% dextrose and 0.5% other sugars
CAS 5996-10-1; EINECS/ELINCS 200-075-1
Uses: Carrier, sweetener, and excipient in pharmaceuticals for powdered and tableted dosages

Use Level: 4-6%
Toxicology: Nontoxic
Storage: Do not expose to temps. below 0 C or to a pH of < 4 or > 8

Methocel® 310 Series [Dow http://www.dow.com]
Chem. Descrip.: Cellulose ether
Uses: Thickener, binder, film-former, water-retention agent, suspending agent, surfactant, lubricant, protective colloid, and emulsifier for pharmaceuticals
Regulatory: Kosher
Properties: Sl. off-wh. gran.; 100-500 µ particle size; sol. in water and some org. solvs.; 8% max. moisture
Toxicology: TSCA listed

Chem. Descrip.: Methylcellulose
Chem. Analysis: 5.0% max. loss on drying
CAS 9004-67-5
Uses: Granulation binder in pharmaceutical controlled release hydrophilic matrix systems and controlled release coatings; viscosity modifier and suspending agent in pharmaceutical liq. systems
Regulatory: USP, EP, kosher
Properties: Wh. to off-wh. powd.; 99.0% min. through #40 US standardapparent visc. 12-18 mPa.s; pH 5.5-8.0 (1% sol'n.); nonionic; 27.5-31.5% methoxyl
Storage: 5 yr shelf life; store in tightly closed containers

Chem. Descrip.: Methylcellulose
Chem. Analysis: 5% max. loss on drying
CAS 9004-67-5
Uses: In pharmaceuticals (tablet binder, coating agent, emulsifier, dispersant, bulk laxative)
Properties: Firm gel structure; water-sol.; visc. 400 (2% aq.)

Chem. Descrip.: Methylcellulose
Chem. Analysis: 5% max. loss on drying
CAS 9004-67-5
Uses: Granulation binder in pharmaceutical controlled release hydrophilic matrix systems and controlled release coatings; viscosity modifier and suspending agent in pharmaceuticals
Trade Name Reference

**pharmaceutical liq. systems**

**Regulatory:** FDA GRAS 21CFR §182.1480, 9CFR 318.7, 381.147, FCC, USP, EP, JP, BP; kosher

**Properties:** Wh. to sl. off-wh. gran. powd.; 99.0% min. through # 40 US standard sieve; water-sol.; visc. 289-525 mPa•s; pH 5.5-8.0 (1% sol’n.)

**Storage:** 5 yr shelf life from date of manufacture; store in a tightly sealed container


Chem. Descrip.: Methylcellulose

Chem. Analysis: 5.0% max loss on drying

CAS 9004-67-5

Uses: Granulation binder in pharmaceutical controlled release hydrophilic matrix systems and controlled release coatings; viscosity modifier and suspending agent in pharmaceutical liq. systems

**Regulatory:** USP, EP, kosher

**Properties:** Wh. to sl. off-wh. gran. powd.; 99.0% min. through #40 US standard sieve; apparent visc. 2308-3755 mPa•s; pH 5.5-8.0 (1% sol’n.)

**Storage:** 5 yr shelf life; store in tightly closed containers

**Methocel® A15C Premium** [Dow http://www.dow.com]

Chem. Descrip.: Methylcellulose

CAS 9004-67-5

Uses: Thickener, stabilizer, emulsifier, and gellant in pharmaceuticals

**Regulatory:** FDA GRAS 21CFR §182.1480, 9CFR 318.7, 381.147, FCC, USP, EP, JP, BP; kosher

**Properties:** Visc. 1500 cps

**Methocel® A15-LV** [Dow http://www.dow.com]

Chem. Descrip.: Methylcellulose

CAS 9004-67-5

Uses: Food gums used as thickener, stabilizer, emulsifier, and gellant; also for tablet coating applies.

**Features:** Films exhibit exc. stability to UV light, oils, most solvs.

**Properties:** Film props.: sp.gr. 1.39; tens. str. 62 MPa; elong. 5-15%

**Methocel® A15LV Premium** [Dow http://www.dow.com]

Chem. Descrip.: Methylcellulose

CAS 9004-67-5

Uses: Visc. control agent, gellant, foam booster/stabilizer, film-former, dispersant, lubricant, binder, emulsion stabilizer, and suspending agent for pharmaceutical tablet coating

**Features:** Adds fat-like texture

**Regulatory:** FDA GRAS 21CFR §182.1480, 9CFR 318.7, 381.147, FCC, USP, EP, JP, BP; kosher

**Properties:** Wh./off-wh. powd.; visc. 15 mPa•s


Chem. Descrip.: Hydroxypropyl methylcellulose

CAS 9004-65-3

Uses: Granulation binder in pharmaceutical controlled release hydrophilic matrix systems and controlled release coatings; viscosity modifier and suspending agent in pharmaceutical liq. systems

**Regulatory:** USP, EP, JP, kosher

**Properties:** Wh./off-wh. powd.; 99.0% min. through #40 US standard sieve; apparent visc. 2.7-3.8 mPa•s; pH 5.5-8.0 (1% sol’n.); 28.0-30.0% methoxyl

**Storage:** 5 yr shelf life; store in tightly closed container


Chem. Descrip.: Hydroxypropyl methylcellulose

CAS 9004-65-3

Uses: Granulation binder in pharmaceutical controlled release hydrophilic matrix systems and controlled release coatings; viscosity modifier and suspending agent in pharmaceutical liq. systems

**Regulatory:** USP, EP, JP, kosher

**Properties:** Wh./off-wh. powd.; 95.0% min. through #100 US standard sieve; apparent visc. 2308-3755 mPa•s; pH 5.5-8.0 (1% sol’n.)

**Storage:** Shelf life 5 yr from date of manufacture; keep in closed containers


Chem. Descrip.: Hydroxypropyl methylcellulose
methylcellulose
Chem. Analysis: 5% max. loss on drying
CAS 9004-65-3
Uses: Visc. control agent, gellant, foam booster/stabilizer, film-former, dispersant, lubricant, binder, emulsion stabilizer, and suspending agent for controlled drug release
Properties: Wh./off-wh. powd.; 99.0% min. through #40 US standard sieve; pH 5.5-8.0 (1% sol'n.)
Storage: Shelf life 5 yr from date of manufacture; keep in closed containers

Chem. Descrip.: Hydroxypropyl methylcellulose
Chem. Analysis: 5.0% max loss on drying
CAS 9004-65-3
Uses: Granulation binder in pharmaceutical controlled release hydrophilic matrix systems and controlled release coatings; viscosity modifier and suspending agent in pharmaceutical liq. systems
Regulatory: USP, EP, kosher
Properties: Wh. to sl. off-wh. gran. powd.; 99.0% min. through #40 US standard sieve; apparent visc. 4.2-6.1 mPa.s; pH 5.5-8.0 (1% sol'n.)
Storage: 5 yr shelf life; store in tightly closed containers

Methocel® E10 Premium CR EP
Chem. Descrip.: Hydroxypropyl methylcellulose
Chem. Analysis: 5.0% max loss on drying
CAS 9004-65-3
Uses: Granulation binder in pharmaceutical controlled release hydrophilic matrix systems and controlled release coatings; viscosity modifier and suspending agent in pharmaceutical liq. systems
Features: Controlled-release grade
Regulatory: USP, EP, kosher
Properties: Wh. to sl. off-wh. gran. powd.; 99.0% min. through #40 US standard sieve; apparent visc. 4646-7070 mPa.s; pH 5.5-8.0 (1% sol'n.)
Storage: 5 yr shelf life; store in tightly closed containers

Chem. Descrip.: Hydroxypropyl methylcellulose
Chem. Analysis: 5.0% max loss on drying
CAS 9004-65-3
Uses: Granulation binder in pharmaceutical controlled release hydrophilic matrix systems and controlled release coatings; viscosity modifier and suspending agent in pharmaceutical liq. systems
Regulatory: USP, EP, JP, kosher
Properties: Wh. to sl. off-wh. gran. powd.; 99.0% min. through #40 US standard sieve; apparent visc. 12-18 mPa.s; pH 5.5-8.0 (1% sol'n.)
Storage: 5 yr shelf life; store in tightly closed containers

Methocel® E6 Premium [Dow http://www.dow.com]
Chem. Descrip.: Hydroxypropyl methylcellulose
CAS 9004-65-3
Uses: Visc. control agent, gellant, foam booster/stabilizer, film-former, dispersant, lubricant, binder, emulsion stabilizer, and suspending agent for pharmaceutical tablet coating
Properties: Wh./off-wh. powd.; visc. 6 mPa.s

Methocel® E15 Food Grade [Dow http://www.dow.com]
Chem. Descrip.: Hydroxypropyl methylcellulose

Uses: Thickener, stabilizer, emulsifier, gellant in pharmaceuticals

Regulatory: FDA, FCC, USP, EP, JP, BP; kosher

Properties: Visc. 15 cps

Methocel® E15LV [Dow http://www.dow.com]

Chem. Descrip.: Cellulose ether

Uses: Thickener, binder, film-former, water-retention agent, suspending agent, surfactant, lubricant, protective colloid, and emulsifier for pharmaceuticals

Regulatory: Kosher

Properties: Sp.gr. 1.29; tens. str. 69 MPa±10%; elong. 5-15%

Toxicology: TSCA listed

Methocel® E15LV Premium [Dow http://www.dow.com]

Chem. Descrip.: Hydroxypropyl methylcellulose

CAS 9004-65-3

Uses: Visc. control agent, gellant, foam booster/stabilizer, film-former, dispersant, lubricant, binder, emulsion stabilizer, and suspending agent for pharmaceutical tablet coating


Properties: Wh./off-wh. gran. powd.; visc. 15 mPa•s


Chem. Descrip.: Hydroxypropyl methylcellulose

Chem. Analysis: 5.0% max. loss on drying

CAS 9004-65-3

Uses: Granulation binder in pharmaceutical controlled release hydrophilic matrix systems and controlled release coatings; viscosity modifier, thickener and suspending agent in pharmaceutical liq. systems

Features: High clarity and easy filtration

Regulatory: USP, EP, kosher

Properties: Wh. to sl. off-wh. gran. powd.;
99.0% min. through #40 US standard sieve;
apparent visc. 39-59 mPa•s; pH 5.5-8.0 (1% sol'n.)

Storage: 5 yr shelf life; store in tightly closed containers


Chem. Descrip.: Hydroxypropyl methylcellulose

Chem. Analysis: 5.0% max. loss on drying

CAS 9004-65-3

Uses: Granulation binder in pharmaceutical controlled release hydrophilic matrix systems and controlled release coatings; viscosity modifier, thickener and suspending agent in pharmaceutical liq. systems

Features: High clarity and easy filtration

Regulatory: USP, EP, kosher

Properties: Wh. to sl. off-wh. gran. powd.;
99.0% min. through #40 US standard sieve;
apparent visc. 5.0-7.3 mPa•s; pH 5.5-8.0 (1% sol'n.)

Storage: 5 yr shelf life; store in tightly closed containers
suspending agent in pharmaceutical liq. systems

**Features:** High clarity and easy filtration

**Regulatory:** USP, EP, JP, kosher

**Properties:** Wh. to sl. off-wh. gran. powd.; 99.0% min. through #40 US standard sieve; apparent visc. 5.0-7.3 mPa.s; pH 5.5-8.0 (1% sol'n.)

**Storage:** 5 yr shelf life; store in tightly closed containers


**Chem. Descrip.:** Hydroxypropyl methylcellulose

**CAS 9004-65-3**

**Uses:** Thickener, stabilizer, emulsifier, gellant in pharmaceuticals

**Regulatory:** FDA 21 CFR §172.874, USDA, FCC, USP, EP, JP, BP; kosher

**Properties:** Visc. 4000 cps


**Chem. Descrip.:** Methylcellulose

**Chem. Analysis:** 5.0% max. loss on drying

**CAS 9004-67-5**

**Uses:** Granulation binder in pharmaceutical controlled release hydrophilic matrix systems and controlled release coatings; viscosity modifier and suspending agent in pharmaceutical liq. systems

**Regulatory:** USP, EP, kosher

**Properties:** Wh. to off-wh. powd.; 99.0% min. through #40 US standardapparent visc. 2308-3755 mPa.s; pH 5.5-8.0 (1% sol'n.); nonionic; 27.0-30.0% methoxyl

**Storage:** 5 yr shelf life; store in tightly closed containers

**Methocel® F Series** [Dow http://www.dow.com]

**Chem. Descrip.:** Hydroxypropyl methylcellulose

**CAS 9004-65-3**

**Uses:** Used for pharmaceutical tablet coating, granulation, controlled release applics.

**Properties:** Visc. avail. 50 and 4000 cps

**Methocel® J5MS** [Dow http://www.dow.com]

**Chem. Descrip.:** Hydroxypropyl methylcellulose

**CAS 9004-65-3**

**Uses:** Thickener, binder, film-former, water-retention agent, suspending agent, surfactant, lubricant, protective colloid, and emulsifier for pharmaceuticals

**Regulatory:** Kosher

**Properties:** Visc. 5000 mPa•s

**Toxicology:** TSCA listed

**Methocel® J Series** [Dow http://www.dow.com]

**Chem. Descrip.:** Hydroxypropyl methylcellulose

**CAS 9004-65-3**

**Uses:** Used for pharmaceutical tablet coating, granulation, controlled release applics.

**Properties:** Visc. avail. 5, 15, 100, 4000, 15,000, and 100,000 cps

**Methocel® K3 Premium** [Dow http://www.dow.com]

**Chem. Descrip.:** Hydroxypropyl methylcellulose

**CAS 9004-65-3**

**Uses:** Visc. control agent, film-former for pharmaceutical tablet coating; emulsion stabilizer, dispersant for flavor oil emulsions and encapsulation

**Regulatory:** FDA 21 CFR §172.874, USDA, FCC, USP, EP, JP, BP; kosher

**Properties:** Wh./off-wh. powd.; visc. 3 mPa•s

**Methocel® K4M Premium** [Dow http://www.dow.com; S. Black http://www.sblack.com]

**Chem. Descrip.:** Hydroxypropyl methylcellulose

**CAS 9004-65-3**

**Uses:** Visc. control agent, gellant, foam booster/stabilizer, film-former, dispersant, lubricant, binder, emulsion stabilizer, and suspending agent for creams and lotions, controlled drug release

**Regulatory:** FDA 21 CFR §172.874, USDA, FCC, USP, EP, JP, BP; kosher

**Properties:** Visc. 4000 mPa•s

**Methocel® K15M Premium** [Dow http://www.dow.com]

**Chem. Descrip.:** Hydroxypropyl methylcellulose

**CAS 9004-65-3**

**Uses:** Visc. control agent, gellant, foam booster/stabilizer, film-former, dispersant, lubricant, binder, emulsion stabilizer, and suspending agent for controlled drug release
Chem. Descrip.: Hydroxypropyl methylcellulose
Chem. Analysis: 5.0% max loss on drying
CAS 9004-65-3
Uses: Granulation binder in pharmaceutical controlled release hydrophilic matrix systems and controlled release coatings; viscosity modifier and suspending agent in pharmaceutical liq. systems
Features: Controlled-release grade
Regulatory: USP, EP, kosher
Properties: Wh. to sl. off-wh. gran. powd.; 99.0% min. through #40 US standard sieve; 90.0% min. through #100 US standard sieve; apparent visc. 78-117 mPa.s; pH 5.5-8.0 (1% sol'n.); 19.0-24.0% methoxyl
Storage: 5 yr shelf life; store in tightly closed containers

Methocel® K100 Premium LV EP [Dow http://www.dow.com]
Chem. Descrip.: Hydroxypropyl methylcellulose
Chem. Analysis: 5.0% max loss on drying
CAS 9004-65-3
Uses: Granulation binder in pharmaceutical controlled release hydrophilic matrix systems and controlled release coatings; viscosity modifier and suspending agent in pharmaceutical liq. systems
Features: Controlled-release grade
Regulatory: USP, EP, kosher
Properties: Wh. to sl. off-wh. gran. powd.; 99.0% min. through #40 US standard sieve; 90.0% min. through #100 US standard sieve; apparent visc. 78-117 mPa.s; pH 5.5-8.0 (1% sol'n.); 19.0-24.0% methoxyl
Storage: 5 yr shelf life; store in tightly closed containers

Methocel® K100 Premium LV LH EP [Dow http://www.dow.com]
Chem. Descrip.: Hydroxypropyl methylcellulose
Chem. Analysis: 5.0% max loss on drying
CAS 9004-65-3
Uses: Granulation binder in pharmaceutical controlled release hydrophilic matrix systems and controlled release coatings; viscosity modifier and suspending agent in pharmaceutical liq. systems
Features: Controlled-release grade
Regulatory: USP, EP, kosher
Properties: Wh. to sl. off-wh. gran. powd.; 99.0% min. through #40 US standard sieve; 90.0% min. through #100 US standard sieve; apparent visc. 78-117 mPa.s; pH 5.5-8.0 (1% sol'n.); 19.0-24.0% methoxyl
Storage: 5 yr shelf life; store in tightly closed containers
Trade Name Reference

Methocel® K Series [Dow
http://www.dow.com]
Chem. Descrip.: Hydroxypropyl methylcellulose
CAS 9004-65-3
Uses: Used for pharmaceutical tablet coating, granulation, controlled release applics.
Properties: Visc. avail. 3, 100, 4000, 15,000, and 100,000 cps

M 2 Etil Esil Oleato [Undesa
http://www.unesda.com; S. Black
http://www.sblack.com]
Chem. Descrip.: 2-Ethylhexyl oleate
CAS 26399-02-0; EINECS/ELINCS 247-655-0
Uses: Solubilizer, vehicle for medicines; excipient for injectable substances; emollient in antiperspirants
Features: Changes skin feel, rub out props. and greasiness; veg. oil substitute; vaseline substitute
Properties: Yel. liq.; typical odor; insol. in water; sol. in waxes, vegetable and mineral oils; dens. ≈ 0.86; f.p. ≈ 5 C.; b.p. ≈ 225; flash pt. ≈ 190 C
Toxicology: Nontoxic by inh., contact, ing.
Environmental: Biodeg.; keep out of sewers, drains, surface and underground water; considered to be of low toxicity for aquatic life
Precaution: Wear glove, goggles, overalls; avoid contact with flames; incompat. with strong oxidants
Hazardous Decomp. Prods.: CO, CO2
Storage: Store in original, closed container @ R.T.; protect from dampness, heat sources

Metolose® SM-4 [Shin-Etsu
http://www.silicone.jp/e/]
Chem. Descrip.: Methylcellulose
CAS 9004-67-5
Uses: Excipient, film coating for pharmaceuticals, fine pellet coatings
Features: Extremely low visc.; less tacky
Properties: Visc. 4 mPa•s

MGS-ASE [Nikko Chems. Co. Ltd
http://www.nikkol.co.jp/index.html]
Chem. Descrip.: Glyceryl stearate SE
CAS 11099-07-3; EINECS/ELINCS 234-325-6
Uses: Emulsifier, stabilizer for ointments
Features: Contains soap
Regulatory: JSCI listed
Properties: Wh. flake; HLB 6.0; anionic; 100% conc.
Toxicology: TSCA listed

MGS-AV [Nikko Chems. Co. Ltd
http://www.nikkol.co.jp/index.html]
Chem. Descrip.: Glyceryl stearate
CAS 11099-07-3; EINECS/ELINCS 234-325-6
Uses: Emulsifier, stabilizer for ointments
Features: Lipophilic
Regulatory: JSCI listed
Properties: Wh. flake; HLB 4.0; nonionic; 100% conc.

MGS-B [Nikko Chems. Co. Ltd
http://www.nikkol.co.jp/index.html]
Chem. Descrip.: Glyceryl stearate
CAS 11099-07-3; EINECS/ELINCS 234-325-6
Uses: Emulsifier, stabilizer for ointments
Features: Lipophilic
Regulatory: JSCI listed
Properties: Wh. flake; HLB 5.0; nonionic; 100% conc.
Toxicology: TSCA listed
Trade Name Reference

MGS-DEXV [Nikko Chems. Co. Ltd
http://www.nikkol.co.jp/index.html]
Chem. Descrip.: Glyceryl stearate, glyceryl stearate SE and PEG-10 stearate
CAS 11099-07-3; 9004-99-3; EINECS/ELINCS 234-325-6
Uses: Emulsifier, stabilizer for ointments
Features: Lipophilic
Regulatory: JSCI listed
Properties: Wh. flake; HLB 5.5; anionic; 100% conc.

MGS-F20V [Nikko Chems. Co. Ltd
http://www.nikkol.co.jp/index.html]
Chem. Descrip.: Glyceryl stearate
Chem. Analysis: Monoglyceride 20%
CAS 11099-07-3; EINECS/ELINCS 234-325-6
Uses: Emulsifier, stabilizer for ointments
Features: Lipophilic
Regulatory: JSCI listed
Properties: Wh. flake; HLB 7.0; nonionic; 100% conc.
Toxicology: TSCA listed

MGS-F40V [Nikko Chems. Co. Ltd
http://www.nikkol.co.jp/index.html]
Chem. Descrip.: Glyceryl stearate
Chem. Analysis: 40% monoglyceride
CAS 11099-07-3; EINECS/ELINCS 234-325-6
Uses: Emulsifier, stabilizer for ointments
Features: Lipophilic
Regulatory: JSCI listed
Properties: Wh. flake; HLB 4.0; nonionic; 100% conc.
Toxicology: TSCA listed

MGS-F50 [Nikko Chems. Co. Ltd
http://www.nikkol.co.jp/index.html]
Chem. Descrip.: Glyceryl stearate
Chem. Analysis: 50% monoglyceride
CAS 11099-07-3; EINECS/ELINCS 234-325-6
Uses: Emulsifier, stabilizer for ointments
Features: Lipophilic
Regulatory: JSCI listed
Properties: Wh. bead; HLB 3.5; nonionic; 100% conc.; 50% monoglyceride
Toxicology: TSCA listed

MGS-F75V [Nikko Chems. Co. Ltd
http://www.nikkol.co.jp/index.html]
Chem. Descrip.: Glyceryl stearate
Chem. Analysis: 75% monoglyceride
CAS 11099-07-3; EINECS/ELINCS 234-325-6
Uses: Emulsifier, stabilizer for ointments
Features: Lipophilic
Regulatory: JSCI listed
Properties: Wh. flake; HLB 1.5; nonionic; 100% conc.; 75% monoglyceride
Toxicology: TSCA listed

MicroMask™ Chlorpheniramine Maleate 10%
[Particle Dynamics
http://www.particledynamics.com]
Chem. Descrip.: Chlorpheniramine maleate encapsulated in an edible wax matrix
CAS 113-92-8
Uses: Tableting encapsulator for Chlorpheniramine maleate for chewable and swallowable tablets, sachets, quick-dissolve dosage
Features: Rec. where optimum tableting and free-flowing chars. are desired
Regulatory: USP, kosher
Properties: Yel. to tan relatively free-flowing powd.; 5% max. through 20 mesh, 15% max. through 40 mesh; dens. 0.6-0.9 g/m³ (tapped); 93-110 mg/g assay

Microbiotone [Am. Labs
http://www.americanlaboratories.com]
Chem. Descrip.: Peptic hydrolysate of beef tissue
Uses: Medium for growth of aerobic and anaerobic bacteria in pharmaceuticals
Regulatory: USP compliance
Properties: Gran.; completely sol. in 2% sol'n.; pH 6.8-7.2 (10%)

Microcare® QT [Thor UK
http://www.thor.com;
http://www.thor.adept.co.uk]
Chem. Descrip.: Aqueous based quaternary ammonium formulation of optimised alkyl chain length distribution
Uses: For broad spectrum preservation of pharmaceutical products
Properties: Aq.

Microcel® 101 [Blanver Farmoquimica
http://www.blanver.com.br; Blanver USA
http://www.blanver.com.br]
Chem. Descrip.: Microcrystalline cellulose
CAS 9004-34-6
Uses: Binder, disintegrant, compression agent, compaction agent in pharmaceutical tablets, wet granulation, direct compression, pellets; absorp. enhancer in liq. extracts; oil absorp. enhancer in hard capsules/tablets made with act. oils
Features: Reduces friability of the final granulation; absorbs act. sol'n. to help dissolution of insol. drugs; promotes the active
Trade Name Reference

absorp. for use in liq. extract; to produce tablets substituting the dry extract

Properties: Wh. fine cryst. powd.; 50 µ avg. particle size; 1% max. on 60 mesh, 30% max. on 200 mesh; odorless; bulk dens. 0.2-0.4 g/cm³, 0.4-0.6 g/cm³ (tapped); < 5% loss on drying

Use Level: 10-50% (wet granulation, direct compression, pellets); 30-70% (act. absorption); 20-70% (oil absorp. enhancer)


Chem. Descrip.: Microcrystalline cellulose
CAS 9004-34-6

Uses: Binder, disintegrant, compression agent, compaction agent in pharmaceutical tablets, dry granulation

Features: Reduces friability of the final granulation; promotes the active absorption for use in liquid extract; to produce tablets substituting the dry extract

Properties: Wh. fine cryst. powd.; 100 µ avg. particle size; 8% max. on 60 mesh, 45% max. on 200 mesh; odorless; bulk dens. 0.28-0.33 g/cm³, 0.45-0.52 g/cm³ (tapped); ≤ 3% loss on drying

Use Level: 10-50%


Chem. Descrip.: Microcrystalline cellulose
CAS 9004-34-6

Uses: Binder, disintegrant, compression agent, compaction agent in pharmaceutical tablets

Features: Low moisture; rec. for use with moisture-sensitive drugs

Properties: Wh. fine cryst. powd.; 100 µ avg. particle size; 8% max. on 60 mesh, 45% max. on 200 mesh; odorless; bulk dens. 0.2-0.4 g/cm³, 0.4-0.6 g/cm³ (tapped); < 3% loss on drying

Use Level: 10-50%


Chem. Descrip.: Microcrystalline cellulose
CAS 9004-34-6

Uses: Binder, disintegrant, compression agent, compaction agent in pharmaceutical tablets

Features: Low moisture; rec. for use with moisture-sensitive drugs

Properties: Wh. fine cryst. powd.; 100 µ avg. particle size; 8% max. on 60 mesh, 45% max. on 200 mesh; odorless; bulk dens. 0.28-0.33 g/cm³, 0.45-0.52 g/cm³ (tapped); ≤ 3% loss on drying

Use Level: 10-50%


Chem. Descrip.: Microcrystalline cellulose
CAS 9004-34-6

Uses: Binder, disintegrant, compression agent, compaction agent in pharmaceutical tablets; flow aid for semi-automatic capsule mfg. equip.; absorp. enhancer in liq. extracts

Features: Reduces wt. variation

Properties: Wh. fine cryst. powd.; 180 µ avg. particle size; 10% min. on 60 mesh, 45% min. on 200 mesh; odorless; bulk dens. 0.33-0.40 g/cm³, 0.4-0.6 g/cm³ (tapped); ≤ 7% loss on drying

Use Level: 10-50% (compression aid, flow aid); 30-70% (act. absorption)


Chem. Descrip.: Microcrystalline cellulose
CAS 9004-34-6

Uses: Binder, disintegrant, compression agent, compaction agent in pharmaceutical tablets; flow aid for semi-automatic capsule mfg. equip.; absorp. enhancer in liq. extracts

Features: Reduces wt. variation

Properties: Wh. fine cryst. powd.; 230 µ avg. particle size; 30% min. on 60 mesh, 60% min. on 200 mesh; odorless; bulk dens. 0.33-0.40 g/cm³, 0.4-0.6 g/cm³ (tapped); ≤ 7% loss on drying

Use Level: 10-50% (compression aid, flow aid); 30-70% (act. absorption)


Chem. Descrip.: Microfine cellulose See Cellulose
CAS 9004-34-6; EINECS/ELINCS 232-674-9

Uses: Compression aid, compaction aid for pharmaceutical powds., tablets, capsules, wet and dry granulation; compression aid,
Trade Name Reference

**filler in wet granulation** (inc. drying speed, controls dye migration, reduces amt. of binder); **flow aid, dissolution aid in capsules**

*Properties:* Wh. solid; odorless

*Use Level:* 5-40% (wet granulation); 10-30% (dry granulation); 5-20% (capsules)

**Microcel® 500** [Blanver Farmoquimica
http://www.blanver.com.br; Blanver USA
http://www.blanver.com.br]

*Chem. Descrip.:* Microcrystalline cellulose

*CAS 9004-34-6*

*Uses:* Binder, disintegrant, compression agent, compaction agent in pharmaceutical tablets; flow aid for semi-automatic capsule mfg. equip.

*Features:* Reduces wt. variation

*Properties:* Wh. fine cryst. powd.; 270 µ avg. particle size; 50% min. on 60 mesh; odorless; bulk dens. 0.2-0.4 g/cm³, 0.4-0.6 g/cm³ (tapped); < 5% loss on drying

*Use Level:* 10-50% (compression aid, flow aid)

**Micro-Cel® C TV** [Celite
http://www.worldminerals.com]

*Chem. Descrip.:* Syn. calcium silicate

*CAS 1344-95-2; EINECS/ELINCS 215-710-8*

*Uses:* Filter aid for use in pharmaceutical industry

*Properties:* Fine wh. odorless powd., negligibly sol. in water; sp.gr. 2.3; pH 7.5-9.0; 100%

**Micro-Cel® E TV** [Celite
http://www.worldminerals.com]

*Chem. Descrip.:* Synthetic calcium silicate

*CAS 1344-95-2; EINECS/ELINCS 215-710-8*

*Uses:* Filter aid for use in pharmaceutical industry

*Regulatory:* NF

*Properties:* Fine wh. odorless powd., negligibly sol. in water; sp.gr. 2.3; pH 7.5-9.0; 100%

*Toxicology:* TLV 5 mg/m³ (nuisance dust); prolonged and repeated exposure to excessive cons. of dust may cause chronic pulmonary disease; irritant to eyes and respiratory tract

*Environmental:* Inert in the environment

*Precaution:* Wear goggles or safety glasses with side shields; avoid contact with HF acid

**Microcrystalline Wax SP 16** [Strahl & Pitsch
http://www.strahlpitsch.com]

*Chem. Descrip.:* Microcrystalline wax

*CAS 63231-60-7; EINECS/ELINCS 264-038-1*

*Uses:* Wax for pharmaceuticals

*Regulatory:* FDA 21CFR §172.615, 172.886, 175.105, 178.3710; CTFA listed

*Properties:* Yel. slabs or pastilles; m.p. 180-190 F; acid no. nil; sapon. no. nil

*Toxicology:* TSCA listed

**Microcrystalline Wax SP 18** [Strahl & Pitsch
http://www.strahlpitsch.com]

*Chem. Descrip.:* Microcrystalline wax

*CAS 63231-60-7; EINECS/ELINCS 264-038-1*

*Uses:* Wax for pharmaceuticals

*Regulatory:* FDA 21CFR §172.615, 172.886, 175.105, 178.3710; CTFA listed

*Properties:* Wh. slabs or pastilles; m.p. 165-175 F; acid no. nil; sapon. no. nil

*Toxicology:* TSCA listed

**Microcrystalline Wax SP 19** [Strahl & Pitsch
http://www.strahlpitsch.com]

*Chem. Descrip.:* Microcrystalline wax

*CAS 63231-60-7; EINECS/ELINCS 264-038-1*

*Uses:* Wax for pharmaceuticals

*Regulatory:* FDA 21CFR §172.615, 172.886, 175.105, 178.3710; CTFA listed

*Properties:* Wh. slabs or pastilles; m.p. 170-180 F; acid no. nil; sapon. no. nil

*Toxicology:* TSCA listed

**Microcrystalline Wax SP 26** [Strahl & Pitsch
http://www.strahlpitsch.com]

*Chem. Descrip.:* Microcrystalline wax

*CAS 63231-60-7; EINECS/ELINCS 264-038-1*

*Uses:* Wax for pharmaceuticals

*Regulatory:* FDA 21CFR §172.615, 172.886, 175.105, 178.3710; CTFA listed

*Properties:* Wh. slabs or pastilles; m.p. 175-185 F; acid no. nil; sapon. no. nil

*Toxicology:* TSCA listed

**Microcrystalline Wax SP 60** [Strahl & Pitsch
http://www.strahlpitsch.com]

*Chem. Descrip.:* Microcrystalline wax

*CAS 63231-60-7; EINECS/ELINCS 264-038-1*

*Uses:* Wax for pharmaceuticals

*Regulatory:* FDA 21CFR §172.615, 172.886, 175.105, 178.3710; CTFA listed

*Properties:* Yel. slabs or pastilles; m.p. 175-185 F; acid no. nil; sapon. no. nil

*Toxicology:* TSCA listed

**Microcrystalline Wax SP 60W** [Strahl & Pitsch
http://www.strahlpitsch.com]

*Chem. Descrip.:* Microcrystalline wax

*CAS 63231-60-7; EINECS/ELINCS 264-038-1*

*Uses:* Wax for pharmaceuticals

*Regulatory:* FDA 21CFR §172.615, 172.886, 175.105, 178.3710; CTFA listed

*Properties:* Yel. slabs or pastilles; m.p. 175-185 F; acid no. nil; sapon. no. nil

*Toxicology:* TSCA listed
Microcrystalline Wax SP 89 [Strahl & Pitsch http://www.strahlpitsch.com]  
Chem. Descrip.: Microcrystalline wax  
CAS 63231-60-7; EINECS/ELINCS 264-038-1  
Uses: Wax for pharmaceuticals  
Regulatory: FDA 21CFR §172.615, 172.886, 175.105, 178.3710; CTFA listed  
Properties: Wh. slabs or pastilles; m.p. 195-202 F; acid no. nil; sapon. no. nil  
Toxicology: TSCA listed  

Microcrystalline Wax SP 96 [Strahl & Pitsch http://www.strahlpitsch.com]  
Chem. Descrip.: Microcrystalline wax  
CAS 63231-60-7; EINECS/ELINCS 264-038-1  
Uses: Wax for pharmaceuticals  
Regulatory: FDA 21CFR §172.615, 172.886, 175.105, 178.3710; CTFA listed  
Properties: Wh. slabs or pastilles; m.p. 145-155 F; acid no. nil; sapon. no. nil  
Toxicology: TSCA listed  

Microcrystalline Wax SP 617 [Strahl & Pitsch http://www.strahlpitsch.com]  
Chem. Descrip.: Microcrystalline wax  
CAS 63231-60-7; EINECS/ELINCS 264-038-1  
Uses: Wax for pharmaceuticals  
Regulatory: FDA 21CFR §172.615, 172.886, 175.105, 178.3710; CTFA listed  
Properties: Yel. slabs or pastilles; m.p. 191-199 F; acid no. nil; sapon. no. nil  
Toxicology: TSCA listed  

Microcrystalline Wax SP 624 [Strahl & Pitsch http://www.strahlpitsch.com]  
Chem. Descrip.: Microcrystalline wax  
CAS 63231-60-7; EINECS/ELINCS 264-038-1  
Uses: Wax for pharmaceuticals  
Regulatory: FDA 21CFR §172.615, 172.886, 175.105, 178.3710; CTFA listed  
Properties: Yel. slabs or pastilles; m.p. 195-202 F; acid no. nil; sapon. no. nil  
Toxicology: TSCA listed  

Micro-Dry® [Reheis http://www.reheis.com]  
Chem. Descrip.: Aluminum chlorohydrate  
CAS 12042-91-0; EINECS/ELINCS 234-933-1  
Uses: Antiperspirant active widely used for aerosols  
Features: Rec. where particle size and surface area are important factors  
Properties: Powd.; 44 µ particle size; 97% min. through 325 mesh; 47% Al₂O₃, 16.3% Cl  
Toxicology: Environmentally compat.  
Regulatory: USP, Ph. Eur., JPE, DMF  
Properties: Colorless liq., neutral odor; sol. in diethyl ether, petrol. ether, chloroform, IPA, toluene, alcohol, min. oil, acetone; sp.gr. 0.94-0.95; visc. 25-35 mPa·s; acid no. 0.1 max.
Trade Name Reference

iodine no. 0.5 max.; sapon. no. 335-355; pH neutral; cloud pt. 0 C; nonionic

Environmental: Environmentally compat.

Miglyol® 812 [Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: Caprylic/capric triglyceride
CAS 65381-09-1; EINECS/ELINCS 265-724-3
Uses: Dispersant, lubricant, anticaking agent, carrier, solvent, solubilizer, suspending agent for pharmaceuticals (oral, external, suppositories); spreading agent, penetrant on skin; solvent for lipophilic drugs; carrier, filler in capsules
Features: Stable to oxidation; environmentally compat.

Regulatory: USP, Ph. Eur., JPE, DMF
Properties: Colorless liq.; sol. in alcohol, min. oil, acetone; visc. 25-35 mPa*s; acid no. 0.1 max.; iodine no. 0.5 max.; sapon. no. 325-345; cloud pt. 10 C; nonionic; 100% conc.

Miglyol® 812 N [Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: Glyceryl tricaprylate/tricaprate See Caprylic/capric triglyceride
CAS 65381-09-1; EINECS/ELINCS 265-724-3
Uses: Solvent, solubilizer in pharmaceuticals (oral, topical, rectal, parenteral), creams/lotions, oil preps.; spreading agent, penetrant on skin; fat component for medical nutrition
Features: Oxidation-stable; no visible greasy coating of skin surf.

Properties: Thin oily liq.; dens. 0.95 kg/dm³; visc. 25-35 mPa*s; turbidity pt. 10 C; acid no. 0.2 max.; iodine no. 1 max.; sapon. no. 325-345

Miglyol® 818 [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: Caprylic/capric/linoleic triglyceride
Uses: Emollient, absorption promoter for pharmaceuticals, oral, nasal, parenteral, topical, rectal, topical creams, lotions, and oil formulations; spreading agent, penetrant on skin
Features: Oxidation-stable; environmentally compat.

Properties: Virtually colorless liq.; visc. 30-35 mPa*s; acid no. 0.2 max.; iodine no. 10 max.; sapon. no. 315-335; cloud pt. 10 C

Miglyol® 829 [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: Caprylic/capric/disuccinic triglyceride
Uses: Emollient, suspending agent for pharmaceuticals, oral, nasal, topicals, cream and liq. emulsions, oral suspensions, and capsules
Features: Oxidation-stable; environmentally compat.

Regulatory: JCIC
Properties: Ylsh. visc. liq.; sp.gr. 1.01; visc. 230-260 mPa*s; acid no. 1 max.; iodine no. 1 max.; sapon. no. 400-430; cloud pt. -30 C
Toxicology: Nontoxic

Miglyol® 840 [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: Propylene glycol dicaprylate/dicaprate
CAS 68583-51-7; EINECS/ELINCS 271-516-3
Uses: Emollient, dispersant, lubricant, suspending agent, solubilizer for pharmaceuticals; carrier, vehicle and solvent for pharmaceuticals (orals, parenterals, rectals, inj. prods., topical ointments, creams, lotions, suppositories); act. ingred. for pharmaceuticals; flavor fixing agent; spreading agent, penetrant on skin
Features: Oxidation-stable; no visible greasy coating of skin surf.; environmentally compat.
Regulatory: DAB, JCIC, DMF
Properties: Virtually colorless liq.; sol. in alcohol, min. oil, acetone; visc. 8-14 mPa*s; acid no. 0.1 max.; iodine no. 0.5 max.; sapon. no. 300-320; cloud pt. -30 C

Miglyol® 840 Gel B [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]

Environmental: Environmentally compat.
Trade Name Reference

**hectorite, propylene carbonate**

*Uses:* Consistency regulator for pharmaceuticals (topicals, semisolid drug forms, ointments, creams); high temp. stabilizer esp. for w/o emulsions and anhyd. pharmaceuticals

*Features:* Chemically neutral; heat-stable; oxidation-resist.; environmentally compat.

*Properties:* Cream-colored gel; sol. in ethanol, acetone, diethyl ether; misc. with oils, fats, waxes, w/o emulsifiers; insol. in water; acid no. 0.5 max.; iodine no. 1 max.; sapon. no. 290-315; 0.5% max. water

*Toxicology:* LD50 (oral, mouse) > 5000 mg/kg; nontoxic; skin compat.; nonirritating to eyes

*Storage:* 3 yrs. shelf life when stored in tightly closed containers below 25 C, protected from light and moisture

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*Chem. Descrip.:* Glycerol tricaprylate/tricaprate  See Caprylic/capric triglyceride

*CAS:* 65381-09-1; EINECS/ELINCS 265-724-3

*Uses:* Penetration enhancer, drug carrier for dermal use; solvent

*Regulatory:* USP, EP, JPE

*Properties:* Liq.; dens. 0.95 kg/dm³; visc. 25-35 mPa•s; turbidity pt. 0 C; acid no. 0.2 max.; iodine no. 1 max.; sapon. no. 335-355

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*Chem. Descrip.:* Butylene glycol dicaprylate/dicaprate

*Uses:* Emollient, dispersant, lubricant, suspending agent, solubilizer for pharmaceuticals; carrier, vehicle and solvent for inj. prods., topical ointments, creams, lotions; penetrant and spreading agent on skin; act. ingred. for pharmaceuticals

*Features:* Hypoallergenic; environmentally compat.

*Properties:* Colorless liq., neutral odor; sol. in alcohol, diethyl ether, n-hexane, fatty oils; insol. in water; visc. 8-13 mPa•s; acid no. 0.1 max.; iodine no. 1.0 max.; sapon. no. 295-315; hyd. no. 5 max.

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*Chem. Descrip.:* Caprylic/capric triglyceride, stearalkonium hectorite, propylene carbonate

*Uses:* Consistency regulator, emulsion stabilizer in anhyd. and aq. pharmaceuticals (topical, semisolid), ointments, sun care prods.

*Features:* Chemically neutral; heat-stable; oxidation-resist.; environmentally compat.

*Properties:* Pale brnsh. oily gel; sol. in ethanol, acetone, diethyl ether; misc. with oils, fats, waxes, w/o emulsifiers; insol. in water; acid no. 0.5 max.; sapon. no. 290-320; 0.5% max. water

*Toxicology:* LD50 (oral, mouse) > 5000 mg/kg; nontoxic; skin compat.; nonirritating to eyes

*Storage:* 3 yrs. shelf life when stored in tightly closed containers below 25 C, protected from light and moisture

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*Chem. Descrip.:* Caprylic/capric triglyceride, stearalkonium bentonite, propylene carbonate

*CAS:* 52622-02-7; $; 108-32-7; EINECS/ELINCS 265-724-3; $; 203-572-1

*Uses:* Consistency regulator, emulsion stabilizer for w/o emulsions, anhyd. formulations, sun care prods., pharmaceuticals (topical, semisolid, ointments, creams)

*Features:* Chemically neutral; heat-stable; oxidation-resist.; environmentally compat.

*Properties:* Greenish hard paste; sol. in ethanol, acetone, diethyl ether; misc. with oils, fats, waxes, w/o emulsifiers; insol. in water; acid no. 0.5 max.; sapon. no. 290-315; 0.5% max. water

*Toxicology:* LD50 (oral, mouse) > 5000 mg/kg; nontoxic; skin compat.; nonirritating to eyes

*Storage:* 3 yrs. shelf life when stored in tightly closed containers below 25 C, protected from light and moisture

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**Milipol G7** [Undesa http://www.undesa.com; http://www.undesasilica.com]
Trade Name Reference

**S. Black** [http://www.sblack.com]
Chem. Descrip.: **Glyceryl cocoate** with 7 moles of ethylene oxide
CAS 61789-05-7; 75-21-8; EINECS/ELINCS 263-027-9; 200-849-9
Uses: Vehicle for injectable substances; facilitates the incorporation of liposoluble active ingredients
Properties: Yel. visc. liq.; typical odor; sol. in water; dens. ≈ 1.05 g/ml; f.p. ≈ 0 C; flash pt. > 270 C
Toxicology: Nontoxic by ing., inh., or skin contact
Precaution: Wear goggles and gloves; avoid contact with flames and strong oxidants
Hazardous Decomp. Prods.: COx
Storage: Store in original container, @ R.T. closed and protected from damp and heat sources

**Milopol G-7** [Undesa http://www.undesa.com; S. Black http://www.sblack.com]
Chem. Descrip.: **PEG-7 glyceryl cocoate**
CAS 68201-46-7
Uses: Vehicle for injectable substances; facilitates the incorporation of liposoluble active ingredients
Properties: Yel. visc. liq.; typical odor; sol. in water; dens. ≈ 1.05 g/ml; f.p. ≈ 0 C; flash pt. > 270 C
Toxicology: Nontoxic by ing., inh., or skin contact
Environmental: Biodeg.; low toxicity to aquatic life
Precaution: Wear goggles and gloves; avoid contact with flames and strong oxidants
Hazardous Decomp. Prods.: COx
Storage: Store in original container, @ R.T. closed and protected from damp and heat sources

**Mineral Jelly No. 14** [Chemtura http://www.chemtura.com]
Chem. Descrip.: **Petrolatum**
CAS 8009-03-8; EINECS/ELINCS 232-373-2
Uses: Emollient in pharmaceuticals (medicated ointments, suppositories, sun care prods.)
Regulatory: FDA 21CFR §172.880
Properties: Lovibond 1.0Y color; visc. 2.6-5.7 cSt (100 C); m.p. 38-52 C

**Mineral Jelly No. 17** [Chemtura http://www.chemtura.com]
Chem. Descrip.: **Petrolatum**
CAS 8009-03-8; EINECS/ELINCS 232-373-2
Uses: Lubricant, processing aid in pharmaceuticals
Regulatory: FDA 21CFR §172.880
Properties: Lovibond 1.0Y color; visc. 2.6-5.7 cSt (100 C); m.p. 36-49 C

**Mineral Jelly No. 20** [Penreco http://www.penreco.com]
Chem. Descrip.: **Petrolatum**
CAS 8009-03-8; EINECS/ELINCS 232-373-2
Uses: Base in medicated creams and lotions
Regulatory: OSHA and FDA nonhazardous
Properties: Lovibond 0.5Y color; odorless; tasteless; misc. with cosmetic ingred. used in oil-base formulations; visc. 37-40 SUS (210 F); m.p. (Saybolt) 111-116 F; pour pt. 110-120 F

**MingQiong Brand** [Fujian Sanming]
Chem. Descrip.: **Agar**
CAS 9002-18-0; EINECS/ELINCS 232-658-1
Uses: Ointment base, tablet binder in pharmaceuticals
Properties: ≤ 15% moisture; ≤ 5% ash
Storage: Keep dry; store @ 18-25 C

**Miranol® C2M Conc. NP** [Rhodia HPCII http://www.rhodia-hpcii.com; Rhodia HPCII France http://www.hpcii.rhodia.com; C.P. Hall http://www.cphall.com]
Chem. Descrip.: **Disodium cocoamphodiacetate**
CAS 68650-39-5; EINECS/ELINCS 272-043-5
Uses: Emulsifier, solubilizer, and stabilizer in pharmaceuticals
Properties: Clear, visc. liq.; sol. in water; pH 8.0-8.5 (20% aq.); amphoteric; 38% act.
Trade Name Reference

Chem. Descrip.: Disodium cocoamphodipropionate
CAS 68604-71-7
Uses: Detergent used for nonirritating shampoos, medicated cosmetics
Properties: Paste at R.T., pumps and pours at 50 C; pH 9-10 (10% aq.); amphoteric; 70% act.

Chem. Descrip.: Disodium cocoamphodipropionate
Chem. Analysis: Methanol 2-5%; sodium chloride 0.02% max.
CAS 68604-71-7
Uses: Coupling agent, solubilizer, wetting agent
Features: Compat. with cationic, anionic, nonionic derivatives; exc. foam quality; reduces irritation in combination with anionic surfactants
Properties: Amber cl. liq., fruity odor; sol. in water, alcohol, polar solvs.; insol. in nonpolar solvs.; sp.gr. 1.07; f.p. < 0 C; b.p. 98 C; flash pt. 144 F; pH 9.4-9.8; amphoteric; 39% act.
Toxicology: Minimally irritating to skin and eyes; LD50 (oral, mouse) > 5 ml/kg
Environmental: Biodeg.
Storage: 730 days

Miranol® JBS [Rhodia HPCII http://www.rhodia-hpcii.com; Rhodia HPCII France http://www.hpcii.rhodia.com]
Chem. Descrip.: Disodium capryloamphodipropionate
CAS 68815-55-4
Uses: Low foaming surfactant for medicated shampoos and skin cleansers
Properties: Liq.; amphoteric; 38% conc.

Mira-Sperse® 626 [Tate & Lyle UK http://www.tateandlyle.com]
Chem. Descrip.: Food starch modified, derived from waxy maize See Food starch, modified
Uses: Carrier and viscosity control agent in pharmaceutical creams, lotions, and ointments
Features: Cold water swelling starch; exc. flow props.
Regulatory: FDA 21CFR §172.892
Properties: Agglomerated powd., good odor/flavor; 20% on 30 mesh, 30% through 120 mesh; bulk dens. 11-16 lb/ft³; pH 5-7; 6-8.5% moisture

Mira-Thik® 468 [Tate & Lyle UK http://www.tateandlyle.com]
Chem. Descrip.: Food starch modified, derived from dent corn starch See Food starch, modified
Uses: Viscosity control agent in creams, lotions, and ointments
Features: Cold water hydrating starch; provides superior smoothness, syneresis control, freeze/thaw resist.
Regulatory: FDA 21CFR §172.892
Properties: Wh. free-flowing powd., good odor/flavor; 0.5% on 60 mesh, 98% through 100 mesh; bulk dens. 30 lb/ft³; pH 6.0; 5% moisture

Mira-Thik® 469 [Tate & Lyle UK http://www.tateandlyle.com]
Chem. Descrip.: modified food starch from dent corn starch See Food starch, modified
Uses: Viscosity control agent in pharmaceuticals
Features: Cold water hydrating starch; improves texture, mouthfeel; exc. freeze/thaw stability
Regulatory: FDA 21CFR §172.892
Properties: Wh. free-flowing powd., good odor/flavor; 0.5% on 60 mesh, 98% through 100 mesh; bulk dens. 30 lb/ft³; pH 6.0; 5% moisture

Mira-Thik® 470 [Tate & Lyle UK http://www.tateandlyle.com]
Chem. Descrip.: Food starch modified, derived from waxy maize See Food starch, modified
Uses: Visc. control agent in pharmaceuticals

Mira-Thik® 606 [Tate & Lyle UK http://www.tateandlyle.com]
Chem. Descrip.: Food starch modified, derived from waxy maize See Food starch, modified
Features: Cold water swelling starch; exc. flow props.
Regulatory: FDA 21CFR §172.892
Trade Name Reference

Uses: Viscosity control agent in creams, lotions, and ointments
Features: Instant starch; exc. freeze/thaw stability
Regulatory: FDA 21CFR §172.892
Properties: Wh. free-flowing powd., good odor/flavor; 0.5% on 60 mesh, 98% through 100 mesh; bulk dens. 33 lb/ft³ (loose); pH 6.0; 7% moisture

Mira-Thik® 609 [Tate & Lyle UK http://www.tateandlyle.com]
Chem. Descrip.: Modified food starch See Food starch, modified
Uses: Viscosity control agent in creams, lotions, and ointments

Chem. Descrip.: Myristic acid
CAS 544-63-8; EINECS/ELINCS 208-875-2
Uses: Emulsifier in pharmaceuticals
Environmental: Biodeg. (28 d) > 90%
Precaution: Wear gloves, goggles, overall skin protection; avoid entry to sewers, drain and surface water
Storage: Store @ R.T. in original sealed container protected from heat sources

Chem. Descrip.: Isotridecyl diester
Uses: Solubilizer, vehicle for medicines; excipient for injectable substances; emollient in antiperspirants
Features: Changes skin feel, rub out props. and greasiness; veg. oil substitute; vaseline substitute

Chem. Descrip.: Isodecyl stearate
CAS 31565-38-5; EINECS/ELINCS 250-703-3
Uses: Solubilizer, vehicle for medicines; excipient for injectable substances; emollient in antiperspirants
Features: Changes skin feel, rub out props. and greasiness; veg. oil substitute; vaseline substitute

Chem. Descrip.: Mono-di glycerine C16-C18 fatty acids mixture
Uses: Vehicle for injectable substances; facilitates the incorporation of liposoluble active ingredients
Properties: Yel. visc. liq.; typical odor; insol. in water; sol. in fats, vegetable and mineral oils; dens. ≈ 0.92 g/ml; f.p. 10 C; flash pt. > 190 C
Toxicology: Nontoxic by ing., inh., or skin contact
Precaution: Wear goggles and gloves; avoid contact with flames

Chem. Descrip.: 2-Ethylhexyl palmitate See Octyl palmitate
CAS 29806-73-3; EINECS/ELINCS 249-862-1
Uses: Solubilizer, vehicle for medicines; excipient for injectable substances; emollient in antiperspirants
Features: Changes skin feel, rub out props. and greasiness; veg. oil substitute; vaseline substitute
Properties: Yel. liq.; typical odor; insol. in water; sol. in waxes, vegetable and mineral oils; dens. ≈ 0.86; f.p. ≈ 5 C.; b.p. ≈ 225; flash pt. ≈ 190 C
Toxicology: Nontoxic by inh., contact, ing.
Environmental: Biodeg.; keep out of sewers, drains, surface and underground water; considered to be of low toxicity for aquatic life
Precaution: Wear glove, goggles, overalls; avoid contact with flames; incompat. with strong oxidants

Chem. Descrip.: Isotridecyl alcohol ester
Uses: Solubilizer, vehicle for medicines; excipient for injectable substances; emollient in antiperspirants
Features: Changes skin feel, rub out props. and greasiness; veg. oil substitute; vaseline substitute
Trade Name Reference

Chem. Descrip.:  2-Ethylhexyl tallowate
Uses:  Solubilizer, vehicle for medicines; excipient for injectable substances; emollient in antiperspirants
Features:  Changes skin feel, rub out props. and greasiness; veg. oil substitute; vaseline substitute
Properties:  Yel. liq.; typical odor; insol. in water; sol. in waxes, vegetable and mineral oils; dens. ≈ 0.86; f.p. ≈ 5 C.; b.p. ≈ 225; flash pt. ≈ 190 C
Toxicology:  Nontoxic by inh., contact, ing.
Environmental:  Biodeg.; keep out of sewers, drains, surface and underground water; considered to be of low toxicity for aquatic life
Precaution:  Wear glove, goggles, overalls; avoid contact with flames; incompat. with strong oxidants
Hazardous Decomp. Prods.:  CO, CO2
Storage:  Store in original, closed container @ R.T.; protect from dampness, heat sources

Chem. Descrip.:  Isotridecyl diester
Uses:  Solubilizer, vehicle for medicines; excipient for injectable substances; emollient in antiperspirants
Features:  Changes skin feel, rub out props. and greasiness; veg. oil substitute; vaseline substitute

Chem. Descrip.:  Isotridecyl alcohol ester
Uses:  Solubilizer, vehicle for medicines; excipient for injectable substances; emollient in antiperspirants
Features:  Changes skin feel, rub out props. and greasiness; veg. oil substitute; vaseline substitute

Chem. Descrip.:  Isotridecyl ester
Uses:  Solubilizer, vehicle for medicines; excipient for injectable substances; emollient in antiperspirants
Features:  Changes skin feel, rub out props. and greasiness; veg. oil substitute; vaseline substitute

Chem. Descrip.:  Isotridecyl stearate
CAS 31565-37-4; EINECS/ELINCS 250-703-3
Uses:  Solubilizer, vehicle for medicines; excipient for injectable substances; emollient in antiperspirants
Features:  Changes skin feel, rub out props. and greasiness; veg. oil substitute; vaseline substitute

Chem. Descrip.:  2-Ethylhexyl stearate  See Octyl stearate
CAS 22047-49-0; EINECS/ELINCS 244-754-0
Uses:  Solubilizer, vehicle for medicines; excipient for injectable substances; emollient in antiperspirants
Features:  Changes skin feel, rub out props. and greasiness; veg. oil substitute; vaseline substitute
Properties:  Yel. liq.; typical odor; disp. in water; sol. in fat; dens. 0.98; f.p. 4 C max.; b.p. ≈ 225; flash pt. ≈ 190 C
Toxicology:  Nontoxic by inh., contact, ing.
Environmental:  Biodeg.; keep out of sewers, drains, surface and underground water; considered to be of low toxicity for aquatic life
Precaution:  Wear glove, goggles, overalls; avoid contact with flames; incompat. with strong oxidants
Hazardous Decomp. Prods.:  CO, CO2
Storage:  Store in original, closed container @ R.T.; protect from dampness, heat sources

Chem. Descrip.:  PEG-200 monooleate  See PEG-200 oleate
CAS 9004-96-0
Uses:  O/w emulsifier, thickener, antifoam, dispersant, base for pharmaceuticals
Properties:  Yel. liq.; typical odor; disp. in water; sol. in fat; dens. 0.98; f.p. 4 C max.; flash pt. > 200 C; nonionic
Environmental:  Biodeg.; keep out of sewers, drains, surface and underground water;
<table>
<thead>
<tr>
<th>Trade Name Reference</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>considered to be of low toxicity for aquatic life</td>
<td>Properties: Yel.-amber soft solid; faint, pleasant odor; sol. in min. oil; m.p. 30-40 °C; acid no. 2.5 max.; sapon. no. 95-120; hyd. no. 10 max.</td>
</tr>
<tr>
<td>Precaution: Wear glove, goggles, overalls; avoid contact with flames</td>
<td>Monalac ML  [Uniqema Am. <a href="http://www.uniqema.com">http://www.uniqema.com</a>]</td>
</tr>
<tr>
<td>Hazardous Decomp. Prods.: Can generate adducts of ethylene oxide</td>
<td>Chem. Descrip.: Highly refined anhydrous milk lipid See Milk lipids</td>
</tr>
<tr>
<td>Storage: Store in original, closed container @ R.T.; protect from dampness, heat sources</td>
<td>CAS 188550-52-9</td>
</tr>
<tr>
<td>Chem. Descrip.: PEG-400 monooleate See PEG-400 oleate</td>
<td>Properties: Colorless, odorless solid; sp. gr. 0.918; m.p. 32.22 °C; b.p. 93.33 °C</td>
</tr>
<tr>
<td>CAS 9004-96-0 (generic)</td>
<td>Toxicology: Eye irritant; pract. nontoxic by ing.; noncarcinogenic</td>
</tr>
<tr>
<td>Uses: O/w emulsifier, thickener, antifoam, dispersant, base for pharmaceuticals</td>
<td>Precaution: Wear chemical tight goggles and impervious gloves</td>
</tr>
<tr>
<td>Properties: Yel. liq.; typical odor; disp. in water; sol. in fat; dens. 0.98; f.p. 4 °C max.; flash pt. &gt; 200 °C; nonionic Environmental: Biodeg.; keep out of sewers, drains, surface and underground water; considered to be of low toxicity for aquatic life</td>
<td>Hazardous Decomp. Prods.: COx HMIS: Health 1, Flammability 1, Reactivity 0</td>
</tr>
<tr>
<td>Precaution: Wear glove, goggles, overalls; avoid contact with flames</td>
<td>Monasil® PCA  [Uniqema Am. <a href="http://www.uniqema.com">http://www.uniqema.com</a>]</td>
</tr>
<tr>
<td>Hazardous Decomp. Prods.: Can generate adducts of ethylene oxide</td>
<td>Chem. Descrip.: Polysiloxo pyrrolidone carboxylic acid</td>
</tr>
<tr>
<td>Storage: Store in original, closed container @ R.T.; protect from dampness, heat sources</td>
<td>Uses: Emollient, conditioner for personal care prod. such as depilatories, antiperspirants</td>
</tr>
<tr>
<td>Chem. Descrip.: 2-Octyldecyl myristate See Octyldecyl myristate</td>
<td>Properties: Pale yel. liq.; sol. 5% in hexyl laurate, isopropyl palmitate, isopropyl myristate, isostearyl neopentanoate, castor oil, oleth-2, isopropyl alcohol, lt. min. oil/isopropyl myristate (1:1); sp.gr. 0.977; acid no. 13.0; 100% total solids</td>
</tr>
<tr>
<td>CAS 22766-83-2; EINECS/ELINCS 255-623-2</td>
<td>Use Level: 2% (conditioning hand and body lotion, hair relaxer); 1.5% (moisturizing lotion)</td>
</tr>
<tr>
<td>Uses: Emollient improving appearance in pharmaceutical topical emulsions; excipient for dermal/transdermal pharmaceuticals</td>
<td>Toxicology: Nonirritating to skin; min. irritant to eyes</td>
</tr>
<tr>
<td>Properties: Oily liq., faint odor; visc. 15-45 mPa•s (20 °C); acid no. &lt; 7; iodine no. &lt; 7; sapon. no. 95-115 Toxicology: LD0 (oral, rat) &gt; 2 g/kg; nonirritating to skin; sl. eye irritant</td>
<td>Monestriol 52 [Undesa <a href="http://www.undesa.com">http://www.undesa.com</a>; S. Black <a href="http://www.sblack.com">http://www.sblack.com</a>]</td>
</tr>
<tr>
<td>Features: Noncomedogenic; rancidless; min. oil substitute</td>
<td>Chem. Descrip.: PEG-40 stearate</td>
</tr>
<tr>
<td>Properties: Nonionic</td>
<td>CAS 9004-96-3</td>
</tr>
<tr>
<td>Uses: O/w emulsifier, thickener, antifoam, dispersant, base for pharmaceuticals</td>
<td>Uses: O/w emulsifier, thickener, antifoam, dispersant, base for pharmaceuticals</td>
</tr>
<tr>
<td>Properties: Wh. to lt. yel. solid; typical odor; disp. in water; sl. sol. in fat; dens. ≈ 0.97 g/ml; m.p. ≈ 30 °C; flash pt. &gt; 245 °C; nonionic</td>
<td>Manufacture: Monestriol 102 [Undesa <a href="http://www.undesa.com">http://www.undesa.com</a>; S. Black <a href="http://www.sblack.com">http://www.sblack.com</a>]</td>
</tr>
<tr>
<td>Chem. Descrip.: Acetylated lanolin</td>
<td>CAS 9004-99-3</td>
</tr>
<tr>
<td>CAS 61788-48-5; EINECS/ELINCS 262-979-2</td>
<td>Uses: O/w emulsifier, thickener, antifoam, dispersant, base for pharmaceuticals</td>
</tr>
<tr>
<td>Uses: Conditioner, emollient, softener, lubricant for topical pharmaceuticals</td>
<td>Properties: Wh. to lt. yel. solid; typical odor; disp. in water; sl. sol. in fat; dens. 0.97 g/ml; m.p. 30 °C; flash pt. &gt; 245 °C; nonionic</td>
</tr>
</tbody>
</table>
Trade Name Reference

Environmental: Biodeg.

Precaution: Wear gloves, goggles, overalls; avoid contact with flames

Storage: Store in original, closed container; protect from dampness, heat sources

Monestriol 104 [Undesa
http://www.undesa.com; S. Black
http://www.sblack.com]

Chem. Descrip.: PEG-9 stearate
CAS 5349-52-0; EINECS/ELINCS 226-312-9
Uses: O/w emulsifier, thickener, antifoam, dispersant, base for pharmaceuticals

Properties: Wh. solid; typical odor; disp. in water; sl. sol. in fat; dens. ≈ 0.98 g/ml; m.p. ≈ 32 C; flash pt. > 250 C; nonionic

Environmental: Biodeg.

Precaution: Wear goggles and gloves; avoid contact with flames; keep out of sewers, drains, surface and underground water and the ground

Hazardous Decomp. Prods.: Can generate adductors of ethylene oxide

Storage: Store in original, closed container; protect from dampness, heat sources

Monestriol 105 [Undesa
http://www.undesa.com]

Chem. Descrip.: Emulsifier blend

Uses: O/w emulsifier, thickener, antifoam, dispersant, base for pharmaceuticals

Properties: Nonionic

Monestriol 112-C [Undesa
http://www.undesa.com; S. Black
http://www.sblack.com]

Chem. Descrip.: PEG-32 stearate
CAS 9004-99-3
Uses: O/w emulsifier, thickener, antifoam, dispersant, base for pharmaceuticals

Properties: Nonionic

Monestriol 114 [Undesa
http://www.undesa.com; S. Black
http://www.sblack.com]

Chem. Descrip.: PEG-75 stearate
CAS 9004-99-3
Uses: O/w emulsifier, thickener, antifoam, dispersant, base for pharmaceuticals

Properties: Nonionic

Monestriol 204-C [Undesa
http://www.undesa.com; S. Black
http://www.sblack.com]

Chem. Descrip.: PEG-8 distearate
CAS 9005-08-7
Uses: O/w emulsifier, thickener, antifoam, dispersant, base for pharmaceuticals

Properties: Nonionic

Monestriol 216-C [Undesa
http://www.undesa.com; S. Black
http://www.sblack.com]

Chem. Descrip.: PEG-150 distearate
CAS 9005-08-7
Uses: O/w emulsifier, thickener, antifoam, dispersant, base for pharmaceuticals

Regulatory: Not classified as dangerous for transport

Properties: Wh. sol.; typical odor; sol. in water; dens. ≈ 1.07 g/ml; m.p. ≈ 56 C; flash pt. > 245 C; nonionic

Environmental: Biodeg.; keep out of sewers, drains, surface and underground water; considered to be to low toxicity for aquatic life

Precaution: Wear gloves, goggles, overalls; avoid contact with flames

Hazardous Decomp. Prods.: Can generate adductors of ethylene oxide

Storage: Store in original, closed container; protect from dampness, heat sources

Monestriol B [Undesa
http://www.undesa.com; S. Black
http://www.sblack.com]

Chem. Descrip.: Butyl stearate
CAS 123-95-5; EINECS/ELINCS 204-666-5
Uses: Solubilizer, vehicle for medicines; excipient for injectable substances; emollient in antiperspirants

Features: Changes skin feel, rub out props. and greasiness; veg. oil substitute; vaseline substitute

Monestriol C [Undesa
http://www.undesa.com; S. Black
http://www.sblack.com]

Chem. Descrip.: Cetyl stearate
CAS 1190-63-2; EINECS/ELINCS 214-724-1
Uses: Solubilizer, vehicle for medicines; excipient for injectable substances; emollient in antiperspirants

Features: Changes skin feel, rub out props. and greasiness; veg. oil substitute; vaseline substitute

Properties: Ivory wh. sol.; typical odor; insol. in water; sol. in fat; dens. ≈ 0.91 g/ml; m.p. ≈ 56 C; flash pt. > 250 C

Precaution: Wear goggles, gloves, and respirator; avoid contact with flames

Hazardous Decomp. Prods.: None
Trade Name Reference

Storage: Store in original, closed container; protect from dampness, heat sources

Monestriol DM [Undesa
http://www.undesa.com; S. Black
http://www.sblack.com]
Chem. Descrip.: Acetylated glycerine monostearate See Acetylated glyceryl stearate
Uses: Vehicle for injectable substances; facilitates the incorporation of liposoluble active ingredients
Properties: Nonionic

Monestriol GCT [Undesa
http://www.undesa.com; S. Black
http://www.sblack.com]
Chem. Descrip.: Polyglyceryl monostearate
Uses: Vehicle for injectable substances; facilitates the incorporation of liposoluble active ingredients
Properties: Nonionic

Monestriol GE [Undesa
http://www.undesa.com; S. Black
http://www.sblack.com]
Chem. Descrip.: Mono, di, triglycerides C12-C18
CAS 91052-53-8; EINECS/ELINCS 293-214-0
Uses: Vehicle for injectable substances; facilitates the incorporation of liposoluble active ingredients
Regulatory: Not classified as dangerous for transport
Properties: Ivory-wh. sol.; typical odor; disp. in water; sol. in fat; dens. \( \approx 0.90 \); m.p. \( \approx 58 \) C; flash pt. > 200 C; anionic
Environmental: Biodeg.; keep out of sewers, drains, surface water currents; considered to be to low toxicity for aquatic life
Precaution: Wear gloves, goggles, overalls; avoid contact with flames
Storage: For molten product, store between 65-75 C; for solid product, store in closed container @ R.T. protected from dampness, heat sources

Monestriol GP [Undesa
http://www.undesa.com; S. Black
http://www.sblack.com]
Chem. Descrip.: Glyceryl stearate
CAS 123-94-4
Uses: Vehicle for injectable substances; facilitates the incorporation of liposoluble active ingredients
Properties: Nonionic

Monestriol GP-35 [Undesa
http://www.undesa.com; S. Black
http://www.sblack.com]
Chem. Descrip.: Mono, di, triglycerides of fatty acids in C12-C18 See Mono, di, triglycerides C12-C18
CAS 91052-53-8; EINECS/ELINCS 293-214-0
Uses: Vehicle for injectable substances; facilitates the incorporation of liposoluble active ingredients
Regulatory: Not classified as dangerous for transport
Properties: Yellowish (molten) to ivory-wh. (solid); typical odor; insol. in water; sol. in fat; dens. \( \approx 0.95 \); m.p. 58 C; flash pt. > 200 C; nonionic
Environmental: Biodeg.; keep out of sewers, drains, surface and underground water; considered to be to low toxicity for aquatic life
Precaution: Wear gloves, goggles, overalls; avoid contact with flames
Storage: For molten product, store between 65-75 C; for solid product, store in closed container @ R.T. protected from dampness, heat sources

Monestriol GP-35-3% [Undesa
http://www.undesa.com; S. Black
http://www.sblack.com]
Chem. Descrip.: Mono, di, triglycerides of fatty acids in C12-C18 See Mono, di, triglycerides C12-C18
CAS 91052-53-8; EINECS/ELINCS 293-214-0
Uses: Vehicle for injectable substances; facilitates the incorporation of liposoluble active ingredients
Regulatory: Not classified as dangerous for transport
Properties: Ivory-wh. sol.; typical odor; disp. in water; sol. in fat; dens. \( \approx 0.90 \); m.p. \( \approx 58 \) C; flash pt. > 200 C; anionic
Environmental: Biodeg.; keep out of sewers, drains, surface water currents; considered to be to low toxicity for aquatic life
Precaution: Wear gloves, goggles, overalls; avoid contact with flames
Storage: For molten product, store between 65-75 C; for solid product, store in closed container @ R.T. protected from dampness, heat sources

Monestriol GP-35-AE [Undesa
http://www.undesa.com; S. Black
Trade Name Reference

Chem. Descrip.: Mono, di, triglycerides of fatty acids in C12-C18 See Mono, di, triglycerides C12-C18

Uses: Vehicle for injectable substances; facilitates the incorporation of liposoluble active ingredients

Regulatory: Not classified as dangerous for transport

Properties: Ivory-wh. solid; typical odor; insol. in water; sol. in fat; dens. ≈ 0.90; m.p. ≈ 58 C; flash pt > 200 C; nonionic

Toxicology: Not toxic by inh., contact, ing.

Environmental: Biodeg.; keep out of sewers, drains, surface water currents; considered to be low toxicity for aquatic life

Precaution: Wear gloves, goggles, overalls; avoid contact with flames

Storage: Store sol. product @ R.T. in original, sealed container; protect from dampness, heat sources


Chem. Descrip.: Mono, di, triglycerides of fatty acids in C12-C18 See Mono, di, triglycerides C12-C18

Uses: Vehicle for injectable substances; facilitates the incorporation of liposoluble active ingredients

Regulatory: Not classified as dangerous for transport

Properties: Ivory-wh. sol.; typical odor; disp. in water; sol. in fat; dens. ≈ 0.90; m.p. ≈ 59 C; flash pt > 200 C; anionic

Environmental: Biodeg.; keep out of sewers, drains, surface water currents; considered to be low toxicity for aquatic life

Precaution: Wear gloves, goggles, overalls; avoid contact with flames

Storage: Store in original container @ R.T.; protect from dampness, heat sources


Chem. Descrip.: Glyceryl stearate

CAS 123-94-4

Uses: Vehicle for injectable substances; facilitates the incorporation of liposoluble active ingredients

Properties: Nonionic


Chem. Descrip.: Polyglyceryl monostearate

Uses: Vehicle for injectable substances; facilitates the incorporation of liposoluble active ingredients

Properties: Nonionic


Chem. Descrip.: Mono, di, triglycerides of fatty acids in C12-C18 See Mono, di, triglycerides C12-C18

Uses: Vehicle for injectable substances; facilitates the incorporation of liposoluble active ingredients

Regulatory: Not classified as dangerous for transport

Properties: Yellowish (molten) to ivory-wh. (solid); typical odor; insol. in water; sol. in fat; dens. ≈ 0.95; m.p. 58 C; flash pt > 200 C; nonionic

Toxicology: Non-toxic by inh., contact, ing.

Environmental: Biodeg.; keep out of sewers, drains, surface water currents; considered to be low toxicity for aquatic life

Precaution: Wear gloves, goggles, overalls;
Trade Name Reference

**avoid contact with flames**

**Storage:** For molten product, store between 65-75 °C; for solid product, store in closed container @ R.T. protected from dampness, heat sources

**Monestriol GP-60** [Undesa
http://www.undesa.com; S. Black
http://www.sblack.com]

**Chem. Descrip.:** Mono, di, triglycerides of fatty acids in C12-C18  See Mono, di, triglycerides C12-C18

**CAS 91052-53-8; EINECS/ELINCS 293-214-0**

**Uses:** Vehicle for injectable substances; facilitates the incorporation of liposoluble active ingredients

**Regulatory:** Not classified as dangerous for transport

**Properties:** Yellowish (molten) to ivory-wh. (solid); typical odor; insol. in water; sol. in fat; dens. = 0.95; m.p. 61; flash pt. > 200 °C; nonionic

**Toxicology:** Non-toxic by inh., contact, ing.

**Environmental:** Biodeg.; keep out of sewers, drains, surface water currents; considered to be to low toxicity for aquatic life

**Precaution:** Wear gloves, goggles, overalls; avoid contact with flames

**Storage:** For molten product, store between 65-75 °C; for solid product, store in closed container @ R.T. protected from dampness, heat sources

**Monestriol GP-AS** [Undesa
http://www.undesa.com; S. Black
http://www.sblack.com]

**Chem. Descrip.:** Mono, di, triglycerides of fatty acids in C12-C18  See Mono, di, triglycerides C12-C18

**CAS 91052-53-8; EINECS/ELINCS 293-214-0**

**Uses:** Vehicle for injectable substances

**Regulatory:** Not classified as dangerous for transport

**Properties:** Ivory-wh. flakes; typical odor; dispn water; sol. in fat; dens. = 0.90; m.p. ≈ 53flash pt. > 200 °C; nonionic

**Toxicology:** Not toxic by inh., contact, ing.

**Environmental:** Biodeg.; keep out of sewers, drains, surface water currents; considered to be to low toxicity for aquatic life

**Precaution:** Wear gloves, goggles, overalls; avoid contact with flames

**Storage:** Store sol. product @ R.T. in original, sealed container

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**Monestriol IC** [Undesa
http://www.undesa.com; S. Black
http://www.sblack.com]

**Chem. Descrip.:** Isooctyl stearate

**CAS 25339-09-7; EINECS/ELINCS 246-868-6**

**Uses:** Solubilizer, vehicle for medicines; excipient for injectable substances; emollient in antiperspirants; solubilizer for vitamin oils and hormones or other active ingredients in oil solution

**Features:** Changes skin feel, rub out props. and greasiness; veg. oil substitute; vaseline substitute

**Monestriol IS-C** [Undesa
http://www.undesa.com; S. Black
http://www.sblack.com]

**Chem. Descrip.:** Isopropyl stearate

**CAS 112-10-7; EINECS/ELINCS 203-934-9**

**Uses:** Solubilizer, vehicle for medicines; excipient for injectable substances; emollient in antiperspirants; solubilizer for vitamin oils and hormones or other active ingredients in oil solution

**Features:** Changes skin feel, rub out props. and greasiness; veg. oil substitute; vaseline substitute

**Monoglyme** [Ferro http://www.ferro.com]

**Chem. Descrip.:** Ethylene glycol dimethyl ether

**CAS 110-71-4; EINECS/ELINCS 203-794-9**

**Uses:** Solvent vehicle for pharmaceuticals; reaction solvent for pharmaceutical mfg.

**Features:** Tends to solvate cations

**Properties:** Colorless; ethereal, nonresidual odor; water-sol.; misc. with ethanol, acetone, benzene, diethyl ether, octane; m.w. 90.12; sp.gr. 0.8683 (20/20 °C); dens. 7.24 lb/gal; viscosity 1.1 cP (20 °C); vapor pressure 54 mm Hg (20 °C); f.p. -69 °C; b.p. 85.2 °C; flash pt. (CC) -6 °C; ref. index 1.3792; pH neutral; surf. tens. 22.9 dynes/cm (20 °C); sp. heat 0.438 cal/g/°C; 99.6% min. purity

**Toxicology:** LD50 5370 mg/kg; low to mod. acute toxicity; avoid exposure to vapors, skin contact; TLV/8h TWA: 5 ppm; STEL 25 ppm; LD50 5100 mg/kg; chronic exposure may cause reproductive effects

**Environmental:** Slowly biodeg.

**Monomuls® Range** [Cognis http://www.cognis.de]

**Chem. Descrip.:** Fatty acid mono- and diglycerides from vegetable or animal sources  See Mono- and diglycerides of
Trade Name Reference

**fatty acids**

**Uses:** Emulsifier for pharmaceuticals (capsules, powds., syrups, tablets)

**Features:** General purpose

**Properties:** Nonionic; > 60% mono content

**Monomuls® 60-35** [Cognis http://www.cognis.de]

Chem. Descrip.: Hydrogenated palm oil glycerides See Hydrogenated palm glycerides

CAS 91744-66-0; EINECS/ELINCS 294-631-0

**Uses:** Emulsifier, stabilizer, dispersant, opacifier for drugs

**Regulatory:** EU E 471

**Properties:** Ylsh.-wh. powd., neutral odor/taste; sol. in warm propylene glycol, ethanol, IPA, IPM, xylene; disp. in warm water; m.p. 58-62 C; acid no. < 3; iodine no. < 6; sapon. no. 165-175; pH 6-7 (1:10 in methanol/water 1:1); nonionic; 57-62% monoglycerides

**Storage:** 1 yr. storage life

**Monomuls® 90-35** [Cognis http://www.cognis.de]

Chem. Descrip.: Dist. hydrogenated palm oil glyceride See Hydrogenated palm glyceride

CAS 67784-87-6; EINECS/ELINCS 294-638-9

**Uses:** Emulsifier, stabilizer, dispersant, opacifier for drugs

**Regulatory:** EU E 471

**Properties:** Wh. powd., neutral odor and taste; sol. in warm propylene glycol, ethanol, IPA, IPM, xylene; disp. in warm water; m.p. 64-68 C; acid no. < 3; iodine no. < 6; sapon. no. 155-165; pH 4-5 (1:10 in methanol/water 1:1); nonionic; 90-95% monoglycerides

**Storage:** 1 yr. storage life

**Monomuls® 90 O18 PH** [Cognis/Care Chems.; Cognis GmbH/Care Chems. http://www.cognis.com]

Chem. Descrip.: Glyceryl oleate

CAS 111-03-5; EINECS/ELINCS 203-827-7

**Uses:** W/o emulsifier for pharmaceuticals

**Regulatory:** DAC compliance

**Properties:** Almost wh. paste, sl. fatty odor; HLB 3.4; acid no. 3 max.; iodine no. 67-80; sapon. no. 150-160; nonionic; 100% conc.

**Use Level:** 1-5% (creams)

**Toxicology:** Up to 5% conc., toxicologically harmless with no irritating or sensitizing effects

**Storage:** 1 yr. min. storage life in sealed original containers at temps. below 30 C, protected from moisture

**Monopol SPS1** [Dongnam Chem. Ind. Ltd http://www.dongnamchem.com]

Chem. Descrip.: Sorbitan fatty acid ester deriv.

**Uses:** W/o emulsifier for pharmaceuticals

**Properties:** Yel. solid flake; sol. in veg. oils and min. oils; insol. in water, propylene and ethylene glycols; m.p. 49-59 C; acid no. 10 max.; pH 5-7; HLB 4.7; nonionic; 1.5% max. moisture

**Monopol TWO-1030** [Dongnam Chem. Ind. Ltd http://www.dongnamchem.com]

Chem. Descrip.: POE (20) sorbitan monooleate See Polysorbate 80

CAS 9005-65-6

**Uses:** Emulsifier for pharmaceuticals

**Properties:** Lt. yel. liq.; sp.gr. 1.0; visc. 375-475 cps.; acid no. 2.2 max.; flash pt. 318 C; pH 5-7; HLB 15.0; nonionic; 3% max. moisture

**Monopol TWS-1030** [Dongnam Chem. Ind. Ltd http://www.dongnamchem.com]

Chem. Descrip.: POE (20) sorbitan monostearate See Polysorbate 60

CAS 9005-67-8

**Uses:** O/w emulsifier for pharmaceuticals

**Properties:** Lt. yel. solid; sol. in water, isopropyl alcohol, methanol, ethanol, ethylene glycol, and cottonseed oil; insol. in min. oil; acid no. 2.2 max.; pH 5-7; HLB 14.9; nonionic; 3% max. moisture


Chem. Descrip.: Propylene glycol monostearate See Propylene glycol stearate

CAS 1323-39-3; EINECS/ELINCS 215-354-3

**Uses:** Thickener, consistency agent, gellant, emulsifier, stabilizer for pharmaceutical ointments, creams, lotions, emulsions; excipient, thickener, vehicle for dermal and oral dosage forms

**Features:** Produces softer creams with lighter feel than Hydrine

**Regulatory:** EP, JSFA compliance

**Properties:** Gardner < 3 waxy solid, faint odor; drop pt. 33-36 C; HLB 4.0; acid no. < 6; iodine no. < 3; sapon. no. 165-175; nonionic; 100% conc.
Trade Name Reference

**Montane® 20** [Seppic http://www.seppic.com]
Chem. Descrip.: Sorbitan laurate
CAS 1338-39-2; EINECS/ELINCS 215-663-3
Uses: Emulsifier for pharmaceuticals (ointments, suppositories)
Regulatory: FCC, BP compliance
Properties: Liq., faint odor; sol. in ethanol; disp. in water, min. and veg. oils; visc. 4500 mPa•s; HLB 8.6; acid no. 6 max.; sapon. no. 158-170; hyd. no. 330-358; pH 7; nonionic; 100% conc.
Toxicology: Nonirritating to skin and eyes
Environmental: Biodeg.

**Montane® 40** [Seppic http://www.seppic.com]
Chem. Descrip.: Sorbitan palmitate
CAS 26266-57-9; EINECS/ELINCS 247-568-8
Uses: O/w emulsifier for pharmaceuticals (ointments, suppositories)
Regulatory: Approved for food use in U.S. and some European countries
Properties: Flakes, faint odor; sol. hot in ethanol, with turbidity in min. and veg. oils; gels in water; m.p. 49 C; HLB 6.7; acid no. 5 max.; sapon. no. 140-150; hyd. no. 275-305; pH 7; nonionic; 100% conc.
Toxicology: Nonirritating to skin and eyes
Environmental: Biodeg.

**Montane® 60** [Seppic http://www.seppic.com]
Chem. Descrip.: Sorbitan stearate
CAS 1338-41-6; EINECS/ELINCS 215-664-9
Uses: O/w emulsifier for pharmaceuticals (ointments, suppositories)
Regulatory: FCC, BP compliance; approved for food use in U.S. and some European countries
Properties: Flakes, faint odor; sol. hot in ethanol, veg. oil, turbid in min. oil; insol. in water; m.p. 55 C; HLB 4.7; acid no. 5-10; sapon. no. 147-157; hyd. no. 235-260; pH 7; nonionic; 100% conc.
Toxicology: Nonirritating to eyes, mildly irritating to skin
Environmental: Biodeg.

**Montane® 80VG** [Seppic http://www.seppic.com]
Chem. Descrip.: Sorbitan oleate
CAS 8007-43-0; EINECS/ELINCS 232-360-1
Uses: W/o emulsifier for pharmaceuticals (ointments, suppositories), esp. absorption bases of lipophilic ointments or for w/o emulsions
Regulatory: FCC, BP compliance
Properties: Liq., faint odor; sol. in ethanol, min. and veg. oils; insol. in water; visc. 1000 mPa•s; HLB 4.3; acid no. 6 max.; iodine no. 62-76; sapon. no. 145-160; hyd. no. 193-209; pH 7; nonionic; 100% conc.
Toxicology: Nonirritating to skin and eyes
Environmental: Biodeg.

**Montane® 83VG** [Seppic http://www.seppic.com]
Chem. Descrip.: Sorbitan sesquioleate
Uses: W/o emulsifier for pharmaceuticals (ointments, suppositories), esp. absorption bases of lipophilic ointments
Properties: Liq., faint odor; sol. in ethanol, min. and veg. oils; insol. in water; visc. 10,000 mPa•s; HLB 3.7; acid no. 6 max.; iodine no. 68-76; sapon. no. 150-166; hyd. no. 180-205; pH 7; nonionic; 100% conc.
Toxicology: Nonirritating to eyes
Environmental: Biodeg.

**Montane® 481VG** [Seppic http://www.seppic.com]
Chem. Descrip.: Sorbitan oleate, beeswax, and stearic acid
Uses: W/o emulsifier for pharmaceuticals (ointments, suppositories)
Features: Able to emulsify formulations with a low oily phase content.
Properties: Soft waxy paste; sol. (hot, hazy) in min. oil; disp. in ethanol; insol. in water; m.p. 50-60 C; HLB 4.5; acid no. 14-22; sapon. no. 148-163; hyd. no. 136-170; nonionic; 100% act.
Toxicology: LD50 (oral, rat) > 10 g/kg; nonirritating to skin and eyes
Environmental: Biodeg.

**Montanov® 068** [Seppic]
<table>
<thead>
<tr>
<th>Trade Name Reference</th>
<th>Montanov® 60 DF [Seppic <a href="http://www.seppic.com">http://www.seppic.com</a>]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem. Descrip.:</td>
<td>Cetearyl alcohol and cetearyl glucoside</td>
</tr>
<tr>
<td>Uses:</td>
<td>Emulsifier, moisturizer for dermopharmaceuticals</td>
</tr>
<tr>
<td>Features:</td>
<td>Exc. skin tolerance; naturally derived</td>
</tr>
<tr>
<td>Properties:</td>
<td>Flakes; HLB 9.3; nonionic; 100% conc.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Montanov® 80 [Seppic <a href="http://www.seppic.com">http://www.seppic.com</a>]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem. Descrip.: Cetearyl alcohol and cocooylglucoside See Coco glucoside</td>
</tr>
<tr>
<td>Uses: O/w emulsifier for creamly lotions and emulsions with supple texture</td>
</tr>
<tr>
<td>Features: Hypoallergenic; veg. origin</td>
</tr>
<tr>
<td>Properties: Flakes; m.p. 55-60 C; HLB 10.8; acid no. 1 max.; hyd. no. 330-350; pH 5.5-7.5 (5%); 1% max. water</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Montanov® 80 DFVG [Seppic <a href="http://www.seppic.com">http://www.seppic.com</a>]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem. Descrip.: Arachidylbehenyl alcohol and arachidyl glucoside See Arachidyl-behenyl alcohol</td>
</tr>
<tr>
<td>Uses: O/w emulsifier, consistency agent for creamy and fluid lotions, sun care prods., depilatory prods.</td>
</tr>
<tr>
<td>Features: Hypoallergenic; veg. origin; no ethylene oxide, 1,4-dioxane, or solv. type impurities</td>
</tr>
<tr>
<td>Properties: Flakes; m.p. 70-80 C; HLB 8.3; acid no. 1 max.; hyd. no. 210-230; pH 5.5-7.5 (5%); 1% max. water</td>
</tr>
<tr>
<td>Toxicology: Nonirritating</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Montanox® 60 DF [Seppic <a href="http://www.seppic.com">http://www.seppic.com</a>]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem. Descrip.: Polysorbate 60, dioxane-free</td>
</tr>
<tr>
<td>Uses: O/w emulsifier for pharmaceuticals (ointments, syrups, suspensions, suppositories)</td>
</tr>
<tr>
<td>Properties: Gel; HLB 14.9; nonionic; 100% conc.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Moon™ Glycerine USP K [Procter &amp; Gamble <a href="http://pgchemicals.com">http://pgchemicals.com</a>]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem. Descrip.: Glycerin USP (99-100%)</td>
</tr>
<tr>
<td>Chem. Analysis: 0.3% max. moisture</td>
</tr>
<tr>
<td>CAS 56-81-5; EINECS/ELINCS 200-289-5</td>
</tr>
<tr>
<td>Uses: Emulsifier, emollient, plasticizer, humectant, sweetener in pharmaceuticals</td>
</tr>
<tr>
<td>Regulatory: USP, DOT/ADR/RID/IMDG/ICAO/IATA not regulated; Canada DSL; Japan; Australia; Philippines; China; Korea</td>
</tr>
<tr>
<td>Properties: APHA 20 max. cl. visc. liq.; bland odor; sweet taste; complete sol. in water; misc. in ethanol; sl. sol. in acetone; insol. in ether, chloroform; relative dens. 1.262; visc. = 1300 mPa*s; vapor pressure &lt; 0.008 mm Hg; m.p. ≈ 18 C; b.p. &gt; 288 C; flash pt. (PMCC) &gt; 198.9 C; auto-ignition temp. = 400 C; 99-101% assay</td>
</tr>
<tr>
<td>Toxicology: LD50 (oral, rat) &gt; 2 g/kg; may cause mild, transient eye irritation; TSCA listed</td>
</tr>
<tr>
<td>Environmental: LC50 (goldfish, 24 h) &gt; 5 g/l; LC0 (golden orfe, 48 h) &gt; 250 mg/l; LC100 (rainbow trout, 96 h) 51-57 g/l; NOEC (chilomonas paramecium, 48 h) &gt; 10 g/l, (entosiphon sulcatum, 72 h) 3200 mg/l, biodeg.</td>
</tr>
<tr>
<td>Precaution: Incompat. with strong oxidizers, strong acids</td>
</tr>
<tr>
<td>Hazardous Decomp. Prods.: Thermal reaction may release acrolein</td>
</tr>
<tr>
<td>Storage: Store in clean, tight containers to prevent moisture pickup from air; can be stored in aluminum, stainless steel, fiberglass or resin lined steel vessels</td>
</tr>
</tbody>
</table>

Handbook of Pharmaceutical Additives, Third Edition 461
**Moon™ Kosher Glycerine USP NK** [Procter & Gamble http://pgchemicals.com]

Chem. Descrip.: Glycerin USP (99-100%)

Chem. Analysis: 0.3% max. moisture

CAS 56-81-5; EINECS/ELINCS 200-289-5

Uses: Emulsifier, emollient, plasticizer, humectant, sweetener in drugs; intermediate for making glycerol derivatives

Regulatory: USP, kosher, DOT/ADR/RID/IMDG/ICAO/IATA not regulated; Canada DSL; Japan; Australia; Philippines; China; Korea

Properties: APHA 20 max. cl. visc. liq.; bland odor; sweet taste; complete sol. in water; misc. in ethanol; sl. sol. in acetone; insol. in ether, chloroform; relative dens. 1.262; visc. $\approx 1300$ mPa•s; vapor pressure < 0.008 mm Hg; m.p. $\approx 18$ C; b.p. > 288 C; flash pt. (PMCC) > 198.9 C; auto-ignition temp. $\approx 400$ C; 99-101% assay

Toxicology: LD50 (oral, rat) > 2 g/kg; may cause mild, transient eye irritation; TSCA listed

Environmental: LC50 (goldfish, 24 h) > 5 g/l; LC0 (golden orfe, 48 h) > 250 mg/l; LC100 (rainbow trout, 96 h) 51-57 g/l; NOEC (chilomonas paramecium, 48 h) > 10 g/l, (entosiphon sulcatum, 72 h) 3200 mg/l; biodeg.

Precaution: Incompat. with strong oxidizers, strong acids

**MOPS** [Raschig]

Chem. Descrip.: 3-(N-Morpholino)-propane sulfonic acid

CAS 1132-61-2; EINECS/ELINCS 214-478-5

Uses: Biological buffer for cell cultures, biological productions, electrophoresis, diagnostics, tissue studies, blotting techniques, chromatography

**MOPS-Na** [Raschig AG http://www.raschig.de]

Chem. Descrip.: 3-Morpholino propanesulfonic acid, sodium salt See Sodium 3-morpholino propane sulfonate

CAS 71119-22-7

Uses: Biological buffer for cell cultures, biological productions, electrophoresis, diagnostics, tissue studies, blotting techniques, chromatography

**Multiwax® 180-W** [Chemtura http://www.chemtura.com]

Chem. Descrip.: Microcrystalline wax NF (100%), 2,6-di-t-butyl-p-cresol (< 10 ppm)

See BHT

CAS 63231-60-7; 128-37-0; EINECS/ELINCS 264-038-1

UN 3257

Uses: Wax base, lubricant, protectant, antioxidant, carrier, corrosion inhibitor, gloss aid in pharmaceuticals; carrier for pigments and medication

Regulatory: FDA §172.886, 178.3710; SARA §311/312 nonreportable; Canada DSL, EINECS, Australia AICS, Japan ENCS listed

Properties: Wh. waxy solid; odorless; tasteless; sol. in org. solvs.; misc. with petrol. prods., many essential oils, most animal and veg. fats, oils, and waxes; insol. in water; sp.gr. < 1; visc. 14.3-18.0 cSt (99 C); vapor pressure < 0.005 hPa; m.p. 54-102 C; flash pt. (COC) > 210 C

Toxicology: Ing. unlikely to have toxic effects, but may act as intestinal lubricant and result in diarrhea; inh. of vapor/mist may be harmful; aspiration may cause pulmonary edema or aspiration pneumonia; oil deposits in lungs may lead to fibrosis; prolonged/repeated inh. of excessive amts. of oil mist/vapors may cause respiratory tract irritation; when molten, may cause thermal burns; TSCA listed

Environmental: Stable in water; can be mechanically separated from water; not expected to be acutely toxic to aquatic organisms; prevent entry to sewers, drains
Multiwax® ML-445 [Chemtura 
http://www.chemtura.com]
Chem. Descrip.: Microcrystalline wax NF
(100%), 2.6-di-t-butyl-p-cresol (< 10 ppm)
See BHT
CAS 63231-60-7; EINECS/ELINCS 264-038-1
UN 3257
Uses: Wax base, lubricant, protectant, antioxidant, antitackifier, carrier, corrosion inhibitor, gloss aid in pharmaceuticals, medicated creams and unguents, dental waxes; carrier for pigments and medication
Regulatory: FDA §172.886, 178.3710
Properties: Lt. yel. to wh. wax; odorless; tasteless; misc. with petrol. prods., many essential oils, most animal and veg. fats, oils, and waxes; sp.gr. < 1; visc. 14.3-18.0 cSt (99 C); m.p.77-82 C; flash pt. (COC) 274 C min.; 100% act.
Precaution: Incompat. with strong oxidizers such as hydrogen peroxide, bromine, and chromic acid; use heat protective impervious gloves when handling molten product; use chemical safety goggles and, if handling hot, full face shield
Hazardous Decomp. Prods.: CO, CO2
NFPA: Health 0, Flammability 1, Reactivity 0
Storage: Keep away from heat, flame and strong oxidizing agents; storage temp. < 93 C

Myacide® Pharma® BP [BASF MicroCheck 
http://www.basfbiocides.com]
Chem. Descrip.: 2-Bromo-2-nitropropane-1,3-diol
CAS 52-51-7; EINECS/ELINCS 200-143-0
UN 3241
Uses: Antibacterial preservative for pharmaceuticals, ophthalmic preps., medicated creams and lotions, anti-acne preps., antacid preps., toothpaste, oral prods., hypoallergenic prods.; wound irrigant sol’n. (Japan)
Features: Long-term preservative
Regulatory: FDA 21CFR §175.105, 176.300; BP, EU compliance; registered in France, Germany, India, Australia, Canada, Japan; food contact approved in U.S., France, Germany
Trade Name Reference

Properties: Wh. or almost wh. cryst. powd.; faint char. odor; sol. in water, alcohol, glycols, and polyols; m.w. 200; dens. 1.1 g/cm³; m.p. 130 C; pH 5-7 (1%, 20 C); 99% min. purity
Use Level: 200 ppm (pharmaceutical applcs.)

Toxicology: LD50 (oral, male rat) 307 mg/kg, (derma, rat) 1600 mg/kg; conc. sol’ns. are irritating to skin, eyes, respiratory system, harmful if swallowed; nonirritating to skin @ 0.01-0.1%; noncarcinogenic

Environmental: Rapidly biodeg.; EC50 (daphnia magna, 48 h) 1.4 ppm; LC50 (rainbow trout, 96 h) 41.2 ppm; very toxic to aquatic organisms

Precaution: Corrosive to metals (esp. aluminum) when wet; avoid temps. > 90 C to prevent risk of self-heating and rapid decomp.; decomp. temp. is lowered in presence of bases (esp. sodium hydroxide)

Hazardous Decomp. Prods.: Hydrogen bromide and NOx

Storage: 5 yr. min. stability under good storage conditions; store in original container tightly closed


Chem. Descrip.: 2,4-Dichlorobenzyl alcohol

See Dichlorobenzyl alcohol

CAS 1777-82-8; EINECS/ELINCS 217-210-5

Uses: Antifungal agent, preservative for pharmaceuticals

Features: Rec. for areas where contamination by spoilage yeast and molds is the problem; stable at pH 3-10 and to 100 C

Regulatory: SARA §311/312 Acute

Properties: Wh. to sl. yel. crystal; mild char. odor; sol. (g/100 ml): sol. 95 g in acetone, 80 g in methanol, 45 g in propylene glycol, 0.1 g in water; m.w. 177; m.p. 57-60 C; b.p. 150 C; flash pt. > 230 C; 98.5% min. act.

Toxicology: LD50 (oral, rat) > 3000 mg/kg, (oral, mouse) 2300 mg/kg, (subcutaneous, mouse) 1770 mg/kg

Environmental: LD50 (mallard duck) > 2150 mg/kg; LC50 (rainbow trout, 48h) 14.4 mg/L, (daphnia magna, 24h) 22.0 mg/L; max NOEL 3.2 ppm for 96h

Precaution: Use in well-ventilated area; wear dust mask and goggles or full-face respirator with dust filter when dust is present; use gloves; may be irritating to eyes, skin, upper respiratory tract; incompat. with oxidizing agents

Hazardous Ingredients: 2,4-Dichlorobenzyl alcohol (> 99%)

Hazardous Decomp. Prods.: Hydrogen chloride

HMIS: Health 1, Flammability 1


Chem. Descrip.: Diethylene glycol oleate

See PEG-2 olate

CAS 106-12-7; EINECS/ELINCS 203-364-0

Uses: Lipophilic w/o or o/w emulsifier for ointments

Regulatory: JSCI listed

Properties: Pale yel. liq.; HLB 4.5; nonionic; 100% conc.

Toxicology: TSCA listed


Chem. Descrip.: PEG-6 oleate

CAS 9004-96-0

Uses: W/o or o/w emulsifier for ointments

Regulatory: JSCI listed

Properties: Pale yel. liq.; HLB 8.5; nonionic; 100% conc.

Toxicology: TSCA listed

Myritol® 312 [Cognis/Care Chems.]

Chem. Descrip.: Caprylic/capric triglyceride

CAS 73398-61-5; EINECS/ELINCS 265-724-3

Uses: Spreading agent, fatting agent for pharmaceutical skin care preps., w/o and o/w emulsions

Features: Med. fatting oil component

Regulatory: JCIC, DAB, BP compliance

Properties: Sl. ylsh. cl. oil, odorless; m.w. 500; dens. 0.943-0.950 g/cm³ (20 C); visc. 28-32 mPa•s (20 C); acid no. 0.1 max.; iodine no. 0.5 max.; sapon. no. 330-340; hyd. no. 5 max.; cloud pt. < -5 C; ref. index 1.448-1.450 (20 C)

Storage: 1 yr. storage stability in orig. unopened container at temps. below 30 C, protected from moisture

Myritol® 318 [Cognis/Care Chems.]

Chem. Descrip.: Caprylic/capric triglyceride

CAS 73398-61-5; EINECS/ELINCS 265-724-3

Uses: Spreading agent, emollient, solvent, solubilizer for pharmaceutical skin care emulsions

Features: Exc. oxidative stability; compressibility; oily component with solv. capacity

Regulatory: JCIC, DAB compliance
Trade Name Reference

Myritol® 331 [Cognis/Care Chems.]
Chem. Descrip.: Cocoglycerides
CAS 68606-18-8
Uses: Emollient for sunscreen and skin care prod.; exhibits high solvency for crystalline sunscreens; inc. absorptive capacity of UV filters; readily emulsifiable; medium spreading coefficient; exc. dermatological compat.
Properties: Lt. yel. cl. oil; sl. inherent odor; m.w. 580; dens. 0.930-0.940; visc. 45 mPa•s; acid no. 0-2; iodine no. 8 max.; sapon. no. 265-295; hyd. no. 45 max.; cloud pt. < 5 C; ref. index 1.4400-1.4600
Storage: Store in sealed containers @ < 30 C

Myritol® PC [Cognis/Care Chems.]
Chem. Descrip.: Propylene glycol dicaprylate/dicaprate
CAS 68583-51-7; EINECS/ELINCS 271-516-3
Uses: Emollient, spreading agent, cosolvent for pharmaceuticals, skin care preps., aerosols, antiperspirants; solvent for active ingreds.
Features: Stable
Regulatory: DAB, JCIC compliance
Properties: Wh. cream-colored soft waxy solid; sol. in water, acetone, ether, 2-ethoxyethanol, CCl₄; methanol, ethanol, ethyl acetate; insol. in cottonseed oil, min. oil, propylene glycol; sp. gr. 1.1; vapor pressure negligible; pour pt. 38 C; HLB 16.0; nonionic; 100% conc.
Storage: Store in original containers

Chem. Descrip.: PEG-20 stearate
CAS 9004-99-3
Uses: O/w emulsifier for topical pharmaceuticals
Regulatory: SARA §311/312 nonreportable
Properties: Wh. cream pellets; sol. in isopropanol, methanol, ethanol; insol. in mineral oil, cottonseed oil, propylene glycol; f.p. ≈ 38 C; pour pt. >28 C; HLB 15.0; flash pt. > 149 C; pH 5 (10% aq. sol’n.); nonionic; 100% conc.
Toxicology: OSHA PEL 15 mg/m³
Environmental: Low toxicity to aquatic life
Precaution: Avoid strong oxidizing agents
Hazardous Decomp. Prods.: COₓ
HMIS: Health 0, Flammability 1, Reactivity 0
Storage: Store in original containers; bulk storage vessels should be adequately grounded

Chem. Descrip.: PEG-30 stearate
CAS 9004-99-3
Uses: O/w emulsifier for pharmaceuticals
Regulatory: Canada, Australia, EU, USA, Japan, China, Korea, Philippines compliant
Properties: Wh. cream solid; HLB 16.0; nonionic; 100% conc.
Toxicology: LD₅₀ (oral, rat) > 34.8 g/kg
Environmental: Substantially biodeg. in water; LC₅₀ (96 h, static, rainbow trout) 93 mg/l
Precaution: Wear safety glasses with side shields and NR gloves; avoid strong oxidizing agents
Storage: Store in original containers

Myrj® 52 Flake [Uniqema http://www.uniqema.com]
Chem. Descrip.: PEG-40 stearate
CAS 9004-99-3
Uses: Surfactant for pharmaceuticals
Regulatory: Canada, Australia, EU, USA, Japan, China, Korea, Philippines compliant
Properties: Wh.-cream waxy flakes; bland odor; sol. in water, acetone, ether, 2-ethoxyethanol, CCl₄; methanol, ethanol, ethyl acetate; insol. in cottonseed oil, min. oil, propylene glycol; sp. gr. 1.1; vapor pressure negligible; pour pt. 38 C; HLB 16.9; flash pt. > 149 C; nonionic
Toxicology: LD₅₀ (oral, rat) > 34.8 g/kg
Environmental: Substantially biodeg. in water; LC₅₀ (96 h, static, rainbow trout) 93 mg/l
Precaution: Wear safety glasses with side shields and NR gloves; avoid strong oxidizing agents
Storage: Store in original containers

Chem. Descrip.: PEG-40 stearate NF
# Trade Name Reference

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS Number</th>
<th>Uses</th>
<th>Regulatory</th>
<th>Properties</th>
<th>Toxicology</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Myrj® 52S Pharma</strong></td>
<td>9004-99-3</td>
<td>O/w emulsifier for topical pharmaceuticals</td>
<td>FDA 21CFR §173.340</td>
<td>Ivory waxy solid or flake; sol. in water, acetone, ether, alcohol; sp.gr. 1.1; HLB 16.9; pour pt. 38 C; sapon. no. 25-35; nonionic; 100% conc.</td>
<td>TSCA listed</td>
</tr>
<tr>
<td><strong>Myrj® 53 Pellets</strong></td>
<td>9004-99-3</td>
<td>O/w emulsifier for pharmaceuticals</td>
<td>EP, FDA 21CFR §173.340</td>
<td>Wh. waxy granular solid; sol. in water, toluol, acetone, ether, Cellosolve, CCl₄, alcohol; sp.gr. 1.1; HLB 16.9; pour pt. 42 C; sapon. no. 20-28; nonionic; 100% conc.</td>
<td>TSCA listed</td>
</tr>
<tr>
<td><strong>Myrj® 59 P Pharma</strong></td>
<td>9004-99-3</td>
<td>O/w emulsifier and dispersant for topical pharmaceuticals, o/w systems</td>
<td>EP</td>
<td>Pellets; HLB 18.8; nonionic</td>
<td>TSCA listed</td>
</tr>
<tr>
<td><strong>Myrj® 59</strong></td>
<td>9004-99-3</td>
<td>O/w emulsifier for topical pharmaceuticals</td>
<td>EP</td>
<td>Off-wh. to lt. tan solid; sol. in water, alcohol; HLB 18.8; pour pt. 46 C; nonionic; 100% conc.</td>
<td>TSCA listed</td>
</tr>
<tr>
<td><strong>MYS-2V</strong></td>
<td>9004-99-3</td>
<td>Emulsifier, solubilizer for pharmaceuticals</td>
<td>JSCI listed</td>
<td>Pale yel. plate; HLB 2.0; nonionic; 100% conc.</td>
<td>TSCA listed</td>
</tr>
<tr>
<td><strong>MYS-4</strong></td>
<td>9004-99-3</td>
<td>Emulsifier, solubilizer for pharmaceuticals</td>
<td>JSCI listed</td>
<td>Pale yel. solid; HLB 4.0; nonionic; 100% conc.</td>
<td>TSCA listed</td>
</tr>
<tr>
<td><strong>MYS-10</strong></td>
<td>9004-99-3</td>
<td>Emulsifier, solubilizer for pharmaceuticals</td>
<td>JSCI listed</td>
<td>Pale yel. solid; HLB 6.5; nonionic; 100% conc.</td>
<td>TSCA listed</td>
</tr>
<tr>
<td><strong>MYS-25V</strong></td>
<td>9004-99-3</td>
<td>Emulsifier, solubilizer for pharmaceuticals</td>
<td>JSCI listed</td>
<td>Pale yel. solid; HLB 11.0; nonionic; 100% conc.</td>
<td>TSCA listed</td>
</tr>
<tr>
<td><strong>MYS-40V</strong></td>
<td>9004-99-3</td>
<td>Emulsifier, solubilizer for pharmaceuticals</td>
<td>JSCI listed</td>
<td>Pale yel. solid; HLB 15.0; nonionic; 100% conc.</td>
<td>TSCA listed</td>
</tr>
</tbody>
</table>
Trade Name Reference

**pharmaceuticals**

*Features:* Hydrophilic

*Regulatory:* JSCI listed

*Properties:* Pale yel. solid; HLB 17.5; nonionic; 100% conc.

*Toxicology:* TSCA listed

**MYS-45V** [Nikko Chems. Co. Ltd
  [http://www.nikkol.co.jp/index.html]

*Chem. Descr.:* PEG-45 stearate
*CAS:* 9004-99-3
*Uses:* Emulsifier, solubilizer for pharmaceuticals

*Features:* Hydrophilic

*Regulatory:* JSCI listed

*Properties:* Pale yel. flake; HLB 18.0; nonionic; 100% conc.

*Toxicology:* TSCA listed

**MYS-55V** [Nikko Chems. Co. Ltd
  [http://www.nikkol.co.jp/index.html]

*Chem. Descr.:* PEG-55 stearate
*CAS:* 9004-99-3
*Uses:* Emulsifier, solubilizer for pharmaceuticals

*Features:* Hydrophilic

*Regulatory:* JSCI listed

*Properties:* Pale yel. flake; HLB 18.0; nonionic; 100% conc.

*Toxicology:* TSCA listed

Mytab® [Zeeland
  [http://www.rutherfordchemicals.com]

*Chem. Descr.:* Myrtrimonium bromide
*CAS:* 1119-97-7; EINECS/ELINCS 214-291-9
*Uses:* Antimicrobial for topicals

*Properties:* Wh. free-flowing powd.; char. odor; sol. in water, alcohols, chloroform; sl. sol. in MEK, ethyl acetate; insol. in petrol. ether; m.w. 336.40; pH 5-8 (1% aq.); cationic; 100% act.

Myverol® 18-99 [Kerry Bioscience

*Chem. Descr.:* Dist. glyceryl monooleate deriv. from refined low-erucic canola oil See Glyceryl oleate
*CAS:* 111-03-5; EINECS/ELINCS 203-827-7
*Uses:* Forms gelled cubic phase useful as a transdermal patch layer, for sustained release oral formulations and microspheres, topical permeation enhancement, solubilization of water-sol. drugs into an oil matrix

*Regulatory:* FDA 21CFR §184.1505, GRAS; EC E471

*Properties:* Semi-plastic; sp.gr. 0.93 (80 C); m.p. 35 C; HLB 3.8-4.0; acid no. 3 max.; iodine no. 90-95; nonionic; 90% min. monoester

*Storage:* 6 mo shelf life

**NAA-40** [NOF
  [http://www.nof.co.jp]

*Chem. Descr.:* Caprylic alcohol
*CAS:* 111-87-5; EINECS/ELINCS 203-917-6
*Uses:* For pharmaceuticals, emulsifier

*Properties:* Liq.; iodine no. 0.1 max.; sapon. no. 2 max.; hyd. no. 330-360

**NAA-41** [NOF
  [http://www.nof.co.jp]

*Chem. Descr.:* Lauryl alcohol
*CAS:* 112-53-8; EINECS/ELINCS 203-982-0
*Uses:* For pharmaceuticals, emulsifier

*Properties:* Liq.; m.p. 23-26 C; iodine no. 0.1 max.; sapon. no. 1 max.; hyd. no. 294-304

**NAA-42** [NOF
  [http://www.nof.co.jp]

*Chem. Descr.:* Myristyl alcohol
*CAS:* 112-72-1; EINECS/ELINCS 204-000-3
*Uses:* For pharmaceuticals, emulsifier

*Properties:* Liq.; m.p. 35-43 C; iodine no. 0.1 max.; sapon. no. 2 max.; hyd. no. 254-264

**NAA-43** [NOF
  [http://www.nof.co.jp]

*Chem. Descr.:* Cetyl alcohol
*CAS:* 112-92-5; EINECS/ELINCS 204-017-6
*Uses:* For pharmaceuticals, emulsifier

*Properties:* Bead; m.p. 48.5-52.5 C; iodine no. 1 max.; sapon. no. 1 max.; hyd. no. 220-235

**NAA-44** [NOF
  [http://www.nof.co.jp]

*Chem. Descr.:* Stearyl alcohol
*CAS:* 112-92-5; EINECS/ELINCS 204-017-6
*Uses:* For pharmaceuticals, emulsifier

*Properties:* Bead; m.p. 56.5-60.5 C; iodine no. 0.1 max.; sapon. no. 1 max.; hyd. no. 200-220

**NAA-45** [NOF
  [http://www.nof.co.jp]

*Chem. Descr.:* Stearyl alcohol
*CAS:* 112-92-5; EINECS/ELINCS 204-017-6
*Uses:* For pharmaceuticals, emulsifier

*Properties:* Bead; m.p. 56.5-60.5 C; iodine no. 1 max.; sapon. no. 2 max.; hyd. no. 200-225

**NAA-46** [NOF
  [http://www.nof.co.jp]

*Chem. Descr.:* Stearyl alcohol
*CAS:* 112-92-5; EINECS/ELINCS 204-017-6
*Uses:* For pharmaceuticals, emulsifier

*Properties:* Bead; m.p. 56.5-60.5 C; iodine no. 1 max.; sapon. no. 2 max.; hyd. no. 200-225
<table>
<thead>
<tr>
<th>Trade Name Reference</th>
<th>Uses: For pharmaceuticals, emulsifier</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NAA-60 [NOF <a href="http://www.nof.co.jp">http://www.nof.co.jp</a>]</strong></td>
<td>Chem. Descrip.: Caproic acid</td>
</tr>
<tr>
<td>CAS 142-62-1; EINECS/ELINCS 205-550-7</td>
<td>Uses: Pharmaceuticals</td>
</tr>
<tr>
<td>Properties: Yellowish transparent liq.; acid no. 425-483; iodine no. 7.0 max.</td>
<td></td>
</tr>
</tbody>
</table>

**NAA-82 [NOF http://www.nof.co.jp]**
Chem. Descrip.: Caprylic acid
CAS 124-07-2; EINECS/ELINCS 204-677-5
Uses: Pharmaceuticals
Properties: Liq.; m.p. 15.5-16.5 C; acid no. 382-390; iodine no. 0.5 max.

**NAA-102 [NOF http://www.nof.co.jp]**
Chem. Descrip.: Capric acid
CAS 334-48-5; EINECS/ELINCS 206-376-4
Uses: Pharmaceuticals
Properties: Bead; m.p. 43-44 C; acid no. 278-282; iodine no. 0.5 max.

**NAA-122 [NOF http://www.nof.co.jp]**
Chem. Descrip.: Lauric acid
CAS 143-07-7; EINECS/ELINCS 205-582-1
Uses: Pharmaceuticals
Properties: Bead; m.p. 53-54 C; acid no. 242-248; iodine no. 0.5 max.

**NAA-142 [NOF http://www.nof.co.jp]**
Chem. Descrip.: Myristic acid
CAS 544-63-8; EINECS/ELINCS 208-875-2
Uses: Pharmaceuticals
Properties: Bead; m.p. 59-62 C; acid no. 215-220; iodine no. 1.0 max.

**NAA-171 [NOF http://www.nof.co.jp]**
Chem. Descrip.: Palmitic acid
CAS 57-10-3; EINECS/ELINCS 200-312-9
Uses: For pharmaceuticals; creams and lotions
Properties: Bead; m.p. 209.5-215.5; iodine no. 2.0 max.

**NAA-172 [NOF http://www.nof.co.jp]**
Chem. Descrip.: Stearic acid (special)
CAS 57-11-4; EINECS/ELINCS 200-313-4
Uses: For pharmaceuticals; creams and lotions
Properties: Bead; m.p. 54-58 C; acid no. 204-210; iodine no. 1.0 max.

**NAA-173K [NOF http://www.nof.co.jp]**
Chem. Descrip.: Stearic acid (special)
CAS 57-11-4; EINECS/ELINCS 200-313-4
Uses: For pharmaceuticals; creams and lotions
Properties: Bead; m.p. 65-69 C; acid no. 195-206; iodine no. 2.0 max.

**NAA-174 [NOF http://www.nof.co.jp]**
Chem. Descrip.: Stearic acid (special)
CAS 57-11-4; EINECS/ELINCS 200-313-4
Uses: For pharmaceuticals; creams and lotions
Properties: Bead; m.p. 56.5-60.5 C; acid no. 202-208; iodine no. 1.0 max.

**NAA-175 [NOF http://www.nof.co.jp]**
Chem. Descrip.: Stearic acid (special)
CAS 57-11-4; EINECS/ELINCS 200-313-4
Uses: For pharmaceuticals; creams and lotions
Properties: Bead; m.p. 54-58 C; acid no. 204-210; iodine no. 0.5 max.

**NAA-175S [NOF http://www.nof.co.jp]**
Chem. Descrip.: Stearic acid (special)
CAS 57-11-4; EINECS/ELINCS 200-313-4
Uses: For pharmaceuticals; creams and lotions
Properties: Bead; m.p. 54-58 C; acid no. 204-210; iodine no. 0.5 max.

**NAA-176 [NOF http://www.nof.co.jp]**
Chem. Descrip.: Stearic acid (special)
CAS 57-11-4; EINECS/ELINCS 200-313-4
Uses: For pharmaceuticals; creams and lotions
Properties: Bead; m.p. 54-57 C; acid no. 207-212; iodine no. 0.5 max.

**NAA-180 [NOF http://www.nof.co.jp]**
Chem. Descrip.: Stearic acid (special)
CAS 57-11-4; EINECS/ELINCS 200-313-4
Uses: For pharmaceuticals; creams and lotions
Properties: Bead; m.p. 65-69 C; acid no. 195-206; iodine no. 2.0 max.

**NAA-312 [NOF http://www.nof.co.jp]**
Chem. Descrip.: Stearic acid (special)
CAS 143-07-7; EINECS/ELINCS 205-582-1
Uses: Pharmaceuticals
Properties: Liq.; m.p. 32-36 C; acid no. 277-283; iodine no. 1.0 max.

**NAA-312S [NOF http://www.nof.co.jp]**
Chem. Descrip.: Lauric acid
CAS 143-07-7; EINECS/ELINCS 205-582-1
Uses: Pharmaceuticals
Properties: Liq.; m.p. 36-41 C; acid no. 277-283; iodine no. 1.0 max.
Trade Name Reference

**Uses:** Pharmaceuticals

**Properties:** Liq.; m.p. 24-30 C; acid no. 276-284; iodine no. 1.0 max.

**NAB Hawthorn Extract** [Arch Personal Care Prods.](http://www.archchemicals.com)

*Chem. Descrip.*: Water and *crataegus extract*

*See Crataegus monogina extract*

**CAS 8057-51-0; EINECS/ELINCS 283-262-0**

**Uses:** Antimicrobial, UV protectant, anti-irritant for facial moisturizers, face treatments, control of erythema and acne

**Features:** Rich in natural antioxidants and org. acids

**Properties:** Amber cl. liq.

**Use Level:** 5-10%

**NAB Yucca Glauca Extract** [Arch Personal Care Prods.](http://www.archchemicals.com)

*Chem. Descrip.*: Water and *yucca glauca extract*

**Uses:** Moisturizer, anti-inflammatory for topical treatments for burns and mild abrasions

**Features:** Skin renewing props.; inc. cell proliferation

**Properties:** Pale yel. sl. hazy liq.

**Use Level:** 5-10%

**Nacol® 4-99** [Sasol Germany](http://www.sasol.com; http://www.sasololefinssurfactants.com; Sasol N. Am. http://www.sasolnorthamerica.com]

*Chem. Descrip.*: 1-Butanol *See Butyl alcohol*

**CAS 71-36-3; EINECS/ELINCS 200-751-6**

**Uses:** Raw material for pharmaceutical creams and lotions

**Properties:** Hazen 5 max. color; m.w. 74; sp.gr. 0.809-0.812 (20/4 C); b.p. 116.5-118 C; acid no. 0.02 max.; iodine no. 0.05 max.; hyd. no. 753-760; flash pt. (Abel-Pensky) 35 C; 99.6% min. act.

**Nacol® 6-98** [Sasol Germany](http://www.sasol.com; http://www.sasololefinssurfactants.com; Sasol N. Am. http://www.sasolnorthamerica.com]

*Chem. Descrip.*: 1-Hexanol *See Hexyl alcohol*

**CAS 111-27-3; EINECS/ELINCS 203-852-3**

**Uses:** Raw material for pharmaceutical creams and lotions

**Properties:** Liq., Hazen 10 max. color; m.w. 101-104; sp.gr. 0.819 (20/4 C); pour pt. -52 C; b.p. 150-170 C; acid no. 0.02 max.; iodine no. 0.1 max.; hyd. no. 540-555; flash pt. 58 C; 98% min. act.

**Nacol® 8-98** [Sasol Germany](http://www.sasol.com; http://www.sasololefinssurfactants.com; Sasol N. Am. http://www.sasolnorthamerica.com]

*Chem. Descrip.*: 1-Octanol *See Caprylic alcohol*

**CAS 111-87-5; EINECS/ELINCS 203-917-6**

**Uses:** Raw material for pharmaceutical creams and lotions

**Properties:** Liq., Hazen 10 max. color; m.w. 129-131; sp.gr. 0.825 (20/4 C); pour pt. -16 C; b.p. 185-200 C; acid no. 0.05 max.; iodine no. 0.15 max.; hyd. no. 428-435; flash pt. 82 C; 97.5% min. act.


*Chem. Descrip.*: 1-Octanol *See Caprylic alcohol*

**CAS 111-87-5; EINECS/ELINCS 203-917-6**

**Uses:** Raw material for pharmaceutical creams and lotions

**Properties:** Hazen 10 max. color; m.w. 129-131; sp.gr. 0.825 (20/4 C); pour pt. -14 C; b.p. 188-198 C; acid no. 0.03 max.; iodine no. 0.1 max.; hyd. no. 428-435; flash pt. 82 C; 99.5% min. act.


*Chem. Descrip.*: 1-Decanol *See Decyl alcohol*

**CAS 112-30-1; EINECS/ELINCS 203-956-9**

**Uses:** Raw material for pharmaceutical creams and lotions

**Properties:** Hazen 10 max. color; m.w. 157-160; sp.gr. 0.829 (20/4 C); pour pt. 6 C; b.p. 220-235 C; acid no. 0.05 max.; iodine no. 0.2 max.; hyd. no. 350-357; flash pt. 95 C; 97.5% min. act.

**Nacol® 8-98** [Sasol Germany](http://www.sasol.com; http://www.sasololefinssurfactants.com; Sasol N. Am. http://www.sasolnorthamerica.com]

*Chem. Descrip.*: 1-Decanol *See Decyl alcohol*

**CAS 112-30-1; EINECS/ELINCS 203-956-9**

**Uses:** Raw material for pharmaceutical creams and lotions

**Properties:** Hazen 10 max. color; m.w. 157-160; sp.gr. 0.829 (20/4 C); pour pt. 6 C; b.p. 220-235 C; acid no. 0.05 max.; iodine no. 0.2 max.; hyd. no. 350-357; flash pt. 95 C; 97.5% min. act.
Trade Name Reference

Nacol® 10-99 [Sasol Germany  
http://www.sasol.com;  
http://www.sasololefinssurfactants.com;  
Sasol N. Am.  
http://www.sasolnorthamerica.com]  
Chem. Descrip.:  1-Decanol  See Decyl alcohol  
CAS 112-30-1; EINECS/ELINCS 203-956-9  
Uses:  Raw material for pharmaceutical creams and lotions  
Properties:  Hazen 10 max. color; m.w. 212-219; sp.gr. 0.809 (60/4 C); solid. pt. 36-38 C; b.p. 275-290 C; acid no. 0.08 max.; iodine no. 0.3 max.; hyd. no. 256-262; flash pt. 145 C; 95% min. act.

Nacol® 12-96 [Sasol Germany  
http://www.sasol.com;  
http://www.sasololefinssurfactants.com;  
Sasol N. Am.  
http://www.sasolnorthamerica.com]  
Chem. Descrip.:  1-Dodecanol  See Lauryl alcohol  
CAS 112-53-8; EINECS/ELINCS 203-982-0  
Uses:  Raw material for pharmaceutical creams and lotions  
Properties:  Hazen 10 max. color; m.w. 185-190; sp.gr. 0.822 (40/4 C); solid. pt. 22-24 C; b.p. 255-265 C; acid no. 0.05 max.; iodine no. 0.2 max.; hyd. no. 295-305; flash pt. 116 C; 96.5% min. act.

Nacol® 12-99 [Sasol Germany  
http://www.sasol.com;  
http://www.sasololefinssurfactants.com;  
Sasol N. Am.  
http://www.sasolnorthamerica.com]  
Chem. Descrip.:  1-Dodecanol  See Lauryl alcohol  
CAS 112-53-8; EINECS/ELINCS 203-982-0  
Uses:  Raw material for pharmaceutical creams and lotions  
Properties:  Hazen 10 max. color; m.w. 185-187; sp.gr. 0.822 (40/4 C); solid. pt. 23-25 C; b.p. 258-265 C; acid no. 0.03 max.; iodine no. 0.15 max.; hyd. no. 299-304; flash pt. 119 C; 99% min. act.

Nacol® 14-95 [Sasol Germany  
http://www.sasol.com;  
http://www.sasololefinssurfactants.com;  
Sasol N. Am.  
http://www.sasolnorthamerica.com]  
Chem. Descrip.:  1-Tetradecanol  See Myristyl alcohol  
CAS 112-72-1; EINECS/ELINCS 204-000-3  
Uses:  Raw material for pharmaceutical creams and lotions  
Properties:  Wh. pastille; Hazen 20 max. color; odorless; insol. in water; m.w. 240-244; sp.gr. 0.812 (60/4 C); vapor pressure < 0.1 mm Hg; vapor dens. 7-8; solid. pt. 45-49 C; b.p. 300-320 C; acid no. 0.1 max.; iodine no. 0.5 max.; hyd. no. 226-235; flash pt. 150 C; autoignition temp. 235 C; lel ≈ 0.5%; uel ≈ 3.0%; 95% min. act.

Nacol® 14-98 [Sasol Germany  
http://www.sasol.com;  
http://www.sasololefinssurfactants.com;  
Sasol N. Am.  
http://www.sasolnorthamerica.com]  
Chem. Descrip.:  Myristyl alcohol  
CAS 112-72-1; EINECS/ELINCS 204-000-3  
Uses:  Pharmaceutical raw material; emollient, consistency agent for creams, ointments, liniments, lotions, and sticks  
Regulatory:  USP, Ph.Eur., BP  
Properties:  Hazen 20 max. color; m.w. 212-216; sp.gr. 0.809 (60/4 C); solid. pt. 37-39 C; b.p. 270-290 C; acid no. 0.05 max.; iodine no. 0.25 max.; hyd. no. 258-262; flash pt. 145 C; 98.5% min. act.

Nacol® 16-95 [Sasol Germany  
http://www.sasol.com;  
http://www.sasololefinssurfactants.com;  
Sasol N. Am.  
http://www.sasolnorthamerica.com]  
Chem. Descrip.:  1-Hexadecanol (> 95%), 1-Octadecanol (< 1.5%), 1-tetradecanol (< 2.5%)  See Cetyl alcohol; Myristyl alcohol; Stearyl alcohol  
CAS 36653-82-4; 112-92-5; 112-72-1; EINECS/ELINCS 253-149-0;  
Uses:  Pharmaceutical raw material, emollient, emulsifier  
Regulatory:  CERCLA nonreportable; Australia AICS; Canada DSL; Japan MITI; Philippines PICCS; Korea ECL; China listed  
Properties:  Wh. pastille; Hazen 20 max. color; odorless; insol. in water; m.w. 240-244; sp.gr. 0.812 (60/4 C); vapor pressure < 0.1 mm Hg; vapor dens. 7-8; solid. pt. 45-49 C; b.p. 300-320 C; acid no. 0.1 max.; iodine no. 0.5 max.; hyd. no. 226-235; flash pt. 150 C; autoignition temp. 235 C; lel ≈ 0.5%; uel ≈ 3.0%; 95% min. act.

Toxicology:  LD50 (oral, rat) 8 g/kg, (dermal, rabbit) > 2600 mg/kg; LC50 (inh.) 3.2 mg/l  
Environmental:  Readily and rapidly biodegr.  
Precaution:  Wear suitable protective clothing; spills may be slippery; ensure all equipment is grounded before beginning transfer operations; incompat. with strong oxidizers, inorg. acids, halogens

Handbook of Pharmaceutical Additives, Third Edition 470
Trade Name Reference

NFPA: Health 1, Flammability 1, Reactivity 0

Nacol® 16-98 [Sasol Germany]
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: 1-Hexadecanol (> 95%), 1-Octadecanol (> 1%), 1-tetradecanol (< 1%)
See Cetyl alcohol; Myristyl alcohol; Stearyl alcohol
Properties: Wh. solid; Hazen 20 max. color; sweet odor; m.w. 240-244; sp.gr. 0.812 (60/4 C); visc. 8.0 mPa•s (@ 60 C); vapor pressure < 0.1 mm Hg; vapor dens. 8.3; solid. pt. 47-50 C; b.p. 305-320 C; acid no. 0.1 max.; iodine no. 0.5 max.; hyd. no. 200-210; flash pt. 174 C; autoignition temp. 235 C; lel ≈ 0.4%; uel ≈ 2.7%; 98% min. act.
Environmental: Readily, readily biodeg.
Precaution: Combustible liq.; wear suitable protective clothing, gloves, eye/face protection; ensure all equipment is electrically grounded before beginning transfer operations; incompat. with strong oxidizers, inorg. acids, halogens
NFPA: Health 0, Flammability 1, Reactivity 0

Nacol® 18-94 [Sasol Germany]
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: 1-Octadecanol See Stearyl alcohol
Properties: Wh. solid; Hazen 40 max. color; m.w. 267-275; sp.gr. 0.815 (60/4 C); solid. pt. 55-58 C; b.p. 320-340 C; acid no. 0.2 max.; iodine no. 0.5 max.; hyd. no. 200-210; flash pt. 174 C; 94.5% min. act.

Nacol® 18-98 [Sasol Germany]
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: Docosanol See Behenyl alcohol

Nacol® 20-95 [Sasol Germany]
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: Eicosanol See Arachidyl alcohol
Properties: Solid, Hazen 50 max. color; m.w. 298; sp.gr. 0.802 (80/4 C); solid. pt. 62-66 C; acid no. 0.3 max.; iodine no. 1 max.; hyd. no. 180-185; flash pt. 195 C; 95% min. act.

Nacol® 22-98 [Sasol Germany]
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: Docosanol See Behenyl alcohol
### Nafol® 10 D

**Chemical Description:** C10 alcohol (90% C10, 10% C8) See Decyl alcohol

**Uses:** Raw material for pharmaceutical creams and lotions

**Properties:** Hazen 10 max. color; m.w. 155-162; sp.gr. 0.829 (20/4 C); solid. pt. 3 C; b.p. 215-240 C; acid no. 0.05 max.; iodine no. 0.2 max.; hyd. no. 345-365; flash pt. 95 C; 99% min. act.

### Nafol® 20+

**Chemical Description:** C20-24 alcohol (50% C20, 29% C22, 14% C24) See C20-24 alcohols

**Uses:** Raw material for pharmaceutical creams and lotions

**Properties:** Hazen 1800 max. color; sp.gr. 0.804 (80 C); solid. pt. 53-58 C; acid no. 1.0 max.; iodine no. 20 max.; hyd. no. 130-150; flash pt. 210 C; 80% act.

### Nafol® 810 D

**Chemical Description:** C8-10 alcohol (43% C8, 55% C10) See C8-10 alcohols

**Uses:** Raw material for pharmaceutical creams and lotions

**Properties:** Hazen 10 max. color; m.w. 143-148; sp.gr. 0.827 (20/4 C); b.p. 195-240 C; acid no. 0.05 max.; iodine no. 0.15 max.; hyd. no. 380-390; pour pt. 11 C; flash pt. 85 C; 99% min. act.

### Nafol® 1012

**Chemical Description:** C10-14 alcohol (= 85% C10, (≈ 8.5% C12, (≈ 6.5% C14) See C10-14 alcohols

**Uses:** Raw material for pharmaceutical creams and lotions

**Properties:** Hazen 10 max. color; m.w. 160-168; sp.gr. 0.830 (20/4 C); solid. pt. -2 to 2 C; b.p. 220-285 C; acid no. 0.03 max.; iodine no. 0.1 max.; hyd. no. 335-350; flash pt. 105 C; 99% min. act.

### Nafol® 1218 [Sasol N. Am.](http://www.sasolnorthamerica.com)

**Chemical Description:** C12-18 alcohol (40% C12, 30% C14, 18% C16, 10% C18) See C12-18 alcohols

**Uses:** Raw material for pharmaceutical creams and lotions

**Properties:** Hazen 30 max. color; m.w. 204-216; sp.gr. 0.823 (40/4 C); solid. pt. 25-28 C; b.p. 270-335 C; acid no. 0.1 max.; iodine no. 0.4 max.; hyd. no. 260-275; flash pt. 145 C; 98.5% min. act.

### Nafol® 1618 H [Sasol Germany](http://www.sasol.com; http://www.sasololefinssurfactants.com)

**Chemical Description:** Ceteryl alcohol

**Uses:** Raw material for pharmaceutical creams and lotions

**Properties:** Colorless solid; char. odor; sl. sol. in water; sp.gr. 0.804 (80 C); visc. 6.8 mPa•s (80 C); vapor pressure < 1.00 mbar; m.p. 58 C; solid. pt. 61 C; flash pt. 202 C

**Toxicology:** LD50 (oral, rat) > 2000 mg/kg

**Environmental:** Biodeg.; do not allow to enter soil, waterways, or wastewater

**Precaution:** Incompat. with oxidizing agents

**Hazardous Decomp. Prods.:** CO, CO2

**Storage:** Store in cool place away from sources of ignition


**Chemical Description:** 1-Octadecanol, 1-eicosanol, and 1-docosanol See Arachidyl alcohol; Behenyl alcohol; Stearyl alcohol

**Uses:** Raw material for pharmaceutical creams and lotions

**Properties:** Colorless solid; char. odor; sl. sol. in water; sp.gr. 0.804 (80 C); visc. 6.8 mPa•s (80 C); vapor pressure < 1.00 mbar; m.p. 58 C; solid. pt. 61 C; flash pt. 202 C

**Toxicology:** LD50 (oral, rat) > 2000 mg/kg

**Environmental:** Biodeg.; do not allow to enter soil, waterways, or wastewater

**Precaution:** Incompat. with oxidizing agents

**Hazardous Decomp. Prods.:** CO, CO2

**Storage:** Store in cool place away from sources of ignition
Trade Name Reference

Chem. Descrip.: 1-Octadecanol, 1-eicosanol, and 1-docosanol See Arachidyl alcohol; Behenyl alcohol; Stearyl alcohol

Nanospheres 100 O.M.C. [Exsymol http://www.exsymol.com]
Chem. Descrip.: Nanospheres 100 loaded with octyl methoxy cinnamate See Octyl methoxy cinnamate

Natlralube™ 107 [Fanning http://www.fanncorp.com]
Chem. Descrip.: Natural esters

Chem. Descrip.: Pregelatinized corn starch NF See Corn starch, pregelatinized

Chem. Descrip.: 1-Octadecanol, 1-eicosanol, and 1-docosanol See Arachidyl alcohol; Behenyl alcohol; Stearyl alcohol

Nanospheres 100 O.M.C. [Exsymol http://www.exsymol.com]
Chem. Descrip.: Nanospheres 100 loaded with octyl methoxy cinnamate See Octyl methoxy cinnamate

Nittol® II [Am. Lecithin http://www.americancleithin.com]
Chem. Descrip.: Lecithin/water/ethanol liposome conc. containing 20% purified phospholipid fractions with high phosphatidylcholine content See Alcohol
CAS 8030-76-0; 64-17-5; EINECS/ELINCS 310-129-7; 200-578-6

Natlralube™ 107 [Fanning http://www.fanncorp.com]
Chem. Descrip.: Natural esters

Chem. Descrip.: 1-Octadecanol, 1-eicosanol, and 1-docosanol See Arachidyl alcohol; Behenyl alcohol; Stearyl alcohol

Uses: Raw material for pharmaceutical creams and lotions
Properties: Colorless solid; char. odor; sl. sol. in water; sp.gr. 0.800 (80 C); visc. 7.1 mPa•s (80 C); vapor pressure < 1.00 mbar; m.p. 69 C; solid. pt. 64 C; flash pt. 204 C
Toxicology: LD50 (oral, rat) > 2000 mg/kg
Environmental: Biodeg.; do not allow to enter soil, waterways, or wastewater
Precaution: Incompat. with oxidizing agents
Hazardous Decomp. Prods.: CO, CO2
Storage: Store in cool place away from sources of ignition

Uses: Raw material for pharmaceutical creams and lotions
Properties: Colorless solid; char. odor; sl. sol. in water; sp.gr. 0.804 (80 C); visc. 6.8 mPa•s (80 C); vapor pressure < 1.00 mbar; m.p. 58 C; solid. pt. 61 C; flash pt. 202 C
Toxicology: LD50 (oral, rat) > 2000 mg/kg
Environmental: Biodeg.; do not allow to enter soil, waterways, or wastewater
Precaution: Incompat. with oxidizing agents
Hazardous Decomp. Prods.: CO, CO2
Storage: Store in cool place away from sources of ignition

Uses: Sunscreen delivery system for solar creams, gels antiaging cosmetic prods.
Features: Preservative-free
Properties: Opalescent sl. colored visc. liq.; misc. with ethylc alcohol and oils
Toxicology: LD0 (mice) > 20 ml/kg; nonirritating to skin, eyes

Uses: Pharmaceutical tablet binder, disintegrant
Features: Produces tablets that are harder and more resistant to 'capping'
Properties: Wh. to off-wh. powd.; pH 4.5-7.0; 14% max. moisture
Use Level: < 2% (tablet disintegrant)

Uses: Transparent gel containing empty liposomes ready to be loaded with actives, for dermatology; improves skin humidity and penetration
Properties: Transparent yel.-brn. semisolid vesicular gel, ethanolic odor; miscible with water; sp.gr. 1.0 g/ml; visc. 5000±2000 mPa•s (20 C); flash pt. 27.8 C; pH 6.5±1.5; 16% ethanol
Use Level: 10%
Toxicology: Harmless to eyes; nonirritating to skin; noncarcinogenic
Environmental: Biodeg.; no negative ecological reactions expected
Precaution: Flammable; vapors may cause explosive mixture; avoid oxidizers; avoid contact with eyes and prolonged contact with skin
Hazardous Decomp. Prods.: None
Storage: Store in clean, cool, dry place @ 10-25 C; protect from direct sunlight and warming

Uses: Lubricant, film-former in pharmaceuticals
Features: Forms protective film when exposed to air; sulfur-free
Regulatory: FDA 21CFR §176.170, 176.200, 176.210, 177.1200, 1778.3910, etc.; USP compliant
Properties: Pale yel. tenacious, unctuous mass; faint char. odor; sol. in IPM, ethyl acetate; sl. sol. in min. oil, propylene glycol laurate; insol. in castor oil, glycerin, propylene glycol, acetone, ethanol, water; sp.gr. 0.94-0.97 (15 C); m.p. 38-44 C; iodine no. (Hanus) 18-36; flash pt. (OC) 455 F; 100% NV; 0.25% max. water
Toxicology: No known effects from overexposure
Trade Name Reference

Natralube™ 120 [Fanning
http://www.fanncorp.com]  
Chem. Descrip.: Natural lanolin wax ester, USP  
CAS 68201-49-0; EINECS/ELINCS 269-220-4  
Uses: Water repellent, humectant, conditioner, corrosion inhibitor, emollient, lubricant for pharmaceuticals  
Features: Stable  
Properties: Lt. yel. wax; sl. odor; insol. in water; sp.gr. 0.96; vapor pressure none; m.p. 48-52 C; b.p. 35 C; iodine no. 36 max.; sapon. no. 90-110; hyd. no. 35 max.; flash pt. (OC) 560 F; COF 0.0461; nonionic; 0.56% free fatty acids  
Toxicology: No known effects from overexposure  
Precaution: Incompat. with strong oxidizing agents  
Storage: Store in cool, dry area in tightly sealed containers away from excessive heat and moisture

Natrosol® 250 H [Hercules/Aqualon
http://www.aqualon.com]  
Chem. Descrip.: Hydroxyethylcellulose NF  
CAS 9004-62-0  
Uses: Thickener, protective colloid, binder, stabilizer, suspending agent for pharmaceuticals  
Features: High visc. grade  
Regulatory: FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210, 182.99; EPA 40CFR §180.1001(c); DOT nonregulated; SARA §302/304/313 nonreportable, §311/312 fire hazard  
Properties: Wh. to lt. tan powd.; 0.5% max. on 60 mesh; char. odor; sol. in water and polyols; sp.gr. 0.6; dens. 11.5 lb/gal; bulk dens. 0.6 g/ml; visc. 1500-2500 cps (1%); bulking value 0.087 gal/lb; soften. pt. 135-140 C; ref. index 1.336 (2%); pH 6.0-8.5 (1%); nonionic; 5% max. moisture  
Toxicology: May cause skin irritation by mech. abrasion; may cause mild to mod. eye irritation; inh. of dust may cause respiratory tract irritation; TSCA listed  
Environmental: Biodeg.; BOD 7000 ppm  
Precaution: Flamm. dust; static charges may cause flash fire; may form flamm. dust-air mixts.; spillages may be slippery  
Hazardous Decomp. Prods.: CO, CO2, aldehydes, carboxylic acids, smoke  
HMIS: Health 1, Flammability 1, Reactivity 0  
Storage: Store in cool, dry place @ 20 C; keep container closed when not in use; blanket with inert gas when emptying bags near flamm. vapors; store away from direct sunlight, UV radiation

Natrosol® 250 HHR CS [Hercules/Aqualon
http://www.aqualon.com]  
Chem. Descrip.: Hydroxyethylcellulose  
CAS 9004-62-0  
Uses: Lubricant, rheology modifier in topical gels and ointments  
Features: Ultra-high m.w.; retarded hydration treated; faster disp. in water  
Regulatory: FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210, 182.99; EPA 40CFR §180.1001(c); DOT nonregulated; SARA §302/304/313 nonreportable, §311/312 fire hazard  
Properties: Wh. free-flowing granular powd.; char. odor; sol. in cold or hot water; insol. in org. solvs.; sp.gr. 1.0033 (2%); bulk dens. 0.6 g/ml; bulking value 0.087 gal/lb; soften. pt. 135-140 C; ref. index 1.336 (2%); pH 6.0-8.5 (1%); surf. tens. 66.8 dynes/cm (0.1%); nonionic; 5% max. moisture  
Toxicology: May cause skin irritation by mech. abrasion; may cause mild to mod. eye irritation; inh. of dust may cause respiratory tract irritation; TSCA listed  
Environmental: Biodeg.; BOD 7000 ppm  
Precaution: Flamm. dust; static charges may cause flash fire; may form flamm. dust-air mixts.; spillages may be slippery  
Hazardous Decomp. Prods.: CO, CO2, aldehydes, carboxylic acids, smoke  
HMIS: Health 1, Flammability 1, Reactivity 0  
Storage: Store in cool, dry place @ 20 C; keep container closed when not in use; blanket with inert gas when emptying bags near flamm. vapors; store away from direct sunlight, UV radiation

Natrosol® 250 HHX Pharm [Hercules/Aqualon
http://www.aqualon.com]  
Chem. Descrip.: Hydroxyethylcellulose NF, EP  
CAS 9004-62-0  
Uses: Thickener, protective colloid, binder, stabilizer, suspending agent for pharmaceuticals  
Regulatory: FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210, 182.99; EPA 40CFR §180.1001(c); DOT nonregulated; SARA §302/304/313 nonreportable, §311/312 fire hazard  
Properties: Off-wh. powd.; 0.5% max. on 60 mesh; char. odor; sol. in water and polyols;
Trade Name Reference

sp.gr. 0.6; dens. 11.5 lb/gal; bulk dens. 0.6 g/ml; visc. 3500-5000 cps (1%); bulking value 0.087 gal/lb; soften. pt. 135-140 C; ref. index 1.336 (2%); pH 5.5-8.5; 5% max. moisture

**Toxicology:** May cause skin irritation by mech. abrasion; may cause mild to mod. eye irritation; inh. of dust may cause respiratory tract irritation; TSCA listed

**Environmental:** Biodeg.; BOD 7000 ppm

**Precaution:** Flamm. dust; static charges may cause flash fire; may form flamm. dust-air mixts.; spillages may be slippery

**Hazardous Decomp. Prods.:** CO, CO2, aldehydes, carboxylic acids, smoke

**HMIS:** Health 1, Flammability 1, Reactivity 0

**Storage:** Store in cool, dry place @ 20 C; keep container closed when not in use; blanket with inert gas when emptying bags near flamm. vapors; store away from direct sunlight, UV radiation

**Natrosol® 250 HR CS** [Hercules/Aqualon http://www.aqualon.com]

**Chem. Descrip.:** Hydroxyethylcellulose

**CAS** 9004-62-0

**Uses:** Lubricant, rheology modifier in topical gels and ointments

**Features:** Retarded hydration treated; faster disp. in water

**Regulatory:** FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210, 182.99; EPA 40CFR §180.1001(c); DOT nonregulated; SARA §302/304/313 nonreportable, §311/312 fire hazard

**Properties:** Wh. free-flowing granular powd.; char. odor; sol. in cold or hot water; insol. in org. solvs.; sp.gr. 1.0033 (2%); bulk dens. 0.6 g/ml; bulking value 0.087 gal/lb; soften. pt. 135-140 C; ref. index 1.336 (2%); pH 6.0-8.5 (1%); surf. tens. 66.8 dynes/cm (0.1%); nonionic; 5% max. moisture

**Toxicology:** May cause skin irritation by mech. abrasion; may cause mild to mod. eye irritation; inh. of dust may cause respiratory tract irritation; TSCA listed

**Environmental:** Biodeg.; BOD 7000 ppm

**Precaution:** Flamm. dust; static charges may cause flash fire; may form flamm. dust-air mixts.; spillages may be slippery

**Hazardous Decomp. Prods.:** CO, CO2, aldehydes, carboxylic acids, smoke

**HMIS:** Health 1, Flammability 1, Reactivity 0

**Storage:** Store in cool, dry place @ 20 C; keep container closed when not in use; blanket with inert gas when emptying bags near flamm. vapors; store away from direct sunlight, UV radiation

**Natrosol® 250 HX Pharm** [Hercules/Aqualon http://www.aqualon.com]

**Chem. Descrip.:** Hydroxyethylcellulose NF, EP

**CAS** 9004-62-0

**Uses:** Thickener, protective colloid, binder, stabilizer, suspending agent for pharmaceuticals

**Regulatory:** FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210, 182.99; EPA 40CFR §180.1001(c); DOT nonregulated; SARA §302/304/313 nonreportable, §311/312 fire hazard

**Properties:** Off-wh. powd.; 0.5% max. on 60 mesh; char. odor; sol. in water and polyols;
Trade Name Reference

Natrosol® 250 M Pharm [Hercules/Aqualon http://www.aqualon.com]

Chem. Descrip.: Hydroxyethylcellulose NF, EP
CAS 9004-62-0

Uses: Thickener, protective colloid, binder, stabilizer, suspending agent for pharmaceuticals

Regulatory: FDA 21 CFR §175.105, 175.300, 176.170, 176.180, 177.1210, 182.99; EPA 40 CFR §180.1001(c); DOT nonregulated; SARA §302/304/313 nonreportable, §311/312 fire hazard

Properties: Off-wh. powd.; 90% min. through 40 mesh; char. odor; sol. in water and polyols; sp.gr. 0.6; dens. 11.5 lb/gal; bulk dens. 0.6 g/ml; visc. 4500-6500 cps (2%); bulking value 0.087 gal/lb; soften. pt. 135-140 C; ref. index 1.336 (2%); pH 5.5-8.5; 5% max. moisture

Toxicology: May cause skin irritation by mech. abrasion; may cause mild to mod. eye irritation; inh. of dust may cause respiratory tract irritation; TSCA listed

Environmental: Biodeg.; BOD 7000 ppm

Precaution: Flamm. dust; static charges may cause flash fire; may form flamm. dust-air mixts.; spillages may be slippery

Hazardous Decomp. Prods.: CO, CO2, aldehydes, carboxylic acids, smoke

HMIS: Health 1, Flammability 1, Reactivity 0

Storage: Store in cool, dry place @ 20 C; keep container closed when not in use; blanket with inert gas when emptying bags near flamm. vapors; store away from direct sunlight, UV radiation

Natrosol® Plus 330 CS [Hercules/Aqualon http://www.aqualon.com]

Chem. Descrip.: Cetyl hydroxyethylcellulose
See Cetyl hydroxyethyl cellulose

Uses: Thickener, protective colloid, binder, film-former, suspending agent for aq. and surfactant pharmaceuticals

Regulatory: DOT nonregulated; SARA §302/304/313 nonreportable, §311/312 fire hazard

Properties: Wh. to off-wh. powd.; odorless; sol. in water; sp.gr. 1.4; bulk dens. 0.75 g/ml; visc. 300 cps (1%); pH 6-8.0 (1%); surf. tens. 62 dynes/cm; nonionic

Features: Associative thickener

Environmental: Biodeg.; BOD 7000 ppm

Precaution: Flamm. dust; static charges may cause flash fire; may form flamm. dust-air mixts.; spillages may be slippery

Hazardous Decomp. Prods.: CO, CO2, aldehydes, carboxylic acids, smoke

HMIS: Health 1, Flammability 1, Reactivity 0

Storage: Store in cool, dry place @ 20 C; keep container closed when not in use; blanket with inert gas when emptying bags near flamm. vapors; store away from direct sunlight, UV radiation
Trade Name Reference

**Naturechem® CR** [CasChem]
http://www.rutherfordchemicals.com/caschem.html; C.P. Hall http://www.cphall.com

Chem. Descrip.: Cetyl ricinoleate
CAS 10401-55-5; EINECS/ELINCS 233-864-4
Uses: Emollient, lubricant, moisturizer, emulsifier, visc. builder for cosmetics, creams/lotions, lipstick, lip balm, sunscreen
Features: Mild, noncomedogenic, nonoily
Properties: Wh. solid, liquefies on skin; m.p. 27 C; acid no. < 1; iodine no. 45; hyd. no. 100; 100% act.

**Naturechem® GMHS** [CasChem]
http://www.rutherfordchemicals.com/caschem.html; C.P. Hall http://www.cphall.com

Chem. Descrip.: Glyceryl hydroxystearate
CAS 1323-42-8; EINECS/ELINCS 215-355-9
Uses: Emollient, lubricant, moisturizer, emulsifier, visc. builder for cosmetics, creams/lotions, lip balm, sunscreen
Features: Mild
Properties: Wh. flakes; m.p. 69 C; HLB 3.4; acid no. 6; iodine no. < 5; hyd. no. 320; nonionic; 100% conc.

**Naturechem® GTR** [CasChem]
http://www.rutherfordchemicals.com/caschem.html; C.P. Hall http://www.cphall.com

Chem. Descrip.: Glyceryl triacetyl ricinoleate
CAS 101-34-8; EINECS/ELINCS 202-935-1
Uses: Emollient, pigment wetting agent/dispersant/cosolvent, lubricant, moisturizer, emulsifier, visc. builder for creams/lotions, lipstick, lip balm, sunscreen
Features: Mild
Properties: Gardner 2+ color; m.p. -40 C; acid no. < 1; iodine no. 76; hyd. no. 5; pour pt. -40 C

**Naturechem® MAR** [CasChem]
http://www.rutherfordchemicals.com/caschem.html; C.P. Hall http://www.cphall.com

Chem. Descrip.: Methyl acetyl ricinoleinate
CAS 140-03-4; EINECS/ELINCS 205-392-9
Uses: Emollient, cosolvent for personal care prods., creams/lotions, lipstick, lip balm, sunscreens
Features: Light emolliency; reduces greasiness of emollients such as min. oil; superior freeze/thaw props.
Properties: Gardner 1 color; m.p. -20 C; acid no. < 1; iodine no. 77; hyd. no. < 5

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**Natural Prosweet® Liq. #604** [Virginia Dare
http://www.virginiadare.com]

Chem. Descrip.: Natural flavor
Uses: Flavor enhancer, sweetness enhancer, and bitterness reducer for pharmaceuticals, chewable tablets, cough drops, lozenges, mouthwashes and sprays, syrups and elixirs, toothpaste
Features: Multifunctional blend of flavor ingreds.
Properties: Liq.
Use Level: 0.25-1.1% (pharmaceutical)

**Natural Prosweet® Powd. #875** [Virginia Dare
http://www.virginiadare.com]

Chem. Descrip.: Natural flavor
Uses: Flavor enhancer, sweetness enhancer, and bitterness reducer for pharmaceuticals, chewable tablets, cough drops, lozenges, mouthwashes and sprays, syrups and elixirs, toothpaste
Features: Multifunctional blend of flavor ingreds.
Properties: Liq.
Use Level: 0.25-1.1% (pharmaceutical)

**Natural Wax Jelly SP-505** [Strahl & Pitsch
http://www.strahlpitsch.com]

Chem. Descrip.: Ricinus communis (castor) seed oil, hydrogenated castor oil, beeswax, copernica cerifera (carnauba) wax, and methyl soyate See Carnauba (Copernica cerifera) wax; Castor (Ricinus communis) oil
CAS 1323-38-2; 8001-78-3; 8006-40-4; 8015-86-9; 67784-80-9; EINECS/ELINCS 232-293-8; 232-292-2; 232-383-7; 232-399-4; 267-015-4
Uses: Base for lip balms
Features: Alternative to petroleum-based petrolatum
Properties: M.p. 135-155 F; cone penetration @

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77 F 180 - 220

Toxicology: TSCA listed
Trade Name Reference

Chem. Descrip.: Propylene glycol ricinoleate
CAS 26402-31-3; EINECS/ELINCS 247-669-7
Uses: Visc. builder for cosmetics, creams/lotions, lipstick, lip balm, sunscreen
Properties: Pale yel. liq.; m.p. -26 C; acid no. 2.5; iodine no. 76; hyd. no. 296; nonionic; 100% act.

NB [ANGUS http://www.dow.com/angus/]
Chem. Descrip.: 2-Nitro-1-butanol
CAS 609-31-4
Uses: Pharmaceutical intermediate
Properties: M.w. 119.1; sol. 54 g/100 ml water; m.p. -48 C; b.p. 105 C; flash pt. > 200 F (TCC); pH 4.5 (0.1 M aq. sol’n.)

NE™ [ANGUS http://www.dow.com/angus/]
Chem. Descrip.: Nitroethane
CAS 79-24-3; EINECS/ELINCS 201-188-9
Uses: Raw material for synthesis of act. pharmaceutical compds., for α-methyldopa, a hypertensive drug, and for phenylpropanolamine used in bronchial decongestants and wt. control agents
Properties: Liq.; sol. 4.6% in water (20 C); m.w. 75.1; dens. 1.051 g/ml (20 C), 8.75 lb/gal; visc. 0.677 cp (20 C); vapor pressure 20.93 mm Hg; f.p. -89.52 C; b.p. 114 C; flash pt. (TCC) 87 F; 0.677 cp (20 C); vapor pressure 20.93 mm Hg; 75.1; dens. 1.051 g/ml (20 C), 8.75 lb/gal; visc. 12.8 cSt (40 C); m.p. 9 C; iodine no. 1.0; sapon.no. 356; hyd. no. 3.0; flash pt. (PMCC) 229.4 C; ref. index 1.447; surf. tens. 29.9 mN/m; 0% RVOC; 0.05% moisture
Toxicology: LD50 (oral, rat) >15,000 mg/kg; may cause very mild transient eye but not skin irritation when applied undiluted; TSCA listed
Environmental: Biodeg.

NEOBEE® 1053 [Stepan http://www.stepan.com]
Chem. Descrip.: Caprylic/capric triglyceride
CAS 73398-61-5; EINECS/ELINCS 265-724-3
Uses: Solubilizer, carrier for flavors, vitamins, antibiotics; diluent for essential oils, injectables; nutritional supplement; emollient
Features: Min. oil alternative
Regulatory: FDA 21CFR §170.30, GRAS; kosher; Europe, Japan, Canada, Australia listed
Properties: Water-wh. liq.; bland odor and taste; sol. in min. oil, acetone, alcohol; sp.gr. 0.949; visc. 15.9 cSt (100 F); f.p. 5 C; iodine no. 0.1; sapon. no. 334; hyd. no. 1.2; flash pt. (PMCC) 260 C; ref. index 1.447; surf. tens. 29.9 mN/m; 0% RVOC; 0.05% moisture
Toxicology: LD50 (rat) > 36 ml/kg; may cause very mild transient eye irritation but no skin irritation when applied undiluted
Environmental: Biodeg.
Storage: Store in sealed containers below 32 C; avoid overheating or freezing

NEOBEE® M-5 [Stepan http://www.stepan.com]
Chem. Descrip.: Caprylic/capric triglyceride
CAS 73398-61-5; EINECS/ELINCS 265-724-3
Uses: Diluent, vehicle, carrier for flavors, vitamins, antibiotics, nutritional fluids, medicinals, essential oils, colors; solubilizer, cosolvent for fragrance, flavors, medicinals, colors; source of nutritional MCT; emollient in pharmaceuticals
Features: Min. oil alternative
Regulatory: FDA 21CFR §170.30, GRAS; kosher; Europe, Japan, Canada, Australia listed
Properties: Water-wh. oily liq.; bland odor and taste; sol. in alcohol, min. oil, acetone; sp.gr. 0.958; visc. 12.8 cSt (40 C); m.p. 9 C; iodine no. 1.0; sapon.no. 356; hyd. no. 3.0; flash pt. (PMCC) 229.4 C; ref. index 1.446; 200 ppm moisture
Toxicology: LD50 (oral, rat) >15,000 mg/kg; may cause very mild transient eye but not skin irritation when applied undiluted; TSCA listed
Environmental: Biodeg.

NEOBEE® 895 [Stepan http://www.stepan.com]
Chem. Descrip.: Tricaprylin
CAS 538-23-8; EINECS/ELINCS 208-686-5
Uses: Fat source in nutritional prods.; carrier for flavors, vitamins, essential oils, and colors
Regulatory: FDA GRAS; kosher; Europe, Japan, Canada, Australia, and Korea listed
Properties: Water-wh. liq.; bland odor and taste;
Trade Name Reference

0.945; visc. 14.9 cSt (100 F); f.p. -5 C; acid no. 0.10 max.; iodine no. 0.006; sapon. no. 345; hyd. no. 1.4; flash pt. (MCC) 260 C; ref. index 1.447; surf. tens. 28.8 mN/m; 0% RVOC; 200 ppm moisture

Toxicology: LD50 (rat) > 30 ml/kg; may cause very mild transient eye but no skin irritation if applied undiluted

Environmental: Biodeg.

Storage: Store in sealed containers below 32 C; avoid prolonged storage above 32 C; avoid overheating

NEOBEE® M-20 [Stepan http://www.stepan.com]
Chem. Descrip.: Propylene glycol dicaprylate/dicaprate
CAS 68583-51-7; EINECS/ELINCS 271-516-3
Uses: Emollient for creams, lotions, and ointments; solvent, solubilizer, vehicle for antibiotics, medicinals; diluent for essential oils, injectables; deposition agent on skin
Features: Low visc.

Regulatory: FDA 21CFR §170.30, 172.856; avail. in kosher grade
Properties: Pale yel. oily liq., bland odor; sol. in alcohol containing up to 20% water; visc. 9.5 cps; f.p. -20 C; iodine no. 1 max.; sapon. no. 326; hyd. no. 0.6; flash pt. (PMCC) 176.7 C; 0.04% moisture

Toxicology: LD50 (oral, rat) >5000 - 15,000 mg/kg; eye irritant; not a primary skin irritant; ing. does not cause adverse effects

Environmental: Biodeg.
Precaution: Wear safety glasses with side shields

Hazardous Decomp. Prods.: None

HMIS: Health 1, Flammability 1, Reactivity 0

Storage: Avoid prolonged storage above 90 F; keep the container tightly closed and in a cool, well-ventilated place

Neosorb® 20/02 B [Roquette http://www.roquette.fr]
Chem. Descrip.: Sorbitol
Chem. Analysis: 70% w/w dry substance
CAS 50-70-4; EINECS/ELINCS 200-061-5
Uses: Bulk sweetener and humectant for syrups, suspensions, oral ampoules, lozenges, pastilles; excipient for pharmaceutical coatings; humectant for pharmaceutical paste and topical preps.
Features: 60% sweetening power of sucrose; noncariogenic; cooling effect in the mouth; excellent compressibility; chemically stable; flowable
Properties: Cl. visc. liq.; sweet taste; miscible with water; 98.5% min. sorbitol

Neosorb® 20/20 B [Roquette http://www.roquette.fr]
Chem. Descrip.: Sorbitol
Chem. Analysis: 70% w/w dry substance
CAS 50-70-4; EINECS/ELINCS 200-061-5
Uses: Bulk sweetener and humectant for syrups, suspensions, oral ampoules, lozenges, pastilles; excipient for pharmaceutical coatings; humectant for pharmaceutical paste and topical preps.
Features: 60% sweetening power of sucrose; noncariogenic; microbiological stability; strong tendency to crystallize
Properties: Cl. visc. liq.; sweet taste; miscible with water; 93% min. sorbitol

Neosorb® 70/70 B [Roquette http://www.roquette.fr]
Chem. Descrip.: Sorbitol
Chem. Analysis: 70% w/w dry substance
CAS 50-70-4; EINECS/ELINCS 200-061-5
Uses: Bulk sweetener and humectant for syrups, suspensions, oral ampoules, lozenges, pastilles; excipient for pharmaceutical coatings; humectant for pharmaceutical paste and topical preps.
Features: 60% sweetening power of sucrose; noncariogenic; microbiological stability; low tendency to crystallize
Properties: Cl. visc. liq.; sweet taste; miscible with water; 74% min. sorbitol
Neosorb® 70/70 SB [Roquette http://www.roquette.fr]  
Chem. Descrip.: Sorbitol  
Chem. Analysis: 70% w/w dry substance  
CAS 50-70-4; EINECS/ELINCS 200-061-5  
Uses: Bulk sweetener and humectant for syrups, suspensions, oral ampoules, lozenges, pastilles; excipient for pharmaceutical coatings; humectant for pharmaceutical paste and topical preps.  
Features: 60% sweetening power of sucrose; noncariogenic; microbiological stability; low tendency to crystallize  
Properties: Cl. visc. liq.; sweet taste; miscible with water; 74% min. sorbitol  
Neosorb® 70/90 B [Roquette http://www.roquette.fr]  
Chem. Descrip.: Sorbitol  
Chem. Analysis: 70% w/w dry substance  
CAS 50-70-4; EINECS/ELINCS 200-061-5  
Uses: Bulk sweetener and humectant for syrups, suspensions, oral ampoules, lozenges, pastilles; excipient for pharmaceutical coatings; humectant for pharmaceutical paste and topical preps.  
Features: 60% sweetening power of sucrose; noncariogenic; microbiological stability; low tendency to crystallize  
Properties: Used at marketed in NAFTA  
Neosorb® P 20/60 [Roquette http://www.roquette.fr]  
Chem. Descrip.: Crystallized sorbitol  
CAS 50-70-4; EINECS/ELINCS 200-061-5  
Uses: Excipient for direct compression for suckable and chewable tablets; diluent for sachets; sweetener for pharmaceutical chewing gum; used in combination with amino acids for parenteral nutrition  
Features: 60% sweetening power of sucrose; noncariogenic; cooling effect in the mouth; excellent compressibility; chemically stable; flowable  
Properties: Wh. odorless crystalline powd.; sweet taste; particle size 480 µm mean diameter; sol. in water (220g / 100ml)  
Neosorb® P 30/60 [Roquette http://www.roquette.fr]  
Chem. Descrip.: Crystallized sorbitol  
CAS 50-70-4; EINECS/ELINCS 200-061-5  
Uses: Excipient for direct compression for suckable and chewable tablets; diluent for sachets; sweetener for pharmaceutical chewing gum; used in combination with amino acids for parenteral nutrition  
Features: 60% sweetening power of sucrose; noncariogenic; cooling effect in the mouth; excellent compressibility; chemically stable; flowable  
Properties: Wh. odorless crystalline powd.; sweet taste; particle size 480 µm mean diameter; sol. in water (220g / 100ml)  
Neosorb® HDS [Roquette http://www.roquette.fr]  
Chem. Descrip.: Sorbitol  
Chem. Analysis: 75% w/w dry substance  
CAS 50-70-4; EINECS/ELINCS 200-061-5  
Uses: Bulk sweetener and humectant for syrup, suspensions, oral ampoules, lozenges, pastilles; excipient for pharmaceutical coatings; humectant for pharmaceutical paste and topical preps.  
Features: 60% sweetening power of sucrose; noncariogenic; microbiological stability; medium to high tendency to crystallize  
Properties: Cl. visc. liq.; sweet taste; miscible with water; 80% min. sorbitol  
Neosorb® P W [Roquette http://www.roquette.fr]  
Chem. Descrip.: Crystallized sorbitol  
CAS 50-70-4; EINECS/ELINCS 200-061-5  
Uses: Excipient for direct compression for suckable and chewable tablets; diluent for sachets; sweetener for pharmaceutical chewing gum; used in combination with amino acids for parenteral nutrition
Trade Name Reference

Features: 60% sweetening power of sucrose; noncariogenic; cooling effect in the mouth; excellent compressibility; chemically stable; flowable
Regulatory: USP/NF, EP, JP
Properties: Wh. odorless crystalline powd.; sweet taste; particle size 180 µm mean diameter; sol. in water (220 g / 100 ml )

NEPD™ [ANGUS
http://www.dow.com/angus/]
Chem. Descrip.: 2-Nitro-2-ethyl-1,3-propanediol
CAS 597-09-1
Uses: Pharmaceutical intermediate
Properties: M.w. 149.2; sol. 400 g/100 ml water; m.p. 56 C; b.p. decomposes; pH 5.5 (0.1 M aq. sol'n.)

Nerol 70 [Millennium/F&F
http://www.aromachem.com]
Chem. Descrip.: cis-3,7-Dimethyl-2,6-octadien-1-ol See Nerol
CAS 106-25-2; EINECS/ELINCS 203-378-7
Uses: Syn. flavoring agent in pharmaceuticals
Features: Fresh, floral fragrance
Regulatory: FDA 21CFR §172.515; DOT nonregulated
Properties: Cl. liq.; rose-like odor; m.w. 154.25; sp.gr. 0.875-0.880; dens. 7.32 lb/gal; b.p. 218.9 C; flash pt. (TCC) > 100 C; ref. index 1.467-1.478
Toxicology: LD50 (oral, rat) > 5000 mg/kg; (skin, rabbit) > 5000 mg/kg; undiluted liq. may irritate skin and eyes; TSCA listed

Neusilin S1 [Fuji Chem. Ind. USA]
Chem. Descrip.: Magnesium aluminometasilicate
CAS 12511-31-8
Uses: Excipient, flow aid in pharmaceuticals; tablet disintegrant; stabilizer for deliquescent drugs
Features: Compressible; amorphous structure; high adsorption capacity; stable against heat; noncombustible
Properties: Wh. spherical fine gran.; 70-110 µ mean particle size (agglomerate); odorless; tasteless; pract. insol. in water, ethanol; sp.gr. 2.0 g/ml; bulk dens. 0.33 g/ml (loose), 0.40 g/ml (tapped); surf. area 110 m²/g; oil abosrp. 1.3 ml/g; pH 9.4 (5% slurry); 16% loss on drying
Toxicology: Inh. may cause respiratory irritation, cough; may cause eye irritation; ing. of lg. amts. may cause GI irritation, nausea, vomiting, constipation
Precaution: Incomp. with strong oxidizing agents; may cause coloring
Storage: May absorb moisture; avoid high temps. and humidity during storage

Neusilin UFL2 [Fuji Chem. Ind. USA]
Chem. Descrip.: Magnesium aluminometasilicate
CAS 12511-31-8
Uses: Excipient, flow aid in pharmaceuticals; tablet disintegrant; stabilizer for deliquescent drugs
Features: Compressible; amorphous structure; high adsorption capacity; stable against heat; noncombustible
Properties: Wh. powd.; 2-8 µ mean particle size (agglomerate); odorless; tasteless; pract. insol. in water, ethanol; sp.gr. 2.2 g/ml; bulk dens. 0.08 g/ml (loose), 0.13 g/ml (tapped); surf. area 300 m²/g; oil abosrp. 3.2 ml/g; pH 7.4 (5% slurry); 1.8% loss on drying
Toxicology: Inh. may cause respiratory irritation, cough; may cause eye irritation; ing. of lg. amts. may cause GI irritation, nausea, vomiting, constipation
Precaution: Incomp. with strong oxidizing agents; may cause coloring
Storage: May absorb moisture; avoid high temps. and humidity during storage
Trade Name Reference

- Neusilin US2 [Fuji Chem. Ind. USA]
- Neustrene® 060 [Chembura http://www.chemtura.com]
- Newlase [Amano Enzyme http://www.amano-enzyme.co.jp; Amano Enzyme USA]
- Niacin USP, FCC [DSM Nutritional Prods. USA http://www.nutraaccess.com]
- Niacinamide USP, FCC [DSM Nutritional Prods. USA http://www.nutraaccess.com]
- Niacinamide Free Flow [BASF AG http://www.basf.de]

Handbook of Pharmaceutical Additives, Third Edition
### Niaproof® Anionic Surfactant 4

[**Niacet**
http://www.niacet.com](http://www.niacet.com)

**Chem. Descrip.**: Sodium tetradeyl sulfate 
(26-28%), diethylene glycol ethyl ether (≤ 20%), sodium chloride (1-2%) and water

**Uses**: Wetting agent, penetrant, emulsifier in pharmaceuticals; enhances bactericidal properties of antiseptics, rapid fixing of histological specimens

**Regulatory**: FDA compliance

**Properties**: Colorless liq., mild char. odor; misc. with water; sp.gr. 1.031; dens. 8.58 lb/gal; b.p. 92 C; flash pt. (COC) none; pH 8.5 (0.1% aq.); surf. tens. 47 dynes/cm (0.1% aq.); Draves wetting 20 s (0.26%); Ross-Miles foam 10 mm (initial); anionic; 27% act. in water and 20% diethylene glycol ethyl ether

**Toxicology**: Moderate oral and skin toxicity; eye irritant; LD50 (oral, rats) 11 g/kg; TSCA listed

**Environmental**: Not readily biodeg.

**Precaution**: Wear safety glasses, plastic or rubber gloves; incompat. with strong oxidizers

**Hazardous Decomp. Prods.**: Sulfur oxides, CO

### Niaproof® Anionic Surfactant 08

[**Niacet**
http://www.niacet.com](http://www.niacet.com)

**Chem. Descrip.**: Sodium 2-ethylhexyl sulfate 
(38.5-40%), sodium chloride (1.5-2.5%) and water

**CAS**: 126-92-1; 7647-14-5; EINECS/ELINCS 204-812-8

**Uses**: Wetting agent, penetrant, emulsifier in pharmaceuticals; enhances bactericidal properties of antiseptics, rapid fixing of histological specimens; used in manufacture of penicillin for breaking undesired emulsions and enhancing activity

**Features**: Stable to high concs. of electrolytes

**Regulatory**: FDA compliance; OSHA nonhazardous; RCRA, CERCLA, SARA nonreportable

**Properties**: Colorless liq., mild char. odor; misc. with water; sp.gr. 1.031; dens. 8.58 lb/gal; v.p. 17.5 mm Hg; b.p. 95 C; flash pt. (COC) none; pH 7.3 (0.1% aq.); surf. tens. 63 dynes/cm (0.1% aq.); Ross-Miles foam 10 mm (initial); anionic; 39% act.

**Toxicology**: Moderate oral and skin toxicity; eye irritant; LD50 (oral, rats) 4.95 ml/kg; TSCA listed
Trade Name Reference

Regulatory: JSCI listed
Properties: Wh. cryst. powd.; 97% min. conc.
Toxicology: TSCA listed

Chem. Descrip.: Glycyrrhizic acid
CAS 1405-86-3; EINECS/ELINCS 215-785-7
Uses: Anti-inflammatory, anti-allergenic surfactant for pharmaceuticals
Regulatory: JSCI listed
Properties: Wh. powd.; water-sol.; 96% min. conc.
Toxicology: TSCA listed

Chem. Descrip.: Stearyl alcohol
CAS 112-92-5; EINECS/ELINCS 204-017-6
Uses: Base for sl. scented or unscented pharmaceuticals
Features: Fragrance-free
Regulatory: JSCI listed
Properties: Wh. cryst. solid; m.p. 56-58 C
Toxicology: TSCA listed

Chem. Descrip.: Stearyl glycyrrhetinate
CAS 13832-70-7
Uses: Anti-inflammatory, anti-allergenic for pharmaceuticals
Regulatory: JSCI listed
Properties: Wh. to pale yel. cryst. powd.; oil-sol.; 95% min. conc.

NINOL® 70-SL [Stepan http://www.stepan.com]
Chem. Descrip.: Lauramide DEA
CAS 120-40-1; EINECS/ELINCS 204-393-1
Uses: Foam booster/stabilizer, thickener for pharmaceuticals
Properties: Gel; nonionic; 100% act.

NINOL® 96-SL [Stepan http://www.stepan.com]
Chem. Descrip.: Lauramide DEA
CAS 120-40-1; EINECS/ELINCS 204-393-1
Uses: Foam booster/stabilizer, thickener for pharmaceuticals
Properties: Lt. color wax; nonionic; 100% act.

NINOL® C12 LMP [Stepan http://www.stepan.com]
Chem. Descrip.: Lauramide MEA
Chem. Analysis: > 99 % assay
CAS 142-78-9; EINECS/ELINCS 205-560-1
Uses: Visc. builder, foam booster/stabilizer, conditioner for pharmaceuticals
Regulatory: Listed in Europe, Japan, Canada, Australia
Properties: Off-wh. beads; dens. 4.9 lb/gal; m.p. 80 C; b.p. 150 C; flash pt. > 94 C; nonionic; 100% solids
Toxicology: LD50 (oral, rat ) 1720 mg/kg; causes severe eye irritation and extreme skin irritation at ≥ 1%
Environmental: Biodeq.; 0% RVOC
Precaution: Wear safety goggles and gloves; product should be used in a well ventilated area; avoid inhaling dust; may react with strong oxidizing agents.
Hazardous Decomp. Prods.: If overheating occurs, amide ester will be formed; may yield oxides of nitrogen and ammonia
HMIS: Health 1, Flammability 1, Reactivity 0
Storage: Store in sealed containers in cool, dry place below 40 C; avoid overheating or freezing

NINOL® CMP [Stepan http://www.stepan.com]
Chem. Descrip.: Cocamide MEA
CAS 68140-00-1; EINECS/ELINCS 268-770-2
Uses: Foam booster/stabilizer, visc. builder for pharmaceuticals
Features: Enhances foam stability and visc. response at low levels of electrolytes
Properties: Wh. beads; 100% act.
Trade Name Reference

NINOL® GR [Stepan http://www.stepan.com]  
Chem. Descrip.: Cocamide DEA  
CAS 61791-31-9; EINECS/ELINCS 263-163-9  
Uses: Foam booster/stabilizer, emulsifier, thickener for pharmaceuticals  
Properties: Liq.; nonionic; 100% act.

NINOL® L-9 [Stepan http://www.stepan.com]  
Chem. Descrip.: Lauramide DEA (80 - 99%) and diethanolamine (1 - 9 %)  
CAS 120-40-1; 111-42-2; EINECS/ELINCS 204-393-1; 203-868-0  
Uses: Foam booster/stabilizer, emulsifier, thickener for pharmaceuticals  
Features: Stable in neutral or slightly basic or acidic systems  
Properties: Solid wh. paste; sp. gr. 0.9856; b.p. >94 C; flash pt.(PMCC) >93 C; pH (1% aq.) 9.4; nonionic; 100% act.

Toxicology: LD50 (oral, rat) 2700 mg/kg; TSCA listed

Environmental: Biodeg.; RVOC 0%

Precaution: Wear safety goggles and gloves

Hazardous Decomp. Prods.: May yield oxides of nitrogen and ammonia

HMIS: Health 1, Flammability 1, Reactivity 0

NINOL® LMP [Stepan http://www.stepan.com]  
Chem. Descrip.: Lauramide MEA (> 93 %) and monooethanolamine (< 1 %) See Ethanolamine  
CAS 142-78-9; 141-43-5; EINECS/ELINCS 205-560-1; 205-483-3  
Uses: Foam booster/stabilizer, thickener, emollient, detergent for pharmaceuticals  
Features: Stable in neutral or slightly basic or acidic systems  
Properties: Free-flowing off-wh. beads; sp. gr. 0.9856; m.p. 79 - 81 C; b.p. 150 C; flash pt.>93.9; pH (1% aq.) 9.4; nonionic; 100% act.

Toxicology: Dust or powd. may irritate eye tissue; inh. may cause irritation of the nose, throat, and respiratory tract.; ing. of large amount may produce GI disturbances including irritation, nausea, and diarrhea

Environmental: Biodeg.

Precaution: Wear goggles and gloves; avoid dispersion of dust in air; may react with strong oxidizing agents

Hazardous Decomp. Prods.: Oxides of nitrogen and ammonia.

HMIS: Health 1, Flammability 1, Reactivity 0

Storage: Stored in sealed containers and kept at temperatures ≤ 41 C; avoid overheating or freezing

NINOL® SCMP [Stepan http://www.stepan.com]  
Chem. Descrip.: Cocamide MEA  
CAS 68140-00-1; EINECS/ELINCS 268-770-2  
Uses: Detergent, foam booster/stabilizer, thickener in pharmaceuticals  
Features: Enhances foam stability and visc. response at low levels of electrolytes  
Properties: Prilled powd.; nonionic; 100% solids

Chem. Descrip.: Isosorbide dinitrate  
CAS 87-33-2  
Uses: Preservative for pharmaceuticals

Uses: Preservative for pharmaceuticals; topical anesthetic

Chem. Descrip.: Benzylparaben  
CAS 94-18-8; EINECS/ELINCS 202-311-9  
Uses: Preservative, bactericide, fungicide for pharmaceuticals, topical, ophthalmic, oral, and injectable medicaments, ointments, creams, syrups, multi-dose injections, eye drops, vitamin sol'ns., vaccines

Regulatory: BP, NF, Eur.Ph., FCC compliance  
Properties: Wh. fine cryst. powd., odorless, tasteless; sol. (g/100 g solv.) 102 g acetone, 79 g methanol, 72 g ethanol, 60 g lanolin, 42 g ether; m.w. 228.25; m.p. 110-112 C; 99% assay

Toxicology: LD50 (oral, rat) > 5 g/kg; nonirritating to skin, sl. harmful by ingestion, sl. irritating to eyes

Chem. Descrip.: Imidazolidinyl urea  
CAS 39236-46-9; EINECS/ELINCS 254-372-6  
Uses: Preservative for dermopharmaceuticals  
Features: Effective against gram positive and negative bacteria; effective over the range pH 3.0 - 8.5

Regulatory: Not permitted in Japan  
Properties: Wh. free-flowing fine powd.; very sl. odor; highly sol. in water (> 70%); sol. (@ 20 C): 48% in glycerol, 0.01% in ethanol; m.w. 406.3; m.p. 150 C; pH 7.15 (1% aq.)

Use Level: 0.6% max. (personal care in EU)

Toxicology: LD50 (oral, rat) > 7500 mg/kg,
Trade Name Reference

-skin, rabbit) > 8000 mg/kg; nonharmful; nonirritating to eyes, skin, mucous membranes; nonsensitizing to skin

CAS 94-26-8; EINECS/ELINCS 202-318-7
Uses:  Preservative, bactericide, fungicide for pharmaceuticals, topical, ophthalmic, oral, and injectable medicaments, ointments, creams, syrups, multi-dose injections, eye drops, vitamin sol’ns., vaccines
Regulatory:  FDA GRAS; EC 0.4% max.; Japan 1%
Properties:  Wh. cryst. powd., odorless or very faint aromatic odor, tasteless; sol. (g/100 g solv.) 240 g acetone, 220 g methanol, 208 g ethanol, > 200 g IPA, 150 g ether, > 100 g lanolin; m.w. 194.23; m.p. 68-69 C; > 99% act.
Toxicology:  LD50 (oral, mouse) > 5 g/kg; nonirritating to skin; sl. irritating to eyes

Chem. Descrip.:  Potassium butylparaben  See Potassium butyl paraben
CAS 38566-94-8; EINECS/ELINCS 254-009-1
Uses:  Preservative, bactericide, fungicide for pharmaceuticals, medicinal preps.
Properties:  Wh. fine hygroscopic powd.; sol. in cold water; m.w. 232.32; pH 9.5-10.5 (0.1% aq.); > 99% act.
Toxicology:  Nonirritating to skin; sl. irritating to eyes and nasal passages

Chem. Descrip.:  Sodium butylparaben
CAS 36457-20-2; EINECS/ELINCS 253-049-7
Uses:  Preservative, bactericide, fungicide for pharmaceuticals, medicinal preps., soft gelatin capsules
Properties:  Wh. fine hygroscopic powd.; sol. in cold water; m.w. 216.21; pH 9.5-10.5 (0.1% aq.); > 99% act.
Toxicology:  LD50 (oral, mouse) > 2 g/kg; pure material irritating to skin; sl. irritating to eyes and nasal passages

Chem. Descrip.:  O-Benzyl-p-chlorophenol  See Chlorophene
CAS 120-32-1; EINECS/ELINCS 204-385-8
Uses:  Biocide in hospitals
Properties:  Cream to tan flame; sol. in water and oil; pH 4012
Environmental:  Biodegrad.
Storage:  24 mos. shelf life when stored @ 4-40 C in original containers, away from direct sunlight

Chem. Descrip.:  p-Chloro-m-xyleneol  See Chloroxyleneol
CAS 88-04-0; EINECS/ELINCS 201-793-8
UN 2261
Uses:  Antimicrobial, preservative, antiseptic for cosmetics, and disinfectant, algicide, slimicide
Regulatory:  EPA reg. no. 49403-1
Properties:  Wh. to off-wh. cryst. solid, faint phenolic odor; sol. in alcohols, glycols; sol. 0.03% w/v in water; m.w. 156; m.p. 114-116 C; flash pt. > 116 C; > 98% act.
Use Level:  0.05-0.5% (polymer emulsions), 0.1-0.5% (latex paints), 0.05-0.1% (metalworking fluids)
Toxicology:  LD50 (oral, rat) 5 g/kg, (dermal, rat) 2 g/kg; LC50 (inh., rat, 4 h) 6.7629 mg/l; low systemic toxicity, but can be harmful if ing. in quantity; skin irritant, mild eye irritant
Environmental:  Aquatic LC50 (rainbow trout, 96 h) 0.77 mg/l, (daphnia magna, 48 h) 7.7 mg/l
Hazardous Decomp. Prods.:  None
Storage:  Store in original container; exc. stability under normal storage conditions, but may darken with age

Chem. Descrip.:  O-Phenyl phenol  See o-Phenylphenol
CAS 90-43-7; EINECS/ELINCS 201-993-5
Uses:  Biocide in pharmaceuticals
Properties:  Cream to wh. flakes, sl. phenolic odor; sol. (g/100 g solv.) 800 g in methanol, 660 g acetone, 590 g ethanol, 490 g ether, 300 g propylene glycol, 275 g ethylene glycol, 270 g benzene; m.w. 170; bulk dens. 0.60-0.65; m.p. 56-58 C; b.p. 286 C; flash pt. (COC) 138 C; 99.5% min. purity
Use Level:  10-15% (disinfectant concs.), 0.1-0.2% (cooling lubricants), 0.08-2% (adhesives)
Toxicology:  LD50 (rats) 2000 mg/kg; harmful by ingestion; corrosive to skin and eyes
Storage:  Unlimited shelf life if protected from
Chem. Descrip.: P-Chloro-m-cresol
CAS 59-50-7; EINECS/ELINCS 200-431-6
Uses: Biocide and disinfectant for hospital use and temperature sterilization
Properties: Wh. cream crystalline powd.; sol in water; insol. in oil; NV residue < 0.1%
Toxicology: LD50 (acute oral, rat) 620 kg
Environmental: Biodegrad. when diluted below the minimum inhibitory concentration and does not bioaccumulate.
Storage: Store at temperatures within the range 4-40 C; do not expose to direct sunlight; shelf life of 24 months

Chem. Descrip.: P-t-Amyl phenol See p-t-Amylphenol
CAS 80-46-6; EINECS/ELINCS 201-280-9
Uses: Biocide against bacteria, yeast, and fungi in water-based antiseptic pharmaceuticals and medicated powds.
Features: Broad spectrum of activity
Properties: Crystalline solid; sparingly sol. in water; oil-insol.
Toxicology: LD50 (acute oral, rat) 1486 g/kg; low toxicity
Environmental: Biodegrad. when diluted below the minimum inhibitory concentration and does not bioaccumulate; hazardous to the environment
Precaution: Corrosive
Storage: Store at temperatures within the range 4-40 C; do not expose to direct sunlight; shelf life of 24 months

Chem. Descrip.: p-Chloro-m-xylenol See Chloroxylenol
CAS 88-04-0; EINECS/ELINCS 201-793-8
Uses: Antimicrobial for topical OTC pharmaceuticals
Features: Broad spectrum
Properties: Wh. cryst. powd.; sol. in most org. solvs.; insol. in water
Use Level: 0.5-3.75%

Chem. Descrip.: p-Chloro-m-xylenol See Chloroxylenol
CAS 88-04-0; EINECS/ELINCS 201-793-8
Uses: Antimicrobial, antiseptic base for OTC drug prods. incl. medicated powds., soaps, surgical scrubs, and antidandruff shampoos
Features: Pharmaceutical grade
Use Level: 0.5-3.75%

Chem. Descrip.: P-Chloro-m-xylenol See Chloroxylenol
CAS 88-04-0; EINECS/ELINCS 201-793-8
Uses: Antimicrobial for surgical scrubs, liq. hand soaps, skin creams, and pharmaceuticals

Chem. Descrip.: > 30% sodium propylparaben, 15-30% sodium methylparaben, 15-30% sodium ethylparaben, 5-15% sodium benzoate
Uses: Antimicrobial preservative for pharmaceuticals, esp. preservation of soft gelatin
Properties: Wh. fine cryst. powd.; sol. in cold water and in ethanol, diethyl ether; pH 9.5-10.5 (0.1% aq.)
Toxicology: LD50 (oral, rat) < 2000 mg/kg; harmful if swallowed; severe eye irritant; may cause irritation to mouth, upper digestive tract; prolonged/repeated exposure may cause skin irritation; inh. of dust may cause irritation to nose, upper respiratory tract
Environmental: Readily biodeg.; unlikely to accumulate in aquatic environment; discharge of lg. quantities may kill fish
Precaution: May react with strong oxidants; may cause dust explosion; fire may produce fumes contg. CO and CO2; spillages may be slippery
Storage: Store in cool, dry area away from strong oxidizing agents

Chem. Descrip.: Combination of sodium salts of para hydroxy benzoic acid esters
Uses: Antimicrobial preservative for oral pharmaceuticals, liq. antacid suspensions and other alkaline sol'ns.
Features: For use to pH 8.0-8.5
Properties: Sol. in cold water
Use Level: 0.05-0.20%
Trade Name Reference

http://www.fun.clariant.com]
CAS 120-47-8; EINECS/ELINCS 204-399-4
Uses: Preservative, bactericide, fungicide for pharmaceuticals, topical, opthalmic, oral, and injectable medicaments, ointments, creams, syrups, multi-dose injections, eye drops, vitamin sol'n's., vaccines
Regulatory: FDA GRAS; EC 0.4% max.; Japan 1%
Properties: Wh. fine cryst. powd., odorless or very faint aromatic odor, tasteless; sol. (g/100 g solv.): 84 g acetone, 81 g methanol, 70 g ethanol, 40 g ether, 30 g lanolin; m.w. 166.18; m.p. 115-117 C; pH 7; > 99% act.
Toxicology: LD50 (oral, rat) > 8 g/kg; sl. poisonous if swallowed; nonirritating to skin; sl. irritating to eyes; produces a sl. burning sensation of mouth and tongue
Environmental: Not very resist. to microbial degradation
Precaution: Dust in confined conditions can be a dangerous fire and explosion hazard
Hazardous Decomp. Prods.: Decomp. may produce acrid irritating thick black smoke

Nipagin A Sodium [Clariant/Functional Chems.  
http://www.fun.clariant.com]
Chem. Descrip.: Sodium ethylparaben
CAS 35285-68-8; EINECS/ELINCS 252-487-6
Uses: Antimicrobial preservative, bactericide, fungicide for pharmaceuticals, medicinal preps., soft gelatin capsules
Properties: Wh. fine powd., almost odorless, tasteless; hygroscopic; sol. in cold water; m.w. 188.16; pH 9.5-10.5 (0.1% aq.); > 99% act.
Toxicology: LD50 (oral, mouse) 2.5 g/kg; sl. poisonous if swallowed; pure material irritating to skin; severe eye irritant; sl. irritating to nasal passages; produces sl. burning sensation of mouth and tongue
Environmental: Not very resist. to microbial degradation
Precaution: Dust in confined conditions can be a dangerous fire and explosion hazard
Hazardous Decomp. Prods.: Decomp. may produce acrid irritating thick black smoke

Nipagin M [Clariant/Functional Chems.  
http://www.fun.clariant.com]
CAS 99-76-3; EINECS/ELINCS 202-785-7
Uses: Antimicrobial preservative, bactericide, fungicide for pharmaceuticals, topical, opthalmic, oral, and injectable medicaments, ointments, creams, syrups, multi-dose injections, eye drops, vitamin sol'n's., vaccines
Regulatory: FDA GRAS; EC 0.4% max.; Japan 1%
Properties: Wh. fine cryst. powd., odorless or very faint aromatic odor, tasteless; sol. (g/100 g solv.): 64 g acetone, 60 g IPA, 58 g methanol, 48 g ethanol, 35 g propylene glycol, 23 g ether; m.w. 152.15; m.p. 125-128 C; b.p. 298.6 C; pH ≤ 7; > 99% act.
Toxicology: LD50 (oral, rat) > 8 g/kg; sl. poisonous if swallowed; sl. irritating to skin; produces sl. burning sensation of mouth and tongue
Environmental: Not very resist. to microbial degradation
Precaution: Dust in confined conditions can be a dangerous fire and explosion hazard
Hazardous Decomp. Prods.: Decomp. may produce acrid irritating thick black smoke

Nipaguard® BPX [Clariant/Functional Chems.  
http://www.fun.clariant.com]
Chem. Descrip.: Phenoxyethanol, methylparaben, propylparaben, and bronopol See 2-Bromo-2-nitropropane-1,3-diol
Uses: Preservative in oral/topical pharmaceuticals
Trade Name Reference

Features: Broad-spectrum; for use at pH 4.5-8.5; readily incorporated in aq. phase
Regulatory: USA and Europe approvals
Properties: Sol. 0.5% in water; readily sol. in oil phases, many org. solvs.
Use Level: 0.25-0.5%
Toxicology: Calculated LD50 (oral, rat) > 2000 mg/kg; low toxicity; nonirritating to skin, eyes, mucous membranes at normal use concs.

Chem. Descrip.: Phenoxyethanol, methylidibromoglutaronitrile See Methylidibromo glutaronitrile
Uses: Preservative for pharmaceuticals
Features: Broad spectru m act. against Gram-negative and -positive bacteria, yeasts, molds; effective @ pH 4-8; formaldehyde-free
Properties: Pale yel. to yel. liq.; sl. char. odor; misc. with lower alcohols, glycols; sol. ≈ 0.2% in water; sp.gr. ≈ 1.20; vapor pressure ≈ 0.04 mbar; flash pt.(OC) 121 C
Use Level: 0.1-0.3%
Toxicology: Nonirritating to eyes, skin, mucous membranes

Chem. Descrip.: DMDM hydantoin
CAS 6440-58-0; EINECS/ELINCS 229-222-8
Uses: Antimicrobial for pharmaceuticals
Features: Broad-spectrum; effective against gram-negative bacteria, yeast, and molds
Properties: Water-wh. cl. liq., sl. formaldehyde odor; sol. in water; m.w. 188.12; sp.gr. 1.15 g/ml; dens. 9.68 lb/gal; f.p. -7.5 C; b.p. 108 C; flash pt. > 100 C; pH 6.7-7.5; > 54% act. in water
Use Level: 0.15-0.4%
Toxicology: LD50 (oral) 3300 mg/kg (moderately toxic); mild skin and eye irritant; respiratory irritant

Chem. Descrip.: Benzyl alcohol, methylparaben, and propylparaben
Uses: Preservative for pharmaceuticals
Features: Broad-spectrum; for use at pH 4.5-8.5; readily incorporated in aq. phase
Regulatory: USA, Japan, and Europe approvals
Use Level: 0.3-0.6%

Chem. Descrip.: Propylene glycol, methylparaben, and propylparaben
Uses: Preservative for pharmaceuticals
Features: Broad-spectrum; for use at pH 4.5-8.5; readily incorporated in aq. phase
Regulatory: USA, Japan, and Europe approvals
Use Level: 0.3-0.6%

Chem. Descrip.: 3,4,4’-Trichlorocarbanilide (40%) aq. disp.
CAS 101-20-2; EINECS/ELINCS 202-924-1
Uses: Topical antimicrobial

Chem. Descrip.: 3,4,4´-Trichlorocarbanilide CAS 101-20-2; EINECS/ELINCS 202-924-1
Uses: Topical antimicrobial for bar and liq. soaps
Properties: Fine wh. to gray-wh. powd.; char. odor; 5% max. > 20 µ particle size; 97-101% assay

Chem. Descrip.: BHT
CAS 128-37-0; EINECS/ELINCS 204-881-4
Uses: Antioxidant for pharmaceuticals
Properties: Colorless or wh. cryst. powd., odorless and tasteless; insol. in water; m.w. 220.4; f.p. 69.2 C; b.p. 265 C; flash pt. (PM) 122 C; > 99.5% act.
Toxicology: Nontoxic

Chem. Descrip.: Methylparaben (> 30%), ethylparaben (15-30%), propylparaben (5-15%)
CAS 99-76-3; 120-47-8; 94-13-3; EINECS/ELINCS 202-785-7; 204-399-4; 202-307-7
Uses: Preservative for ointments, creams, syrups, eye drops/lotions, vitamin solutions and antacid suspensions, and veterinary prods.
Toxicology: Skin and eye irritant

Chem. Descrip.: Sodium methylparaben, sodium propylparaben, and sodium ethylparaben
Uses: Preservative, bactericide, fungicide for
Trade Name Reference

aq. pharmaceuticals, medicinal preps., syrups, sol'ns., suspensions, other oral medicines

Features: Suitable for alkaline preps. to pH 8.0-8.5
Properties: Sol. in cold water

CAS 94-13-3; EINECS/ELINCS 202-307-7
Uses: Preservative, bactericide, fungicide for pharmaceuticals, topical, ophthalmic, oral, and injectable medicaments, ointments, creams, syrups, multi-dose injections, eye drops, vitamin sol'ns., vaccines
Features: Activity maintained in the presence of gums, mucilages, fats and oils

Chem. Descrip.: Sodium propylparaben
CAS 35285-69-9; EINECS/ELINCS 202-488-1
Uses: Preservative, bactericide, fungicide for pharmaceuticals, medicinal preps.
Properties: Wh. fine cryst. powd.; odorless or very faint aromatic odor; sol. (g/100 g solv.): 105 g acetone, 100 g in methanol, ethanol, 88 g IPA, 80 g lanolin, 50 g ether; m.w. 180.20; m.p. 95-98 C; > 99% act.
Toxicology: LD50 (oral, mouse) 3.7 g/kg (pract. nonharmful); nonirritating to skin; sl. irritating to eyes

Chem. Descrip.: DEA methoxycinnamate
CAS 56265-46-4; EINECS/ELINCS 260-082-0
Uses: Preservative for pharmaceuticals
Properties: Off-wh. to beige fine crystalline powd.; odorless to faint odor; sol. 10 g in 100 ml IMS; m.p. 87-90 C; pH 6.5-7.0; 98% min. assay

http://www.fun.clariant.com
Chem. Descrip.: Methylparaben (> 50%), butylparaben (> 20%), ethylparaben (<15%), and propylparaben (< 10%)
Uses: Preservative, bactericide, fungicide for pharmaceuticals, topical, ophthalmic, oral, and injectable medicaments, ointments, creams, syrups, multi-dose injections, eye drops, vitamin sol'ns., vaccines
Regulatory: USA, ECC, and Japanese approvals
Properties: Wh. fine cryst. powd., virtually odorless, tasteless; sol. 0.14% in water; m.p. 60-125 C; pH 7.0 (10% aq.)
Use Level: 0.1-0.3% (pharmaceutical creams, lotions, ointments); 0.05-0.10% (with other preservatives in eye drops); 0.05-0.15% (oral medicines, vaccines)
Toxicology: Pract. nonharmful by ingestion; nonirritating to skin; sl. irritant to eyes

Chem. Descrip.: Sodium salts of Nipastat
Uses: Preservative for pharmaceuticals

Nissan Cation AR-4 [NOF http://www.nof.co.jp]
Chem. Descrip.: 1-Hydroxyethyl 2-alkyl imidazolium chloride
Uses: Extraction agent for antibiotics
Properties: Ylsh.-brn. liq.; cationic; 35% min. act.

Nissan Monogly M [NOF http://www.nof.co.jp]
Chem. Descrip.: Glycerol stearate
CAS 123-94-4
Uses: Emulsifier for pharmaceuticals
Properties: Wh. flake; m.p. 53-61 C; HLB 3.0; nonionic; 40% min. monoglyceride content

Nissan Nonion CP-08R [NOF http://www.nof.co.jp]
Chem. Descrip.: Sorbitan caprylate
Uses: Emulsifier, o/w emulsion stabilizer, and thickener for pharmaceuticals
Properties: Liq.; oil-sol.; HLB 7.3; nonionic; 100% conc.

Nissan Nonion DN-202 [NOF http://www.nof.co.jp]
Chem. Descrip.: POE lauryl ether See Laureth
CAS 9002-92-0
Uses: Emulsifier for pharmaceuticals
Properties: Liq.; oil-sol.; HLB 6.2; nonionic; 100% conc.
**Nissan Nonion DN-203** [NOF](http://www.nof.co.jp)
Chem. Descrip.: POE lauryl ether See Laureth
CAS 9002-92-0
Uses: Emulsifier for pharmaceuticals
Properties: Liq.; oil-sol.; HLB 7.9; nonionic; 100% conc.

**Nissan Nonion DN-209** [NOF](http://www.nof.co.jp)
Chem. Descrip.: POE lauryl ether See Laureth
CAS 9002-92-0
Uses: Emulsifier for pharmaceuticals
Properties: Liq.; oil-sol.; HLB 13.2; nonionic; 100% conc.

**Nissan Nonion DS-60HN** [NOF](http://www.nof.co.jp)
Chem. Descrip.: PEG distearate
CAS 9005-08-7
Uses: Emulsifier for pharmaceuticals
Properties: Wh. flake; sol. in water, methanol, warm in diethylene glycol; m.p. 54-62 C; HLB 19; acid no. 2 max.; nonionic; 100% conc.

**Nissan Nonion LP-20R, LP-20RS** [NOF](http://www.nof.co.jp)
Chem. Descrip.: Sorbitan laurate
CAS 1338-39-2; EINECS/ELINCS 215-663-3
Uses: Emulsifier, o/w emulsion stabilizer, and thickener for pharmaceuticals
Properties: Gardner 5 max. oily liq.; sol. in methanol, ethanol, acetone, xylene, ethyl ether, kerosene, disp. in water; HLB 8.6; nonionic; 100% conc.

**Nissan Nonion LT-221** [NOF](http://www.nof.co.jp)
Chem. Descrip.: Polysorbate 20
CAS 9005-64-5
Uses: Emulsifier for pharmaceuticals
Properties: Gardner 6 max. oily liq.; sol. in water, methanol, ethanol, acetone, xylene, ethyl ether, ethylene glycol, HLB 16.7; nonionic; 100% conc.

**Nissan Nonion MP-30R** [NOF](http://www.nof.co.jp)
Chem. Descrip.: Sorbitan myristate
Uses: Emulsifier for pharmaceuticals
Properties: Solid; oil-sol.; HLB 6.6; nonionic; 100% conc.

**Nissan Nonion OP-80R** [NOF](http://www.nof.co.jp)
Chem. Descrip.: Sorbitan oleate
CAS 1338-43-8; EINECS/ELINCS 215-665-4
Uses: Emulsifier for pharmaceuticals
Properties: Gardner 5 max. waxy solid; sol. in methanol, ethanol, xylene, kerosene, ethyl ether, disp. in warm water; HLB 4.7; nonionic; 100% conc.

**Nissan Nonion OP-85R** [NOF](http://www.nof.co.jp)
Chem. Descrip.: Sorbitan sesquioleate
CAS 8007-43-0; EINECS/ELINCS 232-360-1
Uses: Emulsifier for pharmaceuticals
Properties: Gardner 9 max. oily liq.; sol. in ethanol, acetone, xylene, ethyl ether, kerosene, methanol, warm in water; HLB 3.7; nonionic; 100% conc.

**Nissan Nonion OP-88P** [NOF](http://www.nof.co.jp)
Chem. Descrip.: Sorbitan trioleate
CAS 26266-58-9; EINECS/ELINCS 247-569-3
Uses: Emulsifier for pharmaceuticals
Properties: Gardner 9 max. oily liq.; oil-sol.; HLB 1.8; nonionic; 100% conc.

**Nissan Nonion OT-221** [NOF](http://www.nof.co.jp)
Chem. Descrip.: Polysorbate-80 See Polysorbate 80
CAS 9005-65-6
Uses: Emulsifier for pharmaceuticals
Properties: Gardner 6 max. oily liq.; sol. in water, ethanol, acetone, xylene, disp. in methanol; HLB 15.0; nonionic; 100% conc.

**Nissan Nonion PP-40R** [NOF](http://www.nof.co.jp)
Chem. Descrip.: Sorbitan palmitate
CAS 26266-57-9; EINECS/ELINCS 247-568-8
Uses: Emulsifier for pharmaceuticals
Properties: Gardner 7 max. waxy solid; oil-sol.; HLB 6.7; nonionic; 100% conc.

**Nissan Nonion PT-221** [NOF](http://www.nof.co.jp)
Chem. Descrip.: POE sorbitan monopalmitate
Uses: Emulsifier for pharmaceuticals
Properties: Gardner 8 max. oily liq.; sol. in water, methanol, ethanol, acetone, xylene, ethyl ether, ethylene glycol; HLB 15.3; nonionic; 100% conc.

**Nissan Nonion SP-60R** [NOF](http://www.nof.co.jp)
Chem. Descrip.: Sorbitan stearate
CAS 1338-41-6; EINECS/ELINCS 215-664-9
Uses: Emulsifier for pharmaceuticals
Properties: Gardner 5 max. waxy solid; sol. in methanol, ethanol, xylene, kerosene, ethyl ether, disp. in warm water; HLB 4.7; nonionic; 100% conc.
Nissan Nonion ST-221  [NOF \url{http://www.nof.co.jp}]
Chem. Descrip.:  POE sorbitan monostearate
Uses:  Emulsifier for pharmaceuticals
Properties:  gardner 5 max. oily liq.; sol. in water, methanol, ethanol, acetone, xylene, ethyl ether, kerosene; HLB 14.9; nonionic; 100% conc.

N-Lok®  [Nat'l. Starch & Chem./Food Innovation \url{http://www.foodinnovation.com}]
Chem. Descrip.:  Food starch modified with corn syrup  See Food starch, modified
CAS 53124-00-8; 8029-43-4
Uses:  Encapsulant for vitamins
Features:  Low visc.; exc. resist. to oxidation; total replacement for gum Arabic, gelatin
Regulatory:  FDA 21CFR §172.892; DOT nonregulated; SARA §313 nonreportable
Properties:  Wh. powd.; starch odor; sol. in water; m.w. > 10,000; sp.gr. 1.5; pH ≈ 4 (1%); ≈ 6% moisture
Toxicology:  Possible physical irritant from dust particles; particulates may scratch eye surfs. and cause mech. irritation; possible nuisance dust by inh.; maintain below TWA 10 mg/m³; low oral toxicity; low toxicity by skin contact; TSCA listed
Precaution:  Potential for dust explosion; minimize dust generation
Hazardous Decomp. Prods.:  Does not undergo spontaneous decomp.; typ. combustion prods.: CO, CO₂, N, water
HMIS:  Health 1, Flammability 1, Reactivity 0
Storage:  Store @ ambient temps.; sensitive to static electricity

N-Lok® 1930  [Nat'l. Starch & Chem./Food Innovation \url{http://www.foodinnovation.com}]
Chem. Descrip.:  Food starch modified with corn syrup added  See Food starch, modified
CAS 53124-00-8; 8029-43-4
Uses:  Encapsulating agent for vitamins
Features:  Because of its lower viscosity, this product requires 25% less water than gum arabic
Regulatory:  FDA 21CFR §172.892; DOT nonregulated; SARA §313 nonreportable
Properties:  Wh. powd.; starch odor; dispenses in water; m.w. > 10,000; sp.gr. 1.5; pH ≈ 4 (1%); ≈ 6% moisture
Toxicology:  Possible physical irritant from dust particles; particulates may scratch eye
Trade Name Reference

Purebright MB-37 Series [NOF http://www.nof.co.jp]
Chem. Descrip.: 2-Methacryloyloxyethyl phosphorylcholine and n-Butyl methacrylate
See Butyl methacrylate
CAS 67881-98-5; 97-88-1
Uses: Solubilizer for pharmaceuticals that have low aqueous solubility
Features: Shows only slight hemolization in comparison with other solubilizers
Toxicology: LD50 (oral, mouse) > 25,600 mg/kg, (IV, rat) > 1000 mg/kg; no skin irritation

Nofable AO-90 [NOF http://www.nof.co.jp]
Chem. Descrip.: Oleyl alcohol
CAS 143-28-2; EINECS/ELINCS 205-597-3
Uses: Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.
Properties: Colorless; odorless; nonionic

Nofable AO-99 [NOF http://www.nof.co.jp]
Chem. Descrip.: Oleyl alcohol
CAS 143-28-2; EINECS/ELINCS 205-597-3
Uses: Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.
Properties: Colorless; odorless; nonionic

Nofable BO-90K [NOF http://www.nof.co.jp]
Chem. Descrip.: Potassium oleate
CAS 143-18-0; EINECS/ELINCS 205-590-5
Uses: Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.
Properties: Colorless; odorless

Nofable BO-90N [NOF http://www.nof.co.jp]
Chem. Descrip.: Sodium oleate
CAS 143-19-1; EINECS/ELINCS 205-591-0
Uses: Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.
Properties: Colorless; odorless

Nofable BO-90T [NOF http://www.nof.co.jp]
Chem. Descrip.: Triethanolamine oleate See TEA-oleate
CAS 2717-15-9; EINECS/ELINCS 220-311-7
Uses: Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.
Properties: Colorless; odorless; anionic

Nofable BO-99K [NOF http://www.nof.co.jp]
Chem. Descrip.: Potassium oleate
CAS 143-18-0; EINECS/ELINCS 205-590-5

Uses: Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.
Properties: Colorless; odorless; anionic

Nofable BO-99N [NOF http://www.nof.co.jp]
Chem. Descrip.: Sodium oleate
CAS 143-19-1; EINECS/ELINCS 205-591-0
Uses: Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.
Properties: Colorless; odorless

Nofable BO-99T [NOF http://www.nof.co.jp]
Chem. Descrip.: Triethanolamine oleate See TEA-oleate
CAS 2717-15-9; EINECS/ELINCS 220-311-7
Uses: Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.
Properties: Colorless; odorless; anionic

Nofable CO-90 [NOF http://www.nof.co.jp]
Chem. Descrip.: Cholesterol oleate See Cholesteryl oleate
CAS 303-43-5; EINECS/ELINCS 206-142-1
Uses: Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.
Properties: Colorless; odorless

Nofable CO-99 [NOF http://www.nof.co.jp]
Chem. Descrip.: Cholesterol oleate See Cholesteryl oleate
CAS 303-43-5; EINECS/ELINCS 206-142-1
Uses: Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.
Properties: Colorless; odorless

Nofable EAO-80 [NOF http://www.nof.co.jp]
Chem. Descrip.: POE oleyl ether See Oleth CAS 9004-98-2
Uses: Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.
Properties: Colorless; odorless; nonionic

Nofable EAO-90 [NOF http://www.nof.co.jp]
Chem. Descrip.: POE oleyl ether See Oleth CAS 9004-98-2
Uses: Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.
Properties: Colorless; odorless; nonionic

Nofable EAO-99 [NOF http://www.nof.co.jp]
Chem. Descrip.: POE oleyl ether See Oleth
<table>
<thead>
<tr>
<th>Trade Name Reference</th>
<th>CAS</th>
<th>Uses</th>
<th>Properties</th>
<th>Features</th>
<th>Regulatory</th>
<th>CAS</th>
<th>EINECS/ELINCS</th>
<th>Uses</th>
<th>Properties</th>
<th>Features</th>
<th>Regulatory</th>
<th>CAS</th>
<th>EINECS/ELINCS</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.</td>
<td>Colorless; odorless; nonionic</td>
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<td></td>
<td></td>
<td>Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.</td>
<td>Colorless; odorless</td>
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<td><strong>Nofable EO-90</strong></td>
<td>CAS 111-62-6</td>
<td>Ethyl oleate</td>
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<td>Colorless; odorless</td>
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<td>POE sorbitan oleate</td>
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<td>Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.</td>
<td>Colorless; odorless</td>
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<td>Ulta-pure polysorbate 80</td>
<td>(generic)</td>
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<td>Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.</td>
<td>Colorless; odorless</td>
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<td></td>
<td></td>
<td>Emulsifier, solubilizer and stabilizer in IV pharmaceutical formulations</td>
<td>Low allergic reaction; low toxicity and peroxide; low degranulation characteristics</td>
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<td>Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.</td>
<td>Colorless; odorless</td>
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<td>Fluoroalcohol oleate (1,1,9-trihydroxadecafluorononanol-1)</td>
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<td>Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.</td>
<td>Colorless; odorless</td>
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<td>Fluoroalcohol oleate (1,1,2,2-tetrahydrooctadecafluorooctanol-1)</td>
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<td>Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.</td>
<td>Colorless; odorless</td>
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<td>Fluoroalcohol oleate (1,1,7-trihydrododecafluoroheptanol-1)</td>
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<td>Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.</td>
<td>Colorless; odorless</td>
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<td>Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.</td>
<td>Colorless; odorless</td>
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<td>Fluoroalcohol oleate (1,1,9-trihydroxadecafluorononanol-1)</td>
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<td>Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.</td>
<td>Colorless; odorless</td>
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<td>Fluoroalcohol oleate (1,1,2,2-tetrahydrooctadecafluorooctanol-1)</td>
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<td>Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.</td>
<td>Colorless; odorless</td>
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### Trade Name Reference

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Properties</th>
<th>Uses</th>
<th>Chemical Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nofable GO-901P</strong> [NOF <a href="http://www.nof.co.jp">http://www.nof.co.jp</a>]</td>
<td>Colorless; odorless; nonionic; &gt; 99% act.</td>
<td><em>Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.</em></td>
<td>Glycerol monooleate, 80%</td>
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<tr>
<td><strong>Nofable GO-902</strong> [NOF <a href="http://www.nof.co.jp">http://www.nof.co.jp</a>]</td>
<td>Colorless; odorless; nonionic; &gt; 99% act.</td>
<td><em>Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.</em></td>
<td>Glycerol dioleate See Glycerol dioleate</td>
</tr>
<tr>
<td><strong>Nofable GO-903</strong> [NOF <a href="http://www.nof.co.jp">http://www.nof.co.jp</a>]</td>
<td>Colorless; odorless; nonionic; &gt; 99% act.</td>
<td><em>Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.</em></td>
<td>Glycerol trioleate See Triolein</td>
</tr>
<tr>
<td><strong>Nofable GO-991</strong> [NOF <a href="http://www.nof.co.jp">http://www.nof.co.jp</a>]</td>
<td>Colorless; odorless; nonionic; &gt; 99% act.</td>
<td><em>Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.</em></td>
<td>Glycerol monooleate, 50%</td>
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<tr>
<td><strong>Nofable MO-90</strong> [NOF <a href="http://www.nof.co.jp">http://www.nof.co.jp</a>]</td>
<td>Colorless; odorless; nonionic</td>
<td><em>Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.</em></td>
<td>Methyl oleate</td>
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<td><strong>Nofable MO-99</strong> [NOF <a href="http://www.nof.co.jp">http://www.nof.co.jp</a>]</td>
<td>Colorless; odorless; nonionic</td>
<td><em>Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.</em></td>
<td>Methyl oleate</td>
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<td><strong>Nofable OO-9080</strong> [NOF <a href="http://www.nof.co.jp">http://www.nof.co.jp</a>]</td>
<td>Colorless; odorless</td>
<td><em>Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.</em></td>
<td>Oleyl oleate</td>
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<tr>
<td><strong>Nofable OO-9980</strong> [NOF <a href="http://www.nof.co.jp">http://www.nof.co.jp</a>]</td>
<td>Colorless; odorless</td>
<td><em>Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.</em></td>
<td>Oleyl oleate</td>
</tr>
</tbody>
</table>
Trade Name Reference

CAS 3687-45-4; EINECS/ELINCS 222-980-4

*Chem. Descrip.*: *Oleyl oleate*

**Uses:** Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.

**Properties:** Colorless; odorless; nonionic

**Nofable OO-9999** [NOF http://www.nof.co.jp]

**Chem. Descrip.:** Oleyl oleate

**CAS 3687-45-4; EINECS/ELINCS 222-980-4**

**Uses:** Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.

**Properties:** Colorless; odorless; nonionic

**Nofable PGO-900L** [NOF http://www.nof.co.jp]

**Chem. Descrip.:** Linear *diglycerol oleate*  
*See Polyglyceryl-2 oleate*

**CAS 9007-48-1; EINECS/ELINCS 279-230-0**

**Uses:** Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.

**Properties:** Colorless; odorless; nonionic

**Nofable PGO-900M** [NOF http://www.nof.co.jp]

**Chem. Descrip.:** Mixed **diglycerol oleate**  
*See Polyglyceryl-2 oleate*

**CAS 9007-48-1; EINECS/ELINCS 279-230-0**

**Uses:** Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.

**Properties:** Colorless; odorless; nonionic

**Nofable PGO-902L** [NOF http://www.nof.co.jp]

**Chem. Descrip.:** Linear *tetraglycerol oleate*  
*See Polyglyceryl-4 oleate*

**CAS 9007-48-1; EINECS/ELINCS 256-367-4**

**Uses:** Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.

**Properties:** Colorless; odorless; nonionic

**Nofable PGO-904L** [NOF http://www.nof.co.jp]

**Chem. Descrip.:** Linear *tetracyglycerol oleate*  
*See Polyglyceryl-4 oleate*

**CAS 9007-48-1**

**Uses:** Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.

**Properties:** Colorless; odorless; nonionic

**Nofable PGO-904M** [NOF http://www.nof.co.jp]

**Chem. Descrip.:** Mixed *tetracyglycerol oleate*  
*See Polyglyceryl-4 oleate*

**CAS 9007-48-1**

**Uses:** Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.

**Properties:** Colorless; odorless; nonionic

**Nofable PGO-906L** [NOF http://www.nof.co.jp]

**Chem. Descrip.:** Linear *hexaglycerol oleate*  
*See Polyglyceryl-6 oleate*

**CAS 9007-48-1**

**Uses:** Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.

**Properties:** Colorless; odorless; nonionic

**Nofable PGO-906M** [NOF http://www.nof.co.jp]

**Chem. Descrip.:** Mixed *hexaglycerol oleate*  
*See Polyglyceryl-6 oleate*

**CAS 9007-48-1**

**Uses:** Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.

**Properties:** Colorless; odorless; nonionic

**Nofable PGO-908L** [NOF http://www.nof.co.jp]

**Chem. Descrip.:** Linear *octaglycerol oleate*  
*See Polyglyceryl-8 oleate*

**CAS 9007-48-1**

**Uses:** Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.

**Properties:** Colorless; odorless; nonionic

**Nofable PGO-990L** [NOF http://www.nof.co.jp]

**Chem. Descrip.:** Linear *decaglycerol oleate*  
*See Polyglyceryl-10 oleate*

**CAS 9007-48-1; EINECS/ELINCS 279-230-0**

**Uses:** Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.

**Properties:** Colorless; odorless; nonionic

**Nofable PGO-990M** [NOF http://www.nof.co.jp]

**Chem. Descrip.:** Mixed *decaglycerol oleate*  
*See Polyglyceryl-10 oleate*

**CAS 9007-48-1; EINECS/ELINCS 279-230-0**

**Uses:** Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.

**Properties:** Colorless; odorless; nonionic
Trade Name Reference

CAS 9007-48-1; EINECS/ELINCS 279-230-0

Uses: Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.

Properties: Colorless; odorless; nonionic

Nofable PGO-992L [Nof http://www.nof.co.jp]
Chem. Descrip.: Linear diglycerol olate  See Polyglyceryl-2 olate
CAS 9007-48-1; EINECS/ELINCS 256-367-4
Uses: Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.

Properties: Colorless; odorless; nonionic

Nofable SO-901 [Nof http://www.nof.co.jp]
Chem. Descrip.: Sorbitan monooleate  See Sorbitan olate
CAS 1338-43-8; EINECS/ELINCS 215-665-4
Uses: Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.

Properties: Colorless; odorless; nonionic

Nofable SO-902 [Nof http://www.nof.co.jp]
Chem. Descrip.: Sorbitan sesquioleate
CAS 8007-43-0; EINECS/ELINCS 232-360-1
Uses: Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.

Properties: Colorless; odorless; nonionic

Nofable SO-903 [Nof http://www.nof.co.jp]
Chem. Descrip.: Sorbitan trioleate
CAS 26266-58-0; EINECS/ELINCS 247-569-3
Uses: Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.

Properties: Colorless; odorless; nonionic

Nofable SO-991 [Nof http://www.nof.co.jp]
Chem. Descrip.: Sorbitan monooleate  See Sorbitan olate

Nofable SO-992 [Nof http://www.nof.co.jp]
Chem. Descrip.: Sorbitan sesquioleate
CAS 8007-43-0; EINECS/ELINCS 232-360-1
Uses: Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.

Properties: Colorless; odorless; nonionic

Nofable SO-993 [Nof http://www.nof.co.jp]
Chem. Descrip.: Sorbitan trioleate
CAS 26266-58-0; EINECS/ELINCS 247-569-3
Uses: Surfactant suitable for use in pharmaceuticals, cosmetics, foods, electronics, etc.
Trade Name Reference

**Non-Diastatic Malt Syrup #40600** [MLG Enterprises]

*Chem. Descrip.*: Liq. extract of corn and malted barley  
*See Malt extract*

*CAS* 8002-48-0; *EINECS/ELINCS* 232-310-9

*Uses*: Sweetener, malt flavor, colorant, humectant, nutrient, shelf life extender, texturizer for pharmaceuticals

*Features*: Enriches color to a rich golden appearance; contributes to nutritional value

*Regulatory*: Kosher

*Properties*: pH 4.3-5.5 (10%); 10-25% solids

*Storage*: Store @ 40-90 F; 6 mos. max. shelf life

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**Noramium® MS 50** [Ceca SA]

*Chem. Descrip.*: Tallow trimethyl ammonium chloride  
*See Tallowtrimonium chloride*

*CAS* 8030-78-2; *EINECS/ELINCS* 232-447-4

*Uses*: Emulsifier for pharmaceuticals

*Properties*: Liq.; cationic; 50% conc.

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**Norgel** [United-Guardian](http://www.u-g.com); [S. Black](http://www.sblack.com); [Sederma](http://www.sederma.fr)

*Chem. Descrip.*: Glycerol polymethacrylate

*CAS* 146126-21-8

*Uses*: Antibacterial for medical field, 'preservative-free' prods.

*Features*: Nondrying high visc. aq. polymeric gel; capable of killing bacteria, yeast, and molds

*Regulatory*: DOT nonregulated

*Properties*: Colorless cl. visc. gel; char. odor; completely water-sol.; dens. 1.2 g/cc; pH 5-6

**Novata® 299 PH** [Cognis/Care Chems.]

*Chem. Descrip.*: Cocoglycerides

*CAS* 68606-18-8

*Uses*: Base for suppository and vaginal preps.; consistency giving agent for pharmaceutical ointments, creams, stick preps.

*Regulatory*: NF, DAB, Ph.Eur. compliance for hard fat

*Properties*: Wh. fatty fused, flakes, or pastille which melt to a colorless to sl. ylsh. liq. when heated; almost odorless and tasteless; dens. 0.955-0.975 (20 C); m.p. 33.5-35.5 C; solid. pt. 31.5-33.5 C; acid no. 0.3 max.; iodine no. 3 max.; sapon. no. 235-250; hyd. no. 5 max.; ref. index 1.4490 (40 C); nonionic; 100% conc.

*Storage*: 2 yr. min. storage life in original containers at temps. below 30 C under dry conditions

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**Novata® AB PH** [Cognis/Care Chems.]

*Chem. Descrip.*: Cocoglycerides

*CAS* 68606-18-8

*Uses*: Base for suppositories and vaginal globules; consistency giving agent for pharmaceutical ointments, creams, stick preps.; esp. useful during processing of very light and bulky substances

*Regulatory*: NF, DAB, Ph.Eur. compliance for hard fat

*Properties*: Wh. fatty pellets which melt to a colorless to sl. ylsh. liq. when heated; almost odorless and tasteless; dens. 0.955-0.975 (20 C); m.p. 29-31 C; solid. pt. 26.5-28.5 C; acid no. 0.3 max.; iodine no. 3 max.; sapon. no. 230-245; hyd. no. 25-40; ref. index 1.4530 (40 C); nonionic; 100% conc.

*Storage*: 2 yr. min. storage life in original containers at temps. below 30 C under dry conditions

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**Novata® A PH** [Cognis/Care Chems.]

*Chem. Descrip.*: Cocoglycerides

*CAS* 68606-18-8

*Uses*: Base for suppositories produced on deepfreeze automatic devices; esp. suitable for extreme cooling

*Regulatory*: NF, DAB, Ph.Eur compliance for
hard fat

Properties: Wh. fatty pellets which melt to a colorless to sl. ylsh. liq. when heated; almost odorless and tasteless; dens. 0.955-0.975 (20 C); m.p. 33.5-35.5 C; solid. pt. 29-31 C; acid no. 0.3 max.; iodine no. 3 max.; sapon. no. 225-240; hyd. no. 35-45; ref. index 1.4520 (40 C); nonionic; 100% conc.

Storage: 2 yr. min. storage life in original containers at temps. below 30 C under dry conditions

Novata® BCF PH [Cognis/Care Chems.]
Chem. Descrip.: Cocoglycerides
CAS 68606-18-8
Uses: Base for suppository and vaginal preps.; consistency giving agent for pharmaceutical ointments, creams, stick preps.
Regulatory: NF, DAB, Ph.Eur. compliance for hard fat

Properties: Wh. fatty pellets which melt to a colorless to sl. ylsh. liq. when heated; almost odorless and tasteless; dens. 0.955-0.975 (20 C); m.p. 33.5-35.5 C; solid. pt. 32-34 C; acid no. 0.3 max.; iodine no. 3 max.; sapon. no. 230-245; hyd. no. < 15; ref. index 1.4530 (40 C); nonionic; 100% conc.

Storage: 2 yr. min. storage life in original containers at temps. below 30 C under dry conditions

Novata® B PH [Cognis/Care Chems.]
Chem. Descrip.: Cocoglycerides
CAS 68606-18-8
Uses: Base for suppository and vaginal preps.; consistency giving agent for pharmaceutical ointments, creams, stick preps.
Regulatory: NF, DAB, Ph.Eur. compliance for hard fat

Properties: Wh. fatty melted, flakes, or pastille which melt to a colorless to sl. ylsh. liq. when heated; almost odorless and tasteless; dens. 0.955-0.975 (20 C); m.p. 33-35.5 C; solid. pt. 31-33 C; acid no. 0.3 max.; iodine no. 3 max.; sapon. no. 225-240; hyd. no. 20-30; ref. index 1.4530 (40 C); nonionic; 100% conc.

Storage: 2 yr. min. storage life in original containers at temps. below 30 C under dry conditions

Novata® BD PH [Cognis/Care Chems.]
Chem. Descrip.: Cocoglycerides
CAS 68606-18-8
Uses: Base for suppository and vaginal preps.; consistency giving agent for pharmaceutical ointments, creams, stick preps.

Properties: Wh. powd.; sp.gr. 1.41; bulk dens. 208 kg/m³; pH 4 max. (1% disp.)

Storage: Store in sealed, tightly closed standard Novate containers; protect from moisture and excessive temps.
**Trade Name Reference**

<table>
<thead>
<tr>
<th>Trade Name Reference</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Noveon® CA-1 Calcium Polycarbophil, USP</strong></td>
<td>Calcium polycarbophil USP; acrylic acid polymer calcium salt crosslinked with divinyl glycol</td>
</tr>
<tr>
<td><strong>Chem. Descrip.:</strong></td>
<td>Calcium polycarbophil USP; acrylic acid polymer calcium salt crosslinked with divinyl glycol</td>
</tr>
<tr>
<td><strong>CAS:</strong></td>
<td>25987-55-7</td>
</tr>
<tr>
<td><strong>Uses:</strong></td>
<td>Excipient in oral laxatives, swallowable or chewable tablets or lozenges; suspending agent and taste masking aid for oral products</td>
</tr>
<tr>
<td><strong>Features:</strong></td>
<td>Exc. water absorption</td>
</tr>
<tr>
<td><strong>Regulatory:</strong></td>
<td>USP/NF</td>
</tr>
<tr>
<td><strong>Properties:</strong></td>
<td>Wh. to off-wh. coarse powd.; sl. odor; 30% max. through 325 mesh, 99% min. through 20 mesh; sp.gr. 1.41; bulk dens. 208 kg/m³; pH 2.5-3.0 (1% aq. disp.)</td>
</tr>
<tr>
<td><strong>Toxicology:</strong></td>
<td>LD50 (oral, rat) 2500 mg/kg; LD50 (dermal, rabbit) 3000 mg/kg</td>
</tr>
<tr>
<td><strong>Environmental:</strong></td>
<td>LC50 (daphnia magna, 96 h) 168-280 mg/l; not biodegrad.; do not pass through typical wastewater treatment to the environment, remove with the biomass</td>
</tr>
</tbody>
</table>

**Chem. Descrip.:** Oleyl alcohol

| CAS | 143-28-2; EINECS/ELINCS 205-597-3 |
| Uses | Superfatting agent, cosolvent, lubricant, emollient in pharmaceutical topicals |
| Features | Outstanding color, odor |
| Regulatory | USP/NF, FDA Inactive Ingredients Guide listed |
| Properties | Essentially colorless oily cl. liq.; nonionic |
| Use Level | 2-30% |

**Chem. Descrip.:** Ethylene-methacrylic acid copolymer resin

| CAS | 25053-53-6 |
| Uses | Adhesive/sealant resin for use in blown and cast film extrusion for medical/pharmaceutical pkg. |
| Features | High clarity grade |
| Regulatory | FDA 21CFR §177.1330 compliant |
| Properties | Melt flow 1.5 dg/min; f.p. 81 C; m.p. 99 C; Vicat soften. pt. 75 C; ultimate tens. str. 38.6 MPa (MD); ultimate elong. 500% (MD); Spencer impact str. 27 J/mm; Dart drop str. 7.9 g/μm; Elmendorf tear str. 54 mN/μm; 12% methacrylic acid |
| Precaution | Do not use in medical applics. involving permanent implantation in human body |

**Chem. Descrip.:** Compressible sucrose, invert sugar, and magnesium stearate

| CAS | 57-50-1; 8013-17-0; 557-04-0; EINECS/ELINCS 200-334-9; $; 209-150-3 |
| Uses | Carrier, vehicle, diluent, excipient, taste masking agent for pharmaceutical tablets, especially suited for chewable tablets |
| Features | Directly compressible; compat. with flavors and colorants; avail. in colors; effective in masking harsh flavors of many active ingreds. |
| Regulatory | USP/NF |
| Properties | Wh. free-flowing gran., sweet taste; 50% max. > 250 μ; 10% max. < 125 μ |

**Chem. Descrip.:** Compressible sucrose, invert sugar, and magnesium stearate

| CAS | 57-50-1; 8013-17-0; 557-04-0; EINECS/ELINCS 200-334-9; $; 209-150-3 |
| Uses | Carrier, vehicle, diluent, excipient, taste masking agent for pharmaceutical tablets, especially suited for chewable tablets |
| Features | Directly compressible; compat. with flavors and colorants; avail. in colors; effective in masking harsh flavors of many active ingreds. |
| Regulatory | USP/NF |
| Properties | Wh. free-flowing gran., sweet taste; 3% max. > 420 μ; 8% max. < 75 μ |

**Chem. Descrip.:** Compressible sucrose and maltodextrin

| CAS | 57-50-1; 9050-36-6; EINECS/ELINCS 200- |
| Uses | Carrier, vehicle, diluent, excipient, taste masking agent for pharmaceutical tablets, especially suited for chewable tablets |
| Features | Directly compressible; compat. with flavors and colorants; avail. in colors; effective in masking harsh flavors of many active ingreds. |
| Regulatory | USP/NF |
| Properties | Wh. free-flowing gran., sweet taste; 3% max. > 420 μ; 8% max. < 75 μ |
Trade Name Reference

334-9; 232-940-4
Uses: Carrier, vehicle, diluent, excipient, taste masking agent for pharmaceutical tablets, especially suited for chewable tablets
Features: Directly compressible; compat. with flavors and colorants; avail. in colors; effective in masking harsh flavors of many active ingreds.
Regulatory: USP/NF
Properties: Wh. free-flowing gran., sweet taste; 75% min. >150 μ, 3% max. > 420 μ; 8% max. < 75 μ
NutraSweet® [NutraSweet http://www.nutrasweet.com]
Chem. Descrip.: Aspartame
CAS 22839-47-0; EINECS/ELINCS 245-261-3
Uses: Sweetener for foods, hot/cold beverage prods., pharmaceuticals
Features: Low-calorie; approx. 200 times sweeter than sugar; limited use in cooking and baking; loss of sweetness may result on prolonged exposure to high temps.; 2 calories/tsp.
Properties: Crystalline powd., gran., encapsulated, micronized, or liq.; odorless; particle size < 150 µm; bulk dens. 0.25 kg/l; 100% act.
Storage: Indefinite shelf life if kept dry, away from heat and humidity
Nutrateric™ [Colorcon http://www.colorcon.com]
Chem. Descrip.: Aq. fully plasticized liq. disp. of Surelease® (ethylcellulose) and NS Enteric
CAS 9004-57-3;
Uses: Enteric delayed-release coating system for dietary supplement tablets and gelatin capsules and other pharmaceutical products
Features: Meets dietary supplement enteric disintegration requirements
Regulatory: GRAS
Chem. Descrip.: Piroctone olamine; piroctoneolamine
CAS 68890-66-4; EINECS/ELINCS 272-574-2
Uses: Antidandruff agent, germicide, fungicide in shampoos and hair care such as tonics and cream rinses; also used in deodorants and acne preps.
Features: Good thermal stability; compatible with most surfactants, additives and active ingredients
Properties: Wh. to ylsh. crystalline powd.; faint characteristic odor; sol. in alcohol-water solns., surfactants, sl. sol. in water; ≈ 100% act.
Toxicology: Practically nontoxic
Chem. Descrip.: Hydroxylated lanolin
CAS 68424-66-8; EINECS/ELINCS 270-315-8
Uses: W/o emulsifier, aux. emulsifier, stabilizer, pigment wetting agent/dispersant, emollient, and conditioner in absorp. bases, topical pharmaceuticals
Properties: Yel.-amber to lt. tan waxy solid; misc. with common oil phase ingredients, sol. at low levels in castor oil; oil-misc.; m.p. 39-46 C; HLB 4; acid no. 10 max.; sapon. no. 95-110; nonionic; 100% conc.
Ointment Base No. 4 [Penreco http://www.penreco.com]
Chem. Descrip.: Wh. petrolatum USP
CAS 8027-32-5; EINECS/ELINCS 232-373-2
Uses: Ointment base for ophthalmic and topical ointments; carrier for medical materials
Regulatory: FDA 21CFR 172.880, 178.3700, 573.720; OSHA and FDA nonhazardous
Properties: Wh. semisolid, odorless; sol. in hydrocarbons; insol. in water; sp.gr. 0.8 (60/60 F); visc. 60-70 SUS (210 F); m.p. 118-125 F; congeal pt. 109-119 F; flash pt. (COC) 400 F
Toxicology: Pract. nontoxic by ingestion, but laxative props. may cause abdominal cramps, diarrhea; minimally irritating to eyes and skin on direct contact; STEL 10 mg/m³ (as oil mist); TSCA listed
Precaution: Combustion may produce dense smoke, CO, CO₂, other oxides; may react with strong oxidizing agents
Storage: Store in closed containers away from heat, sparks, open flame, oxidizers
Ointment Base No. 6 [Penreco http://www.penreco.com]
Chem. Descrip.: Wh. petrolatum USP
CAS 8027-32-5; EINECS/ELINCS 232-373-2
Uses: Ointment base for ophthalmic and topical ointments; carrier for medical materials
Regulatory: FDA 21CFR 172.880, 178.3700, 573.720; OSHA and FDA nonhazardous
Properties: Wh. semisolid, odorless; sol. in hydrocarbons; sp.gr. 0.864 (60/60 F); visc. 60-70 SUS (210 F); m.p. 122-133 F; congeal pt. 120-130 F; flash pt. (COC) 400 F

Toxicology: TSCA listed

Precaution: Combustion may produce dense smoke, CO, CO2, other oxides; may react with strong oxidizing agents

Storage: Store in closed containers away from heat, sparks, flame, oxidizers

Olamida UD [Fabriquimica http://www.fabriquimica.com.ar]

Chem. Descrip.: Undecylenamide DEA (1:1)
CAS 60239-68-1; EINECS/ELINCS 246-914-5
Uses: Antidandruff agent
Properties: Acid no. < 10; amine no. 35-55; pH 8-10 (5%)


Chem. Descrip.: Undecylenamide DEA (2:1)
CAS 60239-68-1; EINECS/ELINCS 246-914-5
Uses: Antidandruff agent
Properties: Acid no. < 10; amine no. 115-125; pH 9-11 (5%)

ONAMER® M [Stepan http://www.stepan.com]

Chem. Descrip.: Polyquaternium-1 and polidronium chloride
Chem. Analysis: 33% assay; 10% chlorine content; 1.5% free amine
CAS 66507-71-9; 75345-27-6
Uses: Preservative; antimicrobial for use in dermatological applications and transdermal patch pharmaceuticals, in products targeting mucus membrane or other sensitive tissue; antimicrobial for use as surface protection for medical devices
Properties: Cl. amber to dk.-brown visc. liq.; mild characteristic odor; completely sol. in water; flash pt. (PMCC) (> 93.9 C; pH 7.3; cationic; 3-040% act.
Toxicology: May cause irritation to eyes, skin, and respiratory system; ing. of large amounts may produce GI disturbances including irritation, nausea, and diarrhea; not a skin sensitizter; nonmutagenic; TSCA listed
Precaution: Wear chemical goggles and gloves; may react with strong oxidizing agents

Hazardous Decomp. Prods.: May yield oxides of nitrogen and ammonia
HMIS: Health 1, Flammability 1, Reactivity 0

Opadry® [Colorcon http://www.colorcon.com]
Chem. Descrip.: FDA-approved pigments and titanium dioxide in a solv. base
Uses: Edible monogramming ink for pharmaceuticals
Features: Finely dispersed; exc. adhesion; provides sharp, clear monograms, minimal ink buildup on rollers

Opadry® WB [Colorcon http://www.colorcon.com]
Chem. Descrip.: FDA-approved pigments and titanium dioxide in a water base
Uses: Edible monogramming ink for pharmaceuticals
Features: Provides sharp, clear monograms
Properties: Minimal odor

Opadry® [Colorcon http://www.colorcon.com]
Chem. Descrip.: Coating system combining polymer, plasticizer and pigment in dry conc.
Uses: One-step colorant and film coating system for aq. and org. solv. systems for pharmaceuticals including ibuprofen, acetaminophen, wax matrix tablets, multivitamin-mineral and calcium tablets
Features: Optimizes solution coating solids content; reduces water contact with product; eliminates the use of preservatives necessary when holding conventional aq. sol'n.

Opadry® AMB [Colorcon http://www.colorcon.com]
Chem. Descrip.: Aq. moisture barrier film coating system
Uses: Moisture barrier for coating oral and solid dosage pharmaceuticals, tablet sealing and polishing applics.
Features: Protects from environmental moisture; pH independent release; patent-pending

Opadry® Enteric [Colorcon http://www.colorcon.com]
Chem. Descrip.: Complete enteric film coating system combining polymer (PVAP), plasticizer and pigment in a dry conc.
Uses: One-step enteric film coating system for pharmaceutical org. solv. systems, providing targeted enteric drug release for tablets, hard and soft gelatin capsules
Features: High film strength and adhesion; can be used with highly moisture-sensitive materials

Opadry II® [Colorcon http://www.colorcon.com]
Chem. Descrip.: Aq. moisture barrier film coating system
Trade Name Reference

Opadry® fx™ [Colorcon http://www.colorcon.com]
Chem. Descrip.: Coating system combining polymer, plasticizer and pigment in dry conc.
Uses: One-step aq. colorant film coating system for pharmaceuticals including acetaminophen caplets, tri-buffered aspirin, multivitamin-multimineral tablets
Features: Enhanced light stability; reduces coating time; superior adhesion, sharper logo definition and improved gloss on difficult to coat cores
Regulatory: USP/NF, EP, JP/JPE

Opaglos® [Colorcon http://www.colorcon.com]
Chem. Descrip.: Coating sol’n. in a stabilized shellac base
Uses: Clear coating sol’n. for pharmaceutical tablet sealing and polishing applics.

Opaglos® 2 [Colorcon http://www.colorcon.com]
Chem. Descrip.: Aq. dry film coating system
Uses: Film coating for solid oral pharmaceutical tablets, tablet sealing and polishing applics.
Features: Clear; superior high gloss; exc. film str. and adhesion; good stability and dissolution; printable surf.; nonyellowing
Properties: Gran. powd.; disperses in ambient temp. water; visc. 250 - 450 cP (7.5% solids in sol’n.); pH 6.8-7.2 (7.5% solids in sol’n.)
Storage: After 1 yr. re-evaluate product; store in tightly closed containers @ < 30 C (in powder form); ≤ 24 h (in sol’n. form)

Opalux® [Colorcon http://www.colorcon.com]
Chem. Descrip.: Aq. color conc. of FDA-approved pigments and titanium dioxide in sugar syrup
Uses: Colorant for sugar-coated tablets
Features: Excellent batch-to-batch color reproducibility; improved light stability over comparative dye shades
Properties: Liq.

Optim™ Glycerine 99.7 [Dow http://www.dow.com]
Chem. Descrip.: Glycerin FCC, USP
CAS 56-81-5; EINECS/ELINCS 200-289-5
Uses: Humectant, solvent in foods, personal care prods., pharmaceuticals
Regulatory: FDA GRAS; E422 compliant; kosher grade; SARA §311/312 nonhazardous
Properties: Colorless visc. liq.; odorless; sweet taste; misc. with ethanol, IPA, water; immiscible with benzene, chloroform, ethyl ether, heptane; m.w. 92.09; sp.gr. 1.26201; dens. 1.25802 g/cm³; visc. 1410 cps (20 C);
vapor pressure 0.0025 mm Hg (50 C); f.p. 17 C; b.p. 290 C; flash pt. (PMCC) 195.5 C; autoignition temp. 370 C; ref. index 1.47399 (20 C); surf. tens. 63 dynes/cm (20 C); dielec. const. 41.14 (2 x 10^6 Hz, 20 C); 99.7% act.

**Toxicology:**
- LD$_{50}$ (oral, rat) 17,000-27,200 mg/kg, (skin, rabbit) > 10,000 mg/kg; may cause sl. transient eye irritation; may be absorbed through skin in potentially harmful amts. when applied in lg. quantities to severe burns; extremely low toxicity by ing.; swallowing larger amts. may cause injury, CNS effects, inc. blood sugar levels; inh. of heated material or mist may cause upper respiratory irritation; may cause kidney/liver/GI effects in very lg. doses

**Environmental:**
- High biodeg.; BOD$_5$ 0.54 p/p; low bioconcentration potential; LC$_{50}$ (fish) > 100 mg/l; pract. nontoxic to fish; prevent entry into sewers, storm drains, surf. water, soil

**Precaution:** Incompat. with strong oxidizing agents (e.g., sodium hypochlorite, hypochlorous acid)

**Hazardous Decomp. Prods.:** Acrolein; combustion: aldehydes, CO, CO$_2$

**Storage:** Store @ 64-130 F

**Optisharp™ (Zeaxanthin) 5% CWS/S-TG**
[DMS Nutritional Prods. USA http://www.nutraaccess.com]

**Chem. Descrip.:** Zeaxanthin in corn starch-coated matrix of modified food starch and sucrose See Corn (Zea mays) starch; Food starch, modified

**Chem. Analysis:** 5.0% min. zeaxanthin content; 8% loss on drying

**CAS** 144-68-3; 9005-25-8; 53124-00-8; 57-50-1

**Uses:** Dietary supplement for film-coated, chewable effervescent tablets and hard-shell capsules

**Properties:** Reddish free-flowing particles; 100% through sieve #20, 85% min. through sieve #40, 15% max. through sieve #100; disp. in cold water; m.w. 568.89

**Precaution:** Wear safety glasses and rubber gloves; avoid ing., inh., and dust

**Storage:** 36 mos. shelf life; store in original containers away from air, heat, humidity, and heat @ < 15 C; once open use contents quickly

**Uses:** Foaming surfactant, solubilizer in dermopharmaceuticals

**Properties:** Liq.; nonionic; 60% conc.

**Oramix® L30** [Seppic http://www.seppic.com]

**Chem. Descrip.:** Sodium lauroyl sarcosinate

**CAS** 137-16-6; EINECS/ELINCS 205-281-5

**Uses:** Bacteriostat in antidandruff shampoo, medicinal soaps; solubilizer for antiseptic agents; anticaries agent in toothpaste

**Features:** Mild

**Properties:** Liq.; sol. in water; pH 7.5-8.5 (10%); anionic; 28.5% min. act.

**Use Level:** 1-5% (toothpaste), 1-5% (aerosols), 5-15% (shampoos), 10-50% (bath foams), 5-30% (medicinal liq. soap)

**Toxicology:** LD$_{50}$ (oral) 2888 mg/kg; nontoxic by ing.; nonirritating to skin; irritating to eyes

**Environmental:** 100% biodeg.

**Orange Wax, Deodorized** [Koster Keunen http://www.kosterkeunen.com]

**Chem. Descrip.:** Orange waxes See Orange (Citrus aurantium dulcis) peel wax

**CAS** 144514-51-2

**Uses:** Moisturizer, emollient, UV-A and -B absorber, antioxidant, wetting agent, antimicrobial, anti-inflammatory for creams, lotions, sun care, deodorants

**Features:** Mild
Trade Name Reference

Chem. Descrip.: Nylon 6
CAS 25038-54-4
Uses: Raw material for pharmaceuticals; absorbent, carrier in personal hygiene prods.
Properties: Natural uncolored powd.; avg. particle size 20 µ

Chem. Descrip.: Nylon 6, titanium dioxide
Uses: Raw material for pharmaceuticals; absorbent, carrier in personal hygiene prods.
Properties: Wh. extra-fine powd.; avg. particle size 10 µ

Chem. Descrip.: Nylon 12
CAS 25038-74-8
Uses: Raw material for pharmaceuticals; absorbent, carrier in personal hygiene prods.
Properties: Natural uncolored powd.; avg. particle size 20 µ

Chem. Descrip.: Nylon 12
CAS 25038-74-8
Uses: Raw material for pharmaceuticals; absorbent, carrier in personal hygiene prods.
Features: Absorbs between 15-25% perfume and enables its release over a period of time
Properties: Natural uncolored extra-fine powd.; avg. particle size 10 µ

Chem. Descrip.: Nylon 12
CAS 25038-74-8
Uses: Raw material for pharmaceuticals; absorbent, carrier used in personal hygiene prods.
Features: Can be supplied impregnated with 12.5% vitamin E or other actives
Properties: Natural uncolored ultra-fine powd.; avg. particle size 5 µ

Chem. Descrip.: Origanum vulgare extract in lecithin, propylene glycol
Uses: Antioxidant for pharmaceuticals
Features: Natural; heat-stable; stable and act. at high temps. (180 C)
Regulatory: FDA GRAS
Properties: Dk. brn. liq.; mild tea-like odor; completely sol. in oil; disp. in aq. systems; 8.5% act.
Toxicology: Nontoxic
Storage: 1 yr. shelf life when stored in cool, dry place

Chem. Descrip.: Origanum vulgare extract
Uses: Anti-inflammatory agent; anti-allergic agent
Features: Natural; allows for “green” labeling; highly effective at low dosing; supports antimicrobial activity; organoleptic neutral
Properties: Sol. in water; disp. in oil

Chem. Descrip.: Origanum vulgare extract
Uses: Antioxidant in pharmaceuticals and to protect vitamins in emulsions
Features: Natural; easy skin penetration; very effective to protect oxygen-sensitive ingreds., e.g., natural fragrances, colors, flavors; stable and act. @ 180 C
Regulatory: FDA GRAS
Properties: Yel. to lt. brn. powd.; mild tea-like odor; completely sol. in water; 7% act.
Toxicology: Nontoxic
Storage: 2 yrs. shelf life when stored in cool, dry place

Chem. Descrip.: Mixt. of Organox™ WS (water soluble Origanum vulgare) and cranberry extract
Uses: Anti-inflammatory agent; anti-allergic agent

Handbook of Pharmaceutical Additives, Third Edition 505
Trade Name Reference

Features: Natural; allows for "green" labeling; highly effective at low dosing; supports antimicrobial activity; organoleptic neutral
Properties: Sol. in water; disp. in oil

Chem. Descrip.: Origanum vulgare extract
See Wild marjoram extract
Uses: Anti-inflammatory agent; anti-allergic agent
Features: Natural; allows for "green" labeling; highly effective at low dosing; supports antimicrobial activity; organoleptic neutral; used in prods. sensitive to sl. taste or color changes
Properties: Sol. in water; disp. in oil

Chem. Descrip.: Origanum vulgare extract
See Wild marjoram extract
Uses: Anti-inflammatory agent; anti-allergic agent
Features: Natural; allows for "green" labeling; highly effective at low dosing; supports antimicrobial activity; organoleptic neutral; used in prods. sensitive to sl. taste or color changes
Properties: Sol. in water; disp. in oil

Chem. Descrip.: Dimethyl oxazolidine
CAS 51200-87-4; EINECS/ELINCS 231-810-4
Uses: Antibacterial for topical pharmaceuticals
Features: Protects against bacterial growth
Properties: APHA 25 max. liq.; sol. in water, alcohols, glycols, min. oil, benzene, acetone, chlorinated hydrocarbons; sp.gr. 1.085 (30/20 C); f.p. 0 C; b.p. 71 C (15 mm Hg); flash pt. (TCC) 79 C; pH 8-9; surf. tens. 36.5 dynes/cm; 97% act.
Use Level: 500-2000 ppm
Toxicology: LD50 (oral, male rat) 5250 mg/kg, (dermal, rabbits) 1948 mg/kg; severely irritating to skin and eyes
Precaution: Combustible liq.; corrosive to copper, aluminum, or their alloys
Storage: Store in dry location away from heat, open flame; keep in original closed container

Oxyban®-E [Dow http://www.dow.com]
Chem. Descrip.: 7-Ethyl bicyclooxazolidine
CAS 7747-35-5; EINECS/ELINCS 231-810-4
Uses: Antibacterial for topical pharmaceuticals
Features: Broad spectrum; rec. @ pH 6-10.5; compat. with cationic, anionic, and nonionic surfactant systems
Properties: APHA 100 max. liq.; low odor; sol. in water, alcohols, glycols, min. oil, benzene, acetone, chlorinated hydrocarbons; sp.gr. 1.085 (30/20 C); f.p. 0 C; b.p. 71 C (15 mm Hg); flash pt. (TCC) 79 C; pH 8-9; surf. tens. 36.5 dynes/cm; 97% act.
Use Level: 0.01-0.2%
Oxynex® AP [Merck KGaA http://www.merck.de; Rona http://www.emdchemicals.com/rona/1000.asp]
Chem. Descrip.: Vegetable oil, lecithin, ascorbyl palmitate, and citric acid
Uses: Antioxidant for fatty pharmaceuticals

Chem. Descrip.: Kidney or pinto bean extract contg. kaempferol (natural antioxidant)
Uses: Free radical scavenger preventing cell degradation caused by lipid peroxidation in the human body, and fructooligosaccharides source to promote beneficial intestinal flora (bifidobacteria), for use in encapsulated or tableted nutritional supplements; flavor potentiator
Properties: Brn. powd.; sol. in water with agitation; < 10% moisture
Use Level: Up to 100% (nutritional tablets/capsules)
Storage: 2 yr. min. shelf life; store in cool (15-30 C) dry environment, protected from heat

Chem. Descrip.: BHT (20%), ascorbyl palmitate (10%), citric acid (10%), glyceryl stearate, glyceryl olate, propylene glycol
Uses: Antioxidant for pharmaceuticals; protects oil sol'n's. used for injections
Regulatory: EC and US GRAS compliance
Properties: Unctuous mass, almost odorless, prat. tasteless; sol. in many org. solvs.; insol. in water
Use Level: 0.01-0.2%

Oxyfen® AP [Merck KGaA http://www.merck.de; Rona http://www.emdchemicals.com/rona/1000.asp]
Chem. Descrip.: Vegetable oil, lecithin, ascorbyl palmitate, and citric acid
Uses: Antioxidant for fatty pharmaceuticals
Oxynex® K [Merck KGaA http://www.merck.de; Rona http://www.emdchemicals.com/rona/1000.asp]
Chem. Descrip.: PEG-8 (62%), tocopherol (30%), ascorbyl palmitate (5%), ascorbic acid (1%), and citric acid (1%) See L-Ascorbic acid
Uses: Antioxidant, stabilizer for fats and oils, free radical scavenger for pharmaceuticals, skin treatment prods.
Features: Esp. for protection of sat. and unsat. components of the oil phase and for inhibition of formation of free radicals
Regulatory: EC, GRAS compliance
Properties: Yel. to lt. brn. transparent liq., char. odor; des. 1.07 g/cm³; flash pt. > 100 C; pH 3.5 (20 g/l, water)
Use Level: 0.05-0.2%
Environmental: Sl. polluting substance

Oxynex® L [Merck KGaA http://www.merck.de; Rona http://www.emdchemicals.com/rona/1000.asp]
Chem. Descrip.: Tocopherol (30%), ascorbyl palmitate (5%), citric acid (1%), and ethanol (53%), veg. oil (20%) See; L-Ascorbic acid; Alcohol; Vegetable oil
UN 1170
Uses: Antioxidant, stabilizer for fats and oils, free radical scavenger for pharmaceuticals, skin treatment prods.
Properties: Yel. to reddish brn. transparent liq., char. odor; des. 0.89 g/cm³; flahs pt. 11 C; pH 3 - 4 (20 g/l, water)
Use Level: 0.005-0.2%
Environmental: Sl. polluting substance
Precaution: Highly flamm.
Storage: Keep container tightly closed; keep away from sources of ignition - no smoking

Chem. Descrip.: Tocopherol (25%), lecithin (25%), ascorbyl palmitate (20%), glyceryl stearate, glyceryl olate, citric acid (2.5%)
Uses: Antioxidant esp. suitable for high-grade veg. fats and fat-containing pharmaceutical preps.
Regulatory: German, EC, US GRAS compliances
Properties: Lt. brn. waxy solid; odorless and tasteless in dilution; sol. in oils and fats; sparingly sol. in water; dens. 1.04 g/cm³; m.p. ≈ 55 C
Use Level: 0.005-0.1%
Environmental: Sl. polluting substance
Storage: Store at 2 C to 8 C.

Oxynex® K [Merck KGaA http://www.merck.de; Rona http://www.emdchemicals.com/rona/1000.asp]
Chem. Descrip.: PEG-8 (62%), tocopherol (30%), ascorbyl palmitate (5%), ascorbic acid (1%), and citric acid (1%) See L-Ascorbic acid
Uses: Antioxidant, stabilizer for fats and oils, free radical scavenger for pharmaceuticals, skin treatment prods.
Features: Esp. for protection of sat. and unsat. components of the oil phase and for inhibition of formation of free radicals
Regulatory: EC, GRAS compliance
Properties: Yel. to lt. brn. transparent liq., char. odor; des. 1.07 g/cm³; flash pt. > 100 C; pH 3.5 (20 g/l, water)
Use Level: 0.05-0.2%
Environmental: Sl. polluting substance

Chem. Descrip.: Tocopherol (25%), lecithin (25%), ascorbyl palmitate (20%), glyceryl stearate, glyceryl olate, citric acid (2.5%)
Uses: Antioxidant esp. suitable for high-grade veg. fats and fat-containing pharmaceutical preps.
Regulatory: German, EC, US GRAS compliances
Properties: Lt. brn. waxy solid; odorless and tasteless in dilution; sol. in oils and fats; sparingly sol. in water; dens. 1.04 g/cm³; m.p. ≈ 55 C
Use Level: 0.005-0.1%
Environmental: Sl. polluting substance
Storage: Store at 2 C to 8 C.
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<tr>
<th>Trade Name Reference</th>
<th>Ozokerite Wax SP 996 <a href="http://www.strahlpitsch.com">Strahl &amp; Pitsch</a></th>
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<td>CAS</td>
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<tr>
<td>Properties:</td>
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<td>Toxicology:</td>
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Trade Name Reference

Chem. Descrip.: Cetyl palmitate
CAS 540-10-3; EINECS/ELINCS 208-736-6
Uses: Solubilizer, vehicle for medicines; excipient for injectable substances; emollient in antiperspirants
Features: Changes skin feel, rub out props. and greasiness; veg. oil substitute; vaseline substitute
Regulatory: Not regulated for transport
Properties: Wh. solid; typical odor; insol. in water; sol. in oils, chloroform, ethyl ether, most org. solvents; dens. 0.82; m.p. ≥ 50 C; flash pt. ≥ 225 C
Environmental: Biodeg. in water; considered to be of low toxicity for aquatic life
Precaution: Wear gloves, goggles, overall skin protection; avoid entry to sewers, drain, and surface water; incompat. with strong oxidizers
Hazardous Decomp. Prods.: CO, CO2
Storage: Store @ R.T. in original sealed container; protect from dampness, heat sources

Chem. Descrip.: Isopropyl palmitate
CAS 142-91-6; EINECS/ELINCS 205-571-1
Uses: Solubilizer, vehicle for medicines; excipient for injectable substances; emollient in antiperspirants
Features: Changes skin feel, rub out props. and greasiness; veg. oil substitute; vaseline substitute
Regulatory: Not regulated for transport
Properties: Colorless liq.; typical odor; insol. in water; sol. in waxes, vegetable and mineral oils; dens. 0.85; f.p. 10-12 C; flash pt. > 170 C
Toxicology: Nontoxic
Environmental: Biodeg. in water; considered to be of low toxicity for aquatic life
Precaution: Wear gloves, goggles, overall skin protection; avoid entry to sewers, drain, and surface water; avoid contact with flames; incompat. with strong oxidizers
Hazardous Decomp. Prods.: CO, CO2
Storage: Store @ R.T. in original sealed container; protect from direct sunlight

Chem. Descrip.: Palmitic acid
CAS 57-10-3; EINECS/ELINCS 200-312-9
Uses: Emollient in pharmaceuticals
Environmental: Biodeg. (28 d) > 90%
Precaution: Wear gloves, goggles, overall skin protection; avoid entry to sewers, drain and surface water
Storage: Store @ R.T. in original sealed container protected from heat sources

Panacet 810 [NOF http://www.nof.co.jp]
Chem. Descrip.: Med. chain triglyceride
Uses: Raw material, emollient for pharmaceuticals; solubilizer for vitamins, antibiotics
Properties: Liq.; nonionic; 100% conc.

Pancreatin 3X USP Powder [Am. Labs http://www.americanlaboratories.com]
Chem. Descrip.: Lipase, amylase, and protease enzymes
Uses: Enzyme for hydrolysis of proteins, carbohydrates, or fats; enzyme for pharmaceuticals; digestive aid in nutritional formulas (tablets, capsules, powds.)
Properties: Powd.
Storage: Store in a cool, dry area in tightly closed polyliners within secure containers
**Trade Name Reference**

**Pancreatin 4X USP Granular** [Am. Labs](http://www.americanlaboratories.com)  
Chem. Descrip.: Lipase, amylase, and protease enzymes  
Uses: Enzyme for hydrolysis of proteins, carbohydrates, or fats; enzyme for pharmaceuticals; digestive aid in nutritional formulas (tablets, capsules, powds.)  
Regulatory: USP  
Properties: Mottled tan, free-flowing mixture of granules and powd.  
Storage: Store in a cool, dry area in tightly closed polyliners within secure containers

**Pancreatin 4X USP Powder** [Am. Labs](http://www.americanlaboratories.com)  
Chem. Descrip.: Lipase, amylase, and protease enzymes  
Uses: Enzyme for hydrolysis of proteins, carbohydrates, or fats; enzyme for pharmaceuticals; digestive aid in nutritional formulas (tablets, capsules, powds.)  
Regulatory: USP  
Properties: Mottled tan, free-flowing mixture of granules and powd.  
Storage: Store in a cool, dry area in tightly closed polyliners within secure containers

**Pancreatin 5X USP Powder** [Am. Labs](http://www.americanlaboratories.com)  
Chem. Descrip.: Lipase, amylase, and protease enzymes  
Uses: Enzyme for hydrolysis of proteins, carbohydrates, or fats; enzyme for pharmaceuticals; digestive aid in nutritional formulas (tablets, capsules, powds.)  
Properties: Powd.  
Storage: Store in a cool, dry area in tightly closed polyliners within secure containers

**Pancreatin 6X USP Powder** [Am. Labs](http://www.americanlaboratories.com)  
Chem. Descrip.: Lipase, amylase, and protease enzymes  
Uses: Enzyme for hydrolysis of proteins, carbohydrates, or fats; enzyme for pharmaceuticals; digestive aid in nutritional formulas (tablets, capsules, powds.)  
Properties: Powd.  
Storage: Store in a cool, dry area in tightly closed polyliners within secure containers

**Pancreatin 8X USP Powder** [Am. Labs](http://www.americanlaboratories.com)  
Chem. Descrip.: Lipase, amylase, and protease enzymes  
Uses: Enzyme for hydrolysis of proteins, carbohydrates, or fats; enzyme for pharmaceuticals; digestive aid in nutritional formulas (tablets, capsules, powds.)  
Regulatory: USP  
Properties: Off-wh. to lt. tan powd.  
Storage: Store in a cool, dry area in tightly closed polyliners within secure containers

**Pancreatin BP 98** [Am. Labs](http://www.americanlaboratories.com)  
Chem. Descrip.: Lipase, amylase, and protease enzymes  
Uses: Enzyme for hydrolysis of proteins, carbohydrates, or fats; enzyme for pharmaceuticals; digestive aid in nutritional formulas (tablets, capsules, powds.)  
Properties: Powd.

**Pancreatin USP 23** [Am. Labs](http://www.americanlaboratories.com)  
Chem. Descrip.: Lipase, amylase, and protease enzymes  
Uses: Dige

**Pancreatin 8X USP Powder** [Am. Labs](http://www.americanlaboratories.com)  
Chem. Descrip.: Lipase, amylase, and protease enzymes  
Uses: Enzyme for hydrolysis of proteins, carbohydrates, or fats; enzyme for pharmaceuticals; digestive aid in nutritional formulas (tablets, capsules, powds.)  
Regulatory: USP  
Properties: Wh. to off-wh. granules  
Storage: Store in a cool, dry area in tightly closed polyliners within secure containers
Trade Name Reference

closed polyliners within secure containers

**Paraffin Wax SP 173** [Strahl & Pitsch](http://www.strahlpitsch.com)
Chem. Descrip.: Paraffin wax
CAS 8002-74-2; EINECS/ELINCS 232-315-6
Uses: Wax for pharmaceuticals
Regulatory: FDA 21CFR §172.615, 172.886, 175.105, 178.3710; CTFA listed
Properties: Wh. slabs or pastilles; m.p. 138-144 F; acid no. nil; sapon. no. nil
Toxicology: TSCA listed

**Paraffin Wax SP 192** [Strahl & Pitsch](http://www.strahlpitsch.com)
Chem. Descrip.: Paraffin wax
CAS 8002-74-2; EINECS/ELINCS 232-315-6
Uses: Wax for pharmaceuticals
Regulatory: FDA 21CFR §172.615, 172.886, 175.105, 178.3710; CTFA listed
Properties: Wh. slabs or pastilles; m.p. 124-130 F; acid no. nil; sapon. no. nil
Toxicology: TSCA listed

**Paraffin Wax SP 206** [Strahl & Pitsch](http://www.strahlpitsch.com)
Chem. Descrip.: Paraffin wax
CAS 8002-74-2; EINECS/ELINCS 232-315-6
Uses: Wax for pharmaceuticals
Regulatory: FDA 21CFR §172.615, 172.886, 175.105, 178.3710; CTFA listed
Properties: Wh. slabs or pastilles; m.p. 122-127 F; acid no. nil; sapon. no. nil
Toxicology: TSCA listed

**Paraffin Wax SP 227B** [Strahl & Pitsch](http://www.strahlpitsch.com)
Chem. Descrip.: Paraffin wax
CAS 8002-74-2; EINECS/ELINCS 232-315-6
Uses: Wax for pharmaceuticals
Regulatory: FDA 21CFR §172.615, 172.886, 175.105, 178.3710; CTFA listed
Properties: Wh. slabs or pastilles; m.p. 128-135 F; acid no. nil; sapon. no. nil
Toxicology: TSCA listed

**Paraffin Wax SP 434** [Strahl & Pitsch](http://www.strahlpitsch.com)
Chem. Descrip.: Paraffin wax
CAS 8002-74-2; EINECS/ELINCS 232-315-6
Uses: Wax for pharmaceuticals
Regulatory: FDA 21CFR §172.615, 172.886, 175.105, 178.3710; CTFA listed
Properties: Wh. slabs or pastilles; m.p. 150-156 F; acid no. nil; sapon. no. nil
Toxicology: TSCA listed

**Paraffin Wax SP 673** [Strahl & Pitsch](http://www.strahlpitsch.com)
Chem. Descrip.: Paraffin wax
CAS 8002-74-2; EINECS/ELINCS 232-315-6
Uses: Wax for pharmaceuticals
Regulatory: FDA 21CFR §172.615, 172.886, 175.105, 178.3710; CTFA listed
Properties: Wh. slabs or pastilles; m.p. 141-146 F; acid no. nil; sapon. no. nil
Toxicology: TSCA listed

**Paraffin Wax SP 674** [Strahl & Pitsch](http://www.strahlpitsch.com)
Chem. Descrip.: Paraffin wax
CAS 8002-74-2; EINECS/ELINCS 232-315-6
Uses: Wax for pharmaceuticals
Regulatory: FDA 21CFR §172.615, 172.886, 175.105, 178.3710; CTFA listed
Properties: Wh. slabs or pastilles; m.p. 156-163 F; acid no. nil; sapon. no. nil
Toxicology: TSCA listed

**Paraffin Wax SP 675** [Strahl & Pitsch](http://www.strahlpitsch.com)
Chem. Descrip.: Paraffin wax
CAS 8002-74-2; EINECS/ELINCS 232-315-6
Uses: Wax for pharmaceuticals
Regulatory: FDA 21CFR §172.615, 172.886, 175.105, 178.3710; CTFA listed
Properties: Wh. slabs or pastilles; m.p. 127-135 F; acid no. nil; sapon. no. nil
Toxicology: TSCA listed

**Paramount B** [Loders Croklaan Inc]
Chem. Descrip.: Partially hydrogenated palm kernel oil
CAS 68990-82-9; EINECS/ELINCS 273-627-2
Uses: Lauric fat for pharmaceutical applics.
Regulatory: Kosher
Properties: Solid; m.p. 93-96 F

**Paramount C** [Loders Croklaan Inc]
Chem. Descrip.: Partially hydrogenated palm kernel oil, lecithin
Uses: Lauric fat for pharmaceutical applics.
Regulatory: Kosher
Properties: Flake; m.p. 101-104 F

**Paramount H** [Loders Croklaan Inc]
Chem. Descrip.: Partially hydrogenated veg. oil (palm kernel, soybean, cottonseed) See Hydrogenated vegetable oil
CAS 68334-28-1; EINECS/ELINCS 269-820-6
Uses: Lauric fat for pharmaceutical applics.
Regulatory: Kosher
Properties: Liq.; m.p. 107-109 F

**Paramount X** [Loders Croklaan Inc]
Chem. Descrip.: Partially hydrogenated veg. oil
Trade Name Reference

(1) Trade Name Reference
Evidence: See

Handbook of Pharmaceutical Additives, Third Edition

(palm kernel, soybean, cottonseed) See
Hydrogenated vegetable oil
CAS 68334-28-1; EINECS/ELINCS 269-820-6
Uses: Lauric fat for pharmaceutical applics.
Regulatory: Kosher
Properties: Liq.; m.p. 107-109 F

Paramount XX [Loders Croklaan Inc]
Chem. Descrip.: Partially hydrogenated veg. oil
(palm kernel, soybean, cottonseed) See
Hydrogenated vegetable oil
CAS 68334-28-1; EINECS/ELINCS 269-820-6
Uses: Lauric fat for pharmaceutical applics.
Regulatory: Kosher
Properties: Flake; m.p. 117-119 F

Paratherm NF [Paratherm
http://www.paratherm.com]
Chem. Descrip.: Hydrotreated hydrocarbon
NF/USP See Mineral oil
CAS 8042-47-5
Uses: Heat transfer fluid for precise, uniform temp. control in process applics., safe for use in pharmaceuticals
Features: Non fouling; rated for optimal service range of 120-600 F; environmentally safe
Regulatory: FDA, USDA certified; DOT nonregulated; SARA §313 nonreportable
Properties: Colorless bright transparent liq.; odorless; tasteless; sol. in hydrocarbons; sol. 10 ppm in water; m.w. 350 avg.; sp.gr. 0.8746; dens. 0.40 g/cm3; vapor pressure 0.0005 psia (200 F); b.p. 343 C (10% fraction); pour pt. -43 C; flash pt. (COC) 174 C; fire pt. (COC) 196 C; surf. tens. 28 dynes/cm; dielec. str. 30-40 kV/cm (20 C); dielec. const. 2.17 (1 MHz); vol. resist. 1012 ohm; 100% act.
Toxicology: Nontoxic; nonirritating to eyes; may cause sl. dermal irritation; ing. of lg. quantities may cause laxative effect; TSCA listed Precaution: Incompat. with strong oxidizing agents
Hazardous Decomp. Prods.: Burning may produce CO2, CO, other oxides, dense smoke
NFPA: Health 0, Flammability 1, Reactivity 0
Storage: Store in closed containers away from heat, sparks, open flame

Parteck™ M 200 [Merck KGaA
http://www.merck.de]
Chem. Descrip.: Mannitol See D-Mannitol
CAS 69-65-8; EINECS/ELINCS 200-711-8
Uses: Excipient for direct compression of pharmaceutical tablets
Features: Chemically inert; directly compressible; high compaction at low compression forces; rapid disintegration and dissolution; excellent flow props.
Properties: Needle-like microstructure; particle size ≤53 µm (270 mesh, ≤10%); sol. in water (250 g/l ); dens. 0.40 g/cm3; ≥164 C; m.p. 164 - 169 C; pH 4 - 7 (10 g/100 ml, water); 98.0 - 101.5 % assay (HPLC, calc. on dried substance)

Parteck™ M 300 [Merck KGaA
http://www.merck.de]
Chem. Descrip.: Mannitol See D-Mannitol
Chem. Analysis: ≤ 0.5 % moisture
CAS 69-65-8; EINECS/ELINCS 200-711-8
Uses: Excipient for direct compression of pharmaceutical tablets
Features: Nonhygroscopic; nonreactive; compat. with amines
Properties: Dens. 0.40 g/cm3; m.p. 164-169 C; pH 4 - 7 (10 g/100ml); 98.0 - 101.5% assay

Parteck™ SI 150 [Merck KGaA
http://www.merck.de]
Chem. Descrip.: Sorbitol
CAS 50-70-4; EINECS/ELINCS 200-061-5
Uses: Excipient and binder for OTC lozenges and chewable formulations and effervescents; diluent for low-dose preps.
Features: Fine particle size; achieves high content uniformity and dust reduction during tableting and filling; excellent compressibility and flow properties; rapid disintegration and dissolution; low hygroscopicity
Regulatory: NF, EP, BP
Properties: Powd.

Parteck™ SI 400 LEX [Merck KGaA
http://www.merck.de]
Chem. Descrip.: Sorbitol
CAS 50-70-4; EINECS/ELINCS 200-061-5
Uses: Excipient specifically designed for IV formulations
Features: Low in endotoxins; achieves high content uniformity and dust reduction during tableting and filling; excellent compressibility and flow properties; rapid disintegration and dissolution; low hygroscopicity
Regulatory: NF, EP, BP
Properties: Powd.
Parteck™ SI 400 LRS [Merck KGaA
http://www.merck.de]
Chem. Descrip.:  Sorbitol
CAS 50-70-4; EINECS/ELINCS 200-061-5
Uses:  Excipient and binder for OTC lozenges and chewable formulations and effervescents; diluent for low-dose preps.
Features:  Low in residual sugars; achieves high content uniformity and dust reduction during tableting and filling; excellent compressibility and flow properties; rapid disintegration and dissolution; low hygroscopicity
Regulatory:  NF, EP, BP
Properties:  Powd.

Parteck™ SI 400 PH [Merck KGaA
http://www.merck.de]
Chem. Descrip.:  Sorbitol
CAS 50-70-4; EINECS/ELINCS 200-061-5
Uses:  Excipient and binder for OTC lozenges and chewable formulations and effervescents; diluent for low-dose preps.
Features:  Tested for microbial purity; achieves high content uniformity and dust reduction during tableting and filling; excellent compressibility and flow properties; rapid disintegration and dissolution; low hygroscopicity
Regulatory:  NF, EP, BP
Properties:  Powd.

Parteck™ SI 500 [Merck KGaA
http://www.merck.de]
Chem. Descrip.:  Sorbitol
CAS 50-70-4; EINECS/ELINCS 200-061-5
Uses:  Excipient and binder for OTC lozenges and chewable formulations and effervescents; diluent for low-dose preps.
Features:  Achieves high content uniformity and dust reduction during tableting and filling; excellent compressibility and flow properties; rapid disintegration and dissolution; low hygroscopicity
Regulatory:  NF, FCC
Properties:  Powd.

Pationic® 919 [Am. Ingreds.
http://www.americaningredients.com]
Chem. Descrip.:  Glycerol tristearate  See Tristearin
CAS 555-43-1; EINECS/ELINCS 209-097-6
Uses:  Lubricant and binder in pharmaceutical tableting and as a matrix material for ointments
Regulatory:  GRAS, FCC, kosher, SARA §311/312, 313 nonreportable

Patlac® LA USP [RITA
http://www.ritacorp.com]
Chem. Descrip.:  Lactic acid
CAS 50-21-5; EINECS/ELINCS 200-018-0
Uses:  Surfactant, humectant in pharmaceuticals
Properties:  Cl. liq.; anionic; 88% act.
Toxicology:  Irritant to eyes, skin, and mucous membranes in conc. form

Paxanate OT [Pax Group
http://www.paxgroup.com;
http://www.paxchem.com]
Chem. Descrip.:  Sodium dioctyl sulfosuccinate  See Dioctyl sodium sulfosuccinate
CAS 577-11-7; EINECS/ELINCS 209-406-4
Uses:  Emulsifier, wetting agent, dispersant, cleaning agent, solubilizer, stabilizer in pharmaceuticals
Properties:  Paste; anionic; 70% act.

Paxanate OTL [Pax Group
http://www.paxgroup.com;
http://www.paxchem.com]
Chem. Descrip.:  Sodium dioctyl sulfosuccinate  See Dioctyl sodium sulfosuccinate
CAS 577-11-7; EINECS/ELINCS 209-406-4
Uses:  Emulsifier, wetting agent, dispersant, cleaning agent, solubilizer, stabilizer in pharmaceuticals
Properties:  Liq.; anionic; 25% act.

Paxgard BNPD [Pax Chem.
http://www.paxchem.com]
Chem. Descrip.:  2-Bromo-2-nitro-1,3-propanediol  See 2-Bromo-2-nitropropane-1,3-diol
CAS 52-51-7; EINECS/ELINCS 200-143-0

Properties:  Ivory wh. fine beads; bland odor; 98% min. through 100 sieve; neg. sol. in water; sp. gr. 0.8807 (100 C); m.p. 65 C; iodine no. 3 max.; flash pt. >298 F
Toxicology:  Sl. eye irritant; skin irritant and at elevated temps. may cause thermal burns; low toxicity by ing.; sl. irritant to respiratory tract; TSCA listed
Precaution:  Wear safety glasses and protective gloves; keep away from strong oxidizers such as hydrogen peroxide, bromine, and chromic acid
Hazardous Decomp. Prods.:  COx
Storage:  Shelf life 1 yr; store in cool dry place away from combustibles @ 55-85 F
Trade Name Reference

Uses: Antimicrobial; antibacterial
Features: Broad spectrum; effective in acid and neutral pH range
Properties: Water-sol.

Chem. Descrip.: Sodium lauryl sulfate
CAS 151-21-3; EINECS/ELINCS 205-788-1
Uses: Surfactant, emulsifier, detergent, degreaser, dispersant, foaming agent, wetting agent for dentifrices
Features: Extra pure grade
Properties: Powd.; anionic; 95% act.

Chem. Descrip.: Cocobetaine See Cocobetaine
CAS 68424-94-2; EINECS/ELINCS 270-329-4
Uses: Anti-irritant in personal care prods.
Features: Cost-effective; exc. foaming in acid, alkali, and electrolyte systems
Properties: Liq.; amphoteric; 34% act.
Environmental: Completely biodeg.

Chem. Descrip.: Cetomacrogol See Ceteth
CAS 9004-95-9
Uses: Emulsifier, cleaning agent, dispersant, antistat, defoamer, lubricant, solubilizer, stabilizer in pharmaceuticals
Features: High HLB
Properties: Solid; water-sol.; nonionic; 98% act.

Chem. Descrip.: Fatty alcohol ethoxylate
Uses: Emulsifier, cleaning agent, dispersant, antistat, defoamer, lubricant, solubilizer, stabilizer in pharmaceuticals
Features: High HLB
Properties: Solid; water-sol.; nonionic; 98% act.

Chem. Descrip.: PPG-4-ceteth-10
CAS 9087-53-0
Uses: W/o emulsifier, solubilizer, dispersant used in pharmaceuticals
Regulatory: JSCI listed
Properties: Colorless liq.; HLB 10.5; nonionic; 100% conc.
Toxicology: TSCA listed

Chem. Descrip.: PPG-4-ceteth-20
CAS 9087-53-0
Uses: Hydrophilic emulsifier, solubilizer, dispersant used in pharmaceuticals
Regulatory: JSCI listed
Properties: Wh. solid; HLB 16.5; nonionic; 100% conc.
Toxicology: TSCA listed

Chem. Descrip.: PPG-8-ceteth-1
CAS 9087-53-0
Uses: W/o emulsifier, solubilizer, dispersant used in pharmaceuticals
Regulatory: JSCI listed
Properties: Colorless liq.; HLB 9.5; nonionic; 100% conc.
Toxicology: TSCA listed

Chem. Descrip.: PPG-8-ceteth-20
CAS 9087-53-0
Uses: Hydrophilic emulsifier, solubilizer, dispersant used in cosmetic, pharmaceuticals
Regulatory: JSCI listed
Properties: Pale yel. solid; HLB 12.5; nonionic; 100% conc.
Toxicology: TSCA listed

PCS® [Asahi Kasei http://www.asahi-kasei.co.jp]
Chem. Descrip.: Pregelatinized corn starch
See Corn (Zea mays) starch
Chem. Analysis: 2.0-6.0% loss on drying
Uses: Stabilizer for moisture-sensitive drugs; carrier for hygroscopic ingreds.; dissolution enhancer and granulation aid
Trade Name Reference

**Features:** Dissolves very rapidly because of its porous crystalline particles; may require higher levels of lubricants than other excipients; nonhygroscopic; flowable; chemically stable; 40% sweetening power of sucrose

**Properties:** Wh., odorless crystalline powd.; sl. sweet taste; particle size 100 µm mean diameter; sol. in water (17g / 100ml )

**Pearlitol® 160 C** [Roquette http://www.roquette.fr]

**Chem. Descr.:** Mannitol See D-Mannitol

**CAS 69-65-8; EINECS/ELINCS 200-711-8**

**Uses:** Diluent for tablets, capsules and sachets; excipient for chemically unstable or moisture sensitive actives; excipient of choice for flash-release forms; freeze-drying carrier; sweetener for pharmaceutical chewing gum; diuretic-osmotic for injectable solutions

**Features:** Cooling effect in mouth; very low hygroscopicity; chemically stable; noncariogenic

**Regulatory:** USP/NF, EP, JP

**Properties:** Wh., odorless powd.; sl. sweet taste; particle size 160 µm mean diameter; sol. in water (17g / 100ml )

**Pearlitol® 200SD** [Roquette http://www.roquette.fr]

**Chem. Descr.:** Granulated mannitol See D-Mannitol

**CAS 69-65-8; EINECS/ELINCS 200-711-8**

**Uses:** Excipient for direct compression for chewable and effervescent tablets, chemically unstable or moisture sensitive actives; diluent for capsules and sachets

**Features:** Dissolves very rapidly because of its porous crystalline particles; may require higher levels of lubricants than other excipients; nonhygroscopic; flowable; chemically stable; 40% sweetening power of sucrose

**Regulatory:** USP/NF, EP, JP

**Properties:** Wh., odorless crystalline powd.; sl. sweet taste; particle size 180 µm mean diameter; sol. in water (17g / 100ml )

**Pearlitol® 25 C** [Roquette http://www.roquette.fr]

**Chem. Descr.:** Mannitol See D-Mannitol

**CAS 69-65-8; EINECS/ELINCS 200-711-8**

**Uses:** Diluent for tablets, capsules and sachets; excipient for chemically unstable or moisture sensitive actives; excipient of choice for flash-release forms; freeze-
Trade Name Reference

drying carrier; sweetener for pharmaceutical chewing gum; diuretic-osmotic for injectable solutions

Features: Cooling effect in mouth; very low hygroscopicity; chemically stable; noncariogenic

Regulatory: USP/NF, EP, JP

Properties: Wh., odorless powd.; sl. sweet taste; particle size 50 µm mean diameter; sol. in water (17g / 100ml )

Pearlitol® 500 DC [Roquette
http://www.roquette.fr]
Chem. Descrip.: Granulated mannitol See D-Mannitol
CAS 69-65-8; EINECS/ELINCS 200-711-8
Uses: Excipient for direct compression for chewable and effervescent tablets, chemically unstable or moisture sensitive actives; diluent for capsules and sachets
Features: Nonhygroscopic; flowable; chemically stable; 40% sweetening power of sucrose; ; chemically stable

Regulatory: USP/NF, EP, JP

Properties: Wh., odorless crystalline powd.; sl. sweet taste; particle size 520 µm mean diameter; sol. in water (17g / 100ml )
Chem. Descrip.:  
PVP/dimethylaminoethylmethacrylate/polycarbamyl polyglycol ester  See  
PVP/dimethylaminoethyl methacrylate/polycarbamyl polyglycol ester
Uses:  Polymeric hydrogel, film-former used in pharmaceutical topicals; water resist.
Properties:  Lt. to dk. straw hazy visc. liq.; sol. in propylene glycol; disp. in water, castor oil; insol. in ethanol, cyclohexane, min. oil, IPM; sp.gr. 1.016; visc. 3000-7000 cps; pH 8-9 (10%); nonflamm.; cationic; 10% aq. sol'n.
Toxicology:  Nonirritating to skin and eyes; LD50 (oral) > 5 g/kg, nontoxic orally; noncomedogenic; ingestion may cause nausea, vomiting, abdominal pain
Storage:  Keep from freezing

Pecogel® GC-1110 [Phoenix http://www.phoenix-chem.com]
Chem. Descrip.:  
PVP/dimethylaminoethylmethacrylate/polycarbamyl polyglycol ester  See  
PVP/dimethylaminoethyl methacrylate/polycarbamyl polyglycol ester
Uses:  Polymeric hydrogel used in pharmaceutical topicals; water resist.
Properties:  Visc. liq.; sol. in propylene glycol; disp. in water; insol. in castor oil, min. oil, ethanol, cyclohexane, IPM; sp.gr. 1.022; pH 8-9 (10%); nonflamm.; cationic; 10% aq. sol'n.
Toxicology:  Nonirritating to skin; minimally irritating to eyes; LD50 (oral) > 5 g/kg, nontoxic orally; noncomedogenic; ingestion may cause nausea, vomiting, gastric disturbance; overexposure may cause dizziness, headache, nausea
Precaution:  Hazardous ingreds.: 1.76% 1-methyl-2-pyrrolidone
Hazardous Decomp. Prods.:  Combustion may produce CO, CO2, NOX
Storage:  Protect from freezing

Chem. Descrip.:  
PVP/polycarbamyl polyglycol ester
Uses:  Polymeric hydrogel, film-former used in pharmaceutical topicals; water resist.
Properties:  Off-wh. to yel. hazy visc. liq.; sol. in water, propylene glycol; misc. with ethanol; insol. in castor oil, min. oil, cyclohexane, IPM; sp.gr. 1.027; visc. 4000-8000 cps; pH 8-9 (10%); nonflamm.; nonionic; 15% aq. sol'n.
Toxicology:  Pract. nonirritating to eyes; nonirritating to skin; LD50 (oral) > 5 g/kg, nontoxic orally; noncomedogenic; ingestion may cause nausea, vomiting, gastric disturbance; overexposure may cause dizziness, headache, nausea
Precaution:  Hazardous ingreds.: 3.59% 1-methyl-2-pyrrolidone
Hazardous Decomp. Prods.:  Combustion may produce CO, CO2, NOX
Storage:  Protect from freezing

Chem. Descrip.:  
PVP/polycarbamyl polyglycol ester
Uses:  Polymeric hydrogel, film-former used in pharmaceutical topicals; water resist.
Properties:  Visc. liq.; sol. in ethanol; disp. in water, propylene glycol, castor oil; insol. in cyclohexane, min. oil, IPM; sp.gr. 1.036; pH 8-9 (10%); nonflamm.; nonionic; 20% aq. sol'n.
Toxicology:  Pract. nonirritating to eyes; nonirritating to skin; LD50 (oral) > 5 g/kg, nontoxic orally; noncomedogenic; ingestion may cause nausea, vomiting, gastric disturbance; overexposure may cause dizziness, headache, nausea
Precaution:  Hazardous ingreds.: 4.73% 1-methyl-2-pyrrolidone
Hazardous Decomp. Prods.:  Combustion may produce CO, CO2, NOX
Storage:  Protect from freezing
Pecogel® S-1120 [Phoenix
http://www.phoenix-chem.com]
Chem. Descrip.: PVP/dimethiconylacrylate/polycarbamyl polyglycol ester. See
PVP/dimethiconylacrylate/polycarbamyl/polyglycol ester
Uses: Polymeric hydrogel, film-former used in sunscreens, pharmaceutical topicals; water resist.
Properties: Wh. to lt. yel. hazy visc. liq., amine-like odor; disp. in castor oil, ethanol, propylene glycol, water; insol. in cyclomethicone, min. oil, IPM; dens. 8.6 lb/gal; visc. 500-3000 cps; pH 8-9 (10%); nonflamm.; nonionic; 20% aq. sol'n.
Toxicology: Nonirritating to eyes and skin; LD50 (oral) > 5 g/kg, nontoxic orally; noncomedogenic; skin exposure can cause irritation; ingestion may cause nausea, vomiting, abdominal pain
Precaution: Incompat. with strong oxidizers and reducers
Hazardous Decomp. Prods.: Thermal decomp. prod.: COx, SiOx

Pecosil® OS-100B [Phoenix
http://www.phoenix-chem.com]
Chem. Descrip.: Dimethicone propylethlenediamine behenate
CAS 133448-12-1
Uses: Hydrophobic film-former used in pharmaceutical topicals; humectant, protective barrier
Properties: Wh. to buff very visc. paste with opal-like appearance; sol. warm in IPM; disp. warm in castor oil, ethanol, cyclomethicone, min. oil; insol. in water; sp.gr. 1.01 g/ml; pH 7 (10%); flash pt. (TCC) > 200 F; cationic; 100% act.
Toxicology: Nonirritating to skin and eyes; LD50 (oral) > 5 g/kg, nontoxic orally; noncomedogenic; skin exposure can cause irritation; ingestion may cause nausea, vomiting, abdominal pain
Precaution: Incompat. with strong oxidizers and reducers
Hazardous Decomp. Prods.: Thermal decomp. prod.: COx, SiOx

Pecosil® PS-100 [Phoenix
http://www.phoenix-chem.com]
Chem. Descrip.: Dimethicone copolyol phosphate
CAS 132207-31-9
Uses: Patented o/w emulsifier, pigment wetting and dispersing agent for topical pharmaceuticals, sunscreens
Properties: Cl. to sl. hazy visc. liq.; misc. with water, ethanol, propylene glycol; disp. in castor oil, cyclomethicone, min. oil; insol. in IPM; sp.gr. 1.01 g/ml; acid no. 37-47; flash pt. (TCC) > 200 F; pH 2-4 (1%); anionic; 100% act.
Toxicology: Nonirritating to skin and eyes; nontoxic orally; noncomedogenic; skin exposure can cause irritation; ingestion may cause nausea, vomiting, abdominal pain
Precaution: Incompat. with strong oxidizers and reducers
Hazardous Decomp. Prods.: Thermal decomp. prod.: COx, SiOx

Pecosil® PS-100K [Phoenix
http://www.phoenix-chem.com]
Chem. Descrip.: Potassium dimethicone copolyol phosphate
CAS 150522-09-1
Uses: O/w emulsifier for topical pharmaceuticals, sunscreen prods.
Properties: Yel. cl. to sl. hazy liq.; sol. in water; misc. with IPM, propylene glycol; disp. in
Trade Name Reference

castor oil, ethanol; sp.gr. 1.01 g/ml; acid no. 20 max.; pH 5-7 (10%); flash pt. (TCC) > 200 F; 55% aq. sol'n.

Toxicology: Nonprimary skin irritant; nonirritating to eyes; nontoxic orally; noncomedogenic; skin exposure can cause irritation; ingestion may cause nausea, vomiting, abdominal pain

Precaution: Incompat. with strong oxidizers and reducers

Hazardous Decomp. Prods.: Thermal decomp. prods.: COx, SiOx

Pecosil® WDS-100 [Phoenix http://www.phoenix-chem.com]
Chem. Descrip.: Dimethicone copolyol phosphate
CAS 132207-31-9
Uses: O/w emulsifier, emollient for topical pharmaceuticals; pigment wetter and disperser

Properties: Cl. to hazy liq.; misc. with ethanol, propylene glycol; disp. in water, IPM, castor oil, cyclomethicone, min. oil; sp.gr. 1.01 g/ml; acid no. 110±8; flash pt. (TCC) > 200 F; pH 3-4 (10%); anionic; 100% act.

Toxicology: Nonirritating to eyes; nonprimary skin irritant; nontoxic orally; noncomedogenic; skin exposure can cause irritation; ingestion may cause nausea, vomiting, abdominal pain

Precaution: Incompat. with strong oxidizers and reducers

Hazardous Decomp. Prods.: Thermal decomp. prods.: COx, SiOx

Chem. Descrip.: Sec. kaolin clay
Chem. Analysis: SiO2 (43.9%), Al2O3 (40%), TiO2 (1.2%)
CAS 1332-58-7; EINECS/ELINCS 296-473-8
Uses: Filler in pharmaceuticals

Features: No ozone-depleting substances

Properties: Wh. beads; sol. in ethanol, min. and veg. oil; insol. in water; HL B 1; m.p. 59 C; acid no. 6 max.; iodine no. < 1; sapon. no. 190-200; pH 5 (3%); nonionic; 100% conc.

Pegosperse® 50 DS [Lonza http://www.lonza.com]
Chem. Descrip.: Glycol distearate
CAS 627-83-8; EINECS/ELINCS 211-014-3
Uses: Emollient, lubricant and pigment dispersant in pharmaceuticals

Properties: Colorless to sl. yel. cl. liq., sl. typ. odor; misc. with castor oil, min. oil, ethanol, cyclomethicone, IPM; insol. in water, propylene glycol; sp.gr. 0.855; b.p. > 175 C; acid no. 1 max.; iodine no. 1 max.; sapon. no. 200-215; flash pt. (COC) > 150 C; 100% act.

Toxicology: Nonirritating to skin and eyes; nontoxic orally; noncomedogenic; skin exposure can cause irritation; ingestion may cause nausea, vomiting, abdominal pain; eye contact may cause irritation

Hazardous Decomp. Prods.: Burning may produce CO, CO2

Pelemol® BB [Phoenix http://www.phoenix-chem.com]
Chem. Descrip.: Behenyl behenate
CAS 17671-27-1; EINECS/ELINCS 241-646-5
Uses: Emollient, visc./body builder for topical pharmaceuticals

Properties: Off-wh. waxy flake; sol. warm in min.
Trade Name Reference

Oil, castor oil; misc. warm in IPM; disp. warm in cyclomethicone; insol. in water, propylene glycol; m.p. 68 C; b.p. > 150 C; acid no. 3 max.; iodine no. 5 max.; sapon. no. 78-98; flash pt. (PMCC) > 150 C; pH = 6; 100% act.

Toxicology: Nonirritating to eyes and skin; nontoxic orally; noncomedogenic; skin and eye exposure may cause irritation; ingestion may cause abdominal upset

Precaution: Incompat. with strong oxidizers and reducing agents

Hazardous Decomp. Prods.: Incomplete combustion produces CO

Storage: Avoid prolonged heated storage

Pelemol® C-150 [Phoenix http://www.phoenix-chem.com]

Chem. Descrip.: Bis(trioctyldodecyl citryl) dilinoleate See Trioctyldodecyl citrate dilinoleate

CAS 220716-32-5

Uses: Used in pharmaceutical topicals

Properties: Cl. oily liq.; sol. in castor oil, min. oil; disp. in cyclomethicone; misc. with IPM; insol. in water, ethanol, propylene glycol; sp.gr. 1.01 g/ml; flash pt. (TCC) > 200 F; pH 5-7 (10%); 100% act.

Toxicology: Skin exposure can cause irritation; ingestion may cause nausea, vomiting, abdominal pain

Precaution: Incompat. with strong oxidizers and reducers

Hazardous Decomp. Prods.: Thermal decomp. prod.: COx, SiOx

Storage: Protect from freezing and boiling (emulsion will break)

Pelemol® CA [Phoenix http://www.phoenix-chem.com]

Chem. Descrip.: Cetyl acetate

CAS 629-70-9; EINECS/ELINCS 211-103-7

Uses: Used in pharmaceutical topicals

Properties: Colorless cl. liq. to yel. waxy solid; misc. with castor oil, min. oil, cyclomethicone, IPM; insol. in water, ethanol, propylene glycol; sp.gr. 0.85; m.p. 18 C; b.p. > 150 C; acid no. 1 max.; iodine no. 1 max.; sapon. no. 185-205; hyd. no. 8 max.; flash pt. (PMCC) > 150 C; pH ≈ 6 (10%); 100% act.

Toxicology: Skin exposure may cause irritation; ingestion may cause abdominal upset; eye contact may cause irritation

Precaution: Incompat. with strong oxidizers and reducing agents

Hazardous Decomp. Prods.: Incomplete combustion produces CO

Storage: Avoid prolonged heated storage

Pelemol® CCT [Phoenix http://www.phoenix-chem.com]

Chem. Descrip.: Caprylic capric triglyceride

See Caprylic/capric triglyceride

EINECS/ELINCS 265-724-3

Uses: Emollient used in pharmaceutical topicals

Properties: Yel. cl. oily liq., bland odor; misc. with castor oil, min. oil, cyclomethicone, IPM; insol. in water, ethanol, propylene glycol; sp.gr. 0.9; b.p. > 500 C; acid no. 1 max.; iodine no. 2 max.; sapon. no. 338-358; hyd. no. 10 max.; flash pt. (OP) 350 C; pH 5.5-7.0 (3% aq.); 100% act.; 0.2% max. moisture

Toxicology: Skin exposure can cause irritation; ingestion may cause nausea, vomiting, abdominal pain

Precaution: Incompat. with strong oxidizing agents

Hazardous Decomp. Prods.: Combustion produces COx

Storage: Store in cool, dry location away from strong oxidizing agents; avoid excessive heat


Chem. Descrip.: Cetyl lactate

CAS 35274-05-6; EINECS/ELINCS 252-478-7

Uses: Emollient used in pharmaceutical topicals

Properties: Wh. cl. liq. to solid, faint char. odor; misc. hot in castor oil, min. oil, cyclomethicone, IPM; insol. in water, ethanol, propylene glycol; sp.gr. 0.893-0.905; b.p. 342 C; acid no. 2 max.; sapon. no. 174-189; flash pt. (COC) > 202 C; 100% act.

Toxicology: LD50 (oral, rat) 20 ml/kg; nonirritating to eyes; nonprimary skin irritant; nonsensitizing

Precaution: Incompat. with strong oxidizers

Hazardous Decomp. Prods.: CO, CO2 when heated to decomp.

Pelemol® CP [Phoenix http://www.phoenix-chem.com]

Chem. Descrip.: Cetyl palmitate

CAS 540-10-3; EINECS/ELINCS 208-736-6

Uses: Emollient, base, consistency factor used in pharmaceutical topicals

Properties: Wh. to tan flake, odorless; misc. hot in castor oil, min. oil, cyclomethicone, IPM; insol. in water, ethanol, propylene glycol; m.p. 51-55 C; b.p. > 100 C; acid no. 2 max.; sapon.
Handbook of Pharmaceutical Additives, Third Edition

Trade Name Reference

Properties: Yel. cl. liq., typ. bland odor; misc. with castor oil, min. oil, cyclomethicone, IPM; insol. in water, ethanol, propylene glycol; sp.gr. 0.86; b.p. > 200 C; acid no. 1 max.; iodine no. 65 max.; sapon. no. 130-145; flash pt. (COC) < 240 C; 100% act.

Hazardous Decomp. Prods.: CO, CO₂

Storage: Store in cool, dry place away from strong oxidizing agents; avoid excessive heat, open flames, ignition sources

Chem. Descrip.: Glycereth-7 benzoate
CAS 12804-12-8
Uses: Lubricant, emollient in pharmaceutical topicals; detackifier for antiperspirants
Features: Blooms heavily in water

Pelemol® DIPS [Phoenix http://www.phoenix-chem.com]
Chem. Descrip.: Disopropyl sebacate
CAS 7491-02-3; EINECS/ELINCS 231-306-4
Uses: Emollient, solubilizer, coupling agent used in pharmaceutical topicals

Properties: APHA 25max, colorless cl. liq.; pract. odorless; essentially odorless; misc. with castor oil, min. oil, ethylalcohol, cyclomethicone, propylene glycol, IPM; insol. in water; sp.gr. 0.93; b.p. 355 F; acid no. 1 max.; sapon. no. 380-400; flash pt. (COC) 350; 100% act.

Toxicology: Nonirritant to eyes and skin; ingestion may cause nausea, vomiting, abdominal pain

Hazardous Decomp. Prods.: Burning may produce CO, CO₂

Pelemol® DO [Phoenix http://www.phoenix-chem.com]
Chem. Descrip.: Decyl olate
CAS 3687-46-5; EINECS/ELINCS 222-981-6
Uses: Emollient used in pharmaceutical topicals

Properties: Yel. liq., colorless cl. liq.; pract. odorless; misc. in water, alcohol, propylene glycol, ethylalcohol, disp. in water; self-emulsifying; sp.gr. 1.16; vapor pressure < 0.1; b.p. > 185 C; acid no. 5 max.; sapon. no. 95-125; flash pt. (CCC) > 150 C; 100% act.

Toxicology: Nonirritating to eyes; nonprimary skin irritant; LD₅₀ (oral) > 5 g/kg, nontoxic orally; noncomedogenic; skin exposure can cause irritation; ingestion may cause nausea, vomiting, abdominal pain

Hazardous Decomp. Prods.: None

Hazardous Ingredients: None

Chem. Descrip.: Glycereth-7 triacetate
CAS 57569-76-3
Uses: Humectant, emollient, coupling agent, solubilizer used in pharmaceutical topicals; solv. for sunscreen ingreds.

Properties: Sl. yel. cl. viscl. liq., bland odor; sol. in water, alcohol, hydro-alcoholic soln.s.; misc. with propylene glycol; insol. in cyclomethicone, min. oil, IPM; sp.gr. 0.93; acid no. 1 max.; iodine no. 3.16; sapon. no. 305-330; hyd. no. 20 max.; flash pt. (PMCC) > 150 C; 100% act.

Toxicology: Nonirritating to eyes; nonprimary skin irritant; LD₅₀ (oral) > 5 g/kg, nontoxic orally; noncomedogenic; skin exposure can cause irritation; ingestion may cause nausea, vomiting, abdominal pain

Hazardous Decomp. Prods.: May form oxides of carbon

HMIS: Health 1, Flammability 0, Reactivity 0

Storage: Store in cool, dry place

Trade Name Reference

http://www.phoenix-chem.com

Chem. Descrip.: Glycereth-4.5 lactate  See Glycereth-5 lactate
CAS 125804-28-6
Uses: Emollient, humectant for pharmaceutical topicals; useful in hydro/alcoholic formulations
Properties: Water-wh. to pale yel. cl. visc. liq., mild typ. odor; sol. in water, methanol, IPA; misc. with ethanol, propylene glycol; disp. in castor oil; insol. in min. oil, IPM; sp.gr. 0.858±0.01 (20 C); b.p. dec. > 210 C; acid no. 5 max.; sapon. no. 165-185; flash pt. (COC) > 210 C; nonionic; 100% act.
Toxicology: Nonirritating to eyes and skin; nontoxic orally; skin exposure can cause irritation; ingestion may cause nausea, vomiting, abdominal pain
Precaution: Incompat. with strong oxidizing agents
Hazardous Decomp. Prods.: CO, CO2

Pelemol® GTB [Phoenix http://www.phoenix-chem.com]
Chem. Descrip.: Glycerol tribehenate  See Tribehenin
CAS 18641-57-1; EINECS/ELINCS 242-471-7
Uses: Emollient imparting body to pharmaceutical topicals
Properties: Off-wh. waxy gran., char. fatty odor; sol. hot with castor oil, min. oil; misc. hot with cyclomethicone, IPM; insol. in water, ethanol; sp.gr. 0.92; iodine no. 2 max.; flash pt. (COC) 315 C min.; 100% act.
Toxicology: Inh. hazard is negligible unless heated to produce vapors or as mist, which may cause mucous membrane irritation, dizziness, nausea; eye and prolonged/repeated skin contact may cause irritation; ingestion may irritate digestive tract
Precaution: Incompat. with strong oxidizing agents
Hazardous Decomp. Prods.: Combustion produces CO, CO2, thick smoke
Storage: Avoid prolonged heated storage

Pelemol® GTL [Phoenix http://www.phoenix-chem.com]
Chem. Descrip.: Glycereth-5 lactate  See Trilactin
CAS 537-32-6; EINECS/ELINCS 208-664-5
Uses: Emollient used in pharmaceutical topicals
Properties: Yel. oily visc. liq.; disp. in castor oil; misc. with propylene glycol; insol. in water, ethanol, cyclomethicone, min. oil, IPM; sp.gr. 0.96; b.p. > 200 C; acid no. 5 max.; sapon. no. 165-185; flash pt. (PMCC) > 150 C; pH ≈ 6 (10%); 100% act.; 0.5% max. moisture
Toxicology: Nonirritating to skin and eyes; ingestion may cause abdominal upset; eye contact may cause irritation
Precaution: Incompat. with strong oxidizers and reducing agents
Hazardous Decomp. Prods.: Incomplete combustion produces CO
Storage: Avoid prolonged heated storage

Pelemol® IB [Phoenix http://www.phoenix-chem.com]
Chem. Descrip.: Dihydroabietyl behenate
CAS 127036-29-7
Uses: Emollient for pharmaceutical topicals, sunscreens
Properties: Amber soft solid; misc. with IPM; disp. in castor oil, min. oil, cyclomethicone; insol. in water, ethanol, propylene glycol; sp.gr. 0.91 (40 C); m.p. 35 C; b.p. > 200 C; acid no. 10 max.; sapon. no. 75-95; flash pt. (TCC) > 150 C; pH ≈ 6; 100% act.
Toxicology: Nonirritating to skin and eyes; nontoxic orally; noncomedogenic; skin exposure may cause irritation; ingestion may cause abdominal upset
Precaution: Incompat. with strong oxidizers and reducing agents
Hazardous Decomp. Prods.: Incomplete combustion produces CO
Storage: Avoid prolonged heated storage
Pelemol® ICB  [Phoenix http://www.phoenix-chem.com]
Chem. Descrip.:  *Isocetyl behenate*
CAS  94247-28-6; EINECS/ELINCS 304-205-9
Uses:  *Emollient for pharmaceutical topicals*
Properties:  Lt. yel. oily cl. liq., mild char. odor; misc. with castor oil, min. oil, cyclomethicone, IPM; insol. in water, alcohol, propylene glycol; sp.gr. 0.91; f.p. 9 C; b.p. dec.; acid no. 3 max.; sapon. no. 70-95; flash pt. (COC) 345 F; 100% act.
Toxicology:  *Nonirritating to skin and eyes; nontoxic orally; noncomedogenic; skin exposure can cause irritation; ingestion may cause nausea, vomiting, abdominal pain*
Precaution:  *Incompat. with strong oxidizing agents*
Hazardous Decomp. Prods.:  CO, CO₂
Storage:  Store in cool, dry location away from strong oxidizing agents; avoid excessive heat

Pelemol® ICLA  [Phoenix http://www.phoenix-chem.com]
Chem. Descrip.:  *Isocetyl laurate*
Uses:  *Emollient used in pharmaceutical topicals*
Properties:  Pale yel. liq.; misc. with castor oil, cyclomethicone, min. oil, IPM; insol. in water, ethanol, propylene glycol; sp.gr. 0.853-0.859; visc. 32 cps; f.p. 0 C; b.p. 149 C; acid no. 3 max.; iodine no. 5 max.; sapon. no. 120-140; flash pt. (COC) 238 C; ref. index 1.455; 100% act.
Toxicology:  *Skin exposure can cause irritation; ingestion may cause nausea, vomiting, abdominal pain*
Precaution:  *Incompat. with strong oxidizing agents*
Hazardous Decomp. Prods.:  COₓ
Storage:  Store in cool place away from strong oxidizing materials

Pelemol® ICO  [Phoenix http://www.phoenix-chem.com]
Chem. Descrip.:  *Isocetyl octanoate*
CAS  125804-19-5
Uses:  *Emollient used in pharmaceutical topicals*
Properties:  Almost colorless liq.; mild typ. odor; misc. with castor oil, min. oil, cyclomethicone, IPM; insol. in water, ethanol, propylene glycol; sp.gr. 0.89; b.p. > 200 C; flash pt. (COC) > 200 C; 100% act.
Toxicology:  *Skin exposure can cause irritation; ingestion may cause nausea, vomiting, abdominal pain*
Precaution:  *Incompat. with strong oxidizing agents*
Hazardous Decomp. Prods.:  CO, CO₂
Storage:  Store in cool, dry location; avoid excessive heat

Pelemol® IDO  [Phoenix http://www.phoenix-chem.com]
Chem. Descrip.:  *Isodecyl oleate*
CAS  59231-34-4; EINECS/ELINCS 261-673-6
Uses:  *Emollient used in pharmaceutical topicals*
Properties:  Pale yel. med. visc. liq.; typ. odor; sol. in peanut oil 95% ethanol, IPM, min. oil; misc. with cyclomethicone; insol. in water, 70% ethanol, glycerin, propylene glycol; sp.gr. 0.861; f.p. < 0 C; b.p. > 240 C; acid no. 1-5; iodine no. 45-50; sapon. no. 120-140; flash pt. (COC) 238 C; ref. index 1.455; 100% act.
Precaution:  *Incompat. with strong oxidizing agents*
Hazardous Decomp. Prods.:  COₓ
Storage:  Store in cool, dry location; avoid excessive heat

Pelemol® IN-2  [Phoenix http://www.phoenix-chem.com]
Chem. Descrip.:  *Isononyl isononanoate*
CAS  42131-25-9; EINECS/ELINCS 261-665-2
Uses:  *Emollient used in pharmaceutical topicals*
Properties:  Water-wh. cl. mobile liq.; misc. with castor oil, min. oil, cyclomethicone, IPM; insol. in water, ethanol, propylene glycol; sp.gr. 0.85;
Pelemol® ISB [Phoenix http://www.phoenix-chem.com]
Chem. Descrip.: Isostearyl behenate
CAS 125804-16-2
Uses: Emollient, moisture barrier for pharmaceutical topicals
Properties: Wh. to off-wh. opaque soft paste, bland odor; sol. warm in castor oil, min. oil, cyclomethicone; misc. with IPM; insol. in water, ethanol, propylene glycol; sp.gr. 0.985; m.p. 37 C; b.p. dec.; acid no. 3 max.; sapon. no. 80-100; flash pt. (COC) 350 F; 100% act.
Toxicology: Nonirritating to eyes; nonprimary skin irritant; LD50 (oral) > 5 g/kg, nontoxic orally; noncomedogenic; skin exposure can cause irritation; ingestion may cause nausea, vomiting, abdominal pain
Hazardous Decomp. Prods.: May form toxic combustion prods.
Storage: Store in cool, dry place away from strong oxidizing agents; avoid excessive heat

Pelemol® ISL [Phoenix http://www.phoenix-chem.com]
Chem. Descrip.: Isostearl lactate
CAS 42131-28-2; EINECS/ELINCS 255-674-0
Uses: Emollient used in pharmaceutical topicals
Properties: Sl. yel. liq., mild typ. odor; misc. with castor oil, min. oil, cyclomethicone, IPM; disp. with propylene glycol; insol. in water, ethanol, propylene glycol; sp.gr. 0.85; f.p. 10-15 C; b.p. > 150 C; acid no. 5 max.; sapon. no. 46-86; flash pt. (TCC) 480 F; 100% act.
Toxicology: Nonirritating to skin and eyes; nontoxic orally; skin exposure can cause irritation; ingestion may cause nausea, vomiting, abdominal pain
Precaution: Incompat. with strong oxidizers and reducers; esters will hydrolyze at high and low pH
Hazardous Decomp. Prods.: Thermal decomp. prods.: COx
Storage: Store in cool, dry location away from strong oxidizing agents; avoid excessive heat

Chem. Descrip.: Laureth-2 acetate
CAS 32289-26-2
Uses: Emollient for pharmaceutical topicals; coupler for hydro-alcoholic systems
Properties: Water-wh. to pale yel. cl. liq., mild odor; sol. in hydro-alcoholic sol'ns., ethanol, min. oil; misc. with castor oil, propylene glycol, IPM; disp. in water, cyclomethicone; sp.gr. 1.01 g/ml; b.p. < 300 C; acid no. 5 max.; sapon. no. 40-66; flash pt. (TCC) 480 F; 100% act.
Toxicology: Skin exposure may cause irritation; ingestion may cause abdominal upset; eye contact may cause irritation
Precaution: Incompat. with strong oxidizers and reducers
Hazardous Decomp. Prods.: Incomplete combustion produces CO
Storage: Avoid prolonged heated storage

Pelemol® MM [Phoenix http://www.phoenix-chem.com]
Chem. Descrip.: Myristyl myristate
CAS 3234-85-3; EINECS/ELINCS 221-787-9
Uses: Emollient used in pharmaceutical topicals
Properties: Wh. waxy flake; misc. hot with castor oil, min. oil, cyclomethicone, IPM; insol. in water, ethanol, propylene glycol; m.p. ≈ 40 C;
Trade Name Reference

b.p. > 150 C; acid no. 1 max.; iodine no. 2 max.; sapon. no. 120-130; flash pt. (PMCC) > 150 C; pH ≈ 6 (10%); 100% act.

Toxicology: Skin exposure can cause irritation; ingestion may cause abdominal upset; eye contact may cause irritation

Precaution: Incompat. with strong oxidizers and reducing agents

Hazardous Decomp. Prods.: Incomplete combustion produces CO

Storage: Avoid prolonged heated storage

Pelemol® MS [Phoenix http://www.phoenix-chem.com]

Chem. Descrip.: Myristyl stearate

Uses: Emollient, visc. builder for pharmaceutical topicals

Properties: Wh. to off-wh. cryst. waxy flake, mild fatty odor; misc. hot with castor oil, min. oil, cyclomethicone, IPM; insol. in water, ethanol, propylene glycol; sp.gr. 0.897 (55 C); m.p. ≈ 50 C; acid no. 5 max.; iodine no. 1 max.; sapon. no. 120-125; flash pt. (PMCC) > 200 C; 100% act.

Toxicology: May cause skin or eye irritation; ingestion may cause gastric upset

Precaution: Incompat. with strong oxidizing agents

Hazardous Decomp. Prods.: May form CO

Storage: Store in cool, dry place

Pelemol® OL [Phoenix http://www.phoenix-chem.com]

Chem. Descrip.: Oleyl lactate

Uses: Emollient, softener, moisturizer for pharmaceutical topicals

Properties: Lt. amber visc. liq., mild fatty odor; sol. in hydro/alcoholic sol'n's.; misc. with castor oil, min. oil, cyclomethicone, IPM; disp. in propylene glycol; insol. in water, ethanol; sp.gr. 0.90; vapor pressure negligible; b.p. > 207 C; acid no. 10 max.; iodine no. 1 max.; flash pt. (COC) 157 C; 100% act.; 0.5% max. moisture

Toxicology: Nonirritating to skin; prac. nonirritating to eyes; nontoxic orally; noncomedogenic

Precaution: Incompat. with strong oxidizing agents; avoid open flame, ignition sources

Hazardous Decomp. Prods.: COx

Storage: Store in cool, dry location; avoid excessive heat

Pelemol® PDD [Phoenix http://www.phoenix-chem.com]

Chem. Descrip.: Propylene glycol dicaprylate/dicaprate

Uses: Emollient used in pharmaceutical topicals

Properties: APHA 50 max. liq.; misc. with castor oil, min. oil, cyclomethicone, IPM; insol. in water, ethanol, propylene glycol; dens. 7.5 lb/gal; b.p. > 300 F; iodine no. 1 max.; sapon. no. 315-335; hyd. no. 10 max.; flash pt. (PMCC) > 200 F; 100% act.; 0.1% max. moisture

Toxicology: Mist irritates nasal passages; nonprimary eye irritant, but contact may cause mild transient irritation; nonprimary skin irritant, but prolonged contact may cause mild, transient irritation

Precaution: Incompat. with strong alkali or caustic, strong oxidizing agents; avoid handling/storage near open flame; spillages may be slippery

Pelemol® PTL [Phoenix http://www.phoenix-chem.com]

Chem. Descrip.: Pentaeathyriyl tetralaurate

Uses: Hydrophobic oligomeric ester, emollient for pharmaceutical topicals, sunscreens

Properties: Yel. opalescent soft waxy paste, char. odor; disp. in castor oil, min. oil, ethanol, cyclomethicone, IPM; insol. in water, propylene glycol; sp.gr. 0.85; m.p. 30 C; b.p. > 150 C;
Trade Name Reference

- **Pelemol® TGC** [Phoenix](http://www.phoenix-chem.com)
  - **Chem. Descrip.:** Trioctyldodecyl citrate
  - **CAS:** 126121-35-5
  - **Uses:** Emollient used in pharmaceutical topicals; wetting agent for pigments
  - **Properties:** Cl. to sl. yel. sl. visc. oily liq., low odor; misc. with castor oil, min. oil, cyclomethicone, IPM; insol. in water, ethanol, propylene glycol; sp.gr. 1.01 g/ml; acid no. 5 max.; sapon. no. 135-165; flash pt. (TCC) > 200 F; nonionic; 100% act.
  - **Toxicology:** Nonirritating to skin and eyes; nontoxic orally; skin exposure can cause irritation; ingestion may cause nausea, vomiting, abdominal pain; inhalation in high concs. may cause coughing, headache, nausea
  - **Precaution:** Incompat. with strong oxidizers and reducing agents
  - **Hazardous Decomp. Prods.:** COx
  - **Storage:** Protect from freezing and boiling

- **Pellethane® 2102-55D** [Dow Plastics](http://www.dow.com/plastics)
  - **Chem. Descrip.:** Thermoplastic PU elastomer (polyester polycaprolactone resin) See Polyurethane elastomer, thermoplastic
  - **Uses:** Tough, high-performance, wear-resist. material providing clarity, chem. resist., flexibility for health care (tubing, catheter components, transdermal patches) applics.
  - **Features:** Can be used uncured or cured
  - **Properties:** Sp.gr. 1.22; melt flow 40 g/10 min (5 kg, 224 C); tens. str. 43 MPa (break); tens. elong. 450% (break); tear str. 262,650 N/m; Shore hardness 65D; mold shrinkage 0.007-0.010 mm/mm

- **Pellethane® 2102-75A** [Dow Plastics](http://www.dow.com/plastics)
  - **Chem. Descrip.:** Thermoplastic PU elastomer (polyester polycaprolactone resin) See Polyurethane elastomer, thermoplastic
  - **Uses:** Tough, high-performance, wear-resist. material providing clarity, chem. resist., flexibility for health care (tubing, catheter components, transdermal patches) applics.
  - **Features:** Can be used uncured or cured
  - **Properties:** Sp.gr. 1.17; melt flow 25 g/10 min (1.2 kg, 224 C); tens. str. 35 MPa (break); tens. elong. 550% (break); tear str. 87,550 N/m; Shore hardness 77A; mold shrinkage 0.012-0.016 mm/mm

- **Pellethane® 2102-80A** [Dow Plastics](http://www.dow.com/plastics)
  - **Chem. Descrip.:** Thermoplastic PU elastomer (polyester polycaprolactone resin) See Polyurethane elastomer, thermoplastic
  - **Uses:** Tough, high-performance, wear-resist. material providing clarity, chem. resist., flexibility for health care (tubing, catheter components, transdermal patches) applics.
  - **Features:** Can be used uncured or cured
  - **Properties:** Sp.gr. 1.18; melt flow 5 g/10 min (8.7 kg, 190 C); tens. str. 40 MPa (break); tens. elong. 550% (break); tear str. 105,060 N/m; Shore hardness 83A; mold shrinkage 0.012-0.016 mm/mm

- **Pellethane® 2102-85A** [Dow Plastics](http://www.dow.com/plastics)
  - **Chem. Descrip.:** Thermoplastic PU elastomer (polyester polycaprolactone resin) See Polyurethane elastomer, thermoplastic
  - **Uses:** Tough, high-performance, wear-resist. material providing clarity, chem. resist., flexibility for health care (tubing, catheter components, transdermal patches) applics.
  - **Features:** Can be used uncured or cured
  - **Properties:** Sp.gr. 1.18; melt flow 31 g/10 min (2.16 kg, 224 C); tens. str. 40 MPa (break); tens. elong. 550% (break); tear str. 140,060 N/m; Shore hardness 58D; mold shrinkage 0.008-0.011 mm/mm
Trade Name Reference

(1.2 kg, 224 C); tens. str. 36 MPa (break); tens. elong. 500% (break); tear str. 91,052 N/m; Shore hardness 88A; mold shrinkage 0.011-0.015 mm/mm

Chem. Descrip.: Thermoplastic PU elastomer (polyester polycaprolactone resin) See Polyurethane elastomer, thermoplastic
Uses: Tough, high-performance, wear-resist. material providing clarity, chem. resist., flexibility for health care (tubing, catheter components, transdermal patches) applics.
Features: Can be used uncured or cured
Properties: Sp.gr. 1.06; melt flow 12 g/10 min (8.7 kg, 190 C); tens. str. 26 MPa (break); tens. elong. 730% (break); tear str. 66,538 N/m; Shore hardness 72A; mold shrinkage 0.014-0.018 mm/mm

Pellethane® 2102-90AE [Dow Plastics http://www.dow.com/plastics]
Chem. Descrip.: Thermoplastic PU elastomer (polyester polycaprolactone resin) See Polyurethane elastomer, thermoplastic
Uses: Tough, high-performance, wear-resist. material providing clarity, chem. resist., flexibility for health care (tubing, catheter components, transdermal patches) applics.
Features: Can be used uncured or cured
Properties: Sp.gr. 1.20; melt flow 11 g/10 min (1.2 kg, 224 C); tens. str. 43 MPa (break); tens. elong. 440% (break); tear str. 131,325 N/m; Shore hardness 93A; mold shrinkage 0.009-0.013 mm/mm

Pellethane® 2102-90AR [Dow Plastics http://www.dow.com/plastics]
Chem. Descrip.: Thermoplastic PU elastomer (polyester polycaprolactone resin) See Polyurethane elastomer, thermoplastic
Uses: Tough, high-performance, wear-resist. material providing clarity, chem. resist., flexibility for health care (tubing, catheter components, transdermal patches) applics.
Features: Can be used uncured or cured
Properties: Sp.gr. 1.20; melt flow 28 g/10 min (1.2 kg, 224 C); tens. str. 41 MPa (break); tens. elong. 525% (break); tear str. 131,325 N/m; Shore hardness 93A; mold shrinkage 0.009-0.013 mm/mm

Pellethane® 2103-80AE [Dow Plastics http://www.dow.com/plastics]
Chem. Descrip.: Thermoplastic PU elastomer (polytetramethylene glycol ether resin) See Polyurethane elastomer, thermoplastic
Uses: Tough, high-performance, wear-resist. material providing clarity, chem. resist., flexibility for health care (tubing, catheter components, transdermal patches) applics.
Features: Can be used uncured or cured
Properties: Sp.gr. 1.13; melt flow 40 g/10 min (1.2 kg, 224 C); tens. str. 34 MPa (break); tens. elong. 600% (break); tear str. 80,546 N/m; Shore hardness 83A; mold shrinkage 0.012-0.016 mm/mm

Pellethane® 2103-80AEN [Dow Plastics http://www.dow.com/plastics]
Chem. Descrip.: Thermoplastic PU elastomer (polytetramethylene glycol ether resin) See Polyurethane elastomer, thermoplastic
Uses: Tough, high-performance, wear-resist. material providing clarity, chem. resist., flexibility for health care (tubing, catheter components, transdermal patches) applics.
Features: Can be used uncured or cured
Properties: Sp.gr. 1.13; melt flow 15 g/10 min (8.7 kg, 190 C); tens. str. 35 MPa (break); tens. elong. 580% (break); tear str. 80,546 N/m; Shore hardness 83A; mold shrinkage 0.012-0.016 mm/mm

Chem. Descrip.: Thermoplastic PU elastomer

(1.2 kg, 224 C); tens. str. 36 MPa (break); tens. elong. 500% (break); tear str. 91,052 N/m; Shore hardness 88A; mold shrinkage 0.011-0.015 mm/mm

Chem. Descrip.: Thermoplastic PU elastomer (polyester polycaprolactone resin) See Polyurethane elastomer, thermoplastic
Uses: Tough, high-performance, wear-resist. material providing clarity, chem. resist., flexibility for health care (tubing, catheter components, transdermal patches) applics.
Features: Can be used uncured or cured
Properties: Sp.gr. 1.06; melt flow 12 g/10 min (8.7 kg, 190 C); tens. str. 26 MPa (break); tens. elong. 730% (break); tear str. 66,538 N/m; Shore hardness 72A; mold shrinkage 0.014-0.018 mm/mm

Pellethane® 2102-90AE [Dow Plastics http://www.dow.com/plastics]
Chem. Descrip.: Thermoplastic PU elastomer (polyester polycaprolactone resin) See Polyurethane elastomer, thermoplastic
Uses: Tough, high-performance, wear-resist. material providing clarity, chem. resist., flexibility for health care (tubing, catheter components, transdermal patches) applics.
Features: Can be used uncured or cured
Properties: Sp.gr. 1.20; melt flow 11 g/10 min (1.2 kg, 224 C); tens. str. 43 MPa (break); tens. elong. 440% (break); tear str. 131,325 N/m; Shore hardness 93A; mold shrinkage 0.009-0.013 mm/mm

Pellethane® 2102-90AR [Dow Plastics http://www.dow.com/plastics]
Chem. Descrip.: Thermoplastic PU elastomer (polyester polycaprolactone resin) See Polyurethane elastomer, thermoplastic
Uses: Tough, high-performance, wear-resist. material providing clarity, chem. resist., flexibility for health care (tubing, catheter components, transdermal patches) applics.
Features: Can be used uncured or cured
Properties: Sp.gr. 1.20; melt flow 28 g/10 min (1.2 kg, 224 C); tens. str. 41 MPa (break); tens. elong. 525% (break); tear str. 131,325 N/m; Shore hardness 93A; mold shrinkage 0.009-0.013 mm/mm

Pellethane® 2103-80AE [Dow Plastics http://www.dow.com/plastics]
Chem. Descrip.: Thermoplastic PU elastomer (polytetramethylene glycol ether resin) See Polyurethane elastomer, thermoplastic
Uses: Tough, high-performance, wear-resist. material providing clarity, chem. resist., flexibility for health care (tubing, catheter components, transdermal patches) applics.
Features: Can be used uncured or cured
Properties: Sp.gr. 1.13; melt flow 40 g/10 min (1.2 kg, 224 C); tens. str. 34 MPa (break); tens. elong. 600% (break); tear str. 80,546 N/m; Shore hardness 83A; mold shrinkage 0.012-0.016 mm/mm

Pellethane® 2103-80AEN [Dow Plastics http://www.dow.com/plastics]
Chem. Descrip.: Thermoplastic PU elastomer (polytetramethylene glycol ether resin) See Polyurethane elastomer, thermoplastic
Uses: Tough, high-performance, wear-resist. material providing clarity, chem. resist., flexibility for health care (tubing, catheter components, transdermal patches) applics.
Features: Can be used uncured or cured
Properties: Sp.gr. 1.13; melt flow 15 g/10 min (8.7 kg, 190 C); tens. str. 35 MPa (break); tens. elong. 580% (break); tear str. 80,546 N/m; Shore hardness 83A; mold shrinkage 0.012-0.016 mm/mm

Chem. Descrip.: Thermoplastic PU elastomer

Regulatory: FDA 21CFR §177.2600; NSF Std.
Trade Name Reference

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Properties: Sp.gr. 1.13; tens. str. 28 MPa (break); tens. elong. 450% (break); tear str. 87,550 N/m; Shore hardness 83A; mold shrinkage 0.012-0.016 mm/mm

Pelletthane® 2103-80PF [Dow Plastics http://www.dow.com/plastics]
Chem. Descrip.: Thermoplastic PU elastomer (polytetramethylene glycol ether resin) See Polyurethane elastomer, thermoplastic
Uses: Tough, high-performance, wear-resist. material providing clarity, chem. resist., flexibility for health care (tubing, catheter components, transdermal patches) applics.
Features: Can be used uncured or cured
Properties: Sp.gr. 1.1; melt flow 30 g/10 min (8.7 kg, 190 C); tens. str. 26 MPa (break); tens. elong. 650% (break); tear str. 78,795 N/m; Shore hardness 83A; mold shrinkage 0.012-0.016 mm/mm

Pelletthane® 2103-85AE [Dow Plastics http://www.dow.com/plastics]
Chem. Descrip.: Thermoplastic PU elastomer (polytetramethylene glycol ether resin) See Polyurethane elastomer, thermoplastic
Uses: Tough, high-performance, wear-resist. material providing clarity, chem. resist., flexibility for health care (tubing, catheter components, transdermal patches) applics.
Features: Can be used uncured or cured
Properties: Sp.gr. 1.1; melt flow 7 g/10 min (8.7 kg, 190 C); tens. str. 37 MPa (break); tens. elong. 520% (break); tear str. 105,060 N/m; Shore hardness 91A; mold shrinkage 0.010-0.014 mm/mm

Pelletthane® 2355-85ABR [Dow Plastics http://www.dow.com/plastics]
Chem. Descrip.: Thermoplastic PU elastomer (polyester polyadipate resin) See Polyurethane elastomer, thermoplastic
Uses: For health care (tubing, catheter components, transdermal patches) applics.
Regulatory: FDA and USDA compliance
Properties: Sp.gr. 1.18; melt flow 39 g/10 min (8.7 kg, 190 C); tens. str. 31 MPa (break); tens. elong. 600% (break); tear str. 78,795 N/m; Shore hardness 87A; mold shrinkage 0.012-0.016 mm/mm

Pelletthane® 2363-55D [Dow Plastics http://www.dow.com/plastics]
Chem. Descrip.: Thermoplastic PU elastomer (polytetramethylene glycol ether) See Polyurethane elastomer, thermoplastic
Uses: Health care resin; tough, high-performance, wear-resist. material providing clarity, chem. resist., flexibility for health care (tubing, catheter components, transdermal patches) applics.
Features: Can be used uncured or cured
Properties: Sp.gr. 1.22; melt flow 13 g/10 min (8.7 kg, 190 C); tens. str. 35 MPa (break); tens. elong. 450% (break); tear str. 105,060 N/m; Shore hardness 94A
Trade Name Reference

**Regulatory:** USP Class VI compliance

**Properties:** Sp.gr. 1.15; melt flow 10 g/10 min (2.16 kg, 224 C); tens. str. 48 MPa (break); tens. elong. 390% (break); tear str. 113,815 N/m; Shore hardness 55D; mold shrinkage 0.008-0.011 mm/mm

**Pellethane® 2363-55DE** [Dow Plastics http://www.dow.com/plastics]

**Chem. Descrip.:** Thermoplastic PU elastomer (polytetramethylene glycol ether) See Polyurethane elastomer, thermoplastic

**Uses:** Health care resin; tough, high-performance, wear-resist. material providing clarity, chem. resist., flexibility for health care (tubing, catheter components, transdermal patches) apps.

**Features:** Can be used uncured or cured

**Regulatory:** USP Class VI compliance

**Properties:** Sp.gr. 1.15; melt flow 30 g/10 min (2.16 kg, 224 C); tens. str. 45 MPa (break); tens. elong. 450% (break); tear str. 105,060 N/m; Shore hardness 53D; mold shrinkage 0.009-0.013 mm/mm

**Pellethane® 2363-65D** [Dow Plastics http://www.dow.com/plastics]

**Chem. Descrip.:** Thermoplastic PU elastomer (polytetramethylene glycol ether) See Polyurethane elastomer, thermoplastic

**Uses:** Health care resin; tough, high-performance, wear-resist. material providing clarity, chem. resist., flexibility for health care (tubing, catheter components, transdermal patches) apps.

**Features:** Can be used uncured or cured

**Regulatory:** USP Class VI compliance

**Properties:** Sp.gr. 1.17; melt flow 36 g/10 min (5 kg, 224 C); tens. str. 47 MPa (break); tens. elong. 250% (break); tear str. 192,610 N/m; Shore hardness 62D; mold shrinkage 0.005-0.009 mm/mm

**Pellethane® 2363-80A** [Dow Plastics http://www.dow.com/plastics]

**Chem. Descrip.:** Thermoplastic PU elastomer (polytetramethylene glycol ether) See Polyurethane elastomer, thermoplastic

**Uses:** Health care resin; tough, high-performance, wear-resist. material providing clarity, chem. resist., flexibility for health care (tubing, catheter components, transdermal patches) apps.

**Features:** Can be used uncured or cured

**Regulatory:** USP Class VI compliance

**Properties:** Sp.gr. 1.13; melt flow 10 g/10 min (1.2 kg, 224 C); tens. str. 31 MPa (break); tens. elong. 550% (break); tear str. 82,297 N/m; Shore hardness 82A; mold shrinkage 0.012-0.016 mm/mm

**Pellethane® 2363-80AE** [Dow Plastics http://www.dow.com/plastics]

**Chem. Descrip.:** Thermoplastic PU elastomer (polytetramethylene glycol ether) See Polyurethane elastomer, thermoplastic

**Uses:** Health care resin; tough, high-performance, wear-resist. material providing clarity, chem. resist., flexibility for health care (tubing, catheter components, transdermal patches) apps.

**Features:** Can be used uncured or cured

**Regulatory:** USP Class VI compliance

**Properties:** Sp.gr. 1.12; melt flow 12 g/10 min (8.7 kg, 190 C); tens. str. 29 MPa (break); tens. elong. 650% (break); tear str. 73,542 N/m; Shore hardness 84A; mold shrinkage 0.012-0.016 mm/mm
N/m; Shore hardness 90A; mold shrinkage 0.009-0.013 mm/mm

**Pellethane® 2363-90AE** [Dow Plastics](http://www.dow.com/plastics)

**Chem. Descrip.:** Thermoplastic PU elastomer (polytetramethylene glycol ether)  See Polyurethane elastomer, thermoplastic

**Uses:** Health care resin; tough, high-performance, wear-resist. material providing clarity, chem. resist., flexibility for health care (tubing, catheter components, transdermal patches) apps.

**Features:** Can be used uncured or cured

**Regulatory:** USP Class VI compliance

**Properties:** Sp.gr. 1.14; melt flow 30 g/10 min (1.2 kg, 224 C); tens. str. 41 MPa (break); tens. elong. 560% (break); tear str. 94,554 N/m; Shore hardness 90A; mold shrinkage 0.010-0.014 mm/mm

**Pemulen® TR-1 NF Polymer** [Noveon](http://www.carbopol.com; http://www.noveoncoatings.com)

**Chem. Descrip.:** Acrylates/C10-30 alkyl acrylate crosspolymer

**Uses:** O/w emulsifier and rheology modifier for low-irritancy pharmaceutical creams, lotions, high-clarity topical gels, low or no alcohol fragrance prods., skin care prods., ophthalmic emulsions

**Regulatory:** USP/NF Carbomer Copolymer Type A compliance; JSCI compliance

**Properties:** Wh. fluffy powd., sl. acetic odor; 2-6 µ particle size; sp.gr. 1.41; bulk dens. 0.19 - 0.24 g/ml; visc. 6500-15,500 cps; acid no. 700-750; pH 2.5-3.0 (1% aq. disp.); anionic; 100% conc.

**Toxicology:** Sl. skin irritant; borderline eye irritant

**Environmental:** LC50 (daphnia magna, 96 h) 168-280 mg/l; not biodegradable; do not inhibit waste treatment bacteria; do not pass through typical wastewater treatment to the environment, removed with biomass

**HMIS:** Health 0, Flammability 1, Reactivity 0

**Storage:** 2 yr. min. shelf life stored in sealed containers, protected from moisture and extreme temps.; hygroscopic

**Pemulen® TR-2 NF Polymer** [Noveon](http://www.carbopol.com; http://www.noveoncoatings.com)

**Chem. Descrip.:** Proprietary acrylic polymer

**Uses:** O/w emulsifier and rheology modifier for virtually all hydrophobic substances, for low-irritancy pharmaceutical creams, lotions, high-clarity topical gels, low or no alcohol fragrance prods., ophthalmic emulsions

**Regulatory:** USP/NF Carbomer Copolymer Type A compliance; JSCI compliance

**Properties:** Wh. fluffy powd., sl. acetic odor; 2-6 µ particle size; sp.gr. 1.41; bulk dens. 0.19 - 0.24 g/ml; visc. 6500-15,500 cps; acid no. 700-750; pH 2.5-3.0 (1% aq. disp.); anionic; 100% conc.

**Toxicology:** Sl. skin irritant; borderline eye irritant

**Environmental:** LC50 (daphnia magna, 96 h) 168-280 mg/l; not biodegradable; do not inhibit waste treatment bacteria; do not pass through typical wastewater treatment to the environment, removed with biomass

**HMIS:** Health 0, Flammability 1, Reactivity 0

**Storage:** 2 yr. min. shelf life stored in sealed containers, protected from moisture and extreme temps.; hygroscopic

**Penreco Amber** [Penreco](http://www.penreco.com)

**Chem. Descrip.:** Petrolatum USP

**CAS 8027-32-5; EINECS/ELINCS 232-373-2**

**Uses:** Emollient, base, lubricant, binder, protective coating, and carrier for pharmaceuticals

**Regulatory:** FDA 21CFR 172.880, 178.3700, 573.720; OSHA nonhazardous; DOT nonhazardous

**Properties:** Yel. semisolid, odorless; sol. in hydrocarbons; sp.gr. 0.86 (60 F); visc. 68-82 SUS (210 F); m.p. 122-135 F; congeal pt. 123 F; solid. pt. 122 F; flash pt. (COC) 400 F; 100% act.

**Toxicology:** LD50 (oral, rat) >5 g/kg; LD50 (dermal, rat) 2 g/kg; ACGIH 5 mg/m³ TWA, 10 mg/m³ STEL; pract. nontoxic by ingestion, but laxative props. may cause abdominal cramps, diarrhea; minimally irritating to eyes and skin on direct contact; STEL 10 mg/m³ (as oil mist); TSCA listed

**Precaution:** May react with strong oxidizing agents

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**Handbook of Pharmaceutical Additives, Third Edition** 530
Hazardous Decomp. Prods.: Combustion:
dense smoke, CO, CO₂, other oxides
Storage: Store in closed containers away from
heat, sparks, open flame, oxidizers

Penreco Blond [Penreco
http://www.penreco.com]
Chem. Descrip.: Petrolatum USP
CAS 8027-32-5; EINECS/ELINCS 232-373-2
Uses: Emollient, base, lubricant, binder,
protective coating, and carrier for
pharmaceuticals
Regulatory: FDA 21CFR 172.880, 178.3700,
573.720; OSHA nonhazardous; DOT
nonhazardous
Properties: Yel. semisolid, odorless; sol. in
hydrocarbons; sp.gr. 0.86 (60 F); visc. 68-82
SUS (210 F); m.p. 122-135 F; congeal pt. 123
F; solid. pt. 122 F; flash pt. (COC) 400 F;
100% act.
Toxicology: LD50 (oral, rat) >5 g/kg; LD50
(dermal, rat) 2 g/kg; ACGIH 5 mg/m³ TWA,
10 mg/m³ STEL; pract. nontoxic by
ingestion, but laxative props. may cause
abdominal cramps, diarrhea; minimally
irritating to eyes and skin on direct contact;
STEL 10 mg/m³ (as oil mist); TSCA listed
Precaution: May react with strong oxidizing
agents

Penreco Cream [Penreco
http://www.penreco.com]
Chem. Descrip.: Wh. petrolatum USP
CAS 8027-32-5; EINECS/ELINCS 232-373-2
Uses: Emollient, base, lubricant, binder,
protective coating, and carrier for
pharmaceuticals
Regulatory: FDA 21CFR 172.880, 178.3700,
573.720; OSHA nonhazardous; DOT
nonhazardous
Properties: Wh. visc. material, odorless; sol. in
hydrocarbons; sp.gr. 0.86 (60/60 F); visc. 64-
75 SUS (210 F); m.p. 122-135 F; b.p. 650 F;
(COC) 400 F
Toxicology: Pract. nontoxic by ingestion, but
laxative props. may cause abdominal
cramps, diarrhea; minimally irritating to
eyes and skin on direct contact; STEL 10
mg/m³ (as oil mist); TSCA listed
Precaution: May react with strong oxidizing
agents

Penreco Lily [Penreco
http://www.penreco.com]
Chem. Descrip.: Wh. petrolatum USP
CAS 8027-32-5; EINECS/ELINCS 232-373-2
Uses: Emollient, base, lubricant, binder,
protective coating, and carrier for
pharmaceuticals
Regulatory: FDA 21CFR 172.880, 178.3700,
573.720; OSHA nonhazardous; DOT
nonhazardous
Properties: Wh. semisolid, odorless; sol. in
hydrocarbons; sp.gr. 0.87 (60/60 F); visc. 64-
75 SUS (210 F); m.p. 122-125 F; b.p. 650 F;
congeal pt. 120 F; solid. pt. 119 F; flash pt.
(COC) 400 F
Toxicology: Pract. nontoxic by ingestion, but
laxative props. may cause abdominal
cramps, diarrhea; minimally irritating to
eyes and skin on direct contact; STEL 10
mg/m³ (as oil mist); TSCA listed
Precaution: May react with strong oxidizing
agents

Penreco Regent [Penreco
http://www.penreco.com]
Chem. Descrip.: Wh. petrolatum USP
CAS 8027-32-5; EINECS/ELINCS 232-373-2
Uses: Emollient, base, and carrier for
pharmaceuticals (creams, lotions, petrol.
jellies, ophthalmic ointments, topical
ointments, dental adhesives)
Regulatory: FDA 21CFR 172.880, 178.3700,
573.720; OSHA nonhazardous; DOT
nonhazardous
Properties: Wh. semisolid, odorless; sol. in
hydrocarbons; sp.gr. 0.87 (60/60 F); visc. 57-
70 SUS (210 F); m.p. 125-130 F; b.p. 650 F;
congeal pt. 120 F; solid. pt. 119 F; flash pt.
(COC) 400 F
Toxicology: Pract. nontoxic by ingestion, but
laxative props. may cause abdominal
cramps, diarrhea; minimally irritating to
eyes and skin on direct contact; STEL 10
mg/m³ (as oil mist); TSCA listed
Precaution: May react with strong oxidizing
agents
### Trade Name Reference

**agents**

**Hazardous Decomp. Prods.:** Combustion: dense smoke, CO, CO₂, other oxides  
**Storage:** Store in closed containers away from heat, sparks, open flame, oxidizers

**Penreco Royal** [Penreco](http://www.penreco.com)  
Chem. Descrip.: Petroleum USP  
CAS **8009-03-8**: EINECS/ELINCS **232-373-2**  
**Uses:** Emollient, base, lubricant, binder, protective coating, and carrier for pharmaceuticals  
**Regulatory:** FDA 21CFR 172.880, 178.3700, 573.720; OSHA nonhazardous; DOT nonhazardous  
**Properties:** Yel. semisolid, odorless; sol. in hydrocarbons; sp.gr. 0.86 (60 F); visc. 57-70 SUS (210 F); m.p. 118-130 F; congeal pt. 118 F; solid. pt. 115 F; flash pt. (COC) 400 F; 100% act.  
**Toxicology:** Pract. nontoxic by ingestion, but laxative props. may cause abdominal cramps, diarrhea; minimally irritating to eyes and skin on direct contact; STEL 10 mg/m³ (as oil mist); TSCA listed  
**Precaution:** May react with strong oxidizing agents

**Penreco Snow** [Penreco](http://www.penreco.com)  
Chem. Descrip.: Wh. petroleum USP  
CAS **8027-32-5**: EINECS/ELINCS **232-373-2**  
**Uses:** Emollient, base, solvent, and carrier for pharmaceuticals (creams, lotions, petrol. jellies, ophthalmic ointments, topical ointments, dental adhesives and impressions)  
**Regulatory:** USP, FDA 21CFR 172.880, 178.3700, 573.720; OSHA nonhazardous; DOT nonhazardous  
**Properties:** Wh. opaque semisolid, odorless; sol. in hydrocarbons; sp.gr. 0.86 (60/60 F); visc. 64-75 SUS (210 F); vapor pressure < 1 mm Hg (70 F); m.p. 122-135 F; b.p. 650 F; congeal pt. 123 F; solid. pt. 121 F; flash pt. (COC) 400 F  
**Toxicology:** Pract. nontoxic by ingestion, but laxative props. may cause abdominal cramps, diarrhea; minimally irritating to eyes and skin on direct contact; STEL 10 mg/m³ (as oil mist); TSCA listed  
**Precaution:** May react with strong oxidizing agents
Trade Name Reference

- **eyes and skin** on direct contact; STEL 10 mg/m³ (as oil mist); TSCA listed

*Precaution:* May react with strong oxidizing agents

*Hazardous Decomp. Prods.: Combustion:*

dense smoke, CO, CO₂, other oxides

*Storage:* Store in closed containers away from heat, sparks, open flame, oxidizers


*Chem. Descrip.: 1-Pentanol (45%), 2-methyl-1-butanol (55%) See n-Amyl alcohol*

*UN 1105*

*Uses:* Extraction solvent in separation of penicillin

*Regulatory:* SARA §311 acute health/fire hazard

*Properties:* Colorless cl. liq.; char. fusel oil odor; sol. 26 g/l in water; misc. with common org. solvs.; sp.gr. 0.815 (20 C); visc. ≈ 4.3 mPa·s (20 C); vapor pressure 2.25 mm Hg (20 C); b.p. 135 C; acid no. 0.10 max.; pour pt. < -60 C; flash pt. (CC) 43 C; autoignition temp. 365 C; surf. tens. 25.6 mN/m (20 C); dielec. const. 15.3 (20 C)

*Toxicology:* LD₅₀ (oral, rat) 2.20-4.01 g/kg, (skin, rabbit) > 2000 mg/kg; LC₅₀ (inh., rat, 4 h) 2-20 mg/l, harmful by inh.; causes respiratory tract/eye irritation; mod. to severe skin irritant; may be harmful absorbed through skin; may cause CNS depression, headache, stupor, unconsciousness, nausea, dizziness, chest pain, breathing difficulty; severe mucous membrane irritant; narcotic effects if inh. in fairly high concs.; may be harmful by ing.; TSCA listed

*Environmental: Readily biodeg.; BOD₅ 0.59-0.87; low potential to bioaccumulate; EC₅₀ (daphnia magna, 24 h) 423-580 ppm, (E. coli) 961-1058 ppm; low acute toxicity to aquatic species; avoid run-off to storm sewers, ditches leading to waterways

*Precaution:* Flamm. liq. and vapor; flamm. limits in air 1.2-12.4 vol.% (1013 hPa); floats on water; may generate static charge; ground/bond equip. during transfer; avoid heat, sparks, flame, ignition sources; incompat. with sulfuric and other strong inorg. acids, aluminum, lead, oxidizing agents, peroxides, nitric acid, perchloric acid, chromium trioxide

**Hazardous Decomp. Prods.:** Thermal decomp. or combustion: CO₉

*HMIS: Health 2, Flammability 2, Reactivity 0*

*Storage:* Store away from moisture, direct sunlight, incompat. materials; keep tightly closed when not in use; open containers slowly to allow excess pressure to vent

**Pentasept M** [Trigon Chemie GmbH http://www.trigon.de.com]

*Chem. Descrip.: Cetrimide (15%) and chlorhexidine digluconate (1.5%) See Cetrimonium bromide*

*Uses:* Conc. disinfectant for pharmaceutical use

*Features:* Effective against gram positive and negative bacteria, and fungi

*Properties:* Yel. cl. liq.; sp.gr. 0.97-1.03; pH 5-7

*Use Level:* 35 ml/l liter of water (instruments, equip.); 35 ml/l 1 liter of alcohol (skin)

**Pentonium 4Br40** [Trigon Chemie GmbH http://www.trigon.de.com]

*Chem. Descrip.: Myrtrimonium bromide BP, ethanol (7-8%) See Alcohol*

*Uses:* Disinfectant; detergent sanitizer; antiseptic creams; purification of heparin

*Regulatory:* BP, EP, FP compliance

*Properties:* Colorless to pale yel. cl. visc. liq.; mild alcoholic odor; completely sol. in water; sol. in alcohol; sp.gr. 0.97-1.03; pH 5-7

**Pentonium 24-95USP** [Trigon Chemie GmbH http://www.trigon.de.com]

*Chem. Descrip.: Benzalkonium chloride CAS 8001-54-5*

*Uses:* Biocide for pharmaceuticals

*Properties:* Paste

**Pentonium 24 BP** [Trigon Chemie GmbH http://www.trigon.de.com]

*Chem. Descrip.: Alkyl (C12, C14) dimethyl benzyl ammonium chloride See Benzalkonium chloride CAS 8001-54-5*

*Uses:* Disinfectant; detergent sanitizer

*Properties: Hazen 100 max. color; pH 5.5-6.5 (2% aq.); cationic; 49-51% act.; 52-53% water

**Pentonium 24 BP** [Trigon Chemie GmbH http://www.trigon.de.com]

*Chem. Descrip.: Polyoxyethylene polyoxypropylene glycol See EO/PO block polymer or copolymer*

*Uses:* Plasticizer of tablet binders
Trade Name Reference

Peppermint Oil DMO [B D Aromatics
http://www.bdaromatics.com]
Chem. Descrip.: Mentha arvensis oil
CAS 68917-18-0; EINECS/ELINCS 290-058-5
Uses: Flavor for pharmaceuticals
Properties: Colorless to pale yel. oil; strong
penetrating peppermint odor; freely sol. in 4
volumes of 90% alcohol; sp.gr. 0.896-0.908;
ref. index 1.460-1.470

Pepsin 1:3000 Powder [Am. Labs
http://www.americanlaboratories.com]
Chem. Descrip.: Pepsin
CAS 9001-75-6; EINECS/ELINCS 232-629-3
Uses: Proteolytic enzyme for
pharmaceuticals; digests coagulated egg
albumen; enzyme for hydrolysis of
proteins; digestive aid in nutritional
formulas (tablets, capsules, powds.)
Properties: Off-wh. to lt. brn. powd.,
nonoffensive char. odor, salty taste; freely sol.
in water; pract. insol. in alcohol, chloroform,
ether; pH 3-4 (2%)
Storage: Preserve in tight containers with
moisture-proof liners, in cool, dry place

Pepsin 1:6000 [Am. Labs
http://www.americanlaboratories.com]
Chem. Descrip.: Pepsin
CAS 9001-75-6; EINECS/ELINCS 232-629-3
Uses: Proteolytic enzyme for
pharmaceuticals; digests coagulated egg
albumen; enzyme for hydrolysis of
proteins; digestive aid in nutritional
formulas (tablets, capsules, powds.)
Properties: Powd. or gran.
Storage: Preserve in tight containers with
moisture-proof liners, in cool, dry place

Pepsin 1:10,000 Powd. or Gran. [Am. Labs
http://www.americanlaboratories.com]
Chem. Descrip.: Pepsin
CAS 9001-75-6; EINECS/ELINCS 232-629-3
Uses: Proteolytic enzyme for
pharmaceuticals; digests coagulated egg
albumen; enzyme for hydrolysis of
proteins; digestive aid in nutritional
formulas (tablets, capsules, powds.)
Properties: Weak yel. to lt. brn. gran. or powd.,
nonoffensive char. odor, salty taste; freely sol.
in water; pract. insol. in alcohol, chloroform,
ether; pH 3-4 (2%)
Storage: Store @ R.T.

PeptiCLEC™-TR [Merck KGaA
http://www.merck.de]
Chem. Descrip.: Cross-linked enzyme crystals of
thermolysin
Uses: Regio- and stereoselective catalyst for
the synthesis of optically pure drugs and
peptides, esp. aspartame precursor
Properties: Dry powd. or slurry; insol. in water

Peptide CPC® [Solabia
http://www.solabia.com; Barnet Prods.
http://www.barnetproducts.com]
Chem. Descrip.: Polylysine sol’n. with
preservatives (methylparaben, ethylparaben,
propylparaben, butylparaben)
Uses: Collagen chrono-protector peptide for
prevention of skin aging; protects biomech.
integrity of collagen fibers and suppleness of
skin; rec. for day and night creams, sun prods.,
anti-aging preps.
Properties: Pale yel. cl. liq.; very sl. char. odor;
sol. in water, propylene glycol, glycerol; insol.
in ethanol; nonmisc. with oils; sp.gr. 1.160;
flash pt. > 100 C; ref. index 1.420; pH 6.5±0.7
Use Level: 0.3-2%
Toxicology: LD50 (oral, rat) > 3 g/kg; sl. eye
irritant; nonirritating to skin; very sl.
allergenic; nonmutagenic
Storage: Store in tight containers with
moisture-proof liners, in cool, dry place

Perfecta® [Chempura
http://www.chempura.com]
Chem. Descrip.: Petrolatum USP
CAS 8027-32-5; EINECS/ELINCS 232-373-2
Uses: Carrier, lubricant, moisture barrier,
protectant, softener in pharmaceuticals,
dental adhesives, medicated ointments,
Trade Name Reference

sun care prods.

Features: Lightest color, med. consistency, high m.p.

Regulatory: FDA 21CFR §172.880

Properties: Lovibond 0.3Y color; visc. 9-14 cSt (100 C); m.p. 57-60 C

Permulpin® D [Koster Keunen http://www.kosterkeunen.com]

Chem. Descrip.: Derived from plant-based fatty alcohols

Uses: Viscosity modifier, consistency improver, and stabilizer in pharmaceutical ointments, salves, and creams

Features: Self-emulsifying; highly stable in acidic and basic media; compat. with most pharmaceutical ingredients

Properties: Wh. wax; m.p. 47-55 C; acid no. 1 max.; sapon. no 2 max.; iodine no. 2.0 max.; nonionic

Petrolan USP [RITA http://www.ritacorp.com]

Chem. Descrip.: Petroleum

CAS 8009-03-8; EINECS/ELINCS 232-373-2

Uses: Ointment base, emollient

Regulatory: USP

Properties: Wh. grease; sp. gr. 0.815 - 0.880; melting range 38-60 C; flash pt. 400 F (COC)

Toxicology: Minimal eye irritation 'not likely to be absorbed through human skin

Environmental: Biodegrad.

Precaution: Avoid oxidizing agents; wear goggles and gloves

Hazardous Decomp. Prods.: None

Storage: No special precautions necessary

Petrothene® GA 818-073 [Equistar http://www.equistarchem.com]

Chem. Descrip.: Broad m.w. LLDPE See Polyethylene, linear low density

CAS 9002-88-4

Uses: Blow molding and extrusion grade for medical, beverage and drip irrigation tubing, squeeze tubes and bottles for pharmaceutical prod. pkg.

Regulatory: FDA 21CFR §177.1520 compliant

Properties: Sp.gr. 0.920; melt index 0.7 g/10 min; Vicat soften. pt. 88 C; tens. str. 2170 psi (break), 1550 psi (yield); elong. 750% (break), 15% (yield); hardness (Shore D) 51; distort. temp. 48 C (66 psi)

PG USP [Lyondell http://www.lyondell.com]

Chem. Descrip.: Propylene glycol

CAS 57-55-6; EINECS/ELINCS 200-338-0

Uses: Stabilizer, emulsifier, texturizer, antioxidant, anticaking agent, humectant for pharmaceuticals, dental whiteners


Properties: APHA 10 max. color; sol. in water; m.w. 76.1; sp.gr. 1.035 (20/20 C); dens. 8.62 lb/gal (20 C); visc. 46 cps; vapor pressure < 0.1 mm Hg (20 C); b.p. 189 C; flash pt. (Seta) 211 F; ref. index 1.431; surf. tens. 38 dynes/cm; sp. heat 0.593 Cal/g°C; 99.5% min. assay

HMIS: Health 0, Flammability 1, Reactivity 0

Pharmaburst [SPI Pharma http://www.spipharma.com]

Chem. Descrip.: Proprietary blend

Uses: Quick dissolving delivery platform for pharmaceutical actives; coprocessed excipient system; masks taste and grittiness of the actives

Features: Allows rapid disintegration and low adhesion to punch faces; highly compactable

Regulatory: USP, EP, cGMP compliant

Properties: Wh. free-flowing powd.; sol. in water; bulk dens. 0.45 g/ml; dens. 0.536 g/ml (tapped)

Use Level: 50-80%.

Toxicology: Dust can cause sl. eye irritation

Environmental: Not dangerous to the environment

Precaution: Wear safety goggles and impervious gloves; avoid acids, oxidizers and breathing dust

Hazardous Ingredients: None

Hazardous Decomp. Prods.: COx

Storage: Store in tightly closed container in a well-ventilated place

Pharma-Carb® [Chr. Hansen Inc http://www.chr-hansen.com; Eigenmann & Veronelli http://www.eigver.it]

Chem. Descrip.: Natural calcium carbonate USP

CAS 1317-65-3; EINECS/ELINCS 207-439-9

Uses: Diluent, carrier for pharmaceuticals

Properties: Powd.; 12.5 µ avg. particle size; ≥ 100% through 200 mesh; bulk dens. 75 lb/ft³ (loose), 98 lb/ft³ (packed); 98% min. assay


Chem. Descrip.: Microcrystalline cellulose

Chem. Analysis: 3.0 - 5.0 % loss on drying

CAS 9004-34-6

Uses: Diluent for pharmaceutical wet
Regulatory: USP/NF, EP, JP
Properties: 50 µ avg. particle size; bulk dens. 0.26 - 0.32 g/ml; pH 5.0-7.0

Pharmacel® 102 [DMV Int'l. Pharma http://www.dmv-international.com; Eigenmann & Veronelli http://www.eigver.it]
Chem. Descrip.: Microcrystalline cellulose Ph.Eur., USP/NF, JP
Chem. Analysis: 3.0 - 5.0 % loss on drying
CAS 9004-34-6
Uses: Diluent for pharmaceutical direct compression
Features: High compressibility
Properties: 85 µ avg. particle size; bulk dens. 0.28 - 0.33 g/ml; pH 5.0-7.0

Pharmacel® 105 [DMV Int'l. Pharma http://www.dmv-international.com]
Chem. Descrip.: Microcrystalline cellulose Ph.Eur., USP/NF, JP
Chem. Analysis: 1.0 - 5.0 % loss on drying
CAS 9004-34-6
Uses: Binder for pharmaceuticals and stabilizing blends with micronized ingreds.
Properties: Wh. odorless microfine free-flowing powd.; tasteless; 20 µ avg. particle size; bulk dens. 0.20 - 0.30 g/ml; pH 5.0-7.0

Pharmacel® 112 [DMV Int'l. Pharma http://www.dmv-international.com]
Chem. Descrip.: Microcrystalline cellulose Ph.Eur., USP/NF, JP
CAS 9004-34-6
Uses: Binder for pharmaceuticals esp. moisture-sensitive apps.
Features: Low-moisture grade
Properties: pH 5.0-7.0

Pharmacel® 200 [DMV Int'l. Pharma http://www.dmv-international.com]
Chem. Descrip.: Microcrystalline cellulose Ph.Eur., USP/NF, JP
CAS 9004-34-6
Uses: Flow aid for more consistent direct compression in pharmaceuticals
Features: High dens. grade; prevents particle segregation during blending
Properties: 175 µ avg. particle size

Pharmacel® XL [DMV Int'l. Pharma http://www.dmv-international.com; Eigenmann & Veronelli http://www.eigver.it]
Chem. Descrip.: Croscarmellose sodium CAS 74811-65-7
Uses: Excipient, disintegrant for pharmaceutical solid dosage formulations (tablets, capsules, granules) for wet granulation and direct compression
Features: High water uptake and swelling; lower concs. needed compared to conventional disintegrants like starch
Regulatory: USP/NF, EP
Properties: Wh. to sl. off-wh. free-flowing, nonfibrous powd.; odorless; insol. in water and most organic solvents; pH 5-7; 10% max. moisture
Use Level: 2-5%
Toxicology: Nontoxic; nonirritating
Storage: 2 yr. shelf life in sealed pkgs.

Pharmagum™ M [SPI Pharma http://www.spipharma.com]
Chem. Descrip.: Gum base and mannitol, and isomalt See D-Mannitol
Chem. Analysis: 2.0% max. moisture
CAS 69-65-8; 64519-82-0; EINECS/ELINCS 200-711-8
Uses: Direct compression gum excipient; bioavailability enhancer
Features: 50% increase in gum base compared to that of Pharmagum S
Regulatory: USP, EP, FCC, FDA GRAS
Properties: Free-flowing powd.; 15% max. through #200 mesh; bulk dens. 0.50-0.70 g/ml; dens. 0.60-0.86 g/ml (tapped); 64-72% polyols
Toxicology: Dust can cause sl. eye irritation
Precaution: Avoid accumulation of airborne dusts; may react with strong acids or oxidizing agents.
Hazardous Ingredients: None
Hazardous Decomp. Prods.: CO, CO2, and/or low molecular weight hydrocarbons
Storage: Store in tightly closed container in a cool, dry place

Pharmagum™ S [SPI Pharma http://www.spipharma.com]
Chem. Descrip.: Mixt. of polyols and/or sugars with a chewing gum base
Uses: Excipient, compression agent, compaction agent, bioavailability enhancer for chewing gum delivery systems for nutraceutical and pharmaceutical actives, medicated chewing gums
Features: Can be directly compressed on std. tableting machines; good to exc. flow props.
Regulatory: FCC, FDA GRAS
Properties: Free-flowing powd.; 100% through
1000 µ mesh; bulk dens. 0.68 g/ml; dens. 0.772 g/ml (tapped)

Toxicology: Ing. overexposure can produce some discomfort and GI disturbances; symptoms are reversible and usually disappear when exposure stops; no skin sensitization reactions developed following application to 50 human subjects

Precaution: Avoid accumulation of airborne dusts; may react with strong acids or oxidizing agents.

Hazardous Ingredients: None

Hazardous Decomp. Prods.: CO, CO₂, and/or low molecular weight hydrocarbons

Storage: Keep container tightly closed and store at room temperature

Pharmalan Ph Eur [Croda Chem. Europe Ltd http://www.croda.co.uk]

Chem. Descrip.: Lanolin

CAS 8006-54-0; EINECS/ELINCS 232-348-6

Uses: Moisturizer, emollient, superfatting agent, and excipient in pharmaceutical topicals, ointments; o/w coemulsifier and w/o emulsifier

Features: Rich source of cholesterol and other sterols

Regulatory: EP

Properties: Yel.; m.p. 38-44 C

Use Level: Can be used full-strength

Toxicology: Nonirritant; TSCA listed

Pharmalan USP [Croda Chem. Europe Ltd http://www.croda.co.uk]

Chem. Descrip.: Lanolin USP

CAS 8006-54-0; EINECS/ELINCS 232-348-6

Uses: Moisturizer, emollient, active ingredient, and excipient in pharmaceutical topicals for human and animal health

Regulatory: USP

Properties: Yel.; m.p. 38-44 C

Use Level: Can be used full-strength

Toxicology: Nonirritant; TSCA listed

Pharmasolve™ [ISP http://www.ispcorp.com]

Chem. Descrip.: N-Methyl-2-pyrrolidone, GMP grade

CAS 872-50-4; EINECS/ELINCS 212-828-1

UN 1993

Uses: Solvent, solubilizer for pharmaceuticals; reaction solvent in many syntheses incl. vitamin E precursor; solubilizer, bioavailability enhancer for topicals; skin penetration enhancer; bioadhesive; spray bandages; transdermals; injectables

Features: Nonaq.; increases water sol. of chloramphenicol, procaine, other therapeutic compds.; increases sol'n. stability of drugs in aq. sol'n.

Regulatory: DOT (bulk) Combustible liq.; IATA, IMO not regulated; Canada DSL; Europe EINECS; Japan ENCS; Australia AICS

Properties: Cl. liq., amine-like odor; misc. with water, most org. solvs. incl. alcohols, ketones, aromatic and chlorinated hydrocarbons; sp.gr. 1.027 (25/4 C); visc. 1.65 cp; vapor pressure 0.29 mm Hg (20 C); m.p. -24.4 C; b.p. 202 C; flash pt.(OC) 95 C; ref. index 1.465-1.470; pH sl. alkaline; 99.85% min. purity

Toxicology: CEL 100 ppm; low toxicity; LD50 (oral, rat) 4200 mg/kg, (dermal, rabbit) 8 g/kg; LC50 (inh., rat) > 400 ppm; causes eye irritation; not a primary skin irritant; nonsensitizing; prolonged or repeated exposure causes severe skin irritation; TSCA listed

Environmental: LC50 (bluegill) 832 mg/l, (fathead minnow) 1072 mg/l, (trout) 3048 mg/l; biodeg.

Precaution: Combustible; flamm. limits 1.3-9.5%; noncorrosive; Incompat. with strong oxidizing or reducing agents; heated to decomp., emits CO and NOₓ fumes

Hazardous Decomp. Prods.: CO, oxides of nitrogen

HMIS: Health 2, Flammability 2, Reactivity 0

Storage: Keep container and vapors out of direct sunlight, away from heat, sparks, flame; keep container closed

Pharmasorb® Colloidal [Engelhard]

Chem. Descrip.: Attapulgite clay

CAS 1337-76-4

Uses: Absorbent, adsorbent for dry diarrhea treatment preparations (e.g., tablets), as well as suspending, thickening and tableting

Features: High volatile matter grade

Properties: Creamy powd.; odorless and bland taste

Pharmasorb® Regular [Engelhard]

Chem. Descrip.: Attapulgite clay

CAS 1337-76-4

Uses: Absorbent, adsorbent for dry diarrhea treatment preparations (e.g., tablets), as well as suspending, thickening and tableting

Features: Low volatile matter grade; recommended for use in aqueous applications

Properties: Creamy powd.; odorless and bland taste
Pharmatone [Am. Labs
_http://www.americanlaboratories.com_
Chem. Descrip.: High proteose peptone from pork tissues
Uses: Pharmaceutical additive for tonics and elixirs; protein source; in bacteriological media
Properties: 60 mesh powd.; completely sol. in 2% sol'n.; pH 5.5-6.5; 93.75% protein, 15% N

Pharmatone® 50 M [DMV Int'l. Pharma
_http://www.dmv-international.com_
Chem. Descrip.: Sieved lactose monohydrate
Chem. Analysis: 5% max. loss on drying
EINECS/ELINCS 200-559-2
Uses: Diluent and flow aid for pharmaceutical direct compression of capsules, sachets, and powder blends; filler in hard gelatin capsules
Regulatory: USP/NF, EP, JP
Properties: Free-flowing cryst.; avg. particle size 290 μ; tapped dens. 825 g/l

Pharmatose® 80 M [DMV Int'l. Pharma
_http://www.dmv-international.com_
Chem. Descrip.: Sieved lactose monohydrate
Chem. Analysis: 5% max. loss on drying
EINECS/ELINCS 200-559-2
Uses: Diluent and flow aid for pharmaceutical direct compression and dry granulation of capsules, sachets, powder blends, triturations, and pellets; filler in hard gelatin capsules
Regulatory: USP/NF, EP, JP
Properties: Free-flowing cryst.; avg. particle size 180 μ; tapped dens. 910 g/l

Pharmatose® 90 M [DMV Int'l. Pharma
:http://www.dmv-international.com_
Chem. Descrip.: Sieved lactose monohydrate
Chem. Analysis: 5% max. loss on drying
EINECS/ELINCS 200-559-2
Uses: Diluent and flow aid for pharmaceutical direct compression and dry granulation of capsules, sachets, powder blends, triturations, and pellets; filler in hard gelatin capsules
Regulatory: USP/NF, EP, JP
Properties: Free-flowing cryst.; avg. particle size 135 μ; tapped dens. 890 g/l

Pharmatose® 100 M [DMV Int'l. Pharma
:http://www.dmv-international.com_
Chem. Descrip.: Sieved lactose monohydrate
Chem. Analysis: 0.5% max. loss on drying
EINECS/ELINCS 200-559-2
Uses: Diluent, filler for pharmaceutical wet and dry granulation
Features: Milled
Regulatory: USP/NF, EP, JP
Properties: Avg. particle size 50 μ; tapped dens. 880 g/l

Pharmatose® 110 M [DMV Int'l. Pharma
:http://www.dmv-international.com_
Chem. Descrip.: Sieved lactose monohydrate
Chem. Analysis: 5% max. loss on drying
EINECS/ELINCS 200-559-2
Uses: Diluent and flow aid for pharmaceutical direct compression and dry granulation of capsules, sachets, powder blends, triturations, and pellets; filler in hard gelatin capsules
Regulatory: USP/NF, EP, JP
Properties: Free-flowing cryst.; avg. particle size 130 μ; tapped dens. 880 g/l

Pharmatose® 125 M [DMV Int'l. Pharma
:http://www.dmv-international.com_
Chem. Descrip.: Sieved lactose monohydrate
Chem. Analysis: 5% max. loss on drying
EINECS/ELINCS 200-559-2
Uses: Diluent and flow aid for pharmaceutical direct compression, wet and dry granulation of capsules, sachets, powder blends, triturations, and pellets; filler in hard gelatin capsules
Regulatory: USP/NF, EP, JP
Properties: Free-flowing cryst.; avg. particle size 105 μ; tapped dens. 875 g/l

Pharmatose® 150 M [DMV Int'l. Pharma
:http://www.dmv-international.com_
Chem. Descrip.: Milled lactose monohydrate
Chem. Analysis: 0.5% max. loss on drying
EINECS/ELINCS 200-559-2
Uses: Diluent, filler for pharmaceutical wet granulation
Features: Milled
Regulatory: USP/NF, EP, JP
Properties: Avg. particle size 55 μ; tapped dens. 860 g/l

Pharmatose® 200 M [DMV Int'l. Pharma
:http://www.dmv-international.com_
Chem. Descrip.: Milled lactose monohydrate
Chem. Analysis: 0.5% max. loss on drying
EINECS/ELINCS 200-559-2
Uses: Diluent, filler for pharmaceutical wet and dry granulation
Features: Milled
Trade Name Reference

Regulatory: USP/NF, EP, JP
Properties: Avg. particle size 40 μ; tapped dens. 840 g/l

Pharmatose® 325 M [DMV Int’l. Pharma http://www.dmv-international.com]
Chem. Descrip.: Lactose
CAS 63-42-3; EINECS/ELINCS 200-559-2
Uses: Carrier for dry powd. inhalation pharmaceuticals
Features: Uniform; good particle size distribution; high and reproducible drug deposition
Regulatory: USP/NF, EP, JP
Properties: Avg. particle size 40 μ; tapped dens. 840 g/l

Chem. Descrip.: Milled lactose monohydrate
Chem. Analysis: 0.5% max. loss on drying
EINECS/ELINCS 200-559-2
Uses: Diluent, filler for pharmaceutical wet and dry granulation
Features: Milled
Regulatory: USP/NF, EP, JP
Properties: Avg. particle size 30 μ; tapped dens. 800 g/l

Pharmatose® 450 M [DMV Int’l. Pharma http://www.dmv-international.com]
Chem. Descrip.: Milled lactose monohydrate
Chem. Analysis: 0.5% max. loss on drying
EINECS/ELINCS 200-559-2
Uses: Diluent, filler for pharmaceutical wet granulation
Features: Milled
Regulatory: USP/NF, EP, JP
Properties: Avg. particle size 20 μ; tapped dens. 480 g/l

Chem. Descrip.: Lactose monohydrate
Chem. Analysis: 1.0% max. loss on drying
CAS 10039-26-6
Uses: Diluent for direct compression of pharmaceutical tablets
Features: Exc. flowability; uniform particle size; exc. mixing performance
Regulatory: USP/NF, EP, JP
Properties: Spray-dried spheres; tapped dens. 725 g/l

Pharmatose® DCL 14 [DMV Int’l. Pharma http://www.dmv-international.com]
Chem. Descrip.: Lactose monohydrate and amorphous lactose
Chem. Analysis: 1.0% max. loss on drying

Chem. Descrip.: Lactose monohydrate
Chem. Analysis: 1.0% max. loss on drying
CAS 10039-26-6
Uses: Excipient and binder for direct compression of pharmaceutical tablets and chewable tablets; stabilizer for moisture-sensitive act. ingreds. and their dissolution
Features: Exc. tablet str.; high binding capacity; high intrinsic sol. of anhyd. lactose; low-moisture content and high stability; suitable for moisture-sensitive pharmaceuticals
Regulatory: USP/NF, EP, JP
Properties: Microcrystals; tapped dens. 880 g/l

Pharmatose® DCL 21 [DMV Int’l. Pharma http://www.dmv-international.com]
Chem. Descrip.: Lactose monohydrate
Chem. Analysis: 1.0% max. loss on drying
CAS 63-42-3; EINECS/ELINCS 200-559-2
Uses: Filler and binder for direct compression of pharmaceutical tablets, chewable tablets, capsules, and sachets
Features: Exc. flowability and mixing props.; high compactibility; prevents drug segregation; high pharmaceutical dilution potential

Handbook of Pharmaceutical Additives, Third Edition
Trade Name Reference

Regulatory: USP/NF, EP, JP
Properties: Crystals; tapped dens. 790 g/l
Chem. Descrip.: Phenoxyethanol (> 70%), methylparaben > (15%), ethylparaben (< 5%), propylparaben (< 5%), butylparaben (< 10%)
Uses: Preservative for pharmaceuticals (proteinaceous prods., emulsions, skin antisepsics)
Features: Fully active liq. system with low toxicity and wide spectrum activity, esp. against pseudomonas
Regulatory: USA, Japan, and ECC approvals
Properties: Pract. colorless visc. liq., faint aromatic odor; sol. 0.5% in water; misc. with ethanol, IPA, acetone, propylene glycol, IPM, ethyl acetate; sp.gr. 1.124; m.p. 13 C; b.p. 224-250 C (1013 m.bar); flash pt. (OC) 130 C; ref. index 1.5415; pH 7 (20 g/l water); 100% conc.
Use Level: 0.25-0.75%
Toxicology: LD50 (oral, rat) 1.5 g/kg (sl. harmful); pure material irritating to skin, moderately irritating to eyes
Chem. Descrip.: Phenoxyisopropanol and p-chloro-m-xylenol See Chloroxylenol
Uses: Antiseptic for pharmaceuticals, skin care prods.
Chem. Descrip.: p-Chloro-m-xylanol and propylene phenoxyetol See Chloroxylenol; Phenoxyisopropanol
Uses: Antimicrobial, antiseptic in topical pharmaceuticals
Chem. Descrip.: Phenoxyethanol
CAS 122-99-6; EINECS/ELINCS 204-589-7
Uses: Antimicrobial preservative for pharmaceuticals (antiseptic creams, skin care prods.)
Features: Broad-spectrum; stable and effective over the range pH 3.0-8.5 and elevated temps>80 C
Regulatory: Permitted for use in Europe, USA, and Japan
Properties: Colorless sl. visc. liq., faint or pleasant odor; sol. 2.3% in water; misc. with acetone, ethanol, benzene, ether, propylene glycol, glycerin; m.w. 138.2; sp.gr. 1.1 (20/4 C); f.p. 11 C; b.p. 245.6 C; flash pt. (OC) 121 C; 99% min. assay
Toxicology: LD50 (oral, rat) 1.3 g/kg (sl. harmful); moderate eye irritant; pure material sl. irritating to skin
Environmental: Biodeg.
Chem. Descrip.: Lauric acid (C12)
CAS 143-07-7; EINECS/ELINCS 205-582-1
Uses: Intermediate for mfg. of pharmaceuticals
Properties: Solid, flakes; acid no. 279-282; iodine no. 0.3 max.; sapon. no. 0.5 max.; hyd. no. 230-233
Chem. Descrip.: C16 alcohols See Cetyl alcohol
CAS 36653-82-4; EINECS/ELINCS 253-149-0
Uses: Emollient, consistency agent in ointments
Properties: APHA 10 max. flakes; acid no. 0.2 max.; iodine no. 0.3 max.; sapon. no. 0.5 max.; hyd. no. 211-220
Chem. Descrip.: C16-18 alcohols See Cetearyl alcohol
CAS 8005-44-5; EINECS/ELINCS 267-008-6
Uses: Emollient, consistency agent in ointments
Properties: APHA 10 max. flakes; acid no. 0.2 max.; iodine no. 0.3 max.; sapon. no. 2 max.; hyd. no. 206-209
Chem. Descrip.: C18 alcohols See Stearyl alcohol
CAS 112-92-5; EINECS/ELINCS 204-017-6
Uses: Emollient, consistency agent in ointments
Properties: APHA 10 max. flakes; acid no. 0.2 max.; iodine no. 0.3 max.; sapon. no. 1.5 max.; hyd. no. 206-209
Phoenotaine C-35 [Phoenix http://www.phoenix-chem.com]
Chem. Descrip.: Sodium cocamidopropyl PG-dimonium chloride phosphate See Stearamidopropyl PG-dimonium chloride
Trade Name Reference

**phosphatidylcholine**
CAS: 83682-78-4; EINECS/ELINCS: 280-518-3
Uses: Emulsifier, lubricant, dispersant, emollient in pharmaceuticals

Properties: Yel. liq.; Gardner color 5 max.; sol. in water, propylene glycol, IPA; insol. in mineral oil, isopropyl myristate, silicone fluid; pH 5-7 (10% aq.); solids 34-36%

**Phenoxyol® PW** [Phoenix
http://www.phoenix-chem.com]
Chem. Descrip.: Emulsifying wax NF
CAS: 97069-99-0
Uses: Emulsifier for personal care prod.
Properties: Flake; sol. warm in min. oil; disp. warm in cyclomethicone, IPM, and water; misc. warm with castor oil, ethanol, and propylene glycol; nonionic; 100% act.

**Phosal® 35 SB** [Am. Lecithin
http://www.americanlecithin.com]
Chem. Descrip.: Sunflower seed oil, lecithin
See Sunflower (Helianthus annuus) seed oil
Chem. Analysis: Moisture 0.5% max.
Uses: Filler, phosphatidylcholine nutritional source in soft gelatin capsules
Properties: Gold yel. to brown liq.; nut-like odor; dens. 1.0 g/cm³; vis. ≤ 10,000 mPa•s; acid no. 35 max.; pH 5.5-7.5; 35% phosphatidylcholine
Toxicology: Nontoxic
Environmental: Biodegrad.
Precaution: Avoid contact with eyes; wear goggles

**Phosal® 50 SA+** [Am. Lecithin
http://www.americanlecithin.com]
Chem. Descrip.: Safflower oil and lecithin
See Safflower (Carthamus tinctorius) oil
Uses: Skin moisturizer/penetrant for dermatology; solubilizer for lipophilic substances; phosphatidylcholine source for nutritional supplements, esp. as capsule filling mass
Properties: Honey yel. fluid, typ. odor; dilutable with water; dens. 0.9-1.0 g/cm³ (20 C); vis. 5000 mPa•s max.; pH 5.5-7.5; 53 ± 3% phosphatidylcholine
Use Level: 5-15% topical appl.
Toxicology: Edible; oral and topical applicable; nontoxic
Environmental: Biodeg.
Precaution: Wear safety glasses; avoid contact with eyes

**Phosal® 53 MCT** [Am. Lecithin
http://www.americanlecithin.com]
Chem. Descrip.: Lecithin in caprylic/capric triglyceride, and alcohol (5% max.); oleic acid, and ascorbyl palmitate
CAS: 8030-76-0; 526220-27-2; 64-17-5; 112-80-1; 137-66-6; EINECS/ELINCS: 310-129-7; 265-724-3; 200-578-6; 204-007-1; 205-305-4
Uses: Skin moisturizer/penetrant for dermatology; solubilizer for lipophilic substances; prod. of liposomes; phosphatidylcholine source for dietetics, esp. as filling mass for soft gelatin capsules
Properties: Honey yel. fluid, typ. odor; dilutable with water; sp.gr. 1.0 g/ml; vis. 5000 mPa•s max.; flash pt. 30 C; pH 6-8; 56 ± 3% phosphatidylcholine; 5% ethanol
Use Level: 5-15% topical appl.
Toxicology: Avoid eye contact and ingestion; harmless by inh. and skin contact; considered nontoxic
Storage: Store in clean, dry place @ 15-20 C in well-closed containers; warming reverses sedimentation; protect from light, gross contamination with bacteria; use soon after opening

**Phosal® 50 PG** [Am. Lecithin
http://www.americanlecithin.com]
Chem. Descrip.: A preliposome system contg. 50% lecithin with propylene glycol, sunflower seed oil glycerides, soy acid, alcohol, and ascorbyl palmitate
Uses: Dispersant, coemulsifier, penetrant, and solubilizer for pharmaceuticals, creams and lotions, emulsions and liposome preps. for dermatology
Properties: Yel.-brn. liq.; char. odor, nut-like taste; dilutable with water; dens. 0.9-1.0 g/cm³ (20 C); vis. 5000 mPa•s max.; flash pt. 112 C; iodine no. ≈ 50; pH 7±3; 50% min. phosphatidylcholine
Toxicology: Harmless; edible; oral and topical applicable
Environmental: Biodeg.; completely harmless
Precaution: Wear goggles

Storage: Store in clean, cool, dry place @ 10-40 C in tightly closed container; avoid large changes in temp., gross contamination with bacteria; protect from light

**Phosal® 50 SA+** [Am. Lecithin
http://www.americanlecithin.com]
Chem. Descrip.: Safflower oil and lecithin
See Safflower (Carthamus tinctorius) oil
Uses: Skin moisturizer/penetrant for dermatology; solubilizer for lipophilic substances; phosphatidylcholine source for nutritional supplements, esp. as capsule filling mass
Properties: Honey yel. fluid, typ. odor; dilutable with water; dens. 0.9-1.0 g/cm³ (20 C); vis. 5000 mPa•s max.; pH 5.5-7.5; 53 ± 3% phosphatidylcholine
Use Level: 5-15% topical appl.
Toxicology: Edible; oral and topical applicable; nontoxic
Environmental: Biodeg.
Precaution: Wear safety glasses; avoid contact with eyes

**Phosal® 53 MCT** [Am. Lecithin
http://www.americanlecithin.com]
Chem. Descrip.: Lecithin in caprylic/capric triglyceride, and alcohol (5% max.); oleic acid, and ascorbyl palmitate
CAS: 8030-76-0; 526220-27-2; 64-17-5; 112-80-1; 137-66-6; EINECS/ELINCS: 310-129-7; 265-724-3; 200-578-6; 204-007-1; 205-305-4
Uses: Skin moisturizer/penetrant for dermatology; solubilizer for lipophilic substances; prod. of liposomes; phosphatidylcholine source for dietetics, esp. as filling mass for soft gelatin capsules
Properties: Honey yel. fluid, typ. odor; dilutable with water; sp.gr. 1.0 g/ml; vis. 5000 mPa•s max.; flash pt. 30 C; pH 6-8; 56 ± 3% phosphatidylcholine; 5% ethanol
Use Level: 5-15% topical appl.
Toxicology: Avoid eye contact and ingestion; harmless by inh. and skin contact; considered nontoxic
Storage: Store in clean, dry place @ 15-20 C in well-closed containers; warming reverses sedimentation; protect from light, gross contamination with bacteria; use soon after opening
Phosal® 75 SA [Am. Lecithin http://www.americanlecithin.com]
Chem. Descrip.: Lecithin, ethanol, and safflower (Carthamus tinctorius) oil See Alcohol
Uses: Skin moisturizer/penetrant in dermatology; solubilizer for lipophilic substances; prod. of liposomes; phosphatidylcholine source for nutritional supplements, esp. as capsule filling mass
Properties: Honey yel. fluid, nut-like odor; dilutable with water; dens. 1.0 g/cm³; visc. 5500 mPa•s max.; pH 6-8; 75 ± 3% phosphatidylcholine, 9% ethanol
Use Level: 3-10% topical applic.
Toxicology: Edible; oral and topical applicable; nontoxic
Environmental: Biodeg.
Precaution: Wear safety glasses; avoid contact with eyes; avoid sources of ignition and static discharges
Hazardous Decomp. Prods.: None
Storage: Store in clean, dry place @ 15-25 C in tightly closed containers; warming reverses sedimentation; use soon after opening; protect from light, gross contamination with bacteria

PhosPho F-97 [Fanning http://www.fanncorp.com]
Chem. Descrip.: Lecithin
CAS 8002-43-5; EINECS/ELINCS 232-307-2
Uses: Surfactant for topical pharmaceutical ointments
Properties: Lt. golden gran.; sol. in IPM, ethyl acetate, water; insol. in castor oil, propylene glycol, ethanol, min. oil, glycerol; HLB 7.0; acid no. 35 max.

PhosPho LCN-DS [Fanning http://www.fanncorp.com]
Chem. Descrip.: Lecithin
CAS 8002-43-5; EINECS/ELINCS 232-307-2
Uses: Surfactant, emulsifier, skin conditioner for pharmaceuticals
Properties: Yel. to brn. liq.; bland odor; insol. in water; sp.gr. 1.00-1.04; flash pt. > 450 F
Environmental: Biodeg.
Precaution: Spillages may be slippery
HMIS: Flammability 0
Storage: Avoid extended heating to maintain quality

Chem. Descrip.: Lecithin
CAS 8002-43-5; EINECS/ELINCS 232-307-2
Uses: Surfactant, emulsifier, skin conditioner for creams/lotions; encapsulation of active compds.; mfg. of liposomes and mixed micelles
Features: Pharmaceutical grade
Properties: Wh. odorless powd.; iodine no. 30

Phospholipon® 80 [Am. Lecithin http://www.americanlecithin.com]
Chem. Descrip.: Lecithin (soya 3-sn-phosphatidylcholine)
CAS 8002-43-5; EINECS/ELINCS 232-307-2
Uses: Moisturizer, emulsifier for pharmaceuticals, dermatology, skin care, creams/lotions; encapsulation of active compds.; mfg. of liposomes and mixed micelles
Features: Pharmaceutical grade
Properties: Yel.-brn. waxy solid plastic, typ. odor; forms emulsions in water; dens. 1.0 g/cm³ (20 C); bulk dens. 400-500 kg/m³; acid no. 10 max.; pH 7±1; 80% conc.; min. 73% phosphatidylcholine
Use Level: 1-3% (topicals)
Toxicology: Harmless; edible; oral and topical applicable
Environmental: Biodeg.; ecologically harmless; forms slippery surfs. with water; do not discharge into drains, surf. waters, groundwater
Storage: Hygroscopic; store in clean, cool, dry place @ 5-20 C in tightly closed containers; protect from light

Phospholipon® 80 H [Am. Lecithin http://www.americanlecithin.com]
Chem. Descrip.: Hydrogenated lecithin
CAS 97281-48-6; EINECS/ELINCS 306-549-5
Uses: Prep. of liposomes for pharmaceuticals; skin moisturizer
Properties: Wh. odorless powd.; iodine no. 30
Phospholipon® 85G [Am. Lecithin http://www.americanlecithin.com]
Chem. Descrip.: Purified phosphatidylcholine
See Lecithin
CAS 8030-76-0; EINECS/ELINCS 310-129-7
Uses: Emulsifier for pharmacy, dermatology and cosmetics; phosphatidylcholine source for drugs and dietetics; preparation of mixed micelles, liposomes, and microemulsions
Features: Pharmaceutical grade
Properties: Brown to yel. waxy granules; characteristic odor; disp. in water; dens. 1.0 g/cm³; min. 85% phosphatidylcholine
Toxicology: Nontoxic
Environmental: Completely harmless
Precaution: Wear goggles; avoid contact with eyes
Storage: Store under dry condition @ 5-20 C in tightly closed containers, sealed under inert gas; protect from light

Phospholipon® 90 G [Am. Lecithin http://www.americanlecithin.com]
Chem. Descrip.: Lecithin, 90% min. soya 3-sn-phosphatidylcholine
CAS 97281-48-6; EINECS/ELINCS 295-786-7
Uses: Raw material for mfg. of liposomes and mixed micelles; moisturizer, emulsifier for pharmaceuticals, dermatology; solubilizer for parenteralia; phosphatidylcholine source for drugs and dietetics; encapsulation of active compds.; mfg. of liposomes for pharmaceuticals
Features: Pharmaceutical grade
Properties: Wh. cryst. powd., odorless; forms emulsions in water; dens. 0.8 g/cm³; bulk dens. 400-500 kg/m³; acid no. 0.5 max.; iodine no. 1 max.; flash pt. > 220 C; pH 7±1; amphoteric; 94% conc.; min. 90% phosphatidylcholine
Use Level: 1-3% topical use
Toxicology: Harmless; edible; oral and topical applicable
Environmental: Biodeg.; ecologically harmless; forms slippery surfs. with water; do not discharge into drains, surf. waters, groundwater
Storage: Hygroscopic; store in clean, cool, dry place @ 5-20 C in tightly closed containers, sealed under inert gas; protect from light

Phospholipon® 90 NG [Am. Lecithin http://www.americanlecithin.com]
Chem. Descrip.: Purified phosphatidylcholine
CAS 97281-47-5
Uses: Emulsifier for pharmacy, dermatology and cosmetics; phosphatidylcholine source for drugs and dietetics; preparation of mixed micelles, liposomes, and microemulsions
Features: Pharmaceutical grade
Properties: Yel. waxy granules; characteristic odor; disp. in water; dens. 1.0 g/cm³; min. 90% phosphatidylcholine
Toxicology: Nontoxic
Environmental: Completely harmless
Precaution: Wear goggles
Hazardous Decomp. Prods.: None
Storage: Store under dry condition, sealed under inert gas

Phospholipon® 100 H [Am. Lecithin http://www.americanlecithin.com]
Chem. Descrip.: Hydrogenated lecithin (soya 3-sn-phosphatidylcholine)
CAS 97281-48-6; EINECS/ELINCS 306-549-5
Uses: Active ingred. for pharmaceuticals; prod. of liposomes
Trade Name Reference

Features: Natural
Regulatory: DMF 15480 (USA)
Properties: Cryst. powd., odorless; forms emulsions in water; dens. 0.8 g/cm³; pH 7±1; iodine no. 1 max.
Toxicology: Harmless; edible; oral and topical applicable
Environmental: Biodeg.; ecologically harmless; forms slippery surf. with water; do not discharge into drains, surf. waters, groundwater
Storage: Hygroscopic; store in clean, cool, dry place @ 5-20 C; protect from light

pHthalavin™ [Colorcon http://www.colorcon.com]
Chem. Descrip.: Polyvinyl acetate phthalate enteric polymer
Uses: Functional coating for targeted enteric drug release
Features: Good resist. to gastric fluid

Phytoderm Complex G [Cosmetochem http://www.cosmetochem.ch/index]
Chem. Descrip.: Propylene glycol and licorice (Glycyrrhiza glabra) extract
Uses: Cosmetic specialty with anti-inflammatory and soothing effect on damaged skin

Chem. Descrip.: Olive (Olea europaea) fruit oil
CAS 8001-25-0; EINECS/ELINCS 232-277-0
Uses: Emollient, moisturizer, lubricant in pharmaceuticals
Properties: Yel./lt. grn. oily liq.; mild char. odor; acid no. 3 max.; iodine no. 77-88; sapon. no. 188-195

Chem. Descrip.: Safflower (Carthamus tinctorius) seed oil
See Safflower (Carthamus tinctorius) oil
CAS 8001-23-8; EINECS/ELINCS 232-276-5
Uses: Emollient for cosmetics, pharmaceuticals
Features: Stable from oxidative rancidity
Regulatory: EU, Japan approved
Properties: Lt. color

Chem. Descrip.: Refined, bleached, deodorized soybean oil, TBHQ See t-Butyl hydroquinone; Soybean (Glycine soja) oil
Uses: Emollient, carrier, dispersant in pharmaceuticals
Regulatory: EU, Japan approved
Properties: 1.5 red max. color; bland odor

Chem. Descrip.: α-Pinene with 400 ppm Tenox GT-1 (food-grade antioxidant)
CAS 7785-26-4; EINECS/ELINCS 232-077-3
UN 2368
Uses: Useful in flavor and fragrance applics. across a broad spectrum of prods.
Regulatory: FDA 21CFR §172.515
Properties: Colorless liq., warm resinous pine-like aroma, balsamic taste; sol. 1 in 15 in 80% alcohol; m.w. 136.24; sp.gr. 0.851-0.855; dens. 7.14 lb/gal; b.p. 156.7 C; flash pt. (TCC) 29.4 C; ref. index 1.464-1.468 (20 C); 99% min. act.
Toxicology: LD50 (oral, rat) 3700 mg/kg, (dermal, rabbit) > 5000 mg/kg; mod. skin irritant; oxidized material produces some sensitization reactions; TSCA listed
Environmental: Marine pollutant

beta-Pinene P&F [Millennium/F&F http://www.aromachem.com]
Chem. Descrip.: α-Pinene with 500 ppm Tenox GT-1 (food-grade antioxidant)
CAS 18172-67-3; EINECS/ELINCS 242-060-2
UN 2319
Uses: Useful in flavor and fragrance applics. across a broad spectrum of prods.
Regulatory: FDA 21CFR §172.515
Properties: Cl. appearance, dry woody or piney resinous odor; sol. 1 in 14 in 80% alcohol; m.w. 136.24; sp.gr. 0.864-0.872; dens. 7.24 lb/gal; b.p. 165 C; flash pt. (TCC) 35 C; ref. index 1.477-1.481 (20 C); 97% min. act.
Toxicology: LD50 (oral, rat) 4700 mg/kg, (dermal, rabbit) > 5000 mg/kg; mod. skin irritant; contact may cause skin and eye irritation; TSCA listed

Pinnacle™ 170 USP White Petrolatum [Avatar http://www.avatarcorp.com]
Chem. Descrip.: Petrolatum white
See Petrolatum
CAS 8009-03-8; EINECS/ELINCS 232-373-2
Uses: Lubricant, conditioner, moisture resistance/retention aid in pharmaceuticals
Trade Name Reference

Regulatory: USP, FCC, 21CFR 172.880, 178.3700, 573.720; SARA §311/312, 313 nonreportable; CERCLA nonreportable

Properties: Opaque, white semisolid; mild odor; negligibly sol. in water; sol. in hydrocarbons; sp. gr < 1; vapor pressure < 1.0 mm Hg; 35-80 C; consistency 170 dmm

Toxicology: LD50 (oral, rat) > 2000 mg/kg, (dermal, rabbit) > 2000 mg/kg; ACGIH TLV-TWA 2 mg/m³ (oil mist), OSHA PEL 2 mg/m³ (wax fumes)

Precaution: Avoid extreme heat, chlorine, fluorine, strong oxidizers, and strong acids

Hazardous Decomp. Prods.: Paraffin fumes

NFPA: Health 0, Flammability 1, Reactivity 0

Storage: Store in sealed containers away from strong oxidizing agents or combustible material

Pinnacle™ 170A USP Amber Petrolatum

[Avatar http://www.avatarcorp.com]

Chem. Descrip.: Petrolatum amber

See Petrolatum

CAS 8009-03-8; EINECS/ELINCS 232-373-2

Uses: Lubricant, conditioner, moisture resistance/retention aid in pharmaceuticals

Regulatory: USP, FCC, 21CFR 172.880, 178.3700, 573.720; SARA §311/312, 313 nonreportable; CERCLA nonreportable

Properties: Opaque, amber semisolid; mild odor; negligibly sol. in water; sol. in hydrocarbons; sp. gr < 1; vapor pressure < 1.0 mm Hg; 35-80 C; consistency 190 dmm

Toxicology: LD50 (oral, rat) > 2000 mg/kg, (dermal, rabbit) > 2000 mg/kg; ACGIH TLV-TWA 2 mg/m³ (oil mist), OSHA PEL 2 mg/m³ (wax fumes)

Precaution: Avoid extreme heat, chlorine, fluorine, strong oxidizers, and strong acids

Hazardous Decomp. Prods.: Paraffin fumes

NFPA: Health 0, Flammability 1, Reactivity 0

Storage: Store in sealed containers away from strong oxidizing agents or combustible material

Pinnacle™ 190A USP Amber Petrolatum

[Avatar http://www.avatarcorp.com]

Chem. Descrip.: Petrolatum amber

See Petrolatum

CAS 8009-03-8; EINECS/ELINCS 232-373-2

Uses: Lubricant, conditioner, moisture resistance/retention aid in pharmaceuticals

Regulatory: USP, FCC, 21CFR 172.880, 178.3700, 573.720; SARA §311/312, 313 nonreportable; CERCLA nonreportable

Properties: Opaque, amber semisolid; mild odor; negligibly sol. in water; sol. in hydrocarbons; sp. gr < 1; vapor pressure < 1.0 mm Hg; 35-80 C; consistency 190 dmm

Toxicology: LD50 (oral, rat) > 2000 mg/kg, (dermal, rabbit) > 2000 mg/kg; ACGIH TLV-TWA 2 mg/m³ (oil mist), OSHA PEL 2 mg/m³ (wax fumes)

Precaution: Avoid extreme heat, chlorine, fluorine, strong oxidizers, and strong acids

Hazardous Decomp. Prods.: Paraffin fumes

NFPA: Health 0, Flammability 1, Reactivity 0

Storage: Store in sealed containers away from strong oxidizing agents or combustible material

Pinnacle™ 190A USP White Petrolatum

[Avatar http://www.avatarcorp.com]

Chem. Descrip.: Petrolatum white

See Petrolatum

CAS 8009-03-8; EINECS/ELINCS 232-373-2

Uses: Lubricant, conditioner, moisture resistance/retention aid in pharmaceuticals

Regulatory: USP, FCC, 21CFR 172.880, 178.3700, 573.720; SARA §311/312, 313 nonreportable; CERCLA nonreportable

Properties: Opaque, white semisolid; mild odor; negligibly sol. in water; sol. in hydrocarbons; sp. gr < 1; vapor pressure < 1.0 mm Hg; 35-80 C; consistency 190 dmm

Toxicology: LD50 (oral, rat) > 2000 mg/kg, (dermal, rabbit) > 2000 mg/kg; ACGIH TLV-TWA 2 mg/m³ (oil mist), OSHA PEL 2 mg/m³ (wax fumes)

Precaution: Avoid extreme heat, chlorine, fluorine, strong oxidizers, and strong acids

Hazardous Decomp. Prods.: Paraffin fumes

NFPA: Health 0, Flammability 1, Reactivity 0

Storage: Store in sealed containers away from strong oxidizing agents or combustible material

Pinnacle™ 225 USP White Petrolatum

[Avatar http://www.avatarcorp.com]

Chem. Descrip.: Petrolatum white

See Petrolatum

CAS 8009-03-8; EINECS/ELINCS 232-373-2

Uses: Lubricant, conditioner, moisture resistance/retention aid in pharmaceuticals

Regulatory: USP, FCC, 21CFR 172.880, 178.3700, 573.720; SARA §311/312, 313 nonreportable; CERCLA nonreportable

Properties: Opaque, white semisolid; mild odor; negligibly sol. in water; sol. in hydrocarbons; sp. gr < 1; vapor pressure < 1.0 mm Hg; 35-80 C; consistency 225 dmm

Toxicology: LD50 (oral, rat) > 2000 mg/kg, (dermal, rabbit) > 2000 mg/kg; ACGIH TLV-TWA 2 mg/m³ (oil mist), OSHA PEL 2 mg/m³ (wax fumes)

Precaution: Avoid extreme heat, chlorine, fluorine, strong oxidizers, and strong acids

Hazardous Decomp. Prods.: Paraffin fumes

NFPA: Health 0, Flammability 1, Reactivity 0

Storage: Store in sealed containers away from strong oxidizing agents or combustible material

Pinnacle™ 190A USP White Petrolatum

[Avatar http://www.avatarcorp.com]

Chem. Descrip.: Petrolatum white

See Petrolatum

CAS 8009-03-8; EINECS/ELINCS 232-373-2

Uses: Lubricant, conditioner, moisture resistance/retention aid in pharmaceuticals

Regulatory: USP, FCC, 21CFR 172.880, 178.3700, 573.720; SARA §311/312, 313 nonreportable; CERCLA nonreportable

Properties: Opaque, white semisolid; mild odor; negligibly sol. in water; sol. in hydrocarbons; sp. gr < 1; vapor pressure < 1.0 mm Hg; 35-80 C; consistency 225 dmm

Toxicology: LD50 (oral, rat) > 2000 mg/kg, (dermal, rabbit) > 2000 mg/kg; ACGIH TLV-TWA 2 mg/m³ (oil mist), OSHA PEL 2 mg/m³ (wax fumes)

Precaution: Avoid extreme heat, chlorine, fluorine, strong oxidizers, and strong acids

Hazardous Decomp. Prods.: Paraffin fumes

NFPA: Health 0, Flammability 1, Reactivity 0

Storage: Store in sealed containers away from strong oxidizing agents or combustible material

Pinnacle™ 225 USP White Petrolatum

[Avatar http://www.avatarcorp.com]

Chem. Descrip.: Petrolatum white

See Petrolatum

CAS 8009-03-8; EINECS/ELINCS 232-373-2

Uses: Lubricant, conditioner, moisture resistance/retention aid in pharmaceuticals

Regulatory: USP, FCC, 21CFR 172.880, 178.3700, 573.720; SARA §311/312, 313 nonreportable; CERCLA nonreportable

Properties: Opaque, white semisolid; mild odor; negligibly sol. in water; sol. in hydrocarbons; sp. gr < 1; vapor pressure < 1.0 mm Hg; 35-80 C; consistency 225 dmm

Toxicology: LD50 (oral, rat) > 2000 mg/kg, (dermal, rabbit) > 2000 mg/kg; ACGIH TLV-TWA 2 mg/m³ (oil mist), OSHA PEL 2 mg/m³ (wax fumes)

Precaution: Avoid extreme heat, chlorine, fluorine, strong oxidizers, and strong acids

Hazardous Decomp. Prods.: Paraffin fumes

NFPA: Health 0, Flammability 1, Reactivity 0

Storage: Store in sealed containers away from strong oxidizing agents or combustible material
Trade Name Reference

(wax fumes)

Precaution: Avoid extreme heat, chlorine, fluorine, strong oxidizers, and strong acids

Hazardous Decomp. Prods.: Paraffin fumes

NFPA: Health 0, Flammability 1, Reactivity 0

Storage: Store in sealed containers away from strong oxidizing agents or combustible material

Pinnacle™ 225A USP Amber Petrolatum

[Avatar http://www.avatarcorp.com]

Chem. Descrip.: Petrolatum amber See Petrolatum

CAS 8009-03-8; EINECS/ELINCS 232-373-2

Uses: Lubricant, conditioner, moisture resistance/retention aid in pharmaceuticals

Regulatory: USP, FCC, 21CFR 172.880, 178.3700, 573.720; SARA §311/312, 313 nonreportable; CERCLA nonreportable

Properties: Amber semisolid; mild odor; negligibly sol. in water; sol. in hydrocarbons; sp. gr < 1; vapor pressure < 1.0 mm Hg; 35-80 C; consistency 225 dmm

Toxicology: LD50 (oral, rat) > 2000 mg/kg, (dermal, rabbit) > 2000 mg/kg; ACGIH TLV-TWA 2 mg/m³ (oil mist), OSHA PEL 2 mg/m³ (wax fumes)

Precaution: Avoid extreme heat, chlorine, fluorine, strong oxidizers, and strong acids

Pinnacle™ LC 190 Petrolatum, USP

[Avatar http://www.avatarcorp.com]

Chem. Descrip.: Petrolatum

CAS 8009-03-8; EINECS/ELINCS 232-373-2

Uses: Lubricant, conditioner, moisture resistance/retention aid in pharmaceuticals

Regulatory: USP, FCC, 21CFR 172.880, 178.3700, 573.720; SARA §311/312, 313 nonreportable; CERCLA nonreportable

Properties: Opaque, white semisolid; mild odor; negligibly sol. in water; sol. in hydrocarbons; sp. gr < 1; vapor pressure < 1.0 mm Hg; 35-80 C; consistency 225 dmm

Toxicology: LD50 (oral, rat) > 2000 mg/kg, (dermal, rabbit) > 2000 mg/kg; ACGIH TLV-TWA 2 mg/m³ (oil mist), OSHA PEL 2 mg/m³ (wax fumes)

Precaution: Avoid extreme heat, chlorine, fluorine, strong oxidizers, and strong acids

Pinnacle™ LC 170 Petrolatum, USP

[Avatar http://www.avatarcorp.com]

Chem. Descrip.: Petrolatum

CAS 8009-03-8; EINECS/ELINCS 232-373-2

Uses: Lubricant, conditioner, moisture resistance/retention aid in pharmaceuticals

Regulatory: USP, FCC, 21CFR 172.880, 178.3700, 573.720; SARA §311/312, 313 nonreportable; CERCLA nonreportable

Properties: Opaque, white semisolid; mild odor; negligibly sol. in water; sol. in hydrocarbons; sp. gr < 1; vapor pressure < 1.0 mm Hg; 35-80 C; consistency 225 dmm

Toxicology: LD50 (oral, rat) > 2000 mg/kg, (dermal, rabbit) > 2000 mg/kg; ACGIH TLV-TWA 2 mg/m³ (oil mist), OSHA PEL 2 mg/m³ (wax fumes)

Precaution: Avoid extreme heat, chlorine, fluorine, strong oxidizers, and strong acids

Pinnacle™ LC 225 Petrolatum, USP

[Avatar http://www.avatarcorp.com]

Chem. Descrip.: Petrolatum

CAS 8009-03-8; EINECS/ELINCS 232-373-2

Uses: Lubricant, conditioner, moisture resistance/retention aid in pharmaceuticals

Regulatory: USP, FCC, 21CFR 172.880, 178.3700, 573.720; SARA §311/312, 313 nonreportable; CERCLA nonreportable

Properties: Opaque, white semisolid; mild odor; negligibly sol. in water; sol. in hydrocarbons; sp. gr < 1; vapor pressure < 1.0 mm Hg; 35-80 C; consistency 225 dmm

Toxicology: LD50 (oral, rat) > 2000 mg/kg, (dermal, rabbit) > 2000 mg/kg; ACGIH TLV-TWA 2 mg/m³ (oil mist), OSHA PEL 2 mg/m³ (wax fumes)

Precaution: Avoid extreme heat, chlorine, fluorine, strong oxidizers, and strong acids

Pinnacle™ WF 170 Petrolatum, USP

[Avatar http://www.avatarcorp.com]

Chem. Descrip.: Petrolatum

CAS 8009-03-8; EINECS/ELINCS 232-373-2

Uses: Lubricant, conditioner, moisture resistance/retention aid in pharmaceuticals

Regulatory: USP, FCC, 21CFR 172.880, 178.3700, 573.720; SARA §311/312, 313 nonreportable; CERCLA nonreportable

Properties: Opaque, white semisolid; mild odor; negligibly sol. in water; sol. in hydrocarbons; sp. gr < 1; vapor pressure < 1.0 mm Hg; 35-80 C; consistency 225 dmm

Toxicology: LD50 (oral, rat) > 2000 mg/kg, (dermal, rabbit) > 2000 mg/kg; ACGIH TLV-TWA 2 mg/m³ (oil mist), OSHA PEL 2 mg/m³ (wax fumes)

Precaution: Avoid extreme heat, chlorine, fluorine, strong oxidizers, and strong acids

Pinnacle™ WF 170 Petrolatum, USP
Trade Name Reference

**Pinnacle™ WF 190 Petrolatum, USP** [Avatar
http://www.avatarcorp.com]

**Pinnacle™ WF 225 Petrolatum, USP** [Avatar
http://www.avatarcorp.com]

**Pionier® 0030 SYN FG** [Hansen & Rosenthal
http://www.hansen-rosenthal.de]

**Pionier® 1533** [Hansen & Rosenthal
http://www.hansen-rosenthal.de]

**Pionier® 01** [Hansen & Rosenthal
http://www.hansen-rosenthal.de]

Regulatory: USP, FCC, 21CFR 172.880, 178.3700, 573.720; SARA §311/312, 313 nonreportable; CERCLA nonreportable

**Properties:** Opaque, white semisolid; mild odor; negligibly sol. in water; sol. in hydrocarbons; sp. gr < 1; vapor pressure < 1.0 mm Hg; 35-80 C; consistency 170 dmm

**Toxicology:** LD50 (oral, rat) > 2000 mg/kg, (dermal, rabbit) > 2000 mg/kg; ACGIH TLV-TWA 2 mg/m³ (oil mist), OSHA PEL 2 mg/m³ (wax fumes)

**Precaution:** Avoid extreme heat, chlorine, fluorine, strong oxidizers, and strong acids

**Hazardous Decomp. Prods.: Paraffin fumes**

**NFPA:** Health 0, Flammability 1, Reactivity 0

**Storage:** Store in sealed containers away from strong oxidizing agents or combustible material

**Uses:** Raw material, oil binder for pharmaceuticals

**Regulatory:** USP, EP compliance

**Properties:** Wh. odorless substance; dens. 810-860 kg/m³ (60 C); visc.11-13 mPa·s (90 C); drop pt. 50-58 C; congeal pt. 47-53 C; > 50% petrolatum

**Storage:** 24 mos. shelf life when stored in original containers under suitable conditions; may darken on overheating to 90 C; may develop paraffin odor; may yel. on overexposure to light

**Uses:** Oil in pharmaceuticals

**Features:** Thermal- and UV-stable

**Regulatory:** E 907

**Properties:** Saybolt +30 color; odorless; dens. 824 kg/m³; visc. 72 mm²/s (20 C); pour pt. 50-58 C; congeal pt. 47-53 C; > 50% petrolatum

**Storage:** 24 mos. shelf life when stored in original containers under suitable conditions

**Uses:** Emulsion base for pharmaceutical w/o creams/lotions

**Environmental:** EL50 (algae, 72 h) > 1000 mg/l

**Storage:** 6 mos. min. shelf life when stored in original containers under suitable conditions

**Uses:** See Mineral oil
Trade Name Reference

Features: During transportation and storage, some components may cause sl. creaming or settling of the base; stirring can clear this settling of the base.

Properties: Wh. to ylsh. mass, gel-like; visc. 5-15 (20 C); congeal pt. 65-85 C; acid no. 1 max.; sapon. no. 70-100; hyd. no. 15-30; ref. index 1.455-1.475 (20 C).

Storage: 6 mos. min. shelf life when stored in original containers under suitable conditions.

**Pionier® 1730** [Hansen & Rosenthal http://www.hansen-rosenthal.de]

Chem. Descrip.: Mineral oil (> 50%), hydrogenated microcrystalline wax (25-50%)

CAS 8042-47-5; 92045-76-6; EINECS/ELINCS 232-455-8; 295-458-3

Uses: Oil and water binder, raw material in ophthalmic ointments and creams.

Features: Good elasticity and smoothness.


Properties: Wh., odorless; dens. 800-840 kg/m³ (70 C); visc. 4.9-6.0 mm²/s (90 C); drop pt. 50-58 C; congeal pt. 46-50 C.

Toxicology: Nonsensitizing, nonecotoxic; nonirritating to eyes and skin.

Environmental: Not ecotoxic.

Storage: Unlimited shelf life.

**Pionier® 1761** [Hansen & Rosenthal http://www.hansen-rosenthal.de]


CAS 8009-03-8; EINECS/ELINCS 232-373-2

Uses: Softener, lubricant, release agent, glossing agent, plasticizer, carrier in pharmaceuticals and veterinary preps.


Properties: Lovibond color 1.0 wh.; visc. 5.5 mm²/s (100 C); drop pt. 58 C; congeal pt. 54 C.

**Pionier® 2070 P** [Hansen & Rosenthal http://www.hansen-rosenthal.de]

Chem. Descrip.: Mineral oil

Uses: Glossing agent, moisture barrier, protective barrier, basic oil in pharmaceuticals.


Properties: Colorless transparent oily fluid, odorless, tasteless; sp.gr. 860-870 kg/m³ (20 C); visc. 170-230 mPa•s (20 C); pour pt. < -24 C; flash pt. 200 C min.; ref. index 1.473-1.479 (20 C).

Storage: 24 mos. shelf life when stored in original containers under suitable conditions; may darken on overheating and get a paraffin odor; may discolor on overexposure to light; cold may cause crystallization—warm to dissolve.

**Pionier® 2076 N** [Hansen & Rosenthal http://www.hansen-rosenthal.de]

Chem. Descrip.: Mineral oil (> 50%)

Uses: Glossing agent, moisture barrier, protective barrier, basic oil in pharmaceuticals.


Properties: Colorless transparent oily fluid, odorless, tasteless; sp.gr. 860-870 kg/m³ (20 C); visc. 95.0 mm²/s (40 C); pour pt. -9 C; flash pt. 250 C.

Storage: 24 mos. shelf life when stored in original containers under suitable conditions; may darken on overheating and get a paraffin odor; may discolor on overexposure to light; cold may cause crystallization—warm to dissolve.
protective barrier, basic oil in pharmaceuticals
Properties: Colorless transparent oily fluid, odorless, tasteless; sp.gr. 852-867 kg/m³ (20 C); visc. 29-37 mPa•s (20 C); pour pt. < -24 C; flash pt. 165 C min.; ref. index 1.468-1.473 (20 C)
Storage: 24 mos. shelf life when stored in original containers under suitable conditions; may darken on overheating and get a paraffin odor; may discolor on overexposure to light; cold may cause crystallization—warm to dissolve

Pionier® 2076 P [Hansen & Rosenthal http://www.hansen-rosenthal.de]
Chem. Descrip.: Mineral oil (> 50%)
Uses: Glossing agent, moisture barrier, protective barrier, basic oil in pharmaceuticals
Properties: Colorless transparent oily fluid, odorless, tasteless; sp.gr. 843-853 kg/m³ (20 C); visc. 28-36 mPa•s (20 C); pour pt. < -12 C; flash pt. 180 C min.; ref. index 1.462-1.472 (20 C)
Storage: 24 mos. shelf life when stored in original containers under suitable conditions; may darken on overheating and get a paraffin odor; may discolor on overexposure to light; cold may cause crystallization—warm to dissolve

Pionier® 2079 P [Hansen & Rosenthal http://www.hansen-rosenthal.de]
Chem. Descrip.: Mineral oil
Uses: Glossing agent, moisture barrier, protective barrier, basic oil in pharmaceuticals
Properties: Colorless transparent oily fluid, odorless, tasteless; sp.gr. 0.857 (15 C); visc. 20.0 mm²/s (40 C); pour pt. -10 C; flash pt. 190 C
Storage: 24 mos. shelf life when stored in original containers under suitable conditions; may darken on overheating and get a paraffin odor; may discolor on overexposure to light; cold may cause crystallization—warm to dissolve

Pionier® 3476 [Hansen & Rosenthal http://www.hansen-rosenthal.de]
Chem. Descrip.: Mineral oil (> 50%), hydrogenated microcrystalline wax (25-50%)
Uses: Softener, lubricant, release agent, glossing agent, plasticizer, carrier in pharmaceuticals and veterinary preps.
Features: Elastic and smooth
Regulatory: USP, BP, EP compliance
Properties: Wh. oily to solid form, odorless; visc. 5.5-7.5 mm²/s (100 C); drop pt. 54-64 C; congeal pt. 50-56 C
Storage: 24 mos. shelf life when stored in original containers under suitable conditions; may darken on overheating to 80 C; may develop paraffin odor; may yel. on overexposure to light

Pionier® 4281 [Hansen & Rosenthal http://www.hansen-rosenthal.de]
Chem. Descrip.: Mineral oil
Uses: Glossing agent, moisture barrier, protective barrier, basic oil in pharmaceuticals
Properties: Colorless transparent oily fluid, odorless, tasteless; sp.gr. 0.823 (15 C); visc. 3.5 mm²/s (40 C); pour pt. -12 C; flash pt. 130 C
Storage: 24 mos. shelf life when stored in original containers under suitable conditions; may darken on overheating and get a paraffin odor; may discolor on overexposure to light; cold may cause crystallization—warm to dissolve

Pionier® 3479 [Hansen & Rosenthal http://www.hansen-rosenthal.de]
Chem. Descrip.: Yellow vaseline See Petrolatum
CAS 8009-03-8; EINECS/ELINCS 232-373-2
Uses: Raw material, oil binder for pharmaceuticals
Regulatory: USP, EP compliance
Properties: Lovibond color 30 max.; visc. (kinetic) 5.5-7.5 mm²/s (100 C); drop pt. 52-60 C; congeal pt. 50-56 C
Storage: 24 mos. min. shelf life, when stored in original containers under suitable conditions; may darken on overheating to 90 C; may develop paraffin odor; may yel. on overexposure to light

Pionier® 4281 [Hansen & Rosenthal http://www.hansen-rosenthal.de]
Trade Name Reference

Pionier® 5300 [Hansen & Rosenthal http://www.hansen-rosenthal.de]
Chem. Descrip.: Isopropyl palmitate (> 50%), trilaureth-4 phosphate (25-50%)
Uses: Emulsifier for pharmaceutical o/w creams/lotions
Properties: Lt. liq.; dens. 0.890-0.910 g/cm³ (20 C); visc. 20-30 (20 C); acid no. 2 max.; sapon. no. 110-140; hyd. no. 10 max.; ref. index 1.442-1.446 (20 C)
Storage: 6 mos. min. shelf life when stored in original containers under suitable conditions

Pionier® 5353 [Hansen & Rosenthal http://www.hansen-rosenthal.de]
Chem. Descrip.: Yellow vaseline See Petrolatum
CAS 8009-03-8; EINECS/ELINCS 232-373-2
Uses: Softener, lubricant, release agent, glossing agent, plasticizer, carrier in pharmaceuticals and veterinary preps.
Regulatory: USP, BP, EP compliance
Properties: Lovibond color 22 yel.; visc. 7.0 mm²/s (100 C); drop pt. 59 C; congeal pt. 51 C

Pionier® 5370 [Hansen & Rosenthal http://www.hansen-rosenthal.de]
Chem. Descrip.: Yellow vaseline See Petrolatum
CAS 8009-03-8; EINECS/ELINCS 232-373-2
Uses: Softener, lubricant, release agent, glossing agent, plasticizer, carrier in pharmaceuticals and veterinary preps.
Regulatory: USP, BP, EP compliance
Properties: Lovibond color 25 yel.; visc. 6.8 mm²/s (100 C); drop pt. 59 C; congeal pt. 52 C

Pionier® 5464 [Hansen & Rosenthal http://www.hansen-rosenthal.de]
Chem. Descrip.: White vaseline See Petrolatum
CAS 8009-03-8; EINECS/ELINCS 232-373-2
Uses: Softener, lubricant, release agent, glossing agent, plasticizer, carrier in pharmaceuticals and veterinary preps.
Regulatory: USP, BP, EP compliance
Properties: Lovibond color 0.5 wh.; visc. 7.0 mm²/s (100 C); drop pt. 56 C; congeal pt. 52 C

Pionier® 5741 [Hansen & Rosenthal http://www.hansen-rosenthal.de]
Chem. Descrip.: White vaseline See Petrolatum
CAS 8009-03-8; EINECS/ELINCS 232-373-2
Uses: Softener, lubricant, release agent, glossing agent, plasticizer, carrier in pharmaceuticals and veterinary preps.
Regulatory: USP, BP, EP compliance
Properties: Lovibond color 0.7 wh.; visc. 8.8 mm²/s (100 C); drop pt. 62 C; congeal pt. 54 C

Pionier® 6301 N [Hansen & Rosenthal http://www.hansen-rosenthal.de]
Chem. Descrip.: Mineral oil
Uses: Glossing agent, moisture barrier, protective barrier, basic oil in pharmaceuticals
Properties: Colorless transparent oily fluid, odorless, tasteless; sp.gr. 0.863 (15 C); visc. 32.0 mm²/s (40 C); pour pt. -25 C; flash pt. 200 C
Storage: 24 mos. shelf life when stored in original containers under suitable conditions; may darken on overheating and get a paraffin odor; may discolor on overexposure to light; cold may cause crystallization—warm to dissolve

Pionier® 6301 P [Hansen & Rosenthal http://www.hansen-rosenthal.de]
Chem. Descrip.: Mineral oil
Uses: Glossing agent, moisture barrier, protective barrier, basic oil in pharmaceuticals
Properties: Colorless transparent oily fluid, odorless, tasteless; sp.gr. 0.859 (15 C); visc. 30.0 mm²/s (40 C); pour pt. -9 C; flash pt. 210 C
Storage: 24 mos. shelf life when stored in original containers under suitable conditions; may darken on overheating and get a paraffin odor; may discolor on overexposure to light; cold may cause crystallization—warm to dissolve

Pionier® 7028 P [Hansen & Rosenthal http://www.hansen-rosenthal.de]
Chem. Descrip.: Mineral oil
Uses: Glossing agent, moisture barrier, protective barrier, basic oil in pharmaceuticals
Properties: Colorless transparent oily fluid,
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>odorless, tasteless; sp.gr. 0.839 (15 C); visc. 7.5 mm²/s (40 C); pour pt. -12 C; flash pt. 150 C</td>
<td></td>
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<tr>
<td>Storage: 24 mos. shelf life when stored in original containers under suitable conditions; may darken on overheating and get a paraffin odor; may discolor on overexposure to light; cold may cause crystallization—warm to dissolve</td>
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**Pionier® 7646** [Hansen & Rosenthal http://www.hansen-rosenthal.de]

**Chem. Descrip.:** Mineral oil

**Uses:** Softener, lubricant, release agent, glossing agent, plasticizer, carrier in pharmaceuticals and veterinary preps.

**Regulatory:** USP, BP, EP compliance

**Properties:** Lovibond color 0.6 wh.; visc. 5.0 mm²/s (100 C); drop pt. 57 C; congeal pt. 53 C

**Storage:** 24 mos. shelf life when stored in original containers under suitable conditions; may darken on overheating and get a paraffin odor; may discolor on overexposure to light; cold may cause crystallization—warm to dissolve

<table>
<thead>
<tr>
<th>Pionier® 7860</th>
<th><a href="http://www.hansen-rosenthal.de">http://www.hansen-rosenthal.de</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem. Descrip.: Mineral oil</td>
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<tr>
<td>Uses: Glossing agent, moisture barrier, protective barrier, basic oil in pharmaceuticals</td>
<td></td>
</tr>
<tr>
<td>Properties: Lovibond color 0.6 wh.; visc. 5.0 mm²/s (100 C); drop pt. 57 C; congeal pt. 53 C</td>
<td></td>
</tr>
<tr>
<td>Storage: 24 mos. shelf life when stored in original containers under suitable conditions; may darken on overheating and get a paraffin odor; may discolor on overexposure to light; cold may cause crystallization—warm to dissolve</td>
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</tr>
</tbody>
</table>

**Pionier® 17004** [Hansen & Rosenthal http://www.hansen-rosenthal.de]

**Chem. Descrip.:** White vaseline See Petrolatum

**Uses:** Softener, lubricant, release agent, glossing agent, plasticizer, carrier in pharmaceuticals and veterinary preps.

**Regulatory:** USP, BP, EP compliance

**Properties:** Lovibond color 0.6 wh.; visc. 5.0 mm²/s (100 C); drop pt. 57 C; congeal pt. 53 C

**Storage:** 24 mos. shelf life when stored in original containers under suitable conditions; may darken on overheating and get a paraffin odor; may discolor on overexposure to light; cold may cause crystallization—warm to dissolve

<table>
<thead>
<tr>
<th>Pionier® 17106</th>
<th><a href="http://www.hansen-rosenthal.de">http://www.hansen-rosenthal.de</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem. Descrip.: Polydecene (&gt; 50%), hydrogenated microcrystalline wax (25-50%)</td>
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</tr>
<tr>
<td>Uses: Raw material in pharmaceuticals</td>
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<tr>
<td>Features: Smooth consistency; good adhesiveness</td>
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<tr>
<td>Regulatory: FDA 21 CFR §172.886, 178.3710; DAB, BP compliance</td>
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</tr>
<tr>
<td>Properties: Snow-wh. liq./solid; m.w. &gt; 500; dens. 830-840 kg/m³ (70 C); visc. 9.5-11.5 mm²/s (90 C); m.p. 65-70 C; congeal pt. 59-64 C</td>
<td></td>
</tr>
<tr>
<td>Toxicology: Nontoxic orally</td>
<td></td>
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<tr>
<td>Environmental: Not ecotoxic; potentially biodeg.; not expected to bioaccumulate in aquatic environment</td>
<td></td>
</tr>
</tbody>
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<thead>
<tr>
<th>Pionier® 17146</th>
<th><a href="http://www.hansen-rosenthal.de">http://www.hansen-rosenthal.de</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem. Descrip.: Light yellow vaseline See Petrolatum</td>
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<tr>
<td>Uses: Softener, lubricant, release agent, glossing agent, plasticizer, carrier in pharmaceuticals and veterinary preps.</td>
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<tr>
<td>Properties: Lovibond color 0.5 wh.; visc. 5.4 mm²/s (100 C); drop pt. 58 C; congeal pt. 53 C</td>
<td></td>
</tr>
<tr>
<td>Toxicology: Nontoxic orally</td>
<td></td>
</tr>
<tr>
<td>Environmental: Not ecotoxic; potentially biodeg.; not expected to bioaccumulate in aquatic environment</td>
<td></td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Pionier® 1155</th>
<th>Hansen &amp; Rosenthal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem. Descrip.: White vaseline See Petrolatum</td>
<td></td>
</tr>
<tr>
<td>Uses: Softener, lubricant, release agent, glossing agent, plasticizer, carrier in pharmaceuticals and veterinary preps.</td>
<td></td>
</tr>
<tr>
<td>Regulatory: USP, BP, EP compliance</td>
<td></td>
</tr>
<tr>
<td>Properties: Lovibond color 0.6 wh.; visc. 5.0 mm²/s (100 C); drop pt. 57 C; congeal pt. 53 C</td>
<td></td>
</tr>
<tr>
<td>Storage: 24 mos. shelf life when stored in original containers under suitable conditions; may darken on overheating and get a paraffin odor; may discolor on overexposure to light; cold may cause crystallization—warm to dissolve</td>
<td></td>
</tr>
</tbody>
</table>
Pionier® 38001 [Hansen & Rosenthal http://www.hansen-rosenthal.de]
Chem. Descrip.: Vegetable oil (> 50%), beeswax (25-50%)
Uses: Ointment base, raw material for pharmaceuticals
Features: Min. oil-free; good adhesiveness
Regulatory: DAC, EP compliance
Properties: Lt. yel. color; lt. pleasant beeswax odor; m.p. 49 C; congeal pt. 48 C
Toxicology: Nontoxic orally; minimal skin irritant
Environmental: Biodeg.; not expected to bioaccumulate in aquatic environment
Storage: 6 mos. min. shelf life when stored in original sealed containers under suitable conditions

Pionier® Cold [Hansen & Rosenthal http://www.hansen-rosenthal.de]
Chem. Descrip.: Mineral oil (>50%), isopropyl palmitate and polyglyceryl-2 sesquisostearate (10-25%)
Uses: Base for pharmaceutical o/w creams
Properties: Ylsh. liq.; dens. 0.850-0.870 g/cm³ (20 C); visc. 20-40 mm²/s (20 C); acid no. 2 max.; sapon. no. 50-80; hyd. no. 5-25; ref. index 1.456-1.466 (20 C)
Storage: 6 mos. min. shelf life when stored in original containers under suitable conditions

Pionier® Glycerine 86.5% [Hansen & Rosenthal http://www.hansen-rosenthal.de]
Chem. Descrip.: Glycerine See Glycerin
CAS 56-81-5; EINECS/ELINCS 200-289-5
Uses: Humectant in pharmaceuticals
Regulatory: EP compliance
Properties: Nearly colorless cl. liq.; ref. index 1.470-1.475 (20 C); 98-101% assay
Storage: 6 mos. min. shelf life when stored in original sealed containers under suitable conditions; may thicken @ low temps. (does not affect quality)

Pionier® Glycerine 99.5% [Hansen & Rosenthal http://www.hansen-rosenthal.de]
Chem. Descrip.: Glycerine See Glycerin
CAS 56-81-5; EINECS/ELINCS 200-289-5
Uses: Humectant in pharmaceuticals
Regulatory: EP compliance
Properties: Nearly colorless cl. liq.; ref. index 1.470-1.475 (20 C); 98-101% assay
Storage: 6 mos. min. shelf life when stored in original sealed containers under suitable conditions; may thicken @ low temps. (does not affect quality)
Trade Name Reference

http://www.hansen-rosenthal.de]

Chem. Descrip.: Polyglyceryl-2
diisostearate (>50%), isopropyl
palmitate (25-50%), beeswax (5-10%)
Uses: Emulsifier for cosmetic and
pharmaceutical w/o creams
Features: Highly viscous
Properties: Wh. to ylsh. mass, gel-like/paste-like;
visc. 5-8 mm²/s (100 C); congeal pt. 68 C;
acid no. 0.5 max.; sapon. no. 150-185; hyd. no.
60-90
Storage: 6 mos. min. shelf life when stored in
original containers under suitable conditions

Pionier® KWH-Soft [Hansen & Rosenthal
http://www.hansen-rosenthal.de]
Chem. Descrip.: Min. oil, isopropyl palmitate,
polyglyceryl-2 sesquisostearate,
polyethylene See Mineral oil
Uses: Hydrophilic base for cold processing of
w/o ointments and creams
Features: Hydrophilic
Properties: Wh. to ylsh. mass, highly visc. to gel-
like/paste like; drop pt. 89 C; congeal pt. 74 C;
acid no. 0.2; sapon. no. 30; hyd. no. 10; ref.
index 1.460-1.490 (20 C); pH 7.0

Pionier® L-15 [Hansen & Rosenthal
http://www.hansen-rosenthal.de]
Chem. Descrip.: Isopropyl palmitate (>50%),
PEG-7 hydrogenated castor oil (10-25%),
polyglyceryl-2 sesquisostearate (10-25%),
min. oil (5-10%), magnesium stearate (1-5%),
beeswax (1-5%), microcrystalline wax
(1-5%), aluminum stearate (1-5%) See
Mineral oil
Uses: Emulsifier for pharmaceutical w/o
lotions
Properties: Ylsh.-wh. cloudy liq.; visc. 4-7 mm²/s
(100 C); acid no. 5-15; sapon. no. 135-165;
hyd. no. 25-45
Storage: 6 mos. min. shelf life when stored in
original containers under suitable conditions

Pionier® MAA [Hansen & Rosenthal
http://www.hansen-rosenthal.de]
Chem. Descrip.: Petrolatum, cetyl-stearyl
alcohol, lanolin alcohol See Cetearyl
alcohol
CAS 8009-03-8; 67762-27-0; 8027-33-6;
EINECS/ELINCS 232-373-2; 267--008-6; 232-
430-1
Uses: Base for w/o pharmaceutical ointments
and creams
Features: Hydrophilic
Regulatory: Complies with DAP 9 wool wax
alcohol ointment
Properties: Whitish vaseline-like mass; drop pt.
55 C; congeal pt. 53 C; acid no. 0.07; sapon.
no. < 0.1; hyd. no. 12

Pionier® MAA Weich [Hansen & Rosenthal
http://www.hansen-rosenthal.de]
Chem. Descrip.: Petrolatum (>50%), lanolin
alcohol (5-10%), cetearyl alcohol (0.1-1%)
Uses: Base for w/o pharmaceutical creams

Handbook of Pharmaceutical Additives, Third Edition 553
and ointments

Pionier® MCT [Hansen & Rosenthal http://www.hansen-rosenthal.de]
Chem. Descrip.: Caprylic/capric glycerides
Chem. Analysis: > 50% Caprylic/capric glycerides; 0.2% moisture max.
CAS 85409-09-2; EINECS/ELINCS 287-075-5
Uses: Base for pharmaceutical ointments and creams
Features: Hydrophilic

Pionier® NP 37 S [Hansen & Rosenthal http://www.hansen-rosenthal.de]
Chem. Descrip.: Acrylates/vinyl isodecanoate crosspolymer (> 50%)
Uses: Base for pharmaceutical gels; thickener for pharmaceutical o/w emulsions
Features: pH of polymer must be neutralized with a base; more tolerant against electrolytes than pure polyacrylate gels; has a coemulsifier effect and keeps dispersed components in suspension

Pionier® NP 37 G [Hansen & Rosenthal http://www.hansen-rosenthal.de]
Chem. Descrip.: Sodium carboxomer (> 50%)
Uses: Base for pharmaceutical gels; thickener for pharmaceutical o/w emulsions
Features: No supplementary neutralization of pH is necessary

Pionier® NP 37 K [Hansen & Rosenthal http://www.hansen-rosenthal.de]
Chem. Descrip.: Carbomer (>50%)
CAS 9003-01-4
Uses: Base for pharmaceutical gels; thickener for pharmaceutical o/w emulsions
Features: pH of polymer must be neutralized with a base; esp. tolerant of high alcohol conc.

Pionier® OEWA-II [Hansen & Rosenthal http://www.hansen-rosenthal.de]
Chem. Descrip.: Isopropyl palmitate (25-50%), min. oil (25-50%), stearyl alcohol (10-25%), PEG-30 glyceryl stearate (10-25%), glyceryl stearate (5-10%), paraffin (5-10%) See Mineral oil
Uses: Hydrophilic base for o/w ointments and creams
Features: Hydrophilic
Trade Name Reference

http://www.hansen-rosenthal.de

Chem. Descrip.:  **Min. oil (25-50%), isopropyl palmitate (25-50%), PEG-7 hydrogenated castor oil (5-10%), polyglyceryl-2 sesquioleostearate (5-10%), polyethylene (1-5%), magnesium stearate (1-5%), beeswax (1-5%), microcrystalline wax (1-5%), aluminum stearate (0.1-1%)** See Mineral oil

**Uses:** Emulsion base for cosmetic and pharmaceutical w/o creams/lotions

**Properties:** Wh. to ylsh. mass, paste-like/paste-like; visc. 10-20 mm²/s (100 C); congeal pt. 65-85 C; acid no. 3-7; sapon. no. 70-95; hyd. no. 10-20; ref. index 1.455-1.475 (20 C)

**Storage:** 6 mos. min. shelf life when stored in original containers under suitable conditions

**Pionier® PLW** [Hansen & Rosenthal http://www.hansen-rosenthal.de]

Chem. Descrip.:  **Polyethylene (5%) and min. oil (95%)** See Mineral oil

**Uses:** Base in cold processing of w/o emulsions for pharmaceuticals (OTC medical preps., wound treatments, mucosa preps.)

**Features:** Hydrophobic; better compat. than petrolatum; provides rapid liberation of active substances; visc. not temp.-dependent; shear stability; high water absorp. capacity

**Properties:** Wh. to colorless transparent gel; congeal pt. 68-78 C; ref. index 1.475-1.495

**Storage:** 6 mos. min. shelf life when stored in original containers under suitable conditions

**Pionier® PLW 5,5** [Hansen & Rosenthal http://www.hansen-rosenthal.de]

Chem. Descrip.:  **Min. oil (94.5%), polyethylene (5.5%)** See Mineral oil

**Uses:** Base for pharmaceuticals

**Properties:** Whitish to colorless transparent gel; congeal pt. 68-78 C; ref. index 1.475-1.95

**Storage:** 6 mos. min. shelf life when stored in original containers under suitable conditions

**Pionier® SVE** [Hansen & Rosenthal http://www.hansen-rosenthal.de]

Chem. Descrip.:  **Min. oil (25-50%), isopropyl palmitate (10-25%), petrolatum (10-25%), polyglyceryl-2 sesquioleostearate (10-25%), paraffin (5-10%), magnesium stearate (1-5%), beeswax (1-5%), microcrystalline wax (1-5%), aluminum stearate (1-5%)** See Mineral oil

**Uses:** Emulsifier for pharmaceutical w/o creams and emulsions, ointments

**Properties:** Wh. to ylsh. mass, paste-like/solid; visc. 4-8 mm²/s (100 C); congeal pt. 30-50 C; acid no. 5-15; sapon. no. 40-80; hyd. no. 5-20

**Storage:** 6 mos. min. shelf life when stored in original containers under suitable conditions

**Pionier® SVE Soft** [Hansen & Rosenthal http://www.hansen-rosenthal.de]

Chem. Descrip.:  **Min. oil (25-50%), isopropyl palmitate (10-25%), polyglyceryl-2 sesquioleostearate (10-25%), paraffin (10-25%), petrolatum (10-25%), PEG-7 hydrogenated castor oil (1-5%)** See Mineral oil

**Uses:** Base for pharmaceutical w/o creams and emulsions, ointments

**Properties:** Wh. to ylsh. mass, paste-like/solid; visc. 4-8 mm²/s (100 C); congeal pt. 35-50 C; acid no. 1 max.; sapon. no. 40-60; hyd. no. 10-30

**Storage:** 6 mos. min. shelf life when stored in original containers under suitable conditions

**Pionier® T-0145** [Hansen & Rosenthal http://www.hansen-rosenthal.de]

Chem. Descrip.:  **Isopropyl palmitate (25-50%), polyglyceryl-2 sesquioleostearate (10-25%), min. oil (5-10%), magnesium stearate (5-10%), paraffin (5-10%), beeswax (1-5%), microcrystalline wax (1-5%), aluminum stearate (1-5%)** See Mineral oil

**Uses:** Emulsifier for cosmetic and pharmaceutical w/o creams

**Properties:** Wh. to ylsh. mass, paste-like to solid; visc. 10-50 Pa•S (20 C); congeal pt. 30-50 C; acid no. 20 max.; sapon. no. 120-160; hyd. no. 20-40

**Storage:** 6 mos. min. shelf life when stored in original containers under suitable conditions

**Pionier® T-0150** [Hansen & Rosenthal http://www.hansen-rosenthal.de]

Chem. Descrip.:  **Isopropyl palmitate (25-50%), polyglyceryl-2 sesquioleostearate (10-25%), paraffin (10-25%), min. oil (5-10%), magnesium stearate (5-10%), beeswax (1-5%), microcrystalline wax (1-5%), aluminum stearate (1-5%)** See Mineral oil

**Uses:** Emulsifier for pharmaceutical w/o creams

**Properties:** Wh. to ylsh. mass, paste-like to solid; visc. 60-150 Pa•S (20 C); congeal pt. 35-55 C; acid no. 5-20; sapon. no. 110-150; hyd. no. 20-40

**Storage:** 6 mos. min. shelf life when stored in original containers under suitable conditions
Trade Name Reference

Pionier® WWH-N [Hansen & Rosenthal
http://www.hansen-rosenthal.de]
Chem. Descrip.: Min. oil (25-50%), isopropyl palmitate (25-50%), polyglyceryl-2 sesquioleate (5-10%), polyethylene (1-5%), magnesium stearate (1-5%), beeswax (1-5%), microcrystalline wax (1-5%), aluminum stearate (1-5%)
Uses: Hydrophilic base for w/o ointments and creams
Features: Hydrophilic
Properties: Whitish-ylsh. mass, visc. to vaseline-like solid; visc. 9-8 mm²/s (100 C); drop pt. 92 C; congeal pt. 77 C; acid no. 0.4; sapon. no. 29; hyd. no. 34.7; pH 7.0

Pionier® WWH-Soft [Hansen & Rosenthal
http://www.hansen-rosenthal.de]
Chem. Descrip.: Min. oil (> 50%), isopropyl palmitate (25-50%), polyglyceryl-2 sesquioleate (5-10%), polyethylene (1-5%), paraffin (1-5%), magnesium stearate (1-5%), beeswax (1-5%), microcrystalline wax (1-5%), aluminum stearate (1-5%)
Uses: Hydrophilic base for w/o ointments and creams
Features: Hydrophilic
Properties: Whitish-ylsh. mass, visc. to pastee-like solid; visc. 15-20 mm²/s (100 C); drop pt. 90.5 C; congeal pt. 75 C; acid no. 0.4; sapon. no. 29; hyd. no. 34.7; pH 7.0

Plasdone® C-15 [ISP
http://www.ispcorp.com]
Chem. Descrip.: 2-Pyrrolidinone, 1-ethenyl-, homopolymer
See PVP
CAS 9003-39-8; EINECS/ELINCNS 201-800-4
Uses: Solubilizer, stabilizer, protective colloid, suspending agent, dispersant, binder, film-former for parenteral applics., antibiotics, antiseptics, steroid hormones, vitamins; bioadhesive; blood plasma expander; detoxicant; reduces irritation at inj. site
Features: Pyrogen-free
Regulatory: USP/NF, FCC, BP, EP, JP, JPE compliance; FDA 21CFR §173.55; Canada DSL; Japan ENCS; Australia AICS
Properties: Wh. to creamy wh. powd, odorless, tasteless; 30 µ mean particle size; hygroscopic; sol. in water, aq. and org. solv. systems; bulk dens. 0.25-0.4 g/cc; flash pt. none; pH 3-7 (5% aq.); 5% max. moisture
Toxicology: LD50 (oral) > 10 g/kg; very low chronic oral toxicity; TSCA listed
Environmental: LC50 (juvenile turbot, 96 h) > 1 g/l, (corophium volutator, 10 d) > 1 g/l; EC50 (marine algae, 72 h) > 1 g/l; not readily biodeg. (11% in 28 d)
Precaution: Wear gloves, safety glasses; incompat. with strong oxidizing or reducing agents; heated to decomp., emits toxic fumes of NOx
Hazardous Decomp. Prods.: Oxides of nitrogen
Storage: Prevent excessive moisture pickup

Plasdone® K-12 [ISP
http://www.ispcorp.com]
Chem. Descrip.: PVP
See Povidone
CAS 9003-39-8; EINECS/ELINCNS 201-800-4
Uses: Solubilizer, stabilizer, protective colloid, suspending agent, dispersant, binder, film-former for parenteral applics., antibiotics, antiseptics, steroid hormones, vitamins; bioadhesive; blood plasma expander; detoxicant; reduces irritation at inj. site
Features: Pyrogen-free
Regulatory: USP/NF, FCC, BP, EP, JP, JPE compliance; FDA 21CFR §173.55; Canada DSL; Japan ENCS; Australia AICS
Properties: Wh. to creamy wh. powd, odorless, tasteless; 30 µ mean particle size; hygroscopic; sol. in water, aq. and org. solv. systems; bulk dens. 0.25-0.4 g/cc; flash pt. none; pH 3-7 (5% aq.); 5% max. moisture
Toxicology: LD50 (oral, rat) > 10 m/kg (very low toxicity); not absorbed topically; not a primary skin irritant; nonirritating to eyes; nonsensitizing; prolonged contact may cause dermatitis; nuisance dust: TLV/TWA 10 mg/m³ total, 5 mg/m³ respirable; TSCA listed
Environmental: LC50 (juvenile turbot, 96 h) > 1 g/l, (corophium volutator, 10 d) > 1 g/l; EC50 (marine algae, 72 h) > 1 g/l; not readily biodeg. (11% in 28 d)
Precaution: Wear gloves, safety glasses; incompat. with strong oxidizing or reducing agents; heated to decomp., emits toxic fumes of NOx
Hazardous Decomp. Prods.: Oxides of nitrogen
Storage: Prevent excessive moisture pickup

Plasdone® C-30 [ISP
http://www.ispcorp.com]
Chem. Descrip.: PVP (povidone USP)
CAS 9003-39-8; EINECS/ELINCNS 201-800-4
Uses: Solubilizer, stabilizer, protective colloid, suspending agent, dispersant, binder, film-former for parenteral applics., antibiotics, antiseptics, steroid hormones, vitamins; bioadhesive; blood plasma expander; detoxicant; reduces irritation at inj. site
Features: Pyrogen-free
Regulatory: USP/NF, FCC, BP, EP, JP, JPE compliance; FDA 21CFR §173.55; Canada DSL; Japan ENCS; Australia AICS
Properties: Wh. to creamy wh. powd, odorless, tasteless; 30 µ mean particle size; hygroscopic; sol. in water, aq. and org. solv. systems; bulk dens. 0.25-0.4 g/cc; flash pt. none; pH 3-7 (5% aq.); 5% max. moisture
Toxicology: LD50 (oral) > 10 g/kg; very low chronic oral toxicity; TSCA listed
Environmental: LC50 (juvenile turbot, 96 h) > 1 g/l, (corophium volutator, 10 d) > 1 g/l; EC50 (marine algae, 72 h) > 1 g/l; not readily biodeg. (11% in 28 d)
Precaution: Wear gloves, safety glasses; incompat. with strong oxidizing or reducing agents; heated to decomp., emits toxic fumes of NOx
Hazardous Decomp. Prods.: Oxides of nitrogen
Storage: Prevent excessive moisture pickup
Trade Name Reference

http://www.ispcorp.com

Chem. Descrip.: PVP (povidone USP)
Chem. Analysis: 5.0% max. moisture
CAS 9003-39-8; EINECS/ELINCS 201-800-4
Uses: Wet granulation binder for oral solid dosage forms; solubilizer and bioavailability enhancer of poorly soluble drugs; adhesion promoter in the formulation of water-soluble bioadhesives; crystal growth inhibitor, and rheological additives in soft-gelatin capsules, oral liquids and suspensions, parenterals, topical gels, creams, lotions and ophthalmic preps.
Features: Hygroscopic,
Regulatory: USP/NF, EP
Properties: Off-wh. powd., sol. in water; avg. m.w. 4,000; bulk dens. 0.42 g/cm³; K value 10.2-13.8; pH 3-5 (5% aq.); nonionic; 94-95% act.
Toxicology: LD50 (acute oral) >10,000 mg/kg; nonmutagenic; TSCA listed
Environmental: EC50 (algae, 72 h) >1,000 mg/l
Precaution: Wear safety glasses and gloves; powdered form may form explosive dust-air mixtures; avoid strong oxidizing and reducing agents
Hazardous Decomp. Prods.: NOx
HMIS: Health 0, Flammability 3, Reactivity 0
Storage: Keep containers tightly closed when not in use; store in a cool, dry place, out of direct sunlight and away from moisture

Plasdone® K-17 [ISP
http://www.ispcorp.com]

Chem. Descrip.: PVP (povidone USP)
Chem. Analysis: 5.0% max. moisture
CAS 9003-39-8; EINECS/ELINCS 201-800-4
Uses: Excipient, cohesive agent, stabilizer, protective colloid, detoxicant, vehicle, and retardant for pharmaceuticals (topicals, ophthalmics, liqs.); gellant, binder, coating agent, dye/pigment dispersant in tablets; solubilizer and suspending agent in liq. prods.; film-former in medicinal aerosols
Features: Minimizes toxic side effects of some drugs
Regulatory: FDA 21CFR §173.55; USP, FCC, BP, German Ph., French Ph., Italian Ph. compliance
Properties: Wh. or creamy wh. powd., odorless, tasteless; hygroscopic; sol. in aq. and org. solvs.; flash pt. none; pH 3-7 (5% aq.); 5% max. moisture
Toxicology: Very low chronic oral toxicity
Storage: Prevent excessive moisture pickup

Plasdone® K-25 [ISP
http://www.ispcorp.com]

Chem. Descrip.: PVP (povidone USP)
Chem. Analysis: 5.0% max. moisture
CAS 9003-39-8; EINECS/ELINCS 201-800-4
Uses: Excipient, cohesive agent, stabilizer, protective colloid, detoxicant, vehicle, and retardant for pharmaceuticals (topicals, ophthalmics, liqs.); gellant, binder, coating agent, dye/pigment dispersant for tablets; solubilizer and suspending agent in liq. prods.; film-former in medicinal aerosols
Features: Hygroscopic,
Regulatory: USP/NF, EP
Properties: Off-wh. powd., sol. in water; avg. m.w. 10,000; bulk dens. 0.44 g/cm³; K value 16.0-17.5; pH 3-5 (5% aq.); nonionic; 94-95% act.
Toxicology: LD50 (oral, rat) >100,000 mg/kg; nonmutagenic; TSCA listed
Environmental: EC50 (algae, 72 h) >1,000 mg/l
Precaution: Wear safety glasses and gloves; powdered form may form explosive dust-air mixtures; avoid strong oxidizing and reducing agents
Hazardous Decomp. Prods.: NOx
HMIS: Health 0, Flammability 3, Reactivity 0
Storage: Keep containers tightly closed when not in use; store in a cool, dry place, out of direct sunlight and away from moisture

Plasdone® K-25/32 [ISP
http://www.ispcorp.com]

Chem. Descrip.: PVP (povidone USP)
Chem. Analysis: 5.0% max. moisture
CAS 9003-39-8; EINECS/ELINCS 201-800-4
Uses: Excipient, cohesive agent, stabilizer, protective colloid, detoxicant, vehicle, and retardant for pharmaceuticals (topicals, ophthalmics, liqs.); gellant, binder, coating agent, dye/pigment dispersant in tablets; solubilizer and suspending agent in liq. prods.; film-former in medicinal aerosols
Features: Minimizes toxic side effects of some drugs
Regulatory: FDA 21CFR §173.55; USP, FCC, BP, German Ph., French Ph., Italian Ph. compliance
Properties: Wh. or creamy wh. powd., odorless, tasteless; hygroscopic; sol. in aq. and org. solvs.; flash pt. none; pH 3-7 (5% aq.); 5% max. moisture
Toxicology: LD50 (oral, rat) >100,000 mg/kg; nonmutagenic; TSCA listed
Environmental: EC50 (algae, 72 h) >1,000 mg/l
Precaution: Wear safety glasses and gloves; powdered form may form explosive dust-air mixtures; avoid strong oxidizing and reducing agents
Hazardous Decomp. Prods.: NOx
HMIS: Health 0, Flammability 3, Reactivity 0
Storage: Keep containers tightly closed when not in use; store in a cool, dry place, out of direct sunlight and away from moisture
Trade Name Reference

very low chronic oral toxicity; not absorbed topically; not a primary skin irritant; nonirritating to eyes; nuisance dust;
TLV/TWA 10 mg/m³ total, 5 mg/m³ respirable
Precaution: Incompat. with strong oxidizing or reducing agents; heated to decomp., may emit toxic fumes of NOx
Storage: Prevent excessive moisture pickup

Plasdone® K-90 [ISP
http://www.ispcorp.com]
Chem. Descrip.: PVP (povidone USP)
CAS 9003-39-8; EINECS/ELINCS 201-800-4
Uses: Excipient, cohesive agent, stabilizer, protective colloid, vehicle, and retardant for pharmaceuticals (topicals, orals, ophthalmics, liqs.); gellant, binder, coating agent, dye/pigment dispersant in tablets; detoxicant for poisons and irritants; solubilizer and suspending agent in liq. prods.; film-former in medicinal aerosols
Regulatory: FDA 21CFR §173.55; USP, FCC, JP,BP, German Ph., French Ph., Italian Ph. compliance
Properties: Wh. or creamy wh. powd., odorless, tasteless; 10% max. < 75 µ particle size; hygroscopic; sol. in water, aq. and org. solvs.; bulk dens. 0.4-0.6 g/cc; pH 3-7 (5% aq.); 5% max. moisture
Toxicology: Very low chronic oral toxicity; essentially nontoxic by inh., IV, or other parenteral routes; not a primary skin irritant; nonsensitizing; nonirritating to eyes
Storage: Prevent excessive moisture pickup

Plasdone® K-90D [ISP
http://www.ispcorp.com]
Chem. Descrip.: PVP (povidone USP), densified grade
CAS 9003-39-8; EINECS/ELINCS 201-800-4
Uses: Excipient, cohesive agent, stabilizer, protective colloid, vehicle, and retardant for pharmaceuticals (topicals, orals, ophthalmics, liqs.); gellant, binder, coating agent, dye/pigment dispersant in tablets; detoxicant for poisons and irritants; solubilizer and suspending agent in liq. prods.; film-former in medicinal aerosols
Regulatory: FDA 21CFR §173.55; USP, FCC, JP,BP, German Ph., French Ph., Italian Ph. compliance
Properties: Wh. or creamy wh. powd., odorless, tasteless; 10% max. < 75 µ particle size; hygroscopic; sol. in aq. and org. solvs.; pH 3-7 (5% aq.); 5% max. moisture
Toxicology: Very low chronic oral toxicity; essentially nontoxic by inh., IV, or other parenteral routes; not a primary skin irritant; nonsensitizing; nonirritating to eyes
Storage: Prevent excessive moisture pickup

Plasdone® S-630 [ISP
http://www.ispcorp.com]
Chem. Descrip.: Polyvinylpyrrolidone-vinylacetate copolymer See PVP/VA copolymer
CAS 25086-89-9
Uses: Film-forming adhesive, direct compression tablet binder, dry granulation tablet binder, wet granulation binder, film coating additive in pharmaceuticals; plasticizer in film coatings; soften. pt. reducer in cellulose films
Regulatory: Ph Eur, DAB, JSPI, and BP compliant
Properties: Wh. powd.; sol. in water, methanol, ethanol, propanol, isopropanol, butanol, chloroform, methylene chloride, polyethylene glycol 400, propylene glycol, 1,4-butanediol, and glycerol; bulk dens. 0.23 g/cm³; tap dens. 0.35 g/cm³; pH 3-5 (10%) Toxicology: LD50 (oral, rabbit) > 5.0 g/kg; nonirritating to skin; nonsensitizing in humans
Storage: 2 yr. shelf life in orig. container @ R.T.

Plastoid® B [Röhm GmbH
http://www.roehm.de]
Chem. Descrip.: Neutral copolymer based on butyl methacrylate and methyl methacrylate
CAS 97-88-1; 80-62-6; EINECS/ELINCS 202-615-1; 201-297-1
Uses: Film-former for external pharmaceutical prods., esp. liq. wound dressings (sprays); mfg. of matrix layers for transdermal therapy systems
Regulatory: USP, EP
Properties: Wh. coarse powd.; faint odor; sol in ethyl acetate (1g/ 9g); sol. in acetone (10% sol'n.), methyl ethyl ketone (10% sol'n.), chloroform (10% sol'n.), n-butanol (10% sol'n.) and toluene (10% sol'n.); m.w. ≈ 150,000; visc. (Brookfield Viscometer) 15 mPa.s max.
Precaution: Avoid warm temps. and moisture
Storage: 6 mos. min. storage stability @ < 8 C; 12 mos. min. storage stability @ < -15 C

Pluracol® E300 [BASF/Perf. Chems.
http://www.basf.com/static/988804217008.html]
Chem. Descrip.: PEG-6
CAS 25322-68-3; EINECS/ELINCS 220-045-1
Uses: Binder, base, coating, stabilizer, solvent, vehicle, extender, and coupling agent for pharmaceuticals
Properties: Colorless cl. liq.; m.w. 300; sol. in water and org. solvs. except aliphatic
Trade Name Reference

hydrocarbons; dens. 9.4 lb/gal; sp.gr. 1.12; 
visc. 5.9 cs (99 C); flash pt. (COC) 210 C; pour 
pt. -13 C; surf. tens. 62.9 dynes/cm (1%); pH 
5.7 (5% aq.); nonionic

Pluracol® E300L [BASF/Perf. Chems. 
http://www.basf.com/static/988804217008.htm] 
Chem. Descrip.: PEG See PEG-6 
Chem. Analysis: Water 0.00-0.20% 
CAS 2615-15-8; EINECS/ELINCS 203-989-9 
Uses: Pharmaceuticals 
Properties: Cl. liq.; APHA color 0-25; sp.gr. 
1.124; pour pt. -13 C; flash pt. 210 C (COC); 
pH (5% aq.) 4.5-7.5; acid value 0.0-1.0; 
hydroxyl value 356-394; surface tens. (0.1% 
aq.) 63 dynes/cm; foam height 0 mm (0.1% 
aq., 50 C) 
Storage: 1 yr.

Pluracol® E400 [BASF/Perf. Chems. 
http://www.basf.com/static/988804217008.htm] 
Chem. Descrip.: PEG-8 
CAS 25322-68-3; EINECS/ELINCS 225-856-4 
Uses: Binder, base, coating, stabilizer, 
solvent, vehicle, extender, and coupling 
agent for pharmaceuticals 
Properties: Colorless cl. liq.; sol. in water and 
org. solvs. except aliphatic hydrocarbons; 
dens. 9.4 lb/gal; sp.gr. 1.12; visc. 7.39 cs (210 
F); flash pt. 460 F; surf. tens. 66.6 dynes/cm 
(1%); pH 6.2 (5% aq.); nonionic; 100% act.

Pluracol® E400 NF [BASF/Perf. Chems. 
http://www.basf.com/static/988804217008.htm] 
Chem. Descrip.: PEG-8 
CAS 25322-68-3; EINECS/ELINCS 225-856-4 
Uses: Excipient, carrier, solvent, base, 
coupling agent, thickener, lubricant, 
defoamer, softener, dispersant in OTC 
pharmaceuticals and oral care preps., e.g., 
mouthwashes, cough syrups 
Properties: Liq.; m.w. 600; visc. 10.8 cs (99 C); 
pour pt. 20 C; flash pt. (COC) 249 C; nonionic 

Pluracol® E600 [BASF/Perf. Chems. 
http://www.basf.com/static/988804217008.htm] 
Chem. Descrip.: PEG-12 
CAS 25322-68-3; EINECS/ELINCS 229-859-1 
Uses: Binder, base, coating, stabilizer, 
solvent, vehicle, extender, and coupling 
agent for pharmaceuticals 
Properties: Colorless cl. liq.; sol. in water and 
org. solvs. except aliphatic hydrocarbons; 
dens. 9.4 lb/gal; sp.gr. 1.12; visc. 10.83 cs 
(210 F); flash pt. 480 F; surf. tens. 65.2 
dynes/cm (1%); pH 5.3 (5% aq.); nonionic; 
100% act.

Pluracol® E600 NF [BASF/Perf. Chems. 
http://www.basf.com/static/988804217008.htm] 
Chem. Descrip.: PEG-12 
CAS 25322-68-3; EINECS/ELINCS 229-859-1 
Uses: Excipient, carrier, solvent, base, 
coupling agent, thickener, lubricant, 
defoamer, softener, dispersant in OTC 
pharmaceuticals and oral care preps., e.g., 
mouthwashes, cough syrups 
Properties: Liq.; m.w. 600; visc. 10.8 cs (99 C); 
pour pt. 20 C; flash pt. (COC) 249 C; nonionic 

Pluracol® E1000 [BASF/Perf. Chems. 
http://www.basf.com/static/988804217008.htm] 
Chem. Descrip.: PEG See PEG-12 
CAS 6790-09-6; EINECS/ELINCS 229-859-1 
Uses: Pharmaceuticals 
Properties: Cl. liq.; APHA color 0-25; sp.gr. 
1.125; visc. 10.8 CP @ 99 C; pour pt. 20 C; 
flash pt. 249 C (COC); pH (5% aq.) 4.5-7.5; 
acid value 0.0-1.0; hydroxyl value 178-197; 
surface tens. (0.1% aq.) 65 dynes/cm; foam 
height (0.1% aq., 50 C) 0 mm 
Storage: 1 yr.

Pluracol® E1000 [BASF/Perf. Chems. 
http://www.basf.com/static/988804217008.htm] 
Chem. Descrip.: PEG-20 
CAS 25322-68-3; EINECS/ELINCS 203-989-9 
Uses: Chemical intermediate, base, coupling 
agent, thickener, lubricant, mold release 
agent, defoamer, softener, conditioner, 
antistat, sizing agent, dispersant for
Trade Name Reference

**pharmaceuticals**

**Properties:** Solid; m.w. 1000; visc. 17.5 cs (99 C); m.p. 38 C; flash pt. (COC) 255 C


Chem. Descrip.: PEG-32
CAS 25322-68-3; EINECS/ELINCS 203-989-9
Uses: Dispersant for pharmaceuticals

**Properties:** Solid; m.w. 1450; visc. 28.5 cs (99 C); m.p. 45 C; flash pt. (COC) 255 C; 100% act.


Chem. Descrip.: PEG-32
CAS 25322-68-3; EINECS/ELINCS 203-989-9
Uses: Excipient, carrier, solvent, base, coupling agent, thickener, lubricant, defoamer, softener, dispersant in OTC pharmaceuticals and oral care preps., e.g., mouthwashes, cough syrups

**Properties:** Solid; m.w. 600; visc. 28.5 cs (99 C); m.p. 45 C; flash pt. (COC) 255 C


Chem. Descrip.: PEG-40
CAS 25322-68-3; EINECS/ELINCS 203-989-9
Uses: Base, coupling agent, thickener, lubricant, mold release agent, defoamer, softener, conditionant, antistat, sizing agent, dispersant for pharmaceuticals

**Properties:** Solid; m.w. 2000; visc. 43.5 cs (99 C); m.p. 52 C; flash pt. (COC) > 260 C; nonionic; 100% act.


Chem. Descrip.: PEG-75
CAS 25322-68-3; EINECS/ELINCS 203-989-9
Uses: Binder, base, coating, stabilizer, solvent, vehicle, extender, and coupling agent for pharmaceuticals

**Properties:** Wh. waxy solid; sol. in water and org. solvs. except aliphatic hydrocarbons; dens. 10.0 lb/gal; sp.gr. 1.21; m.p. 61.0 C; flash pt. > 490 F; surf. tens. 62.1 dynes/cm (1%); pH 6.7 (5% aq.)


Chem. Descrip.: PEG-150
CAS 25322-68-3; EINECS/ELINCS 203-989-9
Uses: Binder, base, coating, stabilizer, solvent, vehicle, extender, coupling agent for pharmaceuticals

**Properties:** Wh. waxy solid; sol. in water and org. solvs. except aliphatic hydrocarbons; dens. 10.0 lb/gal; sp.gr. 1.21; m.p. 61.0 C; flash pt. > 490 F; surf. tens. 62.1 dynes/cm (1%); pH 6.7 (5% aq.)


Chem. Descrip.: PEG-32
CAS 25322-68-3; EINECS/ELINCS 203-989-9
Uses: Base, coupling agent, thickener, lubricant, mold release agent, defoamer, softener, conditionant, antistat, sizing agent, dispersant for pharmaceuticals

**Properties:** Wh. waxy solid; sol. in water and org. solvs. except aliphatic hydrocarbons; dens. 10.0 lb/gal; sp.gr. 1.21; m.p. 61.0 C; flash pt. > 490 F; surf. tens. 62.1 dynes/cm (1%); pH 6.7 (5% aq.)


Chem. Descrip.: PEG-150
CAS 25322-68-3; EINECS/ELINCS 203-989-9
Uses: Base, coupling agent, thickener, lubricant, mold release agent, defoamer, softener, conditionant, antistat, sizing agent, dispersant for pharmaceuticals

**Properties:** Wh. waxy solid; sol. in water and org. solvs. except aliphatic hydrocarbons; dens. 10.0 lb/gal; sp.gr. 1.21; m.p. 61.0 C; flash pt. > 490 F; surf. tens. 62.1 dynes/cm (1%); pH 6.7 (5% aq.)

**Plurol® Diisostearique** [Gattefosse France http://www.gattefosse.fr]

Chem. Descrip.: Polyglyceryl-3 diisostearate
CAS 66082-42-6; EINECS/ELINCS 291-548-1
Uses: W/o emulsifier for pharmaceutical creams for dry skin treatment, skin protection, dermatological sun care preps.; excipient for dermal/transdermal pharmaceuticals

**Features:** Cold process; exc. appearance, gloss, afterfeel, and stability at 50 C

**Regulatory:** DMF no. 11696

**Properties:** Pale yel. cl. to sl. opalescent visc. liq., faint odor; sol. in min. and veg. oils; insol. in water, alcohols; acid no. < 5; iodine no. < 8; sapon. no. 128-148; ref. index 1.471-1.475; nonionic; < 0.5% water

**Use Level:** 3% (lotions); 6% (thick creams)
Storage: Avoid moisture and air; storage below 18°C can lead to reversible opalescence

Plurol® Isostearique [Gattefosse France http://www.gattefosse.fr]
Chem. Descr.: Polyglyceryl-6 isostearate
CAS 12692-07-2
Uses: Emulsifier, cosurfactant, bioavailability enhancer for microemulsions
Properties: Gardner < 10 visc. liq., char. odor; sol. in chloroform, methylene chloride, veg. oils, ethanol; disp. in water; HLB 10.0; acid no. < 6; iodine no. < 10; sapon. no. 115-135; ref. index 1.470-1.480; nonionic; 100% conc.
Toxicology: Nonirritating to skin

Plurol® Oleique [Gattefosse France http://www.gattefosse.fr]
Chem. Descr.: Polyglyceryl-6 dioleate
CAS 76009-37-5; EINECS/ELINCS 278-358-4
Uses: Emulsifier, solubilizer, cosurfactant for pharmaceutical topical microemulsions; suspending agent for hard/soft gelatin capsules
Properties: Gardner < 10 visc. liq., char. odor; sol. in ethanol, chloroform, methylene chloride, veg. and min. oils; disp. in water; visc. 5-28 Pa•s; HLB 10.0; acid no. < 6; iodine no. 50-70; sapon. no. 110-140; pH 7.0-9.5 (10% aq.); ref. index 1.470-1.490; nonionic; 100% conc.
Toxicology: Slight irritating to skin and eyes

Plurol® Oleique CC 497 [Gattefosse France http://www.gattefosse.fr]
Chem. Descr.: Polyglyceryl-6 oleate
CAS 9007-48-1
Uses: Emulsifier for liq. self-microemulsifying drug delivery systems; solubilizer, bioavailability enhancer, absorp. enhancer for poorly-sol. drugs in liq. and capsule formulations; vehicle for dissolved or suspended drugs; wetting agent to aid wetting of suspended powds.; thickener in pharmaceuticals; coemulsifier for oral and topical microemulsions
Properties: Visc. liq.; char. odor; HLB 6; nonionic

Chem. Descr.: Polyglyceryl-6 distearate
CAS 34424-97-0; EINECS/ELINCS 252-010-1
Uses: Pharmaceutical excipient, coating agent, emulsifier, solubilizer, wetting agent
Regulatory: FCC listed
Properties: Gardner < 10 waxy solid, faint odor; sol. in chloroform, methylene chloride; partly sol. in ethanol; disp. in water; HLB 9.0; drop pt. 48-53°C; acid no. < 5; iodine no. < 3; sapon. no. 120-140; pH 7.0-9.5 (10% aq.); nonionic; 100% conc.
Toxicology: Nonirritating to eyes

Chem. Descr.: Poloxamer 188 NF
CAS 9003-11-6
Uses: Surfactant, emulsifier, solubilizer in pharmaceuticals, topical and oral care prods.; protective gel coating in burn treatments; vehicle for ointments and fluoridated dentifrices
Properties: Solid; sol. in ethanol, water; m.w. 8350; sp.gr. 1.06 (77°C); dens. 8.8 lb/gal (77°C); visc. 1000 cps (77°C); m.p. 52°C; HLB 29.0; cloud pt. > 100°C (1% aq.); flash pt. (COC) 500°F; surf. tens. 50.3 dynes/cm (0.1%); Draves wetting > 360 s (0.1%); Ross-Miles foam 35 mm (0.1% aq., 50°C); nonionic; 100% act.
Toxicology: LD50 (oral) 2 to > 15 g/kg, (dermal) > 5 g/kg; non to sl. eye and skin irritation

Chem. Descr.: Poloxamer 237 NF
CAS 9003-11-6
Uses: Surfactant, emulsifier, solubilizer in pharmaceuticals, topical and oral care prods.; protective gel coating in burn treatments; vehicle for ointments and fluoridated dentifrices
Properties: Solid; sol. in ethanol, water, toluene; m.w. 7700; sp.gr. 1.04 (77°C); dens. 8.7 lb/gal (77°C); visc. 700 cps (77°C); m.p. 49°C; HLB 24.0; cloud pt. > 100°C (1% aq.); flash pt. (COC) 472°F; surf. tens. 44.0 dynes/cm (0.1%); Draves wetting > 360 s (0.1%); Ross-Miles foam 80 mm (0.1% aq., 50°C); nonionic; 100% act.
Toxicology: LD50 (oral) 2 to > 15 g/kg, (dermal) > 5 g/kg; non to sl. eye and skin irritation

Chem. Descr.: Poloxamer 408 NF
CAS 9003-11-6
Uses: Surfactant, emulsifier, solubilizer in pharmaceuticals, topical and oral care prods.; protective gel coating in burn treatments; vehicle for ointments and fluoridated dentifrices
Properties: Solid; sol. in ethanol, water, toluene; m.w. 55,000; sp.gr. 1.01 (77°C); dens. 8.6 lb/gal (77°C); visc. 500 cps (77°C); m.p. 32°C; HLB 20.0; cloud pt. > 100°C (1% aq.); flash pt. (COC) 302°F; surf. tens. 27.8 dynes/cm (0.1%); Draves wetting > 360 s (0.1%); Ross-Miles foam 10 mm (0.1% aq., 50°C); nonionic; 100% act.
Toxicology: LD50 (oral) 2 to > 15 g/kg, (dermal) > 5 g/kg; non to sl. eye and skin irritation
Trade Name Reference

Chem. Descrip.: Poloxamer 338 NF
CAS 9003-11-6
Uses: Surfactant, emulsifier, solubilizer in pharmaceuticals, topical and oral care prods.; protective gel coating in burn treatments; vehicle for ointments and fluoridated dentifrices
Properties: Prilled; sol. in ethanol, water, m.w. 14,000; sp.gr. 1.06 (77 C); dens. 8.8 lb/gal (77 C); visc. 8000 cps (77 C); m.p. 57 C; HLB 27.0; cloud pt. > 100 C (1% aq.); flash pt. (COC) 495 F; surf. tens. 41.2 dynes/cm (0.1%); Draves wetting > 360 s (0.1%); Ross-Miles foam 40 mm (0.1% aq., 50 C); nonionic; 100% act.
Toxicology: LD50 (oral) 2 to > 15 g/kg, (dermal) > 5 g/kg; non to sl. eye and skin irritation

Chem. Descrip.: Poloxamer 407 NF
CAS 9003-11-6
Uses: Gellant for pharmaceuticals; emulsifier, solubilizer in topical and oral care prods.; protective gel coating in burn treatments; vehicle for ointments and fluoridated dentifrices
Properties: Prilled; sol. in ethanol, water, toluene, perchloroethylene; m.w. 12,500; sp.gr. 1.05 (77 C); dens. 8.8 lb/gal (77 C); visc. 3100 cps (77 C); m.p. 56 C; HLB 22.0; cloud pt. > 100 C (1% aq.); surf. tens. 40.6 dynes/cm (0.1%); Draves wetting > 360 s (0.1%); Ross-Miles foam 40 mm (0.1% aq., 50 C); nonionic; 100% act.
Toxicology: LD50 (oral) 2 to > 15 g/kg, (dermal) > 5 g/kg; non to sl. eye and skin irritation

Chem. Descrip.: Poloxamer 124 NF
CAS 9003-11-6
Uses: Surfactant, emulsifier, solubilizer in pharmaceuticals, topical and oral care prods.; protective gel coating in burn treatments; vehicle for ointments and fluoridated dentifrices
Properties: Liq.; m.w. 2200; sp.gr. 1.05; dens. 8.8 lb/gal; visc. 440 cps; HLB 16.0; pour pt. 16 C; cloud pt. 65 C (1% aq.); flash pt. (COC) 464 F; ref. index 1.4580; surf. tens. 45 dynes/cm; Draves wetting > 360 s (0.1%); Ross-Miles foam 25 mm (0.1%, 50 C); nonionic; 100% act.
Toxicology: LD50 (oral) 2 to > 15 g/kg, (dermal) > 5 g/kg; non to sl. eye and skin irritation

Chem. Descrip.: Propylene glycol stearate SE
CAS 91031-35-5; EINECS/ELINCS 292-936-3
Uses: Emulsifier, emulsion stabilizer, and dispersant for pharmaceuticals
Features: Lipophilic
Regulatory: JSCI listed
Properties: Wh. solid; HLB 4.0; anionic; 100% conc.
Toxicology: TSCA listed

Chem. Descrip.: Propylene glycol stearate
CAS 1323-39-3; EINECS/ELINCS 215-354-3
Uses: Emulsifier, emulsion stabilizer, and dispersant for pharmaceuticals
Features: Lipophilic
Regulatory: JSCI listed
Properties: Wh. solid; HLB 4.0; anionic; 100% conc.
Toxicology: TSCA listed

Pogol® 400 [Huntsman http://www.huntsman.com]
Chem. Descrip.: PEG 400 See PEG-8
CAS 25322-68-3; EINECS/ELINCS 225-856-4
Uses: Solubilizer, solv. for pharmaceutical ointments and lotions
Properties: Pt-Co < 50 color; cl. liq.; m.w. 380-420; dens. 1.1254 g/ml (20 C); visc. 42 cSt (37.8 C); f.p. -8 C; flash pt. (PMCC) 200 C; pH 5.5-7.0 (5% aq.); nonionic; 100% act.
Storage: Store in carbon steel tanks using steel pipes and pumps

Chem. Descrip.: Bentonite USP/NF
CAS 1302-78-9; EINECS/ELINCS 215-108-5
Uses: Visc. builder, disintegrant, binder, suspending agent for pharmaceuticals
Features: High visc. wh. montmorillonite
Properties: Wh. microfine powd.; 99% min. through 200 mesh; vic. 800 cps min. (5% solids); pH 9.5-10.5 (2% disp.); dry brightness (GE) 83-87; 5-8% moisture

Polargel® NF [Am. Colloid]
Che. Descrip.: Purified wh. bentonite USP/NF
CAS 1302-78-9; EINECS/ELINCS 215-108-5
Uses: Gelant, thickener, binder, and suspending agent for pharmaceuticals
Properties: Wh. fine powd.; 99% through 200 mesh; visc. 40-200 cps (5% solids); pH 9.0-10.0 (5% disp.); dry brightness (GE) 85-90; 8% max. moisture

Che. Descrip.: Bentonite USP/NF
CAS 1302-78-9; EINECS/ELINCS 215-108-5
Uses: Thickener, suspending agent, and binder for pharmaceuticals
Properties: Wh. fine powd.; 99% min. through 200 mesh; visc. 200-500 cps (5% solids); pH 9.5-10.5 (2% disp.); dry brightness (GE) 83-87; 5-8% moisture

Polinor T deo  [Cognis http://www.cognis.de]
Uses: Carrier for pharmaceutical lipophilic active ingreds.

Polawax® A31  [Croda Inc http://www.croda.com; http://www.crodausa.com; Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: Emulsifying wax NF
CAS 97069-99-0
Uses: O/w emulsifier and foaming agent in quick-breaking foams, oral and topical pharmaceuticals
Features: Optimized for hydroalcoholic systems
Properties: Creamy wh. flakes, mild char. odor; sol. in alcohol and aerosol propellant, disp. in water, propylene glycol; m.p. 50-54 C; iodine no. 3.5 max.; sapon. no. 14 max.; hyd. no. 178-192; pH 5.5-7.0 (3% eq.); nonionic; 100% conc.
Use Level: 1-8%
Toxicology: LD50 (oral, rat) > 5 g/kg; nonirritating to skin and eyes

Polawax® GP200  [Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: Self-emulsifying wax
Uses: Emulsifier producing stable w/o emulsions for pharmaceuticals, lotions, creams, ointments
Features: Self-bodying; effective at high levels of electrolytes and active ingreds.; heat-stable; stable delivery system for most actives over a wide pH range
Properties: Wh. powd.; nonionic; 97% conc.

Polawax® NF  [Croda Inc http://www.croda.com; http://www.crodausa.com; Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: Emulsifying wax NF
CAS 97069-99-0
Uses: Emulsifier, thickener, opacifier, suspending agent for topical pharmaceuticals, antibiotic creams and lotions, acne preps., analgesic rubs; stabilizer for o/w emulsions; emulsifier for pharmaceutical orals, creams, and lotions; controlled release capsule fill and wax matrix apps.
Features: Comp. with other emulsifiers; stable over wide pH range; autoclavable
Properties: Creamy wh. flaked waxy solid, mild char. odor; sol. in alcohol; disp. in water, propylene glycol; m.p. 48-52 C; iodine no. 3.5 max.; sapon. no. 14 max.; hyd. no. 178-192; pH 5.5-7.0 (3% eq.); nonionic; 100% conc.
Use Level: 2-25%; 2-3% (fluid emulsions); 5-10% (thick visc. emulsions); 10-25% (creams); 15-20% (controlled release capsules)
Toxicology: LD50 (oral, rat) 16 g/kg; nonirritating to skin and eyes

Polyalditol X110  [SPI Pharma http://www.spipharma.com]
Uses: Excipient providing a protective matrix for pharmaceutical actives, enzymes, proteins, etc. during spray drying, lyophilization, and coagglomeration; excipient for direct compression tableting; binder, diluent in wet granulation, fluid bed, or agglomeration processes
Features: Exc. compression props.; nonreactive; cryoprotectant props. beneficial in freeze-drying
Properties: Wh. spray-dried powd.; sl. sweet taste; water-sol.; m.w. 1600 avg.; visc. 118 (40%); 280 (50%); 5-6% loss on drying

Polyalditol X120  [SPI Pharma http://www.spipharma.com]
Uses: Excipient providing a protective matrix for pharmaceutical actives, enzymes, proteins, etc. during spray drying, lyophilization, and coagglomeration; excipient for direct compression tableting; binder, diluent in wet granulation, fluid bed, or agglomeration processes
Features: Exc. compression props.; nonreactive;
Trade Name Reference

cryoprotectant props. beneficial in freeze-drying
Properties: Wh. spray-dried powd.; sl. sweet taste; water-sol.; m.w. 900 avg.; visc. 44 (40%), 77 (50%); 5-6% loss on drying
Polyaldo® 10-1-O [Lonza http://www.lonza.com]
Chem. Descrip.: Decaglycerol monooleate See Polyglyceryl-10 olate
CAS 9007-48-1; EINECS/ELINCS 279-230-0
Uses: Emulsifier in medicinals, pharmaceuticals
Features: Polysorbate replacer
Regulatory: Made to food grade and Kosher requirements
Properties: Waxy solid; HLB 13; nonionic

PolyBeard® Microspheres [Polysciences http://www.polysciences.com]
Chem. Descrip.: Polystyrene microspheres in aq. suspending medium
CAS 9003-53-6; EINECS/ELINCS 202-851-5
Uses: Inert microparticles with controlled size, shape, and functionality for organic syntheses, immunochemistry, cell biology, diagnostic testing, flow cytometry, cancer therapy
Features: Sterilizable by gamma or alcohol treatments; stable to mod. heating; avail. with acrylated, chloromethyl, polyacrolein, carboxylated, amino, epoxy, hydroxylate, and methyl methacrylate functionality
Properties: Microparticles (0.05-90 µ); various colors and fluorescent colors avail.; dens. 1.05 g/ml; ref. index 1.6000; 2.5-20% concs.
Storage: 2 yrs. min. shelf life; store @ 4 C; protect from freezing
Chem. Descrip.: Propylene glycol
CAS 57-55-6; EINECS/ELINCS 200-338-0
Uses: Solvent, emulsifier in pharmaceuticals

Polychol 15 [Croda Inc http://www.croda.com; http://www.crodausa.com; Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: Laneth-5
CAS 61791-20-6
Uses: O/w emulsifier, dispersant, gellant, emollient, solubilizer for topical pharmaceuticals; coemulsifier in prod. of w/o emulsions and microemulsions for topical pharmaceuticals; cosolvent for nonmiscible oils
Features: Reduces greasy feeling of lanolin
Properties: Soft yel. wax; sol. in IPA, disp. in water, propylene glycol, min. oil; m.p. 35-48 C; HLB 5; nonionic; 1% max. moisture
Use Level: 1-10%
Toxicology: LD50 (oral, rat) 7.7 g/kg; mild skin irritant, nonirritating to eyes
Trade Name Reference

http://www.crodausa.com; Croda Chem. Europe Ltd http://www.croda.co.uk
Chem. Descrip.: Laneth-15
CAS 61791-20-6
Uses: O/w emulsifier, dispersant, solubilizer, emollient, thickener, and gellant for topical pharmaceuticals; cosolvent for nonmiscible oils
Features: Mild; reduces greasy feeling of lanolin
Properties: Yel. soft wax; sol. in water, IPA, propylene glycol; disp. in min. oil; m.p. 34-42 C; HLB 12.7; acid no. 5 max.; hyd. no. 82-92; pH 3.5-5.5 (10% aq.); nonionic; 100% conc.
Use Level: 1-10%
Toxicology: Nonirritating to skin and eyes

Uses: Solvent for pharmaceuticals
Properties: M.p. -23 C; b.p. > 270 C

Chem. Descrip.: Water, glycerin, hydroxypropyl methyl cellulose
Uses: Vehicle in topical pharmaceuticals
Features: Easily pumped for convenient processing; relatively stable @ pH 4-10; tolerant to potassium and sodium salts, most surfactants, some polar solvs.
Properties: Lt. yel. to straw visc. gel; visc. 170,000-265,000 cps; pH 4.8-5.7; ref. index 1.386-1.390
Precaution: Incompat. with strong oxidizers
Storage: Store @ R.T.; visc. reduced @ > 45 C

Polyox® WSR 205 [Dow http://www.dow.com]
Chem. Descrip.: PEG-14M
CAS 25322-68-3
Uses: Thickener, lubricant, binder, coating for pharmaceuticals; water-sol. coating for tablets; dispersant, antisettling agent in calamine lotion; lubricant, evaporation inhibitor for rubbing alcohol; controlled-release drugs
Regulatory: FDA 21CFR §172.770, 175.300, 175.380, 175.390, 176.170, 176.180, 177.1210, 177.1350; EPA 40CFR §180.1001(d)
Properties: Wh. gran. powd., mild ammoniacal odor; 100% through 10 mesh, 96% through 20 mesh; sol. in water, some chlorinated solvs., alcohols, aromatic hydrocarbons, ketones; m.w. 600,000; sp.gr. 1.15-1.26; bulk dens. 19-37 lb/ft³; visc. 4500-8800 cps (5% aq.); m.p. 62-67 C; pH 8-10 (5% aq.); nonionic
Precaution: Slippery when wet
Storage: Store in sealed containers below 25 C, away from heat; avoid dust buildup

Polyox® WSR 301 [Dow http://www.dow.com]
Chem. Descrip.: PEG-90M NF
CAS 25322-68-3
Uses: Excipient in pharmaceuticals; binder, water-sol. coating for tablets; dispersant, antisettling agent in calamine lotion; lubricant, evaporation inhibitor for rubbing alcohol; controlled-release drugs; contact lens fluid
Regulatory: FDA 21CFR §172.770, 175.300, 175.380, 175.390, 176.170, 176.180, 177.1210, 177.1350; EPA 40CFR §180.1001(d)
Properties: Wh. gran. powd., mild ammoniacal odor; 100% through 10 mesh, 96% through 20 mesh; sol. in water, some chlorinated solvs., alcohols, aromatic hydrocarbons, ketones; m.w. 4,000,000; bulk dens. 19-37 lb/ft³; visc. 1650-5500 cps (1% aq.); m.p. 62-67 C; pH 8-10 (1% aq.); nonionic
Precaution: Slippery when wet
Storage: Store in sealed containers below 25 C, away from heat; avoid dust buildup

Polyox® WSR 303 [Dow http://www.dow.com]
Chem. Descrip.: Polyethylene oxide NF
CAS 25322-68-3
Uses: Excipient for pharmaceuticals, mucosal bioadhesives, controlled oral drug delivery, transdermal drug delivery, wound dressings, lubricious coatings; pharmaceutical tablet binder; water-sol. coating for tablets; dispersant, antisettling agent in calamine lotion; lubricant, evaporation inhibitor for rubbing alcohol; controlled-release drugs; contact lens fluid
Regulatory: FDA 21CFR §172.770, 175.300, 175.380, 175.390, 176.170, 176.180, 177.1210, 177.1350; EPA 40CFR §180.1001(d)
Properties: Wh. gran. powd., mild ammoniacal odor; 100% through 10 mesh, 96% through 20 mesh; sol. in water, some chlorinated solvs., alcohols, aromatic hydrocarbons, ketones; m.w. 7,000,000; bulk dens. 19-37 lb/ft³; visc. 7500-10,000 cps (1% aq.); m.p. 62-67 C; pH 8-10 (sol'n.); nonionic
Precaution: **Slippery when wet**

Storage: Store in sealed containers below 25 C, away from heat; avoid dust buildup

**Polyox® WSR 308** [Dow](http://www.dow.com)

Chem. Descrip.: **Polyethylene oxide**

CAS 25322-68-3

Uses: Water-sol. coating for tablets; dispersant, antissettling agent in calamine lotion; lubricant, evaporation inhibitor for rubbing alc.; controlled-release drugs; contact lens fluid

Regulatory: FDA 21CFR §172.770, 175.300, 175.380, 176.170, 176.180, 177.1210, 177.1350; EPA 40CFR §180.1001(d)

Properties: Wh. gran. powd., mild ammoniacal odor; 100% through 10 mesh, 96% through 20 mesh; sol. in water, some chlorinated solvs., alcohols, aromatic hydrocarbons, ketones; m.w. 8,000,000; sp.gr. 1.15-1.26; bulk dens. 19-37 lb/ft^3; visc. 10,000-15,000 cps (1% aq.); m.p. 62-67 C; pH 8-10 (sol'n.); nonionic

Precaution: **Slippery when wet**

Storage: Store in sealed containers below 25 C, away from heat; avoid dust buildup

**Polyox® WSR 1105** [Dow](http://www.dow.com)

Chem. Descrip.: **PEG-20M NF**

CAS 25322-68-3; EINECS/ELINCS 225-856-4

Uses: Excipient for pharmaceuticals, mucosal bioadhesives, controlled oral drug delivery, transdermal drug delivery, wound dressings, lubricious coatings; binder, coating for pharmaceutical tablets; dispersant, antissettling agent in calamine lotion; lubricant, evaporation inhibitor for rubbing alcohol; controlled-release drugs; contact lens fluid

Regulatory: FDA 21CFR §172.770, 175.300, 175.380, 175.390, 176.170, 176.180, 177.1210, 177.1350; EPA 40CFR §180.1001(d)

Properties: Wh. gran. powd., mild ammoniacal odor; 100% through 10 mesh, 96% through 20 mesh; sol. in water, some chlorinated solvs., alcohols, aromatic hydrocarbons, ketones; m.w. 900,000; sp.gr. 1.15-1.26; bulk dens. 19-37 lb/ft^3; visc. 10,000-15,000 cps (1% aq.); m.p. 62-67 C; pH 8-10 (sol'n.); nonionic

Precaution: **Slippery when wet**

Storage: Store in sealed containers below 25 C, away from heat; avoid dust buildup

**Polyox® WSR N-10** [Dow](http://www.dow.com)

Chem. Descrip.: **PEG-2M**

CAS 25322-68-3

Uses: Excipient for pharmaceuticals, mucosal bioadhesives, controlled oral drug delivery, transdermal drug delivery, wound dressings, lubricious coatings; binder, coating for tablets; dispersant, antissettling agent in calamine lotion; lubricant, evaporation inhibitor for rubbing alcohol; controlled-release drugs; contact lens fluid

Regulatory: FDA 21CFR §172.770, 175.300, 175.380, 175.390, 176.170, 176.180, 177.1210, 177.1350; EPA 40CFR §180.1001(d)

Properties: Wh. gran. powd., mild ammoniacal odor; 100% through 10 mesh, 96% through 20 mesh; sol. in water, some chlorinated solvs., alcohols, aromatic hydrocarbons, ketones; m.w. 100,000; sp.gr. 1.15-1.26; bulk dens. 19-37 lb/ft^3; visc. 12-50 cps (5% aq.); m.p. 62-67 C; pH 8-10 (5% aq.); nonionic

Precaution: **Slippery when wet**

Storage: Store in sealed containers below 25 C, away from heat; avoid dust buildup

**Polyox® WSR N-12K** [Dow](http://www.dow.com)

Chem. Descrip.: **PEG-115M NF**

CAS 25322-68-3

Uses: Excipient for pharmaceuticals, mucosal bioadhesives, controlled oral drug delivery, transdermal drug delivery, wound dressings, lubricious coatings; binder, coating for tablets; dispersant, antissettling agent in calamine lotion; lubricant, evaporation inhibitor for rubbing alcohol; controlled-release drugs; contact lens fluid

Regulatory: FDA 21CFR §172.770, 175.300, 175.380, 175.390, 176.170, 176.180, 177.1210, 177.1350; EPA 40CFR §180.1001(d)

Properties: Wh. gran. powd., mild ammoniacal odor; 100% through 10 mesh, 96% through 20 mesh; sol. in water, some chlorinated solvs., alcohols, aromatic hydrocarbons, ketones; m.w. 5,000,000; sp.gr. 1.15-1.26; bulk dens. 19-37 lb/ft^3; visc. 5000-7500 cps (1% aq.); m.p. 62-67 C; pH 8-10 (sol'n.); nonionic

Precaution: **Slippery when wet**

Storage: Store in sealed containers below 25 C, away from heat; avoid dust buildup
**Polyox® WSR N-60K** [Dow http://www.dow.com]  
**Chem. Descrip.:** PEG-45M NF  
**CAS 25322-68-3**  
**Uses:** Excipient for pharmaceuticals, mucosal bioadhesives, controlled oral drug delivery, transdermal drug delivery, wound dressings, lubrificious coatings; binder, coating for tablets; dispersant, antisettling agent in calamine lotion; lubricant, evaporation inhibitor for rubbing alcohol; controlled-release drugs; contact lens fluid  
**Regulatory:** FDA 21CFR §175.300, 175.380, 175.390, 176.170, 176.180, 177.1210, 177.1350; EPA 40CFR §180.1001(d)  
**Properties:** Wh. gran. powd., mild ammoniacal odor; 100% through 10 mesh, 96% through 20 mesh; sol. in water, some chlorinated solvs., alcohols, aromatic hydrocarbons, ketones; m.w. 200,000; sp.gr. 1.15-1.26; bulk dens. 19-37 lb/ft³; visc. 600-1200 cps (5% aq.); m.p. 62-67 C; pH 8-10 (5% aq.); nonionic  
**Precaution:** Slippery when wet  
**Storage:** Store in sealed containers below 25 C, away from heat; avoid dust buildup

**Polyox® WSR N-80** [Dow http://www.dow.com]  
**Chem. Descrip.:** PEG-5M  
**CAS 25322-68-3**  
**Uses:** Excipient for pharmaceuticals, mucosal bioadhesives, controlled oral drug delivery, transdermal drug delivery, wound dressings, lubrificious coatings; binder, coating for tablets; dispersant, antisettling agent in calamine lotion; lubricant, evaporation inhibitor for rubbing alcohol; controlled-release drugs; contact lens fluid  
**Regulatory:** FDA 21CFR §175.300, 175.380, 175.390, 176.170, 176.180, 177.1210, 177.1350; EPA 40CFR §180.1001(d)  
**Properties:** Wh. gran. powd., mild ammoniacal odor; 100% through 10 mesh, 96% through 20 mesh; sol. in water, some chlorinated solvs., alcohols, aromatic hydrocarbons, ketones; m.w. 300,000; sp.gr. 1.15-1.26; bulk dens. 19-37 lb/ft³; visc. 600-1200 cps (5% aq.); m.p. 62-67 C; pH 8-10 (5% aq.); nonionic  
**Precaution:** Slippery when wet  
**Storage:** Store in sealed containers below 25 C, away from heat; avoid dust buildup

**Polypax GMS SE** [Pax Group http://www.paxgroup.com; http://www.paxchem.com]  
**Chem. Descrip.:** Glyceryl monostearate SE  
**See Glyceryl stearate SE**  
**Uses:** Emulsifier, conditioner, thickener in pharmaceuticals  
**Features:** Self-emulsifiable; contains some sodium and/or potassium stearate  
**Properties:** Solid; nonionic; 99% act.

**Polypax IPM** [Pax Group http://www.paxgroup.com;...
Trade Name Reference

Chem. Descrip.: Isopropyl myristate
CAS 110-27-0; EINECS/ELINCS 203-751-4
Uses: Solvent, emollient, lubricant, conditioner, antistat, plasticizer in pharmaceuticals
Properties: Liq.; 99% act.

Polypax IPP [Pax Group
http://www.paxgroup.com; http://www.paxchem.com]
Chem. Descrip.: Isopropyl palmitate
CAS 142-91-6; EINECS/ELINCS 205-571-1
Uses: Solvent, emollient, lubricant, conditioner, antistat, plasticizer in pharmaceuticals
Properties: Liq.; 99% act.

Polypax PD 6000 [Pax Group
http://www.paxgroup.com; http://www.paxchem.com]
Chem. Descrip.: PEG 6000 distearate See PEG-150 distearate
CAS 9005-08-7
Uses: Emulsifier, emollient, lubricant, thickener, antistat, defoamer, plasticizer in pharmaceuticals
Features: High HLB
Properties: Waxy solid; sol. in water; nonionic; 99% act.

Polypax PGMS [Pax Group
http://www.paxgroup.com; http://www.paxchem.com]
Chem. Descrip.: Propylene glycol monostearate See Propylene glycol stearate
CAS 1323-39-3; EINECS/ELINCS 215-354-3
Uses: Opacifier, pearlescent, emulsifier, solubilizer, emollient, lubricant, conditioner, defoamer, humectant, plasticizer, stabilizer in pharmaceuticals
Properties: Solid; sol. in oils and hydrocarbons; insol. in water; nonionic; 99% act.

Polypox SMO [Pax Group
http://www.paxgroup.com; http://www.paxchem.com]
Chem. Descrip.: Sorbitan monoleate See Sorbitan oleate
CAS 1338-43-8; EINECS/ELINCS 215-665-4
Uses: Emulsifier, solubilizer, emollient, lubricant, antistat, clarifier, coupling agent, stabilizer in pharmaceuticals
Properties: Liq.; sol. in oils, hydrocarbons; insol. in water; 99% act.
m.w. > 10^6; dens. 1.22 g/cc; pH 5-8 (1g/100 ml water); 0.5% max. moisture

Toxicology: Very low chronic toxicity; virtually unabsorbed in the gastrointestinal tract

Polyplasdone® XL-10 [ISP
http://www.isp corp.com]
Chem. Descrip.: Crospovidone NF
CAS 9003-39-8
Uses: Excipient; tablet binder/disintegrant/stabilizer; complexing agent for insol. polymeric iodine complexes; detoxifier; antidiarrheal agent; stabilizer for moisture-sensitive actives (vitamins, enzymes); in analgesics, antibiotics, transdermals

Properties: Wh. to off-wh. free-flowing fine powd., pract. odorless and tasteless; 95% < 75 µ particle size; insol. in water and all other common solvs.; flash pt. none; pH 5-8 (1g/100 ml water); 0.5% max. moisture

Toxicology: LD50 (oral, rat) > 100,000 mg/kg; very low chronic toxicity; virtually unabsorbed topically and in the gastrointestinal tract; not a primary skin irritant; nonirritating to eyes; nuisance dust: TLV/TWA 10 mg/m³ total, 5 mg/m³ respirable

Precaution: Incompat. with strong oxidizing or reducing agents; heated to decom., emits toxic fumes of NOx

Polyquat 50 [Pax Chem.
http://www.paxchem com]
Chem. Descrip.: Alkyldimethylbenzyl ammonium chloride See Benzalkonium chloride
Uses: Antiseptic in cosmetics, hygiene care prod.s., water treatment
Features: Broad spectrum
Properties: Liq.; cationic; 50% act.

Polyquat 188 [Pax Chem.
http://www.paxchem com]
Chem. Descrip.: 3-Chloro-2-hydroxypropyl trimethylammonium chloride See Chloro-2-hydroxypropyl trimonium chloride
CAS 3327-22-8; EINECS/ELINCS 222-048-3
Uses: Biocide, bactericide, emulsifier, emollient, conditioner, antistat, flocculant, humectant in pharmaceuticals
Properties: Liq.; cationic; 70% act.

Polyquad PA-30 [Sanyo Chem. Ind.
http://www.sanyo-chemical.co.jp]
Chem. Descrip.: Copolymer of methacrylic acid and ethyl acrylate See Methacrylic acid/ethyl acrylate copolymer
CAS 25212-88-8
Uses: Enteric-soluble coating agent for tablets
Regulatory: USP/NF

Polyquad PA-30S [Sanyo Chem. Ind.
http://www.sanyo-chemical.co.jp]
Chem. Descrip.: Copolymer of methacrylic acid and ethyl acrylate See Methacrylic acid/ethyl acrylate copolymer
CAS 25212-88-8
Uses: Enteric-soluble coating agent for tablets
Features: Lower minimum film forming temperature compared with Polyquad PA-30; suitable for coating at lower temperatures
Regulatory: USP/NF

POLYSTEP® B-3 [Stepan
http://www.stepan.com]
Chem. Descrip.: Sodium lauryl sulfate
CAS 151-21-3; EINECS/ELINCS 205-788-1
Uses: Emulsifier for pharmaceuticals
Regulatory: FDA 21CFR §175.105, 175.300, 176.170, 176.210, 177.1200, 177.1210, 177.2600, 177.2800, 178.3400
Properties: Free-flowing wh. powd.; flash pt. (PMCC) >94 C; pH (1% sol'n.) 9.0; surf. tens. 25 dynes/cm; anionic; 97.5% act.

Toxicology: LD50 0.8 - 1.1 g/kg; mild eye and skin irritant
Environmental: Biodeg.; RVOC 0%
Storage: Store in sealed containers and kept in a cool, dry place to avoid agglomeration

Polysynth HBU 185 [Pax Chem.
http://www.paxchem.com]
Chem. Descrip.: Undecylenic acid deriv.
Uses: Antimicrobial, antimycotic, antidiarrheal agent, emulsifier, foam booster/stabilizer in medicated shampoos
Properties: Liq.; anionic; 40% act.

Polysynth SIM [Pax Group
http://www.paxgroup.com;
http://www.paxchem.com]
Chem. Descrip.: Organically modified silicone oil
Uses: Silicone defoamer in pharmaceuticals
Features: Water emulsifiable
Properties: Visc. liq.; insol. in water; 98% act.

Polytex 10 [Lipo
http://www.lipochemicals.com]
Chem. Descrip.: Stearamide DIBA-stearate
| Trade Name Reference | Features: Uniform particle size  
Regulatory: NF  
Properties: Wh. to off-wh. powd.; 2% max. 
retained on 200 mesh US Standard Sieve (74 μ)  
Powdered Agar Agar Bacteriological Grade  
Chem. Descrip.: Agar agar  
Chem. Analysis: 10% max. moisture content  
CAS 9005-25-8; EINECS/ELINCS 232-679-6  
Uses: Gellant, suspending agent, emulsifier, 
bulking agent for slow-release capsules, 
suppositories, surgical lubricants, 
emulsions; carrier for topical medicaments; 
excipient, disintegrant in tablets; laxatives; 
barium sulfate (radiology); dental use  
Properties: Wh. to pale yel. powd., sl. char. odor, 
mucilaginous taste; insol. in cold water, slowly 
sol. in hot water, completely sol. in boiling 
water; insol. in alcohol and most org. solvs.  
Powdered Agar Agar Type K-60  
Chem. Descrip.: Agar agar  
Chem. Analysis: 7.5% max. moisture content  
CAS 9005-25-8; EINECS/ELINCS 232-679-6  
Uses: Gellant, suspending agent, emulsifier, 
bulking agent for slow-release capsules, 
suppositories, surgical lubricants, 
emulsions; carrier for topical medicaments; 
excipient, disintegrant in tablets; laxatives; 
barium sulfate (radiology); dental use  
Properties: Wh. to pale yel. powd., sl. char. odor, | Features: Uniform particle size  
Regulatory: NF  
Properties: Wh. to off-wh. powd.; 2% max. 
retained on 200 mesh US Standard Sieve (74 μ)  
Powdered GP USP  
Chem. Descrip.: Corn starch See Corn (Zea mays) starch  
CAS 9005-25-8; EINECS/ELINCS 232-679-6  
Uses: Topical starch dusting powder in 
pharmaceuticals  
Features: Uniform particle size  
Regulatory: USP  
Properties: Wh. powd.; 2% max. retained on 
200 mesh US Standard Sieve (74 μ)  
Powdered NF  
Chem. Descrip.: Corn starch See Corn (Zea mays) starch  
Chem. Analysis: 13.5% max. moisture content  
CAS 9005-25-8; EINECS/ELINCS 232-679-6  
Uses: Filler, binder, disintegrant and dusting 
powder in pharmaceuticals  
Features: Uniform particle size  
Properties: Wh. to off-wh. powd.; 2% max. 
retained on 200 mesh US Standard Sieve (74 μ)  
Powdered 10 NF  
Chem. Descrip.: Corn starch See Corn (Zea mays) starch  
Chem. Analysis: 10% max. moisture content  
CAS 9005-25-8; EINECS/ELINCS 232-679-6  
Uses: Filler, binder, disintegrant and dusting 
powder in pharmaceuticals  
Features: Uniform particle size  
Regulatory: NF  
Properties: Wh. to off-wh. powd.; 2% max. 
retained on 200 mesh US Standard Sieve (74 μ)  
Powdered 7.5 NF  
Chem. Descrip.: Corn starch See Corn (Zea mays) starch  
Chem. Analysis: 7.5% max. moisture content  
CAS 9005-25-8; EINECS/ELINCS 232-679-6  
Uses: Filler, binder, disintegrant and dusting 
powder in pharmaceuticals  
Features: Uniform particle size  
Regulatory: NF  
Properties: Wh. to off-wh. powd.; 2% max. 
retained on 200 mesh US Standard Sieve (74 μ)  
Powdered GP USP  
Chem. Descrip.: Corn starch See Corn (Zea mays) starch  
CAS 9005-25-8; EINECS/ELINCS 232-679-6  
Uses: Topical starch dusting powder in 
pharmaceuticals  
Features: Uniform particle size  
Regulatory: USP  
Properties: Wh. powd.; 2% max. retained on 
200 mesh US Standard Sieve (74 μ)  
Powdered NF  
Chem. Descrip.: Corn starch See Corn (Zea mays) starch  
Chem. Analysis: 13.5% max. moisture content  
CAS 9005-25-8; EINECS/ELINCS 232-679-6  
Uses: Filler, binder, disintegrant and dusting 
powder in pharmaceuticals  
Features: Uniform particle size  
Properties: Wh. to off-wh. powd.; 2% max. 
retained on 200 mesh US Standard Sieve (74 μ) |
Trade Name Reference

mucilaginous taste; insol. in cold water, slowly sol. in hot water, completely sol. in boiling water; insol. in alcohol and most org. solvs.

**Powdered Agar Agar Type K-80**  [Gumix Int’l.]
Chem. Descrip.: Agar agar
CAS 9002-18-0; EINECS/ELINCS 232-658-1
Uses: Geliant, suspending agent, emulsifier, bulking agent for slow-release capsules, suppositories, surgical lubricants, emulsions; carrier for topical medicaments; excipient, disintegrant in tablets; laxatives; barium sulfate (radiology); dental use
Properties: Wh. to pale yel. powd., sl. char. odor, mucilaginous taste; insol. in cold water, slowly sol. in hot water, completely sol. in boiling water; insol. in alcohol and most org. solvs.

**Powdered Agar Agar Type K-100**  [Gumix Int’l.]
Chem. Descrip.: Agar agar
CAS 9002-18-0; EINECS/ELINCS 232-658-1
Uses: Geliant, suspending agent, emulsifier, bulking agent for slow-release capsules, suppositories, surgical lubricants, emulsions; carrier for topical medicaments; excipient, disintegrant in tablets; laxatives; barium sulfate (radiology); dental use
Properties: Wh. to pale yel. powd., sl. char. odor, mucilaginous taste; insol. in cold water, slowly sol. in hot water, completely sol. in boiling water; insol. in alcohol and most org. solvs.

**Powdered Agar Agar Type K-150**  [Gumix Int’l.]
Chem. Descrip.: Agar agar
CAS 9002-18-0; EINECS/ELINCS 232-658-1
Uses: Geliant, suspending agent, emulsifier, bulking agent for slow-release capsules, suppositories, surgical lubricants, emulsions; carrier for topical medicaments; excipient, disintegrant in tablets; laxatives; barium sulfate (radiology); dental use
Properties: Wh. to pale yel. powd., sl. char. odor, mucilaginous taste; insol. in cold water, slowly sol. in hot water, completely sol. in boiling water; insol. in alcohol and most org. solvs.

**Powdered Guar Gum Type AA**  [Gumix Int’l.]
Chem. Descrip.: Guar gum  See Guar (Cyanopsis tetragonoloba) gum
CAS 9000-30-0; EINECS/ELINCS 232-536-8
Uses: Thickener, visc. modifier, water-binder, stabilizer, lubricant for pharmaceuticals (appetite depressant, disintegrant and binder in compressed tablets)
Properties: Wh. to ylsh. powd., nearly odorless, bland taste; disp. in cold or hot water; insol. in org. solvs.

**Powdered Guar Gum Type B**  [Gumix Int’l.]
Chem. Descrip.: Guar gum  See Guar (Cyanopsis tetragonoloba) gum
CAS 9000-30-0; EINECS/ELINCS 232-536-8
Uses: Thickener, visc. modifier, water-binder, stabilizer, lubricant for pharmaceuticals (appetite depressant, disintegrant and binder in compressed tablets)
Properties: Wh. to ylsh. powd., nearly odorless, bland taste; disp. in cold or hot water; insol. in org. solvs.

**Powdered Guar Gum Type BB**  [Gumix Int’l.]
Chem. Descrip.: Guar gum  See Guar (Cyanopsis tetragonoloba) gum
CAS 9000-30-0; EINECS/ELINCS 232-536-8
Uses: Thickener, visc. modifier, water-binder, stabilizer, lubricant for pharmaceuticals (appetite depressant, disintegrant and binder in compressed tablets)
Properties: Wh. to ylsh. powd., nearly odorless, bland taste; disp. in cold or hot water; insol. in org. solvs.

**Powdered Gum Arabic Type B-100 NF**  Premium  [Gumix Int’l.]
Chem. Descrip.: Gum Arabic  See Acacia
CAS 9000-01-5; EINECS/ELINCS 232-519-5
Uses: Protective colloid, stabilizer, suspending agent, visc. builder for pharmaceuticals (suspensions, emulsions, demulcent in cough drops/syrups, tablet binder/adhesive); flavoring agent
Properties: Powd., almost odorless and tasteless; sol. in hot or cold water

**Powdered Gum Arabic Type B-200 NF**  Premium  [Gumix Int’l.]
Chem. Descrip.: Gum Arabic  See Acacia
CAS 9000-01-5; EINECS/ELINCS 232-519-5
Uses: Protective colloid, stabilizer,
suspension agent, visc. builder for pharmaceuticals (suspensions, emulsions, demulcent in cough drops/syrups, tablet binder/adhesive); flavoring agent

**Properties:** Powd., almost odorless and tasteless; sol. in hot or cold water

**Powdered Gum Ghatti #1**  [Frutarom http://www.frutarom.com]

**Chem. Descrip.:** Gum ghatti

**CAS 9000-28-6**

**Uses:** Stabilizer, binder, emulsifier forming o/w emulsions; tablet binder and thick mucilage coatings in pharmaceuticals

**Properties:** Off-wh. to lt. amber gum; 99% through 80 mesh, ≥ 90% through 100 mesh; visc. ≥ 100 cps (5%)

**Powdered Gum Ghatti G-1**  [Importers Service http://www.iscgums.com]

**Chem. Descrip.:** Gum ghatti

**Chem. Analysis:** 15% max. moisture; 3.6% max. total ash, 2.5% acid insol. residue

**CAS 9000-28-6**

**Uses:** Emulsifier, suspending agent, emulsion stabilizer for pharmaceuticals

**Features:** Low ash

**Properties:** Lt. brn. free-flowing powd., odorless; 99.9% min. through 80 mesh, 98% min. through 140 mesh; visc. 200 cps min. (5%); pH 4.5-5.2 (5%)

**Powdered Gum Karaya Superfine #1 FCC**  [Frutarom http://www.frutarom.com]

**Chem. Descrip.:** Karaya gum FCC See Karaya (Sterculia urens) gum

**CAS 9000-36-6; EINECS/ELINCS 232-539-4**

**Uses:** Stabilizer, water binder, emulsifier in pharmaceuticals (bulk laxatives, denture adhesives)

**Properties:** Water-sol.

**Powdered Gum Karaya Superfine XXXX FCC**  [Frutarom http://www.frutarom.com]

**Chem. Descrip.:** Karaya gum NF/FCC See Karaya (Sterculia urens) gum

**CAS 9000-36-6; EINECS/ELINCS 232-539-4**

**Uses:** Stabilizer, water binder, emulsifier in pharmaceuticals (bulk laxatives, denture adhesives)

**Properties:** Powd.; 100% through 80 mesh, ≥ 60% through 200 mesh; swells rapidly in hot or cold water; insol. in alcohol; visc. ≥ 200 cps (1%); pH 4.4-4.8

**Powdered Gum Tragacanth BP**  [Gumix Int'l.]

**Chem. Descrip.:** Tragacanth gum See Tragacanth (Astragalus gummifer) gum

**CAS 9000-65-1; EINECS/ELINCS 232-552-5**

**Uses:** Emulsifier, suspending agent, thickener, stabilizer, binder in pharmaceuticals (emulsions, jellies, creams, toothpaste)

**Properties:** Ylsh. wh. to tan powd., odorless, insipid taste; swells rapidly in hot or cold water; insol. in alcohol, other org. solvs.

**Powdered Gum Tragacanth T-150**  [Importers Service http://www.iscgums.com]

**Chem. Descrip.:** Gum tragacanth USP/NF/FCC See Tragacanth (Astragalus gummifer) gum

**CAS 9000-65-1; EINECS/ELINCS 232-552-5**

**Uses:** Thickener, visc. control agent, emulsifier in pharmaceuticals (emulsions, ointments)

**Features:** Low insol. matter

**Properties:** Off-wh. free-flowing powd., bland mucilaginous odor and taste; 95% min. through 140 mesh, 65% min. through 200 mesh; visc. 1000 cps min. (1%); pH 5-6 (1%); 15% max. moisture

**Powdered Gum Tragacanth T-200**  [Importers Service http://www.iscgums.com]

**Chem. Descrip.:** Gum tragacanth USP/NF/FCC See Tragacanth (Astragalus gummifer) gum

**CAS 9000-65-1; EINECS/ELINCS 232-552-5**

**Uses:** Thickener, visc. control agent, emulsifier in pharmaceuticals (emulsions, ointments)

**Features:** Low insol. matter

**Properties:** Lt. cream to lt. yel. free-flowing powd., bland mucilaginous odor and taste; 95% min. through 140 mesh, 65% min. through 200 mesh; visc. 700 cps min. (1%); pH 5-6 (1%); 15% max. moisture

**Powdered Gum Tragacanth T-300**  [Importers Service http://www.iscgums.com]

**Chem. Descrip.:** Gum tragacanth USP/NF/FCC See Tragacanth (Astragalus gummifer) gum

**CAS 9000-65-1; EINECS/ELINCS 232-552-5**

**Uses:** Thickener, visc. control agent, emulsifier in pharmaceuticals (emulsions, ointments)

**Features:** Low insol. matter

**Properties:** Lt. cream to lt. yel. free-flowing powd., bland mucilaginous odor and taste; 95% min. through 140 mesh, 65% min. through 200 mesh; visc. 490 cps min. (1%); pH 5-6 (1%); 15% max. moisture
## Powdered Gum Tragacanth T-400

**Importers Service** [http://www.iscgums.com](http://www.iscgums.com)

**Chem. Descrip.:** Gum tragacanth USP/NF/FCC  
[See Tragacanth (Astragalus gummifer) gum](CAS 9000-65-1; EINECS/ELINCS 232-552-5)

**Uses:** Thickener, visc. control agent, emulsifier in pharmaceuticals (emulsions, ointments)

**Features:** Low insol. matter

**Properties:** Lt. cream to lt. yel. free-flowing powd., bland mucilaginous odor and taste; 95% min. through 140 mesh, 65% min. through 200 mesh; visc. 350 cps min. (1%); pH 5-6 (1%); 15% max. moisture

## Powdered Gum Tragacanth T-500

**Importers Service** [http://www.iscgums.com](http://www.iscgums.com)

**Chem. Descrip.:** Gum tragacanth USP/NF/FCC  
[See Tragacanth (Astragalus gummifer) gum](CAS 9000-65-1; EINECS/ELINCS 232-552-5)

**Uses:** Thickener, visc. control agent, emulsifier in pharmaceuticals (emulsions, ointments)

**Features:** Low insol. matter

**Properties:** Lt. cream to lt. yel. free-flowing powd., bland mucilaginous odor and taste; 95% min. through 140 mesh, 65% min. through 200 mesh; visc. 280 cps min. (1%); pH 5-6 (1%); 15% max. moisture

## Powdered Gum Tragacanth Type B-1 NF

**Premium** [Gumix Int’l.]

**Chem. Descrip.:** Tragacanth gum  
[See Tragacanth (Astragalus gummifer) gum](CAS 9000-65-1; EINECS/ELINCS 232-552-5)

**Uses:** Emulsifier, suspending agent, thickener, stabilizer, binder in pharmaceuticals (emulsions, jellies, creams, toothpaste)

**Properties:** Ylsh. wh. to tan powd., odorless, insipid taste; swells rapidly in hot or cold water; insol. in alcohol, other org. solvs.

## Powdered Gum Tragacanth Type B-12 NF

**Premium** [Gumix Int’l.]

**Chem. Descrip.:** Tragacanth gum  
[See Tragacanth (Astragalus gummifer) gum](CAS 9000-65-1; EINECS/ELINCS 232-552-5)

**Uses:** Emulsifier, suspending agent, thickener, stabilizer, binder in pharmaceuticals (emulsions, jellies, creams, toothpaste)

**Properties:** Ylsh. wh. to tan powd., odorless, insipid taste; swells rapidly in hot or cold water; insol. in alcohol, other org. solvs.

## Powdered Gum Tragacanth Type C-5 NF

**Premium** [Gumix Int’l.]

**Chem. Descrip.:** Tragacanth gum  
[See Tragacanth (Astragalus gummifer) gum](CAS 9000-65-1; EINECS/ELINCS 232-552-5)

**Uses:** Emulsifier, suspending agent, thickener, stabilizer, binder in pharmaceuticals (emulsions, jellies, creams, toothpaste)

**Properties:** Ylsh. wh. to tan powd., odorless, insipid taste; swells rapidly in hot or cold water; insol. in alcohol, other org. solvs.

## Powdered Gum Tragacanth Type G-1 NF

**Premium** [Gumix Int’l.]

**Chem. Descrip.:** Tragacanth gum  
[See Tragacanth (Astragalus gummifer) gum](CAS 9000-65-1; EINECS/ELINCS 232-552-5)

**Uses:** Emulsifier, suspending agent, thickener, stabilizer, binder in pharmaceuticals (emulsions, jellies, creams, toothpaste)

**Properties:** Ylsh. wh. to tan powd., odorless, insipid taste; swells rapidly in hot or cold water; insol. in alcohol, other org. solvs.

## Powdered Gum Tragacanth Type G-2 NF

**Premium** [Gumix Int’l.]

**Chem. Descrip.:** Tragacanth gum  
[See Tragacanth (Astragalus gummifer) gum](CAS 9000-65-1; EINECS/ELINCS 232-552-5)

**Uses:** Emulsifier, suspending agent, thickener, stabilizer, binder in pharmaceuticals (emulsions, jellies, creams, toothpaste)

**Properties:** Ylsh. wh. to tan powd., odorless, insipid taste; swells rapidly in hot or cold water; insol. in alcohol, other org. solvs.

## Powdered Gum Tragacanth Type G-2S NF

**Premium** [Gumix Int’l.]

**Chem. Descrip.:** Tragacanth gum  
[See Tragacanth (Astragalus gummifer) gum](CAS 9000-65-1; EINECS/ELINCS 232-552-5)

**Uses:** Emulsifier, suspending agent, thickener, stabilizer, binder in pharmaceuticals (emulsions, jellies, creams, toothpaste)

**Properties:** Ylsh. wh. to tan powd., odorless, insipid taste; swells rapidly in hot or cold water; insol. in alcohol, other org. solvs.

## Powdered Gum Tragacanth Type M-3 NF

**Premium** [Gumix Int’l.]

**Chem. Descrip.:** Tragacanth gum  
[See Tragacanth (Astragalus gummifer) gum](CAS 9000-65-1; EINECS/ELINCS 232-552-5)

**Uses:** Emulsifier, suspending agent, thickener, stabilizer, binder in pharmaceuticals (emulsions, jellies, creams, toothpaste)

**Properties:** Ylsh. wh. to tan powd., odorless, insipid taste; swells rapidly in hot or cold water; insol. in alcohol, other org. solvs.
Trade Name Reference
CAS 9000-65-1; EINECS/ELINCS 232-552-5
Uses: Emulsifier, suspending agent, thickener, stabilizer, binder in pharmaceuticals (emulsions, jellies, creams, toothpaste)
Properties: Ylsh. wh. to tan powd., odorless, insipid taste; swells rapidly in hot or cold water; insol. in alcohol, other org. solvs.

Powdered Locust Bean Gum Type D-200
[Frutarom http://www.frutarom.com]
Chem. Descrip.: Locust bean gum FCC  See Locust bean (Ceratonia siliqua) gum
CAS 9000-40-2; EINECS/ELINCS 232-541-5
Uses: Excipient for pharmaceutical tablets; thickener for toothpaste
Properties: Water-sol.

Powdered Tragacanth Gum Type E-1
[Frutarom http://www.frutarom.com]
Chem. Descrip.: Tragacanth gum  See Tragacanth (Astragalus gummifier) gum
CAS 9000-65-1; EINECS/ELINCS 232-552-5
Uses: Thickener, water binder, suspending agent, emulsifier for medicinal emulsions, pharmaceutical jellies and creams
Properties: Water-sol.

Powdered Tragacanth Gum Type L
[Frutarom http://www.frutarom.com]
Chem. Descrip.: Tragacanth gum  See Tragacanth (Astragalus gummifier) gum
CAS 9000-65-1; EINECS/ELINCS 232-552-5
Uses: Thickener, water binder, suspending agent, emulsifier for medicinal emulsions, pharmaceutical jellies and creams
Properties: Water-sol.

Powdered Tragacanth Gum Type W
[Frutarom http://www.frutarom.com]
Chem. Descrip.: Tragacanth gum NF  See Tragacanth (Astragalus gummifier) gum
CAS 9000-65-1; EINECS/ELINCS 232-552-5
Uses: Thickener, water binder, suspending agent, emulsifier for medicinal emulsions, pharmaceutical jellies and creams
Properties: Wh. to cream-wh. fine powd., 100% through 80 mesh; visc. 420-520 cps (1%); pH 4.8-5.8

Precirol ATO 5  [Gattefosse France http://www.gattefosse.fr]
Chem. Descrip.: Tripalmitin and tristearin
Uses: Excipient, tableting agent, binder, lubricant, stabilizer for solid/semisolid pharmaceuticals, sustained release; controlled-release agent for short half-life
Features: Lipophilic; protects the drug, improves stability of the dosage form
Regulatory: EP compliance; FDA 21 CFR §184.1329 GRAS, FCC, Japanese Stds. of Food Addit.; CMF no. 5116
Properties: Wh. to off-wh. fine powd.; faint odor; m.p. 53-57 C; HLB 2.0; acid no. < 6; iodine no. < 3; sapon. no. 175-195; nonionic; 100% conc.
Use Level: 1-3% (lubricant for tablets/capsules); 10-25% (controlled release in tablets); 2-6% (taste masking)
Toxicology: LD50 (oral, rat) > 6 g/kg

Premium Powdered Gum Arabic  [Importers Service http://www.iscgums.com]
Chem. Descrip.: Gum Arabic  See Karaya (Sterculia urens) gum
CAS 9000-01-5; EINECS/ELINCS 232-519-5
Uses: Emulsifier and tablet binder esp. for slugging operations; emulsion stabilizer in flavors
Features: Low bacteria count; low visc.
Properties: Off-wh. to buff free-flowing powd., odorless, tasteless; 98% min. through 140 mesh; pH 4-4.8 (20%); 15% max. moisture

Premium Powdered Gum Karaya No. 1 Special  [Importers Service http://www.iscgums.com]
Chem. Descrip.: Karaya gum  See Karaya (Sterculia urens) gum
CAS 9000-36-6; EINECS/ELINCS 232-539-4
Uses: Visc. control agent in dental adhesives; particle size control agent and visc. control agent in ostomy seals
Features: Low insol. matter; lt. color
Properties: Buff to lt. tan free-flowing powd., faint acetic acid-like odor; 99% min. through 80 mesh; visc. 300 cps min. (1%), 7000 cps min. (2%); pH 4.3-5.0 (1%); 19% max. moisture

Handbook of Pharmaceutical Additives, Third Edition 574
Trade Name Reference

**Premium Powdered Gum Karaya No. 2**
[Importers Service
http://www.iscgums.com]
Chem. Descrip.: Karaya gum See Karaya (Sterculia urens) gum
CAS 9000-36-6; EINECS/ELINCS 232-539-4
Uses: Visc. control agent in dental adhesives; particle size control agent and visc. control agent in ostomy seals
Features: Low insol. matter; lt. color
Properties: Buff to lt. brn. free-flowing powd., faint acetic acid-like odor; 99% min. through 80 mesh; visc. 300 cps min. (1%), 6000 cps min. (2%); pH 4.3-5.0 (1%); 19% max. moisture

**Premium Powdered Gum Karaya No. 2 HV**
[Importers Service
http://www.iscgums.com]
Chem. Descrip.: Karaya gum See Karaya (Sterculia urens) gum
CAS 9000-36-6; EINECS/ELINCS 232-539-4
Uses: Visc. control agent in dental adhesives; particle size control agent and visc. control agent in ostomy seals
Features: Low insol. matter; lt. color
Properties: Tan to lt. brn. free-flowing powd., faint acetic acid-like odor; 99% min. through 80 mesh; visc. 500 cps min. (1%), 8000 cps min. (2%); pH 4.3-5.0 (1%); 19% max. moisture

**Premium Powdered Gum Karaya No. 3**
[Importers Service
http://www.iscgums.com]
Chem. Descrip.: Karaya gum See Karaya (Sterculia urens) gum
CAS 9000-36-6; EINECS/ELINCS 232-539-4
Uses: Visc. control agent in dental adhesives; particle size control agent and visc. control agent in ostomy seals
Features: Low insol. matter; lt. color
Properties: Tan to brn. free-flowing powd., faint acetic acid-like odor; 99% min. through 80 mesh; visc. 200 cps min. (1%), 5000 cps min. (2%); pH 4.3-5.0 (1%); 19% max. moisture

**Preregen®**
[Pentapharm Ltd
http://www.pentapharm.com; Centerchem
http://www.centerchem.com]
Chem. Descrip.: Soybean (Glycine soja) protein, oxido reductases (yeast extract)
CAS 9010-10-0; 8013-01-2
Uses: Anti-irritant for skin care
Properties: Pale yel. sl. opalescent sol'n.; sol. in water; sp.gr. 1.064-1.074 (20 C); ref. index 1.3669-1.3672 (25 C); pH 5.2-6.0
Storage: 2 yr. shelf life when stored in the original sealed containers protected from light in a clean and cool place at temps. between 4-10 C; in order to avoid secondary microbial contamination after opening, containers should be handled with special care

**Preventol® SB Extra**
[Bayer AG
Chem. Descrip.: Triclocarban (97% min.) See 3,4,4´-Trichlorocarbanilide
CAS 101-20-2; EINECS/ELINCS 202-924-1
Uses: Act. ingred. for antimicrobial soaps, medicated cleansers, other antibacterial prods.
Properties: Coarse powd.

**Preventol® SB Micronized**
[Bayer AG
Chem. Descrip.: Triclocarban (97% min.) See 3,4,4´-Trichlorocarbanilide
CAS 101-20-2; EINECS/ELINCS 202-924-1
Uses: Act. ingred. for antimicrobial soaps, medicated cleansers, other antibacterial prods.
Properties: Fine micronized powd.

**Pricerine™ 9081**
[Uniqema
http://www.uniqema.com]
Chem. Descrip.: Glycerine See Glycerin
CAS 56-81-5; EINECS/ELINCS 200-289-5
Uses: Humectant in pharmaceuticals
Properties: APHA 10 color; odorless; sp.gr. 1.228; 86.5% min. act.

**Pricerine™ 9083**
[Uniqema
http://www.uniqema.com]
Chem. Descrip.: Glycerine See Glycerin
CAS 56-81-5; EINECS/ELINCS 200-289-5
Uses: Humectant in pharmaceuticals
Properties: APHA 10 color; odorless; sp.gr. 1.262; 99.5% min. act.

**Pricerine™ 9088**
[Uniqema
http://www.uniqema.com; Uniqema Am.
http://www.uniqema.com]
Chem. Descrip.: Glycerin USP
CAS 56-81-5; EINECS/ELINCS 200-289-5
Uses: Tonicity agent, emollient, humectant for pharmaceuticals
Regulatory: TDG, DOT not regulated; Canada, Australia, EU, USA, Japan, China, Korea, Philippines compliant
Properties: APHA 10 max. color, odorless; miscible in water; insol. in ether and chloroform; sp.gr. 1.2608 min.; b.p. 290 C;
Trade Name Reference

flash pt. (OC) 177 C; 99.5% min. act.
Toxicology: OSHA PEL 15 mg/m³ TWA (total dust); LD50 (oral, rat) >25,000 mg/kg; nonirritant to eyes, by ing., and inh.
Precaution: Avoid generation of mist and strong oxidizing agents
Hazardous Decomp. Prods.: Acrolein
Storage: Store in the original closed containers under dry conditions; hygroscopic

Pricerine™ 9091 [Uniqema http://www.uniqema.com]
Chem. Descrip.: Vegetable grade glycerin
CAS 56-81-5; EINECS/ELINCS 200-289-5
Uses: Humectant in pharmaceuticals
Regulatory: SARA §311/312 Immediate Hazard, §313 nonreportable; TDG, DOT not regulated; Canada, Australia, EU, USA, Japan, China, Korea, Philippines compliant
Properties: APHA 10 color; liq. odorless; misc. in ethanol; sl. sol. in acetone; insol. in ether and in chloroform; sp.gr. 1.262; b.p. 290 C; flash pt. (OC) 177 C; pH ≈ 7; 99.5% min. act.
Toxicology: OSHA PEL 15 mg/m³ TWA (total dust); LD50 (oral, rat) >25,000 mg/kg; nonirritant to eyes, by ing., and inh.
Environmental: BOD (5 d) 86%; LC50 (96 h, fish) > 5000 mg/l; low toxicity to aquatic organisms
Precaution: Wear safety glasses with side shields and impervious gloves; avoid strong oxidizing agents
HMIS: Health 0, Flammability 1, Reactivity 0
Storage: Store in the original closed containers under dry conditions; hygroscopic

Pricerine™ 9098 [Uniqema http://www.uniqema.com]
Chem. Descrip.: Glycerine See Glycerin
CAS 56-81-5; EINECS/ELINCS 200-289-5
Uses: Pharmaceuticals
Properties: APHA 15 color; sp.gr. 1.263; 99.7% min. act.

Pricerine™ 9099 [Uniqema http://www.uniqema.com]
Chem. Descrip.: Glycerin
CAS 56-81-5; EINECS/ELINCS 200-289-5
Uses: Solvent, humectant, bodying agent in pharmaceuticals
Regulatory: TDG, DOT not regulated; Canada, Australia, EU, USA, Japan, China, Korea, Philippines compliant
Properties: APHA 10 color; liq. odorless; miscible in water and ethanol; sl. sol. in acetone; insol. in ether and chloroform; sp.gr. 1.263; b.p. 290 C; flash pt. (OC) 177 C; pH ≈ 7; 99.7% min. act.
Toxicology: OSHA PEL 15 mg/m³ TWA (total dust); LD50 (oral, rat) >25,000 mg/kg; nonirritant to eyes, by ing., and inh.
Environmental: BOD (5 d) 86%; LC50 (96 h, fish) > 5000 mg/l; low toxicity to aquatic organisms
Precaution: Wear safety glasses with side shields and PVC gloves; avoid strong oxidizing agents
HMIS: Health 0, Flammability 1, Reactivity 0
Storage: Store in the original closed containers under dry conditions; hygroscopic

Chem. Descrip.: Croscarmellose sodium
Chem. Analysis: ≤ 7.0% loss on drying
CAS 74811-65-7
Uses: Disintegrant for pharmaceutical tablets (direct compression and wet granulation)
Features: Rapid water penetration into tablets
Regulatory: USP/NF, EP, JP, DMF 9662
Properties: Fine wh. powd.; pH 5.0-7.0
Storage: Store @5-25 C and a rel. humidity of 70% max.

Primojel® [DMV Int'l. Pharma http://www.dmv-international.com]
Chem. Descrip.: Sodium starch glycolate
Chem. Analysis: ≤ 6.0% loss on drying
CAS 9063-38-1
Uses: Excipient, disintegrant for tablets and capsules incl. tablet direct compression, wet granulation
Features: High swelling power; high disintegrating rate and efficiency; takes up 23 times its wt. in water
Regulatory: USP/NF, EP, JPE, DMF 3015
Properties: Fine wh. powd., bulk dens. 0.769 g/cc
Use Level: 2-4% (direct compression)
Storage: Store @5-25 C and a rel. humidity of 70% max.

Prisorine® 3505 [Uniqema http://www.uniqema.com]
Chem. Descrip.: Isostearic acid, cosmetic grade
CAS 2724-58-5; EINECS/ELINCS 220-336-3
Uses: Emollient for pharmaceutical creams and lotions, leaving rich afterfeel
Trade Name Reference

**Regulatory:** Japan approval

**Properties:** APHA 100 max. color; sp.gr. 0.89; visc. 45 mPa•s; acid no. 190-197; iodine no. 2 max.; sapon. no. 193-200; cloud pt. 8 C; flash pt. 175 C; ref. index 1.452; 0.2% max. water

**Prisorine® 3515** [Uniqema
http://www.uniqema.com]
Chem. Descrip.: Isostearyl alcohol
CAS 27458-93-1; EINECS/ELINCS 248-470-8
Uses: Emollient for pharmaceuticals
Features: Stable, will not turn rancid or increase in color or odor

**Pro D.S.B.®** [Exsymol
http://www.exsymol.com]
Chem. Descrip.: Dimethyl oxobenzodioxasilane, octyl palmitate
Uses: Anti-inflammatory, moisturizer, tissue regenerator for makeup prods., anti-aging and restructuring prods.
Properties: Yel. limpid to sl. opalescent liq.; misc. with oils; hydrolyzes rapidly in presence of water, alcohols, glycols; ref. index 1.451
Use Level: < 1%
Toxicology: Nontoxic, nonirritant

**ProEm™ 100** [Avatar
http://www.avatarcorp.com]
Chem. Descrip.: Mono-/diglycerides
Chem. Analysis: α monoglycerides [42%] and diglycerides
Uses: W/o emulsifier in pharmaceuticals
Regulatory: 21CFR 184.1505 (GRAS), kosher
Properties: Wh. to yel. semisolid; m.p. 80-85 F

**ProEm™ 300** [Avatar
http://www.avatarcorp.com]
Chem. Descrip.: Mono-/diglycerides
Chem. Analysis: α monoglycerides [46%] and diglycerides
Uses: W/o and o/w emulsifier in pharmaceuticals
Regulatory: 21CFR 184.1505 (GRAS), kosher
Properties: Cl. yel. liq.; m.p. 70 F

**ProEm™ 74** [Avatar
http://www.avatarcorp.com]
Chem. Descrip.: Mono-/diglycerides
Chem. Analysis: α monoglycerides [42%] and diglycerides
Uses: W/o and o/w emulsifier in

**Probenz® PG** [Velsicol
http://www.velsicol.com]
Chem. Descrip.: Potassium benzoate FCC
CAS 582-25-2; EINECS/ELINCS 209-481-3
Uses: Preservative in pharmaceuticals
Regulatory: GRAS, DOT nonregulated
Properties: Wh. cryst. powd.; odorless; easily sol. in cold water; very sl. sol. in methanol; m.w. 160.22; sp.gr. 1.5; b.p. > 300 C; 100% act.
Toxicology: LD50 (oral, rat) > 4800 mg/kg; may cause eye, skin, respiratory tract irritation
Precaution: May be slippery when wet; may be combustible at high temps.; may form explosive dust-air mixts.; incompat. with ferric salts, acids, oxidizers; use splash goggles, lab coat, gloves
Hazardous Decomp. Prods.: Compds. of C, H, N, and O, pungent fumes; combustion prods.: CO, CO2
HMIS: Health 1, Flammability 1, Reactivity 0
Storage: Hygroscopic; store in ventilated area away from ignition sources

**Procetyl AWS** [Croda Inc
http://www.croda.com; http://www.crodausa.com; Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: PPG-5-ceteth-20
CAS 9087-53-0
Uses: Solvent, emollient, and humectant in topical pharmaceuticals; emulsifier, plasticizer, coupling agent, humectant, dispersant, emollient, and fragrance solubilizer in aq. and aq. alcoholic systems, antiperspirants
Properties: Water-wh. turbid oily liq.; char. sweet odor; sol. in water, alcohol, IPM, PEG-200, glycerin, propylene glycol, lanolin oil; acid no. 1 max.; hyd. no. 35-50; HLB 16.0; pH 6.0-7.5
Trade Name Reference

(30% aq.); nonionic; 100% act.
Use Level: 0.5-5%

**Procoat AFC** [Libraw Pharma http://www.pharma-excipients.com]

**Uses:** Instant coating for pharmaceutical aq., hydroalcoholic, or solvent-based film coated preps. including moisture-sensitive drugs (calcium carbonate, Ibuprofen, certrizine, famotidine, ayurvedic prods., ranitidine, vitamins, ethambotul, rifampicin); other medications (diltiazem, norfloxacin, ciprofloxacin, metroniadazole, tinidazole, ornidazole, chloroquine phosphate, roxithromycin, azithromycin, gatifloxacin, erythromycin, cimetidine, levofoxacin, sildinafil citrate)

**Features:** High-solid content for spray apps., reducing process time; smooth, shiny film

**Properties:** Powd.

**Use Level:** 1.2-2.0% use level

**Storage:** Store in cool, dry place in tightly closed containers

**Procoat AWT** [Libraw Pharma http://www.pharma-excipients.com]

**Chem. Descrip.:** Cellulose acetate phthalate-based

**Uses:** Instant coating for pharmaceutical preps including moisture-sensitive drugs (calcium carbonate, Ibuprofen, certrizine, famotidine, ayurvedic prods., ranitidine, vitamins, ethambotul, rifampicin); other medications (diltiazem, norfloxacin, ciprofloxacin, metroniadazole, tinidazole, ornidazole, chloroquine phosphate, roxithromycin, azithromycin, gatifloxacin, erythromycin, cimetidine, levofoxacin, sildinafil citrate)

**Features:** High-solid content for spray apps., reducing process time; smooth, shiny film

**Properties:** Wh. powd.

**Use Level:** 1.2-2.0% use level

**Storage:** Store in cool, dry place in tightly closed containers

**Procoat ECC** [Libraw Pharma http://www.pharma-excipients.com]

**Chem. Descrip.:** Cellulose acetate phthalate-based

**Uses:** Instant coating for pharmaceutical solvent-based enteric preps. including moisture-sensitive drugs (calcium carbonate, Ibuprofen, certrizine, famotidine, ayurvedic prods., ranitidine, vitamins, ethambotul, rifampicin); other medications (diltiazem, norfloxacin, ciprofloxacin, metroniadazole, tinidazole, ornidazole, chloroquine phosphate, roxithromycin, azithromycin, gatifloxacin, erythromycin, cimetidine, levofoxacin, sildinafil citrate)

**Features:** High-solid content for spray apps., reducing process time; smooth, shiny film

**Use Level:** 6-8% use level

**Storage:** Store in cool, dry place in tightly closed containers

**Procoat ECM** [Libraw Pharma http://www.pharma-excipients.com]

**Chem. Descrip.:** Methacrylic acid copolymer-based

**Uses:** Instant coating for pharmaceutical preps including moisture-sensitive drugs (calcium carbonate, Ibuprofen, certrizine, famotidine, ayurvedic prods., ranitidine, vitamins, ethambotul, rifampicin); other medications (diltiazem, norfloxacin, ciprofloxacin, metroniadazole, tinidazole, ornidazole, chloroquine phosphate, roxithromycin, azithromycin, gatifloxacin, erythromycin, cimetidine, levofoxacin, sildinafil citrate)

**Features:** High-solid content for spray apps., reducing process time; smooth, shiny film

**Use Level:** 6-8% use level

**Storage:** Store in cool, dry place in tightly closed containers

**Procoat FCS** [Libraw Pharma http://www.pharma-excipients.com]

**Uses:** Instant coating for pharmaceutical aq., hydroalcoholic, or solvent-based film coated preps. including moisture-sensitive drugs (calcium carbonate, Ibuprofen, certrizine, famotidine, ayurvedic prods., ranitidine, vitamins, ethambotul, rifampicin); other medications (diltiazem, norfloxacin, ciprofloxacin, metroniadazole, tinidazole, ornidazole, chloroquine phosphate, roxithromycin, azithromycin, gatifloxacin, erythromycin, cimetidine, levofoxacin, sildinafil citrate)
Trade Name Reference

drugs (calcium carbonate, Ibuprofen, certrizine, famotidine, ayurvedic prods., ranitidine, vitamins, ethambutol, rifampicin); other medications (diltiazem, norfloxacin, ciprofloxacin, metroniadazole, tinidazole, ornidazole, chloroquine phosphate, roxithromycin, azithromycin, gatifloxacin, erythromycin, cimetidine, levofloxacin, sildinafil citrate)

Features: High-solid content for spray applics., reducing process time; smooth, shiny film
Properties: Powd.
Use Level: 1.5-2.5% use level for solvent systems; 1.2-2.0% use level for aq. systems
Storage: Store in cool, dry place in tightly closed containers


Uses: Instant coating for pharmaceutical preps including moisture-sensitive drugs (calcium carbonate, Ibuprofen, certrizine, famotidine, ayurvedic prods., ranitidine, vitamins, ethambutol, rifampicin); other medications (diltiazem, norfloxacin, ciprofloxacin, metroniadazole, tinidazole, ornidazole, chloroquine phosphate, roxithromycin, azithromycin, gatifloxacin, erythromycin, cimetidine, levofloxacin, sildinafil citrate); stabilizes pharmaceuticals
Features: High-solid content for spray applics., reducing process time; smooth, shiny film
Use Level: 3-5% use level
Storage: Store in cool, dry place in tightly closed containers

Procoat SFC [Libraw Pharma http://www.pharma-excipients.com]

Uses: Instant coating for pharmaceutical solvent-based film coated preps. including moisture-sensitive drugs (calcium carbonate, Ibuprofen, certrizine, famotidine, ayurvedic prods., ranitidine, vitamins, ethambutol, rifampicin); other medications (diltiazem, norfloxacin, ciprofloxacin, metroniadazole, tinidazole, ornidazole, chloroquine phosphate, roxithromycin, azithromycin, gatifloxacin, erythromycin, cimetidine, levofloxacin, sildinafil citrate)
Features: High-solid content for spray applics., reducing process time; smooth, shiny film
Properties: Powd.
Use Level: Dependent upon the medication
Storage: Store in cool, dry place in tightly closed containers


Uses: Polishing agent for tablets
Features: High-solid content for spray applics., reducing process time; smooth, shiny film
Properties: Powd.
Use Level: 0.5-1.0% use level
Storage: Store in cool, dry place in tightly closed containers


Uses: Instant coating for pharmaceutical sustained release formulations including moisture-sensitive drugs (calcium carbonate, Ibuprofen, certrizine, famotidine, ayurvedic prods., ranitidine, vitamins, ethambutol, rifampicin); other medications (diltiazem, norfloxacin, ciprofloxacin, metroniadazole, tinidazole, ornidazole, chloroquine phosphate, roxithromycin, azithromycin, gatifloxacin, erythromycin, cimetidine, levofloxacin, sildinafil citrate)
Features: High-solid content for spray applics., reducing process time; smooth, shiny film
Properties: Powd.
Use Level: 1.5-2.5% use level for solvent systems; 1.2-2.0% use level for aq. systems
Storage: Store in cool, dry place in tightly closed containers

Procoat UFC [Libraw Pharma http://www.pharma-excipients.com]

Uses: Instant coating for pharmaceutical aq., hydroalcoholic, or solvent-based film coated preps. including moisture-sensitive drugs (calcium carbonate, Ibuprofen, certrizine, famotidine, ayurvedic prods., ranitidine, vitamins, ethambutol, rifampicin); other medications (diltiazem, norfloxacin, ciprofloxacin, metroniadazole, tinidazole, ornidazole, chloroquine phosphate, roxithromycin, azithromycin, gatifloxacin, erythromycin, cimetidine, levofloxacin, sildinafil citrate)
Features: High-solid content for spray applics., reducing process time; smooth, shiny film
Properties: Powd.
Use Level: 1.5-2.5% use level for solvent systems; 1.2-2.0% use level for aq. systems
Storage: Store in cool, dry place in tightly closed containers

Procoat WT [Libraw Pharma http://www.pharma-excipients.com]

Uses: Instant coating for pharmaceutical aq., hydroalcoholic, or solvent-based film...
coated preps. including moisture-sensitive drugs (calcium carbonate, ibuprofen, certrizine, famotidine, ayurvedic prods., ranitidine, vitamins, ethambutol, rifampicin); other medications (diltiazem, norfloxacin, ciprofloxacin, metronidazole, tinidazole, ornidazole, chloroquine phosphate, roxithromycin, azithromycin, gatifloxacin, erythromycin, cimetidine, levofloxacin, sildinafil citrate)

Features: High-solid content for spray applics., reducing process time; smooth, shiny film
Properties: Powd.
Use Level: 1.5-2.5% use level for solvent systems; 1.2-2.0% use level for aq. systems
Storage: Store in cool, dry place in tightly closed containers

Promulgen® D [Noveon
http://www.carbopol.com;
http://www.noveoncoatings.com]
Chem. Descrip.: Cetearyl alcohol and ceteareth-20
Uses: Gellant, o/w emulsifier, emollient, and stabilizer for topical pharmaceuticals
Features: Highly resistant to acidic and alkaline conditions
Properties: Wh. waxy solid; odorless; m.p. 47-55 C; acid no. 1 max.; sapon. no. 2 max.; nonionic; 100% conc.

Promulgen® G [Noveon
http://www.carbopol.com;
http://www.noveoncoatings.com]
Chem. Descrip.: Stearyl alcohol and ceteareth-20
Uses: Gellant, o/w emulsifier, emollient, and stabilizer for topical pharmaceuticals
Features: Highly resistant to acidic and alkaline conditions
Properties: Yel. liq.; sp.gr. 0.848; visc. 35 cps; m.p. 55-63 C; acid no. 1 max.; sapon. no. 2 max.; nonionic; 100% act.

Promyr NF [Noveon
http://www.carbopol.com;
http://www.noveoncoatings.com]
Chem. Descrip.: Isopropyl myristate
Uses: Emollient and solvent for topical pharmaceuticals
Features: Nongreasy rub-in
Properties: Water-wh. low visc. liq.; odorless; oil-sol.; acid no. 1.0 max.; sapon. no. 202-211.

Promyristyl PM-3 [Croda Inc
http://www.croda.com;
http://www.crodausa.com; Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: PPG-3 myristyl ether
Uses: Solubilizer, coupling agent, emollient for clear analgesics
Features: Low-visc.
Properties: Gardner 1 max. cl. liq.; sol. in ethanol, min. oil, IPM, veg. oil, oleyl alcohol, castor oil, lanolin oil; essentially sol. in volatile silicone fluid; insol. in water, glycerin; acid no. 1 max.; hyd. no. 145-160; nonionic
Use Level: 5-15%

Pronalen® Licorice HSC [Provital; S. Black
http://www.sblack.com]
Chem. Descrip.: Propylene glycol and licorice
Trade Name Reference

extract See Licorice (Glycyrrhiza glabra) extract

Uses: Anti-inflammatory and healing props. in prod. for treatment of irritated or damaged skin

Properties: 1% glycyrrhetic acid

Pronalen® Sensitive Skin [Provital; Centerchem http://www.centerchem.com; S. Black http://www.sblack.com]

Chem. Descrip.: Butylene glycol, aqua, ocimum sanctum, silybum marianum, phenoxyethanol, methylparaben, propylparaben, ethylparaben, butylparaben, isobutylparaben See Lady's thistle (Silybum marianum) extract

Uses: Anti-irritant for skin care, after-sun care

Propylene Glycol USP, FCC [Eastman http://www.eastman.com]

Chem. Descrip.: 1,2-Propanediol See Propylene glycol

CAS 57-55-6; EINECS/ELINCS 200-338-0

Uses: Solvent, humectant, and preservative in pharmaceuticals

Regulatory: FDA 21CFR §184.1666; USDA approved; Kosher

Properties: Colorless cl. visc. liq.; practically odorless; sl. char. taste; completely sol. in water, acetone, ethyl ether, and methanol; m.w. 76.10; sp.gr. 1.0381; dens. 8.64 lb/gal; visc. 60.5 cP (20 C); vapor pressure < 0.1 mm Hg (20 C); f.p. -60 C; b.p. 187 C; flash pt. (TCC) 101 C; ref. index 1.4326 (20 C); 99.5% purity

Toxicology: Low toxicity

Storage: Hygroscopic; overheating for prolonged periods may result in degradation of odor and taste


Chem. Descrip.: Phenoxyisopropanol

CAS 770-35-4; EINECS/ELINCS 212-222-7

Uses: Antiseptic for skin care prod.s., pharmaceuticals

Properties: Colorless sl. visc. liq. with faint pleasant odor; sl. sol. in water; misc. with acetate and ethylene and methanol; m.w. 106.2; sp.gr. 1.0323; dens. 8.55 lb/gal; visc. 10 cP (20 C); vapor pressure < 0.1 mm Hg (20 C); f.p. -60 C; b.p. 187 C; flash pt. (OC) 121 C

Toxicology: LD50 (oral, rat) 2.4 ml/kg, sl. harmful by ing.; produces local anesthetic effect on lips, tongue, mucous membranes; pure material is mod. irritating to skin and eyes; nonirritating to skin @ 5%; nonirritating to eyes @ 1%

Precaution: Very sl. fire risk; no explosion hazard

Storage: Store in orig. container under normal indoor storage conditions; material may solidify at low temps.

Prosolv SMCC™ 50 [JRS Pharma http://www.jrspharma.com]

Chem. Descrip.: Silicified microcrystalline cellulose

CAS 9004-34-6

Uses: Binder, vehicle for pharmaceutical wet granulation and direct compression applics.

Features: Can replace granulations, while significantly reducing excipient numbers and levels

Regulatory: USP/NF, Ph. Eur.. JP

Properties: Wh. to almost wh. fine to granular powd.50 µm median particle size; pract. insol in water, acetone, ethanol, toluene, and dilute acids

Prosolv SMCC™ 90 [JRS Pharma http://www.jrspharma.com]

Chem. Descrip.: Silicified microcrystalline cellulose

CAS 9004-34-6

Uses: Binder, vehicle, flow aid for direct compression of pharmaceutical tablets

Features: Exc. compactibility and flow; can replace granulations, while significantly reducing excipient numbers and levels

Regulatory: USP/NF, Ph. Eur.. JP

Properties: Wh. to almost wh. fine to granular powd.110 µm median particle size; pract. insol in water, acetone, ethanol, toluene, and dilute acids; bulk dens. 0.25-0.37 g.cm3

Prosolv SMCC™ HD90 [JRS Pharma http://www.jrspharma.com]

Chem. Descrip.: Silicified microcrystalline cellulose

CAS 9004-34-6

Uses: Binder, vehicle, flow aid for direct compression of pharmaceutical tablets

Features: Exc. compactibility and flow; can replace granulations, while significantly reducing excipient numbers and levels

Regulatory: USP/NF, Ph. Eur.. JP

Properties: Wh. to almost wh. fine to granular powd.110 µm median particle size; pract. insol in water, acetone, ethanol, toluene, and dilute acids; bulk dens. 0.35-0.50 g.cm3

Protachem™ CTG [Protameen]
Trade Name Reference

http://www.protameen.com; S. Black
http://www.sblack.com
Chem. Descrip.: Caprylic/capric triglyceride
CAS 65381-09-1; EINECS/ELINCS 265-724-3
Uses: Emollient, emulsifier, opacifier, humectant, solubilizer, pigment dispersant, carrier in pharmaceuticals
Features: Occlusive

Protachem™ ES-2 [Protameen
http://www.protameen.com]
Chem. Descrip.: Sodium laureth sulfate
CAS 9004-82-4; EINECS/ELINCS 221-416-0
Uses: Foam stabilizer, detergent, foaming agent, wetting agent, visc. builder for detergents, pharmaceuticals

Protachem™ SMS-NF [Protameen
http://www.protameen.com]
Chem. Descrip.: Sorbitan stearate
CAS 1338-41-6; EINECS/ELINCS 215-664-9
Uses: Emulsifier/thickener for pharmaceuticals prods.
Regulatory: NF
Properties: Sol. in oils, org. solvs.; disp. or insol. in water; HLB 4.7; nonionic

Protacid™ F 120 NM Alginic Acid [FMC Biopolymer
http://www.fmcbiopolymer.com]
Chem. Descrip.: Alginic acid
CAS 9005-32-7; EINECS/ELINCS 232-680-1
Uses: Gellant, film-former, visc. builder, stabilizer for aq. pharmaceuticals; tablet binder and disintegrant; alternative for sustained-release systems; dental impression materials; creates calcium fibers for dermatology and wound healing; enhances treatment of esophageal reflux
Regulatory: GRAS; kosher
Properties: Wh. to ylsh.-wh. free-flowing powd.; odorless; pH 1.5-3.5 (in 3% aq. disp.)
Toxicology: ACGIH TWA 10 mg/m3 (inhalable particulate); LD50 (oral, rat) > 5,000 mg/kg; noncarcinogenic
Environmental: BOD(5) ≈ 400 mg O2/g; COD ≈ 650 mg O2/g
Precaution: Wear monogoggles
Storage: Store in a tight container in a cool, dry place

Protacide™ DMDMH [Protameen
http://www.protameen.com]
Chem. Descrip.: DMDM hydantoin
CAS 6440-58-0; EINECS/ELINCS 229-222-8
Uses: Shelf-life extender for pharmaceuticals

Protacide™ NA2 P [Protameen
http://www.protameen.com]
Chem. Descrip.: Disodium EDTA
CAS 139-33-3; EINECS/ELINCS 205-358-3
Uses: Shelf-life extender for pharmaceuticals

Protacide™ NA3 EDTA [Protameen
http://www.protameen.com]
Chem. Descrip.: Trisodium EDTA
CAS 150-38-9; EINECS/ELINCS 205-758-8
Uses: Shelf-life extender for pharmaceuticals

Protanal® [FMC Biopolymer
http://www.fmcbiopolymer.com]
Chem. Descrip.: Sodium alginate USP/NF, Eur.Ph., BP
See Algin
CAS 9005-38-3
Uses: Gellant, film-former, visc. builder, stabilizer for aq. pharmaceuticals; tablet binder and disintegrant; alternative for sustained-release systems; dental impression materials; creates calcium fibers for dermatology and wound healing; enhances treatment of esophageal reflux
Regulatory: GRAS; kosher

Protaphenone™- 1 [Protameen
http://www.protameen.com]
Chem. Descrip.: Benzophenone-1
CAS 131-56-6; EINECS/ELINCS 205-029-4
Uses: UV-A/B absorber for pharmaceuticals
Properties: Yel. powd.; m.p. 144 C; 98.0 min. assay
Use Level: 0.05-2.0 use level

Protaphenone™- 2 [Protameen
http://www.protameen.com]
Chem. Descrip.: Benzophenone-2
CAS 131-55-5; EINECS/ELINCS 205-028-9
Uses: UV-A/B absorber for pharmaceuticals
Properties: Yel. powd.; m.p. 195-205 C
Use Level: 0.05-2.0 use level

Protectol® KLC 50 [BASF AG
http://www.basf.de]
Chem. Descrip.: Dimethyl-n-(C12/C14)-alkylbenzlammonium chloride
See Benzalkonium chloride
CAS 85409-22-9; EINECS/ELINCS 287-089-1
Uses: Preservative for pharmaceuticals
Regulatory: FDA 21CFR §175.105, 176.300,
Trade Name Reference

178.1010; EP, DAB, BP, USP, JP, MITI, JSCI, and BGA approved

**Properties:** Cl. to ylsh. liq.; sol. in water, 5% sodium hydroxide, 5% HCl, 5% sodium chloride, alcohol, chlorinated hydrocarbons, oil, wh. spirit; dens. 0.98 g/cm³; visc. 80 mPa•s; cloud pt. -4 C; surf. tens. 37 mN/m (1 g/l); pH 6 (1% aq.); cationic; ionic act.

**Use Level:** 0.05-0.2% (wax emulsion); up to 0.5% (chain lubricants); up to 1% (masonry washes); 0.01-0.2% (cosmetics)

**Toxicology:** LD50 (oral, rat) 1500-1600 mg/kg; corrosive to skin and eyes; TSCA listed

**Environmental:** 80% biodeg.

**Protector Gelatin** [Vyse Gelatin http://www.vyse.com]

Chem. Descrip.: Type A pork-skin gelatin, 200 bloom See Gelatin

CAS 9000-70-8; EINECS/ELINCS 232-554-6

Uses: Pharmaceuticals

Features: General purpose; low bloom; low visc.

**Protegin®** [Degussa Care Spec.]

Chem. Descrip.: Mineral oil, petrolatum, ozokerite, glyceryl oleate, lanolin alcohol

Uses: Emollient, w/o emulsifier, absorption base for w/o emulsions, topical pharmaceuticals

Features: Prods. have good freeze/thaw stability and stability at elevated temps.

Regulatory: BfArM registered

Properties: Ivory soft waxy solid; sol. warm in min. oil, sol. warm with sl. turbidity in veg. oils; insol. in water; m.p. 58-65 C; HLB 3.0; acid no. 1 max.; sapon. no. 10-16; hyd. no. 25-38; nonionic; 100% conc.

**Protegin® W** [Degussa Care Spec.]

Chem. Descrip.: Petrolatum, ozokerite, hydrogenated castor oil, glyceryl isostearate, polyglyceryl-3 oleate

Uses: W/o emulsifier, emollient, absorp. base for topical pharmaceuticals

Features: Self-emulsifying; prods. have good freeze/thaw stability and stability at elevated temps.

Regulatory: BfArM registered

Properties: Ivory waxy solid; sol. warm in veg. and min. oils; disp. warm in water; m.p. 75-82 C; HLB 3.0; acid no. 1 max.; sapon. no. 18-28; hyd. no. 18-28; nonionic; 100% conc.

**Protegin® WX** [Degussa Care Spec.]

Chem. Descrip.: Petrolatum, ozokerite, hydrogenated castor oil, glyceryl isostearate, polyglyceryl-3 oleate

Uses: W/o emulsifier, emollient, absorp. base for topical pharmaceuticals

Features: Self-emulsifying; prods. have good freeze/thaw stability and stability at elevated temps.

Regulatory: BfArM registered

Properties: Ivory waxy solid; sol. warm in veg. and min. oils; disp. warm in water; m.p. 75-82 C; HLB 3.0; acid no. 1 max.; sapon. no. 18-28; hyd. no. 18-28; nonionic; 100% conc.

**Protegin® X** [Degussa Care Spec.]

Chem. Descrip.: Mineral oil, petrolatum, ozokerite, glyceryl oleate, lanolin alcohol

Uses: W/o emulsifier, emollient, absorp. base for topical pharmaceuticals

Features: Self-emulsifying; prods. have good freeze/thaw stability and stability at elevated temps.

Regulatory: BfArM registered

Properties: Ivory waxy paste; sol. warm in min. oil, sol. warm with sl. turbidity in veg. oils; insol. in water; m.p. 58-65 C; HLB 3.5; acid no. 1 max.; sapon. no. 27-37; hyd. no. 32-42; nonionic; 100% conc.

**Proteinvit** [Esperis http://www.esperis.it]

Chem. Descrip.: Hydrolyzed wheat protein

Uses: Humectant, emulsifier for pharmaceuticals

**Protelan AG 11** [Zschimmer & Schwarz http://www.zschimmer-schwarz.de]

Chem. Descrip.: Hydrolyzed wheat protein

CAS 70084-87-6; EINECS/ELINCS 305-225-0

Uses: Aid in mycotic skin disorders and dandruff regulation; used in antidandruff and problem skin preps.

Features: Substantive effect

Properties: Cl. to lt. turbid liq.; yel to amber; pleasant characteristic odor; 36% act.

Toxicology: Nonirritating to eyes

Environmental: Easily biodegrad.

**Protol®** [Chemtura http://www.chemtura.com]

Chem. Descrip.: Wh. mineral oil USP

CAS 8020-83-5; EINECS/ELINCS 232-384-2

Uses: Emollient, lubricant, carrier in pharmaceutical creams and lotions

Features: Hydrophobic; chemically inert; exc. UV and color stability

Regulatory: FDA 21CFR §172.878, §178.3620a

Properties: Water-wh., odorless, tasteless; sp.gr. 0.859-0.875; visc. 35-37 cSt (40 C); pour pt. -
Trade Name Reference

12 C; flash pt. 188 C

Protopet® Alba [Chemtura http://www.chemtura.com]
Chem. Descrip.: Petrolatum USP
CAS 8027-32-5; EINECS/ELINCS 232-373-2
Uses: Carrier, lubricant, emollient, moisture barrier, protectant, softener for pharmaceutical ointments, suppositories, sun care prods.
Features: Med. consistency and m.p.
Regulatory: FDA 21CFR §172.880
Properties: Lovibond 30Y/2.5R color, odorless; visc. 10-16 cSt (100 C); m.p. 54-60 C

Chem. Descrip.: PEG-5 cocamine
CAS 61791-14-8
Uses: Anti-irritant in shampoos
Properties: Cationic

Protopet® White 1S [Chemtura http://www.chemtura.com]
Chem. Descrip.: Petrolatum USP
CAS 8027-32-5; EINECS/ELINCS 232-373-2
Uses: Carrier, lubricant, emollient, moisture barrier, protectant, softener, process aid for pharmaceutical ointments, suppositories, dental adhesives, sun care prods.
Features: Med. consistency and m.p.
Regulatory: FDA 21CFR §172.880
Properties: Lovibond 1.5Y color, odorless; visc. 10-16 cSt (100 C); m.p. 54-60 C

Protopet® White 2L [Chemtura http://www.chemtura.com]
Chem. Descrip.: Petrolatum USP
CAS 8027-32-5; EINECS/ELINCS 232-373-2
Uses: Carrier, lubricant, emollient, moisture barrier, protectant, softener for pharmaceutical ointments
Features: Med. consistency and m.p.
Regulatory: FDA 21CFR §172.880
Properties: Lovibond 8Y0.6R color, odorless; visc. 10-16 cSt (100 C); m.p. 54-60 C

Protopet® White 3C [Chemtura http://www.chemtura.com]
Chem. Descrip.: Petrolatum USP
CAS 8027-32-5; EINECS/ELINCS 232-373-2
Uses: Carrier, lubricant, emollient, moisture barrier, protectant, softener for pharmaceutical ointments
Features: Med. consistency and m.p.
Regulatory: FDA 21CFR §172.880
Properties: Lovibond 25Y1.0R color, odorless; visc. 10-16 cSt (100 C); m.p. 54-60 C

Protopet® Yellow 2A [Chemtura http://www.chemtura.com]
Chem. Descrip.: Petrolatum USP
CAS 8027-32-5; EINECS/ELINCS 232-373-2
Uses: Carrier, lubricant, emollient, moisture barrier, protectant, softener for pharmaceutical ointments, suppositories, sun care prods.
Features: Med. consistency and m.p.
Regulatory: FDA 21CFR §172.880
Properties: Lovibond 30Y/2.5R color, odorless; visc. 10-16 cSt (100 C); m.p. 54-60 C

PROVIgel® DPC 6 [Provisco http://www.provisco.ch]
Chem. Descrip.: Depolymerized carob bean gum See Locust bean (Ceratonia siliqua) gum
CAS 9000-40-2; EINECS/ELINCS 232-541-5
Uses: Stabilizer, thickener for pharmaceuticals
Regulatory: E410 compliance
Properties: Sol. in hot water; visc. 600-900 mPa*s (1% aq., 1 h)
Storage: 12 mos. shelf life when stored in closed original pkg. at R.T. and protected from moisture and direct sunlight

PROVIgel® DPC 15 [Provisco http://www.provisco.ch]
Chem. Descrip.: Depolymerized carob bean gum See Locust bean (Ceratonia siliqua) gum
CAS 9000-40-2; EINECS/ELINCS 232-541-5
Uses: Stabilizer, thickener for pharmaceuticals
Regulatory: E410 compliance
Properties: Sol. in hot water; visc. 1200-1500 mPa*s (1% aq., 1 h)
Storage: 12 mos. shelf life when stored in closed original pkg. at R.T. and protected from moisture and direct sunlight

PROVIgel® DPG 1 [Provisco http://www.provisco.ch]
Chem. Descrip.: Depolymerized guar gum See Guar (Cyanopsis tetragonoloba) gum
CAS 9000-30-0; EINECS/ELINCS 232-536-8
Uses: Stabilizer, binder, thickener for foods and pharmaceuticals
Regulatory: E412 compliance
Properties: Visc. 800-950 mPa*s (10% aq., 1 h)
Storage: 12 mos. shelf life when stored in closed original pkg. at R.T. and protected from...
PROVIgel® DPG 3 [Provisco http://www.provisco.ch]
Chem. Descrip.: Depolymerized guar gum See Guar (Cyanopsis tetragonoloba) gum
CAS 9000-30-0; EINECS/ELINCS 232-536-8
Uses: Stabilizer, binder, thickener for pharmaceuticals
Regulatory: E412 compliance
Properties: Visc. 700-1100 mPa·s (3% aq., 1 h)
Storage: 12 mos. shelf life when stored in closed original pkg. at R.T. and protected from moisture and direct sunlight

PROVIgel® DPG 5 [Provisco http://www.provisco.ch]
Chem. Descrip.: Depolymerized guar gum See Guar (Cyanopsis tetragonoloba) gum
CAS 9000-30-0; EINECS/ELINCS 232-536-8
Uses: Stabilizer, binder, thickener for pharmaceuticals
Regulatory: E412 compliance
Properties: Visc. 4000-4500 mPa·s (3% aq., 1 h)
Storage: 12 mos. shelf life when stored in closed original pkg. at R.T. and protected from moisture and direct sunlight

PROVIgel® DPG 7 [Provisco http://www.provisco.ch]
Chem. Descrip.: Depolymerized guar gum See Guar (Cyanopsis tetragonoloba) gum
CAS 9000-30-0; EINECS/ELINCS 232-536-8
Uses: Stabilizer, binder, thickener for pharmaceuticals
Regulatory: E412 compliance
Properties: Visc. 500-700 mPa·s (3% aq., 2 h)
Storage: 12 mos. shelf life when stored in closed original pkg. at R.T. and protected from moisture and direct sunlight

PROVIgel® DPG 9 [Provisco http://www.provisco.ch]
Chem. Descrip.: Depolymerized guar gum See Guar (Cyanopsis tetragonoloba) gum
CAS 9000-30-0; EINECS/ELINCS 232-536-8
Uses: Stabilizer, binder, thickener for pharmaceuticals
Regulatory: E412 compliance
Properties: Visc. 1900-2400 mPa·s (1% aq., 2 h)
Storage: 12 mos. shelf life when stored in closed original pkg. at R.T. and protected from moisture and direct sunlight

PROVIgel® EXG 01 [Provisco http://www.provisco.ch]
Chem. Descrip.: Extracted, depolymerized guar gum See Guar (Cyanopsis tetragonoloba) gum
Uses: Stabilizer, thickener for pharmaceuticals
Properties: Sol. in cold water; visc. 80-150 mPa·s (1% aq., 1 h)

PROVIgel® EXG 05 [Provisco http://www.provisco.ch]
Chem. Descrip.: Extracted, depolymerized guar gum See Guar (Cyanopsis tetragonoloba) gum
Uses: Stabilizer, thickener for pharmaceuticals
Properties: Sol. in cold water; visc. 400-800 mPa·s (1% aq., 1 h)

PROVIgel® EXG 10 [Provisco http://www.provisco.ch]
Chem. Descrip.: Extracted, depolymerized guar gum See Guar (Cyanopsis tetragonoloba) gum
Uses: Stabilizer, thickener for pharmaceuticals
Properties: Sol. in cold water; visc. 80-150 mPa·s (1% aq., 1 h)

Guar (Cyanopsis tetragonoloba) gum
CAS 9000-30-0; EINECS/ELINCS 232-536-8
Uses: Stabilizer, binder, thickener for pharmaceuticals
Regulatory: E412 compliance
Properties: Visc. 3500-4000 mPa·s (1% aq., 1 h)
Storage: 12 mos. shelf life when stored in closed original pkg. at R.T. and protected from moisture and direct sunlight

Guar (Cyanopsis tetragonoloba) gum
CAS 9000-30-0; EINECS/ELINCS 232-536-8
Uses: Stabilizer, binder, thickener for pharmaceuticals
Regulatory: E412 compliance
Properties: Visc. 3500-4000 mPa·s (1% aq., 2 h)
Storage: 12 mos. shelf life when stored in closed original pkg. at R.T. and protected from moisture and direct sunlight
**PROVIgel® EXG 20** [Provisco http://www.provisco.ch]
Chem. Descrip.: Extracted, depolymerized guar gum See Guar (Cyanopsis tetragonoloba) gum
CAS 9000-30-0; EINECS/ELINCS 232-536-8
Uses: Stabilizer, thickener for pharmaceuticals
Regulatory: E412 compliance
Properties: Sol. in cold water; visc. 900-1300 mPa•s (1% aq., 1 h)
Storage: 12 mos. shelf life when stored in closed original pkg. at R.T. and protected from moisture and direct sunlight

**PROVIgel® EXG 40** [Provisco http://www.provisco.ch]
Chem. Descrip.: Extracted guar gum See Guar (Cyanopsis tetragonoloba) gum
CAS 9000-30-0; EINECS/ELINCS 232-536-8
Uses: Stabilizer, thickener for pharmaceuticals
Regulatory: E412 compliance
Properties: Sol. in cold water; visc. 1900-2300 mPa•s (1% aq., 1 h)
Storage: 12 mos. shelf life when stored in closed original pkg. at R.T. and protected from moisture and direct sunlight

**PROVIgel® NAG 753** [Provisco http://www.provisco.ch]
Chem. Descrip.: Guar gum with high galactomannan content See Guar (Cyanopsis tetragonoloba) gum
CAS 9000-30-0; EINECS/ELINCS 232-536-8
Uses: Thickener for pharmaceuticals
Regulatory: E412 compliance
Properties: Visc. 3300-3700 mPa•s (1% aq., 2 h)
Storage: 12 mos. shelf life when stored in closed original pkg. at R.T. and protected from moisture and direct sunlight

**PROVIgel® NAG 755** [Provisco http://www.provisco.ch]
Chem. Descrip.: Guar gum with high galactomannan content See Guar (Cyanopsis tetragonoloba) gum
CAS 9000-30-0; EINECS/ELINCS 232-536-8

**PROVIgel® NAG 903** [Provisco http://www.provisco.ch]
Chem. Descrip.: Guar gum with high galactomannan content See Guar (Cyanopsis tetragonoloba) gum
CAS 9000-30-0; EINECS/ELINCS 232-536-8
Uses: Thickener for pharmaceuticals
Regulatory: E412 compliance
Properties: Visc. 3300-3700 mPa•s (1% aq., 2 h)
Storage: 12 mos. shelf life when stored in closed original pkg. at R.T. and protected from moisture and direct sunlight

**PROVIgel® NAG 905** [Provisco http://www.provisco.ch]
Chem. Descrip.: Guar gum with high galactomannan content See Guar (Cyanopsis tetragonoloba) gum
CAS 9000-30-0; EINECS/ELINCS 232-536-8
Uses: Thickener for pharmaceuticals
Regulatory: E412 compliance
Properties: Visc. 3300-3700 mPa•s (1% aq., 2 h)
Storage: 12 mos. shelf life when stored in closed original pkg. at R.T. and protected from moisture and direct sunlight

**Pruv™** [JRS Pharma http://www.jrspharma.com]
Chem. Descrip.: Sodium stearyl fumarate NF/FCC
CAS 4070-80-8
Uses: Lubricant for pharmaceutical tablets including chewables and effervescent tablets
Features: Inert; hydrophilic; antiadherent props.; high m.p.; controlled particle size; superior hardness and less retardant effect on dissolution rate than magnesium stearate
Regulatory: NF, EP, JP compliance
Properties: Wh. fine powd. with agglomerates of flat, circular shaped particles ≤ 8 µm; sol. 20 g/100 ml of water (90 C); pract. insol. in acetone and in ethanol; dens. 0.3-0.5 g/cm (tapped); m.p. 224-245 C with decomp.; sapon. no. 142-146; 100% conc.
Punctilious® Ethyl Alcohol 190 Proof Pure

**USP [Equistar http://www.equistarchem.com]**

Chem. Descr.: Ethyl alcohol (92.5%), water (7.5%) See Alcohol

CAS 64-17-5; EINECS/ELINCS 200-578-6

UN 1170

Uses: Solvent for pharmaceuticals

Regulatory: SARA §311/312 acute health/chronic health/fire hazard, §313 nonreportable; Calif. Prop. 65 reportable (ethanol, benzene)

Properties: Colorless liq.; invisible vapor; sweet alcohol-like odor; sol. in methanol, water; misc. in ether, chloroform; sp.gr. 0.8090-0.8094 (77/77 F), 1.59 (vapor); vapor pressure 44.6 mm Hg; f.p. -144 C; b.p. 78.4 C; flash pt. (TCC) 16 C; autoignition temp. 363 C; ref. index 1.3619

Toxicology: LD50 (oral, rat) 7060 mg/kg; may be irritating to eyes, upper respiratory tract; short-term exposure above 1000 ppm by inh. may cause CNS effects, headache, eye/nose/throat irritation; exposure > 1 h may cause dizziness, drowsiness, loss of appetite, inability to conc., GI effects, nausea, vomiting; prolonged/repeated skin contact may cause dermatitis; ing. may cause drunkenness, CNS depression, nausea, vomiting, diarrhea, liver damage, death; TSCA listed

Environmental: On land, apt to volatilize, biodegrade, or leach to ground water; in water, photolysis, oxidation, biodegradation expected to occur; not expected to bioconcentrate in aquatic organisms; LC50 (rainbow trout, 96 h) 10,400 ppm; prevent entry into sewers

Precaution: Flamm. liq.; flamm. limits 3.3-19 vol.%; material can burn with little or no visible flame; vapors are heavier than air, may flash back; prevent entry into basements, confined areas; ground and bond containers; avoid static discharges; avoid strong oxidizers, excessive heat, sparks, open flame; contact with acetyl chloride or other oxidizing agents may result in violent reaction

Hazardous Decomp. Prods.: Combustion: CO

HMIS: Health 1, Flammability 3, Reactivity 0

Storage: 1 yr. shelf life; store under ambient conditions out of direct sunlight

Punctilious® Ethyl Alcohol 200 Proof Pure

**USP [Equistar http://www.equistarchem.com]**

Chem. Descr.: Ethyl alcohol (100%) See Alcohol

CAS 64-17-5; EINECS/ELINCS 200-578-6

UN 1170

Uses: Solvent for pharmaceuticals

Regulatory: SARA §311/312 acute health/chronic health/fire hazard, §313 nonreportable; Calif. Prop. 65 reportable (ethanol, benzene)

Properties: Punctilious® SDA 1-1 190 Proof

CAS 64-17-5; EINECS/ELINCS 200-578-6

UN 1170

Uses: Solvent for pharmaceuticals

Regulatory: SARA §311/312 acute health/chronic health/fire hazard, §313 nonreportable; Calif. Prop. 65 reportable (ethanol, benzene)

Properties: Colorless liq.; invisible vapor; sweet alcohol-like odor; sol. in methanol, water; misc. in ether, chloroform; sp.gr. 0.8090-0.8094 (77/77 F), 1.59 (vapor); vapor pressure 44.6 mm Hg; f.p. -144 C; b.p. 78.4 C; flash pt. (TCC) 16 C; autoignition temp. 363 C; ref. index 1.3619

Toxicology: LD50 (oral, rat) 7060 mg/kg; may be irritating to eyes, upper respiratory tract; short-term exposure above 1000 ppm by inh. may cause CNS effects, headache, eye/nose/throat irritation; exposure > 1 h may cause dizziness, drowsiness, loss of appetite, inability to conc., GI effects, nausea, vomiting; prolonged/repeated skin contact may cause dermatitis; ing. may cause drunkenness, CNS depression, nausea, vomiting, diarrhea, liver damage, death; TSCA listed

Environmental: On land, apt to volatilize, biodegrade, or leach to ground water; in water, photolysis, oxidation, biodegradation expected to occur; not expected to bioconcentrate in aquatic organisms; LC50 (rainbow trout, 96 h) 10,400 ppm; prevent entry into sewers

Precaution: Flamm. liq.; flamm. limits 3.3-19 vol.%; material can burn with little or no visible flame; vapors are heavier than air, may flash back; prevent entry into basements, confined areas; ground and bond containers; avoid static discharges; avoid strong oxidizers, excessive heat, sparks, open flame; contact with acetyl chloride or other oxidizing agents may result in violent reaction

Hazardous Decomp. Prods.: Combustion: CO

HMIS: Health 1, Flammability 3, Reactivity 0

Storage: 1 yr. shelf life; store under ambient conditions out of direct sunlight

Punctilious® SDA 1-1 190 Proof [Equistar http://www.equistarchem.com]

Chem. Descr.: Specially denatured alcohol 1-
Trade Name Reference

1: ethanol (89.0%), methanol (3.8%), denatonium benzoate (0.0011%), water (7.3%) See Alcohol; Methyl alcohol

UN 1170
Uses: Solvent, thinner for external pharmaceuticals

Regulatory: SARA §311/312 acute health/chronic health/fire hazard, §313 reportable (methanol); Calif. Prop. 65 reportable (ethanol, benzene)

Properties: Colorless liq.; invisible vapor; sweet alcohol-like odor; sol. in water; sp.gr. 0.8142 (60 F); 1.59 (vapor); vapor pressure 44.6 mm Hg; f.p. -144 C; b.p. 78.4 C; flash pt. (TCC) 56 F; autoignition temp. 363 C; ref. index 1.3611

Toxicology: May be irritating to eyes, upper respiratory tract; short-term exposure above 1000 ppm by inh. may cause CNS effects, headache, eye/nose/throat irritation; exposure > 1 h may cause dizziness, drowsiness, loss of appetite, inability to conc., GI effects, nausea, vomiting; prolonged/repeated skin contact may cause dermatitis; ing. may cause drunkenness, CNS depression, nausea, vomiting, diarrhea, liver damage, death; TSCA listed

Environmental: On land, apt to volatilize, biodegrade, or leach to ground water; in water, photolysis, oxidation, biodegradation expected to occur; not expected to bioconcentrate in aquatic organisms; LC50 (rainbow trout, 96 h) 10,400 ppm; prevent entry into sewers

Precaution: Flamm. liq.; flamm. limits 3.3-19 vol.%; material can burn with little or no visible flame; vapors are heavier than air, may flash back; prevent entry into basements, confined areas; ground and bond containers; avoid static discharges; avoid strong oxidizers, excessive heat, sparks, open flame; contact with acetyl chloride or other oxidizing agents may result in violent reaction

Hazardous Decomp. Prods.: Combustion: CO
HMIS: Health 1, Flammability 3, Reactivity 0
Storage: 1 yr. shelf life; store under ambient conditions out of direct sunlight away from ignition sources

Punctilious® SDA 1-2 190 Proof [Equistar http://www.equistarchem.com]

Chem. Descrip.: Specially denatured alcohol 1-2: ethyl alcohol (95.34%), methanol (3.72%), MIBK (0.94%) See Alcohol; Methyl alcohol; Methyl isobutyl...
Trade Name Reference

ketone
Uses: Solvent for pharmaceuticals
Properties: Pt-Co 10 max. color; typ. odor; sol. in water; sp.gr. 0.8076-0.8880 (77/77 F); flash pt. (TCC) 58 F; ref. index 1.36122
Storage: 1 yr. shelf life; store under ambient conditions out of direct sunlight

**Punctilious® SDA 1-2** [Equistar http://www.equistarchem.com]
Chem. Descrip.: Specially denatured alcohol 1-2
CAS 64-17-5; EINECS/ELINCS 200-578-6
Uses: Solvent for pharmaceuticals

**Punctilious® SDA 2B-2** [Equistar http://www.equistarchem.com]
Chem. Descrip.: Specially denatured alcohol 2B: ethanol (99.6%), naphtha, light aliphatic (0.4%) See Alcohol
UN 1170
Uses: Solvent for pharmaceuticals
Regulatory: SARA §311/312 acute health/chronic health/fire hazard, §313 nonreportable; Calif. Prop. 65 reportable (ethanol, benzene)
Properties: Colorless liq.; invisible vapor; sweet alcohol-like odor; sol. in water; sp.gr. 0.7862-0.7871 (77/77 F), 1.59 (vapor); vapor pressure 44.6 mm Hg; f.p. -144 C; b.p. 78.4 C; flash pt. (TCC) 13 C; autoignition temp. 363 C; ref. index 1.3596
Toxicology: LD50 (oral, rat) 7060 mg/kg; may be irritating to eyes, upper respiratory tract; short-term exposure above 1000 ppm by inh. may cause CNS effects, headache, eye/nose/throat irritation; exposure > 1 h may cause dizziness, drowsiness, loss of appetite, inability to conc., GI effects, nausea, vomiting; prolonged/repeated skin contact may cause dermatitis; ing. may cause drunkenness, CNS depression, nausea, vomiting, diarrhea, liver damage, death; TSCA listed

**Environmental:** On land, apt to volatilize, biodegrade, or leach to ground water; in water, photolysis, oxidation, biodegradation expected to occur; not expected to bioconcentrate in aquatic organisms; LC50 (rainbow trout, 96 h) 10,400 ppm; prevent entry into sewers

Precaution: Flamm. liq.; flamm. limits 3.3-19 vol.%; material can burn with little or no visible flame; vapors are heavier than air, may flash back; prevent entry into basements, confined areas; ground and bond containers; avoid static discharges; avoid strong oxidizers, excessive heat, sparks, open flame; contact with acetyl chloride or other oxidizing agents may result in violent reaction

**Hazardous Decomp. Prods.:** Combustion: CO

HMIS: Health 1, Flammability 3, Reactivity 0

Storage: 1 yr. shelf life; store under ambient conditions out of direct sunlight

**Punctilious® SDA 2B-2 190 Proof** [Equistar http://www.equistarchem.com]
Chem. Descrip.: Specially denatured alcohol 2B: ethanol 190 proof (92.03%), light aliphatic solvent naphtha (0.42%), water (7.55%) See Alcohol; Naphtha, light aliphatic
UN 1170
Uses: Solvent for pharmaceuticals
Regulatory: SARA §311/312 acute health/chronic health/fire hazard, §313 nonreportable; Calif. Prop. 65 reportable (ethanol, benzene)
Properties: Colorless liq.; invisible vapor; sweet alcohol-like odor; sol. in water; sp.gr. 0.8078-0.8090 (77/77 F), 1.59 (vapor); vapor pressure 44.6 mm Hg; f.p. -144 C; b.p. 78.4 C; flash pt. (TCC) 16 C; autoignition temp. 363 C; ref. index 1.3618
Toxicology: May be irritating to eyes, upper respiratory tract; short-term exposure above 1000 ppm by inh. may cause CNS effects, headache, eye/nose/throat irritation; exposure > 1 h may cause dizziness, drowsiness, loss of appetite, inability to conc., GI effects, nausea, vomiting; prolonged/repeated skin contact may cause dermatitis; ing. may cause drunkenness, CNS depression, nausea, vomiting, diarrhea, liver damage, death; TSCA listed

**Environmental:** On land, apt to volatilize, biodegrade, or leach to ground water; in water, photolysis, oxidation, biodegradation expected to occur; not expected to bioconcentrate in aquatic organisms; LC50 (rainbow trout, 96 h) 10,400 ppm; prevent entry into sewers

Precaution: Flamm. liq.; flamm. limits 3.3-19 vol.%; material can burn with little or no visible flame; vapors are heavier than air, may flash back; prevent entry into basements, confined areas; ground and bond containers; avoid static discharges;
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Trade Name Reference

avoid strong oxidizers, excessive heat, sparks, open flame; contact with acetyl chloride or other oxidizing agents may result in violent reaction

Hazardous Decomp. Prods.: Combustion: CO
HMIS: Health 1, Flammability 3, Reactivity 0
Storage: 1 yr. shelf life; store under ambient conditions out of direct sunlight

Punctilious® SDA 2B-3 190 Proof [Equistar http://www.equistarchem.com]
Chem. Descrip.: Specially denatured alcohol
2B: ethanol 190 proof (91.9%), toluene (0.5%), water (7.5%) See Alcohol
UN 1170
Uses: Solvent for pharmaceuticals
Regulatory: SARA §311/312 acute health/chronic health/fire hazard, §313 reportable (toluene), Calif. Prop. 65 reportable (toluene, ethanol, benzene)
Properties: Colorless liq.; invisible vapor; sweet alcohol-like odor; sol. in water; sp.gr. 0.7862-0.7871 (77/77 F), 1.59 (vapor); vapor pressure 44.6 mm Hg; f.p. -144 C; b.p. 78.4 C; flash pt. (TCC) 16 C; autoignition temp. 363 C; ref. index 1.3596
Toxicology: May be irritating to eyes, upper respiratory tract; short-term exposure above 1000 ppm by inh. may cause CNS effects, headache, eye/nose/throat irritation; exposure > 1 h may cause dizziness, drowsiness, loss of appetite, inability to conc., GI effects, nausea, vomiting; prolonged/repeated skin contact may cause dermatitis; ing. may cause drunkenness, CNS depression, nausea, vomiting, diarrhea, liver damage, death; TSCA listed
Environmental: On land, apt to volatilize, biodegrade, or leach to ground water; in water, photolysis, oxidation, biodegradation expected to occur; not expected to bioconcentrate in aquatic organisms; LC50 (rainbow trout, 96 h) 10,400 ppm; prevent entry into sewers
Precaution: Flamm. liq.; flamm. limits 3.3-19 vol.%; material can burn with little or no visible flame; vapors are heavier than air, may flash back; prevent entry into basements, confined areas; ground and bond containers; avoid static discharges; avoid strong oxidizers, excessive heat, sparks, open flame; contact with acetyl chloride or other oxidizing agents may result in violent reaction

Hazardous Decomp. Prods.: Combustion: CO
HMIS: Health 1, Flammability 3, Reactivity 0
Storage: 1 yr. shelf life; store under ambient conditions out of direct sunlight

Punctilious® SDA 2B-4 190 Proof [Equistar http://www.equistarchem.com]
Chem. Descrip.: Specially denatured alcohol
2B: ethanol, light aliphatic solvent naphtha, water (7.55%) See Alcohol; Naphtha, light aliphatic
Uses: Solvent for pharmaceuticals
Properties: Pt-Co 10 max. color; typ. odor; sol. in water; sp.gr. 0.8078-0.8090 (77/77 F); flash pt. (TCC) 44 F; ref. index 1.36179
Storage: 1 yr. shelf life; store under ambient conditions out of direct sunlight

Punctilious® SDA 2B-4 Anhydrous [Equistar http://www.equistarchem.com]
Chem. Descrip.: Specially denatured alcohol
2B: ethanol (99.6%), light aliphatic solvent naphtha (0.4%) See Alcohol; Naphtha, light aliphatic
UN 1170
Uses: Solvent for pharmaceuticals
Regulatory: SARA §311/312 acute health/chronic health/fire hazard, §313 nonreportable; Calif. Prop. 65 reportable (ethanol, benzene)
Properties: Colorless liq.; invisible vapor; sweet alcohol-like odor; sol. in water; sp.gr. 0.7862 (0.4%); naphtha (99.6%); light aliphatic solvent naphtha 2B; Alcohol (99.6%), water (7.5%) See Alcohol; Naphtha, light aliphatic
Toxicology: LD50 (oral, rat) 7060 mg/kg; may be irritating to eyes, upper respiratory tract; short-term exposure above 1000 ppm by inh. may cause CNS effects, headache, eye/nose/throat irritation; exposure > 1 h may cause dizziness, drowsiness, loss of appetite, inability to conc., GI effects, nausea, vomiting; prolonged/repeated skin contact may cause dermatitis; ing. may cause drunkenness, CNS depression, nausea, vomiting, diarrhea, liver damage, death; TSCA listed
Environmental: On land, apt to volatilize, biodegrade, or leach to ground water; in water, photolysis, oxidation, biodegradation expected to occur; not expected to bioconcentrate in aquatic organisms; LC50 (rainbow trout, 96 h) 10,400 ppm; prevent entry into sewers
Precaution: Flamm. liq.; flamm. limits 3.3-19 vol.%; material can burn with little or no visible flame; vapors are heavier than air, may flash back; prevent entry into basements, confined areas; ground and bond containers; avoid static discharges; avoid strong oxidizers, excessive heat, sparks, open flame; contact with acetyl chloride or other oxidizing agents may result in violent reaction
Trade Name Reference


Chem. Descrip.: Specially denatured alcohol 3A: ethanol (95.2%), methanol (4.8%) See Alcohol; Methyl alcohol

UN 1170
Uses: Solvent for pharmaceuticals

Regulatory: SARA §311/312 acute health/chronic health/fire hazard, §313 reportable (methanol)

Properties: Colorless liq.; invisible vapor; sweet alcohol-like odor; sol. in water; sp.gr. 0.7869-0.7879 (77/77 F); 1.59 (vapor); vapor pressure 44.6 mm Hg; f.p. -144 C; b.p. 78.4 C; flash pt. (TCC) 16 C; autoignition temp. 363 C; ref. index 1.35939

Toxicology: May be irritating to eyes, upper respiratory tract; short-term exposure above 1000 ppm by inh. may cause CNS effects, headache, eye/nose/throat irritation; exposure > 1 h may cause dizziness, drowsiness, loss of appetite, inability to conc., GI effects, nausea, vomiting; prolonged/repeated skin contact may cause dermatitis; ing. may cause drunkenness, CNS depression, nausea, vomiting, diarrhea, liver damage, death; TSCA listed

Environmental: On land, apt to volatilize, biodegrade, or leach to ground water; in water, photolysis, oxidation, biodegradation expected to occur; not expected to bioconcentrate in aquatic organisms; LC50 (rainbow trout, 96 h) 10,400 ppm; prevent entry into sewers

Precaution: Flamm. liq.; flamm. limits 3.3-19 vol.%; material can burn with little or no visible flame; vapors are heavier than air, may flash back; prevent entry into basements, confined areas; ground and bond containers; avoid static discharges; avoid strong oxidizers, excessive heat, sparks, open flame; contact with acetyl chloride or other oxidizing agents may result in violent reaction

Hazardous Decomp. Prods.: Combustion: CO
HMIS: Health 1, Flammability 3, Reactivity 0

Storage: 1 yr. shelf life; store under ambient conditions out of direct sunlight

Punctilious® SDA 3A 190 Proof [Equistar http://www.equistarchem.com]

Chem. Descrip.: Specially denatured alcohol 3A: ethanol (88.1%), methanol (4.7%), water (7.2%) See Alcohol; Methyl alcohol

UN 1170
Uses: Solvent for pharmaceuticals

Regulatory: SARA §311/312 acute health/chronic health/fire hazard, §313 reportable (methanol)

Properties: Colorless liq.; invisible vapor; sweet alcohol-like odor; sol. in water; sp.gr. 0.8078-0.8090 (77/77 F), 1.59 (vapor); vapor pressure 44.6 mm Hg; f.p. -144 C; b.p. 78.4 C; flash pt. (TCC) 16 C; autoignition temp. 363 C; ref. index 1.36078

Toxicology: May be irritating to eyes, upper respiratory tract; short-term exposure above 1000 ppm by inh. may cause CNS effects, headache, eye/nose/throat irritation; exposure > 1 h may cause dizziness, drowsiness, loss of appetite, inability to conc., GI effects, nausea, vomiting; prolonged/repeated skin contact may cause dermatitis; ing. may cause drunkenness, CNS depression, nausea, vomiting, diarrhea, liver damage, death; TSCA listed

Environmental: On land, apt to volatilize, biodegrade, or leach to ground water; in water, photolysis, oxidation, biodegradation expected to occur; not expected to bioconcentrate in aquatic organisms; LC50 (rainbow trout, 96 h) 10,400 ppm; prevent entry into sewers

Precaution: Flamm. liq.; flamm. limits 3.3-19 vol.%; material can burn with little or no visible flame; vapors are heavier than air, may flash back; prevent entry into basements, confined areas; ground and bond containers; avoid static discharges; avoid strong oxidizers, excessive heat, sparks, open flame; contact with acetyl chloride or other oxidizing agents may result in violent reaction
Trade Name Reference

**Punctilious® SDA 3C 190 Proof** [Equistar http://www.equistarchem.com]

Chem. Descrip.: Specially denatured alcohol 3C: ethanol (88.2%), isopropyl alcohol (4.6%), water (7.2%) See Alcohol

UN 1170

Uses: **Solvent for pharmaceuticals**

Regulatory: SARA §311/312 acute health/chronic health/fire hazard, §313 reportable (IPA); Calif. Prop. 65 reportable (ethanol, benzene)

**Properties:** Colorless liq.; invisible vapor; sweet alcohol-like odor; sol. in water; sp.gr. 0.8074-0.8086 (77/77 F), 1.59 (vapor); vapor pressure 44.6 mm Hg; f.p. -144 C; b.p. 78.4 C; flash pt. (TCC) 16 C; autoignition temp. 363 C; ref. index 1.36289

**Toxicology:** May be **irritating to eyes, upper respiratory** tract; short-term exposure above 1000 ppm by inh. may cause **CNS effects**, headache, eye/nose/throat irritation; exposure > 1 h may cause **dizziness, drowsiness, loss of appetite, inability to conc., GI effects, nausea, vomiting**; prolonged/repeated skin contact may cause **dermatitis**; ing. may cause **drunkenness, CNS depression, nausea, vomiting, diarrhea, liver damage, death**; TSCA listed

**Environmental:** On land, apt to volatilize, biodegrade, or leach to ground water; in water, photolysis, oxidation, biodegradation expected to occur; not expected to bioconcentrate in aquatic organisms; LC50 (rainbow trout, 96 h) 10,400 ppm; prevent entry into sewers

**Precaution:** Flamm. liq.; flamm. limits 3.3-19 vol.%; material can burn with little or no visible flame; vapors are heavier than air, may flash back; prevent entry into basements, confined areas; ground and bond containers; avoid static discharges

**Hazardous Decomp. Prods.:** Combustion: CO

HMIS: Health 1, Flammability 3, Reactivity 0

Storage: 1 yr. shelf life; store under ambient conditions out of direct sunlight

**Punctilious® SDA 12A-3 Anhydrous** [Equistar http://www.equistarchem.com]

Chem. Descrip.: Specially denatured alcohol 12A: ethanol (94.8%), toluene (5.2%) See Alcohol

UN 1170

Uses: **Solvent for pharmaceuticals**

Regulatory: SARA §311/312 acute health/chronic health/fire hazard, §313 reportable (toluene); Calif. Prop. 65 reportable (toluene, ethanol, benzene)

**Properties:** Colorless liq.; invisible vapor; sweet alcohol-like odor; sol. in water; sp.gr. 0.7907-0.7921 (77/77 F), 1.59 (vapor); vapor pressure 44.6 mm Hg; f.p. -144 C; b.p. 78.4 C; flash pt. (TCC) 13 C; autoignition temp. 363 C; ref. index 1.3660

**Toxicology:** May be **irritating to eyes, upper respiratory** tract; short-term exposure above 1000 ppm by inh. may cause **CNS effects**, headache, eye/nose/throat irritation; exposure > 1 h may cause **dizziness, drowsiness, loss of appetite, inability to conc., GI effects, nausea, vomiting**; prolonged/repeated skin contact may cause **dermatitis**; ing. may cause **drunkenness, CNS depression, nausea, vomiting, diarrhea, liver damage, death**; TSCA listed

**Environmental:** On land, apt to volatilize, biodegrade, or leach to ground water; in water, photolysis, oxidation, biodegradation expected to occur; not expected to bioconcentrate in aquatic organisms; LC50 (rainbow trout, 96 h) 10,400 ppm; prevent entry into sewers

**Precaution:** Flamm. liq.; flamm. limits 3.3-19 vol.%; material can burn with little or no visible flame; vapors are heavier than air, may flash back; prevent entry into basements, confined areas; ground and bond containers; avoid static discharges

**Hazardous Decomp. Prods.:** Combustion: CO

HMIS: Health 1, Flammability 3, Reactivity 0

Storage: 1 yr. shelf life; store under ambient conditions out of direct sunlight
Punctilious® SDA 13A 190 Proof [Equistar http://www.equistarchem.com]

Chem. Descrip.: Specially denatured alcohol 13A: ethanol (85.1%), ethyl ether (7.9%), water (7.0%) See Alcohol

UN 1170

Uses: Solvent for pharmaceuticals

Regulatory: SARA §311/312 acute health/chronic health/fire hazard, §313 nonreportable; Calif. Prop. 65 reportable (ethanol, chloroform)

Properties: Colorless liq.; invisible vapor; sweet alcohol-like odor; sol. in water; sp.gr. 0.8199-0.8216 (77/77 F), 1.59 (vapor); vapor pressure 44.6 mm Hg; f.p. -144 C; b.p. 78.4 C; flash pt. (TCC) 13 C; autoignition temp. 363 C; ref. index 1.36329

Toxicology: May be irritating to eyes, upper respiratory tract; short-term exposure above 1000 ppm by inh. may cause CNS effects, headache, eye/nose/throat irritation; exposure > 1 h may cause dizziness, drowsiness, loss of appetite, inability to conc., GI effects, nausea, vomiting; prolonged/repeated skin contact may cause dermatitis; ing. may cause drunkenness, CNS depression, nausea, vomiting, diarrhea, liver damage, death; TSCA listed

Environmental: On land, apt to volatilize, biodegrade, or leach to ground water; in water, photolysis, oxidation, biodegradation expected to occur; not expected to bioconcentrate in aquatic organisms; LC50 (rainbow trout, 96 h) 10,400 ppm; prevent entry into sewers

Precaution: Flamm. liq.; flamm. limits 3.3-19 vol.%; material can burn with little or no visible flame; vapors are heavier than air, may flash back; prevent entry into basements, confined areas; ground and bond containers; avoid static discharges

Hazardous Decomp. Prods.: Combustion: CO

HMIS: Health 1, Flammability 3, Reactivity 0

Storage: 1 yr. shelf life; store under ambient conditions out of direct sunlight

Punctilious® SDA 20 Anhydrous [Equistar http://www.equistarchem.com]

Chem. Descrip.: Specially denatured alcohol 20: ethanol (91.5%), chloroform (8.5%) See Alcohol

CAS 64-17-5; 67-66-3; EINECS/ELINCS 200-578-6, 200-663-8

UN 1170

Uses: Solvent for pharmaceuticals

Regulatory: SARA §311/312 acute health/chronic health/fire hazard, §313 nonreportable; Calif. Prop. 65 reportable (ethanol, chloroform)

Properties: Pt-Co 10 max. color; typ. odor; sol. in water; sp.gr. 0.8399-0.8429 (77/77 F); flash pt. (TCC) 56 F; ref. index 1.36593

Storage: 1 yr. shelf life; store under ambient conditions out of direct sunlight
Precaution: On land, apt to volatilize, Environmental: 1 yr. shelf life; store under ambient Storage:

HMIS: Combustion: CO Hazardous Decomp. Props.: Combustion: CO HMIS: Health 1, Flammability 3, Reactivity 0 Storage: 1 yr. shelf life; store under ambient conditions out of direct sunlight

Punctilious® SDA 23A Anhydrous [Equistar http://www.equistarchem.com]
Chem. Descrip.: Specially denatured alcohol

Chem. Descrip.: Specially denatured alcohol 23A: ethanol (85.7%), acetone (7.2%), water (7.0%) See Alcohol

23A: ethanol (92.6%), acetone (7.4%) See Alcohol
UN 1170
Uses: Solvent for pharmaceuticals Regulatory: SARA §311/312 acute health/chronic health/fire hazard, §313 nonreportable; Calif. Prop. 65 reportable (ethanol, benzene); TSCA export notification required (acetone)

Properties: Colorless liq.; invisible vapor; sweet alcohol-like odor; sol. in water; sp.gr. 0.8078-0.8090 (77/77 F), 1.59 (vapor); vapor pressure 44.6 mm Hg; f.p. -144 C; b.p. 78.4 C; flash pt. (TCC) 13 C; autoignition temp. 363 C; ref. index 1.36204

Toxicology: May be irritating to eyes, upper respiratory tract; short-term exposure above 1000 ppm by inh. may cause CNS effects, headache, eye/nose/throat irritation; exposure > 1 h may cause dizziness, drowsiness, loss of appetite, inability to conc., GI effects, nausea, vomiting; prolonged/repeated skin contact may cause dermatitis; ing. may cause drunkenness, CNS depression, nausea, vomiting, diarrhea, liver damage, death

Environmental: On land, apt to volatilize, biodegrade, or leach to ground water; in water, photolysis, oxidation, biodegradation expected to occur; not expected to bioconcentrate in aquatic organisms; LC50 (rainbow trout, 96 h) 10,400 ppm; prevent entry into sewers

Precaution: Flamm. liq.; flamm. limits 3.3-19 vol.%; material can burn with little or no visible flame; vapors are heavier than air, may flash back; prevent entry into basements, confined areas; ground and bond containers; avoid static discharges; avoid strong oxidizers, excessive heat, sparks, open flame; contact with acetyl chloride or other oxidizing agents may result in violent reaction

Hazardous Decomp. Props.: Combustion: CO MIBK (1.4%), water (6.9%) See Alcohol; Methyl isobutyl ketone
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Trade Name Reference

UN 1170
Uses: Solvent for pharmaceuticals
Regulatory: SARA §311/312 acute health/chronic health/fire hazard, §313 nonreportable; Calif. Prop. 65 reportable (ethanol, benzene)
Properties: Deep red-brn. liq.; invisible vapor; sweet alcohol-like odor; sol. in water; sp.gr. 0.8471-0.8500 (77/77 F), 1.59 (vapor); vapor pressure 44.6 mm Hg; f.p. -144 C; b.p. 78.4 C; flash pt. (TCC) 16 C; autoignition temp. 363 C
Toxicology: May be irritating to eyes, upper respiratory tract; short-term exposure above 1000 ppm by inh. may cause CNS effects, headache, eye/nose/throat irritation; exposure > 1 h may cause dizziness, drowsiness, loss of appetite, inability to conc., GI effects, nausea, vomiting; prolonged/repeated skin contact may cause dermatitis; ing. may cause drunkenness, CNS depression, nausea, vomiting, diarrhea, liver damage, death; TSCA listed
Environmental: On land, apt to volatilize, biodegrade, or leach to ground water; in water, photolysis, oxidation, biodegradation expected to occur; not expected to bioconcentrate in aquatic organisms; LC50 (rainbow trout, 96 h) 10,400 ppm; prevent entry into sewers
Precaution: Flamm. liq.; flamm. limits 3.3-19 vol.%; material can burn with little or no visible flame; vapors are heavier than air, may flash back; prevent entry into basements, confined areas; ground and bond containers; avoid static discharges; avoid strong oxidizers, excessive heat, sparks, open flame; contact with acetyl chloride or other oxidizing agents may result in violent reaction
Hazardous Decomp. Prods.: Combustion: CO
HMIS: Health 1, Flammability 3, Reactivity 0
Storage: 1 yr. shelf life; store under ambient conditions out of direct sunlight

Chem. Descrip.: Specially denatured alcohol 25A: ethanol (86.1%), iodine (2.7%), sodium iodide (2.1%), water (9.1%) See Alcohol
UN 1170
Uses: Solvent for pharmaceuticals

Chem. Descrip.: Specially denatured alcohol 25A: ethanol (86.1%), iodine (2.7%), potassium iodide (2.1%), water (9.1%) See Alcohol; Potassium iodide
UN 1170
Uses: Solvent for pharmaceuticals

Precaution: Flamm. liq.; flamm. limits 3.3-19 vol.%; material can burn with little or no visible flame; vapors are heavier than air, may flash back; prevent entry into basements, confined areas; ground and bond containers; avoid static discharges; avoid strong oxidizers, excessive heat, sparks, open flame; contact with acetyl chloride or other oxidizing agents may result in violent reaction
Hazardous Decomp. Prods.: Combustion: CO
HMIS: Health 1, Flammability 3, Reactivity 0
Storage: 1 yr. shelf life; store under ambient conditions out of direct sunlight

http://www.equistarchem.com

Chem. Descrip.: Specially denatured alcohol 25A: ethanol (86.1%), iodine (2.7%), sodium iodide (2.1%), water (9.1%) See Alcohol
UN 1170
Uses: Solvent for pharmaceuticals
Regulatory: SARA §311/312 acute health/chronic health/fire hazard, §313 nonreportable; Calif. Prop. 65 reportable (ethanol, benzene)
Properties: Deep red-brn. liq.; invisible vapor;
sweet alcohol-like odor; sol. in water; sp.gr. 0.8476-0.8506 (77/77 F), 1.59 (vapor); vapor pressure 44.6 mm Hg; f.p. -144 C; b.p. 78.4 C; flash pt. (TCC) 16 C; autoignition temp. 363 C

**Toxicology:** May be irritating to eyes, upper respiratory tract; short-term exposure above 1000 ppm by inh. may cause CNS effects, headache, eye/nose/throat irritation; exposure > 1 h may cause dizziness, drowsiness, loss of appetite, inability to conc., GI effects, nausea, vomiting; prolonged/repeated skin contact may cause dermatitis; ing. may cause drunkenness, CNS depression, nausea, vomiting, diarrhea, liver damage, death; TSCA listed

**Environmental:** On land, apt to volatilize, biodegrade, or leach to ground water; in water, photolysis, oxidation, biodegradation expected to occur; not expected to biocentrone in aquatic organisms; LC50 (rainbow trout, 96 h) 10,400 ppm; prevent entry into sewers

**Precaution:** Flamm. liq.; flamm. limits 3.3-19 vol.%; material can burn with little or no visible flame; vapors are heavier than air, may flash back; prevent entry into basements, confined areas; ground and bond containers; avoid static discharges; avoid strong oxidizers, excessive heat, sparks, open flame; contact with acetyl chloride or other oxidizing agents may result in violent reaction

**Hazardous Decomp. Prods.:** Combustion: CO

**HMIS:** Health 1, Flammability 3, Reactivity 0

**Storage:** 1 yr. shelf life; store under ambient conditions out of direct sunlight

**Punctilious® SDA 29-2 190 Proof** [Equistar http://www.equistarchem.com]

**Chem. Descrip.:** Specially denatured alcohol 29-2: ethanol, ethyl acetoacetate, water See Alcohol; Ethylacetoacetate

**Uses:** Solvent for pharmaceuticals

**Properties:** Pt-Co 10 max. color; typ. odor; sol. in water; sp.gr. 0.8108-0.8119 (77/77 F); flash pt. (TCC) 58 F; ref. index 1.3622

**Storage:** 1 yr. shelf life; store under ambient conditions out of direct sunlight

**Punctilious® SDA 29-2 Anhydrouus** [Equistar http://www.equistarchem.com]

**Chem. Descrip.:** Specially denatured alcohol 29-2: ethanol (98.7%), ethyl acetoacetate (1.3%) See Alcohol; Ethylacetoacetate

**UN 1170**

**Uses:** Solvent for pharmaceuticals

**Regulatory:** SARA §311/312 acute health/chronic health/fire hazard, §313 nonreportable; Calif. Prop. 65 reportable (ethanol, benzene)

**Properties:** Colorless liq.; invisible vapor; sweet alcohol-like odor; sol. in water; sp.gr. 0.7892-0.7902 (77/77 F), 1.59 (vapor); vapor pressure 44.6 mm Hg; f.p. -144 C; b.p. 78.4 C; flash pt. (TCC) 13 C; autoignition temp. 363 C; ref. index 1.3602

**Toxicology:** May be irritating to eyes, upper respiratory tract; short-term exposure above 1000 ppm by inh. may cause CNS effects, headache, eye/nose/throat irritation; exposure > 1 h may cause dizziness, drowsiness, loss of appetite, inability to conc., GI effects, nausea, vomiting; prolonged/repeated skin contact may cause dermatitis; ing. may cause drunkenness, CNS depression, nausea, vomiting, diarrhea, liver damage, death; TSCA listed

**Environmental:** On land, apt to volatilize, biodegrade, or leach to ground water; in water, photolysis, oxidation, biodegradation expected to occur; not expected to biocentrone in aquatic organisms; LC50 (rainbow trout, 96 h) 10,400 ppm; prevent entry into sewers

**Precaution:** Flamm. liq.; flamm. limits 3.3-19 vol.%; material can burn with little or no visible flame; vapors are heavier than air, may flash back; prevent entry into basements, confined areas; ground and bond containers; avoid static discharges; avoid strong oxidizers, excessive heat, sparks, open flame; contact with acetyl chloride or other oxidizing agents may result in violent reaction

**Hazardous Decomp. Prods.:** Combustion: CO

**HMIS:** Health 1, Flammability 3, Reactivity 0

**Storage:** 1 yr. shelf life; store under ambient conditions out of direct sunlight

**Punctilious® SDA 29-3 190 Proof** [Equistar http://www.equistarchem.com]

**Chem. Descrip.:** Specially denatured alcohol 29-3: ethanol (91.4%), ethyl acetate (1.1%), water (7.5%) See Alcohol

**UN 1170**

**Uses:** Solvent for pharmaceuticals

**Regulatory:** SARA §311/312 acute health/chronic health/fire hazard, §313 nonreportable; Calif. Prop. 65 reportable (ethanol, benzene)
Trade Name Reference

(ethanol, benzene); TSCA export notification required (ethyl acetate)

**Properties:** Colorless liq.; invisible vapor; sweet alcohol-like odor; sol. in water; sp.gr. 0.8094-0.8105 (77/77 F), 1.59 (vapor); vapor pressure 44.6 mm Hg; f.p. -144 C; b.p. 78.4 C; flash pt. (TCC) 16 C; autoignition temp. 363 C; ref. index 1.3619

**Health:** 1, **Flammability** 3, **Reactivity** 0

**Toxicology:** May be irritating to eyes, upper respiratory tract; short-term exposure above 1000 ppm by inh. may cause CNS effects, headache, eye/nose/throat irritation; exposure > 1 h may cause dizziness, drowsiness, loss of appetite, inability to conc., GI effects, nausea, vomiting; prolonged/repeated skin contact may cause dermatitis; ing. may cause drunkenness, CNS depression, nausea, vomiting, diarrhea, liver damage, death; TSCA listed

**Environmental:** On land, apt to volatilize, biodegrade, or leach to ground water; in water, photolysis, oxidation, biodegradation expected to occur; not expected to bioconcentrate in aquatic organisms; LC50 (rainbow trout, 96 h) 10,400 ppm; prevent entry into sewers

**Precaution:** Flamm. liq.; flamm. limits 3.3-19 vol.%; material can burn with little or no visible flame; vapors are heavier than air, may flash back; prevent entry into basements, confined areas; ground and bond containers; avoid static discharges; avoid strong oxidizers, excessive heat, sparks, open flame; contact with acetyl chloride or other oxidizing agents may result in violent reaction

**Hazardous Decomp. Prods.:** Combustion: CO

**HMIS:** Health 1, Flammability 3, Reactivity 0

**Storage:** 1 yr. shelf life; store under ambient conditions out of direct sunlight

**Punctilious® SDA 30 Anhydrous** [Equistar http://www.equistarchem.com]

**Chem. Descrip.:** Specially denatured alcohol 30: ethanol (90.9%), methanol (9.1%) See Alcohol; Methyl alcohol

UN 1170

**Uses:** Solvent for pharmaceuticals

**Regulatory:** SARA §311/312 acute health/chronic health/fire hazard, §313 reportable (methanol); Calif. Prop. 65 reportable (ethanol, benzene)

**Properties:** Colorless liq.; invisible vapor; sweet alcohol-like odor; sol. in water; sp.gr. 0.8066-0.8080 (77/77 F), 1.59 (vapor); vapor pressure 44.6 mm Hg; f.p. -144 C; b.p. 78.4 C; flash pt. (TCC) 16 C; autoignition temp. 363 C; ref. index 1.3586

**Toxicology:** May be irritating to eyes, upper respiratory tract; short-term exposure above 1000 ppm by inh. may cause CNS effects, headache, eye/nose/throat irritation; exposure > 1 h may cause dizziness, drowsiness, loss of appetite, inability to conc., GI effects, nausea, vomiting; prolonged/repeated skin contact may cause dermatitis; ing. may cause drunkenness, CNS depression, nausea, vomiting, diarrhea, liver damage, death; TSCA listed

**Environmental:** On land, apt to volatilize, biodegrade, or leach to ground water; in water, photolysis, oxidation, biodegradation expected to occur; not expected to bioconcentrate in aquatic organisms; LC50 (rainbow trout, 96 h) 10,400 ppm; prevent entry into sewers

**Precaution:** Flamm. liq.; flamm. limits 3.3-19 vol.%; material can burn with little or no visible flame; vapors are heavier than air, may flash back; prevent entry into basements, confined areas; ground and bond containers; avoid static discharges; avoid strong oxidizers, excessive heat, sparks, open flame; contact with acetyl chloride or other oxidizing agents may result in violent reaction

**Hazardous Decomp. Prods.:** Combustion: CO

**HMIS:** Health 1, Flammability 3, Reactivity 0

**Storage:** 1 yr. shelf life; store under ambient conditions out of direct sunlight

**Punctilious® SDA 30 Anhydrous** [Equistar http://www.equistarchem.com]
Trade Name Reference

**Toxicology:** May be irritating to eyes, upper respiratory tract; short-term exposure above 1000 ppm by inh. may cause CNS effects, headache, eye/nose/throat irritation; exposure > 1 h may cause dizziness, drowsiness, loss of appetite, inability to conc., GI effects, nausea, vomiting; prolonged/repeated skin contact may cause dermatitis; ing. may cause drunkenness, CNS depression, nausea, vomiting, diarrhea, liver damage, death; TSCA listed

**Environmental:** On land, apt to volatilize, to degrade, or leach to ground water; in water, photolysis, oxidation, biodegradation expected to occur; not expected to bioconcentrate in aquatic organisms; LC50 (rainbow trout, 96 h) 10,400 ppm; prevent entry into sewers

**Precaution:** Flamm. liq.; flamm. limits 3.3-19 vol.%; material can burn with little or no visible flame; vapors are heavier than air, may flash back; prevent entry into basements, confined areas; ground and bond containers; avoid static discharges; avoid strong oxidizers, excessive heat, sparks, open flame; contact with acetyl chloride or other oxidizing agents may result in violent reaction

**Hazardous Decomp. Prods.:** Combustion: CO
HMIS: Health 1, Flammability 3, Reactivity 0

**Storage:** 1 yr. shelf life; store under ambient conditions out of direct sunlight

**Punctilious® SDA 32 Anhydrous** [Equistar http://www.equistarchem.com]

**Chem. Descrip.:** Specially denatured alcohol 32: ethanol (95.7%), ethyl ether (4.2%), water (0.03%) See Alcohol

**CAS 64-17-5; 60-29-7; EINECS/ELINCS 200-578-6; 200-467-2**

**UN 1170**

**Uses:** Solvent for pharmaceuticals

**Regulatory:** SARA §311/312 acute health/chronic health/fire hazard, §313 nonreportable; Calif. Prop. 65 reportable (ethanol, benzene)

**Properties:** Colorless liq.; invisible vapor; sweet alcohol-like odor; sol. in water; sp.gr. 0.8056-0.8068 (77/77 F), 1.59 (vapor); vapor pressure 44.6 mm Hg; f.p. -144 C; b.p. 78.4 C; flash pt. (TCC) 16 C; autoignition temp. 363 C; ref. index 1.3621

**Toxicology:** May be irritating to eyes, upper respiratory tract; short-term exposure above 1000 ppm by inh. may cause CNS effects, headache, eye/nose/throat irritation; exposure > 1 h may cause dizziness, drowsiness, loss of appetite, inability to...
Handbook of Pharmaceutical Additives, Third Edition
Precaution: Incompat. with oxidizing agents; avoid temps. above 200 C
Hazardous Decomp. Prods.: Thermal decomp. can produce irritating gases and vapors
Storage: Keep container tightly closed

Chem. Descrip.: L(+) Lactic acid See Lactic acid
CAS 79-33-4; EINECS/ELINCS 201-196-2
Uses: pH-regulator metal sequestrant, chiral intermediate and natural body constituent in pharmaceutical products.
Regulatory: USP, JP, EP and GRAS compliance
Properties: APHA 10 max. liq., characteric odor; bland acid taste; completely sol. in water; m.w. 90; sp.gr. 1.21-1.22; visc. 5-60 mPa.s; b.p. 110C; pH <2; decomp. temp. > 200 C; 87.5-88.5% assay
Toxicology: LD50 (oral, rat) 3730 mg/kg; LD50 (dermal, rabbit) 2000 mg/kg; irritating to skin; risk of serious damage to eyes; inhalation causes burns of the upper digestive and respiratory tracts
Environmental: Biodegradable; EC50 (daphnia, 48 h) 240 mg/l; readily biodegrad.: BOD5 = 0.45 mg O2 /mg; COD = 0.90 mg O2 /mg
Precaution: Avoid contact with skin and eyes; use personal protective equipment; avoid oxidizers
Hazardous Decomp. Prods.: Irritating gases and vapors
Storage: Keep container tightly closed and properly labeled

Purac Sanilac® [PURAC biochem http://www.purac.com]
Chem. Descrip.: Lactic acid
CAS 50-21-5; EINECS/ELINCS 200-018-0 UN 1760
Uses: Used in the food, chemical, pharmaceutical, cosmetic and detergent industries; main functions are decalcification, pH Regulation and bacterial control
Features: Antimicrobial; good cleaning properties; good material compatibility; produced for renewable sources
Regulatory: EPA FIFRA registration ; FDA GRAS compliant
Properties: Colorless/yel./lt. brn. liq. with agreeable odor; sol. in water; m.w. 90.08; dens. 1.18-1.19 g/ml; visc. 5-60 mPa.s; b.p. 110 C (40% sol.), 125 C (90% sol.); f.p. > 112 C; pH 2
Toxicology: Causes irreversible eye damage or skin burns; harmful if swallowed; inh. cause irritation of the respiratory tract; LD50 (oral, rat) 3730 mg/kg, (oral, mouse) 4875 mg/kg, (skin, rabbit) 2000 mg/kg; ing. may cause GI irritation; TSCA listed
Environmental: Biodegradable; EC50 (daphnia, 96h) 240 mg/l, (algae) 3500 mg/l; LC50 (fish, 48h) 320 mg/l; no bioaccumulation
Precaution: Do not get in eyes, on skin or on clothing; wear impervious gloves and tightly fitting safety goggles; avoid temp. above 140 C

Chem. Descrip.: Calcium lactate pentahydrate
See Calcium lactate
CAS 63690-56-2; EINECS/ELINCS 212-406-7
Uses: Filler, binder; flow aid for direct compression of pharmaceutical tablets; enhances drug release; nutrient supplement in pharmaceuticals (calcium source for calcium deficiency therapies)
Features: Nonhygroscopic; low friability; high compactibility; high sol. and bioavailability
Regulatory: GRAS, FCC, USP, EP, JSFA, EUSFA compliance
Properties: Wh. powd.; 90% min. 100-425 µm sieve; neutral odor and taste; sol. 9 g/100 ml in water; m.w. 218; pH 6.0-8.5 (10 g in 90 g water); 99-101% assay

Chem. Descrip.: Calcium lactate pentahydrate
See Calcium lactate
CAS 63690-56-2; EINECS/ELINCS 212-406-7
Uses: Calcium fortification, nutrient supplement, bioavailability enhancer for pharmaceuticals
Features: Provides good sol.
Regulatory: USA GRAS, FCC, USP, EP, E327, DAB, JSFA compliance
Properties: Wh. powd./chips; sol. 9 g/100 ml in water; m.w. 218 (anhyd.); pH 6.0-8.5 (10% aq.); 98% min. assay

Puracal® PP/USP [PURAC biochem http://www.purac.com]
Chem. Descrip.: Calcium lactate pentahydrate
Trade Name Reference

**See Calcium lactate**
CAS 63690-56-2; EINECS/ELINCS 212-406-7
Uses: Calcium fortification for pharmaceuticals

**Regulatory:** E 327, FDA GRAS, FCC, USP/EP, JSFA, EUSFA compliance

**Properties:** Wh. powd.; 90% min. 75-425 µm, 98% min. ≤ 500 µm; neutral odor and taste; sol. 9 g/100 ml water; m.w. 218; bulk dens. 300-500 kg/m³; m.p. > 200 °C; decomp. pt. > 200 °C; flash pt. not applicable; pH 6-8.5 (10% aq.); 99-101% assay; 13.4-14.5% assay (Ca); 22-27% loss on drying

**Toxicology:** LDLo (IV, mouse) 140 mg/kg; health injuries are not known or expected under normal use; avoid contact with skin and eyes; noncarcinogenic; nonmutagenic

**Environmental:** No special environmental precautions required; no bioaccumulation

**Precaution:** Incompat. with strong oxidizing agents

**Hazardous Decomp. Prods.:** COx

**Storage:** Nonhygroscopic; keep tightly closed in a dry place

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**Puralan Pure New Lanolin EP/USP** [Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: Lanolin, USP
CAS 8006-54-0; EINECS/ELINCS 232-348-6
Uses: Emollient, o/w emulsifier, conditioner, and moisturizer for skin care prods., pharmaceuticals

**Properties:** Pale yel. soft mass; nonionic

**Puramex® AL** [PURAC Am. http://www.purac.com]
Chem. Descrip.: Aluminum lactate
CAS 18917-91-4; EINECS/ELINCS 242-670-9
Uses: Dietary supplement and deficiency therapies in pharmaceuticals

**Properties:** Wh. odorless powd.; sol. 26 g/100 ml in water; m.w. 294; bulk dens. 580 kg/m³; m.p. > 200 °C; pH 3-4 (4% aq. sol'n.)); 99% min. assay

**Toxicology:** LD50 (oral/rat) >2000mg/kg; noncarcinogenic; may cause Alzheimer's Disease if introduced parenterally

**Precaution:** Avoid strong oxidizers and dust formation

**Hazardous Decomp. Prods.:** COx

**Puramex® FE** [PURAC Am. http://www.purac.com]
Chem. Descrip.: Ferrous lactate
CAS 85993-25-5; EINECS/ELINCS 227-608-0
Uses: Nutrient supplement in pharmaceuticals

**Regulatory:** FDA GRAS; EU E585 compliance
**Properties:** Lt. green powd.; sl. characteristic odor; sol. 2.2 g/100 ml in water; m.w. 279; bulk dens. 680 kg/m³; m.p. 150 -170 °C; pH 4.5-6.0 (2% aq.); decomp. temp. > 200 °C; 98% min. assay

**Toxicology:** LD50 (oral, rat )> 2000mg/kg; eye irritant; TSCA listed

**Environmental:** Readily biodegrad.

**Precaution:** Insure adequate ventilation; avoid strong oxidizers

**NFPA:** Health 0, Flammability 0, Reactivity 0

**Storage:** Keep in dry place

**Puramex® MG** [PURAC Am. http://www.purac.com]
Chem. Descrip.: Magnesium lactate
CAS 18917-93-6; EINECS/ELINCS 242-671-4
Uses: Dietary supplement and deficiency therapies in pharmaceuticals

**Properties:** Wh. odorless powd.; sol. 5.2 g/100 ml in water; m.w. 238; dens. 500kg/m³; m.p. 200 °C; pH 5.0-7.0 (5% aq. sol'n.); 98% min. assay

**Toxicology:** LD50 (oral/rat) >2000mg/kg; noncarcinogenic; TSCA listed

**Precaution:** May cause dust explosion; avoid oxidizers

**Hazardous Decomp. Prods.:** COx

**Puramex® MN** [PURAC Am. http://www.purac.com]
Chem. Descrip.: Manganese lactate
CAS 16039-56-8
Uses: Nutrient supplement in pharmaceuticals

**Properties:** Pink powd.; sol. 10 g/100 ml in water; m.w. 233 (anhyd.); pH 5.0-7.0 (5% aq.); 98% min. assay

**Puramex® ZN** [PURAC Am. http://www.purac.com]
Chem. Descrip.: Zinc lactate dihydrate
CAS 63179-81-7; EINECS/ELINCS 240-178-9
Uses: Dietary supplement and deficiency therapies in pharmaceuticals

**Properties:** Wh. odorless powd.; sol. 5 g/100 ml in water; m.w. 279.4; bulk dens. 900 kg/m³; m.p. 200 °C; pH 5-8 (10% aq. sol'n.); 98% min. assay

**Toxicology:** LD50 (oral/rat) >2000mg/kg; may cause eye irritation with susceptible persons; harmful if swallowed ; noncarcinogenic

**Environmental:** EC50 (daphnia, 48 h) 8.3 mg/l

**Precaution:** Thermal decomposition releases
irritating gases and vapors; avoid dust formation; remove all sources of ignition

Storage: Keep in dry place

Chem. Descrip.: Potassium lactate
CAS 996-31-6; EINECS/ELINCS 213-631-3
Uses: Humectant, antimicrobial preservative for pharmaceuticals
Regulatory: FDA GRAS; EU E326 compliance; SARA §313 nonreportable
Properties: APHA 100 max. liq.; sl. to no odor; mildly saline taste; high sol. in water; m.w. 128 (anhyd.); sp.gr. 1.32-1.35 g/ml (20 C); dens. 11-11.3 lb/gal; b.p. 239 F (60% sol'n.); flash pt. none; ref. index 1.415-1.422; pH 5.5-7.5 (10% aq.); 58-62% assay
Toxicology: Nonhazardous; TSCA listed
Hazardous Ingredients: None
Hazardous Decomp. Prods.: None
HMIS: Health 0, Flammability 0, Reactivity 0
Storage: Keep containers tightly closed; store in cool, dry, ventilated area; avoid temps. above 239 F

Chem. Descrip.: Sodium lactate
CAS 72-17-3; EINECS/ELINCS 200-772-0
Uses: Humectant, antimicrobial preservative for pharmaceuticals
Regulatory: FDA GRAS; JSFA, EU E325 compliance; SARA §313 nonreportable
Properties: APHA 100 max. liq.; sl. to no odor; mildly saline taste; high sol. in water; m.w. 112 (anhyd.); sp.gr. 1.32-1.34 g/ml (20 C); dens. 11-11.2 lb/gal; flash pt. none; ref. index 1.422-1.425; pH 6.5-8.5 (10% aq.); 59-61% assay
Toxicology: Nonhazardous; TSCA listed
Hazardous Ingredients: None
Hazardous Decomp. Prods.: None
HMIS: Health 0, Flammability 0, Reactivity 0
Storage: Keep containers tightly closed; store in cool, dry, ventilated area; avoid temps. above 239 F

Chem. Descrip.: Sodium lactate
CAS 72-17-3; EINECS/ELINCS 200-772-0
Uses: Emulsifier, humectant, pH control agent for pharmaceuticals
Regulatory: FDA GRAS; USP, EU E325 compliance; SARA §313 nonreportable
Properties: APHA 50 max. liq.; sl. to no odor; high sol. in water; m.w. 112 (anhyd.); sp.gr. 1.32-1.34 g/ml (20 C); flash pt. none; ref. index 1.422-1.425; pH 6.5-8.5 (10% aq.); 59-61% assay
Toxicology: Nonhazardous; TSCA listed
Hazardous Decomp. Prods.: None
HMIS: Health 0, Flammability 0, Reactivity 0
Storage: Keep containers tightly closed; store in cool, dry, ventilated area; avoid temps. above 239 F

Chem. Descrip.: n-Butyl-(S)-lactate
CAS 34451-19-9; EINECS/ELINCS 252-036-3
Uses: Pharmaceutical intermediate
Features: Non-ozone depleting
Regulatory: FDA approved GRAS flavor
Properties: Colorless to lt. yel. cl. liq.; mild char. odor; partly misc. with water and most org. solvs.; m.w. 146; sp.gr. 0.975-0.985 (20 C); visc. 3.9 mPa•s; vapor pressure 0.3 mbar (20 C); b.p. 189 C; flash pt. (CC) 79 C; autoignition temp. 380 C; ref. index 1.418-1.422; 97% min. assay
Toxicology: TLV 25 mg/m3 max.; LD50 (oral, rat) > 5000 mg/kg; LC50 (inh., rat) > 5140 mg/m3; irritating to eyes, skin; risk of serious eye damage; may degrease skin; may cause coughing, headache; high concs. of vapors may cause respiratory tract irritation, narcotic effects
Environmental: BOD5 0.76 mg O2/mg; COD 1.97 mg O2/mg; readily biodeg.; unlikely to bioaccumulate; EC50 (daphnia, 48 h) 423 mg/l, (algae) 0.93 g/l; LC50 (fish, 48 h) 75 mg/l
Precaution: LEL 1% (100 C); UEL 7.9% (150 C); can be oxidized; hydrolyzes in presence of water, acids, bases; avoid temps. above 79 C
Hazardous Decomp. Prods.: Combustion: irritating fumes
Storage: Keep container tightly closed

Purasorb® [PURAC biochem http://www.purac.com]
Chem. Descrip.: Lactide and glycolide monomers and biodeg. copolymers
Uses: Excipient in controlled drug delivery systems, parenteral therapy and peritoneal dialysis, treatment of dry skin disorders, implantable medical devices; pharmaceutical synthesis

Pureco® 76 [ABITEC]
**Chem. Descrip.:** Coconut (Cocos nucifera) oil, refined, bleached, deodorized  
CAS 8001-31-8; EINECS/ELINCS 232-282-8  
*Uses:* Diluent, emollient, lubricant, vehicle, carrier in clinical nutrition, delivery/absorp. enhancement, microemulsions, soft gelatin capsules  
*Properties:* Lovibond R1.5 max. semisolid; typical odor; m.p. 74.3-80.6 F; iodine no. 10 max.; sapon. no. 248-264.  
*Storage:* Retest and requalify 12 mos. from the date of manufacture; store in dry place @ R.T.

**Chem. Descrip.:** Canola oil, refined, bleached, deodorized  
CAS 8002-13-9  
*Uses:* Lubricant for pharmaceuticals  
*Features:* Melting props.  
*Properties:* Lovibond 1.5 red max. liq.; vapor pressure > 1 mm Hg; b.p. >500 F; sapon. no. 180-193 ; flash pt. (COC) > 500 F  
*Precaution:* Wear chemical splash goggles and neoprene gloves for hot oil; avoid high temps. near flash pt. and strong oxidizers  
*Hazardous Decomp. Prods.:* COx  
*Storage:* Retest and requalify 12 months from the date of manufacture; store in a dry place @ R.T.

**Chem. Descrip.:** High oleic sunflower seed oil, refined, bleached, deodorized  
See Sunflower (Helianthus annuus) seed oil  
CAS 8001-21-6; EINECS/ELINCS 232-273-9  
*Uses:* Solvent, nutritional ingredient in supplements, and gelatin capsules; color and flavor carrier  
*Features:* Melting props.  
*Properties:* Pale yel oil; neutral odor; sp. gr. 0.92; vapor pressure <1 mm Hg; flash pt (COC) >200 C  
*Toxicology:* Not a serious eye irritant; no adverse effects to skin or by ing.  
*Environmental:* Prevent run-off to sewers, streams or other bodies of water  
*Precaution:* Avoid strong oxidizing agents  
*Hazardous Decomp. Prods.:* COx  
*Storage:* Retest and requalify 12 mos. from the date of manufacture; store in a dry place @ R.T.

**Chem. Descrip.:** Partially hydrogenated veg. oils, refined, bleached, deodorized  
See Hydrogenated vegetable oil  
EINECS/ELINCS 269-820-6  
*Uses:* Solvent, nutritional ingredient, in supplements, and gelatin capsules; color and flavor carrier  
*Features:* Melting props.  
*Properties:* Solid @ R.T.; lt.-yel. liq. above m.p.; vapor pressure <1 mm Hg  
*Toxicology:* Not a serious eye or skin irritant  
*Environmental:* Prevent run-off to sewers, streams or other bodies of water  
*Precaution:* Wear chemical splash goggles and neoprene gloves for hot oil; in presence of veg. oil mists or dusts, use of a NIOSH/OSHA approved mask and/or respirator.; avoid high temps. near flash pt. and oxidizing agents  
*Hazardous Decomp. Prods.:* COx
Trade Name Reference

pH 5.5-6.5; 9-12.5% moisture

Chem. Descrip.: Corn (Zea mays) starch NF
CAS 9005-25-8; EINECS/ELINCS 232-679-6
Uses: Binder, diluent, absorbent, disintegrant, sweetness regulator for pharmaceuticals (direct compr. tableting, dry granulations); absorbent starch for body powds.
Features: Free-flowing; inert; low hygroscopicity; improves hardness and friability
Regulatory: NF, FDA 21CFR §172.892
Properties: Wh. powd., no odor, bland flavor; pH 4.5-7.0; 8-11% moisture

Chem. Descrip.: Corn (Zea mays) starch USP
CAS 9005-25-8; EINECS/ELINCS 232-679-6
Uses: Binder, diluent, absorbent for pharmaceutical body powds. and other topical apps.
Regulatory: USP, FDA 21CFR §172.892
Properties: Wh. powd., odorless, bland flavor; pH 6.0; 11% moisture

Chem. Descrip.: Corn (Zea mays) starch NF
CAS 9005-25-8; EINECS/ELINCS 232-679-6
Uses: Binder, diluent, absorbent for pharmaceutical body powds.
Regulatory: NF, FDA 21CFR §172.892
Properties: Wh. fine powd., odorless, bland flavor; pH 4.5-7.0; 8-11% moisture

Chem. Descrip.: Topical corn (Zea mays) starch USP
CAS 9005-25-8; EINECS/ELINCS 232-679-6
Uses: Binder, diluent, absorbent for pharmaceutical body powds.
Regulatory: USP, FDA 21CFR §172.892
Properties: Wh. powd., odorless, bland flavor; pH 6.0; 11% moisture

Chem. Descrip.: Modified corn (Zea mays) starch USP contg. magnesium oxide
Uses: Absorbable dusting powd. for use as lubricant for surgical and examination gloves
Features: May be sterilized by autoclaving, ethylene oxide, or irradiation; not suitable for ingestion
Properties: Wh. flowable powd., odorless; 1.5% max. on 200 mesh, 10% max. on 325 mesh; pH 10-10.8; 8-11% moisture

Chem. Descrip.: Modified corn (Zea mays) starch USP
CAS 9005-25-8; EINECS/ELINCS 232-679-6
Uses: Absorbable dusting powd. for use as lubricant for examination gloves and other nonsurgical uses
Features: Not suitable for ingestion
Properties: Wh. powd.

Chem. Descrip.: Modified corn (Zea mays) starch NF
Uses: Binder, diluent, absorbent, and disintegrant for wet granulation of pharmaceutical tablets
Features: Low visc.; inert
Regulatory: NF, FDA 21CFR §172.892
Properties: Wh. powd., odorless, bland flavor; pH 6.0; 11% moisture

Pure-Syn™ 3E20 [ExxonMobil http://www.exxonmobilchemical.com]
Chem. Descrip.: Trimethylolpropane tricaprylate/tricaprate
CAS 11138-60-6; EINECS/ELINCS 268-595-1
Uses: Emollient, antiwhitener in antiperspirants; emollient for acne lotions
Regulatory: DOT nonregulated
Properties: Bright clear; prac. odorless; sp.gr. 0.95 (15.6 C); visc. 42.3 cst (20 C); f.p. <-25 C; HLB 6.0; acid no. 0.03; sapon. no. (mg KOH/g) 304; flash pt. 250 C; ref. index 1.4525

Pure-Syn™ 100 [ExxonMobil]
Trade Name Reference

**http://www.exxonmobilchemical.com**

**Chem. Descrip.:** Hydrogenated C6-14 olefin polymers

**CAS 163149-29-9**

**Uses: Emollient** for organic sunscreen spray

**Features:** Nonoily, nongreasy; stable in low and high pH systems

**Regulatory:** DOT nonregulated

**Properties:** Colorless fluid; odorless; sp.gr. 0.855 (15.6 C); visc. 4,230 cps (20 C); acid no. 0.02 (mg KOH/g); pour pt. -30 C; flash pt. 288 C; ref. index 1.4715

**Toxicology:** Nonirritating

**Purity® 5** [Nat'l. Starch & Chem./Food Innovation

**Chem. Descrip.:** Food starch modified See Food starch, modified

**Uses:** Excipient, anticaking agent for pharmaceutical tablet compression, capsule filling

**Features:** Low moisture content; protects moisture-sensitive ingreds.

**Properties:** Wh. powd.; pH ≈ 5; 7.5% max. moisture (as packed)

**Purity® 21C** [Nat'l. Starch & Chem./ http://www.nationalstarch.com

**Chem. Descrip.:** Corn (Zea mays) starch NF

**Chem. Analysis:** Moisture (12%)

**CAS 9005-25-8; EINECS/ELINCS 232-679-6**

**Uses:** Binder, filler, and disintegrant for pharmaceuticals, foot powds.

**Properties:** Wh. free-flowing powd.; disp. in water

**Purity® 825** [Nat'l. Starch & Chem./Food Innovation

**Chem. Descrip.:** Corn starch See Corn (Zea mays) starch

**CAS 9005-25-8; EINECS/ELINCS 232-679-6**

**Uses:** Excipient, anticaking agent for pharmaceutical tablet compression, capsule filling

**Features:** Low moisture content; protects moisture-sensitive ingreds.

**Properties:** Wh. to off-wh. powd.; pH ≈ 6; 2.5% max. moisture (as packed)

**Purity® FC** [Nat'l. Starch & Chem./Food Innovation

**Chem. Descrip.:** Food starch modified, tricalcium phosphate See Calcium phosphate tribasic; Food starch, modified

**Uses:** Excipient, anticaking agent for pharmaceutical tablet compression, capsule filling

**Features:** Low moisture content; protects moisture-sensitive ingreds.

**Properties:** Wh. free-flowing powd.; pH ≈ 6; ≈ 10% moisture

**Purity® Gum 40** [Nat'l. Starch & Chem./Food Innovation

**Chem. Descrip.:** Food starch modified derived from tapioca See Food starch, modified

**Uses:** Texturizer, gum Arabic replacement in lozenges, cough drops

**Features:** Exc. clarity, sheen, stability; low visc.; provides uniform flavor

**Regulatory:** FDA 21CFR §172.892; DOT nonregulated; SARA §313 nonreportable

**Properties:** Wh. to off-wh. fine powd.; starch odor; insol. in water; m.w. > 10,000; sp.gr. 1.5; pH ≈ 6 (1%); ≈ 11% moisture

**Toxicology:** Possible physical irritant from dust particles; particulates may scratch eye surfs. and cause mech. irritation; possible nuisance dust by inh.; maintain below TWA 10 mg/m³; low oral toxicity; low toxicity by skin contact; TSCA listed

**Precaution:** Potential for dust explosion; minimize dust generation

**Hazardous Decomp. Prods.:** Does not undergo spontaneous decomp.; typ. combustion prods.: CO, CO₂, N, water

**Storage:** Store @ ambient temps.; sensitive to static electricity

**Purox B food/pharma** [DSM Special Prods.

**Chem. Descrip.:** Benzoic acid

**CAS 65-85-0; EINECS/ELINCS 200-618-2**

**Uses:** Preservative in pharmaceutical applics.

**Features:** Ultra-pure grade

**Regulatory:** USP/NF, EP, JP, FCC; kosher

**Properties:** Wh. flakes; characteristic odor; solid. pt. 121.5-122.5 C; 99.98 min. assay

**Storage:** 2 yr shelf life

**Purtalc USP** [Charles B. Chrystal

**Chem. Descrip.:** Talc

**CAS 14807-96-6; EINECS/ELINCS 238-877-9**

**Uses:** Glidant, anticaking agent, tablet lubricant, colorant

**PVP-Iodine 30/06** [BASF

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Handbook of Pharmaceutical Additives, Third Edition 605
PVP-Iodine 30/06 M10 [BASF]
Chem. Descrip.: PVP-iodine USP
CAS 25655-41-8
Uses: Microbicide, topical antiseptic in pharmaceuticals; surgical and hygienic hand disinfection; used in the treatment of burns, decubitus and varicose ulcers; dermatomycosis, pyoderma and acne, vaginitis
Features: Rec. for formulations in which the prod. is not dissolved
Properties: Micronized; particle size < 50 μm <100%; sol. in water, ethanol, propanol; insol. in acetone, chloroform, methylene chloride, heptane, hexane
Use Level: 1-10% solutions
Toxicology: LD50 (oral, rat) 5990 mg/kg; LD50 (IP, mouse) 360 mg/kg
Storage: 2 yr. shelf life in unopened original container @ R.T.

PVP K-15 Sol’n. [ISP]
Chem. Descrip.: PVP
CAS 9003-39-8; EINECS/ELINCS 201-800-4
Uses: Film-former, protective colloid, suspending agent, binder, stabilizer, detoxicant, complexing agent in pharmaceuticals
Properties: Cl. liq.; m.w. 12,000; 28-32% solids
Toxicology: LD50 (oral) > 100 g/kg, (IV) > 10 g/kg; very low acute toxicity

PVP K-30 [ISP]
Chem. Descrip.: PVP
CAS 9003-39-8; EINECS/ELINCS 201-800-4
Uses: Film-former, protective colloid, suspending agent, binder, stabilizer, detoxicant, complexing agent in pharmaceuticals
Properties: Off wh. powd.; sol. in water and many organic solvs., incl. alcohols, some chlorinated compds., nitroparaffins, and amines; m.w. 57,500; bulk dens. 28 lb/ft³; 95% min. act.
Toxicology: LD50 (oral) > 100 g/kg, (IV) > 10 g/kg; very low acute toxicity

PVP K-60 [ISP]
Chem. Descrip.: PVP
CAS 9003-39-8; EINECS/ELINCS 201-800-4
Uses: Film-former, protective colloid, suspending agent, binder, stabilizer, detoxicant, complexing agent in pharmaceuticals
Properties: M.w. 396,000
Trade Name Reference

PVP/VA E-335 [ISP  http://www.ispcorp.com]
Chem. Descrip.: PVP/VA copolymer with 30/70 mole ratio in ethanol sol'n.  See Alcohol
Uses:  Film-former for pharmaceuticals, antiseptic/anesthetic spray bandages, antibiotic aerosol bandages, spray or rub-on gloves and protective masks
Properties:  Very low chronic oral toxicity; safe in contact with skin

PVP/VA E-535 [ISP  http://www.ispcorp.com]
Chem. Descrip.: PVP/VA copolymer with 50/50 mole ratio in ethanol sol'n.  See Alcohol
Uses:  Film-former for pharmaceuticals, antiseptic/anesthetic spray bandages, antibiotic aerosol bandages, spray or rub-on gloves and protective masks; solubilizer; visc. modifier/stabilizer; granulation binder
Properties:  Very low chronic oral toxicity; safe in contact with skin

PVP/VA E-635 [ISP  http://www.ispcorp.com]
Chem. Descrip.: PVP/VA copolymer with 60/40 mole ratio in ethanol sol'n.  See Alcohol
Uses:  Film-former for pharmaceuticals, antiseptic/anesthetic spray bandages, antibiotic aerosol bandages, spray or rub-on gloves and protective masks; solubilizer; visc. modifier/stabilizer; granulation binder
Properties:  Very low chronic oral toxicity; safe in contact with skin

PVP/VA E-735 [ISP  http://www.ispcorp.com]
Chem. Descrip.: PVP/VA copolymer with 70/30 mole ratio in ethanol sol'n.  See Alcohol
Uses:  Film-former for pharmaceuticals, antiseptic/anesthetic spray bandages, antibiotic aerosol bandages, spray or rub-on gloves and protective masks; solubilizer; visc. modifier/stabilizer; granulation binder
Properties:  Very low chronic oral toxicity; safe in contact with skin

PVP/VA I-335 [ISP  http://www.ispcorp.com]
Chem. Descrip.: PVP/VA copolymer with 30/70

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Chem. Descrip.: PVP
CAS 9003-39-8; EINECS/ELINCS 201-800-4
Uses:  Film-former, protective colloid, suspending agent, binder, stabilizer, detoxicant, complexing agent in pharmaceuticals
Properties:  Cl. liq.; m.w. 400,000; dens. 9.3 lb/gal; 45-49% solids
Toxicology:  LD50 (oral) > 100 g/kg, (IV) > 10 g/kg; very low acute toxicity

PVP-K-90 Sol'n. [ISP  http://www.ispcorp.com]
Chem. Descrip.: PVP
CAS 9003-39-8; EINECS/ELINCS 201-800-4
Uses:  Film-former, protective colloid, suspending agent, binder, stabilizer, detoxicant, complexing agent in pharmaceuticals
Properties:  Off-wh. powd.; m.w. 1,270,000; bulk dens. 20 lb/ft3; 95% min. act.
Toxicology:  LD50 (oral) > 100 g/kg, (IV) > 10 g/kg; very low acute toxicity

PVP-K-120 [ISP  http://www.ispcorp.com]
Chem. Descrip.: PVP
CAS 9003-39-8; EINECS/ELINCS 201-800-4
Uses:  Excipient, film-former, protective colloid, suspending agent, binder, stabilizer, detoxicant, complexing agent in pharmaceuticals
Properties:  Off-wh. powd.; m.w. 2,900,000; 95% min. act.
Toxicology:  LD50 (oral) > 100 g/kg, (IV) > 10 g/kg; very low acute toxicity

PVP/Si-10 [ISP  http://www.ispcorp.com]
Chem. Descrip.: Polymer-silicone encapsulate (dimethicone with PVP shell)
Uses:  Delivery vehicle, film-former in hair care, skin care
Properties:  Cationic

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Toxicology:

PVP/VA E-335 [ISP  http://www.ispcorp.com]
Chem. Descrip.: PVP/VA copolymer with 30/70 mole ratio in ethanol sol'n.  See Alcohol
Uses:  Film-former for pharmaceuticals, antiseptic/anesthetic spray bandages, antibiotic aerosol bandages, spray or rub-on gloves and protective masks
Properties:  Very low chronic oral toxicity; safe in contact with skin

PVP/VA E-535 [ISP  http://www.ispcorp.com]
Chem. Descrip.: PVP/VA copolymer with 50/50 mole ratio in ethanol sol'n.  See Alcohol
Uses:  Film-former for pharmaceuticals, antiseptic/anesthetic spray bandages, antibiotic aerosol bandages, spray or rub-on gloves and protective masks; solubilizer; visc. modifier/stabilizer; granulation binder
Properties:  Very low chronic oral toxicity; safe in contact with skin

PVP/VA E-635 [ISP  http://www.ispcorp.com]
Chem. Descrip.: PVP/VA copolymer with 60/40 mole ratio in ethanol sol'n.  See Alcohol
Uses:  Film-former for pharmaceuticals, antiseptic/anesthetic spray bandages, antibiotic aerosol bandages, spray or rub-on gloves and protective masks; solubilizer; visc. modifier/stabilizer; granulation binder
Properties:  Very low chronic oral toxicity; safe in contact with skin

PVP/VA E-735 [ISP  http://www.ispcorp.com]
Chem. Descrip.: PVP/VA copolymer with 70/30 mole ratio in ethanol sol'n.  See Alcohol
Uses:  Film-former for pharmaceuticals, antiseptic/anesthetic spray bandages, antibiotic aerosol bandages, spray or rub-on gloves and protective masks; solubilizer; visc. modifier/stabilizer; granulation binder
Properties:  Very low chronic oral toxicity; safe in contact with skin

PVP/VA I-335 [ISP  http://www.ispcorp.com]
Chem. Descrip.: PVP/VA copolymer with 30/70
mole ratios in IPA sol’n. See Isopropyl alcohol

Uses: Film-former for pharmaceuticals, antiseptic/anesthetic spray bandages, antibiotic aerosol bandages, spray or rubber gloves and protective masks; solubilizer; visc. modifier/stabilizer; granulation binder

Properties: Liq.; sol. in aq. and most common org. solvs.; 50% act. in IPA

Toxicology: Very low chronic oral toxicity; safe in contact with skin

PVP/VA I-535 [ISP http://www.ispcorp.com]
Chem. Descrip.: PVP/VA copolymer with 50/50 mole ratios in IPA sol’n. See Isopropyl alcohol

Uses: Film-former for pharmaceuticals, antiseptic/anesthetic spray bandages, antibiotic aerosol bandages, spray or rubber gloves and protective masks; solubilizer; visc. modifier/stabilizer; granulation binder

Properties: Liq.; sol. in aq. and most common org. solvs.; 50% act. in IPA

Toxicology: Very low chronic oral toxicity; safe in contact with skin

PVP/VA I-735 [ISP http://www.ispcorp.com]
Chem. Descrip.: PVP/VA copolymer with 70/30 mole ratios in IPA sol’n. See Isopropyl alcohol

Uses: Film-former for pharmaceuticals, antiseptic/anesthetic spray bandages, antibiotic aerosol bandages, spray or rubber gloves and protective masks; solubilizer; visc. modifier/stabilizer; granulation binder

Properties: Liq.; sol. in aq. and most common org. solvs.; 50% act. in IPA

Toxicology: Very low chronic oral toxicity; safe in contact with skin

PVP/VA S-630 [ISP http://www.ispcorp.com]
Chem. Descrip.: PVP/VA copolymer (60/40 mole ratio)
CAS 25086-89-9

Uses: Film-former, solubilizer, visc. modifier/stabilizer for pharmaceuticals, antiseptic/anesthetic spray bandages, antibiotic aerosol bandages, spray or rubber gloves and protective masks; binder and coating agent for film coating of tablets

Features: Affinity for hair, skin, and smooth surf.; solv.-sol. prod. used where absence of water or alcohol is desirable; forms stable emulsions

Properties: Dry powd.; sol. in alcohols, esters, ketones, aq. and most common org. solvs.; insol. in ethers and hydrocarbons; 100% act.

Chem. Descrip.: Pyrophyllite (hydrated aluminum silicate)
CAS 12269-78-2

Uses: Extender pigment, colorant in pharmaceuticals

Features: No ozone-depleting substances

Properties: Variable powd., 11 µ diam.; pH 6.5 (10% solids)

Chem. Descrip.: Pyrophyllite (hydrated aluminum silicate)
Chem. Analysis: SiO₂ (78.29%), Al₂O₃ (16.79%), K₂O (1.24%)
CAS 12269-78-2

Uses: Extender pigment, colorant in pharmaceuticals

Features: No ozone-depleting substances

Properties: Wh. powd.; 10 µ median particle size; 99% through 200 mesh; dens. 2.80 mg/m³; bulk dens. 52 lb/ft³ (compacted); surf. area 3 m²/g; oil absorp. 26; GE brightness 80; pH 6.9 (10% aq. slurry)

Toxicology: TSCA listed

Chem. Descrip.: Pyrophyllite (hydrated aluminum silicate)
Chem. Analysis: SiO₂ (78.29%), Al₂O₃ (16.79%), K₂O (1.24%)
CAS 12269-78-2

Uses: Extender pigment used in pharmaceuticals

Features: No ozone-depleting substances

Properties: Cream powd., 13 µ median particle size; 97% through 200 mesh; dens. 2.80 mg/m³; bulk dens. 61 lb/ft³ (compacted); surf. area 3 m²/g; oil absorp. 24; GE brightness 78; pH 6.6 (10% aq. slurry)

Toxicology: TSCA listed

Pyridoxine Hydrochloride USP, FCC [DSM Nutritional Prods. USA http://www.nutraaccess.com]
Chem. Descrip.: Vitamin B₆ hydrochloride
See Pyridoxine HCl
CAS 58-56-0; EINECS/ELINCS 200-386-2
Trade Name Reference

**Trade Name Reference**

**Uses:** Dietary supplement for mfg. of dry and liq. pharmaceuticals

**Regulatory:** FDA 21CFR §182.5676, GRAS; USP, FCC, Ph. Eur.

**Properties:** Wh. cryst. powd., odorless; 95% min. through 100 mesh; freely sol. in water (1 g/5ml); sl. sol. in alcohol (1 g/100 ml); insol. in ether; m.w. 205.64; m.p. 202-206 C; pH 2-4 (10% aq.); 98% min. assay

**Toxicology:** Ingestion of 500 mg or more daily for 6 mos. may cause ataxia and severe neuropathy

**Precaution:** Avoid exposure to excessive heat, alkali, light

**Storage:** Store in tightly closed containers away from light, moisture, excessive heat @ optimum temp. < 72 F

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2-Pyrol® [ISP [http://www.ispcorp.com]]

**Chem. Descrip.:** 2-Pyrrolidone

**CAS 616-45-5; EINECS/ELINCS 204-648-7**

**Uses:** Solvent, solubilizer, intermediate for pharmaceuticals; synthesis of piracetam; treatment of cerebral distress; intermediate for N-phenyl amidines (diuretic, muscle relaxant, anti-inflammatory props.), γ-aminobutyric acid derivs.; injectables; tetracycline veterinary parenterals

**Properties:** Liq.; solidifies below 25 C; misc. with water, ethanol, ethyl ether, chloroform, benzene, ethyl acetate, CS2; insol. in aliphatic hydrocarbons; sp.gr. 0.11 (25/4 C); visc. 13.3 cp; m.p. 25 C; b.p. 245 C; flash pt. (OC) 130 C

**Precaution:** Noncorrosive; low fire hazard

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Quadrol® Polyol [BASF/Perf. Chems. [http://www.basf.com/static/988804217008.html]]

**Chem. Descrip.:** Tetra (2-hydroxypropyl) ethylenediamine  See Tetrahydroxypropyl ethylenediamine

**CAS 102-60-3; EINECS/ELINCS 203-041-4**

**Uses:** Intermediate used in pharmaceuticals

**Properties:** Liq.; m.w. 292; sol. in water, ethyl alcohol, toluene, ethylene glycol, perchloroethylene; sp.gr. 1.03; ref. index 1.478; 99.2% tert. amine

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Reach® 103 [Reheis [http://www.reheis.com]]

**Chem. Descrip.:** Aluminum chlorohydrate

**CAS 12042-91-0; EINECS/ELINCS 234-933-1**

**Uses:** Antiperspirant for increased wetness protection, esp. for aerosols

**Properties:** Powd.; 47.3% Al2O3, 16.6% Cl

**Reach® 301 O [Reheis [http://www.reheis.com]]

**Chem. Descrip.:** Aluminum chlorohydrate

**CAS 12042-91-0; EINECS/ELINCS 234-933-1**

**Uses:** Antiperspirant for clear and low residue antiperspirant systems

**Properties:** Powd.; Al2O3 (46.3%)

**Reach® 301 PG Powd. [Reheis [http://www.reheis.com]]

**Chem. Descrip.:** Aluminum chlorohydrate

**CAS 245090-52-2; EINECS/ELINCS 258-309-3**

**Uses:** Antiperspirant ingred. for clear and low residue antiperspirant systems

**Properties:** Powd.; Al2O3 (37.8%); PG (24%)
Reach® 501 Sol’n. [Reheis http://www.reheis.com]
Chem. Descrip.: Aluminum chlorohydrate
CAS 12042-91-0; EINECS/ELINCS 234-933-1
Uses: Antiperspirant for increased wetness protection, esp. for aerosols
Features: Useful in both hydro-alcoholic and aq. based systems incl. pump systems and compressed air systems
Properties: Powd.; 23.5% Al₂O₃, 8.2% Cl

Reach® AZP-855 [Reheis http://www.reheis.com]
Chem. Descrip.: Aluminum zirconium tetrachlorohydrex glycine See Aluminum zirconium tetrachlorohydrex GLY
CAS 90604-80-1; EINECS/ELINCS 292-375-4
Uses: Antiperspirant for nonaq. systems, sticks, roll-ons
Features: Enhanced efficacy
Properties: 16% Al, 10.0% Zr, 18.6% Cl, 12% Gly

Reach® AZP-902 [Reheis http://www.reheis.com]
Chem. Descrip.: Aluminum zirconium tetrachlorohydrex glycine See Aluminum zirconium tetrachlorohydrex GLY
CAS 90604-80-1; EINECS/ELINCS 292-375-4
Uses: Antiperspirant for nonaq. systems, sticks, roll-ons
Features: Enhanced efficacy
Properties: 15% Al, 14.2% Zr, 17.8% Cl, 12% Gly

Reach® AZP-908 [Reheis http://www.reheis.com]
Chem. Descrip.: Aluminum zirconium tetrachlorohydrex glycine See Aluminum zirconium tetrachlorohydrex GLY
CAS 90604-80-1; EINECS/ELINCS 292-375-4
Uses: Antiperspirant for nonaq. systems, sticks, roll-ons
Features: Enhanced efficacy
Properties: 15% Al, 14.2% Zr, 17.8% Cl, 12% Gly

Reach® AZP-908 O [Reheis http://www.reheis.com]
Chem. Descrip.: Aluminum zirconium tetrachlorohydrex glycine See Aluminum zirconium tetrachlorohydrex GLY
CAS 90604-80-1; EINECS/ELINCS 292-375-4
Uses: Antiperspirant for clear and low residue antiperspirant systems
Properties: Wh. to pale yel. powd.; char. odor; very sol. in water; pH 3.7-4.1 (15% sol’n.); Al (15.0%); Zr (14.3%)

Reach® AZP-908 PG 30 (Solution) [Reheis http://www.reheis.com]
Chem. Descrip.: Aluminum-zirconium PG complex
Uses: Antiperspirant for clear and low residue antiperspirant systems
Properties: Sl. yel. cl. sol’n.; char. glycol odor; sol. in water, glycol, and alcohol; sp.gr. 1.1-1.3; Al (3.8%); Zr (3.5%); propylene glycol (80%)

ReadyPress® C [BASF http://www.basf.com]
Chem. Descrip.: Ascorbic acid (83.3%), microcrystalline cellulose, starch, hydroxypropylcellulose, stearic acid, magnesium stearate, and silicon dioxide See L-Ascorbic acid; Silica
CAS 50-81-7; 9004-34-6; 9005-25-8; 9004-64-2; 57-11-4; 557-04-0; EINECS/ELINCS 200-066-2; 232-686-4; 200-313-4; 209-150-3
Uses: Dietary supplement in pharmaceutical tablets and nutritional supplements produced by direct compression
Features: Excellent hardness; low friability; fast disintegration; rapid dissolution; good color stability; facilitates high tablet production rates
Properties: Sl. off-wh. powd.; characteristic odor; sl. particle size US Sieve #20 (850 μ) min 99% thru; m.w. 176.1; dens., topped 0.67-0.91 g/cc; 83.3% act.
Storage: 1 yr shelf-life; store in tightly closed containers @ R.T; protect from light and in a
Trade Name Reference

ReadyPress® C w/RH  [BASF  http://www.bASF.com]
Chem. Descrip.:  Ascorbic acid (81.3%), microcrystalline cellulose, starch, hydroxypropylcellulose, stearic acid, magnesium stearate, silicon dioxide and Rose hips  See L-Ascorbic acid; Silica
CAS  50-81-7; 9004-34-6; 9005-25-8; 9004-64-2; 57-11-4; 557-04-0; EINECS/ELINCS 200-066-2; $; 232-686-4; $ 200-313-4; 209-150-3
Uses:  Dietary supplement for the direct compression into Vitamin C 500 mg and 1000 mg tablets
Features:  Excellent hardness; low friability; fast disintegration; rapid dissolution; good color stability; facilitates high tablet production rates
Properties:  Sl. off-w. powd.; characteristic odor; particle size US Sieve #20 (850 μ) min 99% thru; m.w. 176.1; dens., tapped 0.67-0.91 g/cc; 81.3% act.
Precaution:  Protect from heat and moisture which accelerates color deterioration of the blend
Storage:  1 yr shelf-life; store in tightly closed containers @ R.T; protect from light and in a dry place

redivivo™ (lycopene) 10% FS  [DSM Nutritional Prods. USA  http://www.nutraaccess.com]
Chem. Descrip.:  Lycopene crystals dispersed in corn oil  See Corn (Zea mays) oil
Chem. Analysis:  8% loss on drying
CAS  502-65-8;8001-30-7; EINECS/ELINCS 207-949-1; 232-281-2
Uses:  Fortifier and colorant for nutritional preps. and soft gelatin capsules
Properties:  Dk. red, viscous liq.; sl. sol. in oils and fats; m.w. 536.88; 10% min. lycopene content
Precaution:  Wear safety glasses and rubber gloves; avoid ing., inh. of dust or direct contact
Storage:  18 mos. shelf life; store away from air, heat, light, and humidity

554-6; 200-334-9
Uses:  Colorant and micronutrient in tablets and capsules
Properties:  Reddish, free-flowing beadlets; 100% through sieve #20, 85% min. through sieve #40, 15% max. through sieve #100; m.w. 536.88
Precaution:  Wear safety glasses and rubber gloves; avoid ing., inh. of dust or direct contact
Storage:  3 yr shelf life; store away from air, heat, light, and humidity

redivivo™ (lycopene) 10% WS  [DSM Nutritional Prods. USA  http://www.nutraaccess.com]
Chem. Descrip.:  Lycopene finely dispersed in a corn starch-coated matrix of fish gelatin, sucrose, and corn oil  See Corn (Zea mays) oil; Corn (Zea mays) starch
Chem. Analysis:  8% loss on drying
CAS  502-65-8; 9005-25-8; 9000-70-8; 57-50-1; 8001-30-7; EINECS/ELINCS 207-949-1; 232-679-6; 232-554-6; 200-334-9; 232-281-2
Uses:  Orange-red to red colorant for nutritional preps.
Properties:  Violet-brown, free-flowing beadlets; 100% through sieve #20, 50% min. through sieve #40, 15% max. through sieve #100; disp. in water; m.w. 536.88
Precaution:  Wear safety glasses and rubber gloves; avoid ing., inh. of dust or direct contact
Storage:  2 yr shelf life; store away from air, heat, light, and humidity

Rehydragel® CG  [Reheis http://www.reheis.com]
Chem. Descrip.:  Aluminum hydroxide CAS  21645-51-2; EINECS/ELINCS 244-492-7
Uses:  Adsorbent, suspension enhancer, visc. builder for pharmaceuticals; carrier for antitoxins in veterinary vaccines
Properties:  Translucent compressed gel; 9% Al2O3

Rehydragel® HPA  [Reheis http://www.reheis.com]
Chem. Descrip.:  Aluminum hydroxide CAS  21645-51-2; EINECS/ELINCS 244-492-7
Uses:  Adsorbent, protein binder for biological materials in human and veterinary vaccines
Properties:  Sterile thixotropic submicron fluid gel; 2% Al2O3

Rehydragel® LV  [Reheis http://www.reheis.com]
Trade Name Reference

**http://www.reheis.com**  
**Chem. Descrip.:** Aluminum hydroxide  
**CAS 21645-51-2;** EINECS/ELINCS 244-492-7  
**Uses:** Adsorbent, protein binder for use as a fluid adjuvant in the preparation of parenteral solutions.  
**Properties:** Low visc. gel; 2% Al₂O₃

**Rehydrol® II** [Reheis http://www.reheis.com]  
**Chem. Descrip.:** Aluminum chlorohydrate PG  
**CAS 24509-05-2;** EINECS/ELINCS 258-309-3  
**Uses:** Antiperspirant active for pumps, roll-ons and alcoholic sticks.  
**Properties:** Solid; sol. 50% max. in alcohol and water; 36% min. Al₂O₃, 12.5% min. Cl, 22% min. propylene glycol

**Reishi Mycelium Biomass REIMYC**  
**Chem. Descrip.:** Reishi mycelium biomass from *Ganoderma lucidum*  
**Uses:** Ingrd. in health foods and pharmaceutical capsules and tablets  
**Features:** Polysaccharides and peptidomannans actives  
**Properties:** Lt. rdsh.-brn. powd.; insol. in water  
**Storage:** 24 mo shelf life

**Reishi Mycelium Extract**  
**Chem. Descrip.:** Reishi mycelium extract from *Ganoderma lucidum* with 70% dextrose carrier  
**Uses:** Ingrd. in health foods, pharmaceuticals, tablets, capsules, ampules, nutritional supplements  
**Features:** Polysaccharides and lignins actives  
**Properties:** Brownish-red gran.  
**Storage:** 24 mo shelf life

**Renex® PEG 400**  
**Chem. Descrip.:** PEG-8 USP/NF  
**CAS 25322-68-3;** EINECS/ELINCS 225-856-4  
**Uses:** Surfactant, solvent for pharmaceuticals, toothpaste, suppository bases; suspending agent, consistency agent, visc. control agent, plasticizer for controlled-release solid drug forms, laxatives  
**Regulatory:** USP/NF and EP compliance  
**Properties:** Colorless liq.; sol. in water; m.w. 400; dens. 1.130 g/cc (20 C); f.p. 5 C; acid no. 0.1; hyd. no. 280; flash pt. (PMCC) > 365 F; pH 5.8 (5% aq.); nonionic; 100% conc.  
**Toxicology:** LD₅₀ (oral, rat) > 15 g/kg; TSCA listed  
**Precaution:** Wear safety glasses with side shields; avoid breathing vapors or aerosols; incompat. with oxidizers  
**Hazardous Decomp. Prods.:** CO, CO₂  
**NFPA:** Health 0, Flammability 1, Reactivity 0

**Renex® PEG 1000**  
**Chem. Descrip.:** PEG-20 USP/NF  
**CAS 25322-68-3;** EINECS/ELINCS 203-989-9  
**Uses:** Surfactant, wetting agent, consistency agent for topical pharmaceuticals; suspending agent, consistency agent, visc. control agent, plasticizer for controlled-release solid drug forms, laxatives  
**Regulatory:** USP/NF and EP compliance  
**Properties:** Wh. solid; sol. in water; m.w. 1000; dens. 1.198 g/cc (20 C); f.p. 37 C; acid no. 0.1; hyd. no. 112; pH 5.8 (5% aq.); nonionic; 100% conc.  

**Renex® PEG 1500**  
**Chem. Descrip.:** PEG-32 USP/NF  
**CAS 25322-68-3**

**Toxicology:** LD₅₀ (oral, rat) > 15 g/kg; TSCA listed  
**Precaution:** Wear safety glasses with side shields; avoid breathing vapors or aerosols; incompat. with oxidizers  
**Hazardous Decomp. Prods.:** CO, CO₂  
**NFPA:** Health 0, Flammability 1, Reactivity 0

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**consistency agent, visc. control agent, plasticizer for controlled-release solid drug forms, laxatives**

*Regulatory:* USP/NF and EP compliance

*Properties:* Wh. solid; sol. in water; m.w. 1500; dens. 1.208 g/cc (20 C); f.p. 46 C; acid no. 0.1; hyd. no. 75; pH 5.8 (5% aq.); 100% conc.

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**Renex® PEG 4000** [Uniqema](http://www.uniqema.com; Uniqema Am. [http://www.uniqema.com])

*Chem. Descrip.:* PEG-75 USP/NF

*CAS:* 25322-68-3

*Uses:* Surfactant, consistency agent for pharmaceuticals (suppository bases, tablet binders/lubricants/coatings); suspending agent, consistency agent, visc. control agent, plasticizer for controlled-release solid drug forms, laxatives

*Regulatory:* USP/NF and EP compliance

*Properties:* Wh. solid; sol. in water; m.w. 4000; dens. 1.217 g/cc (20 C); f.p. 55 C; acid no. 0.1; hyd. no. 28; pH 5.8 (5% aq.); nonionic; 100% conc.

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**Renex® PEG 6000 FL** [Uniqema](http://www.uniqema.com; Uniqema Am. [http://www.uniqema.com])

*Chem. Descrip.:* PEG-150 USP/NF

*CAS:* 25322-68-3; EINECS/ELINCS 203-989-9

*Uses:* Surfactant for pharmaceuticals

*Properties:* Wh. solid; nonionic

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**Respitose™** [DMV Int’l. Pharma [http://www.dmv-international.com]]

*Chem. Descrip.:* Lactose Ph.Eur., USP/NF, JP

*CAS:* 63-42-3; EINECS/ELINCS 200-559-2

*Uses:* Carrier for dry powd. inhalation pharmaceuticals

*Features:* Controlled particle size and particle size distribution, degree of crystallinity, amorphous lactose content, particle surf. morphology

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**Retinol P 50** [BASF AG [http://www.basf.de]]

*Chem. Descrip.:* Retinol (50%) in polysorbate 20

*Uses:* Vitamin for pharmaceutical orals and parenterals

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**Rewocid® DU 185 SE** [Degussa Care Spec.]

*Chem. Descrip.:* Undecylenamide DEA

*CAS:* 60239-68-1; EINECS/ELINCS 262-114-9

*Uses:* Thickener, refatting agent, antimicrobial, antmycotic for foot and skin care preps., pharmaceuticals

*Regulatory:* BfArM registered

*Properties:* Liq.; nonionic; 100% conc.

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**Rewocid® SB U 185** [Degussa Care Spec.]

*Chem. Descrip.:* Disodium undecylenamido MEA-sulfosuccinate

*CAS:* 26650-05-5; EINECS/ELINCS 247-873-6

*Uses:* Detergent, foaming agent in antidandruff shampoos, pharmaceuticals

*Features:* Mild; good skin compat.; suitable for high concs.

*Regulatory:* BfArM and JCIC compliance

*Properties:* Pale yel. liq., sl. odor; sol. in alcohol, glycol; sp.gr. 1.0; pH 6.5-7.5 (5% solids); anionic; 50% act.

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**Rewocid® UTM 185** [Degussa Care Spec.]

*Chem. Descrip.:* Undecylenamidopropyltrimonium methosulfate in water See Undecylenamidopropyl trimonium methosulfate

*CAS:* 94313-91-4; EINECS/ELINCS 304-990-8

*Uses:* Surfactant, antimicrobial, antistat for antidandruff shampoos

*Properties:* Low visc. liq.; cationic; 47% conc.

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**Rewoderm® LI 63** [Degussa Care Spec.]

*Chem. Descrip.:* PEG-30 glyceryl cocoate

*CAS:* 68201-46-7

*Uses:* Surfactant, emollient, emulsifier, thickener, solubilizer, and superfatting agent for pharmaceuticals; anti-irritant for surfactants

*Features:* Hydrophilic; mild; improves mildness; good skin and mucous membrane compat.

*Regulatory:* BfArM, JCIC registered

*Properties:* Soft paste; nonionic; 100% conc.

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**Rewoderm® LI 67-75** [Degussa Care Spec.]

*Chem. Descrip.:* PEG-80 glyceryl cocoate

*CAS:* 68201-46-7

*Uses:* Surfactant, emollient, emulsifier, thickener, solubilizer, and superfatting agent for pharmaceuticals; anti-irritant for surfactants

*Features:* Hydrophilic; mild; improves mildness; good skin and mucous membrane compat.

*Regulatory:* ADR, RID, ADNR, IMDG, ICAP/IATA not regulated; German water hazard class 1

*Properties:* Med.-visc., lt. yel. liq.; char. odor; easily sol. in water; dens. ≈ 1.1; dynamic visc.
**Rewoderm® S 1333** [Degussa Care Spec.]
Chem. Descrip.: Disodium ricinoleamido MEA-sulfosuccinate  
CAS 67893-42-9; EINECS/ELINCS 267-617-7  
Uses: Anti-irritant for alkylbenzene sulfonate and other surfactants  
Features: Suitable for high concs.  
Properties: Amber liq.; pH 6.5-7.5 (5%); surf. tens. 28 mN/m; anionic; 40% act.

**Rewomid® S 280** [Degussa Care Spec.]
Chem. Descrip.: Stearamide MEA  
CAS 111-57-9; EINECS/ELINCS 203-883-2  
Uses: Anti-inflammatory agent  
Regulatory: JCIC registered  
Properties: Wh. flakes; sl. odor; m.p. 92 C; nonionic; 100% act.

**Rewopal® PEG 6000 DS** [Degussa Care Spec.]
Chem. Descrip.: PEG-150 distearate  
CAS 9005-08-7  
Uses: Thickener for pharmaceuticals  
Features: Effective for difficult-to-thicken surfactant systems  
Regulatory: BfArM, JCIC registered; ADR,RID, ADNR, IMDG, ICAO/IATA not regulated; Germany water hazard class 1  
Properties: Waxy whitish pellets; char. odor; disp. in water; m.p. 45-51 C; flash pt. > 150 C; pH 5-7; nonionic; 100% conc.  
Toxicology: LD50 (oral, rat) > 2 g/kg  
Environmental: Do not allow to enter drains, waterways  
Precaution: Wear dust mask, PVC gloves, safety glasses, light protective clothing  
Hazardous Decomp. Prods.: CO, CO2  
Storage: Keep in original container in cool, well-ventilated place

**Rewopol® SBFA 30** [Degussa Care Spec.]
Chem. Descrip.: Disodium laureth sulfosuccinate  
CAS 68815-56-5; EINECS/ELINCS 255-062-3  
Uses: Surfactant, cleanser, detergent raw material for pharmaceuticals  
Features: Mild  
Regulatory: BfArM and JCIC compliance  
Properties: Colorless cl. liq.; visc. 100-299 cps; pH 6.5-7.5 (5% solids); anionic; 40% solids

**Rewoteric® AM B U 185** [Degussa Care Spec.]
Chem. Descrip.: Undecylenamidopropyl betaine  
CAS 133798-12-6; EINECS/ELINCS 308-783-3  
Uses: Surfactant, visc. control agent for antidandruff shampoos  
Features: Very mild; preservative-free  
Properties: Liq.; ≈ 30% act.; 5.5% NaCl

**Rewoteric® AM R40** [Degussa Care Spec.]
Chem. Descrip.: Ricinoleamidopropyl betaine  
CAS 86089-12-5; EINECS/ELINCS 289-181-7  
Uses: Surfactant for mild cosmetics, medicated cleaners  
Regulatory: JCIC registered  
Properties: Med. visc. liq.; pH 5.5-6.0 (10%); amphoteric; ≈ 30% act.; 5% NaCl

**Rewoteric® QAM 50** [Degussa Care Spec.]
Chem. Descrip.: Cocobetainamidopropyl amphopropionate  
CAS 100085-64-1; EINECS/ELINCS 309-206-8  
Uses: Surfactant for pharmaceuticals, skin disinfectants  
Features: Mild; inc. efficacy of act. ingreds. such as triclosan
Trade Name Reference

**Regulatory:** BfArM registered

**Properties:** Straw cl. liq.; pH 8-9 (10% aq.); Draves wetting 1 min 4 s; Ross-Miles foam 180/0; cationic/amphoteric; ≈ 45% act.; 6% NaCl

**Toxicology:** LD50 (oral, rat) 5100 mg/kg

**Environmental:** Biodeg.

**Rezal® 33GP** [Reheis http://www.reheis.com]

**Chem. Descrip.:** Aluminum zirconium trichlorohydrex-glycine  
See Aluminum/zirconium trichlorohydrex GLY

**CAS 90604-80-1; EINECS/ELINCS 292-375-4**

**Uses:** Antiperspirant active for suspension roll-ons and suspensoid sticks

**Properties:** Powd.; 98.5% min. through 325 mesh

**Rezal® 36G** [Reheis http://www.reheis.com]

**Chem. Descrip.:** Aluminum zirconium tetrachlorohydrex-glycine  
See Aluminum/zirconium tetrachlorohydrex GLY

**CAS 90604-80-1; EINECS/ELINCS 292-375-4**

**Uses:** Antiperspirant active for suspension roll-ons and suspensoid sticks

**Properties:** Powd.; 53 µ particle size; 95% min. through 270 mesh; 14.6% Al, 14.9% Zr, 15% glycine

**Rezal® 36G Conc.** [Reheis http://www.reheis.com]

**Chem. Descrip.:** Aluminum zirconium tetrachlorohydrex-glycine  
See Aluminum/zirconium tetrachlorohydrex GLY

**CAS 90604-80-1; EINECS/ELINCS 292-375-4**

**Uses:** Antiperspirant active for nonaerosol systems

**Properties:** Liq.; 35% act.

**Rezal® 36GP Superultrafine** [Reheis http://www.reheis.com]

**Chem. Descrip.:** Aluminum zirconium tetrachlorohydrex-glycine  
See Aluminum/zirconium tetrachlorohydrex GLY

**CAS 90604-80-1; EINECS/ELINCS 292-375-4**

**Uses:** Antiperspirant active for suspension roll-ons and suspensoid sticks

**Features:** Fine particle size results in improved aesthetics

**Properties:** Powd.; 85% min. through 10 µ

**Rezal® 67 (40% Sol’n.)** [Reheis http://www.reheis.com]

**Chem. Descrip.:** Aluminum zirconium pentachlorohydrate

**CAS 98106-54-8; EINECS/ELINCS 308-575-2**

**Uses:** Antiperspirant active for hydroalcoholic and aq. systems such as clear and emulsified roll-ons and creams

**Properties:** Liq.; 40% act.; 8% Al, 4% Zr

**Rezal® 67P** [Reheis http://www.reheis.com]

**Chem. Descrip.:** Aluminum zirconium pentachlorohydrate

**CAS 98106-54-8; EINECS/ELINCS 308-575-2**

**Uses:** Antiperspirant active for use in suspensoid sticks and suspension roll-ons

**Properties:** Powd.; 97% through 325 mesh; 20% Al, 10% Zr

**Rheodol 440** [Kao Corp. http://www.kao.co.jp]

**Chem. Descrip.:** PEG-40 sorbitan tetraoleate

**CAS 63089-86-1**

**Uses:** Emulsifier for cosmetics, pharmaceuticals

**Properties:** Lt. yel. cl. liq.; sol. in ethanol, hexane; disp. in xylene; gels in water; visc. 190 mPa•s (30 C); HLB 11.8; acid no. 5 max.; iodine no. 72-92; sapon. no. 10 max.; hyd. no. 32-42; nonionic; 100% conc.

**Rheodol 460** [Kao Corp. http://www.kao.co.jp]

**Chem. Descrip.:** PEG-60 sorbitan tetraoleate

**CAS 63089-86-1**

**Uses:** Emulsifier for cosmetics, pharmaceuticals

**Properties:** Lt. yel. paste; sol. in water, ethanol, xylene; insol. in hexane; visc. 295 mPa•s (30 C); HLB 13.8; acid no. 5 max. (when molten); iodine no. 52-72; sapon. no. 10 max.; hyd. no. 57-69; nonionic; 36% conc.
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<tr>
<th>Trade Name Reference</th>
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<td>Rheodol AS-10</td>
<td>Sorbitan stearate</td>
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<td>EINECS/ELINCS 215-664-9</td>
<td>Rheodol MO-60</td>
<td>Glyceryl oleate</td>
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<td>Sorbitan oleate</td>
<td>1338-43-8</td>
<td>EINECS/ELINCS 215-665-4</td>
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Uses: Emulsifier for pharmaceuticals

Features: High lipophilic

Regulatory: JSCI compliance

Properties: Wh. powd.; HLB 3.5; nonionic; 100% conc.
Trade Name Reference

Regulatory:  JSCI, JHOSPA compliance
Properties:  Ylsh. brn. oily liq.; sol. in ethanol, hexane, xylene; insol. in water; visc. 110 mPa•s (60 C); f.p. -12.5 C; HLB 4.3; acid no. 5.5-7.5; sapon. no. 149-160; hyd. no. 193-209; nonionic; 100% conc.

Rheodol SP-O30  [Kao Corp.  http://www.kao.co.jp]
Chem. Descr.:  Sorbitan trioleate  
CAS 26266-58-0; EINECS/ELINCS 247-569-3
Uses:  Emulsifier for cosmetics, pharmaceuticals
Features:  Highly lipophilic  
Regulatory:  JSCI, JHOSPA compliance
Properties:  Yel. visc. liq.; sol. in hexane, xylene; disp. in ethanol; insol. in water; visc. 200 mPa•s; f.p. 20 C; HLB 1.8; acid no. 10-14; sapon. no. 172-186; hyd. no. 56-68; nonionic; 100% conc.

Rheodol SP-P10  [Kao Corp.  http://www.kao.co.jp]
Chem. Descr.:  Sorbitan palmitate  
CAS 26266-57-9; EINECS/ELINCS 247-568-8
Uses:  Emulsifier for cosmetics, pharmaceuticals
Features:  Highly lipophilic  
Regulatory:  JSCI, JHOSPA compliance
Properties:  Lt. ylsh. wh. gran.; sol. in xylene; sol. hazy in water, hexane; disp. in ethanol; visc. 310 mPa•s (60 C); m.p. 46 C; HLB 6.7; acid no. 7.5 max.; sapon. no. 140-150; hyd. no. 275-305; nonionic; 100% conc.

Rheodol SP-S10  [Kao Corp.  http://www.kao.co.jp]
Chem. Descr.:  Sorbitan stearate  
CAS 1338-41-6; EINECS/ELINCS 215-664-9
Uses:  Emulsifier for cosmetics, pharmaceuticals
Features:  Highly lipophilic  
Regulatory:  JSCI, JHOSPA compliance
Properties:  Lt. ylsh. br. liq.; nonionic  

Rheodol TW-IS399C  [Kao Corp.  http://www.kao.co.jp]
Chem. Descr.:  POE sorbitan triisostearate
Uses:  Thickener and emulsifier for pharmaceuticals
Properties:  Lt. ylsh. br. liq.; nonionic

Rheodol TW-L106  [Kao Corp.  http://www.kao.co.jp]
Chem. Descr.:  POE 6 sorbitan laurate  See PEG-6 sorbitan laurate  
CAS 9005-64-5
Uses:  Emulsifier for pharmaceuticals
Features:  Highly hydrophilic  
Regulatory:  JSCI, JHOSPA, JHPA compliance
Properties:  Lt. yel. oily liq.; sol. in water, ethanol; disp. in xylene; insol. in n-hexane; acid no. 8 max.; HLB 15.0

Rheodol TW-L120  [Kao Corp.  http://www.kao.co.jp]
Chem. Descr.:  POE (20) sorbitan laurate  
CAS 9005-64-5
Uses:  Emulsifier for pharmaceuticals
Features:  Highly hydrophilic  
Regulatory:  JSCI, JHOSPA, JHPA compliance
Properties:  Lt. yel. oily liq.; sol. in water, ethanol; disp. in xylene; insol. in n-hexane; acid no. 9 max.; pour pt. 7.5; HLB 10.0

Rheodol TW-O106  [Kao Corp.  http://www.kao.co.jp]
Chem. Descr.:  POE 6 sorbitan monooleate  
CAS 9005-64-5
Uses:  Emulsifier for pharmaceuticals
Features:  Highly hydrophilic  
Properties:  Yel. oily liq.; sol. in ethanol, n-hexane; sl. sol. in xylene; acid no. 10-115; nonionic; 100% conc.

Rheodol TW-O120  [Kao Corp.  http://www.kao.co.jp]
Chem. Descr.:  POE 20 sorbitan monooleate  
CAS 9005-64-5
Uses:  Emulsifier for pharmaceuticals
Properties:  Yel. oily liq.; sol. in ethanol, water; sl. sol. in xylene; insol. in n-hexane; acid no. 8 max.; HLB 15.0

Rheodol TW-O320  [Kao Corp.  http://www.kao.co.jp]
Chem. Descr.:  POE 20 sorbitan trioleate  
CAS 9005-70-3
Uses:  Emulsifier for pharmaceuticals
Properties:  Yel. oily liq.; sol. in ethanol, n-hexane; hazy in xylene; f.p. -20 C; acid no. 8 max.; HLB 11.0

Rheodol TW-P120  [Kao Corp.  http://www.kao.co.jp]
Chem. Descr.:  POE 20 sorbitan
monopalmitate  See Polysorbate 40
CAS 9005-66-7
Uses:  Emulsifier for pharmaceuticals
Properties:  Ylsh. wh. solid; sol. in ethanol, water; sl. sol. in xylene; insol. in n-hexane; acid no. 2 max.; HLB 15.6; nonionic

Rheodol TW-S120  [Kao Corp.  http://www.kao.co.jp]
Chem. Descrip.:  POE 20 sorbitan monostearate  See Polysorbate 60
CAS 9005-67-8
Uses:  Emulsifier for pharmaceuticals
Properties:  Yel. oily liq.; sol. in ethanol, water; sl. sol. in xylene; insol. in n-hexane; acid no. 7 max.; HLB 14.9; nonionic

Rheodol Super SP-L10  [Kao Corp.  http://www.kao.co.jp]
Chem. Descrip.:  Sorbitan monolaurate  See Sorbitan laurate
CAS 1338-39-2; EINECS/ELINCS 215-663-3
Uses:  Defoamer, emulsifier for pharmaceuticals
Features:  Lipophilic; when combined with Rheodol TW series, produces stable o/w emulsions
Properties:  Pale yel. oily liq.; HLB 8.6; nonionic

Rheodol Super SP-S10  [Kao Corp.  http://www.kao.co.jp]
Chem. Descrip.:  Sorbitan monostearate  See Sorbitan stearate
CAS 1338-41-6; EINECS/ELINCS 215-664-9
Uses:  Defoamer, emulsifier for pharmaceuticals
Features:  Lipophilic; when combined with Rheodol TW series, produces stable o/w emulsions
Properties:  Pale ylsh. wh. beads; HLB 4.7; nonionic

Rheodol Super TW-L120  [Kao Corp.  http://www.kao.co.jp]
Chem. Descrip.:  POE-20 sorbitan monolaurate  See Polysorbate 20
CAS 9005-64-5
Uses:  Defoamer, emulsifier for pharmaceuticals
Properties:  Pale yel. oily liq.; HLB 16.7; nonionic

Rheodol Super TW-O120  [Kao Corp.  http://www.kao.co.jp]
Chem. Descrip.:  POE-20 sorbitan monooleate  See Polysorbate 80
CAS 9005-65-6
Uses:  Defoamer, emulsifier for pharmaceuticals
Properties:  Lt. yel. oily liq.; HLB 15.0; nonionic

Rhodapon® LSB  [Rhodia HPCII  http://www.rhodia-hpcii.com; C.P. Hall  http://www.cphall.com]
Chem. Descrip.:  Sodium lauryl sulfate
CAS 151-21-3; EINECS/ELINCS 205-788-1
Uses:  Detergent, emulsifier for medicinal ointments
Features:  High-foaming
Properties:  Pale cl. liq.; visc. 150 cps; HLB 40; cloud pt. 20 C; pH 8 (10%); anionic; 29% act.

Rhodasurf® L-4  [Rhodia HPCII  http://www.rhodia-hpcii.com]
Chem. Descrip.:  Laureth-4
CAS 68002-97-1; EINECS/ELINCS 226-097-1
Uses:  Emollient for pharmaceuticals
Properties:  Liq.; HLB 9.7; cloud pt. 0-5; pH 6.5 (1%); nonionic; 100% act.

Rhodasurf® LA-12  [Rhodia Canada]
Chem. Descrip.:  C12-15 pareth-12
CAS 68131-39-5
Uses:  Emollient for pharmaceuticals
Properties:  Wh. paste, low odor; water-sol.; sp.gr. 1.0; HLB 14.4; cloud pt. 90-100 C (1% aq.); nonionic; 100% act.
Environmental:  Biodeg.

Rhodasurf® ON-870  [Rhodia HPCII  http://www.rhodia-hpcii.com; Rhodia HPCII France  http://www.hpcii.rhodia.com]
Chem. Descrip.:  POE-20 sorbitan monostearate  See Polysorbate 60
CAS 9005-67-8
Uses:  Defoamer, emulsifier for pharmaceuticals
Properties:  Lt. yel. oily liq.; HLB 14.9; nonionic

Uses:  Defoamer, emulsifier for pharmaceuticals
Properties:  Pale yel. oily liq.; HLB 16.7; nonionic

Rheodol Super TW-S120  [Kao Corp.  http://www.kao.co.jp]
Chem. Descrip.:  POE-20 sorbitan monostearate  See Polysorbate 60
CAS 9005-67-8
Uses:  Defoamer, emulsifier for pharmaceuticals
Properties:  Lt. yel. oily liq.; HLB 14.9; nonionic

Rhodapon® LSB  [Rhodia HPCII  http://www.rhodia-hpcii.com; C.P. Hall  http://www.cphall.com]
Chem. Descrip.:  Sodium lauryl sulfate
CAS 151-21-3; EINECS/ELINCS 205-788-1
Uses:  Detergent, emulsifier for medicinal ointments
Features:  High-foaming
Properties:  Pale cl. liq.; visc. 150 cps; HLB 40; cloud pt. 20 C; pH 8 (10%); anionic; 29% act.

Rhodasurf® L-4  [Rhodia HPCII  http://www.rhodia-hpcii.com]
Chem. Descrip.:  Laureth-4
CAS 68002-97-1; EINECS/ELINCS 226-097-1
Uses:  Emollient for pharmaceuticals
Properties:  Liq.; HLB 9.7; cloud pt. 0-5; pH 6.5 (1%); nonionic; 100% act.

Rhodasurf® LA-12  [Rhodia Canada]
Chem. Descrip.:  C12-15 pareth-12
CAS 68131-39-5
Uses:  Emollient for pharmaceuticals
Properties:  Wh. paste, low odor; water-sol.; sp.gr. 1.0; HLB 14.4; cloud pt. 90-100 C (1% aq.); nonionic; 100% act.
Environmental:  Biodeg.

Rhodasurf® ON-870  [Rhodia HPCII  http://www.rhodia-hpcii.com; Rhodia HPCII France  http://www.hpcii.rhodia.com; C.P.
Trade Name Reference

Hall [http://www.cphall.com]
Chem. Descrip.: Oleth-20
CAS 9004-98-2
Uses: Emulsifier, stabilizer, dispersant, wetting agent, solubilizer for pharmaceuticals
Features: High foaming
Regulatory: FDA compliance; exempt from tolerance under EPA 40CFR §180.1001(c)(e)
Properties: Wh. solid wax; sol. in water, xylene, ethanol, ethylene glycol, butyl Cellosolve; sp.gr. 1.04; HLB 15.4; pour pt. 46 C; cloud pt. < 100 C (1% aq.); flash pt. (PMCC) 93 C; surf. tens. 37 dynes/cm (0.1%); nonionic; 100% act.

Rhodasurf® ON-877 [Rhodia HPCII http://www.rhodia-hpcii.com; C.P. Hall http://www.cphall.com]
Chem. Descrip.: Oleth-20
CAS 9004-98-2
Uses: Solubilizer and emulsifier for essential oils and pharmaceuticals
Properties: Liq.; HLB 15.4; cloud pt. < 100 C (1% aq.); nonionic; 70% conc.

Rhodasurf® PEG 600 [Rhodia HPCII http://www.rhodia-hpcii.com]
Chem. Descrip.: PEG-14
CAS 25322-66-3
Uses: Lubricant, binder for pharmaceuticals
Properties: Wh. liq.; m.w. 570-630; water sol.; sp.gr. 1.13 (30/15.5 C); f.p. 20-25 C; pH 5-8; 100% conc.

Rhodiaflor™ SME [Rhodia Organics http://www.rhodia-ppa.com/ppa/home.jsp]
Chem. Descrip.: Methyl salicylate
CAS 119-36-8; EINECS/ELINCS 204-317-7
Uses: Fragrance and masking agent in pharmaceutical
Regulatory: FEMA; Europe EINECS
Properties: Liq.

Rhodiaflor™ SME Extra-Pure [Rhodia Organics http://www.rhodia-ppa.com/ppa/home.jsp]
Chem. Descrip.: Methyl salicylate
CAS 119-36-8; EINECS/ELINCS 204-317-7
Uses: Fragrance and masking agent in pharmaceutical
Regulatory: FEMA; Europe EINECS
Properties: Liq.

Riboflavin High Flow [BASF AG http://www.basf.de]
Chem. Descrip.: Riboflavin
CAS 83-88-5; EINECS/ELINCS 201-507-1
Uses: Dietary supplement in pharmaceutical applics.
Features: Where a dense form is required; good flowability and dissolution props.
Regulatory: USP, EP, FCC
Properties: Yelsh. to orange-yel. free-flowing fine gran. powd., sl. characteristic odor; particle size US Sieve #60 (250 μ) min 95% thru; sl. sol. in water and dilute alkaline solutions; pract. insol. in alcohol; m.w. 376.4; m.p. 280 C (decomp.)
Precaution: Alkalis will accelerate deterioration
Storage: 3yrs. shelf life when stored @ 2-30 C in original, unopened container

Riboflavin-5’-Phosphate Sodium USP, FCC [DSM Nutritional Prods. USA http://www.nutraaccess.com]
Chem. Descrip.: Riboflavin-5’-phosphate sodium USP, FCC
CAS 130-40-5; EINECS/ELINCS 204-988-6
Uses: Vitamin source in solid pharmaceuticals in which rapidly and
Trade Name Reference

readily soluble form of riboflavin is desirable (e.g., effervescent tablets).

Regulatory: USP

Properties: Yellow to orange powd., pH (1% aq. soln.) 5.0-6.3; sol. in water ≈ 3g/100mL, very sl. sol. in alcohol, pract. insol. in ether, chloroform, and acetone; 75.0-79.0% (dry) assay

Precaution: Incompat. with sol’n/s. contg. calcium or metallic salts which form insoluble phosphates

Storage: Store in dry place at 59-86 F in tight, light-resist. containers; avoid heat and prolonged exposure to light

Ricebran Wax SP 8000 [Strahl & Pitsch http://www.strahlpitsch.com]
 Chem. Descrip.: Rice bran wax  See Rice (Oryza sativa) wax
CAS 8016-60-2; EINECS/ELINCS 232-409-7
Uses: Wax for pharmaceuticals
Properties: Tan flakes; m.p. 72-82 C; acid no. 10 max.; sapon. no. 110-140
Toxicology: TSCA listed

 Chem. Descrip.: PEG-12 ricinoleate
CAS 9004-97-1
Uses: Base for pharmaceuticals
Properties: Nonionic

RITA CA NF [RITA http://www.ritacorp.com]
 Chem. Descrip.: Cetyl alcohol NF
CAS 36653-82-4; EINECS/ELINCS 253-149-0
Uses: Thickener, opacifier, emollient for pharmaceuticals
Properties: Wh. waxy flakes; m.p. 45-50 C; acid no. 2 max.; iodine no. 5 max.; hyd. no. 218-238; flash pt. > 200 F
Precaution: Wear safety glasses, rubber gloves; incompat. with strong oxidizers, mineral acids
HMIS: Health 0, Flammability 1, Reactivity 0

Rita GMS-55G [RITA http://www.ritacorp.com]
 Chem. Descrip.: Glycerol stearate
Chem. Analysis: C16 45-52%; C18 42-50%
CAS 11099-07-3; 123-94-4; 31566-31-1; 85666-92-8; EINECS/ELINCS 250-705-4; 234-325-6; 204-664-4
Uses: Primary emulsifier for antiperspirants, sunscreens; used in topical pharmaceutical creams, ointments, lotions

Properties: Wh. to off-wh. flake; sol. in hot organic solvents such as alcohol, benzene, ether, acetone, mineral or fixed oils; m.p. 55-59 C; b.p. >300 F; HLB 3.8; acid value 2.0 max.; iodine value 1.0 max.; sapon. value 160-170; flash pt. >200 F; cationic; 91% min.
Toxicology: Nonirritant to eyes and skin
Environmental: Biodegrad.
Precaution: Avoid oxidizing agents and strong alkali or caustic materials; wear goggles and gloves
Storage: Avoid open fire or flame

Rita GMS-90 [RITA http://www.ritacorp.com]
 Chem. Descrip.: Glycerol stearate
Chem. Analysis: Monoester content 90% min.
CAS 123-94-4; 11099-07-3; 31566-31-1; EINECS/ELINCS 250-705-4; 234-325-6; 204-664-4
Uses: Emulsifier for antiperspirants, sunscreens; used in topical pharmaceutical creams, ointments, lotions
Properties: Off-wh. flake; sol. in hot organic solvents, e.g., alcohol, benzene, ether, acetone, mineral or fixed oils; m.p. ≥ 72 C; acid value 6 max.; iodine value 3 max.; sapon. value 155-170; hydroxyl no. 300-330; HLB ≈ 3.8; flash pt. >200 F; cationic; 91% min.
Toxicology: Not a primary eye or skin irritant; TSCA listed
Environmental: Biodegrad.
Precaution: Avoid strong oxidizing agents, strong alkali, and caustic material; wear goggles and gloves

Hazardous Decomp. Prods.: None
Storage: Avoid open fire or flame

RITA IPM NF [RITA http://www.ritacorp.com]
 Chem. Descrip.: Isopropyl myristate
CAS 110-27-0; EINECS/ELINCS 203-751-4
Uses: Emollient, spreading agent, solubilizer for pharmaceuticals, creams, lotions
Regulatory: NF compliance
Properties: Liq.

RITA IPP NF [RITA http://www.ritacorp.com]
 Chem. Descrip.: Isopropyl palmitate
CAS 142-91-6; EINECS/ELINCS 205-571-1
Uses: Emollient, spreading agent, solubilizer for pharmaceuticals, creams, lotions
Regulatory: NF compliance
Properties: Liq.

RITA SA NF [RITA http://www.ritacorp.com]
 Chem. Descrip.: Stearyl alcohol NF
CAS 112-92-5; EINECS/ELINCS 204-017-6
Trade Name Reference

Ritabate 20 [RITA http://www.ritacorp.com]
Chem. Descrip.: Polysorbate 20
CAS 9005-64-5
Uses: Wetting agent, viscosity modifier, antistat, stabilizer and dispersant in pharmaceuticals
Features: Hydrophilic
Properties: Yel. liq.; bland odor; sol. in water; sp. gr. 1.10; HLB 16.7; sapon. no. 40-50; hydroxyl no. 96-108; nonionic
Toxicology: Eye and skin nonirritant
Environmental: Biodegrad.
Precaution: Avoid oxidizing material; wear goggles and gloves
Storage: Store in sealed containers, away from heat or light

Ritabate 40 [RITA http://www.ritacorp.com]
Chem. Descrip.: Polysorbate 40
CAS 9005-66-7
Uses: Wetting agent, viscosity modifier, antistat, stabilizer and dispersant in pharmaceuticals
Features: Hydrophilic
Properties: Yel. liq.; bland odor; sol. in water; sp. gr. 1.10; HLB 15.8; sapon. no. 41-52; hydroxyl no. 89-105; flash pt. >300 F (PMCC); nonionic
Toxicology: Eye and skin nonirritant
Environmental: Biodegrad.
Precaution: Avoid oxidizing material; wear goggles and gloves
Storage: Store in sealed containers, away from heat or light

Ritabate 60 [RITA http://www.ritacorp.com]
Chem. Descrip.: Polysorbate 60
CAS 9005-67-8
Uses: Wetting agent, viscosity modifier, antistat, stabilizer and dispersant in pharmaceuticals
Properties: Yel. liq.; bland odor; sol. in water; sp. gr. 1.08; acid no. 2 max.; sapon. no. 45-55; hydroxyl no. 81-96; flash pt. >300 F; nonionic
Toxicology: Avoid oxidizing material; wear goggles and gloves

Ritabate 80 [RITA http://www.ritacorp.com]
Chem. Descrip.: Polysorbate 80
CAS 9005-65-6
Uses: Wetting agent, viscosity modifier, antistat, stabilizer and dispersant in pharmaceuticals
Properties: Amber. liq.; Gardner color 5 max.; bland odor; sol. in water; sp. gr. 1.08; acid no. 2 max.; sapon. no. 45-55; hydroxyl no. 65-80; HLB 15; flash pt. >300 F; nonionic
Toxicology: Avoid oxidizing material; wear goggles and gloves

Environmental: Biodegrad.
Precaution: Avoid oxidizing material; wear goggles and gloves
Hazardous Decomp. Prods.: None
Storage: Store in sealed containers, away from heat or light

Ritaceti [RITA http://www.ritacorp.com]
Chem. Descrip.: Cetyl esters
CAS 8002-23-1
Uses: Raw material, emollient, spreading agent, solubilizer for pharmaceuticals, creams, lotions
Features: Improves rub-out
Properties: Wh. to cream flakes; sol. in boiling alcohol, ether, chloroform and fixed oils; m.p. 43-47 C; acid no., 5.0 max, iodine no. 1.0 max.; sapon. no. 109-120; nonionic
Toxicology: May cause eye and skin irritation
Environmental: Biodegrad.
Precaution: Avoid oxidizing agents; wear goggles and gloves
Hazardous Decomp. Prods.: None
Storage: Store in sealed containers, away from heat or light

Ritacetyl® [RITA http://www.ritacorp.com]
Chem. Descrip.: Acetylated lanolin
CAS 61788-48-5; EINECS/ELINCS 262-979-2
Uses: Superfatting agent, emollient, spreading agent, moisture barrier, film-former for ointments, sun preps., skin care prods.
Properties: Yel./amber soft waxy semisolid, bland odor; insol. in water; oil-sol.; sp. gr. 0.96; m.p. 30-40 C; acid no. 3 max.; sapon. no. 125 max.; hyd. no. 10 max.; nonionic; 100% conc.
Use Level: 0.1-50%

Environmental: Biodegrad.
Precaution: Avoid oxidizing material; wear goggles and gloves
Hazardous Decomp. Prods.: None
Storage: Store in sealed containers, away from heat or light

Ritacetyl® [RITA http://www.ritacorp.com]
Chem. Descrip.: Acetylated lanolin
CAS 61788-48-5; EINECS/ELINCS 262-979-2
Uses: Superfatting agent, emollient, spreading agent, moisture barrier, film-former for ointments, sun preps., skin care prods.
Properties: Yel./amber soft waxy semisolid, bland odor; insol. in water; oil-sol.; sp. gr. 0.96; m.p. 30-40 C; acid no. 3 max.; sapon. no. 125 max.; hyd. no. 10 max.; nonionic; 100% conc.
Use Level: 0.1-50%
Trade Name Reference

Toxicology: LD50 (acute toxicity, albino rat) >64 cc/kg; Draize primary eye irritation index = 0.0 (rabbit)
Precaution: Avoid oxidizing materials; use goggles and gloves
Storage: Store in sealed containers, away from heat or light

Ritachlor 50% [RITA http://www.ritacorp.com]
Chem. Descrip.: Aluminum chlorohydrate
Chem. Analysis: Aluminum oxide 23.0 - 24.0%, chloride 7.9 - 8.4%; sulfate 0.025% max.; heavy metals 10 ppm max.; arsenic max.
CAS 12042-91-0; EINECS/ELINCS 234-933-1
Uses: Antiperspirant ingredient in OTC drug products
Properties: Water wh. odorless liq.; sol. in water; sp. gr. 1.33; pH 4.0-4.4 (15% w/w sol'n.)
Toxicology: Eye and skin nonirritant
Environmental: Biodegrad.
Precaution: Avoid oxidizing materials and direct sunlight; wear goggles and gloves
Hazardous Decomp. Prods.: May emit noxious fumes
Storage: Store in sealed containers, away from heat or light

Ritachol® 1000 [RITA http://www.ritacorp.com]
Chem. Descrip.: Cetearyl alcohol, polysorbate 60, PEG-150 stearate, steareth-20
Uses: Emulsifier for pharmaceuticals, skin treatment creams/lotions, antiperspirants
Properties: Wh. waxy flakes, low odor; m.p. 48-52 C; acid no. 1.5 max.; iodine no. 3.5 max.; sapon. no. 9-14; hyd. no. 178-192; pH 5.5-7.0 (3% aq.); nonionic; 100% conc.
Toxicology: Nonirritating

Ritachol® 2000 [RITA http://www.ritacorp.com]
Chem. Descrip.: Cetearyl alcohol and polysorbate 60
Uses: Emulsifier, conditioner for pharmaceuticals, powd. suspensions
Features: Stable over wide pH and temp. range
Properties: Gardner 1 max. wh. flakes; bland odor; insol. in water; m.p. 53-55 C; acid no. 0.1-1.0; iodine no. 3.5 max.; sapon. no. 9-14; hyd. no. 178-192; pH 5.5-7.0 (3% aq.); nonionic; 100% conc.
Toxicology: Nonirritating

Ritachol® SS [RITA http://www.ritacorp.com]
Chem. Descrip.: Stearyl stearate
CAS 2778-96-3; EINECS/ELINCS 220-476-5
Uses: Raw material, emollient, spreading agent, solubilizer for pharmaceuticals, creams, lotions
Features: Improves rub-out
Properties: Gardner 1 max. wh. flakes; bland odor; insol. in water; m.p. 53-55 C; acid no. 3 max; iodine no. 2 max.; sapon. no. 101-111
Toxicology: Not a primary eye or skin irritant
Environmental: Biodegrad.
Precaution: Avoid strong alkali or caustic, strong oxidizing agents; wear goggles and gloves
Hazardous Decomp. Prods.: None
Storage: Store in sealed containers, away from heat or light

Ritahydrox [RITA http://www.ritacorp.com]
Chem. Descrip.: Hydroxylated lanolin
CAS 68424-66-8; EINECS/ELINCS 270-315-8
Uses: W/o emulsifier, emollient, superfatting agent, pigment dispersant, emulsion stabilizer, thickener with high water absorp., skin wetting for ointments, sun preps., skin care prods.
Features: Hypoallergenic
Regulatory: RCRA nonreportable

Handbook of Pharmaceutical Additives, Third Edition 622
Trade Name Reference

Properties: Yel. paste; mild char. odor; insol. in water; sp.gr. 0.9; vapor dens. > 1; b.p. decomposes; HLB 4.0; m.p. 39-46 C; acid no. 10 max.; iodine no. 15-23; sapon. no. 95-110; hyd. no. 60-85; flash pt. (COC) > 500 F; volatiles < 1%; nonionic; 100% conc.
Toxicology: LD50 (oral, rat) > 40 mg/kg; TSCA listed
Precaution: Wear safety glasses, rubber gloves, rubber apron; incompat. with oxidizers
Hazardous Decomp. Prods.: Oxides of carbon
Storage: Keep away from heat, flames

Ritalan® [RITA http://www.ritacorp.com]
Chem. Descrip.: Lanolin oil USP
CAS 70321-63-0; EINECS/ELINCS 274-559-6
Uses: Moisturizer, plasticizer, penetrant, emollient, spreading agent, skin lubricant for topicals; prevents defatting
Features: Hypoallergenic; nonsensitizing
Properties: Amber cl. liq., sl. odor; sol. in lipids, min. oil; insol. in water; acid no. 2 max.; iodine no. 18-36; cloud pt. 18 C; nonionic; 100% conc.
Use Level: 0.1-50%
Toxicology: LD50 (acute toxicity, rats) >46.5 cc/kg; nonirritant to eyes and skin
Environmental: Biodegrad.
Precaution: Avoid contact with oxidizing materials; wear goggles and gloves
Hazardous Decomp. Prods.: May emit noxious fumes of CO
Storage: Store at R.T.; keep containers sealed

Ritalan® AWS [RITA http://www.ritacorp.com]
Chem. Descrip.: PPG-12-PEG-65 lanolin oil
Uses: Aux. emulsifier, moisturizer, emollient for ointments, sun preps.
Properties: Lt. amber visc. liq., odorless; sol. in water and alcohol; sp. gr. 1.07; HLB 18.0; acid no. 3 max.; iodine no. 10 max.; sapon. no. 10-25; hyd. no. 50 max.; pH 5-7 (10%); flash pt. (COC)545 C; nonionic; 100% act.
Toxicology: LD50 (ing., albino rat) 49 cc/kg
Precaution: Avoid heat, flame, and oxidizing materials; wear gloves and protective clothing

Ritapan D [RITA http://www.ritacorp.com]
Chem. Descrip.: D-Panthenol
Chem. Analysis: 98-102% assay; aminopropanol 1.0% max; heavy metals 20 ppm max
CAS 81-13-0; EINECS/ELINCS 201-327-3
Uses: Nutrient, humectant for skin care prod.; emollient for skin irritated by minor wounds, sun, insect bites, and allergic reactions
Features: Slightly hygroscopic.
Regulatory: USP
Properties: Cl. visc. liq.; m.w. 205.25; sp. gr. 1.2; pH 9.0-10.5; completely sol. in water; decomp. @ 118 - 120 C; ref. index 1.495 - 1.502
Toxicology: LD50 (acute toxicity, mouse) 15g/kg; nonirritant to eyes and skin
Environmental: Biodegrad.
Precaution: Avoid heat, flames, and oxidizing materials; may emit noxious fumes of CO
Storage: 12 mo. shelf life; store in cool, dry place
Trade Name Reference

Storage: Store in a cool, dry place

Ritasol [RITA http://www.ritacorp.com]
Chem. Descrip.: Isopropyl lanolate
CAS 63393-93-1; EINECS/ELINCS 264-119-1
Uses: Emollient, spreading agent, water-resistant film-former for ointments, sun preps.
Features: Compat. with fatty acid esters, anhydrous alcohols, min. oil, veg. oil
Properties: Yel. paste; oil-misc.; acid no. 18 max.; hyd. no. 40-60; sapon. no. 135-165; nonionic; 100% conc.; 0.2% max. moisture

Ritawax [RITA http://www.ritacorp.com]
Chem. Descrip.: Lanolin alcohol
CAS 8027-33-6; EINECS/ELINCS 232-430-1
Uses: Emulsifier, emollient, stabilizer, and thickener for pharmaceuticals, skin care prods.; hardener for wax systems
Features: Strong water absorp. props.
Properties: Amber firm waxy solid, char. odor; sol. in alcohol, IPM, other oils; insol. in water; sp.gr. 0.98; vapor dens. > 1; m.p. 53-61 C; b.p. 450 F (5 mm Hg); acid no. 2 max.; sapon. no. 10 max.; hyd. no. 118-160; nonionic; 100% conc.
Use Level: 0.1-50%
Toxicology: LD50 (oral, albino rat) 21 g/kg; TSCA listed
Precaution: Wear safety glasses, impervious gloves, apron; incompat. with oxidizers

Ritawax AEO [RITA http://www.ritacorp.com]
Chem. Descrip.: Polysorbate 80, acetylated lanolin alcohol, cetyl acetate
CAS 9005-65-6; 61788-49-6; 629-70-9; EINECS/ELINCS $; 262-980-8; 211-103-7
Uses: Emollient, lubricant, moisturizer, penetrant, solubilizer, dispersant, plasticizer, cosolvent, emulsifier for pharmaceuticals; vehicle for medicaments; used in dermatological related vehicles containing active ingredients, such as salicylic acid, steroids, and antimicrobial agents
Features: Compatible with nonionic, ionic, and amphoteric surface active materials
Properties: Lemon yel. to straw-colored cl. oily liq.; char. bland odor; sol. in water, IPA, castor oil, min. oil, veg. oil; acid no. 2 max.; sapon. no. 65-80; hyd. no. 60-70; flash pt. (COC) 340 C; nonionic; 100% conc.
Toxicology: Nonirritant to eyes and skin; wear gloves and goggles
Precaution: Avoid oxidizing agents
Hazardous Decomp. Preps.: May emit noxious fumes of CO

Ritawax ALA [RITA http://www.ritacorp.com]
Chem. Descrip.: Cetyl acetate, acetylated lanolin alcohol
CAS 629-70-9; 61788-49-6; EINECS/ELINCS 211-103-7; 262-980-8
Uses: Emollient, lubricant, moisturizer, penetrant, plasticizer, cosolvent, solubilizer, emulsifier for pharmaceuticals; vehicle for medicaments; degreaser and detackifier for emulsions
Properties: Cl. to yel. liq., char. bland odor; insol. in water; sol. in min. oil, castor oil, veg. oil, alcohol; sp. gr. 0.850-0.880; b.p. 450 F; acid no. 1 max.; iodine no. 10 max.; sapon. no. 180-200; hyd. no. 8 max.; flash pt. (COC) 340 C; nonionic; 100% conc.
Toxicology: LD50 (acute toxicity, rats) > 5 g/kg; skin (50% sol'n.) nonirritating and nonsensitizing in a 50 subject human patch test panel.
Environmental: Biodegrad.
Precaution: Avoid oxidizing agents; wear gloves and goggles
Hazardous Decomp. Preps.: May emit noxious fumes of CO

Ritawax Super [RITA http://www.ritacorp.com]
Chem. Descrip.: Lanolin alcohol
CAS 8027-33-6; EINECS/ELINCS 232-430-1
Uses: Emulsifier, emollient, conditioner, moisturizer, stabilizer, and solubilizer in ointments, sun preps., veterinary prods.
Properties: Amber solid; insol in water; m.p. 53-61 C; b.p. 450 F (mm Hg); sapon. no. 10 max.; hydroxyl no. 118-160; flash pt. 450 F (COC); nonionic
Toxicology: LD50 (acute toxicity, albino rat) 21 g/kg; primary skin irritation index: 0.0 (rabbit); Draize primary eye irritation index: 0.0 (rabbit)
Environmental: Biodegrad.
Precaution: May emit noxious fumes; avoid oxidizing agents; use goggles and gloves

Ritolet 2 [RITA http://www.ritacorp.com]
Chem. Descrip.: Oleth-2
CAS 9004-98-2
Uses: Emulsifier for pharmaceutical gels and creams
Features: Stable over wide pH range
Properties: Cl. to sl. yel. liq.; insol. in water; HLB 4.9; acid no. 0.5 max.; hydroxyl no. 150-180; flash pt. >300°F (PMCC); nonionic; 100%
Trade Name Reference

conc.
Toxicology: Nonirritant to eyes and skin
Environmental: Biodegrad.
Precaution: Avoid extreme heat and oxidizing materials; wear goggles and gloves
Hazardous Decomp. Prods.: None
Storage: Store in sealed container, away from heat or light

Ritoleth 5 [RITA http://www.ritacorp.com]
Chem. Descrip.: Oleth-5
CAS 9004-98-2
Uses: Emulsifier for pharmaceutical gels and creams
Features: Stable over wide pH range; compatible with most anionic, cationic and other nonionic surfactants
Properties: Cl. to sl. yel. liq.; insol. in water; acid no. 2.0 max.; hydroxyl no. 120-133; HLB 15.1; sapon. no. 2.0 max.; HLB 15.1; sapon. no. 2.0 max.; nonionic; 100% conc.
Toxicology: Nonirritant to eyes and skin
Environmental: Biodegrad.
Precaution: Avoid extreme heat and oxidizing materials; wear goggles and gloves
Hazardous Decomp. Prods.: None
Storage: Store in sealed container, away from heat or light

Ritoche 10 [RITA http://www.ritacorp.com]
Chem. Descrip.: Oleth-10
CAS 9004-98-2
Uses: Emulsifier for pharmaceutical gels and creams
Features: Stable over wide pH range
Properties: Colorless, odorless semisolid; insol. in water; sp. gr. 0.94; HLB 12.3; acid no. 10 max.; iodine no. 32-40; hydroxyl no. 80-90; sapon. no. 2 max.; cloud pt. 47-55 °C; flash pt. >300°F (PMCC); nonionic; 100% conc.
Toxicology: Nonirritant to eyes and skin
Environmental: Biodegrad.
Precaution: Avoid extreme heat and oxidizing materials; wear goggles and gloves
Hazardous Decomp. Prods.: None
Storage: Store in sealed container, away from heat or light

Ritoche 20 [RITA http://www.ritacorp.com]
Chem. Descrip.: Oleth-20
CAS 9004-98-2
Uses: Emulsifier for pharmaceutical gels and creams
Features: Stable over wide pH range
Properties: Wh. to yel. solid wax; insol. in water; acid no. 0.5 max.; hydroxyl no. 45 - 70; HLB 15.1; sapon. no. 2.0 max.; nonionic; 100% conc.
Toxicology: Nonirritant to eyes and skin
Environmental: Biodegrad.
Precaution: Avoid oxidizing materials; wear goggles and gloves
Hazardous Decomp. Prods.: None
Storage: Store in sealed container, away from heat or light

Rocoat® Niacinamide 33⅓% [DSM Nutritional Prods. USA http://www.nutraaccess.com]
Chem. Descrip.: Niacinamide USP FCC coated with mono and diglycerides of edible fatty acids and ≤ 1.5% silicon dioxide See Mono- and diglycerides of fatty acids; Silica
CAS 98-92-0;67701-32-0;$; EINECS/ELINCS 202-713-4;$
Uses: Nutrient for chewable multivitamin tablets and other dry dosage forms
Features: Provides taste-free and odorless form and protects the vitamin
Regulatory: FDA GRAS
Properties: Wh. relatively free-flowing powd. with some soft agglomerates, sl. char. odor, satisfactory taste; 99% min. through 20 mesh, 50% max. through 200 mesh; 32.6% assay (niacinamide)
Storage: Store below 72 F

Rocoat® Pyridoxine Hydrochloride 33⅓% [DSM Nutritional Prods. USA http://www.nutraaccess.com]
Chem. Descrip.: Pyridoxine hydrochloride USP FCC in inert coating of mono- and diglycerides of edible fatty acids See Mono- and diglycerides of fatty acids; Pyridoxine HCl
CAS 58056-0;67701-32-0;$; EINECS/ELINCS 200-386-2;$
Uses: Nutrient for chewable multivitamin tablets and other dry dosage forms
Features: Provides taste-free and odorless form and protects the vitamin
Regulatory: FDA GRAS
Properties: Wh. to off-wh. relatively free-flowing powd. with some soft agglomerates, odorless to sl. odor, satisfactory taste; 99% min. through 20 mesh, 50% max. through 200 mesh; 32.6% assay (pyridoxine HCl)
Storage: Store below 25 C in unopened container, stable to air and humidity but sensitive to light and heat
Rocoat® Riboflavin 33½% [DSM Nutritional Prods. USA http://www.nutraaccess.com]
Chem. Descrip.: Riboflavin USP-FCC and corn starch in an inert coating of mono- and diglycerides of edible fatty acids. See Corn (Zea mays) starch; Mono- and diglycerides of fatty acids
CAS 83-88-5;67701-32-0;9005-25-8;
EINECS/ELINCS 201-507-1;$;232-679-6
Uses: Nutrient for chewable tablets and solid pharmaceutical preps.
Features: Provides taste-free and odorless form and protects the vitamin
Regulatory: FDA GRAS
Properties: Orange relatively free-flowing powd. with some soft agglomerates, sl. char. odor, taste-free; 99% min. through 20 mesh, 50% max. through 200 mesh; 32.6-35.3% assay
Storage: Store below 25 C in unopened container, stable to air and humidity but sensitive to light and heat

Rocoat® Thiamine Mononitrate 33½% [DSM Nutritional Prods. USA http://www.nutraaccess.com]
Chem. Descrip.: Thiamine nitrate USP/FCC in inert coating of mono- and diglycerides of edible fatty acids. See Mono- and diglycerides of fatty acids
CAS 532-43-4; EINECS/ELINCS 208-537-4
Uses: Nutrient for chewable multivitamin tablets and other dry dosage forms
Features: Provides taste-free and odorless form and protects the vitamin
Regulatory: FDA GRAS
Properties: Wh. to off-wh. relatively free-flowing powd. with some soft agglomerates, sl. odor, taste-free; 99% min. through 30 mesh, 50% max. through 200 mesh; 32.6-35.3% assay
Storage: Store in a dry place @ 46-59 F

Chem. Descrip.: Polymer
Uses: Dental polymer for mfg. of partial and complete dentures by cold curing powd./liq. process
Properties: Bead polymer; 55-70 μm particle size; reduced visc. 145-175 cm³/g (20 C)

Chem. Descrip.: Polymer
Uses: Dental polymer for production of teeth by heat curing process
Properties: Bead polymer; 50-60 μm particle size; reduced visc. 210-250 cm³/g (20 C)

Chem. Descrip.: Polymer
Uses: Dental tray material to be used to produce molded articles by powd./liq. process
Properties: Bead polymer; 120-180 μm particle size; reduced visc. 50-60 cm³/g (20 C)

Chem. Descrip.: Polymer
Uses: Dental grade polymer for prostheses and bridges; mfg. of molded dentures
Features: Superior shape and color matching qualities
Regulatory: FDA 21CFR §177.1010
Properties: Bead polymer; 40-50 μm particle size; reduced visc. 80-100 cm³/g (20 C)

Chem. Descrip.: Polymethyl methacrylate-based polymer
Uses: Heat-sealing raw material for pkg. of pharmaceuticals
Regulatory: FDA 21CFR §175.300
Properties: Bead in powd. form; sol. in esters, ketones, aromatics, glycol ethers, glycol ether esters, glycol ether acetates, chlorinated hydrocarbons; insol. in alcohols, aliphatic hydrocarbons; m.w. ≈ 100,000; dens. 1.13 g/cm³; reduced visc. 50-60 cm³/g (20 C); acid no. 0-1
Toxicology: TSCA listed
Storage: Store cool and dry
Trade Name Reference

Chem. Descrip.: Methyl methacrylate-based polymer
Uses: Heat-sealing raw material for pkg. of pharmaceuticals
Features: Offers hardness, weather resist., lightfastness, resist. to chems. (esp. alcohol, petrol, grease)
Regulatory: FDA 21CFR §175.300
Properties: Ground bulk form; sol. in esters, ketones, glycol esters, aromatics, glycol ether acetates, chlorinated hydrocarbons; insol. in alcohols, aliphatic hydrocarbons, wh. spirits; m.w. ≈ 100,000; dens. 1.17 g/cm³; visc. 40-50 cm³/g; acid no. ≈ 2
Toxicology: TSCA listed
Storage: Store cool and dry

Rohamere® 6850-0 [Röhm Am. http://www.rohmamerica.com; Röhm GmbH http://www.roehm.de]
Chem. Descrip.: Methoxypolyethylene glycol 750-methacrylate with 100 ± 25 ppm MEHQ and 200 ± 50 ppm Topanol O inhibitors (60% sol'n. in water)
Chem. Analysis:
9% gamma-Linolenic acid content
CAS 26915-72-0
Uses: Steric stabilizer and controlled release device for pharmaceuticals; dental products
Properties: Cl. colorless to lt. ye. liq; ester-like odor; misc. in water; dens. 1.09 g/cm³; visc. 20 mPa.s; b.p. 100 C (water @1013 mbar); solid. pt -26.5 C; ref. index ≈ 1.405; 50 ± 2% water; 0.2% max. acid
Storage: 6 mos. shelf-like @ 30 C max.

Romax™ [DSM Nutritional Prods. USA http://www.nutraaccess.com]
Chem. Descrip.: Complex of ascorbic acid and niacinamide
Chem. Analysis: 73.5% ascorbic acid; 24.5% niacinamide; 0.5% max. loss on drying
CAS 50-81-7; 98-92-0; EINECS/ELINCS 200-066-2; 202-713-4
Uses: Nutrient, dietary supplement for multivitamin preps.
Regulatory: FCC, FDA 21CFR 172.315
Properties: Lemon-yel. free-flowing gran. powd.; 100% through sieve #20, 85% min. through sieve #40,135% max. through sieve #100; sol. in water (1 g/3.5 m/l) and alcohol (1 g/20 ml), very sl. sol. in chloroform and ether, sparingly sol. in glycerine; pract. insol. in benzene; m.w. 298.25; m.p. 141-145 C; 99.0% min. assay
Precaution: Wear safety glasses and rubber gloves; avoid ing., inh., and dust

Ropufa® '10' n-3 INF Powder [DSM Nutritional Prods. USA http://www.nutraaccess.com]
Chem. Descrip.: Docosahexaenoic acid and eicosapentaenoic acid in corn starch-coated matrix of fish gelatin and sucrose See Corn (Zea mays) starch
Chem. Analysis:
5% max. loss on drying; 7% min. DHA
CAS 6217-54-5; 10417-94-4; 9005-25-8; 9000-70-8; 57-50-1
Uses: Fish oil supplement for nutritional and pharmaceutical applics.
Properties: Pale brownish free-flowing beadlets; 100% through sieve #20, 85% min. through sieve #40,135% max. through sieve #100; sol. in water (1 g/3.5 m/l) and alcohol (1 g/20 ml), very sl. sol. in chloroform and ether, sparingly sol. in glycerine; pract. insol. in benzene; m.w. 298.25; m.p. 141-145 C; 99.0% min. assay
Toxicology: In high intakes may cause increased bleeding, reduction in immune activities, GI disturbances
Precaution: Wear safety glasses and rubber gloves; avoid ing., inh., and dust
Storage: 12 mos. shelf life; store in tightly sealed container away from air, heat, humidity, or light @< 15 C; once opened use quickly

Ropufa® '10' n-6 Oil [DSM Nutritional Prods. USA http://www.nutraaccess.com]
Chem. Descrip.: gamma-Linolenic acid
Chem. Analysis: 9% gamma-Linolenic acid content
CAS 506-26-3
Uses: Supplement for nutritional and
Trade Name Reference

Ross Beeswax [Frank B. Ross http://www.frankbross.com]
Chem. Descrip.: Beeswax
CAS 8012-89-3; EINECS/ELINCS 232-383-7
Uses: Wax for medicinals (ointments, salves)
Features: Avail. as crude, yel. refined, and wh. bleached grades
Properties: Lt. taffy to deep brn. wax, char.
honey odor; m.p. 62-65 C; acid no. 17-24;
cloud pt. -65 C max.

Ross Beeswax Substitute No. 30 [Frank B. Ross http://www.frankbross.com]
Chem. Descrip.: Yel. beeswax substitute
Uses: Wax for medicinals (ointments, salves)
Features: For use where pure beeswax is not required
Properties: Yel.; m.p. 130-143 F; acid no. 1-5;
sapon. no. 6-15

Ross Beeswax Substitute No. 628/5 [Frank B. Ross http://www.frankbross.com]
Chem. Descrip.: Paraffin, candelill a wax,
hydrogenated tallow glycerides, stearic acid, and cetyl alcohol See Candelilla
(Euphorbia cerifera) wax
Uses: Wax for medicinals (ointments, salves)
Features: For use where pure beeswax is not required
Properties: M.p. 140-150 F; acid no. 17-27;
sapon. no. 60-80

Ross Beeswax Substitute No. 1595 [Frank B. Ross http://www.frankbross.com]
Chem. Descrip.: Yel. beeswax substitute
Uses: Wax for medicinals (ointments, salves)
Features: For use where pure beeswax is not required
Properties: Yel.; m.p. 133-143 F; acid no. 1-5;
sapon. no. 5-14

Ross Carnauba Wax [Frank B. Ross http://www.frankbross.com]
Chem. Descrip.: Carnauba (Copernicia cerifera) wax See Carnauba (Copernica cerifera) wax
CAS 8015-86-9; EINECS/ELINCS 232-399-4
Uses: Wax for medicinals (ointments, salves, pills)
Features: Avail. as Prime or No. 1 Yel. or No. 3 North Country grades
Regulatory: FDA 21CFR §184.1978
Properties: Flakes or powd.; sp.gr. 0.996-0.998;
m.p. 181.4 F min.; acid no. 2-10; iodine no. 7-14;
sapon. no. 78-95; flash pt. 570 F min.; ref. index 1.4540

Ross Ceresine Wax [Frank B. Ross http://www.frankbross.com]
Chem. Descrip.: Ceresine wax See Ceresin
CAS 8001-75-0; EINECS/ELINCS 232-290-1
Uses: Wax for medicinals (ointments, salves)
Features: Avail. in various grades
Regulatory: FDA 21CFR §175.105
Properties: Wh., yel., tan, or orange grades;
sp.gr. 0.880-0.935; m.p. 53.3-87.8 C; acid no.
nil; sapon. no. 2 max.; ref. index 1.425-1.435

Ross Japan Wax [Frank B. Ross http://www.frankbross.com]
Chem. Descrip.: Japan (Rhus succedanea) wax
CAS 8001-39-6; EINECS/ELINCS 310-125-5
Uses: Wax for pharmaceuticals
Regulatory: FDA 21CFR §175.105, 175.300,
175.350, 176.170, 182.10
Properties: Pale cream colored wax, gummy feel; sp.gr. 0.975-0.984; m.p. 46.5-51.5 C; acid no.
6-30; iodine no. 4-15; sapon. no. 200-225;
flash pt. 385 F min.; ref. index 1.4550

Ross Spermaceti Wax Substitute #573 [Frank B. Ross http://www.frankbross.com]
Chem. Descrip.: Cetyl esters
CAS 8002-23-1
Uses: Wax for medicinals (ointments, salves)
Regulatory: FDA 21CFR §175.105, 175.300,
175.350, 176.170, 182.10
Properties: Sp.gr. 0.940-0.946; m.p. 42-50 C;
acid no. 2-8; iodine no. 3 max.; sapon. no.
117-148; flash pt. 470 F min.

Rudol® [Chemtura http://www.chemtura.com]
Chem. Descrip.: Lt. mineral oil NF
EINECS/ELINCS 232-384-2
Uses: Carrier in pharmaceuticals
Regulatory: FDA 21CFR §172.878, 178.3620a
Properties: Water-wh., odorless, tasteless; sp.gr.
RxCIPIENTS® FM1000  [Huber Engineered Materials  http://www.hubermaterials.com]
Chem. Descrip.:  Calcium silicate (99%)
sodium sulfate (1%)
Chem. Analysis:  Lead levels ≤ 10 ppb
CAS 1344-95-2; 7757-82-6; EINECS/ELINCS 215-710-8; 231-820-9
Uses:  Glidant, processing aid, and flow aid for oral solid dosage forms
Features:  Fast disintegration; nonhygroscopic for longer shelf life; low friability
Regulatory:  USP/NF, JPE, kosher
Properties:  Off-white odorless, tasteless powd.; particle size 10 μ max.; bulk dens., loose 20-50 lb/ ft³; pH (5% slurry) 8.5-9.8; noncombustible; 1.0% max. moisture loss on drying @ 105 C; 99% act.
Toxicology:  LD50 (oral, rat) > 5000 mg/kg; nonirritant to eyes; dries skin and mucous membranes; dust may irritate respiratory system; no evidence of mutagenic, reproductive or carcinogenic effects
Environmental:  Nonbiodegrad.; no risk to the environment
Precaution:  Wear safety glasses with side shields and impervious gloves; avoid contact with strong acids
Hazardous Decomp. Prods.:  None
Storage:  Store in original protective pkg. away from moisture

RxCIPIENTS® GL 100 Series Glidant  [Huber Engineered Materials  http://www.hubermaterials.com]
Chem. Descrip.:  Precipitated amorphous silica  See Silica, amorphous
CAS 112926-00-8; EINECS/ELINCS 231-545-4
Uses:  Glidant and flow aid for oral solid dosage forms
Features:  With a higher bulk density, decreases dust formation when added or blended; prevents adhesion between particles of different ingredients; stops cohesion between particles of the same type
Regulatory:  USP/NF, EP, kosher
Properties:  Wh. powd.; particle size 20 μ max.; bulk dens., loose 5-9 lb/ ft³; pH (5% slurry) 6.5-7.5; 7% moisture loss on drying @ 105 C
Storage:  1 yr shelf life when stored in original protective pkg. away from moisture, and extremes in temperature (> 90 F) and humidity (> 80% relative humidity)

Ryoto Sugar Ester B-370  [Mitsubishi-Kagaku Foods  http://www.mfc.co.jp/]
Chem. Descrip.:  Sucrose tribehenate
Uses:  Emulsifier, antibacterial, wetting agent, dispersant for pharmaceuticals; solubilizer, stabilizer for fat-sol. vitamins and antibiotics; lubricant, disintegrant, binder, and filler for tablets
Properties:  Powd.; odorless; tasteless; partly sol. in propylene glycol, glycerin, liq. paraffin, soybean oil, cottonseed oil, water; m.p. 53-63 C; decomp. pt. 241 C; HLB 3; nonionic
Toxicology:  Nontoxic; nonirritating to eyes and skin
Environmental:  Biodeg.

Ryoto Sugar Ester ER-190  [Mitsubishi-Kagaku Foods  http://www.mfc.co.jp/]
Chem. Descrip.:  Sucrose erucate
Uses:  Emulsifier, conditioner, detergent for pharmaceuticals; solubilizer, stabilizer for fat-sol. vitamins and antibiotics; lubricant, disintegrant, binder, and filler for tablets; solubilizer, dispersant for flavors and preservatives
Properties:  Liq.; odorless; tasteless; partly sol. in propylene glycol, glycerin, liq. paraffin, soybean oil, cottonseed oil, water; m.p. 53-63 C; decomp. pt. 241 C; HLB 3; nonionic
Toxicology:  Nontoxic; nonirritating to eyes and skin
Environmental:  Biodeg.
<table>
<thead>
<tr>
<th>Trade Name Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Uses:</strong> Emulsifier, conditioner, detergent for pharmaceuticals; solubilizer, stabilizer for fat-sol. vitamins and antibiotics; lubricant, disintegrant, binder, and filler for tablets; solubilizer, dispersant for flavors and preservatives</td>
</tr>
<tr>
<td><strong>Properties:</strong> Resinous; odorless; tasteless; HLB 2</td>
</tr>
<tr>
<td><strong>Toxicology:</strong> Nontoxic; nonirritating to eyes and skin</td>
</tr>
<tr>
<td><strong>Environmental:</strong> Biodeg.</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>Ryoto Sugar Ester L-195 [Mitsubishi-Kagaku Foods <a href="http://www.mfc.co.jp">http://www.mfc.co.jp</a>]</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chem. Descrip.:</strong> Sucrose polylaurate</td>
</tr>
<tr>
<td><strong>Uses:</strong> Emulsifier, conditioner, detergent for pharmaceuticals; solubilizer, stabilizer for fat-sol. vitamins and antibiotics; lubricant, disintegrant, binder, and filler for tablets; solubilizer, dispersant for flavors and preservatives</td>
</tr>
<tr>
<td><strong>Properties:</strong> Waxy; odorless; tasteless; HLB 1; nonionic</td>
</tr>
<tr>
<td><strong>Toxicology:</strong> Nontoxic; nonirritating to eyes and skin</td>
</tr>
<tr>
<td><strong>Environmental:</strong> Biodeg.</td>
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<tr>
<th>Ryoto Sugar Ester L-595 [Mitsubishi-Kagaku Foods <a href="http://www.mfc.co.jp">http://www.mfc.co.jp</a>]</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chem. Descrip.:</strong> Sucrose dilaurate</td>
</tr>
<tr>
<td><strong>CAS:</strong> 25915-57-5; EINECS/ELINCS 247-345-5</td>
</tr>
<tr>
<td><strong>Uses:</strong> Emulsifier, antibacterial, wetting agent, and dispersant for pharmaceuticals; solubilizer, stabilizer for fat-sol. vitamins and antibiotics; lubricant, disintegrant, binder, and filler for tablets</td>
</tr>
<tr>
<td><strong>Properties:</strong> Pellet; odorless; tasteless; sol. in water, ethanol; partly sol. in glycerin; HLB 5; nonionic</td>
</tr>
<tr>
<td><strong>Toxicology:</strong> Nontoxic; nonirritating to eyes and skin</td>
</tr>
<tr>
<td><strong>Environmental:</strong> Biodeg.</td>
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<tr>
<th>Ryoto Sugar Ester O-170 [Mitsubishi-Kagaku Foods <a href="http://www.mfc.co.jp">http://www.mfc.co.jp</a>]</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chem. Descrip.:</strong> Sucrose polyoleate</td>
</tr>
<tr>
<td><strong>Uses:</strong> Emulsifier, conditioner, detergent for pharmaceuticals; solubilizer, stabilizer for fat-sol. vitamins and antibiotics; lubricant, disintegrant, binder, and filler for tablets; solubilizer, dispersant for flavors and preservatives</td>
</tr>
<tr>
<td><strong>Properties:</strong> Liq.; odorless; tasteless; HLB 1; nonionic</td>
</tr>
<tr>
<td><strong>Toxicology:</strong> Nontoxic; nonirritating to eyes and skin</td>
</tr>
<tr>
<td><strong>Environmental:</strong> Biodeg.</td>
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</tbody>
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<thead>
<tr>
<th>Ryoto Sugar Ester LWA-1570 [Mitsubishi-Kagaku Foods <a href="http://www.mfc.co.jp">http://www.mfc.co.jp</a>]</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chem. Descrip.:</strong> Sucrose laurate, water (50%), ethanol (4%) See Alcohol</td>
</tr>
<tr>
<td><strong>Uses:</strong> O/w and w/o emulsifier, softener, conditioner in pharmaceuticals; solubilizer, stabilizer for fat-sol. vitamins and antibiotics; lubricant, disintegrant, binder, and filler for tablets</td>
</tr>
<tr>
<td><strong>Properties:</strong> Liq.; odorless; tasteless; HLB 15.0; nonionic; 40% conc.</td>
</tr>
<tr>
<td><strong>Toxicology:</strong> Nontoxic; nonirritating to eyes and skin</td>
</tr>
<tr>
<td><strong>Environmental:</strong> Biodeg.</td>
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<tr>
<th>Ryoto Sugar Ester M-1695 [Mitsubishi-Kagaku Foods <a href="http://www.mfc.co.jp">http://www.mfc.co.jp</a>]</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chem. Descrip.:</strong> Sucrose myristate</td>
</tr>
<tr>
<td><strong>CAS:</strong> 27216-47-3; EINECS/ELINCS 248-340-0</td>
</tr>
<tr>
<td><strong>Uses:</strong> Emulsifier, antibacterial, wetting agent, and dispersant for pharmaceuticals; solubilizer, stabilizer for fat-sol. vitamins and antibiotics; lubricant, disintegrant, binder, and filler for tablets</td>
</tr>
<tr>
<td><strong>Properties:</strong> Pellet; sol. in water, propylene glycol, ethanol; partly sol. in glycerin; m.p. 27-40 C; decomp. pt. 243 C; HLB 16; nonionic</td>
</tr>
<tr>
<td><strong>Toxicology:</strong> Nontoxic; nonirritating to eyes and skin</td>
</tr>
<tr>
<td><strong>Environmental:</strong> Biodeg.</td>
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<tbody>
<tr>
<td><strong>Chem. Descrip.:</strong> Sucrose oleate</td>
</tr>
<tr>
<td><strong>CAS:</strong> 25496-92-8; EINECS/ELINCS 247-041-2</td>
</tr>
<tr>
<td><strong>Uses:</strong> Emulsifier, antibacterial, wetting agent, and dispersant for pharmaceuticals; solubilizer, stabilizer for fat-sol. vitamins and antibiotics; lubricant, disintegrant, binder, and filler for tablets; solubilizer, dispersant for flavors and preservatives</td>
</tr>
<tr>
<td><strong>Properties:</strong> Liq.; odorless; tasteless; HLB 1; nonionic</td>
</tr>
<tr>
<td><strong>Toxicology:</strong> Nontoxic; nonirritating to eyes and skin</td>
</tr>
<tr>
<td><strong>Environmental:</strong> Biodeg.</td>
</tr>
</tbody>
</table>
Trade Name Reference

Ryoto Sugar Ester OWA-1570  [Mitsubishi-Kagaku Foods  http://www.mfc.co.jp/]
Chem. Descrip.:  Sucrose olate
CAS 25496-92-8; EINECS/ELINCS 247-041-2
Uses:  Emulsifier, conditioner, softener, detergent for pharmaceuticals; solubilizer, stabilizer for fat-sol. vitamins and antibiotics; lubricant, disintegrant, binder, and filler for tablets
Properties:  Paste; odorless; tasteless; HLB 15.0; nonionic; 40% conc.
Toxicology:  Nontoxic; nonirritating to eyes and skin
Environmental:  Biodeg.

Ryoto Sugar Ester P-170  [Mitsubishi-Kagaku Foods  http://www.mfc.co.jp/]
Chem. Descrip.:  Sucrose palmitate
CAS 26446-38-8; EINECS/ELINCS 247-706-7
Uses:  Emulsifier, conditioner, softener, detergent for pharmaceuticals; solubilizer, stabilizer for fat-sol. vitamins and antibiotics; lubricant, disintegrant, binder, and filler for tablets; solubilizer, dispersant for flavors and preservatives
Properties:  Powd.; odorless; tasteless; HLB 1; nonionic
Toxicology:  Nontoxic; nonirritating to eyes and skin
Environmental:  Biodeg.

Ryoto Sugar Ester P-1570  [Mitsubishi-Kagaku Foods  http://www.mfc.co.jp/]
Chem. Descrip.:  Sucrose palmitate
CAS 26446-38-8; EINECS/ELINCS 247-706-7
Uses:  Emulsifier, conditioner, softener, detergent for pharmaceuticals; solubilizer, stabilizer for fat-sol. vitamins and antibiotics; lubricant, disintegrant, binder, and filler for tablets; solubilizer, dispersant for flavors and preservatives
Properties:  Powd.; odorless; tasteless; partly sol. in water, propylene glycol, glycerin, liq. paraffin, soybean and cottonseed oils; m.p. 40-48 C; decomp. pt. 235 C; HLB 16; surf. tens. 34.5 dynes/cm (0.1% aq.); Ross-Miles foam 24 mm (0.25% aq., initial); nonionic
Toxicology:  Nontoxic; nonirritating to eyes and skin
Environmental:  Biodeg.

Ryoto Sugar Ester POS-135  [Mitsubishi-Kagaku Foods  http://www.mfc.co.jp/]
Chem. Descrip.:  Sucrose ester of mixed fatty acid with sm. amt. of tocopherol (antioxidant)
See Sucrose fatty acid esters
Uses:  Emulsifier, conditioner, detergent for pharmaceuticals; solubilizer, stabilizer for fat-sol. vitamins and antibiotics; lubricant, disintegrant, binder, and filler for tablets; solubilizer, dispersant for flavors and preservatives
Properties:  Waxy; odorless; tasteless; HLB 1
Toxicology:  Nontoxic; nonirritating to eyes and skin
Environmental:  Biodeg.

Ryoto Sugar Ester S-070  [Mitsubishi-Kagaku Foods  http://www.mfc.co.jp/]
Chem. Descrip.:  Sucrose polystearate
Uses:  Emulsifier, conditioner, detergent for pharmaceuticals; solubilizer, stabilizer for fat-sol. vitamins and antibiotics; lubricant, disintegrant, binder, and filler for tablets; solubilizer, dispersant for flavors and preservatives
Properties:  Powd.; odorless; tasteless; partly sol. in glycerin; m.p. 47-54 C; decomp. pt. 237 C; HLB 15.0; surf. tens. 35.4 dynes/cm (0.1% aq.); Ross-Miles foam 15 mm (0.25% aq., initial); nonionic; 100% conc.
Toxicology:  Nontoxic; nonirritating to eyes and skin
Environmental:  Biodeg.
disintegrant, binder, and filler for tablets; solubilizer, dispersant for flavors and preservatives

**Properties:** Powd.; nonionic; 100% conc.

**Ryoto Sugar Ester S-170** [Mitsubishi-Kagaku Foods](http://www.mfc.co.jp/)

**Chem. Descr.:** Sucrose di, tristearate See Sucrose polyolesterate

**Uses:** Emulsifier, conditioner, softener, detergent for pharmaceuticals; solubilizer, stabilizer for fat-sol. vitamins and antibiotics; lubricant, disintegrant, binder, and filler for tablets

**Properties:** Powd.; odorless; tasteless; partly sol. in propylene glycol, glycerin, liq. paraffin, soybean and cottonseed oils; insol. in water; m.p. 51-61 C; decomp. pt. 260 C; HLB 1.0; nonionic; 100% conc.

**Toxicology:** Nontoxic; nonirritating to eyes and skin

**Environmental:** Biodeg.

**Ryoto Sugar Ester S-270** [Mitsubishi-Kagaku Foods](http://www.mfc.co.jp/)

**Chem. Descr.:** Sucrose di, tristearate See Sucrose polyolesterate

**Uses:** Emulsifier, conditioner, softener, detergent for pharmaceuticals; solubilizer, stabilizer for fat-sol. vitamins and antibiotics; lubricant, disintegrant, binder, and filler for tablets

**Properties:** Powd.; odorless; tasteless; partly sol. in propylene glycol, glycerin, liq. paraffin, soybean and cottonseed oils; insol. in water; m.p. 52-61 C; decomp. pt. 253 C; HLB 2.0; nonionic; 100% conc.

**Toxicology:** Nontoxic; nonirritating to eyes and skin

**Environmental:** Biodeg.

**Ryoto Sugar Ester S-370** [Mitsubishi-Kagaku Foods](http://www.mfc.co.jp/)

**Chem. Descr.:** Sucrose tristearate

**CAS:** 27923-63-3; EINECS/ELINCS 248-317-5

**Features:** Increases fluidity of raw materials and efficiency of filling in tableting machine; ultrafine version of S-370

**Properties:** Ultrafine powd.; odorless; tasteless; HLB 3; nonionic

**Toxicology:** Nontoxic; nonirritating to eyes and skin

**Environmental:** Biodeg.

**Ryoto Sugar Ester S-570** [Mitsubishi-Kagaku Foods](http://www.mfc.co.jp/)

**Chem. Descr.:** Sucrose distearate

**CAS:** 27195-16-0; EINECS/ELINCS 248-317-5

**Uses:** Emulsifier, conditioner, softener, detergent for pharmaceuticals; solubilizer, stabilizer for fat-sol. vitamins and antibiotics; lubricant, disintegrant, binder, and filler for tablets

**Properties:** Powd.; odorless; tasteless; partly sol. in propylene glycol, glycerin, liq. paraffin, soybean and cottonseed oils, water; m.p. 50-57 C; decomp. pt. 231 C; HLB 5.0; surf. tens. 38.1 dynes/cm (0.1% aq.); nonionic; 100% conc.

**Toxicology:** Nontoxic; nonirritating to eyes and skin

**Environmental:** Biodeg.
Trade Name Reference

Environmental: Biodeg.

Ryoto Sugar Ester S-970 [Mitsubishi-Kagaku Foods http://www.mfc.co.jp/]
Chem. Descrip.: Sucrose mono, distearate
See Sucrose distearate
CAS 27195-16-0; EINECS/ELINCS 248-317-5
Uses: Emulsifier, conditioner, softener, detergent for pharmaceuticals; solubilizer, stabilizer for fat-sol. vitamins and antibiotics; lubricant, disintegrant, binder, and filler for tablets
Properties: Powd.; odorless; tasteless; partly sol. in propylene glycol, glycerin, liq. paraffin, soybean and cottonseed oils, water; m.p. 49-56 C; decomp. pt. 234 C; HLB 9.0; surf. tens. 35.8 dynes/cm (0.1% aq.); nonionic; 100% conc.
Toxicology: Nontoxic; nonirritating to eyes and skin

Ryoto Sugar Ester S-1170 [Mitsubishi-Kagaku Foods http://www.mfc.co.jp/]
Chem. Descrip.: Sucrose stearate
CAS 25168-73-4; EINECS/ELINCS 246-705-9
Uses: Emulsifier, conditioner, detergent for pharmaceuticals; solubilizer, stabilizer for fat-sol. vitamins and antibiotics; lubricant, disintegrant, binder, and filler for tablets; solubilizer, dispersant for flavors and preservatives
Properties: Powd.; odorless; tasteless; partly sol. in propylene glycol, glycerin, liq. paraffin, soybean and cottonseed oils; m.p. 49-56 C; decomp. pt. 234 C; HLB 11; surf. tens. 34.7 dynes/cm (0.1% aq.); nonionic; 100% conc.
Toxicology: Nontoxic; nonirritating to eyes and skin

Ryoto Sugar Ester S-1570 [Mitsubishi-Kagaku Foods http://www.mfc.co.jp/]
Chem. Descrip.: Sucrose stearate
CAS 25168-73-4; EINECS/ELINCS 246-705-9
Uses: Emulsifier, conditioner, detergent for pharmaceuticals; solubilizer, stabilizer for fat-sol. vitamins and antibiotics; lubricant, disintegrant, binder, and filler for tablets; solubilizer, dispersant for flavors and preservatives
Properties: Powd.; odorless; tasteless; sol. in water; partly sol. in propylene glycol, glycerin, liq. paraffin, soybean and cottonseed oils; m.p. 49-55 C; decomp. pt. 234 C; HLB 15.0; surf. tens. 34.7 dynes/cm (0.1% aq.); Ross-Miles foam 11 mm (0.25% aq., initial); nonionic; 100% conc.
Toxicology: Nontoxic; nonirritating to eyes and skin

Chem. Descrip.: Sorbitan sesquioleate
CAS 8007-43-0; EINECS/ELINCS 232-360-1
Uses: Emulsifier
Properties: Yellowish-brn. liq.; HLB 3.7; surface tens. (0.1% sol'n) 59.2 mN/m @ 25 C; interfacial tens. (0.1% sol'n) 42.5 mN/m @ 25 C; nonionic; 100% conc.

S-49-H [Dai-ichi Kogyo Seiyaku http://www.dks-web.co.jp]
Chem. Descrip.: Sorbitan monooleate See Sorbitan oleate
EINECS/ELINCS 215-665-4
Uses: Emulsifier, dispersant
Properties: Yellowish-brn. liq.; HLB 4.3; nonionic; 100% conc.

Saboderm AB [Sabo SpA http://www.sabospa.it]
Chem. Descrip.: Alkyl benzoate See C12-15 alkyl benzoate
CAS 68411-27-8; EINECS/ELINCS 270-112-4
Uses: Coemulsifier, diluents, lubricant in ointments
Properties: Liq.
Saboderm AMD [Sabo SpA
http://www.sabospa.it]
Chem. Descrip.: POE 6 almond oil See Almond oil PEG-6 esters
CAS 124046-50-0
Uses: Coemulsifier, diluents, lubricant in ointments
Properties: Liq.

Saboderm CC [Sabo SpA
http://www.sabospa.it]
Chem. Descrip.: POE 6 caprylic capric glycerides
Uses: Coemulsifier, diluents, lubricant in ointments
Properties: Liq.

Saboderm CG [Sabo SpA
http://www.sabospa.it]
Chem. Descrip.: Coco triglycerides
Uses: Coemulsifier, diluents, lubricant in ointments
Properties: Liq.

Saboderm CSN [Sabo SpA
http://www.sabospa.it]
Chem. Descrip.: Cetyl stearyl isononanoate See Cetearyl isononanoate
CAS 84878-33-1; EINECS/ELINCS 284-424-3
Uses: Coemulsifier, diluents, lubricant in ointments
Properties: Liq.

Saboderm CSO [Sabo SpA
http://www.sabospa.it]
Chem. Descrip.: Cetyl stearyl octanoate See Cetearyl octanoate
CAS 59130-70-7; EINECS/ELINCS 261-620-7
Uses: Coemulsifier, diluents, lubricant in ointments
Properties: Liq.

Saboderm DBA [Sabo SpA
http://www.sabospa.it]
Chem. Descrip.: Dibutyl adipate
CAS 105-99-7; EINECS/ELINCS 203-350-4
Uses: Coemulsifier, diluents, lubricant in ointments
Properties: Liq.

Saboderm DOA [Sabo SpA
http://www.sabospa.it]
Chem. Descrip.: Dibutyl adipate
CAS 105-99-7; EINECS/ELINCS 203-350-4
Uses: Coemulsifier, diluents, lubricant in ointments
Properties: Liq./paste

Saboderm DOE [Sabo SpA
http://www.sabospa.it]
Chem. Descrip.: Dioctyl ether
CAS 629-82-3; EINECS/ELINCS 211-112-6
Uses: Coemulsifier, diluents, lubricant in ointments
Properties: Liq.

Saboderm EDL [Sabo SpA
http://www.sabospa.it]
Chem. Descrip.: Hexyldecanol and hexyldecyl laurate
Uses: Coemulsifier, diluents, lubricant in ointments
Properties: Liq.

Saboderm EO [Sabo SpA
http://www.sabospa.it]
Chem. Descrip.: Octyl oleate
Uses: Coemulsifier, diluents, lubricant in ointments
Properties: Liq.

Saboderm G 20 [Sabo SpA
http://www.sabospa.it]
Chem. Descrip.: Octyldodecanol
CAS 5333-42-6; EINECS/ELINCS 226-242-9
Uses: Coemulsifier, diluents, lubricant in ointments
Properties: Liq.

Saboderm GS [Sabo SpA
http://www.sabospa.it]
Chem. Descrip.: Glycerl triisostearate See Triisostearin
CAS 26942-95-0; EINECS/ELINCS 248-122-5
Uses: Coemulsifier, diluents, lubricant in ointments
Properties: Liq.

Saboderm HE [Sabo SpA
http://www.sabospa.it]
Chem. Descrip.: POE 7 glycerl cocoate See PEG-7 glyceryl cocoate
Uses: Coemulsifier, diluents, lubricant in ointments
Properties: Liq.
<table>
<thead>
<tr>
<th>Trade Name Reference</th>
<th>CAS/ELINCS</th>
<th>Uses:</th>
<th>Properties:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saboderm IBS <a href="http://www.sabospa.it">Sabo SpA</a></td>
<td></td>
<td>Coemulsifier, diluents, lubricant in ointments</td>
<td>Liq.</td>
</tr>
<tr>
<td>Saboderm IS <a href="http://www.sabospa.it">Sabo SpA</a></td>
<td>41669-30-1</td>
<td>Coemulsifier, diluents, lubricant in ointments</td>
<td>Liq./paste</td>
</tr>
<tr>
<td>Saboderm ISN <a href="http://www.sabospa.it">Sabo SpA</a></td>
<td>261-665-2</td>
<td>Coemulsifier, diluents, lubricant in ointments</td>
<td>Liq./paste</td>
</tr>
<tr>
<td>Saboderm MLC <a href="http://www.sabospa.it">Sabo SpA</a></td>
<td>215-787-9</td>
<td>Coemulsifier, diluents, lubricant in ointments</td>
<td>Flakes</td>
</tr>
<tr>
<td>Saboderm MM <a href="http://www.sabospa.it">Sabo SpA</a></td>
<td>66105-29-1</td>
<td>Coemulsifier, diluents, lubricant in ointments</td>
<td>Liq.</td>
</tr>
<tr>
<td>Saboderm ODM <a href="http://www.sabospa.it">Sabo SpA</a></td>
<td></td>
<td>Coemulsifier, diluents, lubricant in ointments</td>
<td>Liq./paste</td>
</tr>
<tr>
<td>Saboderm OO <a href="http://www.sabospa.it">Sabo SpA</a></td>
<td></td>
<td>Coemulsifier, diluents, lubricant in ointments</td>
<td>Liq.</td>
</tr>
<tr>
<td>Saboderm OP <a href="http://www.sabospa.it">Sabo SpA</a></td>
<td>29806-73-3</td>
<td>Coemulsifier, diluents, lubricant in ointments</td>
<td>Liq.</td>
</tr>
<tr>
<td>Saboderm OS <a href="http://www.sabospa.it">Sabo SpA</a></td>
<td>249-862-1</td>
<td>Coemulsifier, diluents, lubricant in ointments</td>
<td>Liq.</td>
</tr>
<tr>
<td>Saboderm PDC <a href="http://www.sabospa.it">Sabo SpA</a></td>
<td>9005-02-1</td>
<td>Coemulsifier, diluents, lubricant in ointments</td>
<td>Liq.</td>
</tr>
<tr>
<td>Saboderm PGDD <a href="http://www.sabospa.it">Sabo SpA</a></td>
<td>271-516-3</td>
<td>Coemulsifier, diluents, lubricant in ointments</td>
<td>Liq.</td>
</tr>
<tr>
<td>Saboderm SHO <a href="http://www.sabospa.it">Sabo SpA</a></td>
<td>67784-88-7</td>
<td>Coemulsifier, diluents, lubricant in ointments</td>
<td>Liq.</td>
</tr>
<tr>
<td>Saboderm TCC <a href="http://www.sabospa.it">Sabo SpA</a></td>
<td></td>
<td>Caprylic-capric triglyceride; See Caprylic/capric triglyceride</td>
<td>Liq.</td>
</tr>
</tbody>
</table>

**Chemical Description:**
- Isobutyl stearate
- Isostearyl isostearate
- Isononyl isononanoate
- Isotridecyl laurate
- Myristyl lactate
- Myristyl myristate
- Octyldodecyl myristate
- Octyl octanoate

**Properties:**
- Liq.
- Flakes
- Liq./paste
**Trade Name Reference**

**Sabolen MLE** [Sabo SpA](http://www.sabospa.it)
Chem. Descr.: Polysorbate-20  See Polysorbate 20
CAS 9005-64-5
Uses: Emulsifier, solubilizer for pharmaceuticals
Properties: Liq.; HLB 16.7; nonionic; 100% conc.

**Sabolen MOE** [Sabo SpA](http://www.sabospa.it)
Chem. Descr.: Polysorbate-80  See Polysorbate 80
CAS 9005-65-6
Uses: Emulsifier, solubilizer for pharmaceuticals
Properties: Liq.; HLB 15.0; nonionic; 100% conc.

**Sabolen MPE** [Sabo SpA](http://www.sabospa.it)
Chem. Descr.: Polysorbate-40  See Polysorbate 40
CAS 9005-66-7
Uses: Emulsifier, solubilizer for pharmaceuticals
Properties: Liq.; HLB 15.7; nonionic; 100% conc.

**Sabolen MSE** [Sabo SpA](http://www.sabospa.it)
Chem. Descr.: Polysorbate-60  See Polysorbate 60
CAS 9005-67-8
Uses: Emulsifier, solubilizer for pharmaceuticals
Properties: Liq./paste; HLB 14.8; nonionic; 100% conc.

**Sabolen TOE** [Sabo SpA](http://www.sabospa.it)
Chem. Descr.: Polysorbate-85  See Polysorbate 85
CAS 9005-70-3
Uses: Emulsifier, solubilizer for pharmaceuticals
Properties: Liq.; HLB 11.0; nonionic; 100% conc.

**Sabolen TSE** [Sabo SpA](http://www.sabospa.it)
Chem. Descr.: Polysorbate-65  See Polysorbate 65
CAS 9005-71-4
Uses: Emulsifier, solubilizer for pharmaceuticals
Properties: Solid; HLB 10.5; nonionic; 100% conc.

**Sabopal AE 10** [Sabo SpA](http://www.sabospa.it)
Chem. Descr.: Laureth-10
CAS 9002-92-0
Uses: Emulsifier, solubilizer for pharmaceuticals
Properties: Liq./paste; HLB 14.0; nonionic; 100% conc.

**Sabopal AE 23** [Sabo SpA](http://www.sabospa.it)
Chem. Descr.: Laureth-23
CAS 9002-92-0
Uses: Emulsifier, solubilizer for pharmaceuticals
Properties: Solid; HLB 16.9; nonionic; 100% conc.

**Sabopal APG 7** [Sabo SpA](http://www.sabospa.it)
Chem. Descr.: PEG-8 laurate
CAS 9004-81-3; EINECS/ELINCS 253-458-0
Uses: Emulsifier, solubilizer for pharmaceuticals
Properties: Liq.; HLB 12.0; anionic; 100% conc.

**Sabopal EL 25** [Sabo SpA](http://www.sabospa.it)
Chem. Descr.: PEG-25 castor oil
CAS 61791-12-6
Uses: Solubilizer for essential oils, vitamins, and pharmaceuticals; emulsifier
Properties: Liq.; HLB 10.8; nonionic; 100% conc.

**Sabopal EL 30** [Sabo SpA](http://www.sabospa.it)
Chem. Descr.: PEG-30 castor oil
CAS 61791-12-6
Uses: Solubilizer for essential oils, vitamins, and pharmaceuticals; emulsifier
Properties: Liq.; HLB 12.5; nonionic; 100% conc.

**Sabopal EL 40** [Sabo SpA](http://www.sabospa.it)
Chem. Descr.: PEG-40 castor oil
CAS 61791-12-6
Uses: Solubilizer for essential oils, vitamins, and pharmaceuticals; emulsifier
Properties: Liq.; HLB 14.4; nonionic; 100% conc.

**Sabopal ELH 25** [Sabo SpA](http://www.sabospa.it)
Chem. Descr.: PEG-25 hydrogenated castor oil
CAS 61788-85-0
Uses: Solubilizer for pharmaceuticals
Properties: Liq.; odorless; HLB 10.8; nonionic; 100% conc.
Trade Name Reference

Sabopal ELH 40 [Sabo SpA http://www.sabospa.it]
Chem. Descrip.: PEG-40 hydrogenated castor oil
CAS 61788-85-0
Uses: Solubilizer for pharmaceuticals
Properties: Liq.; odorless; HLB 14.0; nonionic; 100% conc.

Sabopal SE 6 [Sabo SpA http://www.sabospa.it]
Chem. Descrip.: PEG-5 stearate
CAS 9004-99-3
Uses: Emulsifier for pharmaceuticals
Properties: Paste; HLB 9.6; nonionic; 100% conc.

Sabopal SE 8 [Sabo SpA http://www.sabospa.it]
Chem. Descrip.: PEG-8 stearate
CAS 9004-99-3
Uses: Emulsifier for pharmaceuticals
Properties: Paste/solid; HLB 11.1; nonionic; 100% conc.

Sabopal SE 20 [Sabo SpA http://www.sabospa.it]
Chem. Descrip.: PEG-20 stearate
CAS 9004-99-3
Uses: Emulsifier for pharmaceuticals
Properties: Solid; HLB 14.0; nonionic; 100% conc.

Sabopal SE 40 [Sabo SpA http://www.sabospa.it]
Chem. Descrip.: PEG-40 stearate
CAS 9004-99-3
Uses: Emulsifier for pharmaceuticals
Properties: Solid/wax; HLB 15.5; nonionic; 100% conc.

Sabopal SE 100 [Sabo SpA http://www.sabospa.it]
Chem. Descrip.: PEG-100 stearate
CAS 9004-99-3
Uses: Emulsifier, thickener for pharmaceuticals
Properties: Flakes; HLB 18.8; nonionic; 100% conc.

Sabopal TA 25 [Sabo SpA http://www.sabospa.it]
Chem. Descrip.: Ceteareth-25
CAS 68439-49-6
Uses: Emulsifier for pharmaceuticals
Properties: Flakes; HLB 16.5; nonionic; 100% conc.

Sabosal TA 25 [Sabo SpA http://www.sabospa.it]
Chem. Descrip.: Ceteareth-25
CAS 68439-49-6
Uses: Emulsifier for pharmaceuticals
Properties: Flakes; HLB 16.5; nonionic; 100% conc.

Sabosal TA 25 [Sabo SpA http://www.sabospa.it]
Chem. Descrip.: Ceteareth-25
CAS 68439-49-6
Uses: Emulsifier for pharmaceuticals
Properties: Flakes; HLB 16.5; nonionic; 100% conc.

Sabosal TA 25 [Sabo SpA http://www.sabospa.it]
Chem. Descrip.: Ceteareth-25
CAS 68439-49-6
Uses: Emulsifier for pharmaceuticals
Properties: Flakes; HLB 16.5; nonionic; 100% conc.
Trade Name Reference

Sabosorb MSE/4 [Sabo SpA http://www.sabospa.it]  
Chem. Descr.: POE 4 sorbitan stearate See Polysorbate 61  
CAS 9005-67-8 (generic)  
Uses: Emulsifier; solubilizer for vitamins, active ingreds.  
Properties: Solid; HLB 9.6

Sabosorb SQ [Sabo SpA http://www.sabospa.it]  
Chem. Descr.: Sorbitan sesquioleate  
CAS 8007-43-0; EINECS/ELINCS 232-360-1  
Uses: Emulsifier for pharmaceuticals  
Properties: Liq.; HLB 3.7

Sabosorb TOE [Sabo SpA http://www.sabospa.it]  
Chem. Descr.: POE 20 sorbitan trioleate See Polysorbate 85  
CAS 9005-70-3  
Uses: Emulsifier; solubilizer for vitamins, active ingreds.  
Properties: Liq./paste; HLB 11.0

Sabosorb TS [Sabo SpA http://www.sabospa.it]  
Chem. Descr.: Sorbitan tristearate  
CAS 26256-58-0; EINECS/ELINCS 247-569-3  
Uses: Emulsifier for pharmaceuticals  
Properties: Flakes; HLB 2.1

Sabosorb TSE [Sabo SpA http://www.sabospa.it]  
Chem. Descr.: POE 20 sorbitan tristearate See Polysorbate 65  
CAS 9005-71-4  
Uses: Emulsifier; solubilizer for vitamins, active ingreds., perfumes and flavors; secondary surfactant for very mild detergents  
Properties: Waxy; HLB 10.5

Sabowax AO [Sabo SpA http://www.sabospa.it]  
Chem. Descr.: Cetearyl alcohol and POE fatty alcohols  
Uses: Coemulsifier, diluents, lubricant in ointments  
Properties: Flakes

Use Level: 3-5%

Sabowax BWS [Sabo SpA http://www.sabospa.it]  
Chem. Descr.: Cetyl palmitate, paraffin and glyceryl stearate  
Uses: Coemulsifier, diluents, lubricant in ointments  
Properties: Flakes

Sabowax CP [Sabo SpA http://www.sabospa.it]  
Chem. Descr.: Cetyl palmitate  
CAS 540-10-3; EINECS/ELINCS 208-736-6  
Uses: Coemulsifier, diluents, lubricant in ointments  
Properties: Flakes

Sabowax CR [Sabo SpA http://www.sabospa.it]  
Chem. Descr.: Cetyl ricinoleate  
CAS 10401-55-5; EINECS/ELINCS 233-864-4  
Uses: Coemulsifier, diluents, lubricant in ointments  
Properties: Solid/paste

Sabowax EGDS [Sabo SpA http://www.sabospa.it]  
Chem. Descr.: Glycol distearate  
EINECS/ELINCS 211-014-3  
Uses: Coemulsifier, diluents, lubricant in ointments  
Properties: Flakes

Sabowax EGMS [Sabo SpA http://www.sabospa.it]  
Chem. Descr.: Glycol stearate  
Uses: Coemulsifier, diluents, lubricant in ointments  
Properties: Flakes

Sabowax GF [Sabo SpA http://www.sabospa.it]  
Chem. Descr.: Glycol stearate, cetyl palmitate, cetaryl alcohol, hydrogenated coconut oil  
Uses: Coemulsifier, diluents, lubricant in ointments  
Properties: Flakes

Sabowax GMS [Sabo SpA http://www.sabospa.it]  
Chem. Descr.: Glyceryl stearate  
Uses: Coemulsifier, diluents, lubricant in ointments  
Properties: Flakes
Trade Name Reference

Sabowax HCO [Sabo SpA http://www.sabospa.it]
Chem. Descrip.: Hydrogenated coconut oil
CAS 84836-98-6; EINECS/ELINCS 284-283-8
Uses: Coemulsifier, diluents, lubricant in ointments
Properties: Solid

Sabowax HRP [Sabo SpA http://www.sabospa.it]
Chem. Descrip.: Hydrogenated castor oil
CAS 8001-78-3; EINECS/ELINCS 232-292-2
Uses: Coemulsifier, diluents, lubricant in ointments
Properties: Powd.

Sabowax HRP/T [Sabo SpA http://www.sabospa.it]
Chem. Descrip.: Hydrogenated castor oil
CAS 8001-78-3; EINECS/ELINCS 232-292-2
Uses: Coemulsifier, diluents, lubricant in ointments
Properties: Talc

Chem. Descrip.: Ethyl linolate
CAS 544-35-4; EINECS/ELINCS 208-868-4
Uses: Vitamin deriv. for pharmaceuticals
Regulatory: EU, USA permitted
Properties: Yel. liq.; oil-sol.
Use Level: 0.5-3%
Storage: > 1 yr. shelf life if stored @ R.T. and protected from It.

Sag 471 [GE Silicones http://www.gesilicones.com]
Chem. Descrip.: Polyalkylene oxide (> 80%), silica filled polydimethylsiloxane (< 15%), polyalkylknoxye modified polydimethylsiloxane (< 5%) and silica (< 5%) See Allyloxypolyethyleneglycol methyl ether; Siloxanes and silicones, dimethyl, reaction prod. with silica
CAS 25322-69-4; 67762-90-7; 67762-87-2; 7631-86-9
Uses: Antifoam for vaccine mfg., antibiotic fermentations involving Actinomycetales organisms
Features: Autoclavable; sterilization stability
Regulatory: DOT nonregulated; CERCLA nonreportable; SARA nonreportable; MA Right-to-Know reportable; PA Right-to-Know reportable; NJ Right-to-Know reportable; Canada DSL; Europe EINECS; Australia AICS; Korea ECL
Properties: Visc. translucent wh.; mild polyether odor; insol. in water; water-disp.; sp.gr. 0.993; visc. 2500 cP; vapor pressure < 1.33 hPa; flash pt. 160 C; evaporation rate < 1; 100% act.
Precaution: Use protective gloves, glasses; prevent runoff
Hazardous Decomp. Prods.: COx, SiOx
HMIS: Health 0, Flammability 1, Reactivity 0
Storage: 12 mos. shelf life; keep container tightly sealed when not in use; store @ ambient temps.; prevent prolonged exposure to extreme heat or freezing, which may cause prod. separation; if separation occurs, thaw if frozen, stir contents

Sag 710 [GE Silicones http://www.gesilicones.com]
Chem. Descrip.: Dimethicone and silica
Uses: Defoamer for cosmetics (balms, lotions, moisturizers, ointments, shampoos, sunscreens)
Regulatory: FDA 21CFR §173.340, 175.105
Properties: Disp. in water; 10% act.

Sag 720 [GE Silicones http://www.gesilicones.com]
Chem. Descrip.: Silicone emulsion
Uses: Defoamer for cosmetics (balms, lotions, moisturizers, ointments, shampoos, sunscreens)
Regulatory: DOT nonregulated; FDA 21CFR §173.340, 175.105; USDA approved; CERCLA nonreportable; SARA nonreportable; MA Right-to-Know reportable (hydrogen chloride); NJ Right-to-Know reportable; Canada DSL; Australia AICS; Japan ENCS; Korea ECL; Philippines PICCS
Properties: Opaque wh. liq.; mild odor; sol. in water; sp.gr. 1.01; vapor dens > 1; vapor pressure < 26.6 hPa; m.p. 0 C; b.p. > 100 C; evaporation rate < 1; 20% act.
Toxicology: TSCA listed
Precaution: Use protective gloves and glasses
Hazardous Decomp. Prods.: COx, oxides of silicon
HMIS: Health 0, Flammability 0, Reactivity 0

Sag 730 [GE Silicones http://www.gesilicones.com]
Chem. Descrip.: Silica filled polydimethylsiloxane (< 35%) and proprietary additives (< 10%) in water
Uses: Defoamer for cosmetics (balms, lotions, moisturizers, ointments,
Shampoos, sunscreens)

Regulatory:
- DOT nonregulated; FDA 21 CFR §173.340, 175.105, 176.170, 176.180, 177.1640(b); BATF 27 CFR §240.1051; USDA approved; CERCLA nonreportable; SARA nonreportable; MA Right-to-Know reportable (hydrogen chloride); PA Right-to-Know nonreportable; NJ Right-to-Know reportable; Canada DSL; Australia AICS; Japan ENCS; Korea ECL; Philippines PICCS; Europe EINECS

Properties:
- Opaque wh. liq.; mild odor; disp. in water; sp.gr. 1.007; vapor dens > 1; vapor pressure < 26.6 hPa; m.p. 0 C; b.p. > 100 C; evaporation rate < 1; 30% act.

Toxicology:
- TSCA listed

Precaution:
- Use protective gloves and glasses

Hazardous Decomp. Prods.:
- COx, oxides of silicon

HMIS:
- Health 0, Flammability 0, Reactivity 0

Sag 5693 [GE Silicones http://www.gesilicones.com]

Uses:
- Antifoam in pharmaceuticals

Features:
- Food grade; combines foam control with low oxygen suppression; autoclavable

Regulatory:
- FDA 21 CFR §173.340

Properties:
- Sol. in lard, soybean, and vegetable oils; disp. in water

SAIB-SG [Eastman http://www.eastman.com]

Chem. Descrip.: Sucrose acetate isobutyrate, special grade

CAS 126-13-6; EINECS/ELINCS 204-771-6

Uses:
- Stabilizer for o/w emulsions in pharmaceutical syrups and suspensions; clouding agent in clear liqs.; modifying extender for film-forming polymers (e.g., cellulose esters) in solid oral dosage forms; fragrance fixing agent

Features:
- Good thermal, UV, and hydrolytic stability

Regulatory:
- Kosher

Properties:
- Gardner < 1 visc. liq., low odor; sol. in most alcohols, veg. oils, flavoring oils, animal fats, veg.-based waxes; m.w. 832-856; sp.gr. 1.146; dens. 9.55 lb/gal; visc. 100,000 cP (30 C); dec. pt. 288 C; flash pt. (COC) 260 C; ref. index 1.454 (20 C)

Storage:
- Warm drum contents to 25-40 C for ease of handling

Sammi Gelatine [Sammi Ind. Co. Ltd http://www.ec21.net/co/g/gelatin/]

Chem. Descrip.: Gelatin KP, USP/NF, JP, BP

CAS 9000-70-8; EINECS/ELINCS 232-554-6

Uses:
- Gellant, thickener, film-former, protective colloid, adhesive agent, stabilizer, emulsifier, foaming agent in pharmaceuticals (hard/soft capsules, coatings, tablets)

Properties:
- 12 mesh; visc. 23-46 mps; pH 5.0-5.5; < 12% loss on drying


Chem. Descrip.: Microcrystalline cellulose

CAS 9004-34-6

Uses:
- Binder, filler, disintegrant, flow aid for direct compression tabletting; binder, wicking agent, absorbent in wet granulation; flow aid in capsules

Features:
- Inert; free from org. and inorg. contaminants; stable

Regulatory:
- USP/NF compliance

Properties:
- Wh. to off-wh. free-flowing powd.; 90 µ particle size; 1% max. 60 mesh; 55% max. 200 mesh; odorless; tasteless; insol. in water, dil. acids, most org. solvs.; Pract. insol. in NaOH sol'n.; pH 5-7.5; 97-102% assay (cellulose); ≤ 6% loss on drying

Storage:
- No specific requirement for storage; no expiration date; may absorb moisture if exposed to > 65% r.h.

Sancel-102 [NB Entrepreneurs http://www.nbent.com]

Chem. Descrip.: Microcrystalline cellulose

CAS 9004-34-6

Uses:
- Binder, filler, disintegrant, flow aid for direct compression tabletting; binder, wicking agent, absorbent in wet granulation; flow aid in capsules

Features:
- Inert; free from org. and inorg. contaminants; stable

Regulatory:
- USP/NF compliance

Properties:
- Wh. to off-wh. free-flowing powd.; 50 µ particle size; 1% max. 60 mesh; 30% max. 200 mesh; odorless; tasteless; insol. in water, dil. acids, most org. solvs.; Pract. insol. in NaOH sol'n.; pH 5-7; 97-102% assay (cellulose); ≤ 6% loss on drying

Storage:
- No specific requirement for storage; no expiration date; may absorb moisture if exposed to > 65% r.h.

Sancel-112 [NB Entrepreneurs http://www.nbent.com]

Chem. Descrip.: Microcrystalline cellulose

CAS 9004-34-6

Uses:
- Binder, filler, disintegrant, flow aid for
Trade Name Reference

direct compression tableting; binder, wicking agent, absorbent in wet granulation; flow aid in capsules

Features: Low moisture grade; inert; free from org. and inorg. contaminants; stable

Regulatory: USP/NF compliance

Properties: Wh. to off-wh. free-flowing powd.; 60 mesh, NMT 8%; 200 mesh, NMT 45%; odorless; tasteless; insol. in water, dil. acids, most org. solvs.; pract. insol. in NaOH sol'n.; bulk dens. 0.28 - 0.33 g/cc; pH 5-7; 97-102% assay (cellulose); ≤ 3% loss on drying

Storage: No specific requirement for storage; no expiration date; may absorb moisture if exposed to > 65% r.h.

Sandopan® DTC-Acid [Clariant
http://www.clariant.com;
http://www.clariant-northamerica.com]

Chem. Descrip.: Trideceth-7 carboxylic acid
CAS 56388-96-6

Uses: Detergent, wetting agent for medicated liq. and bar soaps

Properties: Cl. liq.; sol. in oils, solvs.; HLB 13.0 (@ pH 2.5); pH 2.5 (10%); surf. tens. 31.6 dynes/cm (0.01%); Ross-Miles foam 145 mm (0.1%, 40 C, initial); anionic; 90% conc.

Sanisol C [Kao Corp. SA]

Chem. Descrip.: Benzalkonium chloride
CAS 8001-54-5

Uses: Disinfectant, sanitizer for pharmaceuticals

Regulatory: JP compliance

Properties: Cl. liq.; water-sol.; cationic; 50% act.

Sarcosinate LN [Nikko Chems. Co. Ltd
http://www.nikkol.co.jp/index.html]

Chem. Descrip.: Sodium lauroyl sarcosinate
CAS 137-16-6; EINECS/ELINCS 205-281-5

Uses: Cleanser, foaming agent, penetrant, emulsifier, antistat, bactericide for dentifrices

Regulatory: JSCI listed

Properties: Wh. cryst. powd.; anionic; 93% min. conc.

Toxicology: Mild to skin and hair; TSCA listed

Environmental: Exc. biodeg.

Sarkosyl® O [Ciba Spec. Chems. GmbH]

Chem. Descrip.: Oleoyl sarcosine
CAS 110-25-8; EINECS/ELINCS 203-749-3

Uses: Detergent, corrosion inhibitor, foam booster/stabilizer, wetting agent, lubricant, emulsifier for dentifrices, pharmaceuticals
Trade Name Reference

Properties: Liq.; m.w. 340-360; sol. in org. solvs.; insol. in water; sp.gr. 0.948; 94% min. purity

Satiagel™ U Series [Cargill Texturizing Solutions
http://www.cargilltexturizing.com]
Chem. Descrip.: Carrageenan See Carrageenan (Chondrus crispus)
CAS 9000-07-1; EINECS/ELINCS 232-524-2
Uses: Excipient, dispersant, act. ingred. in pharmaceuticals

Satialgine™ H8 [J. Rettenmaier & Söhne
http://www.jrs.de]
Chem. Descrip.: Alginic acid NF/FCC
CAS 9005-32-7; EINECS/ELINCS 232-680-1
Uses: Disintegrant for direct compression or wet or dry granulation for pharmaceutical tablets; stabilizer, visc. builder for sol. and disp. tablets and granules
Features: Rapid swelling in aq. media; can absorb 200-300 times its own wt.
Regulatory: NF/FCC compliance
Properties: Wh. to ylsh. wh. fibrous powd.; 75% max. -325 mesh; acid no. ≥ 230; pH 1.5-3.5 (3% aq.)
Use Level: 1-5% (tablets)

Satialgine™ UH8 USP [JRS Pharma
http://www.jrshallpharma.com]
Chem. Descrip.: Alginic acid NF/FCC
CAS 9005-32-7; EINECS/ELINCS 232-680-1
Uses: Excipient, dispersant, act. ingred. in pharmaceuticals
Features: Hydrophilic; rapid swelling in aqueous medium
Properties: Wh. to ylsh. wh. fibrous powder; pH 1.5-3.5

Satin Sweet® 55% Maltose Corn Syrup
[Cargill Foods
http://www.cargillfoods.com]
Chem. Descrip.: High maltose (57%) corn syrup
Chem. Analysis: Moisture 18-20%; sulfated ash 0.05% max.; sulfur dioxide 2 ppm max.
CAS 8029-43-4; EINECS/ELINCS 232-436-4
Uses: Sweetener for pharmaceuticals
Features: Near absence of sodium and sulfur dioxide
Regulatory: GRAS 21CFR §184.1865
Properties: Cl. liq.; char. odor; sweet, bland taste; sp.gr. 1.4174 (100/60 F); dens. 11.82 lb/gal (100 F); visc. 25,500 cps (80 F); ref. index 1.4929 (45 C); pH 4.3 (1:1); 81% total solids

Satin Sweet® 65% Maltose Corn Syrup
[Cargill Foods
http://www.cargillfoods.com]
Chem. Descrip.: High maltose (65%) corn syrup
Chem. Analysis: Moisture 18-20%; sulfated ash 0.05% max.; sulfur dioxide 2 ppm max.
CAS 8029-43-4; EINECS/ELINCS 232-436-4
Uses: Sweetener for pharmaceuticals
Features: Near absence of sodium and sulfur dioxide
Regulatory: GRAS 21CFR §184.1865
Properties: Cl. liq.; char. odor; sweet, bland taste; sp.gr. 1.4169 (100/60 F); dens. 11.81 lb/gal (100 F); visc. 25,500 cps (80 F); ref. index 1.4927 (45 C); pH 4.0 (1:1); 81% total solids

Satin Sweet® 70% Maltose Corn Syrup
[Cargill Foods
http://www.cargillfoods.com]
Chem. Descrip.: High maltose (70%) corn syrup
Chem. Analysis: Moisture 18-20%; sulfated ash 0.05% max.; sulfur dioxide 2 ppm max.
CAS 8029-43-4; EINECS/ELINCS 232-436-4
Uses: Sweetener for pharmaceuticals
Features: Near absence of sodium and sulfur dioxide
Regulatory: GRAS 21CFR §184.1865
Properties: Cl. liq.; char. odor; sweet, bland taste; sp.gr. 1.4169 (100/60 F); dens. 11.81 lb/gal (100 F); visc. 25,500 cps (80 F); ref. index 1.4927 (45 C); pH 4.0 (1:1); 81% total solids

SB-30 [Huber Engineered Materials
http://www.hubermaterials.com]
Chem. Descrip.: Alumina trihydrate See Aluminum hydroxide
Chem. Analysis: Al₂O₃ (64.9%)
CAS 21645-51-2; EINECS/ELINCS 244-492-7
Uses: Filler in pharmaceuticals
Properties: Off-wh. unground particulate; 50 µ median particle diam.; 10% on 100 mesh, 95% on 325 mesh; sp.gr. 2.42; bulk dens. 1.2 g/cc (loose); surf. area 0.1 m²/g; brightness (TAPPI) 80; ref. index 1.57; hardness (Mohs) 2.5-3.5

SBP 40/65 LNH [Shell Netherlands]
Chem. Descrip.: Naphtha (petroleum), hydrotreated light, n-hexane (< 3%) See Hexane; Naphtha, hydrotreated light
UN 3295
Uses: Extraction solvent for medicinal purposes (skin cleaning)
Trade Name Reference

Scheremol GTO [Noveon
http://www.carbopol.com;
http://www.noveoncoatings.com; Chesham
Chems. Ltd
http://www.cheshamchemicals.co.uk]
Chem. Descrip.: Trioctanoin
CAS 7360-38-5; EINECS/ELINCS 230-896-0
Uses: Emollient, moisturizer in topical
pharmaceuticals
Features: Smooth applic. and moisture retention
Regulatory: EEC and Japan approved
Properties: Colorless cl. liq.; sol. in min. oil,
vegetable oil, ethanol, dimethicone, and
cyclomethicone; insol. in water and PG; m.w.
470.3; visc. 40 cps; f.p. -10 C; acid no. 2 max.;
iodine no. nil; sapon. no. 340-360

Scheremol ICS [Noveon
http://www.carbopol.com;
http://www.noveoncoatings.com; Chesham
Chems. Ltd
http://www.cheshamchemicals.co.uk]
Chem. Descrip.: Isooctyl stearate
CAS 25339-09-7; EINECS/ELINCS 246-868-6
Uses: Emollient in creams, lotions, topical
pharmaceuticals
Features: Nongreasy; imparts elegant feel;
remains liq. even @ low temps.
Properties: Straw-colored cl. liq., sl. typ. odor;
sol. in hydrophobic solvs.; insol. in water; m.w.
494; sp.gr. 0.850; dens. 7.1 lb/gal; f.p. -5 C;
acid no. 2 max.; iodine no. nil; sapon. no. 105-
120; flash pt. > 180 C

Scheremol IDO [Noveon
http://www.carbopol.com;
http://www.noveoncoatings.com; Chesham
Chems. Ltd
http://www.cheshamchemicals.co.uk]
Chem. Descrip.: Isodecyl oleate
CAS 59231-34-4; EINECS/ELINCS 261-673-6
Uses: Emollient, lubricant, penetrant, pigment
dispersant for topical pharmaceuticals
Properties: Cl. liq.; f.p. 10 C; acid no. 5 max.;
iodine no. 65 max.; sapon. no. 130-140

Scheremol MM [Noveon
http://www.carbopol.com;
http://www.noveoncoatings.com; Chesham
Chems. Ltd
http://www.cheshamchemicals.co.uk]
Chem. Descrip.: Myristyl myristate
CAS 3234-85-3; EINECS/ELINCS 221-787-9
Uses: Emollient, visc. builder, substantivity
agent for topical pharmaceuticals
Features: Soft, waxy; melts near body temp.;
velvety feel on skin
Regulatory: CERCAL, RCRA nonreportable
Properties: Wh. to pale yel. waxy solid; mild char
odor; sol. in hydrophobic solvs.; m.w. 424;
sp.gr. 0.839 (45 C); dens. 7.0 lb/gal (45 C);
vapor pressure < 0.02 mm Hg; vapor dens. >
1; evaporation rate < 1; m.p. 36-40 C; acid no.
2.0 max.; iodine no. nil; sapon. no. 120-135;
flash pt. (OC) > 170 C
Toxicology: May cause eye irritation; repeated,
prolonged skin contact may cause irritation;
ing. may cause irritation; TSCA listed
Environmental: Do not flush product in public
sewer, water systems, surface waters
Precaution: Wear eye protection, protective
Trade Name Reference

gloves; spills are slippery; incompat. with strong oxidizers

Hazardous Decomp. Prods.: CO, CO₂

NFPA: Health 2, Flammability 1, Reactivity 0

Storage: Store in cool, dry, well-ventilated area; protect from freezing, overheating

Schercemol MP [Noveon

http://www.carbopol.com;
http://www.noveoncoatings.com; Chesham
Chems. Ltd

http://www.cheshamchemicals.co.uk]

Chem. Descrip.: Myristyl propionate
CAS 6221-95-0; EINECS/ELINCS 226-300-9

Uses: Emollient for topical pharmaceuticals, antiperspirants, creams, lotions

Properties: Straw-colored cl. liq.; acid no. 2 max.; iodine no. nil; sapon. no. 190-210

Schercemol NGDC [Noveon

http://www.carbopol.com;
http://www.noveoncoatings.com; Chesham
Chems. Ltd

http://www.cheshamchemicals.co.uk]

Chem. Descrip.: Neopentyl glycol dicaprate
CAS 27841-06-1; EINECS/ELINCS 248-688-3

Uses: Solvent in topical pharmaceuticals

Properties: Cl. liq.; f.p. 2 C; acid no. 3 max.; iodine no. nil; sapon. no. 255-270

Schercemol NGDO [Noveon

http://www.carbopol.com;
http://www.noveoncoatings.com; Chesham
Chems. Ltd

http://www.cheshamchemicals.co.uk]

Chem. Descrip.: Neopentyl glycol dioctanoate
CAS 28510-23-8; EINECS/ELINCS 249-060-1

Uses: Emollient, solvent for topical pharmaceuticals

Features: Low freeze pt.

Properties: Cl. liq.; f.p. < -12 C; acid no. 3 max.; iodine no. nil; sapon. no. 290-310

Schercemol OHS [Noveon

http://www.carbopol.com;
http://www.noveoncoatings.com; Chesham
Chems. Ltd

http://www.cheshamchemicals.co.uk]

Chem. Descrip.: Octyl hydroxystearate
CAS 29383-26-4; EINECS/ELINCS 249-793-7

Uses: Emollient, slip agent, lubricant, and antitackifier in topical pharmaceuticals, skin care prods.

Properties: Cl. liq.; f.p. 20 C; acid no. 1 max.; iodine no. 3 max.; sapon. no. 140-160

Schercemol OLO [Noveon

http://www.carbopol.com;
http://www.noveoncoatings.com; Chesham
Chems. Ltd

http://www.cheshamchemicals.co.uk]

Chem. Descrip.: Oleyl oleate
CAS 3687-45-4; EINECS/ELINCS 222-980-4

Uses: Emollient, softener, gloss aid, lubricant for topical pharmaceuticals, skin care prods.

Features: Nonoily

Properties: Amber cl. liq., mild oleic odor; sol. in org. solvs., insol. in water; m.w. 332; sp.gr. 0.860±0.01; dens. 7.2 lb/gal; acid no. 2 max.; iodine no. 95 max.; sapon. no. 290-310

Schercemol OPG [Noveon

http://www.carbopol.com;
http://www.noveoncoatings.com; Chesham
Chems. Ltd

http://www.cheshamchemicals.co.uk]

Chem. Descrip.: Octyl pelargonate
CAS 59587-44-9; EINECS/ELINCS 261-819-9

Uses: Penetrant, emollient for topical pharmaceuticals, creams; anticlogging agent in antiperspirants

Features: Dry, nonoily, rich; soft, luxurious feel

Properties: Straw-colored cl. liq., mild odor; sol. in hydrophobic solvs.; m.w. 270; sp.gr. 0.857±0.01; dens. 7.13 lb/gal; f.p. < -10. 0 C; acid no. 1.0 max.; iodine no. nil; sapon. no. 200-215; flash pt. (OC) > 170 C; ref. index 1.4363±0.001

Schercemol PGML [Noveon

http://www.carbopol.com;
http://www.noveoncoatings.com; Chesham
Chems. Ltd

http://www.cheshamchemicals.co.uk]

Chem. Descrip.: Propylene glycol laurate
CAS 27194-74-7; EINECS/ELINCS 205-542-3

Uses: Emollient, solvent, emulsion stabilizer for topical pharmaceuticals; solubilizer, coupling agent for perfumes, colors, flavors

Features: Stable base

Properties: Yel. cl. liq., mild odor; sol. in most org. solvs. such as alcohols, ketones, esters, glycol ethers, veg. oil, min. oil, aliphatic, aromatic, chlorinated hydrocarbons; disp. in glycols, triols, polyols; m.w. 258 (theor.); sp.gr. 0.905±0.01; dens. 7.45 lb/gal; f.p. 10 C; acid no. 5 max.; iodine no. 1 max.; sapon no. 225-240; flash pt. (OC) 160 C min.; pH 7.0
Trade Name Reference

(10% disp.); nonionic

Schercomol TISC [Noveon
http://www.carbopol.com;
http://www.noveoncoatings.com; Chesham Chems. Ltd
http://www.cheshamchemicals.co.uk]
Chem. Descr.: Trisostearyl citrate
CAS 113431-54-2; EINECS/ELINCS 231-896-3
Uses: Gloss aid in topical pharmaceuticals
Features: High visc.
Properties: Colorless cl. liq.; sol. in aq.-alcoholic systems and org. solvs.; f.p. -5 C; acid no. 3 max.; iodine no. 3 max.; sapon. no. 150-165

Schercomol TIST [Noveon
http://www.carbopol.com;
http://www.noveoncoatings.com; Chesham Chems. Ltd
http://www.cheshamchemicals.co.uk]
Chem. Descr.: Trisostearlyl trilinoleate
CAS 103213-22-5
Uses: Emollient, gloss aid, moisturizer, visc. builder, binder in topical pharmaceuticals
Regulatory: CERCLA, RCRA nonreportable
Properties: Dk. amber sl. hazy, syrupy liq., sl. typ. odor; sol. in hydrophobic solvs.; insol. in water; m.w. 1656; sp.gr. 0.92; dens. 9.2 lb/gal; vapor pressure < 0.1 mm Hg; vapor dens. > 1; f.p. -10 C; acid no. 10 max.; alkali no. 15 max.; flash pt. (OC) > 180 C; ref. index 1.4700; pH 6.0-8.5 (50% aq.); nonionic; 100% conc.

Schercomid AME-100 [Noveon
http://www.carbopol.com;
http://www.noveoncoatings.com]
Chem. Descr.: Acetamide MEA
CAS 142-26-7; EINECS/ELINCS 205-530-8
Uses: Solubilizer, humectant, conditioner, coupling agent, pigment dispersant in topical pharmaceuticals
Properties: Straw-colored cl. liq., mild organoleptic odor; sol. in most alcohols, glycols, diols, polyols, glycol ethers, ketones, and water; sp.gr. 1.20; dens. 9.3 lb/gal; acid no. 10.0 max.; alkali no. 15.0 max.; flash pt. (OC) > 180 C; ref. index 1.4700; pH 6.0-8.5 (50% aq.); nonionic; 100% conc.

Schercomid CDO-Extra [Noveon
http://www.carbopol.com;
http://www.noveoncoatings.com]
Chem. Descr.: Cocoamide DEA and diethanolamine
Uses: Detergent, wetting agent, foam stabilizer, visc. builder for topical pharmaceuticals
Properties: Visc. yel. liq.; sl. odor; sol. in water, alcohols, diols, triols, glycol ethers, polyols, aromatic and chlorinated hydrocarbons; sp.gr. 1.00±0.01; acid no. 5; alkali no. 110-140; flash pt. (OC) > 170 C; pH 10±0.5 (10% sol'n.); nonionic/anionic; 100% act., 65% min. amide

Schercomid HT-60 [Noveon
http://www.carbopol.com;
http://www.noveoncoatings.com]
Chem. Descr.: PEG-50 hydrogenated tallowamide
Uses: Thickener, detergent, emulsifier, dispersant, foaming agent for topical pharmaceuticals
Properties: Tan hard waxy solid, ammoniacal odor; sol. in alcohols, glycols, diols, polyols, glycol ethers, water, in some aromatic and chlorinated hydrocarbons; sp.gr. 1.064 (60 C); dens. 9.6 lb/gal; m.p. 50-55 C; acid no. 2.5 max.; alkali no. 10; flash pt. (OC) > 180 C; pH 9.0-10.0 (10% aq.); nonionic; 100% act.
Trade Name Reference

Chem. Descrip.: Oleamide MEA
CAS 111-58-0; EINECS/ELINCS 203-884-8
Uses: W/o emulsifier, conditioner, and thickener for topical pharmaceuticals
Properties: Tan wax; acid no. 10 max.; alkali no. 20 max.; 85% min. amide

Chem. Descrip.: Oleamide MIPA
CAS 111-05-7; EINECS/ELINCS 203-828-2
Uses: Emulsifier for creams and lotions; slip agent, lubricant, emollient, softener on skin, for topical pharmaceuticals
Properties: Amber cl. liq. to soft solid, mild ammoniacal odor; sol. in alcohols, esters, glycol ethers, min. and veg. oils, aliphatic, aromatic, and chlorinated hydrocarbons; sp.gr. 0.90 ± 0.01; dens. 7.5 lb/gal; acid no. 5-15; alkali no. 7-17; flash pt. (OC) 180 C; nonionic; 100% active; 85% min. amide

Chem. Descrip.: Cocamide DEA (1:1)
CAS 68603-42-9; EINECS/ELINCS 263-163-9
Uses: Detergent, visc. builder and foam stabilizer for topical pharmaceuticals
Properties: Lt. amber cl. visc. liq., mild odor; sol. in water, alcohols, glycols, glycol ethers, polyols, aliphatic (lower members), aromatic, and chlorinated hydrocarbons; water-disp.; sp.gr. 0.97; dens. 8.1 lb/gal; acid no. 2.0 max.; alkali no. 20-40; flash pt. (OC) > 180 C; nonionic; 100% active; 87% min. amide content

Chem. Descrip.: Cocamide DEA (1:1)
CAS 68603-42-9; EINECS/ELINCS 263-163-9
Uses: Thickener, foam booster/stabilizer, and detergent for alkylaryl sulfonates and lauryl sulfates used in topical pharmaceuticals
Features: Makes self-emulsifiable solv. from aliphatic, aromatic, or chlorinated hydrocarbons
Properties: Lt. amber cl. liq., mild odor; sol. in water, alcohols, glycols, polyols, glycol ethers, aliphatic (lower members), aromatic, chlorinated hydrocarbons, and natural fats; disp. in min. oil; sp.gr. 0.99; dens. 8.25 lb/gal; acid no. 3.0 max.; alkali no. 20-40; flash pt. (OC) > 180 C; nonionic; 100% active; 77% min. amide content

Schercomid SLE  [Noveon http://www.carbopol.com; http://www.noveoncoatings.com]
Chem. Descrip.: Linoleamide DEA (1:1)
CAS 56863-02-6; EINECS/ELINCS 260-410-2
Uses: Solubilizer, thickener, w/o emulsifier, conditioner, and emollient for topical pharmaceuticals; emulsion stabilizer for o/w emulsions
Properties: Dk. amber cl. liq., mild, typical odor; sol. in most org. solv., min. and veg. oil; disp. in water; sp.gr. 0.965; dens. 8.0 lb/gal; acid no. 1.0 max.; alkali no. 20-40; flash pt. (OC) > 180 C; nonionic; 100% act., 87% min. amide

Chem. Descrip.: Lauramide DEA (1:1)
CAS 120-40-1; EINECS/ELINCS 204-393-1
Uses: Thickener, foam booster/stabilizer for topical pharmaceuticals; emulsifier for aliphatic, aromatic hydrocarbons and oils for o/w emulsions
Properties: Off-wh. cryst. solid; mild odor; sol. in alcohols, glycols, glycol ethers, polyols, aliphatic (lower members); aromatic, and chlorinated hydrocarbons, and natural fats and oils; disp. in water and min. oils; sp.gr. 0.97 (45 C); dens. 8.1 lb/gal (45 C); m.p. 42 C; acid no. 1.0 max.; alkali no. 20-40; flash pt. (OC) > 170 C; nonionic; 100% active; 87% min. amide content

Chem. Descrip.: Lauramide DEA, myristamide DEA
Uses: Visc. builder, foaming agent for topical pharmaceuticals
Features: Thick, copious foam
Properties: Lt. yel. liq. when fresh (cryst. on aging), mild odor; sol. in alcohols, glycols, glycol ethers, polyols, aliphatic (lower members); aromatic, and chlorinated hydrocarbons, and natural fats and oils; disp. in min. oil and water; sp.gr. 0.97 ± 0.01 (45 C); dens. 8.1 lb/gal; acid no. 1.0 max.; alkali no. 20-40; flash pt. (OC) > 170 C; nonionic; 100% act.; 88% min. amide content
Trade Name Reference

Schercomid SLS  [Noveon  
http://www.carbopol.com;  
http://www.noveoncoatings.com]  
Chem. Descr.:  Soyamide DEA (1:1)  
CAS 68425-47-8; EINECS/ELINCS 270-355-6  
Uses: Conditioner and emollient for topical pharmaceuticals; emulsifier for w/o systems and hydrocarbons; dispersant for pigments and min. clays; visc. builder; emulsion stabilizer  
Properties: Amber cl. liq., mild fruity odor; sol. in most org. solvs., min. and veg. oil; disp. in water; sp.gr. 0.980; dens. 8.0 lb/gal; acid no. 2.0 max.; alkali no. 20-40; flash pt. (OC) > 180 C; nonionic; 100% conc., 82% min. amide

Schercomid SO-A  [Noveon  
http://www.carbopol.com;  
http://www.noveoncoatings.com]  
Chem. Descr.: Oleamide DEA (1:1)  
CAS 93-83-4; EINECS/ELINCS 202-281-7  
Uses: W/o emulsifier, lubricant, conditioner in topical pharmaceuticals  
Properties: Lt. amber cl. liq., sl. typ. oleic odor; sol. in most org. solvs.; water-disp.; sp.gr. 0.95±0.01; dens. 7.9 lb/gal; visc. 450 cps min.; acid no. 5 max.; alkali no. 40-60; flash pt. (OC) > 180 C; nonionic/anionic; 100% act., 85% min. amide

Schercomid TO-2  [Noveon  
http://www.carbopol.com;  
http://www.noveoncoatings.com;  
Chesham Chems. Ltd  
http://www.cheshamchemicals.co.uk]  
Chem. Descr.: Tallamide DEA and diethanolamine  
Uses: W/o emulsifier, visc. builder, foaming agent in topical pharmaceuticals; pigment and min. clay dispersant; emulsifier for aromatic and aliphatic hydrocarbon solvs.; foam stabilizer when used with surfactants and detergents  
Features: Generates a creamy, luxurious foam  
Properties: Dk. amber cl. liq., mild char. odor; sol. in alcohols, glycols, glycol ethers, aliphatic and chlorinated hydrocarbons; disp. in water; sp.gr. 0.990; dens. 8.25 lb/gal; acid no. 16-19; alkali no. 130-150; flash pt. (OC) > 170 C; nonionic/anionic; 100% act.; 65% min. amide

Schercoquat DAS  [Noveon  
http://www.carbopol.com;  
http://www.noveoncoatings.com;  
Chesham Chems. Ltd  
http://www.cheshamchemicals.co.uk]  
Chem. Descr.: Quaternium-61  
CAS 111905-55-6  
Uses: Conditioner for topical pharmaceuticals, skin care prods.  
Properties: Amber visc. liq., sl. mild odor; water-sol.; m.w. 1050; sp.gr. 1.01; dens. 8.4 lb/gal; flash pt. (OC) 90 C; pH 6.5-8.5 (1% aq.); cationic; 90% min. NV

Scogin™ HV  [FMC Biopolymer  
http://www.fmcbiopolymer.com]  
Chem. Descr.: Sodium alginate See Algin  
CAS 9005-38-3  
Uses: Thickener, water holder, emulsion stabilizer, suspending agent, gellant, and film-former for pharmaceuticals  
Regulatory: FDA GRAS; Canada DSL; Australia AICS; China; Japan ENCS (8-237); Korea (KE-00492); Philippines PICCS  
Properties: Ivory colored granular powd.; 30 mesh; almost odorless; sol. in water; visc. 130 cps (0.5%), 800 cps (1%), 10,000 cps (2%), 75,000 (3%); pH 6.5-8.5 (1% aq.sol'n.); autoignition temp. > 200 C  
Toxicology: LD50 (oral, rat) > 5 g/kg; LC50 (inh., rat, 1 h) 4.72 mg/l; ACGIH TWA 10 mg/m3 (inhalable particulate), 3 mg/m3 (respirable particulate); TSCA listed  
Environmental: BOD(5) ~ 400 mg O2/g; COD ~ 650 mg O2 g; biodeg.  
Precaution: Becomes slippery when wet; incompat. with strong oxidizers, high temps., high humidity  
HMIS: Health 2, Flammability 1, Reactivity 0  
Storage: Avoid exposure to extreme heat

Scogin™ LV  [FMC Biopolymer  
http://www.fmcbiopolymer.com]  
Chem. Descr.: Sodium alginate See Algin  
CAS 9005-38-3  
Uses: Thickener, water holder, emulsion stabilizer, suspending agent, gellant, and film-former for pharmaceuticals  
Regulatory: FDA GRAS; Canada DSL; Australia AICS; China; Japan ENCS (8-237); Korea (KE-00492); Philippines PICCS  
Properties: Ivory colored granular powd.; 40 mesh; almost odorless; sol. in water; visc. 20 cps (0.5%), 60 cps (1%), 600 cps (2%), 3500 (3%); pH 6.5-8.5 (1% aq.sol'n.); autoignition temp. > 200 C

Scogin™ LV

Handbook of Pharmaceutical Additives, Third Edition 647
Chem. Descrip.: SD alcohol 12-A
Uses: Solvent for mfg. of pharmaceuticals

SDA-23H [Eastman http://www.eastman.com]
Chem. Descrip.: SD alcohol 23-H
Uses: Solvent for mfg. of pharmaceuticals

SDA-29-8 [Eastman http://www.eastman.com]
Chem. Descrip.: SD alcohol 29-8
Uses: Solvent for mfg. of pharmaceuticals

Seagel [FMC http://www.fmccompany.com]
Chem. Descrip.: Locust bean (Ceratonia siliquea) gum
CAS 9000-40-2; EINECS/ELINCS 232-541-5

Scogin™ MV [FMC Biopolymer http://www.fmcbiopolymer.com]
Chem. Descrip.: Sodium alginate See Algin
CAS 9005-38-3
Uses: Thickener, water holder, emulsion stabilizer, suspending agent, gellant, and film-former for pharmaceuticals
Regulatory: FDA GRAS; Canada DSL; Australia AICS; China; Japan ENCS (8-237); Korea (KE-00492); Philippines PICCS
Properties: Ivory colored granular powd.; 30 mesh; almost odorless; sol. in water; visc. 80 cps (0.5%), 400 cps (1%), 5000 cps (2%), 30,000 (3%); pH 6.5-8.5 (1% aq.sol'n.); autoignition temp. > 200 C
Toxicology: LD50 (oral, rat) > 5 g/kg; LC50 (inh., rat, 1 h) 4.72 mg/l; ACGIH TWA 10 mg/m³ (inhaible particulate), 3 mg/m³ (respirable particulate); TSCA listed
Environmental: BOD(5) ≈ 400 mg O₂/g; COD ≈ 650 mg O₂ g; biodeg.
Precaution: Becomes slippery when wet; incompat. with strong oxidizers, high temps., high humidity
NFPA: Health 2, Flammability 1, Reactivity 0
Storage: Store in cool, dry place in tightly closed container; avoid exposure to extreme heat

SeaSpen® PF [FMC Biopolymer http://www.fmcbiopolymer.com]
Chem. Descrip.: iota-Carrageenan (Chondrus crispus) USP/NF See Carrageenan (Chondrus crispus)
CAS 9000-07-1; EINECS/ELINCS 232-524-2
Uses: Excipient, gellant, visc. builder for pharmaceuticals (suspensions, topical lotions/creams, reconstitutable suspensions, cough/cold liqs., antibiotic suspensions, medicated shampoos); bioadhesive in oral liq. prods.; shape retention in vaulted cavity delivery systems such as otic and vaginal, suppository formulation; controlled release delivery
Features: Med. thixotropy; elastic weak gel type; delayed gel formation; effective hydration in dry, reconstitutable suspensions
Regulatory: FDA 21CFR §182.7255; GRAS
Properties: Sol. in cold water
Use Level: 0.5-1.0%

Sebace [Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: PEG-30 lanolin, cetearyl alcohol, mineral oil, and p-chloro-m-cresol with 150 ppm BHT (antioxidant)
Uses: Self-emulsifying base for pharmaceuticals; emollient, moisturizer, emulsifier, lubricant, visc. stabilizer for o/w emulsions, creams; carrier for therapeutically active substances for hospital/pharmacy use
Properties: Pale yel. pearly unctuous soft wax, faint char. odor; partly sol. in water, ethanol,
Trade Name Reference

**Sebomine SB12** [Sederma http://www.sederma.fr]
Chem. Descrip.: Water, potassium thiocyanate, lactoferrin, lactoperoxidase, and glucose oxidase
Uses: Treatment of oily skin with acne tendency, oily hair, dandruff
Properties: Brownish cl. liq., char. odor; sp.gr. 1.025±0.005; ref. index 1.345±0.005; pH 6.0-7.5

**Sedefos 75®** [Gattefosse http://www.gattefossecorp.com; Gattefosse Spain http://www.gattefosse.es]
Chem. Descrip.: Glycol stearate, PEG-2 stearate, and trilanol-4 phosphate
Uses: Emulsifier, base for pharmaceuticals, o/w emulsions, acidicProducts., and anhyd. cream formulations
Features: Self-emulsifying; enables prep. of stable creams contg. high amts. of alcohol (20%), acidic actives, or essential oils, and prep. of anhyd. emulsions
Properties: Gardner < 5 waxy pellets; weak odor; HLB 10-11; m.p. 43-48 C; acid no. < 6; iodine no. < 3; sapon. no. 105-120; anionic; 100% conc.
Use Level: 15-20%

**Selexsorb® CDO-200** [Engelhard]
Chem. Descrip.: Alumina
CAS 1344-28-1; EINECS/ELINCS 215-691-6
Uses: Selective adsorbent for purification of feed monomer, intermediate, or final prods. in the specialty polymer pharmaceuticals
Properties: Bulk dens., packed 770 kg/m³; surf. area 200 m²/g; 96.6% aluminum oxide

**Semiaalkaline Proteinase** [Amano Enzyme http://www.amano-enzyme.co.jp]
Chem. Descrip.: Protease
CAS 9074-07-1; EINECS/ELINCS 232-642-4
Uses: Anti-inflammatory for pharmaceuticals
Regulatory: JPC
Properties: Off-wh. to brown powd.; sl. odor; sol. in water
Toxicology: Inh. of aerosols or dust may induce sensitization and may cause allergic reactions in sensitized individuals; nontoxic
Environmental: Biodegrad.; not harmful to aquatic and marine organisms when dissolved with copious amounts of water
Precaution: Wear respirator, protective glasses, and impervious gloves; avoid dust formation

**Sentry® Dimethicone NF** [GE Silicones http://www.gesilicones.com]
Chem. Descrip.: Dimethicone USP (35%)
Uses: Soothing skin protectant for diaper rash preps. and skin protective ointments, creams, and lotions, pharmaceutical preps., certain medical devices
Features: Soothing
Regulatory: FDA 21CFR §347
Properties: Wh. free-flowing gran. solid; 20-40 mesh particle size; 95% through 20 mesh; bulk dens. 0.4 g/ml; 30% act.; 6% moisture
Trade Name Reference
Storage: Store @ cool temps.; keep cartons closed to protect from atmospheric moisture and contaminants

Uses: Syn. adsorbent for vitamins, antibiotics
Properties: Surf. area ≈ 4.00 m²/g

Sepicontrol A5 [Seppic http://www.seppic.com]
Chem. Descrip.: Capryloyl glycine, sarcosine, cinnamomum zeylanicum bark extract See Cinnamon (Cinnamomum zeylanicum) extract
CAS 14246-53-8; 107-97-1; 84649-98-9; EINECS/ELINCS 238-122-3; 203-538-6; 283-479-0
Uses: Acne control agent, sebo-regulating active in personal care

Sepifilm™ LP [Seppic http://www.seppic.com]
Chem. Descrip.: Hypromellose, microcrystalline cellulose, and stearic acid See Hydroxypropyl methylcellulose
CAS 9004-65-3; 9004-34-6; 57-11-4
Uses: Stabilizer for moisture sensitive active pharmaceutical ingredients and hygroscopic formulations; improve the moisture barrier on moisture sensitive API or hygroscopic cores
Features: Does not modify dissolution profile when compared to conventional coatings

Sepigel™ 305 [Seppic http://www.seppic.com]
Chem. Descrip.: Polyacrylamide, C13-14 isoparaffin, laureth-7
Uses: Thickeners, gellant for aq. gels and emulsions in pharmaceuticals; emulsifier, stabilizer for anti-lice conditioners, antibiotic gels
Features: Provides instantaneous gelling on addition of water
Regulatory: Japan approved for cosmetics
Properties: Fluid emulsion; visc. 60,000-90,000 mPa•s (2%); pH ≈ 6; 50% act.
Toxicology: Nonirritating to skin and eyes

Servirox® OEG 68.5 [Elementis Spec. Europe]
Chem. Descrip.: Ethoxylated castor oil See PEG castor oil
CAS 61791-12-6
Uses: Emulsifier, dispersant, solubilizer in phytopharmaceuticals
Properties: Solid; nonionic; 100% act.

Servirox® OEG 90 [Elementis Spec. Europe]
Chem. Descrip.: PEG-180 castor oil
CAS 61791-12-6
Uses: Solubilizer in phytopharmaceuticals
Properties: Liq.; nonionic; 50% act.

Servirox® OEG 90/50 [Elementis Spec. Europe]
Chem. Descrip.: PEG-180 castor oil
CAS 61791-12-6
Uses: Solubilizer in phytopharmaceuticals
Properties: Liq.; nonionic; 50% act.

Sethness AP100 [Sethness Prods. http://www.sethness.com]
Chem. Descrip.: Sulfite ammonia process caramel color See Caramel
CAS 8028-89-5; EINECS/ELINCS 232-435-9
Uses: Colorant in pharmaceuticals
Regulatory: FDA 21CFR §73.85
Properties: Dk. brn. liq.; char. bitter burnt sugar taste; sp.gr. 1.3157-1.3206 (60 F); dens. 10.95-11.00 lb/gal (60 F); pH 2.8-3.1
Storage: 2 yr. min. shelf life when stored in cool, dry environment, below 90 F

Chem. Descrip.: Ammonia process caramel color See Caramel
CAS 8028-89-5; EINECS/ELINCS 232-435-9
Uses: Colorant in pharmaceuticals
Regulatory: FDA 21CFR §73.85
Properties: Dk. brn. liq.; char. bitter burnt sugar taste; sp.gr. 1.3757-1.3809 (60 F); dens. 11.46-11.50 lb/gal (60 F); pH 3.8-4.1
Storage: 2 yr. min. shelf life when stored in cool, dry environment, below 90 F

Chem. Descrip.: Ammonia process caramel color See Caramel
CAS 8028-89-5; EINECS/ELINCS 232-435-9
Uses: Colorant in pharmaceuticals
Regulatory: FDA 21CFR §73.85
Properties: Dk. brn. liq.; char. bitter burnt sugar taste; sp.gr. 1.3757-1.3809 (60 F); dens. 11.46-11.50 lb/gal (60 F); pH 3.8-4.1
Storage: 2 yr. min. shelf life when stored in cool, dry environment, below 90 F
Trade Name Reference

taste; sp.gr. 1.3266-1.3340 (60 F); dens. 11.05-11.11 lb/gal (60 F); pH 4.1-4.7
Storage: 2 yr. min. shelf life when stored in cool, dry environment, below 90 F

Sethness SP50 [Sethness Prods. http://www.sethness.com]
Chem. Descrip.: Ammonia process caramel color See Caramel
CAS 8028-89-5; EINECS/ELINCS 232-435-9
Uses: Colorant in pharmaceuticals
Regulatory: FDA 21CFR §73.85
Properties: Dk. brn. liq.; char. bitter burnt sugar taste; sp.gr. 1.3266-1.3340 (60 F); dens. 11.05-11.11 lb/gal (60 F); pH 3.7-4.2
Storage: 2 yr. min. shelf life when stored in cool, dry environment, below 90 F

Sethness SP50 [Sethness Prods. http://www.sethness.com]
Chem. Descrip.: Ammonia process caramel color See Caramel
CAS 8028-89-5; EINECS/ELINCS 232-435-9
Uses: Colorant in pharmaceuticals
Regulatory: FDA 21CFR §73.85
Properties: Dk. brn. liq.; char. bitter burnt sugar taste; sp.gr. 1.3266-1.3340 (60 F); dens. 11.05-11.11 lb/gal (60 F); pH 3.7-4.2
Storage: 2 yr. min. shelf life when stored in cool, dry environment, below 90 F

Shea Butter [Terry Labs http://www.terrylabs.com]
Chem. Descrip.: Butyrospermum Parkii Shea Butter Fruit See Shea butter (Butyrospermum parkii)
CAS 68424-60-2; EINECS/ELINCS 293-515-7
Uses: Fatting agent in OTC pharmaceuticals including topical ointments, creams and lotions, first aid creams, anti-acne preps., rubs and liniments, topical analgesics/anesthetics, lip balms, oral ointments
Features: Natural fatty substance which is extracted from the fresh nut of the Karite tree; this crude butter is then
Properties: Pale yel. fatty matter, char. odor; sp.gr. 0.91-0.98; iodine no. 50-80; sapon. no. 160-180

SheAloe™ [Terry Labs http://www.terrylabs.com]
Chem. Descrip.: Aloe barbadensis leaf juice, shea butter See Shea butter (Butyrospermum parkii)
Uses: Fatting agent in topical ointments, creams, and lotions, topical analgesics/anesthetics, first aid creams, anti-acne preps, rubs and liniments, hydrocortisone creams, lip balms
Features: High-gloss, moist, nongreasy feel
Properties: Thick, off-wh. cream; characteristic fatty odor; sp.gr. 0.870-0.960
Use Level: ε10% use level for efficacy of preps.
Storage: Store at room temp.; may darken with age; store in a cool place, away from light; protect from oxidation

Shea Unsaponifiable [Sederma http://www.sederma.fr]
Chem. Descrip.: Shea butter unsaponifiables See Shea butter (Butyrospermum parkii) unsaponifiables
Uses: Anti-irritant, treatment for sensitive or dry skin, lip care, sun protection, face care
Properties: Green-brownish fatty matter, char. odor; sp.gr. 0.92-0.98

Chem. Descrip.: Lactose NF
CAS 63-42-3; EINECS/ELINCS 200-559-2
Uses: Excipient, filler, diluent, bulking agent for pharmaceutical tablets, capsules, powds., other preps.; nutrient and multifunctional ingred. in geriatric, dietetic, and health foods; ingred. in culture media
Properties: Wh. to creamy free-flowing powd.; two grades with various particle sizes (Direct Tabletting, 60 M); sol. 40 g/100 ml in water; m.w. 342.3; 0.11% max. moisture
Storage: Nonhygroscopic; 12 mos. min. shelf life for unopened pkgs.; store in cool, dry area in closed containers

Chem. Descrip.: Lactose monohydrate NF
CAS 10039-26-6
Uses: Excipient, filler, diluent, bulking agent for pharmaceutical tablets, capsules, powds., other preps.; nutrient and multifunctional ingred. in geriatric, dietetic, and health foods; ingred. in culture media
Properties: Wh. to creamy free-flowing powd.; three grades with various particle sizes (80 M, Capsulating, Impalpable); sol. 20 g/100 ml in water; 0.5% max. moisture
Storage: Nonhygroscopic; 12 mos. min. shelf life for unopened pkgs.; store in cool, dry area in closed containers

Chem. Descrip.: Mineral spirits
CAS 64475-85-0; EINECS/ELINCS 232-453-7
Uses: Solvent for pharmaceuticals
Features: Hydrocarbon solvent
Properties: Sp.gr. 0.783 (60 F); dens. 6.52 lb/gal (60 F); flash pt. (CC) 110 F
Shellsol® BF [Shell Netherlands]
Chem. Descrip.: Naphtha, hydrotreated light, n-hexane (< 5%) See Hexane
UN 3295
Uses: Solvent for adhesives used in medicinal plasters
Features: Highly refined; very minimal aromatics; virtually free of free radicals; chemically stable; noncorrosive; fast constant evaporating
Regulatory: EINECS, Canada DSL, Australia AICS, China IECSC, Japan MITI, Philippines PICCS, Korea TCCL listed
Properties: Water-wh. liq.; paraffinic odor; dens. 0.735 kg/l (15 C); i.b.p. 85 C; b.p. 88-105 C; flash pt. (Abel) < 0 C
Toxicology: LD50 (oral) > 2000 mg/kg, (skin) > 2000 mg/kg; LC50 (inh.) > 5 mg/l; low toxicity; aspiration into lungs may cause chem. pneumonitis which can be fatal; narcotic at high vapor concs.; causes CNS depression, headache, dizziness, nausea, respiratory tract irritation, skin irritation/dryness/dermatitis; risk of impaired fertility; TSCA listed
Environmental: Inherently biodegr.; potential to bioaccumulate; toxic to aquatic organisms; may cause long-term adverse effects in aquatic environment; prevent contamination of soil and water; prevent entry into drains, ditches, rivers
Precaution: Highly flamm.; flamm. limits in air 1-8 vol.%; may form flamm./explosive vapor-air mixt.; vapor is heavier than air, spreads along ground; distant ignition possible; electrostatic charges may be generated; prevent static discharge; ground equip.; risk of explosion
Hazardous Decomp. Prods.: Combustion: CO
Storage: Keep containers closed when not in use; store in tightly closed container @ ambient temps. in well-ventilated area away from direct sunlight, heat/ignition sources
Shellsol® B HT [Shell
http://www.shellchemicals.com;
http://www.shell-lubricants.com]
Chem. Descrip.: Solvent naphtha (petroleum), light aliphatic, contains n-hexane (22-30%), cyclohexane (0-13%) See Hexane; Naphtha, light aliphatic
UN 1268
Uses: Solvent for pharmaceuticals
Features: Fast evaporating; hydrotreating removes unwanted compds., converts unsat. hydrocarbons, results in relatively low odor; lower hexane content than typ. commercial hexanes, thus reducing worker exposure
Regulatory: SARA §311/312 acute health/chronic health/fire hazard, §313 reportable (cyclohexane, n-hexane)
Properties: Colorless liq.; hydrocarbon odor; negligible sol. in water; sp.gr. 0.674 (60/60 F); vapor pressure 140 mm Hg (68 F); b.p. 147-176 F; flash pt. (TCC) < -17.78 C; autoignition temp. 534 C; KB value 29; VOC 5.53 lb/gal; 100% act.
Toxicology: LD50 (oral, rat) 17 g/kg, (skin, rabbit) 3.4 g/kg; LC50 (inh., rat, 4 h) 73,680 ppm; if aspirated, can cause severe lung damage, chem. pneumonitis; may be fatal if swallowed; inh. of high vapor concs. may cause CNS depression, dizziness, headache, nausea, loss of coordination, unconsciousness, death; chronic abuse may cause irregular heart rhythms, cardiac arrest; may cause temporary eye irritation, sl. skin irritation; target organs: nerves, heart, reproductive system; TSCA listed
Environmental: Prevent entry into waterways, sewers
Precaution: Extremely flamm.; flamm. in air 1-7 vol.%; vapors are heavier than air, may flash back; prevent vapor accumulation; floats on water; static electricity may accumulate and create a fire hazard; bond and ground equip. and transfer containers; avoid contact with strong oxidizing agents; prevent entry into basements, confined areas
Hazardous Decomp. Prods.: Complex mixt. of airborne solids, liqs. and gases, incl. CO, CO2, other org. compds.
HMIS: Health 1, Flammability 3, Reactivity 0
Storage: Keep containers closed when not in use; keep away from heat, sparks, flame, ignition sources
Shellsol® D40 [Shell
http://www.shellchemicals.com;
http://www.shell-lubricants.com; Shell Netherlands]
Chem. Descrip.: Naphtha (petroleum), hydrotreated heavy See Naphtha, hydrotreated heavy
CAS 64742-48-9; EINECS/ELINCS 265-150-3
UN 3295
Uses: Solvent for pharmaceuticals
Features: Hydrotreating removes unwanted compds. (sulfur, nitrogen, oxygen), converts
Shellsol® D43 [Shell
http://www.shellchemicals.com;
http://www.shell-lubricants.com]
Chem. Descrip.: Solvent naphtha (petroleum),
medium aliphatic See Naphtha, medium
aliphatic
CAS 64742-88-7; EINECS/ELINCS 265-191-7
UN 1268
Uses: Solvent for pharmaceuticals
Features: Slow-evaporating; hydrotreated;
hydrotreating removes unwanted compds.
(e.g., sulfur, nitrogen, oxygen), converts unsat.
hydrocarbons (olefins, acetylenes, aromatics);
no more than trace amts. of HAPs; relatively
high solvency
Regulatory: FDA 21CFR §172.884, 178.3650;
SARA §311/312 acute health/chronic health,
fire hazard
Properties: Lt. colored liq.; low hydrocarbon
odor; negligible sol. in water; m.w. 146; sp.gr.
0.77; vapor pressure 1.1 mm Hg (68 F); i.b.p.
300 F min.; b.p. 325-401 F; flash pt. (TCC) 111
F; KB value 32; VOC 6.40 lb/gal (60 F); 100%
act.
Toxicology: LD50 (skin, rabbit) 5 ml/kg; if
aspirated, can cause severe lung damage,
chem. pneumonitis; may be fatal if
swallowed; causes skin irritation; may cause
CNS depression (dizziness,
lightheadedness, headache, nausea,
incordination, unconsciousness, death);
vapors may be irritating to respiratory
system; may cause eye irritation/temporary
discomfort, skin irritation, burning sensation,
redness, swelling, defatting; TSCA listed
Environmental: Prevent entry into waterways,
sewer
Precaution: Flamm. liq.; flamm. in air 1-7
vol.%; vapors are heavier than air; vapors
may flash back; prevent vapor
accumulation; static electricity may
accumulate and create a fire hazard; bond
and ground equip. and transfer containers;
avoid contact with strong oxidizing agents;
prevent entry into strong oxidizing agents;
prevent entry into basements, confined
areas
Hazardous Decomp. Prods.: Complex mixt. of
airborn solids, liqs. and gases, incl. CO,
CO2, other org. compds.
HMIS: Health 1, Flammability 2, Reactivity 0
Storage: Keep closed when not in use; keep
away from heat, sparks, flame
Shiitake (Lentinula edodes) Mycelium
Biomass, Certified Organic [Garuda Int’l.
http://www.garudaint.com]
Chem. Descrip.: Shiitake mycelium extract
from Lentinus edodes
Uses: Nutritional supplement in health foods,
pharmaceuticals capsules, tablets, ampules
(significant quantities of Vitamin B)
Features: Polysaccharides, lignins actives
Properties: Bron. gran.; max. 20 mesh or finer;
sol. in water
SI-10RV [Nikko Chems. Co. Ltd
http://www.nikkol.co.jp/index.html]
Chem. Descrip.: Sorbitan isostearate
CAS 54392-26-6; EINECS/ELINCS 276-171-2
| Trade Name Reference | Uses: | W/o emulsifier for pharmaceuticals
Features: Refined grade (low color/odor)
Regulatory: JSCI listed
Properties: Yel. liq.; HLB 5.0; nonionic; 100% conc. | **SI-15RV** [Nikko Chems. Co. Ltd http://www.nikkol.co.jp/index.html]
Chem. Descrip.: Sorbitan sesquiosstearate
Uses: W/o emulsifier for pharmaceuticals
Features: Refined grade (low color/odor)
Regulatory: JSCI listed
Properties: Pale yel. visc. liq.; HLB 4.5; nonionic; 100% conc. |
|----------------------|--------|-------------------------------------------------------------------------------------------------|
| S icovit® [BASF AG http://www.basf.de] | Uses: | Colorant and pigment for pharmaceuticals (tablets, capsules, coatings, sustained release)
Features: Soluble
Regulatory: Ph.Fr., USP/NF, FAO compliance |
Chem. Analysis: SiO₂ (97%); Na₂SO₄ (3%)
CAS 1343-98-2; EINECS/ELINCS 215-683-2
Uses: | **Sident® 22S** [Degussa/Fillers & Pigments http://www.degussa-krefeld.com]
Chem. Descrip.: | Syn. amorphous precipitated silica See Silica, amorphous
Chem. Analysis: SiO₂ (97%); Na₂SO₄ (3%)
CAS 112926-00-8; EINECS/ELINCS 231-545-4
Uses: Nonabrasive thickening agent for toothpastes; allows prod. of pastes and transparent gels of high brilliance
Regulatory: FDA compliance |
Chem. Analysis: SiO₂ (97%); Na₂SO₄ (3%)
CAS 1343-98-2; EINECS/ELINCS 215-683-2
Uses: |
Uses: Antifoam for pharmaceuticals; in flatulence remedies due to aerophagia; treatment of ulcers; antacid gels
Features: Efficacious in any pH, but optimum in alkaline media; chemically inert; heat stable
Regulatory: USP/NF, EP |
Chem. Analysis: SiO₂ (97%); Na₂SO₄ (3%)
CAS 1343-98-2; EINECS/ELINCS 215-683-2
Uses: |
| | Toxicology: | May cause slight brief irritation to eyes or skin; not classified as harmful by ing. inh., or absorp. through skin
Environmental: Not biodegrad. or bioaccumulable
Precaution: Wear goggles and PVC gloves
Hazardous Decomp. Prods.: CO₂ and amorphous silica
Storage: 15 mos. shelf life stored in original unopened container @ 2-30 C |

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**Summary:**

- **SI-15RV** is a refined grade emulsifier with low color and odor, suitable for pharmaceutical applications.
- **Sicovit®** is a colorant and pigment for pharmaceuticals, offering solubility and compliance with various standards.
- **Sident® 8** and **Sident® 9** are precipitated silicas, both offering thickening properties and compliance with FDA standards.
- **Siblione™ 70426R** and **Siblione™ 70451** are polydimethylsiloxane products, used in pharmaceutical applications as antifoams and thickening agents, respectively.
Trade Name Reference

silicones.com/silicones/home.jsp

Chem. Descrip.: Mixture of polydimethylsiloxane and amorphous silica
See Diatomaceous earth, amorphous
CAS 9016-00-6; 61790-53-2
Uses: Antifoam for pharmaceuticals; in flatulence remedies due to aerophagia; treatment of ulcers; antacid gels; gastroenterological specialties.
Features: Outstanding behavior in alkaline systems
Properties: Grey-wh., opalescent visc. liq.; essentially odorless; pract. insol. in water; dilutable in aromatic, aliphatic and chlorinated hydrocarbons, water-sol. solvs., water disp. solvs.; sp.gr. 1.0; vapor pressure < 0.01 kPa; visc. ≈ 1000 mPa•s; 100% act.
Toxicology: LD50 (percut.) > 2000 mg/kg, (oral, rat) 5 g/kg; nonirritating
Hazardous Decomp. Prods.: COx and amorphous silica
Storage: 18 mos. shelf life stored in original unopened container @ -20 to 30 C

Silbione™ 70454 [Rhodia Silicones
http://www.rhodia-silicones.com/silicones/home.jsp]
Chem. Descrip.: Simethicone
CAS 8050-8-15
Uses: Antifoam for pharmaceuticals; in flatulence remedies due to aerophagia; treatment of ulcers; antacid gels; gastroenterological specialties; radiological tracers (tablets, pills, etc.)
Regulatory: USP
Properties: Creamy wh. emulsion; weak odor; dispersible in water; insol. in organic solvents; sp.gr. ≈ 1.0; vapor pressure 2.3 kPa; b.p. 100 C; pH ≈ 4.0; flash pt. > 80 C; nonionic; 30% act.
Use Level: 10-1000 mg/kg
Toxicology: LD50 (percut.) > 2000 mg/kg, (oral, rat) 5 g/kg; sl. irritating
Environmental: Not biodegrad. or bioaccumulable
Precaution: Wear goggles and gloves made of PVC
Hazardous Decomp. Prods.: COx and silica
Storage: 18 mos. shelf life stored in original unopened container @ -20 to 30 C

Silbione™ 70462 [Rhodia Silicones
http://www.rhodia-silicones.com/silicones/home.jsp]
Chem. Descrip.: Simethicone
CAS 8050-81-5
Uses: Antifoam for pharmaceuticals; in flatulence remedies; antacid gels; biotechnological processes such as bacteria, yeast and enzyme fermentations and processes for the manufacture of antibiotics
Regulatory: USP/NF, EP
Properties: Milky wh. visc. emulsion; dispersible in water; insol. in organic solvents; sp.gr. 1.0; visc. 600 cps; vapor pressure 2.3 kPa; b.p. 100 C; flash pt. > 80 C; pH 3.5; nonionic; 20% act.
Use Level: 100-300 ppm for protein, starch or latex foams, 50-100 ppm for fermentation processes
Toxicology: Not considered harmful by contact with skin or ing.
### Silbione™ 70646

**Chem. Descrip.:** Dimethicone copolyol  
**CAS:** 64365-23-7  
**Uses:** Reduces irritation of surfactants; stabilizes/improves foam and lubricity in personal care prod.; for biotechnological process such as bacteria, yeast, enzyme fermentation, manufacture of antibiotics by fermentation  
**Features:** Nongreasy  
**Properties:** Gardner 8 max. cl. liq.; odorless to sl. odor; sol. in abs. ethanol, benzyl alcohol, ethyl ether, MEK, ethyl acetate, IPM, castor oil, stearic acid; partly misc. with propylene glycol, IPP, decyl oleate, glycol, glycerol; sp.gr. ≈ 1.036; visc. 1400-2100 mm²/s; cloud pt. ≈ 45 C; flash pt. (CC) ≈ 1800 C; ref. index 1.446-1.450; pH 4.5-6.5; surf. tens. ≈ 23 mN/m  
**Use Level:** 1-3% (shampoo), 0.5-1% (hair spray), 0.1-3% (skin care prod.), 1-3% (shaving creams)  
**Toxicology:** Nontoxic  
**Environmental:** LC50 (fish: brachydanio rerio, 96 h) >100 mg/l; not biodegrad. or bioaccumulable  
**Precaution:** Wear goggles and PVC gloves  
**Hazardous Decomp. Prods.:** COx and silica  
**Storage:** 12 mos. shelf life stored in original unopened container @ 5-25 C

### Silbione™ Antifoam 70452 Compound

**Chem. Descrip.:** Dimethylpolysiloxane USP  
**CAS:** 9006-65-9  
**Uses:** Antifoam in topical pharmaceuticals; improves spreading, promotes uniform and bubble-free apps. in creams and lotions, antibiotic ointments and contraceptive gels; antiflatulent in antacids  
**Regulatory:** FDA 21CFR §173.340, 332.10, 332.15; DOT nonregulated; SARA nonreportable  
**Properties:** Off-wh. visc. liq.; sl. odor; insol. in water; sp.gr. 1.0; visc. 1300 cps; vapor pressure < 0.01 mm Hg (20 C); flash pt. (CC)) > 200 C; 100% act.  
**Toxicology:** LD50 (oral, rat) 5000 mg/kg; LD50 (dermal, rat) 2000 mg/kg; nonirritant to eyes and skin; nongenotoxic; nontoxic; TSCA listed  
**Environmental:** Nonbiodegrad.; not bioaccumulable; not harmful to aquatic organisms  
**Precaution:** Avoid strong oxidizing agents, alkalis and hot concentrated caustic prods; combustible liq.; wear safety goggles and gloves  
**Storage:** Can be stored up to 36 mos. @-20 and +50 C in original containers

### Silbione™ Oils 70047 V50

**Chem. Descrip.:** Polydimethylsiloxane  
**CAS:** 63148-62-9  
**Uses:** Vehicle for corticoid ointments for external use, pharmaceutical creams (dermatology) antibiotic dispersants; lubricant for medical devices  
**Features:** Chemically inert; low surface tension;  
**Regulatory:** EP  
**Properties:** Colorless visc. liq.; sl. to no odor; pract. insol in water; sl. sol. in ethanol, acetone; misc. with ethers, aliphatic and aromatic hydrocarbons, chlorinated solvents; dens. 958 kg/m³; kinematic visc. 50 mm²/s. vapor pressure < 0.01kPa; flash pt. 280 C (COC)  
**Toxicology:** LD50 (oral, rat) 5000 mg/kg; LD50 (dermal, rat) 2000 mg/kg; nonirritant to eyes and skin; nongenotoxic; nontoxic; TSCA listed  
**Environmental:** Nonbiodegrad.; not bioaccumulable; not harmful to aquatic organisms  
**Precaution:** Will burn under fire conditions; avoid heat, open flame, static electricity, strong bases/ acids/oxidizing agents; contains dimethylpolysiloxane which can generate formaldehyde  
**Hazardous Decomp. Prods.:** Combustion may produce formaldehyde, CO₂, cryst. silica; thermal decomp. prods.: dimethylcyclosiloxanes, methylphenylcyclosiloxanes  
**NFPA:** Health 1, Flammability 1, Reactivity 0

### Silcron® G-100

**Chem. Descrip.:** Silica gel USP (94-96%) and nonirritating to skin; pract. nontoxic by acute ing.; TSCA listed  
**Precaution:** Will burn under fire conditions; avoid heat, open flame, static electricity, strong bases/ acids/oxidizing agents; contains dimethylpolysiloxane which can generate formaldehyde  
**Hazardous Decomp. Prods.:** Combustion may produce formaldehyde, CO₂, cryst. silica; thermal decomp. prods.: dimethylcyclosiloxanes, methylphenylcyclosiloxanes  
**NFPA:** Health 1, Flammability 1, Reactivity 0  
**Storage:** 12 mos. shelf life if stored @ 40-86 F in tightly closed containers in well-ventilated area away from incompat. materials; do not allow to freeze

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Based on the text provided, it appears to be a handbook page dedicated to pharmaceutical additives, specifically focusing on the properties, uses, and safety considerations of various silcone-based products. The information includes details on environmental impact, health and safety precautions, and storage conditions.
Trade Name Reference

water (4-6%) See Silica, amorphous
CAS 112926-00-8; EINECS/ELINCS 231-545-4
Uses: Carrier, anticaking agent, absorbent,
dispersant, grinding aid, cleansing agent,
desiccant, flow aid in pharmaceuticals;
thickener for creams, gels, and pastes;
tabling agent, anti-sticking agent, mold
release agent in pharmaceutical tablets
Features: Chemically pure; does not impart
taste, color, or odor
Regulatory: FDA approved; kosher; USP
compliance; DOT not regulated; SARA
§302/304/313, CERCLA nonreportable;
Canada DSL; Australia AICS; Japan MITI
Properties: Wh. powd.; insol. in water; sp.gr. 2.1;
m.p. ≈ 1600 C; pH 6.5-8.0 (10% slurry)
Toxicology: LD50 (oral, rat, 48 h) > 31,600
mg/kg, (dermal, rabbit, 48 h) > 2 g/kg; LC50
(inh., rat, 1 h) > 2 mg/l; TSCA listed
Precaution: Wear safety glasses, gloves for
prolonged, repeated contact; avoid breathing
dust
HMIS: Health 1, Flammability 0, Reactivity 0
Storage: Store in dry area

http://www.mic-global.com; http://www.millenniumchem.com]
Chem. Descrip.: Silica gel (94-96%) and water
(4-6%) See Silica, amorphous
CAS 112926-00-8; EINECS/ELINCS 231-545-4
Uses: Carrier, cleanser, desiccant, flow aid,
grinding aid in pharmaceuticals
Regulatory: FDA approved; kosher; DOT not
regulated; SARA §302/304/313, CERCLA
nonreportable; Canada DSL; Australia AICS;
Japan MITI
Properties: Wh. powd.; insol. in water; sp.gr. 2.1;
m.p. ≈ 1600 C; pH 6.5-8.0 (10% slurry)
Toxicology: LD50 (oral, rat, 48 h) > 31,600
mg/kg, (dermal, rabbit, 48 h) > 2 g/kg; LC50
(inh., rat, 1 h) > 2 mg/l
Precaution: Wear safety glasses, gloves for
prolonged, repeated contact; avoid breathing
dust
HMIS: Health 1, Flammability 0, Reactivity 0
Storage: Store in dry area

http://www.mic-global.com; http://www.millenniumchem.com]
Chem. Descrip.: Silica gel USP (94-96%) and water
(4-6%) See Silica, amorphous
CAS 112926-00-8; EINECS/ELINCS 231-545-4
Uses: Carrier, cleansing agent, desiccant,
powd. dispersant, flow aid, grinding aid in
pharmaceuticals
Regulatory: FDA approved; kosher; USP
compliance; DOT not regulated; SARA
§302/304/313, CERCLA nonreportable;
Canada DSL; Australia AICS; Japan MITI

Chem. Descrip.: Silica gel (94-96%) and water
(4-6%) See Silica, amorphous
CAS 112926-00-8; EINECS/ELINCS 231-545-4
Uses: Carrier, anticaking agent, absorbent,
dispersant, grinding aid, cleansing agent,
desiccant, flow aid in pharmaceuticals;
thickener for creams, gels, and pastes;
tabling agent, anti-sticking agent, mold
release agent in pharmaceutical tablets
Features: Chemically pure; does not impart
taste, color, or odor
Regulatory: FDA approved; kosher; USP
compliance; DOT not regulated; SARA
§302/304/313, CERCLA nonreportable;
Canada DSL; Australia AICS; Japan MITI
Properties: Wh. powd.; insol. in water; sp.gr. 2.1;
m.p. ≈ 1600 C; pH 6.5-8.0 (10% slurry)
Toxicology: LD50 (oral, rat, 48 h) > 31,600
mg/kg, (dermal, rabbit, 48 h) > 2 g/kg; LC50
(inh., rat, 1 h) > 2 mg/l
Precaution: Wear safety glasses, gloves for
prolonged, repeated contact; avoid breathing
dust
HMIS: Health 1, Flammability 0, Reactivity 0
Storage: Store in dry area

http://www.mic-global.com; http://www.millenniumchem.com]
Chem. Descrip.: Silica gel (94-96%) and water
(4-6%) See Silica, amorphous
CAS 112926-00-8; EINECS/ELINCS 231-545-4
Uses: Carrier, anticaking agent, absorbent,
dispersant, grinding aid, cleansing agent,
desiccant, flow aid in pharmaceuticals;
thickener for creams, gels, and pastes;
tabling agent, anti-sticking agent, mold
release agent in pharmaceutical tablets
Features: Chemically pure; does not impart
taste, color, or odor
Regulatory: FDA approved; kosher; USP
compliance; DOT not regulated; SARA
§302/304/313, CERCLA nonreportable;
Canada DSL; Australia AICS; Japan MITI
Properties: Wh. powd.; insol. in water; sp.gr. 2.1;
m.p. ≈ 1600 C; pH 6.5-8.0 (10% slurry)
Toxicology: LD50 (oral, rat, 48 h) > 31,600
mg/kg, (dermal, rabbit, 48 h) > 2 g/kg; LC50
(inh., rat, 1 h) > 2 mg/l
Precaution: Wear safety glasses, gloves for
prolonged, repeated contact; avoid breathing
dust
HMIS: Health 1, Flammability 0, Reactivity 0
Storage: Store in dry area
Trade Name Reference

Properties: Wh. powd.; insol. in water; sp.gr. 2.1; m.p. ≈ 1600 C; pH 6.5-8.0 (10% slurry)
Toxicology: LD50 (oral, rat, 48 h) > 31,600 mg/kg, (dermal, rabbit, 48 h) > 2 g/kg; LC50 (inhal., rat, 1 h) > 2 mg/l
Precaution: Wear safety glasses, gloves for prolonged, repeated contact; avoid breathing dust
HMIS: Health 1, Flammability 0, Reactivity 0
Storage: Store in dry area

Chem. Descrip.: Silica gel USP (94-96%) and water (4-6%) See Silica, amorphous
CAS 112926-00-8; EINECS/ELINCS 231-545-4
Uses: Carrier, anticaking agent, absorbent, dispersant, grinding aid, cleansing agent, desiccant, flow aid in pharmaceuticals; tableting agent, antisticking agent, mold release agent in pharmaceutical tablets
Regulatory: FDA approved; kosher; USP compliance; DOT not regulated; SARA §302/304/313, CERCLA nonreportable; Canada DSL; Australia AICS; Japan MITI
Properties: Wh. powd.; insol. in water; sp.gr. 2.1; m.p. ≈ 1600 C; pH 6.5-8.0 (10% slurry)
Toxicology: LD50 (oral, rat, 48 h) > 31,600 mg/kg, (dermal, rabbit, 48 h) > 2 g/kg; LC50 (inhal., rat, 1 h) > 2 mg/l
Precaution: Wear safety glasses, gloves for prolonged, repeated contact; avoid breathing dust
HMIS: Health 1, Flammability 0, Reactivity 0
Storage: Store in dry area

Chem. Descrip.: Silica gel (94-96%) and water (4-6%) See Silica, amorphous
CAS 112926-00-8; EINECS/ELINCS 231-545-4
Uses: Carrier, anticaking agent, absorbent, dispersant, grinding aid, cleansing agent, desiccant, flow aid in pharmaceuticals; thickener for creams, gels, and pastes; tableting agent, antisticking agent, mold release agent in pharmaceutical tablets
Regulatory: FDA approved; kosher; DOT not regulated; SARA §302/304/313, CERCLA nonreportable; Canada DSL; Australia AICS; Japan MITI
Properties: Wh. powd.; insol. in water; sp.gr. 2.1; m.p. ≈ 1600 C; pH 6.5-8.0 (10% slurry)
Toxicology: LD50 (oral, rat, 48 h) > 31,600 mg/kg, (dermal, rabbit, 48 h) > 2 g/kg; LC50 (inhal., rat, 1 h) > 2 mg/l
Precaution: Wear safety glasses, gloves for prolonged, repeated contact; avoid breathing dust
HMIS: Health 1, Flammability 0, Reactivity 0
Storage: Store in dry area

Chem. Descrip.: Amorphous silica gel See Silica, amorphous hydrated
CAS 63231-67-4; EINECS/ELINCS 231-545-4
Uses: Carrier, cleanser, desiccant, powd. dispersant, flow aid in pharmaceuticals
Features: Chemically stable and inert
Regulatory: FDA approved; kosher
Properties: Fine wh. odorless powd.; insol. in water; m.p. ≈ 1600 C; pH (10% slurry) 3 - 6
Toxicology: ACGIH TLV/TWA 80 mg/m3/ % SiO2; LD50 (oral, rat) > 31,600 mg/kg; LD50 (dermal, rabbit) > 2000 mg/kg; not considered an ocular irritant based on tests with rabbits.; noncarcinogenic; TSCA listed
Environmental: No known adverse effects on the aquatic environment.

Silfar® 1000 [Wacker-Chemie AG http://www.wacker.de]
Chem. Descrip.: Polydimethylsiloxane USP
CAS 9016-00-6
Uses: Antifoam agent for antiflatulence (carminative) and antacid coated and uncoated tablets
Features: Forms a protective lining on e.g. the gastric mucous membrane
Regulatory: USP, EP
Silfar® 350 [Wacker-Chemie AG http://www.wacker.de]
Chem. Descrip.: Polydimethylsiloxane USP
CAS 9016-00-6
Uses: Antifoam agent for antiflatulence (carminative) and antacid coated and uncoated tablets
Features: Forms a protective lining on e.g. the gastric mucous membrane
Regulatory: USP, EP
Silfar® 500 [Wacker-Chemie AG http://www.wacker.de]
Chem. Descrip.: Polydimethylsiloxane USP
CAS 9016-00-6
Uses: Antifoam agent for antiflatulence
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Chem. Descrip.:</strong></td>
<td>Silicone emulsion</td>
</tr>
<tr>
<td><strong>Uses:</strong></td>
<td>Antifoam for pharmaceutical processing</td>
</tr>
<tr>
<td><strong>Regulatory:</strong></td>
<td>FDA 21CFR §173.340, 175.105, 176.200, 176.210; EPA 40CFR §180.1001(d);</td>
</tr>
<tr>
<td>USDA compliance for</td>
<td>egg washing, cleaning meat-processing equip., fruit/veg. washing,</td>
</tr>
<tr>
<td></td>
<td>printing ink, soups, etc.</td>
</tr>
<tr>
<td><strong>Properties:</strong></td>
<td>Creamy emulsion; poor dispersibility in water; visc. 15,000 cps;</td>
</tr>
<tr>
<td></td>
<td>anionic; 30% act.</td>
</tr>
<tr>
<td><strong>Use Level:</strong></td>
<td>30 ppm</td>
</tr>
<tr>
<td><strong>Storage:</strong></td>
<td>6 mos. storage life @ R.T.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Trade Name Reference</strong></th>
<th><strong>Silfoam® Emulsion SE 21 [Wacker Silicones <a href="http://www.wackersilicones.com">http://www.wackersilicones.com</a>]</strong></th>
</tr>
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<th><strong>Trade Name Reference</strong></th>
<th><strong>Silfoam® Emulsion SE 23 [Wacker Silicones <a href="http://www.wackersilicones.com">http://www.wackersilicones.com</a>]</strong></th>
</tr>
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<td>Silicone emulsion</td>
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<td>compliance for egg washing, cleaning meat-processing equip., fruit/veg.</td>
</tr>
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<td></td>
<td>washing, printing ink, soups, etc.</td>
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<tr>
<td><strong>Properties:</strong></td>
<td>Creamy emulsion; poor dispersibility in water; visc. 15,000 cps;</td>
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<td>anionic; 30% act.</td>
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<td><strong>Use Level:</strong></td>
<td>30 ppm</td>
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<td><strong>Storage:</strong></td>
<td>6 mos. storage life @ R.T.</td>
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</tbody>
</table>

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<tr>
<th><strong>Trade Name Reference</strong></th>
<th><strong>Silfoam® Emulsion SE 25 [Wacker Silicones <a href="http://www.wackersilicones.com">http://www.wackersilicones.com</a>]</strong></th>
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<td>6 mos. storage life @ R.T.</td>
</tr>
</tbody>
</table>
Trade Name Reference

http://www.gesilicones.com; Helena
http://www.helenachemical.com

Chem. Descrip.: Polyalkylene oxide-modified polymethylsiloxane
CAS 27306-78-1

Uses: Surfactant, flow control agent, leveling agent, dispersant, wetting agent, spreading agent for pharmaceuticals

Regulatory: SARA reportable

Properties: Pale amber cl. liq.; sol. in methanol, IPA, acetone, xylene, methylene chloride; disp. in water; m.w. 600; sp.gr. 1.007; dens. 8.37 lb/gal; vis. 20 cSt; vapor pressure < 1 mm Hg; f.p. 30 F; b.p. 150 F; pour pt. 2 C; cloud pt. < 10 C (0.1%); flash pt. (PMCC) 116 C; surf. tens. 20.5 dyne/cm (0.1% aq.); Draves wetting 8 s (0.1%); Ross-Miles foam 33 mm (0.1%, initial); VOC 2.96%; nonionic; 100% act.

Use Level: 0.025-0.25%

Toxicology: Mod. toxic, severe eye and mild skin irritant

Environmental: Highly toxic to fish

Precaution: Use protective gloves, glasses, clothing; prevent runoff

Hazardous Decomp. Prods.: CO₂, SiOₓ

NFPA: Health 2, Flammability 1, Reactivity 0

Storage: Store at R.T. in tightly sealed containers

Silwet® L-720 AP [GE Silicones http://www.gesilicones.com]

Chem. Descrip.: Dimethicone copolyol

Uses: Surfactant, leveling agent, flow control agent for pharmaceuticals

Regulatory: FDA approved as antiseize agent in glass food containers

Properties: Colorless cl. liq.; sol. in water, methanol, IPA, acetone, xylene, methylene chloride; m.w. 12,000; sp.gr. 1.036; dens. 8.61 lb/gal; vis. 1100 cSt; HLB 5-8; cloud pt. < 10 C (0.1%); flash pt. (PMCC) 96 C; pour pt. -34 C; surf. tens. 29.3 dyne/cm (0.1% aq.); Draves wetting > 300 s (0.1%); Ross-Miles foam 43 mm (0.1%, initial); VOC 0.68%; nonionic; 50% act.

Storage: Store at R.T. in tightly sealed containers

Silwet® L-7500 [GE Silicones http://www.gesilicones.com]

Chem. Descrip.: Polyalkyleneoxide modified polydimethylsiloxane (< 100%) and polyalkylene oxide (< 20%) See Allyloxypolyethyleneglycol methyl ether

CAS 68938-54-5; 27252-80-8

Uses: Surfactant, defoamer, dispersant, emulsifier, leveling agent, flow control agent for pharmaceuticals

Regulatory: DOT unregulated if shipped in containers < 450 L; CERCLA nonreportable; SARA §311/312/313 nonreportable; MA Right-to-Know reportable; PA Right-to-Know nonreportable; NJ Right-to-Know reportable; Canada DSL; Europe EINECS; Australia AICS; Japan ENCS; Korea ECL; Philippines PICCS

Properties: Pale yel. cl. liq.; mild odor; sol. in methanol, IPA, acetone, xylene, hexanes, methylene chloride; insol. in water; m.w. 3000; sp.gr. 0.982; dens. 8.16 lb/gal; vis. 140 cSt; vapor pressure < 1.33 hPa; HLB 5-8; m.p. -43 C; b.p. > 150 C; flash pt. (PMCC) 93.33 C; pour pt. -15 C; surf. tens. 26.6 dyne/cm (1.1% aq.); VOC 1.29%; nonionic; 100% act.

Use Level: 0.025-0.25%

Toxicology: LD50 (oral, rat) > 5000 mg/kg, (skin, rabbit) > 2000 mg/kg; harmful if inh.; may cause lung damage, sl. skin, eye irritation; TSCA listed

Precaution: Use protective gloves, glasses, clothing; prevent runoff

Hazardous Decomp. Prods.: COx, SiOx

HMIS: Health 1, Flammability 1, Reactivity 0

Storage: Store at R.T. in tightly sealed containers; keep away from heat and flame

Silwet® L-7602 [GE Silicones http://www.gesilicones.com]

Chem. Descrip.: Polyalkyleneoxide modified polydimethylsiloxane

Uses: Surfactant, antifoam, dispersant, emulsifier, leveling agent, flow control agent for pharmaceuticals

Regulatory: DOT unregulated if shipped in containers < 450 L; CERCLA nonreportable; SARA §311/312/313 nonreportable; MA Right-to-Know reportable; PA Right-to-Know nonreportable; NJ Right-to-Know reportable; Canada DSL; Europe EINECS; Australia AICS; Japan ENCS; Korea ECL; Philippines PICCS

Properties: Pale yel. cl. liq.; mild odor; sol. in methanol, IPA, acetone, xylene, methylene chloride; disp. in water; m.w. 3000; sp.gr. 1.027; dens. 8.54 lb/gal; vis. 100 cSt; vapor pressure < 1.33 hPa; HLB 5-8; m.p. 3 C; b.p. > 150 C; flash pt. (PMCC) 93.33 C; pour pt. -15 C; surf. tens. 26.6 dyne/cm (1.1% aq.); VOC 1.29%; nonionic; 100% act.
Trade Name Reference

Skin, rabbit > 2000 mg/kg; harmful if inh.; sl. eye, skin irritation
Precaution: Use protective gloves, glasses; combustible; prevent runoff
Hazardous Decomp. Prods.: CO<sub>x</sub>, SiO<sub>x</sub>
HMIS: Health 0, Flammability 1, Reactivity 0
Storage: Store at R.T. in tightly sealed containers

Simchin® Natural [RITA http://www.ritacorp.com]
Chem. Descrip.: Jojoba oil See Jojoba (Buxus chinensis) oil
CAS 61789-91-1
Uses: Coating material and carrier for pharmaceuticals and topicals; moisturizer, emollient, conditioner, spreading agent for skin care prods.
Properties: Yel. liq.; sp.gr. 0.863-0.864; f.p. 7-10.6 C; m.p. 6.8-7 C; acid no. 2 max.; iodine no. 82-93; sapon. no. 92-95.6; ref. index 1.4650-1.4665
Toxicology: Nontoxic

Simchin® Refined [RITA http://www.ritacorp.com]
Chem. Descrip.: Jojoba oil See Jojoba (Buxus chinensis) oil
CAS 61789-91-1
Uses: Coating material and carrier for pharmaceuticals and topicals; moisturizer, emollient, conditioner, spreading agent for skin care prods.
Features: Highest quality; for use when low odor and color is important
Properties: Gardner 1 liq. wax, almost odorless; sp.gr. 0.863-0.864; f.p. 7-10.6 C; m.p. 6.8-7 C; acid no. 2 max.; iodine no. 82-93; sapon. no. 92-95.6; ref. index 1.4650-1.4665; 100% conc.
Toxicology: Nontoxic, nonirritating

Chem. Descrip.: Simethicone
CAS 8050-81-5
Uses: Antifoam in gel or tablet form antiflatulent preparations for the treatment of intestinal gas and bloating
Features: Outstanding reliability, versatility; highly effective; acceptable under most countries' regulations
Regulatory: EP
Properties: 100% act
Toxicology: Prolonged contact with skin, eyes may cause some irritation; low toxicity
Storage: 1 yr. when stored @ < 32 C in unopened container

Chem. Descrip.: Simethicone
Chem. Analysis: Silicone 30%
CAS 8050-81-5
Uses: Antifoam in antiflatulent preparations for the treatment of intestinal gas and bloating
Features: Outstanding reliability, versatility; highly effective; acceptable under most countries' regulations
Regulatory: USP
Properties: Off-wh. emulsion; disp. in hot or cold aq. systems; sp.gr. 1.0
Use Level: 100-500 ppm
Toxicology: Prolonged contact with skin, eyes may cause some irritation; low toxicity
Storage: 1 yr. when stored @ < 35 C in unopened container

Simulsol® 58 [Seppic http://www.seppic.com]
Chem. Descrip.: Ceteth-20
CAS 9004-95-9
Uses: O/w emulsifier, gellant, stabilizer, wetting agent, detergent, dispersant, solubilizer for pharmaceutical actives and essential oils for creams and ointments, depilatories, antiperspirants, skin care
Regulatory: BP compliance
Properties: Flakes; sol. @ 10% in water, ethanol 95 C; sol. hot in propylene glycol; insol. in vaseline oil; m.p. 40 C; HLB 15.7; acid no. 0.5 max.; hyd. no. 50-58; cloud pt. 91 C; pH 6.5-7.5 (10% aq.); nonionic; 100% conc.
Toxicology: LD50 (oral, rat) 2.5 g/kg; nonirritating to skin, mildly irritating to eyes

Simulsol® 78 [Seppic http://www.seppic.com]
Chem. Descrip.: Steareth-20
CAS 9004-95-9
Uses: Emulsifier, gellant, stabilizer, wetting agent, detergent, dispersant, solubilizer for pharmaceuticals (creams, ointments), skin care, depilatories, antiperspirants
Regulatory: USP
Properties: Wax; sol. @ 10% in 95 C ethanol, propylene glycol; insol. in water, vaseline oil; HLB 15.3; m.p. 44 C; acid no. 1 max.; hyd. no. 45-60; cloud pt. 90 C; pH 6.5-7.5 (10% aq.); nonionic; 100% conc.
Toxicology: LD50 (oral, rat) > 4 g/kg
Simulsol® 98  [Seppic  
http://www.seppic.com]  
Chem. Descrip.:  Oleth-20    
CAS  9004-98-2    
Uses:  Emulsifier, gellant, stabilizer, wetting agent, detergent, dispersant, solubilizer for pharmaceutical formulations (creams, ointments), skin care, depilatories, antiperspirants; solubilizer for min. oil, veg. oil, lanolin    
Properties:  Soft wax; sol. @ 10% in water, 95 C ethanol; disp. in propylene glycol; insol. in vaseline oil; m.p. 25 C; HLB 15.3; acid no. 1 max.; hyd. no. 50-60; cloud pt. 88 C; pH 6.5-7.5 (10% aq.); nonionic; 100% conc.    
Toxicology:  LD50 (oral, rat) 2.5 g/kg

Simulsol® 165  [Seppic  
http://www.seppic.com]  
Chem. Descrip.:  PEG-100 stearate, glyceryl stearate; free of dioxane and other impurities    
Uses:  O/w emulsifier, opacifier, gellant for pharmaceuticals, esp. hydrophilic anhyd. ointments; stabilizer for other emulsifying systems    
Features:  Self-emulsifying; acid-stable    
Properties:  Gardner 1 max. flakes; m.p. 55-59 C; acid no. 1 max.; sapon. no. 90-97; hyd. no. 110-130; pH 6.0-7.5 (10% aq.); nonionic; 100% act.    
Toxicology:  Nontoxic; well tolerated by skin

Simulsol® 989  [Seppic  
http://www.seppic.com]  
Chem. Descrip.:  PEG-7 hydrogenated castor oil    
CAS  61788-85-0    
Uses:  W/o emulsifier for pharmaceutical fluid and semifluid emulsions    
Features:  Lipophilic    
Properties:  Gardner 4 max. liq.; acid no. 1.5 max.; sapon. no. 120-140; hyd. no. 115-135; pH 6.0-7.5 (5% aq.); nonionic; 100% act.    
Toxicology:  LD50 (oral, rat) > 30 g/kg; very good safety for skin and mucous membranes

Simulsol® 1292  [Seppic  
http://www.seppic.com]  
Chem. Descrip.:  PEG-25 hydrogenated castor oil    
CAS  61788-85-0    
Uses:  Emulsifier, solubilizer for pharmaceuticals    
Properties:  Liq.; nonionic; 100% act.    
Simulsol® 1293  [Seppic

Simulsol® CS  [Seppic  
http://www.seppic.com]  
Chem. Descrip.:  Ceteareth-33    
CAS  68439-49-6    
Uses:  Emulsifier, gellant, stabilizer, wetting agent, detergent, dispersant, solubilizer for pharmaceuticals (creams, ointments), skin care, depilatories, antiperspirants    
Properties:  Flakes; sol. @ 10% in 95 C ethanol, propylene glycol; disp. in vaseline oil; insol. in water; m.p. 47-52 C; HLB 18.0; acid no. 1 max.; hyd. no. 32-39; nonionic; 100% act.    
Toxicology:  LD50 (oral, rat) > 15 g/kg; nonirritating to skin and eyes

Simulsol® M 52  [Seppic  
http://www.seppic.com]  
Chem. Descrip.:  PEG-40 stearate    
CAS  9004-99-3    
Uses:  O/w emulsifier for pharmaceuticals, esp. hydrophilic anhyd. ointments    
Regulatory:  USP compliance    
Properties:  Flakes; sol. @ 10% in water, ethanol; disp. in propylene glycol; insol. in vaseline oil; m.p. 47 C; HLB 16.9; acid no. 1 max.; sapon. no. 25-35; hyd. no. 27-40; pH 6.0-7.5 (10% aq.); nonionic; 100% conc.    
Toxicology:  LD50 (oral, rat) > 16 g/kg; nonirritating to skin and eyes

Simulsol® OL 50  [Seppic  
http://www.seppic.com]  
Chem. Descrip.:  PEG-40 castor oil    
CAS  61791-12-6    
Uses:  Emulsifier, solubilizer for pharmaceuticals    
Properties:  Nonionic

Simulsol® P4  [Seppic  
http://www.seppic.com]  
Chem. Descrip.:  Laureth-4    
CAS  5274-68-0; EINECS/ELINCS 226-097-1    
Uses:  O/w emulsifier, gellant, stabilizer, wetting agent, detergent, dispersant, solubilizer for pharmaceuticals (creams, ointments), skin care, depilatories, antiperspirants
Trade Name Reference

**Properties:** Liq.; sol. @ 10% in 95 C ethanol, vaseline oil, propylene glycol; disp. in water; HLB 9.7; acid no. 2 max.; hyd. no. 145-165; cloud pt. 64-69 C; pH 6.5-7.5 (10% aq.); nonionic; 100% conc.

**Toxicology:** LD50 (oral, rat) 9 g/kg; mildly skin irritant

**Simulsol® P23** [Seppic http://www.seppic.com]

Chem. Descrip.: Laureth-23

CAS 9002-92-0

Uses: O/w emulsifier, gellant, stabilizer, wetting agent, detergent, dispersant, solubilizer for pharmaceuticals (creams, ointments), skin care, depilatories, antiperspirants

**Properties:** Wax; sol. @ 10% in water, 95 C ethanol, propylene glycol; insol. in vaseline oil; m.p. 41 C; HLB 16.9; acid no. 2 max.; hyd. no. 40-60; cloud pt. 95 C; pH 6.5-7.5 (10% aq.); nonionic; 100% act.

**Toxicology:** LD50 (oral, rat) 9 g/kg; nonirritating to skin

**Sinopol 170TFH-S9** [Sino-Japan http://www.sjc.com.tw]

Chem. Descrip.: Surfactant

Uses: Surfactant for pharmaceuticals

**Properties:** Gardner < 10 liq.; sp.gr. 1.046; pH 5-7; nonionic; 10% moisture

**Sipernat® 22LS** [Degussa/Fillers & Pigments http://www.degussa-fp.com; Degussa AG/Fillers & Pigments http://www.degussa-krefeld.com]

Chem. Descrip.: Precipitated silica See Silica, hydrated

Chem. Analysis: SiO2 (99.5%), Na2SO4 (1%), Fe2O3 (0.03%), moisture (4% max.)

CAS 1343-98-2; EINECS/ELINCS 215-683-2

Uses: Thickener for pharmaceuticals; flow aid for hygroscopic materials with poor flow chars., e.g., vitamins; inert carrier for actives

**Regulatory:** FDA approved

**Properties:** 3.5 µ avg. particle size; dens. 80 g/l (tapped); BET surf. area 190 m²/g; pH 6.2

**Sipernat® 22S** [Degussa AG/Fillers & Pigments http://www.degussa-fp.com; Degussa AG/Fillers & Pigments http://www.degussa-krefeld.com]

Chem. Descrip.: Precipitated silica See Silica, hydrated

CAS 1343-98-2; EINECS/ELINCS 215-683-2

Uses: Flow control agent, anticaking agent

**Features:** Hydrophilic


Chem. Descrip.: Precipitated silica See Silica, hydrated

Chem. Analysis: SiO2 (99.5%), Na2SO4 (1%), Fe2O3 (0.03%), moisture (4% max.)

CAS 1343-98-2; EINECS/ELINCS 215-683-2

Uses: Used in pharmaceutical preps.

**Properties:** Powd.; dens. 500 g/l (tapped); pH 11.8 (5% aq. susp.)

**Sipernat® 160PQ** [Degussa AG/Fillers & Pigments http://www.degussa-krefeld.com]

Chem. Descrip.: Syn. amorphous precipitated silica See Silica, amorphous

Chem. Analysis: SiO2 content >99.0%  
CAS 112926-00-8; EINECS/ELINCS 231-545-4

Uses: Adsorbent, anticaking agent, glidant for pharmaceuticals

**Features:** Good dispersion characteristics

**Regulatory:** USP/NF, DAB, EP

**Properties:** Mean particle size 7 μ; tamped dens. 80 g/l; sp. surf. area 165 m²/g; pH 5.5 (5% sol’n.)
**Trade Name Reference**

**Sipernat® 300DS** [Degussa AG/Fillers & Pigments http://www.degussa-krefeld.com; Eigenmann & Veronelli http://www.eigver.it]
Chem. Descrip.: Precipitated silica  See Silica, hydrated
Chem. Analysis: SiO₂ (98%), Al₂O₃ (0.2%)
CAS 1343-98-2; EINECS/ELINCS 215-683-2
Uses: Glideant for pharmaceuticals
Features: Hydrophilic
Properties: Powd.; 10 nm avg. particle size; dens. 90 g/l (tapped); DBP absorp. 260%; surf. area 300 m²/g; pH 6.5 (5% aq. susp.)

**Sipernat® 310** [Degussa AG/Fillers & Pigments http://www.degussa-krefeld.com; Eigenmann & Veronelli http://www.eigver.it]
Chem. Descrip.: Precipitated silica  See Silica, hydrated
Chem. Analysis: SiO₂ (>97%), Na₂SO₄ (<3%)
CAS 1343-98-2; EINECS/ELINCS 215-683-2
Uses: Adsorbent, glidant in pharmaceuticals
Properties: Powd.; 8 nm avg. particle size; dens. 130 g/l (tapped); DBP absorp. 210%; surf. area 650 m²/g; pH 7 (5% aq. susp.); 99% assay

**Sipernat® 320** [Degussa AG/Fillers & Pigments http://www.degussa-krefeld.com; Eigenmann & Veronelli http://www.eigver.it]
Chem. Descrip.: Precipitated silica  See Silica, hydrated
Chem. Analysis: SiO₂ (98%), Na₂SO₄ (2%)
CAS 1343-98-2; EINECS/ELINCS 215-683-2
Uses: Adsorbent, glidant in pharmaceuticals
Features: Hydrophilic
Properties: Powd.; 18 nm avg. particle size; dens. 240 g/l (tapped); DBP absorp. >200%; surf. area 170 m²/g; pH 6.3 (5% aq. susp.); 98% assay

**Sipernat® 500LS** [Degussa AG/Fillers & Pigments http://www.degussa-krefeld.com]
Chem. Descrip.: Amorphous precipitated silica  See Silica, amorphous
Chem. Analysis: SiO₂ (99%), moisture (3%)
CAS 112926-00-8; EINECS/ELINCS 231-545-4
Uses: Thickener in pharmaceuticals; flow aid for hygroscopic materials with poor flow chars., e.g., vitamins; inert carrier for active substances
Regulatory: FDA approved
Properties: Powd.; 3.5 µ avg. particle size; dens 80 g/l (tapped); BET surf. area 475 m²/g; pH 6.3 (5% aq. susp.)

**Sipernat® 820A** [Degussa AG/Fillers & Pigments http://www.degussa-krefeld.com]
Chem. Descrip.: Sodium silicoaluminate
Chem. Analysis: SiO₂ (82%); 9.5% Al₂O₃ (9.5%); Na₂O (8%)
CAS 1344-00-9; EINECS/ELINCS 215-684-8
Uses: Adsorbent for pharmaceuticals
Properties: 5 µm mean particle size; dens. 300 g/l (tapped); surf. area 85 m²/g; pH 10.1 (5% aq.)
Toxicology: TSCA listed

**Sipernat® D10** [Degussa/Fillers & Pigments http://www.degussa-fp.com; Degussa AG/Fillers & Pigments http://www.degussa-krefeld.com]
Chem. Descrip.: Precipitated silica  See Silica, hydrated
Chem. Analysis: SiO₂ (98%); Na₂SO₄ (2%)
CAS 1343-98-2; EINECS/ELINCS 215-683-2
Uses: Free-flowing agent used in pharmaceutical preps.
Features: Hydrophobic
Properties: 4-7 µm avg. agglomerate size; sp.gr. 2.1; tapped dens. 100 g/l; surf. area (BET) 90 m²/g; DBP absorp. 240 g/100 g; pH 9.3-11.3; ≤4% moisture (2 h @ 105 C)

**Sipoest MO-9** [Lubrizol Perf. Prods.]
Chem. Descrip.: PEG 400 monooleate  See PEG-8 oleate
CAS 9004-96-0
Uses: Emulsifier, dispersant in pharmaceuticals
Properties: Liq.; sol. in toluene, min. oil, and isopropanol; disp. in water; HLB 12.2; acid no. 2 max.; sapon. no. 80-85; nonionic

Chem. Descrip.: Modified wheat starch  See Wheat (Triticum vulgare) starch
CAS 9005-25-8; EINECS/ELINCS 232-679-6
Uses: Flow aid, oil absorbent, moisture absorbent, feel enhancer in cosmetic powds., skin care, creams/lotions, ointments, sunscreens, antiperspirants, balms
Features: Low friction; nongreasy
Properties: Wh. powd.; 70% min. through 200 mesh; bland odor; 9-12% moisture
Storage: Store under cool, dry, sanitary conditions

**S-Maz® 60K** [BASF/Perf. Chems. http://www.basf.com/static/98804217008.h]
Sorbitan stearate
CAS 1338-41-6; EINECS/ELINCS 215-664-9
Uses: Emulsifier and coupling agent for pharmaceuticals, creams and lotions
Properties: Wh. to cream flakes, ester odor; sol. in ethanol; disp. in water; sp.gr. 0.954 (70 C); m.p. 52 C; b.p. > 300 F; acid no. 10 max.; sapon. no. 147-157; hyd. no. 235-260; flash pt. (PMCC) > 350 F; nonionic
Toxicology: LD50 (oral, rat) > 32 g/kg; nonirritating
Storage: Store in well-ventilated area below 120 F

Calcium sulfate anhyd.
CAS 7778-18-9; EINECS/ELINCS 231-900-3
Uses: Diluent and inert extender in pharmaceuticals; dietary calcium supplement
Regulatory: GRAS, FCC, and NF compliant
Properties: Wh. free-flowing powd.; low to no odor; 7 µ median particle size; sol. in water (0.26 g/100 cc); sp.gr. 2.96; bulk dens. ≈ 45-70 lb/ft³; ref. index 1.56; pH 10.4; comp. > 1450 C
Toxicology: Direct contact may cause eye, skin and/or respiratory irritation
Environmental: Zero VOC content; no known adverse effect on the ecology.
NFPA: Health 0, Flammability 0, Reactivity 0
Storage: Store @ R.T. in dry location; keep containers closed when not in use

Precipitated calcium carbonate
CAS 471-34-1; EINECS/ELINCS 207-439-9
Uses: Functional filler in pharmaceutical preps.
Features: High level of flowability
Regulatory: EP
Properties: Wh. odorless, rhombohedral solid; cube-like crystal shape; particle size (mean) 180 nm; sp. surface 10 m²/g; brightness 97%; sl. sol. in water with no CO₂; comp. temp 700-900 C
Toxicology: LD50 (oral, rat) > 2,000 mg/kg; irritant to eyes; sl. irritant to skin
Hazardous Decomp. Prods.: CaO
Storage: Room temperature, dry location; keep containers closed when not in use

Antimicrobial for pharmaceutical deodorants
Preservative, antioxidant, and vitamin C source in pharmaceuticals, esp. where neutral pH and less acid taste are important, and where free-flowing gran. prod. is required
Regulatory: FDA GRAS, USP, FCC, Ph. Eur.
Properties: Wh. to ylsh. cryst. powd., pract.
odorless, pleasantly saline taste with tart overtone; 90% through 80 mesh, 95% max. through 100 mesh; sol. 90 g/100 ml water; m.w. 198.11; bulk dens. 0.8-1.1 (tapped); pH 7-8 (10% aq.); 99-101% (dry) assay

Precaution: Oxidizes readily in sol’n.; exposure to light or atmospheric moisture may darken prod.; avoid contact with iron, copper, or nickel salts

Storage: Store in tight, light-resist. containers, optimally @ ≤ 72 F; avoid exposure to moisture and excessive heat

Chem. Descrip.: Sodium benzoate CAS 532-32-1; EINECS/ELINCS 208-534-8
Uses: Preservative for pharmaceutical and dental formulations; tableting lubricant for pharmaceuticals
Regulatory: DOT nonregulated
Properties: Wh. cryst. powd.; odorless; easily sol. in cold water; very sl. sol. in methanol; m.w. 160.22; sp.gr. 1.5; b.p. > 300 C; 100% act.

Toxicology: LD50 (oral, rat) > 4800 mg/kg, (oral, mouse) 1600 mg/kg, (oral rabbit, 2000 mg/kg, (oral, dog) 200 mg/kg; may cause eye, skin, respiratory tract irritation
Precaution: May be slippery when wet; may be combustible at high temps.; may form explosive dust-air mixts.; incompat. with ferric salts, acids, oxidizers

Hazardous Decomp. Prods.: Compds. of C, H, N, and O, pungent fumes; combustion prods.: CO, CO2
HMIS: Health 1, Flammability 1, Reactivity 0
Storage: Hygroscopic; store in ventilated area away from ignition sources

Chem. Descrip.: Sodium bicarbonate USP CAS 144-55-8; EINECS/ELINCS 205-633-8
Uses: Buffer in pharmaceuticals (antibiotic mfg.)
Regulatory: USP/FCC
Properties: Wh. free-flowing cryst., odorless;trace on 80 mesh, 2.0% max. on 100 mesh; bulk dens. 60 lb/ft3; 99% min. assay
Storage: 36mos. shelf life

Sodium Caseinate Spray F&P [Am. Casein http://www.americancasein.com]
Chem. Descrip.: Sodium caseinate CAS 9005-46-3
Uses: Binder, emulsifier for pharmaceuticals
Regulatory: Kosher
Properties: Wh. to lt. cream free-flowing powd.; clean/bland odor/flavor; pH 6.6-7.2; 6% moisture

Storage: Store in cool, dry place

Sodium Hyaluronate Bio [Kelisema Srl http://www.kelisema.it]
Chem. Descrip.: Sodium hyaluronate CAS 9067-32-7; EINECS/ELINCS 232-678-0
Uses: Natural ingred. for pharmaceuticals

Sofracerine 165 [Baerlocher France]
Chem. Descrip.: Microcrystalline wax CAS 63231-60-7; EINECS/ELINCS 264-038-1
Uses: Binder, emulsion stabilizer, opacifier, thickener in pharmaceuticals
Features: Wax derived from petroleum
Properties: Drop pt. 90-100 C; solid. pt. 78-83 C; penetration 6-11 dmm

Sofracerine 185 [Baerlocher France]
Chem. Descrip.: Microcrystalline wax CAS 63231-60-7; EINECS/ELINCS 264-038-1
Uses: Binder, emulsion stabilizer, opacifier, thickener in pharmaceuticals
Features: Wax derived from petroleum
Properties: Drop pt. 95-105 C; solid. pt. 80-90 C; penetration 7-10 dmm

Chem. Descrip.: C18 fatty acid triglyceride See C18 acid triglyceride
Uses: Compressing aid in tableting technical substances; hydrophobing agent against moisture; release agent, o/w emulsifier for topical and oral pharmaceuticals; o/w emulsifier for emulsions

Properties: Microfine powd.; neutral odor and taste; dens. 0.863 g/cm3 (80 C); visc. 17.1 mm2/s (80 C); m.p. 69-71 C; sapon. no. 188-190

Environmental: Biodeg.
Trade Name Reference

**Softigen® 701** [Sasol Germany](http://www.sasol.com); [http://www.sasololefinssurfactants.com](http://www.sasololefinssurfactants.com); Sasol N. Am. [http://www.sasolnorthamerica.com](http://www.sasolnorthamerica.com)

**Chem. Descrip.:** Glyceril ricinoleate

**CAS:** 141-08-2; EINECS/ELINCS 205-455-0

**Uses:** Emulsifier, emollient, refatting agent, spreading agent, skin protectant for pharmaceuticals (topicals, rectals, vaginals, creams, ointments, soaps, mucosal protectant in rectal/vaginal suppositories)

**Features:** Good adhesion to mucosa; environmentally compat.

**Regulatory:** JCIC

**Properties:** Ylsh.-wh. paste/cl. oily liq. @ 30-35 C, char. odor; sol. in ether, benzene, toluene, xylene, chloroform, and dichlorethylene; misc. with fats, oils; sp.gr. 0.979-0.981; visc. 500-600 mPa•s (30 C); acid no. 3 max.; iodine no. 70-80; sapon. no. 155-170; nonionic; 100% conc.

**Use Level:** 5-10%

**Softigen® 767** [Sasol Germany](http://www.sasol.com); [http://www.sasololefinssurfactants.com](http://www.sasololefinssurfactants.com); Sasol N. Am. [http://www.sasolnorthamerica.com](http://www.sasolnorthamerica.com)

**Chem. Descrip.:** PEG-6 caprylic/capric glycerides

**CAS:** 52504-24-2

**Uses:** Emulsifier, superfatting agent, wetting agent, solubilizer for volatile oils/fixed oils, emollient in pharmaceuticals (topicals, orals, treatment of psoriatic conditions)

**Features:** Environmentally compat.

**Regulatory:** Ph. Eur.

**Properties:** Ylsh. visc. oily liq., faint char. odor; sol. in water @ 1.3%; sol. in acetone, ethyl and butyl acetate, castor oil, IPA; dens. 1.080 g/ml; visc. 160 mPa•s; HLB 19; acid no. 1 max.; iodine no. 1 max.; sapon. no. 90-110; surf. tens. 29.7 dynes/cm (1%); nonionic; 100% act.

**Toxicology:** LD50 (oral, rat) > 5 g/kg (pract. nontoxic); nonirritating to skin and eyes

**Softisan® 100** [Sasol Germany](http://www.sasol.com); [http://www.sasololefinssurfactants.com](http://www.sasololefinssurfactants.com); Sasol N. Am. [http://www.sasolnorthamerica.com](http://www.sasolnorthamerica.com)

**Chem. Descrip.:** Hydrogenated coco-glycerides

**Uses:** Consistency agent, emollient, ointment base for pharmaceuticals, creams, ointments, sticks

**Features:** Cocoa butter substitute; environmentally compat.; assists penetration of skin by active ingreds.

**Properties:** Wh. pastilles; neutral odor and taste; sol. in benzene, ether, xylene, toluene, chloroform, CCl₄, dioxane; sp.gr. 0.950-0.980; visc. 30 cps (40 C); m.p. 32-34 C; solid. pt. 29-33 C; acid no. 0.2 max.; iodine no. 3 max.; sapon. no. 235-255; hyd. no. 15 max.; ref. index 1.445-1.449 (50 C)

**Softisan® 133** [Sasol Germany](http://www.sasol.com); [http://www.sasololefinssurfactants.com](http://www.sasololefinssurfactants.com); Sasol N. Am. [http://www.sasolnorthamerica.com](http://www.sasolnorthamerica.com)

**Chem. Descrip.:** Hydrogenated coco-glycerides

**Uses:** Fat component and consistency agent in pharmaceutical creams, ointments, sticks, capsules

**Features:** Environmentally compat.; assists penetration of skin by active ingreds.

**Properties:** Wh. pastilles; neutral odor and taste; sol. in benzene, toluene, acetone, chloroform, petrol. spirit; insol. in water; m.p. 32-34 C; solid. pt. 29-32 C; acid no. 0.2 max.; iodine no. 3 max.; sapon. no. 220-235; hyd. no. 15 max.; ref. index 1.445-1.449 (50 C)

**Softisan® 134** [Sasol Germany](http://www.sasol.com); [http://www.sasololefinssurfactants.com](http://www.sasololefinssurfactants.com); Sasol N. Am. [http://www.sasolnorthamerica.com](http://www.sasolnorthamerica.com)

**Chem. Descrip.:** Hydrogenated coco-glycerides

**Uses:** Fat component and consistency agent in pharmaceutical creams, ointments, sticks, capsules

**Features:** Environmentally compat.; assists penetration of skin by active ingreds.

**Properties:** Wh. pastilles; neutral odor and taste; sol. in benzene, toluene, acetone, chloroform, petrol. spirit; insol. in water; m.p. 33-36 C; solid. pt. 27-32 C; acid no. 0.3 max.; iodine no. 3 max.; sapon. no. 220-235; hyd. no. 40-50; ref. index 1.445-1.449 (50 C)

**Softisan® 138** [Sasol Germany](http://www.sasol.com); [http://www.sasololefinssurfactants.com](http://www.sasololefinssurfactants.com); Sasol N. Am. [http://www.sasolnorthamerica.com](http://www.sasolnorthamerica.com)
Trade Name Reference

Sasol N. Am.  
http://www.sasolnorthamerica.com

Chem. Descrip.: Hydrogenated coco-glycerides
Uses: Fat component and consistency agent in pharmaceutical creams, ointments, sticks, capsules
Features: Environmentally compat.; assists penetration of skin by active ingreds.
Properties: Wh. blocks; neutral odor and taste; sol. in benzene, toluene, acetone, chloroform, petrol. spirit; insol. in water; m.p. 37-40 C; solid. pt. 32-36 C; acid no. 1.5 max.; iodine no. 3 max.; sapon. no. 215-235; hyd. no. 15 max.; ref. index 1.445-1.449 (50 C)

Softisan® 142 [Sasol Germany  
http://www.sasol.com;  
http://www.sasololefinssurfactants.com;  
Sasol N. Am.  
http://www.sasolnorthamerica.com]

Chem. Descrip.: Hydrogenated coco-glycerides
Uses: Fat component and consistency agent in pharmaceutical creams, ointments, sticks, capsules
Features: Environmentally compat.; assists penetration of skin by active ingreds.
Properties: Wh. pastilles; neutral odor and taste; sol. in benzene, toluene, acetone, chloroform, petrol. spirit; insol. in water; m.p. 42-44 C; solid. pt. 37-42 C; acid no. 0.3 max.; iodine no. 3 max.; sapon. no. 245-260; hyd. no. 20 max.; nonionic; 100% act.

Softisan® 601 [Sasol Germany  
http://www.sasol.com;  
http://www.sasololefinssurfactants.com;  
Sasol N. Am.  
http://www.sasolnorthamerica.com]

Chem. Descrip.: Glycerol cocoate, hydrogenated coconut oil, and ceteareth-25
Uses: Emollient; self-emulsifying base for pharmaceutical o/w or anhyd. prods., washable o/w creams, wound and skin healing creams, hemorrhoidal ointments, steroid ointments, rheumatism creams
Features: Water absorption to 65%; environmentally compat.
Regulatory: USP, Ph.Eur.
Properties: Off-wh. to ylsh. pasty wax; m.p. 37-40 C; acid no. 1 max.; iodine no. 5 max.; sapon. no. 120-140; hyd. no. 230-270; nonionic; 100% conc.

Softisan® 378 [Sasol Germany  
http://www.sasol.com;  
http://www.sasololefinssurfactants.com;  
Sasol N. Am.  
http://www.sasolnorthamerica.com]

Chem. Descrip.: Bis-diglyceryl caprylate/caprate/isostearate/hydroxystearate adipate  See Bis-diglyceryl polyacyladipate-1
CAS 222722-06-7; EINECS/ELINCS 406-144-4
Uses: Neutral carrier for pharmaceutical apps.
Features: High polarity contributes to superior solvent characteristics for active drugs
Regulatory: JCIC
Properties: Ylsh. liq.; acid no. 3 max.; iodine no.
Trade Name Reference

Softisan® 649  [Sasol Germany  
http://www.sasol.com;  
http://www.sasololefinssurfactants.com;  
Sasol N. Am.  
http://www.sasolnorthamerica.com]

Chem. Descrip.: Bis diglyceryl caprylate/caprate/isostearate/stearate/hydroxystearate adipate  See Bis-diglyceryl polyacryl adipate-2
CAS 82249-33-0; EINECS/ELINCS 406-144-4
Uses: Emollient, ointment base, stabilizer for pharmaceutical creams, ointments, emulsions, skin care prod., hemorrhoidal creams, absorp. basic creams
Features: Lanolin substitute; good adhesion to skin, high water binding power; environmentally compat.
Regulatory: JCIC
Properties: Ylsh. paste; almost odorless; sol. in ether, chloroform; misc. with fats, oils; acid no. 2 max.; iodine no. 3 max.; sapon. no. 270-290; hyd. no. 55-85

Softisan® 701  [Sasol Germany  
http://www.sasol.com;  
http://www.sasololefinssurfactants.com;  
Sasol N. Am.  
http://www.sasolnorthamerica.com]

Chem. Descrip.: Glyceryl ricinoleate
CAS 141-08-2; EINECS/ELINCS 205-455-0
Uses: Protective agent, w/o coemulsifier in topical pharmaceuticals
Regulatory: JCIC
Properties: Ylsh.; water-disp.; m.p. 25 C

Softisan® 767  [Sasol Germany  
http://www.sasol.com;  
http://www.sasololefinssurfactants.com;  
Sasol N. Am.  
http://www.sasolnorthamerica.com]

Chem. Descrip.: PEG-6 caprylic/capric glycerides
CAS 52504-24-2
Uses: Solubilizer for pharmaceuticals; refatting agent
Regulatory: EP
Properties: Cl. liq.; sol. in water and polar oils

Softisan® Gel  [Sasol Germany  
http://www.sasol.com;  
http://www.sasololefinssurfactants.com;  
Sasol N. Am.  
http://www.sasolnorthamerica.com]

Chem. Descrip.: Bis diglyceryl caprylate/caprate/isostearate/hydroxystearate adipate, propylene glycol dicaprylate/dicaprate, stearalkonium hectorite, propylene carbonate  See Bis-diglyceryl polyacryl adipate-1
Uses: Consistency regulator, emulsion stabilizer for sun care prod.s., topical pharmaceuticals, ointments
Features: High temp. stabilizer; emulsifiable; environmentally compat.
Properties: Flesh-colored hard paste; acid no. 1 max.; iodine no. 3 max.; sapon. no. 250-280; 0.5% max. water

Solan  [Croda Inc  
http://www.croda.com;  
http://www.crodausa.com;  Croda Chem. Europe Ltd  
http://www.croda.co.uk]

Chem. Descrip.: PEG-60 lanolin
CAS 61790-81-6
Uses: Surfactant, emollient, conditioner, superfatting agent, emulsifier, solubilizer, visc. builder, foam stabilizer, plasticizer, humectant for topical aq. pharmaceuticals; emollient and cleanser in cleansing wipes
Features: Yel. wax; sol. in water, propylene glycol; sol. warm in IPA; m.p. 46-54 C; acid no. 2 max.; iodine no. 10 max.; sapon. no. 8-16; pH 5.5-7.0 (1% aq.); nonionic; 100% act.
Use Level: 1-10%
Toxicology: LD50 (oral, rat) > 5 g/kg; nonirritating to skin

Solan 50  [Croda Inc  
http://www.croda.com;  
http://www.crodausa.com]
Chem. Descrip.: PEG-60 lanolin
CAS 61790-81-6
Uses: Surfactant, emollient, conditioner, thickener, superfatting agent, foam stabilizer, plasticizer, humectant for pharmaceuticals; solubilizer for fragrances
Features: Hydrophilic
Properties: Gardner 11 max. visc. liq.; water-sol.; acid no. 2 max.; iodine no. 6 max.; sapon. no. 8 max.; pH 5.5-7.0 (1% aq.); nonionic; 50% act.
Use Level: 1-10%

Solan E  [Croda Chem. Europe Ltd  
http://www.croda.co.uk]
Chem. Descrip.: PEG-75 lanolin
CAS 61790-81-6
Uses: Nongreas vehicle in pharmaceuticals
Properties: Yel./brn. solid; mild odor; water-sol.; drop pt. 45-50 C; HLB 16.2; acid no. 2 max.; iodine no. 4-8; sapon. no. 15-24; nonionic; 100% conc.
Solan E50 [Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: Pharmaceutical grade PEG-75 lanolin and water
CAS 61790-81-6; EINECS/ELINCS 231-791-2
Uses: O/w emulsifier, wetting agent, solubilizer, emollient for topical pharmaceuticals; in iodophor-based teat dips for veterinary use
Properties: Yel. cl. visc. liq.; mild odor; water-sol.; acid no. 1 max.; iodine no. 3-11; sapon. no. 6-15; HLB 16.2; 46-51% water

Solan ELD [Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: Pharmaceutical-grade PEG-75 lanolin
CAS 61790-81-6; EINECS/ELINCS 231-791-2
Uses: Emollient, superfatting agent, solubilizer, cleansing agent for topical pharmaceuticals; in iodophor-based teat dips for veterinary use
Properties: Yel. pastilles; water-sol.; HLB 16.2

Chem. Descrip.: 2-Bromo-2-nitropropane-1,3-diol (99% min.), BP
CAS 52-51-7; EINECS/ELINCS 200-143-0
Uses: Preservative, bactericide for cosmetics, pharmaceuticals
Features: Broad spectrum activity against gram-positive and gram-negative bacteria
Regulatory: BP compliance

Chem. Descrip.: Paraben (99.5% min.) based
Uses: Preservative for pharmaceuticals
Properties: Readily sol. in water

Chem. Descrip.: Sodium paraben (99.5% min.) based
Uses: Preservative for pharmaceuticals
Properties: Readily sol. in water

Chem. Descrip.: Paraben (99.5% min.) based
Uses: Preservative for pharmaceuticals

Chem. Descrip.: Sodium paraben (99.5% min.) based
Uses: Preservative for pharmaceuticals

Solka-Floc® 100 NF [Int'l. Fiber http://www.ifcfiber.com]
Chem. Descrip.: Cellulose
CAS 9004-34-6; EINECS/ELINCS 232-674-9
Uses: Binder, diluent, disintegrant, stabilizer, absorption aid, tablet filler for pharmaceuticals, for direct compression and wet granulations
Regulatory: USP/NF, BP, EP, JP
Properties: Avg. particle size 40 µ; 95% min. through 60 mesh; dens. (tapped) 0.46 g/ml; pH 5.0-7.5

Solka-Floc® 200 NF [Int'l. Fiber http://www.ifcfiber.com]
Chem. Descrip.: Cellulose
CAS 9004-34-6; EINECS/ELINCS 232-674-9
Uses: Binder, diluent, disintegrant, stabilizer, absorption aid, tablet filler for pharmaceuticals
Properties: Avg. particle size 35 µ; 98% min. through 60 mesh; dens. (tapped) 0.46 g/ml; pH 5.0-7.5

Solka-Floc® 2030 NF [Int'l. Fiber http://www.ifcfiber.com]
Chem. Descrip.: Cellulose
CAS 9004-34-6; EINECS/ELINCS 232-674-9
Uses: Excipient, binder, diluent, disintegrant, stabilizer, moisture absorption aid, tablet filler for pharmaceuticals
Properties: Avg. particle size 35 µ; 80% min. through 100 mesh; dens. (tapped) 0.45 g/ml; pH 5.0-7.5

Solka-Floc® SF20P [Int'l. Fiber http://www.ifcfiber.com]
Chem. Descrip.: Cellulose
Uses: Binder, diluent, disintegrant, stabilizer, absorption aid, tablet filler for pharmaceuticals
Features: Noncaloric; inert; high wh. brightness; upon ing., immediate moisture absorption for disintegration
Properties: Creamy wh. pellets; dens. (bulk) 30.0 lb/ft³; water retention 6.0 g/g

Solka-Floc® SF Special Granular [Int'l. Fiber http://www.ifcfiber.com]
Chem. Descrip.: Cellulose
Trade Name Reference

CAS 9004-34-6; EINECS/ELINCS 232-674-9
Uses: Binder, diluent, disintegrant, stabilizer, absorption aid, tablet filler for pharmaceuticals
Features: Noncaloric; inert; high wh. brightness; upon ing., immediate moisture absorption for disintegration
Regulatory: USP/NF, BP, EP, JP
Properties: Dens. (bulk) 28.0 lb/ft³; water retention 3.5 g/g

Solka-Floc® SF20 NF [Int'l. Fiber http://www.ifcfiber.com]
Chem. Descrip.: Cellulose
CAS 9004-34-6; EINECS/ELINCS 232-674-9
Uses: Binder, diluent, disintegrant, stabilizer, absorption aid, tablet filler for pharmaceuticals
Features: Noncaloric; inert; high wh. brightness; upon ing., immediate moisture absorption for disintegration
Regulatory: USP/NF, BP, EP, JP
Properties: Avg. fiber length 100 µ; 80-90% through 100 mesh; 55-75% through 200 mesh; dens. (bulk) 10.0 lb/ft³; water retention 6.5 g/g

Solka-Floc® SF40 NF [Int'l. Fiber http://www.ifcfiber.com]
Chem. Descrip.: Cellulose
CAS 9004-34-6; EINECS/ELINCS 232-674-9
Uses: Binder, diluent, disintegrant, stabilizer, absorption aid, tablet filler for pharmaceuticals
Features: Noncaloric; inert; high wh. brightness; upon ing., immediate moisture absorption for disintegration
Regulatory: USP/NF, BP, EP, JP
Properties: Avg. fiber length 60 µ; 3% through 40 mesh; 80-95% through 100 mesh; 60-95% through 200 mesh; dens. (bulk) 12.0 lb/ft³; water retention 5.5 g/g

Solka-Floc® SF900 NF [Int'l. Fiber http://www.ifcfiber.com]
Chem. Descrip.: Cellulose
CAS 9004-34-6; EINECS/ELINCS 232-674-9
Uses: Binder, diluent, disintegrant, stabilizer, absorption aid, tablet filler for pharmaceuticals
Features: Noncaloric; inert; high wh. brightness; upon ing., immediate moisture absorption for disintegration
Regulatory: USP/NF, BP, EP, JP
Properties: Avg. fiber length 110 µ; 8% through 40 mesh; 60-80% through 100 mesh; 30-55% through 200 mesh; dens. (bulk) 8.0 lb/ft³; water retention 9.5 g/g

Solkane® 134a pharma [Solvay SA http://www.solvay.com]
Chem. Descrip.: Tetrafluoroethane
Chem. Analysis: 99.99% by volume
CAS 811-97-2; EINECS/ELINCS 212-377-0
Uses: Propellant for pharmaceuticals
Properties: Colorless gas; faint ethereal odor; f.p. -101 C; b.p. -26.3 C; nonflammable
Toxicology: No appreciable toxic effect
Environmental: Zero ODP
Storage: Store liquefied gas under pressure in steel cylinders

Solkane® 227 pharma [Solvay SA http://www.solvay.com]
Chem. Descrip.: Heptafluoropropane See 1,1,1,2,3,3,3-Heptafluoropropane
CAS 431-89-0
Uses: Propellant for pharmaceuticals
Properties: Colorless gas; faint ethereal odor; f.p. -131 C; b.p. -16.5 C; nonflammable
Toxicology: No appreciable toxic effect
Environmental: Zero ODP
Storage: Store liquefied gas under pressure in steel cylinders

Solkane® 227ea [Solvay SA http://www.solvay.com]
Chem. Descrip.: HFC-227ea See 1,1,1,2,3,3,3-Heptafluoropropane
CAS 431-89-0
Uses: Pharmaceuticals (asthma sprays)

Solubilisant γ 2420 [Gattefosse http://www.gattefossecorp.com]
Chem. Descrip.: Octoxynol-11, polysorbate 20
Uses: Solubilizer for perfumes and essential oils for use in pharmaceutical/veterinary aq. sol'ns., lotions
Properties: Very pale yel. visc. transparent liq., faint odor; nonionic
Toxicology: Mild sensitizer to eyes; nonirritating to skin

Solubilisant γ 2428 [Gattefosse http://www.gattefossecorp.com]
Chem. Descrip.: PEG-40 hydrogenated castor oil, polysorbate 20
Uses: Solubilizer for perfumes and essential oils for use in pharmaceutical/veterinary aq. sol'ns., lotions
Properties: Yel. visc. liq. with possible sl. turbidity, faint odor; nonionic
Toxicology: Sl. irritating to skin and eyes

Soluble Beef Liver Powder [Am. Labs]
Soluble Pork Liver Powder

Chem. Descrip.: Enzymatic digest of liver
Chem. Analysis: 4% max. loss on drying
Uses: Nutritive pharmaceutical additive in tablets, capsules, and powders; diagnostic applications; taste masking of veterinary foods and drugs
Properties: Hygroscopic; completely sol. in water; pH 4.0-6.5 (2% sol'n.)
Storage: Store in cool, dry area in tightly closed polyliners within secure containers

Soluble Trachea CS 16 Substance

Chem. Descrip.: Defatted powd. processed from beef trachea contg. 16-17% chondroitin sulfate
Uses: Nutritive pharmaceutical additive
Properties: Off-wh. to lt. tan amorphous free-flowing powd., char. odor; sol. > 50 g/100 ml in water; 87% protein, 13% N
Precaution: Dust-air mixts. may be explosive
Storage: Hygrosopic; preserve in tight containers in cool, dry place

Solulan® 16

Chem. Descrip.: Laneth-16, ceteth-16, oleth-16 and steareth-16
Uses: Emulsifier, wetting agent, dispersant, lubricant, solvent, conditioner, plasticizer, emollient in dermatology prods., topical pharmaceuticals
Properties: Lt. tan waxy solid; sol. @ 5% in water, 30% ethanol; HLB 15; cloud pt. 64-70 C; acid no. 3 max.; sapon. no. 8 max.; pH 4.5-7.5 (10% aq.); nonionic; 100% conc.

Solulan® 75

Chem. Descrip.: PEG-75 lanolin
Uses: Emulsifier, wetting agent, dispersant, lubricant, solvent, conditioner, plasticizer, emollient in dermatology prods., topical pharmaceuticals
Properties: Lt. amber visc. liq.; faint pleasant odor; sol. @ 5% in water, ethanol; HLB 13; acid no. 3 max.; sapon. no. 10 max.; pH 4.5-7.5 (10% aq.); nonionic; 50% conc.

Solulan® 98

Chem. Descrip.: Polysorbate 80, cetyl acetate, acetylated lanolin alcohol
Uses: Dispersant, lubricant, emollient, conditioner for topical pharmaceuticals; pearlescent for stearic acid emulsions
Properties: Lt. amber visc. liq.; faint pleasant odor; sol. @ 5% in water, ethanol; HLB 13; acid no. 3 max.; sapon. no. 65-75; pH 4.5-7.5 (10% aq.); nonionic; 100% conc.

Solulan® L-575

Chem. Descrip.: PEG-75 lanolin
Uses: Emulsifier, wetting agent, dispersant, lubricant, solvent, conditioner, plasticizer, emollient in dermatology prods., topical pharmaceuticals
Properties: Lt. amber visc. liq.; faint pleasant odor; sol. @ 5% in water, ethanol; HLB 15; cloud pt. 80-87 C; acid no. 1 max.; sapon. no. 10 max.; nonionic; 50% conc.

Soluphor® P

Chem. Descrip.: Pyrrolidone-2
Uses: Solvent, antimicrobial for pharmaceutical injectables, parenterals, orals, veterinary medicine; absorp. accelerator of active substances in topicals
Features: Effective against gram-positive and gram-negative bacteria and molds
Properties: Colorless or sl. colored liq., solidifies @ R.T.; char. odor; sol. in water, many org. solvs. incl. ethanol, IPA, aromatic hydrocarbons; visc. 1-14 cSt; solid. pt. 25-26 C; ref. index 1.480-1.490; pH 8.2-10.8 (10% aq.); ≤ 0.5% moisture
Toxicology: LD50 (oral, rat) > 5 g/kg, (IV,
rabbit) ≈ 1 ml/kg, (subcut., mouse) ≈ 4 g/kg, (IP, mouse) ≈ 3.8 g/kg; nonirritating to skin, mucous membranes; nonmutagenic

Storage: 12 mos. shelf life when stored in unopened original containers @ R.T.

**Solutab®** [Blanver Farmoquimica
http://www.blanver.com.br; Blanver USA
http://www.blanver.com.br]

**Chem. Descrip.:** Croscarmellose sodium
CAS 74811-65-7

**Uses:** Dissolution agent, super disintegrant for pharmaceutical tablets, capsules, pellets, wet and dry granulation, dry blends

**Features:** High absorp. capacity; no starch or sugar; effective @ low use levels in sol. and insol. formulations

**Regulatory:** NF

**Properties:** Wh. free-flowing powd.; pH 5.0-7.0 (1 g/99 ml water); ≤ 10% loss on drying

**Use Level:** 0.5-5.0%

**Solut-U-Tein EA** [Fanning
http://www.fanningcorp.com]

**Chem. Descrip.:** Albumen
CAS 9006-50-2; EINECS/ELINCS 232-936-2

**Uses:** Binder, coagulant, film-former, skin conditioner for pharmaceuticals

**Properties:** Yel. powd.; 100% through 80 mesh; 90% through 100 mesh; bland odor; pH 6.5-8.0; 75% ovalbumin, ovoconalbumin, ovomucoid, ovomucin, ovoglobulin, lysozyme, and avidin

**Solutol® HS 15** [BASF AG
http://www.basf.de]

**Chem. Descrip.:** PEG-660 hydroxystearate
See PEG-15 hydroxystearate

**Uses:** Solubilizer, solvent for vitamins A, D, E, and K and other lipophilic actives in pharmaceuticals, aq. parenteral preps., human and veterinary injection sol'ns.

**Features:** High chem. stability

**Properties:** Ylsh. wh. paste @ R.T., liq. @ 30 C; sol. in water, ethanol, 2-propanol; visc. = 12 mPa*s (30% aq.); solid. pt. 25-30 C; acid no. ≤ 1; sapon. no. 53-63; hyd. no. 90-110; pH 6-7 (1% aq.); nonionic; ≤ 0.5% water

**Toxicology:** LD5 (oral, rat) = 20 g/kg, (IP, mouse) ≥ 8.5 mg/kg, (IV, mouse) ≥ 3.16 g/kg

**Storage:** Prolonged exposure to heat may cause physical separation into liq. and solid phases, reversible by homogenization
Sorbilene S [Cesalpinia
http://www.cesalpinia.com]
Chem. Descrip.: Polysorbate 60
CAS 9005-67-8
Uses: Emulsifier for pharmaceuticals
Properties: Liq./paste; HLB 14.8; nonionic; 100% conc.

Sorbilene TO [Cesalpinia
http://www.cesalpinia.com]
Chem. Descrip.: Polysorbate 85
CAS 9005-70-3
Uses: Emulsifier for pharmaceuticals
Properties: Liq.; HLB 11.0; nonionic; 100% conc.

Sorbirol L [Cesalpinia
http://www.cesalpinia.com]
Chem. Descrip.: Sorbitan laurate
CAS 1338-39-2; EINECS/ELINCS 215-663-3
Uses: Emulsifier for pharmaceuticals
Properties: Yel. liq.; sol. in alcohol and hydrocarbons such as min. oils and paraffins;
sp.gr. 1.04±0.05; visc. 4500-6000 cps; solid.
pt. 15-20 C; HLB 8.6; acid no. 7-10; sapon. no. 158-165;
hyd. no. 335-360; nonionic; 100% conc.

Sorbirol O [Cesalpinia
http://www.cesalpinia.com]
Chem. Descrip.: Sorbitan oleate
CAS 1338-43-8; EINECS/ELINCS 215-665-4
Uses: Emulsifier for pharmaceuticals
Properties: Lt. yel. liq.; sol. in alcohol and hydrocarbons such as min. oils and paraffins;
sp.gr. 1.00±0.05; visc. 1100 cps; solid. pt. < -5
C; HLB 4.3; acid no. 6-12; sapon. no. 148-155;
hyd. no. 195-215; nonionic; 100% conc.

Sorbirol P [Cesalpinia
http://www.cesalpinia.com]
Chem. Descrip.: Sorbitan palmitate
CAS 26266-57-9; EINECS/ELINCS 247-568-8
Uses: Emulsifier for pharmaceuticals
Properties: Wh. solid; sol. in alcohol and hydrocarbons such as min. oils and paraffins;
sp.gr. 1.00±0.05; solid. pt. 42-47 C; HLB 6.7;
acid no. < 7.5; sapon. no. 140-150; hyd. no. 275-305;
nonionic; 100% conc.

Sorbirol S [Cesalpinia
http://www.cesalpinia.com]
Chem. Descrip.: Sorbitan stearate
CAS 1338-41-6; EINECS/ELINCS 215-664-9
Uses: Emulsifier for pharmaceuticals
Properties: Wh. flakes; sol. in alcohol and hydrocarbons such as min. oils and paraffins;
solid. pt. 50-55 C; HLB 4.7; acid no. 5-10;
sapon. no. 147-17; hyd. no. 235-260; nonionic;
100% conc.

Sorbirol TO [Cesalpinia
http://www.cesalpinia.com]
Chem. Descrip.: Sorbitan trioleate
CAS 26266-58-0; EINECS/ELINCS 247-569-3
Uses: Emulsifier for pharmaceuticals
Properties: Liq.; HLB 1.8; nonionic; 100% conc.

Sorbital S 60 Scaglie [Eigenmann & Veronelli
http://www.eigver.it]
Chem. Descrip.: Sorbitan stearate
CAS 1338-41-6; EINECS/ELINCS 215-664-9
Uses: Emulsifier for pharmaceuticals
Properties: Solid; odorless; dens. 1.0 g/cm³;
m.p. 52-54 C; flash pt. (PM) > 150 C; nonionic
Environmental: > 90% biodeg.

Sorbital T 60 P [Eigenmann & Veronelli
http://www.eigver.it]
Chem. Descrip.: Polysorbate 60
CAS 9005-67-8
Uses: Emulsifier for pharmaceuticals
Properties: Amber liq.; odorless; misc. with water;
dens. 1.10 g/cm³; visc. 425 mPa•s; b.p. > 200 C; flash pt. (CC) > 150 C;
nonionic
Environmental: > 90% biodeg.

Sorbital T 80 P [Eigenmann & Veronelli
http://www.eigver.it]
Chem. Descrip.: Polysorbate 80
CAS 9005-65-6
Uses: Emulsifier for pharmaceuticals
Properties: Amber liq.; odorless; misc. with water;
dens. 1.080 g/ml (20 C); visc. 425
mPa•s; b.p. > 150 C; flash pt. > 150 C;
nonionic
Environmental: > 90% biodeg.

Sorbitalom TE-1 [Undesa
http://www.undesa.com; S. Black
http://www.sblack.com]
Chem. Descrip.: PEG-4 sorbitan stearate See Polysorbate 61
CAS 9005-67-8
Uses: Solubilizer for water-insol. substances, vitamins, essential oils, fragrances,
tannins, medicines
Regulatory: Not classified as dangerous for
Sorbithom TE-5 [Undesa
http://www.undesa.com; S. Black
http://www.sblack.com]
Chem. Descrip.: PEG-20 sorbitan tristearate
See Polysorbate 65
CAS 9005-71-4
Uses: Solubilizer for water-insol. substances, vitamins, essential oils, fragrances, tannins, medicines
Properties: Nonionic

Sorbithom TE-P [Undesa
http://www.undesa.com]
Chem. Descrip.: PEG-20 sorbitan stearate
See Polysorbate 60
CAS 9005-67-8
Uses: Solubilizer for water-insol. substances, vitamins, essential oils, fragrances, tannins, medicines
Properties: Nonionic

Sorbithom TL [Undesa
http://www.undesa.com; S. Black
http://www.sblack.com]
Chem. Descrip.: Polysorbate 20
CAS 9005-64-5
Uses: Solubilizer for water-insol. substances, vitamins, essential oils, fragrances, tannins, medicines
Properties: Yellowish liq.; typical odor; sol. in water; insol. in fat; dens. 1.08 g/ml; flash pt. ≈ 230 C; nonionic
Toxicology: Nontoxic
Environmental: Biodeg.; keep out of sewers, drains, surface and underground water; low toxicity to aquatic life
Precaution: Wear gloves, goggles, overalls; avoid contact with flames
Storage: Store in original, closed container @ R.T.; protect from dampness, heat sources

Sorbithom TO [Undesa
http://www.undesa.com; S. Black
http://www.sblack.com]
Chem. Descrip.: Polysorbate 80
CAS 9005-65-6
Uses: Solubilizer for water-insol. substances, vitamins, essential oils, fragrances, tannins, medicines
Properties: Yellowish-brown liq.; typical odor; sol. in water; insol. in fat; dens. 1.08 g/ml; flash pt. 300 C; nonionic
Toxicology: Nontoxic
Environmental: Biodeg.; keep out of sewers, drains, surface and underground water; low toxicity to aquatic life
Precaution: Wear gloves, goggles, overalls; avoid contact with flames
Storage: Store in original, closed container @ R.T.; protect from dampness, heat sources

Chem. Descrip.: PEG-20 sorbitan trioleate  See Polysorbate 85

CAS 9005-70-3

Uses: Solubilizer for water-insol. substances, vitamins, essential oils, fragrances, tannins, medicines

Regulatory: Not classified as dangerous for transport

Properties: Brown liq.; typical odor; sol. in water; insol. in fat; dens. 1.01 g/ml; flash pt. 280 C; nonionic

Environmental: Biodeg.; keep out of sewers, drains, surface and underground water; low toxicity to aquatic life

Precaution: Wear gloves, goggles, overalls; avoid contact with flames

Storage: Store in original, closed container @ R.T.; protect from dampness, heat sources


Chem. Descrip.: Sorbitol

CAS 50-70-4; EINECS/ELINCS 200-061-5

Uses: Sweetener, humectant, plasticizer, and stabilizer for pharmaceuticals

Regulatory: FDA 21CFR §175.105, 175.300, 175.320, 175.380, 176.210, 177.2420, 182.99, 184.1835; GRAS; USP, FCC compliance

Toxicology: Noncarcinogenic

Environmental: Biodeg.

Storage: Store in tightly closed container


Chem. Descrip.: Sorbitol with other polyhydric alcohols

Uses: Humectant, sweetener, visc. builder, plasticizer, stabilizer for sugar-free pharmaceuticals, dentifrices

Features: Inert; does not promote tooth decay; slowly absorbed

Regulatory: USP, FCC, FDA 21CFR §184.1835 GRAS

Properties: APHA 10 max., cl. visc. liq.; visc. 110 cps; b.p. 760 mm Hg; flash pt. >300 C; pH neutral to litmus

Toxicology: LD50 (oral, rat) > 15.9 g/kg; LD50 (oral, mouse) > 17.8 g/kg; may cause sl. irritation to eyes; no skin irritation from short-term exposure; ing. of sm. amounts are nontoxic; ing. of large amounts can cause GI disturbances including a laxative action

HMIS: Health 0, Flammability 0, Reactivity 0

Storage: Keep container tightly closed and store @ R.T.

Sorbo® 70% Sorbitol Sol’n. USP/FCC [SPI Pharma http://www.spipharma.com]

Chem. Descrip.: Sorbitol sol’n. in water

CAS 50-70-4; EINECS/ELINCS 200-061-5

Uses: Humectant, sugar crystallization in pharmaceuticals; nutritive sweetener

Features: Inert; does not promote tooth decay; slowly absorbed

Regulatory: USP, FCC, FDA 21CFR §184.1835 GRAS

Properties: APHA 10 max., cl. visc. liq.; visc. 110 cps; b.p. 760 mm Hg; flash pt. >300 C; pH neutral to litmus

Toxicology: LD50 (oral, rat) > 15.9 g/kg; LD50 (oral, mouse) > 17.8 g/kg; may cause sl. irritation to eyes; no skin irritation from short-term exposure; ing. of sm. amounts are nontoxic; ing. of large amounts can cause GI disturbances including a laxative action

HMIS: Health 0, Flammability 0, Reactivity 0

Storage: Keep container tightly closed and store
Trade Name Reference

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<th>Trade Name</th>
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<tr>
<td>Sorbogem™</td>
<td>SPI Polyols</td>
<td>Cryst. sorbitol</td>
<td>Cryoprotectant, crystallization inhibitor, freeze point depressant, plasticizer, humectant, and excipient in pharmaceuticals</td>
<td>60% as sweet as sucrose; pleasant cooling effect; high hygroscopicity</td>
<td>NF, FCC</td>
<td>Wh. crystalline powd. or gran.; m.w. 182; sol. in water (235 g/100 ml water); m.p. 99-101 C; pH 3.5-7.0 (10% w/w in water); 91.0-100.5% assay</td>
<td>LD50 (oral, rat) 15,900 mg/kg, (oral, mouse) 17,800 mg/kg; TSCA listed</td>
<td>Wear appropriate eye protection, impervious gloves</td>
<td>Health 0, Flammability 0, Reactivity 0</td>
<td>Store in tightly closed container @ R.T.; hygroscopic</td>
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<tr>
<td>Sorbogem™ 712</td>
<td>SPI Polyols</td>
<td>Cryst. sorbitol NF, FCC</td>
<td>Excipient, binder for wet granulation tableting and pharmaceutical powds.; sweetener</td>
<td>Highly compressible; chemically inert; improved mouthfeel</td>
<td>NF, FCC, Canada DSL</td>
<td>Fine cryst. powd.; 95% &lt; 420 μ, 65% &gt; 74 μ particle size; sweet taste; sol. in water; m.w. 182.17; sp.gr. 1.28; 91-100.5% assay</td>
<td>LD50 (oral, rat) 15,900 mg/kg, (oral, mouse) 17,800 mg/kg; TSCA listed</td>
<td>Wear appropriate eye protection, impervious gloves</td>
<td>Health 0, Flammability 0, Reactivity 0</td>
<td>Store in tightly closed container @ R.T.; hygroscopic</td>
</tr>
<tr>
<td>Sorbogem™ 834</td>
<td>SPI Polyols</td>
<td>Cryst. sorbitol NF, FCC</td>
<td>Excipient, binder for direct compression tableting and pharmaceutical sachets; sweetener</td>
<td>Highly compressible; chemically inert; improved mouthfeel</td>
<td>NF, FCC, Canada DSL</td>
<td>Med.-coarse free-flowing odorless powd.; 92% &lt; 420 μ, 88% &gt; 74 μ particle size; sweet taste; sol. in water; in sol. in vegetable and mineral oils; miscible in glycerin and propylene glycol in all proportions; flash pt. &gt; 150 C; 91-100.5% assay</td>
<td>LD50 (oral, rat) 15,900 mg/kg, (oral, mouse) 17,800 mg/kg; TSCA listed</td>
<td>Wear appropriate eye protection, impervious gloves</td>
<td>Health 0, Flammability 0, Reactivity 0</td>
<td>Store in tightly closed container @ R.T.; hygroscopic</td>
</tr>
<tr>
<td>Sorbogem™ Fines</td>
<td>SPI Polyols</td>
<td>Cryst. sorbitol NF, FCC</td>
<td>Excipient, binder for wet granulation tableting and pharmaceutical powds.; sweetener</td>
<td>Highly compressible; chemically inert; improved mouthfeel</td>
<td>NF, FCC, Canada DSL</td>
<td>Wh. crystalline free-flowing odorless powd.; 92% &lt; 420 μ, 88% &gt; 74 μ particle size; sweet taste; sol. in water; in sol. in vegetable and mineral oils; miscible in glycerin and propylene glycol in all proportions; flash pt. &gt; 150 C; 91-100.5% assay</td>
<td>LD50 (oral, rat) 15,900 mg/kg, (oral, mouse) 17,800 mg/kg; TSCA listed</td>
<td>Wear appropriate eye protection, impervious gloves</td>
<td>Health 0, Flammability 0, Reactivity 0</td>
<td>Store in tightly closed container @ R.T.; hygroscopic</td>
</tr>
</tbody>
</table>
Trade Name Reference

Features: Highly compressible; chemically inert; improved mouthfeel
Regulatory: NF, FCC, Canada DSL
Properties: Wh. fine cryst. powd.; 95% < 149 µ particle size; sweet taste; sol. in water (235 g/100 ml water); m.w. 182; m.p. 99-101 C; pH 3.5-7.0 (10% w/w in water); 91-100.5% assay
Toxicology: LD50 (oral, rat) 15,900 mg/kg, (oral, mouse) 17,800 mg/kg; TSCA listed
Precaution: Wear appropriate eye protection, impervious gloves
HMIS: Health 0, Flammability 0, Reactivity 0
Storage: Store in tightly closed container @ R.T.; hygroscopic

Chem. Descrip.: Trioleyl POE-20 sorbitan ester See Polysorbate 85
CAS 9005-70-3
Uses: Emulsifier for soft capsules, hair creams, milky lotions
Properties: Lt. ylsh. orange oily liq.; HLB 11.0

Chem. Descrip.: Silica
EINECS/ELINCS 231-545-4
Uses: Abrasive, polishing agent, thickener for mfg. of high clarity, med. abrasion transparent toothpaste gels
Properties: APS Malvern Mastersizer (100 mm lens) 8.5 µ particle size; low ref. index; pH 7.0 (5% aq.)
Use Level: 4-15%

Chem. Descrip.: Silica
EINECS/ELINCS 231-545-4
Uses: Abrasive, polishing agent, thickener for mfg. of high clarity, high abrasion transparent toothpaste gels
Properties: APS Malvern Mastersizer (100 mm lens) 4.0 µ particle size; low ref. index; pH 7.0 (5% aq.)

Chem. Descrip.: Silica
EINECS/ELINCS 231-545-4
Uses: Abrasive, polishing agent, thickener for mfg. of high clarity, low abrasion transparent toothpaste gels, e.g., children's formulations
Properties: APS Malvern Mastersizer (100 mm lens) 9.5 µ particle size; low ref. index; pH 7.2 (5% aq.)

Chem. Descrip.: Precipitated silica See Silica, hydrated
CAS 1343-98-2; EINECS/ELINCS 215-683-2
Uses: Abrasive, polishing agent for mfg. of toothpaste with ultra low abrasion, very high clarity gels, children's and antihypersensitivity toothpaste
Properties: Fine lt. powd.; ref. index 1.450; pH 6.5-8.0 (5% aq.)
Use Level: 10-25%
Precaution: Minimize creation of dust and buildup of static elec.
Storage: Store in dry place
Trade Name Reference

nonionic; 100% conc.

Sorgen 40 [Dai-ichi Kogyo Seiyaku
http://www.dks-web.co.jp]
Chem. Descrip.: Sorbitan oleate
CAS 1338-43-8; EINECS/ELINCS 215-665-4
Uses: Antifoamer and emulsifier for pharmaceutical prods.
Properties: Liq.; HLB 4.3; nonionic; 100% conc.

Sorgen 40V [Dai-ichi Kogyo Seiyaku
http://www.dks-web.co.jp]
Chem. Descrip.: Sorbitan monooleate See Sorbitan oleate
EINECS/ELINCS 215-665-4
Uses: Emulsifier for textiles, foods, cosmetics, pharmaceuticals
Properties: Yellowish-brown liquid; fluidity 30°C; HLB 4.3; foaming power (0.1% sol'n) 12 mm immediately @ 25°C, 11 mm in 5 min. @ 25°C; nonionic; 100% conc.

Sorgen 50 [Dai-ichi Kogyo Seiyaku
http://www.dks-web.co.jp]
Chem. Descrip.: Sorbitan stearate
CAS 1338-41-6; EINECS/ELINCS 215-664-9
Uses: Antifoamer and emulsifier for pharmaceutical prods.
Properties: Pellet; HLB 4.7; nonionic; 100% conc.

Sorgen 50V [Dai-ichi Kogyo Seiyaku
http://www.dks-web.co.jp]
Chem. Descrip.: Sorbitan monostearate See Sorbitan stearate
EINECS/ELINCS 215-664-9
Uses: Emulsifier for textiles, foods, cosmetics, pharmaceuticals
Properties: Slightly yellowish brown pellet; HLB 4.7; foaming power (0.1% sol'n) 3 mm immediately @ 25°C, 1 mm in 5 min. @ 25°C; nonionic; 100% conc.

Sorgen 90 [Dai-ichi Kogyo Seiyaku
http://www.dks-web.co.jp]
Chem. Descrip.: Sorbitan laurate
CAS 1338-39-2; EINECS/ELINCS 215-663-3
Uses: Antifoamer and emulsifier for pharmaceutical prods.
Properties: Liq.; HLB 8.6; nonionic; 100% conc.

Sorgen FS-700V [Dai-ichi Kogyo Seiyaku
http://www.dks-web.co.jp]
Chem. Descrip.: Sorbitan monostearate See Sorbitan stearate
EINECS/ELINCS 215-664-9
Uses: Emulsifier for textiles, cosmetics, pharmaceuticals; solubilizer

Properties: White to slightly yellow-brown flakes; HLB 7.0; nonionic; 100% conc.

Sorgen TW60 [Dai-ichi Kogyo Seiyaku
http://www.dks-web.co.jp]
Chem. Descrip.: POE sorbitan stearate
Uses: Solubilizer, emulsifier for cosmetics, pharmaceutical prods.
Properties: Slightly yellowish brown paste; water-sol.; HLB 14.9; nonionic; 100% conc.

Sorgen TW60V [Dai-ichi Kogyo Seiyaku
http://www.dks-web.co.jp]
Chem. Descrip.: POE sorbitan monostearate See Polysorbate 60
CAS 9005-67-8
Uses: Solubilizer, emulsifier for cosmetics, pharmaceutical prods.
Properties: Slightly yellowish brown paste; HLB 15.0; surface tens. (0.1% sol'n) 37.8 mN/m; foaming power (0.1% sol'n) 34 mm immediately @ 25°C, 31 mm in 5 min. @ 25°C; nonionic; 100% conc.

Sorgen TW80 [Dai-ichi Kogyo Seiyaku
http://www.dks-web.co.jp]
Chem. Descrip.: POE sorbitan monooleate See Polysorbate 80
CAS 9005-65-6; EINECS/ELINCS 215-665-4
Uses: Solubilizer and emulsifier for pharmaceutical prods.
Properties: Slightly yellowish brown liquid; water-sol.; HLB 15.0; surface tens. (0.1% sol'n) 37.8 mN/m; foaming power (0.1% sol'n) 40 mm immediately @ 25°C, 38 mm in 5 min. @ 25°C, 45 mm immediately @ 45°C, 40 mm in 5 min. @ 45°C; interfacial tens. (0.1% sol'n) 13.7 mN/m; nonionic; 100% conc.

Sorgen TW80V [Dai-ichi Kogyo Seiyaku
http://www.dks-web.co.jp]
Chem. Descrip.: POE sorbitan monooleate See Polysorbate 80
CAS 9005-65-6; EINECS/ELINCS 215-665-4
Uses: Solubilizer and emulsifier for pharmaceutical prods.
Properties: Yellowish brown liquid; HLB 15.0; surface tens. (0.1% sol'n) 37.2 mN/m; foaming power (0.1% sol'n) 39 mm immediately @ 25°C, 35 mm in 5 min. @ 25°C; nonionic; 100% conc.

SO/SAN® 30M [Stepan
http://www.stepan.com]
Chem. Descrip.: Myristalkonium chloride, quaternium-14 quat.
Uses: Antimicrobial in pharmaceuticals
Features: Provides residual activity against gram-negative and gram-positive organisms
Trade Name Reference

Regulatory: EPA reg. no. 1839-57
Properties: Gardner 3 liq.; dens. 8.20 lb/gal; visc. 700 cps (45 F); pour pt. < 40 F; pH 4 (10% water/IPA); 26.0 - 28.0% act.

Chem. Descrip.: Sorbitan laurate
CAS 1338-39-2; EINECS/ELINCS 215-663-3
Uses: W/o emulsifier, stabilizer, thickener, lubricant, softener for topical pharmaceuticals
Regulatory: EP
Properties: Gardner 3 liq.; dens. 8.20 lb/gal; visc. 700 cps (45 F); pour pt. < 40 F; pH 4 (10% water/IPA); 26.0 - 28.0% act.

Chem. Descrip.: Sorbitan palmitate NF
CAS 26266-57-9; EINECS/ELINCS 247-568-8
Uses: O/w coemulsifier, stabilizer, thickener, lubricant, softener for topical pharmaceuticals
Properties: Tan solid; sol. (@ 1%) in IPA, xylene; sol. (hazy) in perchloroethylene; HLB 6.7; pour pt. 48 C; nonionic; 100% act.

Chem. Descrip.: Sorbitan oleate NF
CAS 1338-43-8; EINECS/ELINCS 215-665-4
Uses: W/o emulsifier for pharmaceutical topicals and injectables
Regulatory: EP, FDA 21CFR 173.75; DOT nonregulated; SARA §311/312/313 nonreportable
Properties: Yel. to amber liq.;sol. (@ 10%) in...
IPA, perchloroethylene, xylene, cottonseed oil, ethanol, min. oil, veg. oil; insol. in acetone, ethylene glycol, propylene glycol, water; sp.gr. 1.0; visc. 1000 cps; vapor pressure < 1 mm Hg (20 C); b.p. > 100 C; HLB 4.3; acid no. 8 max.; sapon. no. 145-160; hyd. no. 193-210; pour pt. ≈ 3 F; flash pt. (COC) > 148.9 C; nonionic; 100% act.; 1-2% water

Use Level: 7.5% max. in final polymer disp.

Toxicology: LD50 (oral, rat) > 39.8 g/kg; relatively harmless by ing.; no hazards are known to be associated with exposure; not likely to cause irritation via eye contact, skin contact, inh., or ing.; not likely to cause irritation via eye contact, skin contact, inh., or ing.; not likely to cause irritation via eye contact, skin contact, inh., or ing.; not likely to cause irritation via eye contact, skin contact, inh., or ing.; not likely to cause irritation via eye contact, skin contact, inh., or ing.; not likely to cause irritation via eye contact, skin contact, inh., or ing.; not likely to cause irritation via eye contact, skin contact, inh., or ing.

Environmental: BOD (28 d) 62 %; LC50 (96 h, static, rainbow trout) > 1000 mg/l

Precaution: Incompat. with oxidizing agents; wear safety goggles with side shields and impervious gloves

Hazardous Decomp. Prods.: Combustion: CO2, CO

HMIS: Health 0, Flammability 1, Reactivity 0

Storage: Store @ 50-90 F in original closed container


Chem. Descrip.: Sorbitan trioleate

Chem. Analysis: 90-100%

CAS 26266-58-0; EINECS/ELINCS 247-569-3

Uses: O/w emulsifier, dispersant, consistency agent, and compatibility agent in pharmaceutical topicals

Regulatory: EP

Properties: Amber liq.; HLB 1.8; nonionic; 100% act.

Toxicology: May cause sl. skin irritation

Precaution: Wear safety glasses with side shields, impervious gloves; incompat. with oxidizers

Hazardous Decomp. Prods.: CO, CO2

NFPA: Health 1, Flammability 1, Reactivity 0

Storage: Store in original container


Chem. Descrip.: Hydrogenated tallow

Chem. Analysis: 90-100%

CAS 8030-12-4; EINECS/ELINCS 232-442-7

Uses: Raw material for pharmaceuticals; hydropobing agent for powd. preps.

Properties: Powd., flakes; m.p. 56-60 C; acid no. 5 max.; iodine no. 3 max.; sapon. no. 190-210

S&P Emulsifying Wax NF [Strahl & Pitsch http://www.strahlpitsch.com]

Chem. Descrip.: Emulsifying wax NF

Chem. Analysis: 90-100%

CAS 97069-99-0

Uses: Consistency improver and stabilizer for emulsions; blending agent for fats and water in pharmaceutical prods.

Features: Vegetable based, highly compatible with most pharmaceutical ingredients

Regulatory: USP/NF

Properties: M.p.50-54 C; iodine no. ≤ 3.5; sapon. no ≤ 14; hyd. no. 178-192; pH 5.5-7.0 (3:100 disp.); nonionic

Toxicology: TSCA listed

Speziol C 10/2 [Cognis http://www.cognis.de]

Chem. Descrip.: 1,10-Decanediol

Chem. Analysis: 90-100%

CAS 112-47-0; EINECS/ELINCS 203-975-2

Uses: Pharmaceuticals

Properties: Colorless pellets; mild odor; solid. pt. 68-73 C; acid no. 0-1.0; iodine no. 0-0.7; sapon. no. 0-3.0; hyd. no. 525-645; 98-100% act.

Storage: 2 yrs. shelf life when stored in sealed original bags below solid. pt.; may become pasty during longer storage
Trade Name Reference

Speziol C 18/2 [Cognis http://www.cognis.de]
Chem. Descrip.: 12-Hydroxystearyl alcohol
CAS 2726-73-0; EINECS/ELINCS 220-342-6
Uses: Pharmaceuticals
Properties: Colorless pellets; mild odor; solid. pt. 61-65 C; acid no. 0-1; iodine no. 0-0.7; sapon. no. 0-2; hyd. no. 345-360; 75-85% act.
Storage: 2 yrs. shelf life when stored in sealed original bags below solid. pt.; may become pasty during longer storage

Chem. Descrip.: Isostearyl alcohol, vegetable based
CAS 27458-93-1; EINECS/ELINCS 248-470-8
Features: Exc. oxidative stability
Properties: APHA 20 max. color; acid no. 0.1 max.; iodine no. 1 max.; sapon. no. 1 max.; hyd. no. 200-212; 0.2% max. water
Storage: 2 yrs. shelf life when stored in sealed original bags below solid. pt.

Spinomar NaSS [Tosoh http://www.tosoh.co.jp]
Chem. Descrip.: Sodium p-styrenesulfonate
CAS 2695-37-6; EINECS/ELINCS 220-266-3
Uses: Remedy for ulcers in pharmaceuticals; artificial biomembranes
Properties: Wh. powd., nil odor; sol. in water; insol. in aliphatic, halogenated, or high alcohol solvs.; m.w. 206.20; apparent sp. dens. 0.5; decomp. pt. 330 C; flash pt. nil; 81.5% act.
Toxicology: LD50 (oral, mouse) 16 g/kg (as 40% olive oil susp.)
Storage: Store in air-tight containers in dark place; if dried, subject to slow oxidation and/or polymerization

Chem. Descrip.: Sucralose
CAS 56038-13-2
Uses: Sweetener in pharmaceuticals
Features: Noncaloric; noncariogenic; made from sugar; approx. 600 times sweeter than sugar; extremely stable; maintains sweetness @ high food processing temps. (pasteurization, sterilization, etc.) and prolonged storage; stable in neutral and acidic prods.
Properties: Free-flowing cryst. powd. or 25% aq. sol'n.; sugar-like taste; water-sol.
Environmental: Biodeg.; nontoxic to fish and aquatic organisms

SPL Heparin Lithium [Scientific Protein Labs http://www.spl-pharma.com]
Chem. Descrip.: Heparin lithium
CAS 9045-22-1; EINECS/ELINCS 232-681-7
Uses: Anticoagulant in medical devices and in vitro laboratory apps. for coatings and as a reagent
Properties: Off-wh. amorphous powd.; hygroscopic; sol. in water
Storage: Preserve in tight containers in cool, dry place

SPL Heparin Sodium USP [Scientific Protein Labs http://www.spl-pharma.com]
Chem. Descrip.: Heparin sodium USP
CAS 9041-08-1; EINECS/ELINCS 232-681-7
Uses: Anticoagulant; pharmaceutical aid; coating agent to prevent coagulation in laboratory apps.
Properties: Wh. amorphous powd.; hygroscopic; sol. in water; pH 5.0-7.5 (1%)
Storage: Preserve in tight containers in cool, dry place

SPL High Lipase Pancreatic Enzyme Conc. (PEC) [Scientific Protein Labs http://www.spl-pharma.com]
Chem. Descrip.: Enzymes, principally lipase, proteases, amylase See Protease
Uses: Enzyme for treatment of pancreatic insufficiency esp. where digestion of lipids is of paramount importance
Properties: Cream-colored amorphous powd., faint char. but not offensive odor; partly sol. in water; insol. in alcohol; ≤ 5% moisture
Storage: Store in tight containers in cool, dry place

SPL Pancreatin 4X USP [Scientific Protein Labs http://www.spl-pharma.com]
Chem. Descrip.: Enzymes, principally proteases, amylase, lipase See Protease
Uses: Enzyme for treatment of pancreatic insufficiency; hydrolyzes fats to glycerol and fatty acids, changes protein into proteoses and derived substances, converts starch to dextrins and sugars
Properties: Cream-colored amorphous powd., faint char. but not offensive odor; partly sol. in water; insol. in alcohol
Storage: Store in tight containers in cool, dry place

SPL Pancreatin 6X USP [Scientific Protein Labs http://www.spl-pharma.com]
Chem. Descrip.: Enzymes, principally proteases, amylase, lipase See Protease
Uses: Enzyme for treatment of pancreatic insufficiency; hydrolyzes fats to glycerol and fatty acids, changes protein into proteoses and derived substances, converts starch to dextrins and sugars
Properties: Cream-colored amorphous powd., faint char. but not offensive odor; partly sol. in water; insol. in alcohol
Storage: Store in tight containers in cool, dry place
Trade Name Reference

proteases, amylase, lipase  See Protease

Uses: Enzyme for treatment of pancreatic insufficiency; hydrolyzes fats to glycerol and fatty acids, changes protein into proteoses and derived substances, converts starch to dextrins and sugars

Properties: Cream-colored amorphous powd., faint char. but not offensive odor; partly sol. in water; insol. in alcohol

Storage: Store in tight containers in cool, dry place

SPL Pancreatin 8X USP  [Scientific Protein Labs  http://www.spl-pharma.com]

Chem. Descrip.: Enzymes, principally proteases, amylase, lipase  See Protease

Uses: Enzyme for treatment of pancreatic insufficiency; hydrolyzes fats to glycerol and fatty acids, changes protein into proteoses and derived substances, converts starch to dextrins and sugars

Properties: Cream-colored amorphous powd., faint char. but not offensive odor; partly sol. in water; insol. in alcohol

Storage: Store in tight containers in cool, dry place

SPL Pancrelipase USP  [Scientific Protein Labs  http://www.spl-pharma.com]

Chem. Descrip.: Enzymes, principally protease

Uses: Enzyme for treatment of pancreatic insufficiency; hydrolyzes fats to glycerol and fatty acids, changes protein into proteoses and derived substances, converts starch to dextrins and sugars

Properties: Cream-colored amorphous powd., faint char. but not offensive odor; partly sol. in water; insol. in alcohol

Storage: Store in tight containers in cool, dry place


Chem. Descrip.: Frozen raw liver

Chem. Analysis: 6% max. loss on drying

Uses: Nutritive pharmaceutical additive in tablets, capsules, and powders; diagnostic applications; taste masking of veterinary foods and drugs

Storage: Store in cool, dry area in tightly closed polyliners within secure containers

Spray Dried Fish Gelatin  [Croda Inc  http://www.croda.com;  http://www.crodausa.com]

Chem. Descrip.: Gelatin NF from fish sources

CAS 9000-70-8; EINECS/ELINCS 232-554-6

Uses: Film-former, stabilizer, binder, protective colloid, adhesive agent, flocculant, crystal inhibitor in pharmaceuticals; film-former, stabilizer, binder in oral and topical pharmaceuticals

Features: Nongelling; inferior gelling chars. to mammalian gelatin

Regulatory: Kosher

Properties: Spray-dried powd.; sol. in cold water; visc. 60-85 mps; pH 5.0-6.5 (10%); 7% max. moisture

Spray Dried Gum Arabic NF/FCC CS-R  [Frutarom  http://www.frutarom.com]

Chem. Descrip.: Gum Arabic  See Acacia

CAS 9000-01-5; EINECS/ELINCS 232-519-5

Uses: Protective colloid, stabilizer, thickener, binder for pharmaceutical emulsions, antiseptics, to mask bitter or acid taste of medicaments, tablet binder, excipient

Properties: Colorless, odorless, tasteless; watersol.

Spray Dried Gum Arabic Type A-180 NF Premium  [Gumix Int'l.]

Chem. Descrip.: Gum Arabic  See Acacia

CAS 9000-01-5; EINECS/ELINCS 232-519-5

Uses: Protective colloid, stabilizer, suspending agent, visc. builder for pharmaceuticals (suspensions, emulsions, cough drops/syrups, tablet binder/adhesive); flavoring agent

Properties: Powd., almost odorless and tasteless; sol. in hot or cold water

Spray Dried Gum Arabic Type A-230 NF Extra  [Gumix Int'l.]

Chem. Descrip.: Gum Arabic  See Acacia

CAS 9000-01-5; EINECS/ELINCS 232-519-5

Uses: Protective colloid, stabilizer, suspending agent, visc. builder for pharmaceuticals (suspensions, emulsions, demulcent in cough drops/syrups, tablet binder/adhesive); flavoring agent

Properties: Powd., almost odorless and tasteless; sol. in hot or cold water

Spray Dried Hydrolysed Fish Gelatin  [Croda Inc  http://www.croda.com;  http://www.crodausa.com]

Chem. Descrip.: Gelatin from fish sources
Chem. Descrip.: Frozen raw liver
Chem. Analysis: 6% max. loss on drying
Uses: Nutritive pharmaceutical additive in foods and drugs
Storage: Store in cool, dry area in tightly closed polyliners within secure containers

Chem. Descrip.: Pregelatinized corn starch NF
Uses: Excipient, binder, disintegrant, lubricant, carrier, sweetness regulator for dry granulation and direct compression of pharmaceutical tablets
Features: Free-flowing; inert; low hygroscopicity
Regulatory: NF
Properties: Neutral flavor

Chem. Descrip.: Pregelatinized corn starch NF
Uses: Excipient, binder, diluent, disintegrant, lubricant for wet granulation of pharmaceutical tablets; regulates sweetness; improves hardness and friability in direct compression tableting
Features: Free-flowing; inert

SR 297 [Sartomer http://www.sartomer.com]
Chem. Descrip.: 1,3-Butylene glycol dimethacrylate with 200 ppm MEHQ. See 1,3-Butanediol dimethacrylate; Hydroquinone monomethyl ether
CAS 1189-08-8; EINECS/ELINCS 214-711-0
Uses: Vulcanizing agent used in dentures
Features: Low visc. difunctional monomer; polymerizes to hard, insol., infusable, thermoset resin; improves resist, to scratching, attack by oils and solvs., heat deformation, hardness
Regulatory: FDA 21CFR §175.105, 176.170 (< 5%), 176.180 (< 5%), 177.1010 (< 5%), 177.2420, 177.2600, 178.3790 (< 5%), 182.99
Properties: APHA 60 straw cl. liq., mildly disagreeable odor; sol. in alcohols, ethers, ketones, esters, aromatic and aliphatic hydrocarbons; m.w. 226; sp.gr. 1.011; dens. 8.4 lb/gal; visc. 7 cps; b.p. 290 C; acid no. 0.5; flash pt. (PMCC) 137 F; ref. index 1.449; 99% reactive esters
Storage: Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F

Chem. Descrip.: Sorbitan stearate
CAS 1338-41-6; EINECS/ELINCS 215-664-9
Uses: Lipophilic emulsifier for pharmaceutical; dispersant, excipient
Regulatory: Approved as food additive
Properties: Wh. to pale yel. flake; HLB 4.7

SS-99™ Sodium Ascorbate for DC [BASF http://www.basf.com]
Chem. Descrip.: Sodium ascorbate (99%) food starch (1%)
CAS 134-03-2; EINECS/ELINCS 205-126-1
Uses: Dietary supplement in ingestible and chewable vitamin C tablets multivitamin tablets, and multivitamin-mineral tablets by direct compression
Regulatory: USP/FCC
Properties: Yelsh.-wh. fine gran. powd.; almost odorless; sl. salty taste; particle size US Sieve #20 (850 μ) min. 95% thru; m.w. 198.1; ≥ 99% act.
Storage: 24 months shelf-life; store in tightly closed containers @ R.T; protect from light and in a dry place

Chem. Descrip.: Propylene glycol, cyclopentasiloxane, ascorbic acid, PVP, dimethicone copolyol. See L-Ascorbic acid; Cyclomethicone
Uses: Delivery system/stabilizer for vitamin C in skin care emulsions
Properties: Wh. viscous emulsion; visc. 50,000-150,000 cps
Storage: Keep tightly closed before and after use with min. head space and preferably maintained under nitrogen ≤ (20-25 C)

Sta-Lite® 370 [Tate & Lyle N. Am.
Trade Name Reference

http://www.tlna.com
Chem. Descrip.: Polydextrose
CAS 68424-04-4
Uses: Bulking agent in pharmaceuticals
Features: Nonsweet; low-calorie; provides only 1 Kcal/g
Properties: Liq.; water-sol.

Chem. Descrip.: Polydextrose
CAS 68424-04-4
Uses: Bulking agent in pharmaceuticals
Features: Nonsweet; low-calorie; provides only 1 Kcal/g
Properties: Gran.; water-sol.

Chem. Descrip.: Polydextrose
CAS 68424-04-4
Uses: Bulking agent in pharmaceuticals
Features: Nonsweet; low-calorie; provides only 1 Kcal/g
Properties: Fine gran.; water-sol.

Stamere® CK-S NF FCC [Frutarom http://www.frutarom.com]
Chem. Descrip.: Carrageenan See Carrageenan (Chondrus crispus)
CAS 9000-07-1; EINECS/ELINCS 232-524-2
Uses: Lubricant, emollient for pharmaceutical jellies, laxatives; tablet binder
Properties: Water-sol.

Stamere® N-325 NF FCC [Frutarom http://www.frutarom.com]
Chem. Descrip.: Carrageenan See Carrageenan (Chondrus crispus)
CAS 9000-07-1; EINECS/ELINCS 232-524-2
Uses: Lubricant, emollient for pharmaceutical jellies, laxatives; tablet binder
Properties: Water-sol.

Stamere® N-350 NF FCC [Frutarom http://www.frutarom.com]
Chem. Descrip.: Carrageenan See Carrageenan (Chondrus crispus)
CAS 9000-07-1; EINECS/ELINCS 232-524-2
Uses: Lubricant, emollient for pharmaceutical jellies, laxatives; tablet binder
Properties: Water-sol.

Stamere® N-350 S NF FCC [Frutarom http://www.frutarom.com]
Chem. Descrip.: Carrageenan See Carrageenan (Chondrus crispus)
CAS 9000-07-1; EINECS/ELINCS 232-524-2
Uses: Humectant in pharmaceuticals

Standard KCl [Reheis http://www.reheis.com]
CAS 7447-40-7; EINECS/ELINCS 231-211-8
Uses: Functional additive for tablet prod. and parenteral sol’n.

Standard Super-Cel [Celite http://www.worldminerals.com]
Chem. Descrip.: Diatomaceous earth
CAS 7631-86-9; EINECS/ELINCS 231-545-4
Uses: Filler, filter aid, carrier for pharmaceuticals
Properties: Buff/pink powd.; 3.5 µ median pore size; 4% 150 mesh residue; sp.gr. 2.2; dens. 8 lb/ft³ (dry); pH 7; 0.5% moisture

Star Flake® Dendritic Salt [Morton Salt http://www.mortonsalt.com]
Chem. Descrip.: Sodium chloride FCC with crystal modifying agent (sodium ferrocyanide)
Uses: Salt for pharmaceutical powds./tablets
Features: High purity; food-grade; high specific surf. area, rapid dissolution rate/flowability, high liq. adsorptive capacity and caking resist., and low apparent density
Regulatory: Sodium ferrocyanide: FDA 21CFR §172.490
Properties: Porous star-shaped cryst. cubes; 25-45% retained on 70 mesh, 16-38% on 100 mesh; mean crystal size 230 µm; mean surf. area 270 cm²/g; bulk dens. 0.85-0.93 g/ml (loose); 99.9% NaCl

Star™ Glycerine USP, FCC [Procter & Gamble http://pgchemicals.com]
Chem. Descrip.: Glycerin USP (96% min.) in water
CAS 56-81-5; EINECS/ELINCS 200-289-5
Uses: Humectant in pharmaceuticals
Regulatory: USP/FCC, DOT/ADR/RID/IMDG/ICAO/IATA not regulated; Canada DSL; Japan; Australia;
Trade Name Reference

Chem. Descrip.: Glycerin USP (96% min.) in water
CAS 56-81-5; EINECS/ELINCS 200-289-5
Uses: Humectant in pharmaceuticals; emulsifier, emollient, plasticizer, sweetener in drugs, food products; intermediate for making glycerol derivatives
Regulatory: USP/FCC, EP, DOT/ADR/RID/IMDG/ICAO/IATA not regulated; Canada DSL; Japan; Australia; Philippines; China; Korea
Properties: APHA 10 max. cl. visc. liq.; bland odor; sweet taste; completely sol. in water; misc. with ethanol; sl. sol. in acetone; insol. in ether, chloroform; sp.gr. 1.2517-1.2531; visc. ≈ 1410 mPa•s; vapor pressure < 0.1 mm Hg; b.p. > 288 C; flash pt. (PMCC) > 198.9 C; auto-ignition temp. ≈ 393 C; 4% max. moisture
Toxicology: LD50 (oral, rat) > 2 g/kg; may cause mild, transient eye irritation; TSCA listed

Precaution: Incompat. with strong oxidizers, strong acids
Hazardous Decomp. Prods.: Thermal reaction may release acrolein
Storage: Store in clean, tight containers to prevent moisture pickup from air; can be stored in aluminum, stainless steel, fiberglass or resin lined steel vessels

Chem. Descrip.: Glycerin USP (96% min.) in water
CAS 56-81-5; EINECS/ELINCS 200-289-5
Uses: Humectant in pharmaceuticals; emulsifier, emollient, plasticizer, sweetener in drugs, food products; intermediate for making glycerol derivatives
Regulatory: USP/FCC, EP, DOT/ADR/RID/IMDG/ICAO/IATA not regulated; Canada DSL; Japan; Australia; Philippines; China; Korea
Properties: APHA 10 max. cl. visc. liq.; bland odor; sweet taste; completely sol. in water; misc. with ethanol; sl. sol. in acetone; insol. in ether, chloroform; sp.gr. 1.2517-1.2531; visc. ≈ 1410 mPa•s; vapor pressure < 0.1 mm Hg; b.p. > 288 C; flash pt. (PMCC) > 198.9 C; auto-ignition temp. ≈ 393 C; 4% max. moisture
Toxicology: LD50 (oral, rat) > 2 g/kg; may cause mild, transient eye irritation; TSCA listed

Precaution: Incompat. with strong oxidizers, strong acids
Hazardous Decomp. Prods.: Thermal reaction may release acrolein
Storage: Store in clean, tight containers to prevent moisture pickup from air; can be stored in aluminum, stainless steel, fiberglass or resin lined steel vessels

StarCap® 1500 [Colorcon http://www.colorcon.com]
Chem. Descrip.: Pregelatinized starch and corn starch See Corn (Zea mays) starch; Starch, pregelatinized
Chem. Analysis: 7% max. moisture
CAS 977050-93-3; 9005-25-8
Trade Name Reference

**Starch 1500®** [Colorcon http://www.colorcon.com]
Chem. Descrip.: Pregelatinized starch See Starch, pregelatinized
CAS 977050-93-3
Uses: Excipient, binder, disintegrant, lubricant for pharmaceutical solid oral dosage forms, direct compaction, wet granulation; capsule filler; flow aid for HPMC matrix formulations
Features: Good wet and dry binding; good disintegration/dissolution
Regulatory: USP/NF, EP
Properties: Bulk dens. 0.619 g/cc

**Starch 1500® G** [Colorcon http://www.colorcon.com]
Chem. Descrip.: Pregelatinized starch See Starch, pregelatinized
CAS 977050-93-3
Uses: Excipient, binder, disintegrant, lubricant for pharmaceutical solid oral dosage forms, direct compaction, wet granulation; capsule filler; flow aid for HPMC matrix formulations
Features: Low moisture; good wet and dry binding; good disintegration/dissolution
Regulatory: USP/NF, EP
Properties: Wh. powd., free of objectionable odor, sl. char. taste; 0.5% max. on 80 mesh, 5% max. on 325 mesh; pH 64.5-7.0.0; 9.5-12.5% moisture

**Starch 400L NF** [Roquette http://www.roquette.fr]
Chem. Descrip.: Corn starch See Corn (Zea mays) starch

**Starlac™** [Roquette http://www.roquette.fr]
Chem. Descrip.: α-Lactose monohydrate
USP/NF/Ph.Eur. (85%) and corn starch USP, Ph.Eur. (15%) See Corn (Zea mays) starch; Lactose monohydrate
CAS 10039-26-6; 9005-25-8; EINECS/ELINCS 200-559-2; 232-679-6
Uses: Direct compression agent, disintegrant for all direct compression apps., low-dosage formulations, capsule filling, cores for coating, homeopathic formulations
Features: Exc. tablet hardness and flowability
Regulatory: USP/NF, EP
Properties: Spray-dried compd.; ≤ 15% < 32 µm particle size, 35-65% < 160 µm, ≥ 80% < 250 µm; dens. 0.57 g/ml (poured), 0.69 g/ml (tapped)

**Sta-Rx® NF** [Tate & Lyle UK http://www.tateandlyle.com]
Chem. Descrip.: Corn starch NF See Corn (Zea mays) starch
CAS 9005-25-8; EINECS/ELINCS 232-679-6
Uses: Filler, absorbent, diluent, disintegrant in pharmaceutical tablets and powds.; binder in tablet wet granulations
Regulatory: FDA 21CFR §172.892; meets specs for food starch modified
Properties: Wh. powd., free of objectionable odor, sl. char. taste; 0.5% max. on 80 mesh, 5% max. on 325 mesh; pH 64.5-7.0.0; 9.5-12.5% moisture

**Stearico 92-95%** [Undesa http://www.undesa.com; S. Black http://www.sblack.com]
Chem. Descrip.: Stearic acid
CAS 57-11-4; EINECS/ELINCS 200-313-4
Uses: Emollient in pharmaceuticals
Environmental: Biodeg. (28 d) > 90%
Precaution: Wear gloves, goggles, overall skin protection; avoid entry to sewers, drain and surface water
Storage: Store @ R.T. in original sealed container protected from heat sources
**Trade Name Reference**

**STEOL® CA-130** [Stepan http://www.stepan.com]
Chem. Descrip.: Ammonium laureth sulfate
CAS 32612-48-9
Uses: Surfactant, foaming agent, visc. modifier for topical pharmaceuticals
Features: For low pH systems
Properties: Liq.; anionic; 26% conc.
Toxicology: Low skin irritation

**STEOL® CA-230D** [Stepan http://www.stepan.com]
Chem. Descrip.: Ammonium laureth sulfate
CAS 32612-48-9
Uses: Surfactant, foaming agent, visc. modifier for topical pharmaceuticals
Features: For low pH systems
Properties: Liq.; anionic; 25% conc.
Toxicology: Low skin irritation

**STEOL® CA-330** [Stepan http://www.stepan.com]
Chem. Descrip.: Ammonium laureth sulfate
CAS 32612-48-9
Uses: Surfactant, foaming agent, visc. modifier for topical pharmaceuticals
Features: For low pH systems
Properties: Liq.; anionic; 27-29% conc.
Toxicology: Mild to skin irritation

**STEOL® CA-460** [Stepan http://www.stepan.com]
Chem. Descrip.: Ammonium laureth sulfate
CAS 32612-48-9
Uses: Detergent, emulsifier, foaming agent, dispersant, visc. modifier, and wetting agent in pharmaceuticals
Properties: Pale yel. liq.; water-sol.; sp.gr. 1.016; visc. 67 cps; cloud pt. 19 C; pH 7.0; anionic; 60% conc.

**STEPAN® 653** [Stepan http://www.stepan.com]
Chem. Descrip.: Cetyl palmitate
CAS 540-10-3; EINECS/ELINCS 208-736-6
Uses: Emollient, thickener, visc. builder for pharmaceutical creams and lotions; base material for stick prods.
Features: Syn. spermaceti wax
Properties: Wh. flakes; sol. in boiling alcohol, ether, chloroform, other waxes, oils, hydrocarbons; insol. in water; m.p. 51-55 C; acid no. 2.0 max.; sapon. no. 109-117; nonionic

**STEPAN® GDS 386F** [Stepan http://www.stepan.com]
Chem. Descrip.: Glyceryl distearate
CAS 1323-87-3; EINECS/ELINCS 215-359-0
Uses: Emulsifier, opacifier, bodying agent for pharmaceuticals
Features: Food-grade
Properties: Pale yel. liq.; water-sol.; sp.gr. 1.016; visc. 67 cps; cloud pt. 19 C; pH 7.0; anionic; 60% conc.

**STEPAN® GMS 63F** [Stepan http://www.stepan.com]
Chem. Descrip.: Glyceryl monostearate (35-45 %), glyceryl distearate (50-60 %), and glycerin (1-2 %) See Glyceryl stearate
CAS 123-94-4; 1323-83-7; 56-81-5; EINECS/ELINCS 204-664-4; 215-359-0; 200-289-5
Uses: Emulsifier and emollient for pharmaceutical creams and lotions
Regulatory: DSL listed
Properties: Wh. to off-wh. waxy flake, typ. mild fatty odor; insol. in water; sol. in IPA, min. oil; partly sol. in peanut oil; m.p. 56-59 C; HLB 2.4; acid no. 5.0 max.; sapon. no. 182-188; flash pt. (COC) 450 F; nonionic; 100% conc.
Toxicology: LD50 (oral, rat) 12600 mg/kg; LD50 (dermal, rabbit) >10 g/kg; ACGIH TWA 10 mg/m³; may cause irritation to the eyes, skin, and respiratory system; not expected to be a primary skin irritant; inh. of vapors or mists of the product may be irritating to the respiratory system; ing. of large amounts may produce GI disturbances including irritation, nausea, and diarrhea; TSCA listed
Environmental: Biodeg.; 0% RVOC
Precaution: Wear gloves, dust mask, and safety goggles; may react with strong oxidizing agents
Storage: Store in sealed containers and kept in a cool, dry place; avoid prolonged storage at > 90 F

**STEPAN® GMS 63F** [Stepan http://www.stepan.com]
Chem. Descrip.: Glyceryl stearate
CAS 123-94-4; EINECS/ELINCS 204-664-4
Uses: Emulsifier and emollient in pharmaceutical creams and lotions
Properties: Wh. to off-wh. flake; insol. in water; sol. in IPA and mineral oil; partly sol. in peanut oil; sp. gr. 0.973; m.p. 58 C; b.p. 150 C; acid no. 0.70; sapon. no. 176; pH 210 C; nonionic; HLB 3.8; >99% act.
Toxicology: LD50 (oral, rat) 12600 mg/kg; LD50 (dermal, rabbit) >10 g/kg; ACGIH TWA 10 mg/m³; may cause irritation to the eyes, skin, and respiratory system; not expected to be a primary skin irritant; inh. of vapors or mists of the product may be irritating to the respiratory system; ing. of large amounts may produce GI disturbances including irritation, nausea, and diarrhea; TSCA listed
Environmental: Biodeg.; 0% RVOC
Precaution: Wear gloves, dust mask, and safety goggles; may react with strong oxidizing agents
Storage: Store in sealed containers and kept in a cool, dry place; avoid prolonged storage at > 90 F
Trade Name Reference

sapon. no. 176; flash pt. 210 C; nonionic; > 99%
Toxicology: LD50 > 5g/kg; pract. nontoxic
Environmental: Biodegrad.; RVOC 0%
Precaution: Wear dust mask, safety goggles, and gloves; avoid prolonged contact with eyes and skin

STEPAN® GMS Pure [Stepan http://www.stepan.com]
Chem. Descrip.: Glyceril stearate
CAS 123-94-4
Uses: Emollient, emulsifier, opacifier, bodying agent for pharmaceutical topical creams, lotions, ointments, antiperspirants
Properties: Wh. flakes, typ. mild fatty odor; insol. in water; sol. in IPA, min. oil; partly sol. in peanut oil; m.p. 56.5-58.5 C; HLB 3.8; acid no. 3.0; iodine no. 0.5 max.; sapon. no. 168-176; flash pt. (COC) 410 F; nonionic; 100% act.

STEPAN® IPM-NF [Stepan http://www.stepan.com]
Chem. Descrip.: Isopropyl myristate NF
CAS 110-27-0; EINECS/ELINCS 203-751-4
Uses: Solvent, emollient, feel enhancer, hair conditioner, solubilizer, blending agent for pharmaceutical topical preps.
Regulatory: NF
Properties: Cl. liq.; sol. in IPA, min. oil, peanut oil; insol. in water; sp.gr. 0.8534 g/ml; dens. 0.85 g/ml; visc. 4.5 cps (25 C); m.p. -3 C; b.p. 163 C; acid no. 0.24; iodine no. 0.19; sapon. no. 208; pour pt. 6 C; cloud pt. 4 C; flash pt. (COC) 152 C; ref. index 1.433 (25 C); pH 4.5 min. (10%); 99.9% act.
Toxicology: LD50 (oral, mouse) 49,700 mg/kg, (skin, rabbit) 5 g/kg; may be irritating to eyes, respiratory system; prolonged or excessive skin contact may cause mild skin irritation; TSCA listed
Environmental: Biodeg.
Storage: Store in sealed containers in cool, dry place; avoid prolonged storage above 32 C; avoid overheating or freezing

STEPAN® PEG 200 DO [Stepan http://www.stepan.com]
Chem. Descrip.: PEG-4 dioleate
CAS 9005-07-6
Uses: Emulsifier, thickener, solubilizer, emollient, lubricant, opacifier, spreading agent, pigment wetting agent/dispersant for pharmaceuticals (ointments, suppositories), creams, lotions
Regulatory: FDA 21CFR §175.105, 175.300, 175.170, 175.200, 177.1210, 177.2260, 177.2800; Europe, Canada, Australia, Philippines, Korea, Japan listed
Properties: Amber liq.; sol. in naphtha, kerosene, IPA, acetone, CCl4, ethyl acetate, toluol, IPM, min. oil, peanut oil, wh. oil; water-disp.; sp.gr. 0.941; dens. 7.85 lb/gal; dens. 7.9 lb/gal; f.p. < -15 C; HLB 5.0; acid no. 7.4; sapon. no. 153; pH 5.0 (3%); cloud pt. < 5 C; flash pt. (COC) 285 C; nonionic
Toxicology: Pract. nontoxic orally; causes skin and no eye irritation; avoid eye contact, prolonged skin contact; TSCA listed
Environmental: Biodeg.
Storage: Store in sealed containers in cool, dry place; avoid prolonged storage above 32 C; avoid overheating or freezing

STEPAN® PEG 400 DL [Stepan http://www.stepan.com]
Chem. Descrip.: PEG-4 dilaurate
CAS 9005-02-1
Uses: Emulsifier, thickener, solubilizer, emollient, lubricant, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals (ointments, suppositories), creams, lotions
Regulatory: FDA 21CFR §175.105, 176.170, 176.180, 176.200, 176.210, 177.1200; Europe, Japan, Canada, Australia, Korea listed
Properties: Lt. yel. liq.; typ. mild fatty odor; sol. in IPA, acetone, CCl4, ethyl acetate, toluol, IPM, min. oil, peanut oil, wh. oil; water-disp.; sp.gr. 0.952; dens. 7.93 lb/gal; dens. 7.9 lb/gal; f.p. < 9C; b.p. 150 C; HLB 5.9; acid no. 9.0; sapon. no. 168-176; flash pt. (COC) 410 F; nonionic; 100% act.
Toxicology: LD50 (oral) > 10 g/kg; pract. nontoxic orally; causes mild skin and pract. no eye irritation; avoid eye contact, prolonged skin contact; TSCA listed
Environmental: Biodeg.
Storage: Store in sealed containers in cool, dry place; avoid prolonged storage above 32 C; avoid overheating or freezing

STEPAN® PEG 200 DL [Stepan http://www.stepan.com]
Chem. Descrip.: PEG-4 dilaurate
CAS 9005-02-1
Uses: Emulsifier, thickener, solubilizer, emollient, lubricant, opacifier, spreading agent, pigment wetting agent/dispersant for pharmaceuticals (ointments, suppositories), creams, lotions
Regulatory: FDA 21CFR §175.105, 175.300, 175.170, 175.200, 177.1210, 177.2260, 177.2800; Europe, Canada, Australia, Philippines, Korea, Japan listed
Properties: Lt. yel. liq.; typ. mild fatty odor; sol. in IPA, acetone, CCl4, ethyl acetate, toluol, IPM, min. oil, peanut oil, wh. oil; water-disp.; sp.gr. 0.952; dens. 7.93 lb/gal; dens. 7.9 lb/gal; f.p. < 9C; b.p. 150 C; HLB 5.9; acid no. 9.0; sapon. no. 168-176; flash pt. (COC) 410 F; nonionic; 100% act.
Toxicology: LD50 (oral) > 10 g/kg; pract. nontoxic orally; causes mild skin and pract. no eye irritation; avoid eye contact, prolonged skin contact; TSCA listed
Environmental: Biodeg.
Storage: Store in sealed containers in cool, dry place; avoid prolonged storage above 32 C; avoid overheating or freezing

STEPAN® PEG 400 DL [Stepan http://www.stepan.com]
Chem. Descrip.: PEG-4 dilaurate
CAS 9005-02-1
Uses: Emulsifier, thickener, solubilizer, emollient, lubricant, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals (ointments, suppositories), creams, lotions
Regulatory: FDA 21CFR §175.105, 176.170, 176.180, 176.200, 176.210, 177.1200; Europe, Japan, Canada, Australia, Korea listed
Properties: Lt. yel. liq.; typ. mild fatty odor; sol. in IPA, acetone, CCl4, ethyl acetate, toluol, IPM, min. oil, peanut oil, wh. oil; water-disp.; sp.gr. 0.952; dens. 7.93 lb/gal; dens. 7.9 lb/gal; f.p. < 9C; b.p. 150 C; HLB 5.9; acid no. 9.0; sapon. no. 168-176; flash pt. (COC) 410 F; nonionic; 100% act.
Toxicology: LD50 (oral) > 10 g/kg; pract. nontoxic orally; causes mild skin and pract. no eye irritation; avoid eye contact, prolonged skin contact; TSCA listed
Environmental: Biodeg.
Storage: Store in sealed containers in cool, dry place; avoid prolonged storage above 32 C; avoid overheating or freezing
Trade Name Reference

CHEM. DESCRIPT.: PEG-8 dilaurate
CAS 9005-02-1
Uses: Emulsifier, thickener, solubilizer, emollient, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals (ointments, suppositories), creams, lotions
Properties: Lt. yel. liq.; sol. in naphtha, IPA, acetone, CCl₄, ethyl acetate, toluol, IPM, peanut oil; water-disp.; sp.gr. 0.990; dens. 8.3 lb/gal; f.p. 18 C; HLB 9.8; acid no. 10.0 max.; sapon. no. 127-137; flash pt. (COC) 480 F; nonionic

STEPAN® PEG 400 DO [Stepan]
CHEM. DESCRIPT.: PEG-8 dioleate
CAS 9005-07-7
Uses: Emulsifier, thickener, solubilizer, emollient, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals (ointments, suppositories), creams, lotions
Properties: Lt. amber liq.; sol. in naphtha, IPA, acetone, CCl₄, ethyl acetate, toluol, IPM, peanut oil; water-disp.; sp.gr. 0.977; dens. 8.1 lb/gal; f.p. < 7 C; HLB 8.5; acid no. 10.0 max.; sapon. no. 113-122; pH 5.0; flash pt. (COC) 475 F; nonionic

STEPAN® PEG 400 DS [Stepan]
CHEM. DESCRIPT.: PEG-8 distearate
CAS 9005-08-7
Uses: Emulsifier, thickener, solubilizer, emollient, conditioner, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals (ointments, suppositories), creams, lotions
Properties: Lt. yel. to yel. solid; typ. mild waxy odor; sol. in naphtha, IPA, acetone, CCl₄, ethyl acetate, toluol, IPM, min. oil, peanut oil, wh. oil; water-disp.; sp.gr. 0.977; dens. 8.1 lb/gal; f.p. < 7 C; HLB 8.5; acid no. 10.0 max.; sapon. no. 113-122; pH 5.0; flash pt. (COC) 520 F; nonionic

STEPAN® PEG 400 ML [Stepan]
CHEM. DESCRIPT.: PEG-8 laurate
CAS 9004-81-3
Uses: Emulsifier, thickener, solubilizer, emollient, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals (ointments, suppositories), creams, lotions
Properties: Lt. yel. liq.; sol. in water, IPA, acetone, CCl₄, ethyl acetate, toluol; sp.gr. 1.028; dens. 8.6 lb/gal; f.p. < 10 C; HLB 13.1; acid no. 5.0 max.; sapon. no. 86-96; flash pt. (COC) 475 F; nonionic

STEPAN® PEG 400 MO [Stepan]
CHEM. DESCRIPT.: PEG-8 oleate (100%)
CAS 9004-96-0
Uses: Emulsifier, thickener, solubilizer, emollient, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals (ointments, suppositories), sunscreens
Properties: Lt. amber liq.; sol. in IPA, acetone, CCl₄, ethyl acetate, toluol; water-disp.; sp.gr. 1.013; dens. 8.4 lb/gal; f.p. < 10 C; HLB 11.4; acid no. 5.0 max.; sapon. no. 80-89; pH 5.0 (3% disp.); flash pt. (COC) 510 F; nonionic
Toxicology: LD₅₀ (oral, rat) > 15 g/kg; may cause mild eye, skin, respiratory system irritation; ing. of large amounts may produce GI disturbances

Environmental: Biodeg.
Precaution: Wear safety glasses, chemical goggles, impervious gloves; combustible; incompat. with strong oxidizers, alkalis
NFPA: Health 1, Flammability 1, Reactivity 0
Storage: Keep container tightly closed in cool, dry, well-ventilated place; avoid freezing, excessive heat

STEPAN® PEG 400 MS [Stepan]
CHEM. DESCRIPT.: PEG-8 stearate
CAS 9004-99-3
Uses: Emulsifier, thickener, solubilizer, emollient, conditioner, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals (ointments, suppositories), creams, lotions
Toxicology: LD₅₀ (oral) > 10 g/kg; pract. nontoxic orally; causes mild skin and no eye irritation; avoid eye contact, prolonged skin contact; TSCA listed

Environmental: Biodeg.
Storage: Store in sealed containers in cool, dry place; avoid prolonged storage above 32 C; avoid overheating

Environmental: Biodeg.
Storage: Store in sealed containers in cool, dry place; avoid prolonged storage above 32 C; avoid overheating

STEPAN® PEG 400 ML [Stepan]
CHEM. DESCRIPT.: PEG-8 laurate
CAS 9004-81-3
Uses: Emulsifier, thickener, solubilizer, emollient, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals (ointments, suppositories), creams, lotions
Properties: Lt. yel. liq.; sol. in water, IPA, acetone, CCl₄, ethyl acetate, toluol; sp.gr. 1.028; dens. 8.6 lb/gal; f.p. < 10 C; HLB 13.1; acid no. 5.0 max.; sapon. no. 86-96; flash pt. (COC) 475 F; nonionic

STEPAN® PEG 400 MO [Stepan]
CHEM. DESCRIPT.: PEG-8 oleate (100%)
CAS 9004-96-0
Uses: Emulsifier, thickener, solubilizer, emollient, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals (ointments, suppositories), sunscreens
Properties: Lt. amber liq.; sol. in IPA, acetone, CCl₄, ethyl acetate, toluol; sp.gr. 1.013; dens. 8.4 lb/gal; f.p. < 10 C; HLB 11.4; acid no. 5.0 max.; sapon. no. 80-89; pH 5.0 (3% disp.); flash pt. (COC) 510 F; nonionic
Toxicology: LD₅₀ (oral, rat) > 15 g/kg; may cause mild eye, skin, respiratory system irritation; ing. of large amounts may produce GI disturbances

Environmental: Biodeg.
Precaution: Wear safety glasses, chemical goggles, impervious gloves; combustible; incompat. with strong oxidizers, alkalis
NFPA: Health 1, Flammability 1, Reactivity 0
Storage: Keep container tightly closed in cool, dry, well-ventilated place; avoid freezing, excessive heat

STEPAN® PEG 400 MS [Stepan]
CHEM. DESCRIPT.: PEG-8 stearate
CAS 9004-99-3
Uses: Emulsifier, thickener, solubilizer, emollient, conditioner, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals (ointments, suppositories), creams, lotions
Toxicology: LD₅₀ (oral) > 10 g/kg; pract. nontoxic orally; causes mild skin and no eye irritation; avoid eye contact, prolonged skin contact; TSCA listed
Trade Name Reference

**Regulatory:** FDA 21CFR §175.300, 176.170, 176.200, 176.210, 177.1200, 177.2800; Europe, Canada, Australia, Korea, Japan listed

**Properties:** Lt. yel. to yel. solid; sol. in IPA, acetone, CCl₄, ethyl acetate, toluol; sl. sol. in min. oil, peanut oil; water-disp.; sp.gr. 0.9780 (65 C); dens. 8.16 lb/gal (65 C); HLB 11.7; m.p. 32 C; acid no. 3.5; sapon. no. 88; pH 5.0 (3% disp.); cloud pt. < 5 C; flash pt. (COC) 249 C; nonionic

**Toxicology:** LD50 (oral) > 10 g/kg; pract. nontoxic orally; causes mod. skin and no eye irritation; avoid eye contact, prolonged skin contact; TSCA listed

**Environmental:** Biodeg.

**Storage:** Store in sealed containers in cool, dry place; avoid prolonged storage above 32 C; avoid overheating

**STEPAN® PEG 600 DL** [Stepan http://www.stepan.com]

**Chem. Descrip.:** PEG-12 dilaurate

**CAS 9005-02-1**

**Uses:** Emulsifier, thickener, solubilizer, emollient, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals (ointments, suppositories), creams, lotions

**Regulatory:** Europe, Japan, Canada, Australia, Korea listed

**Properties:** Yel. to lt. amber soft solid; typ. mild fatty odor; sol. in IPA, acetone, CCl₄, ethyl acetate, toluol, IPM, peanut oil; water-disp.; insol. in min. oil; sp.gr. 0.981 (65 C); dens. 8.19 lb/gal (65 C); m.p. 24 C; b.p. 150 C; HLB 11.7; acid no. 5; iodine no. 4; sapon. no. 107; cloud pt. 30 C; flash pt. (COC) 240 C; 0% RVOC; nonionic; 100% act.

**Toxicology:** Avoid eye contact, prolonged skin contact; TSCA listed

**Environmental:** Biodeg.

**Storage:** Store in sealed containers in cool, dry place; avoid prolonged storage above 32 C; avoid overheating or freezing

**STEPAN® PEG 600 DO** [Stepan http://www.stepan.com]

**Chem. Descrip.:** PEG-12 dioleate

**CAS 9005-07-6; EINECS/ELINCS 288-459-5**

**Uses:** Emulsifier, thickener, solubilizer, emollient, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals (ointments, suppositories), creams, lotions

**Regulatory:** Europe, Canada, Japan, Australia listed

**Properties:** Yel. to lt. amber liq.; typ. mild fatty odor; sol. in IPA, acetone, CCl₄, ethyl acetate, toluol, IPM, peanut oil; water-disp.; insol. in min. oil; sp.gr. 1.002; dens. 8.34 lb/gal; m.p. 19 C; b.p. 150 C; HLB 10.6; acid no. 5; iodine no. 42; sapon. no. 97; pH 5.0 (3% disp.); cloud pt. 10 C; flash pt. (COC) 256 C; 0% RVOC; nonionic

**Toxicology:** Avoid eye contact, prolonged skin contact; TSCA listed

**Environmental:** Biodeg.

**Storage:** Store in sealed containers in cool, dry place; avoid prolonged storage above 32 C; avoid overheating or freezing

**STEPAN® PEG 600 DS** [Stepan http://www.stepan.com]

**Chem. Descrip.:** PEG-12 distearate

**CAS 9005-08-7**

**Uses:** Emulsifier, thickener, solubilizer, emollient, conditioner, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals (ointments, suppositories), creams, lotions

**Regulatory:** Europe, Canada, Japan, Australia listed

**Properties:** Yel. to lt. amber soft solid; sol. in IPA, min. oil, acetone, CCl₄, ethyl acetate, toluol, IPM, peanut oil; water-disp.; sp.gr. 0.9670 (65 C); dens. 8.07 lb/gal; m.p. 39 C; b.p. 150 C; HLB 10.7; acid no. 7.4; sapon. no. 97.5; pH 5.0 (3% disp.); cloud pt. < 5 C; flash pt. (COC) 254 C; 0% RVOC; nonionic; 100% act.

**Toxicology:** LD50 (oral) > 10 g/kg; pract. nontoxic orally; causes mild skin and minimal eye irritation; avoid eye contact, prolonged skin contact

**Environmental:** Biodeg.

**Storage:** Store in sealed containers in cool, dry place; avoid prolonged storage above 32 C

**STEPAN® PEG 600 ML** [Stepan http://www.stepan.com]

**Chem. Descrip.:** PEG-12 laurate

**CAS 9004-81-3**

**Uses:** Emulsifier, thickener, solubilizer, emollient, conditioner, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals (ointments, suppositories), creams, lotions

**Regulatory:** FDA 21CFR §175.105, 175.300, 175.1200, 175.2800; Europe, Japan, Canada, Australia, Korea listed

**Properties:** Yel. to lt. amber liq.; typ. mild fatty odor; sol. in IPA, acetone, CCl₄, ethyl acetate, toluol, IPM, peanut oil; water-disp.; insol. in min. oil; sp.gr. 1.002; dens. 8.34 lb/gal; m.p. 19 C; b.p. 150 C; HLB 10.6; acid no. 5; iodine no. 42; sapon. no. 97; pH 5.0 (3% disp.); cloud pt. 10 C; flash pt. (COC) 256 C; 0% RVOC; nonionic

**Toxicology:** Avoid eye contact, prolonged skin contact; TSCA listed

**Environmental:** Biodeg.

**Storage:** Store in sealed containers in cool, dry place; avoid prolonged storage above 32 C
**Trade Name Reference**

**Properties:** Yel. liq.; sol. in water, Na$_2$SO$_4$, IPA, acetone, CCl$_4$, ethyl acetate, toluol; sl. sol. in peanut oil; insol. in min. oil; sp.gr. 1.050; dens. 8.75 lb/gal (65 C); m.p. 23 C; HLB 14.6; acid no. 4.0; sapon. no. 69; cloud pt. 68 C; flash pt. (COC) 247 C; nonionic; 100% act.

**Toxicology:** LD$_{50}$ (oral) > 10 g/kg; pract. nontoxic orally; causes minimal skin and eye irritation; avoid eye contact, prolonged skin contact; TSCA listed

**Environmental:** Biodeg.

**Storage:** Store in sealed containers in cool, dry place; avoid prolonged storage above 32 C; avoid overheating

**STEPAN® PEG 6000 DS** [Stepan](http://www.stepan.com)

**Chem. Descrip.:** PEG-150 distearate

**CAS:** 9005-08-7

**Uses:** Emulsifier, thickener, solubilizer, emollient, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals (ointments, suppositories), creams, lotions

**Properties:** Cream wax; sol. in propylene glycol, Na$_2$SO$_4$ (5%), IPA, acetone, CCl$_4$, ethyl acetate, toluol; sp.gr. 1.075 (65 C); HLB 18.4; m.p. 55 C; acid no. 9.0 max.; sapon. no. 14-20; pH 5.0 (3% disp.); flash pt. (COC) 475 F; nonionic; 100% act.

**Toxicology:** LD$_{50}$ (oral) > 5 g/kg; pract. nontoxic orally; causes sl. skin and minimal eye irritation; avoid inhaling dust

**Environmental:** Biodeg.

**Storage:** Store in sealed containers in cool, dry place; avoid prolonged storage above 32 C; avoid overheating

**STEPAN® PEG 6000 MS** [Stepan](http://www.stepan.com)

**Chem. Descrip.:** PEG-150 stearate

**CAS:** 9004-99-3

**Uses:** Emulsifier, thickener, solubilizer, emollient, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals (ointments, suppositories), creams, lotions

**Properties:** Wh. to off-wh. flakes; sol. in water, propylene glycol, Na$_2$SO$_4$ (5%), IPA, acetone, CCl$_4$, ethyl acetate, toluol; insol. in min. oil, peanut oil; sp.gr. 1.080 (65 C); dens. 9.1 lb/gal; HLB 19.1; m.p. 60 C; acid no. 1.4; sapon. no. 10; pH 5.0 (3% disp.); cloud pt. > 100 C; flash pt. (COC) 247 C; nonionic

**Toxicology:** LD$_{50}$ (oral) > 10 g/kg; pract. nontoxic orally; causes minimal skin and practically no eye irritation; avoid inhaling dust, eye contact, prolonged skin contact; TSCA listed

**Environmental:** Biodeg.

**Storage:** Store in sealed containers in cool, dry place; avoid prolonged storage above 32 C; avoid overheating

**STEPAN® PGMS Pure** [Stepan](http://www.stepan.com)

**Chem. Descrip.:** Propylene glycol stearate

**CAS:** 1323-39-3; EINECS/ELINCS 215-354-3

**Uses:** Emulsifier, emollient, and opacifier in creams, lotions, suppositories

**Features:** M.p. near body temp.

**Regulatory:** Europe, Japan, Canada, Australia listed

**Properties:** Wh. to off-wh. flakes, typ. mild fatty odor; insol. in water; sol. in IPA, min. oil, peanut oil; dens. 7.8 lb/gal (molten); m.p. 36.7 C; b.p. > 150 C; HLB 3.4; iodine no. 0.5 max.; sapon. no. 182.5; flash pt. (COC) 4 C; nonionic; 99.7% solids

**Toxicology:** LD$_{50}$ (oral) > 5 g/kg; pract. nontoxic orally; causes sl. skin and minimal eye irritation; avoid inhaling dust

**Environmental:** Biodeg.

**Storage:** Store in sealed containers in cool, dry place; avoid prolonged storage above 32 C; avoid overheating

**STEPAN® SAB-2** [Stepan](http://www.stepan.com)

**Chem. Descrip.:** Distearyl phthalic acid amide

**Use:** Surfactant for pharmaceuticals; emulsifier, suspending agent for triglycerides, min. oil, and silicones

**Properties:** Flakes

**Toxicology:** Nontoxic; nonirritating to skin; sl. conjunctival irritant; nonsensitizing

**Environmental:** Biodeg.

**Storage:** Store in sealed containers in cool, dry place; avoid prolonged storage above 32 C; avoid overheating

**STEPAN® TAB-2** [Stepan](http://www.stepan.com)

**Chem. Descrip.:** Dihydrogenated tallow phthalic acid amide

**CAS:** 127733-92-0

**Uses:** Surfactant, emulsifier, suspending agent, opacifier in pharmaceuticals, antidandruff shampoos

**Properties:** Off-wh. to sl. yel. flake, typ. mild fatty odor; sol. in min. and veg. oils, IPP, IPM; insol. in water; m.p. 45 C; flash pt. > 200 F; nonionic; 99.7% solids

**Toxicology:** Nontoxic; nonirritating to skin; sl. conjunctival irritant; nonsensitizing

**Environmental:** Biodeg.

**Storage:** Store in sealed containers in cool, dry place; avoid prolonged storage above 32 C; avoid overheating

**STEPAN-MILD® LSB** [Stepan](http://www.stepan.com)

**Chem. Descrip.:** Sodium lauryl sulfoacetate, disodium laurethsulfosuccinate

**See** Disodium laureth sulfosuccinate

Handbook of Pharmaceutical Additives, Third Edition 692
Trade Name Reference

Uses:  Surfactant, foaming agent, visc. builder for pharmaceuticals, sensitive skin prods.
Features:  Exc. mildness
Properties:  Cl. liq.; 25% act.

STEPAN-MILD® RM1  [Stepan http://www.stepan.com]
Chem. Descrip.:  Sodium stearyl phthalate amide
See Sodium phthalate stearyl amide
CAS 86432-23-7
Uses:  Rheology modifier, emulsion stabilizer for o/w emulsions, moisturizing creams and lotions, therapeutic prods., sunscreens, and water resist. sunscreens; SPF enhancer for sunscreens
Properties:  Wh. powd.; char. fatty odor; sol. in water @ 80 C; insol. in water @ R.T.; flash pt. (PMCC) > 94 C; 0% RVOC; > 98% solids
Toxicology:  LD50 (oral) > 5 ml/kg; pract. nontoxic orally; causes sl. skin and min. eye irritation as 24% slurry
Environmental:  Biodeg.

STEPAN-MILD® SL3 BA  [Stepan http://www.stepan.com]
Chem. Descrip.:  Disodium laureth sulfosuccinate
See Disodium laureth sulfosuccinate
CAS 39354-45-5; EINECS/ELINCS 255-062-3
Uses:  Surfactant for pharmaceuticals
Properties:  Liq.; anionic; 32% act.

STEPANOL® 360  [Stepan http://www.stepan.com]
Chem. Descrip.:  Sodium laurel sulfonate, lauramide DEA
CAS 151-21-3; 120-40-1
Uses:  Surfactant for pharmaceuticals
Properties:  Cl. liq.; sp. gr. 1.007 g/ml; visc. 6000 cps; flash pt. 93 C; pH 7.5; anionic/nonionic blend; 24.5% act.
Toxicology:  May cause eye and skin irritation; inh. of vapors irritating to respiratory tract; ing. of large amounts may produce GI disturbances including irritation, nausea, and diarrhea
Environmental:  0% RVOC; biodeg.

STEPANOL® ABHS-15C  [Stepan http://www.stepan.com]
Chem. Descrip.:  Water, triclosan; sodium laureth sulfate, sodium lauryl sulfate, lauramide DEA, cocamide DEA, cocamidopropyl betaine
Uses:  Antibacterial hand soap conc.
Features:  Good foaming props.
Properties:  Gardener 3 cl. liq.; sp.gr. 1.04; dens. 8.7 lb/gal; visc. 600-800 cps; f.p. -1 C; flash pt. > 94 C; pH 7-8; 34-36% solids
Use Level:  25%
Storage:  Store @ 80-100 F; freeze/thaw stable

STEPANOL® AEG  [Stepan http://www.stepan.com]
Chem. Descrip.:  Ammonium laurel sulfonate, ammonium laurate sulfonate, cocamidopropyl betaine, cocamide DEA
Uses:  Surfactant for pharmaceuticals
Properties:  Liq.; anionic; 42% act.

STEPANOL® AEM  [Stepan http://www.stepan.com]
Chem. Descrip.:  Ammonium laureth sulfonate, cocamide DEA
Uses:  Surfactant for pharmaceuticals
Properties:  Liq.; anionic; 48% act.

STEPANOL® AM  [Stepan http://www.stepan.com]
Chem. Descrip.:  Ammonium lauryl sulfonate, ammonium laureth sulfonate, cocamide MEA
Uses:  Surfactant for pharmaceuticals
Properties:  Liq.; anionic; 28% act.

STEPANOL® AM-V  [Stepan http://www.stepan.com]
Chem. Descrip.:  Sodium laurel sulfonate, lauramide DEA
CAS 151-21-3; EINECS/ELINCS 205-788-1
Uses:  Detergent, foaming agent, visc. builder in pharmaceuticals
Properties:  Pale yel. visc. liq.; water-sol.; pH 6-7 (10%); anionic; 28% act.

STEPANOL® ME Dry  [Stepan http://www.stepan.com]
Chem. Descrip.:  Sodium laurel sulfonate
CAS 151-21-3; EINECS/ELINCS 221-450-6
Uses:  Detergent, foaming agent for dentifrices, tablets, pharmaceuticals
Properties:  Wh. powd.; water-sol.; pH 7.5-1.0 (10%); anionic; 93% min. act.

STEPANOL® MG  [Stepan http://www.stepan.com]
Chem. Descrip.:  Magnesium lauryl sulfonate
CAS 151-21-3; EINECS/ELINCS 221-450-6
Uses:  Detergent, foaming agent for
Trade Name Reference

pharmaceuticals

Properties: Water-sol.; pH 6.5-7.5 (10%); anionic; 28-30% act.

STEPLANOL® PB [Stepan](http://www.stepan.com)
Chem. Descrip.: Ammonium lauryl sulfate, ammonium lauryl sulfate, cocamidopropyl betaine, cocamide DEA, glycol stearate
Uses: Surfactant for pharmaceuticals
Properties: Liq.; anionic; 32% solids

STEPLANOL® WA-100 NF/USP [Stepan](http://www.stepan.com)
Chem. Descrip.: Sodium lauryl sulfate USP/NF
CAS 151-21-3; EINECS/ELINCS 205-788-1
Uses: Surfactant, detergent, foaming agent, wetting agent, suspending agent for dentifrices, pharmaceuticals
Features: Minimal taste
Regulatory: FDA 21CFR §172.822, 176.170, 176.180, 176.210, 177.1210, 178.3400; kosher; Europe, Japan, Canada, Australia listed
Properties: Wh. powd.; water-sol.; dens. 0.48 g/ml; pH 9.6 (1% aq.); 0% RVOC; anionic; 97.45% act.; 0.1% NaCl
Toxicology: LD50 0.8-1.1 g/kg; sl. toxic orally; may cause mod. skin and eye irritation @ 10% act.; avoid inhaling dust
Environmental: Readily biodeg.
Storage: Store in sealed containers in cool, dry place to avoid agglomeration

STEPLANOL® WAC-P [Stepan](http://www.stepan.com)
Chem. Descrip.: Sodium lauryl sulfate
CAS 151-21-3; EINECS/ELINCS 205-788-1
Uses: Visc. builder and foamer for medicated ointments
Features: Compatible with alkanolamides and amphoterics maximizing optimization of foam and viscosity characteristics
Regulatory: DSL listed
Properties: Opaque visc. liq.; anionic; 30% act.
Toxicology: LD50 0.8-1.1 g/kg; moderate to severely irritating to skin and eyes; sl. toxic orally to mammals
Environmental: (LC50 (aquatic organisms) 13 mg/L); biodeg.
Storage: Store in sealed containers @ < 16 C; avoid overheating and freezing

STEPLANOL® WA Extra [Stepan](http://www.stepan.com)
Chem. Descrip.: Sodium lauryl sulfate

Chem. Analysis: 28% Sodium lauryl sulfate in water
CAS 151-21-3; EINECS/ELINCS 205-788-1
Uses: Detergent, foaming agent, visc. builder for medicated ointments, pharmaceuticals
Regulatory: FDA 21CFR 172.822, 176.170, 176.180, 176.210, 177.1210, 178.3400, kosher
Properties: Cl. liq.; water-sol.; dens. 1.03 g/ml; pH 7.7 (10% aq. sol'n.); anionic; 93.9 C; pH 7.5-8.5 (10% aq. sol'n.); anionic; 93.9 C; pH 7.5-8.5 (10% aq. sol'n.); anionic; 29% act.
Toxicology: LD50 (oral, rat) >500 - 5000 mg/kg; LD50 (dermal, rabbit) >2,000 20,000 mg/kg; slightly toxic orally; causes moderate to severe skin and eye irritation at 10% act.
Environmental: Biodeg.
Precaution: Wear safety goggles and gloves; strong acids or oxidizing agents
Hazardous Decomp. Prods.: SOx
HMIS: Health 2, Flammability 1, Reactivity 0
Storage: Store in sealed containers @ 60-110 F; avoid overheating or freezing

STEPLANOL® WA Extra PCK [Stepan](http://www.stepan.com)
Chem. Descrip.: Sodium lauryl sulfate
Chem. Analysis: 28% Sodium lauryl sulfate in water
CAS 151-21-3; EINECS/ELINCS 205-788-1
Uses: Detergent, foaming agent, visc. builder for medicated ointments, pharmaceuticals
Regulatory: FDA 21CFR 172.822, 176.170, 176.180, 176.210, 177.1210, 178.3400, kosher; DSL compliant
Properties: Cl. liq.; water-sol.; dens. 1.03 g/ml; pH 7.7 (10% aq. sol'n.); anionic; 93.9 C; pH 7.5-8.5 (10% aq. sol'n.); anionic; 29% act.
Toxicology: LD50 (oral, rat) >500 - 5000 mg/kg; LD50 (dermal, rabbit) >2,000 20,000 mg/kg; slightly toxic orally; causes moderate to severe skin and eye irritation at 10% act.
Environmental: RVOC 0%; biodeg.
Precaution: Wear safety goggles and gloves; strong acids or oxidizing agents
Hazardous Decomp. Prods.: SOx
HMIS: Health 2, Flammability 1, Reactivity 0
Storage: Store in sealed containers @ 60-110 F; avoid overheating or freezing

STEPLANOL® WA Paste [Stepan](http://www.stepan.com)
Chem. Descrip.: Sodium lauryl sulfate
CAS 151-21-3; EINECS/ELINCS 205-788-1
Uses: Detergent, foaming agent, visc. builder for medicated ointments, pharmaceuticals
Trade Name Reference

**Properties:** Water-wh. cl. paste; water-sol.; pH 7.5-8.5 (10%); anionic; 29% act.

**STEPANOL® WAT** [Stepan http://www.stepan.com]
Chem. Descrip.: TEA-lauryl sulfate
CAS 139-96-8; EINECS/ELINCS 205-388-7
Uses: Detergent, foaming agent for pharmaceuticals
Regulatory: DSL listed; kosher
Properties: Water-wh. cl. liq.; water-sol.; dens. 1.04 g/ml; visc. 456 cps; f.p. -4 C; b.p. > 100 C; pour pt. -1 C; cloud pt. 0 C; pH 7.0-8.5 (10%); anionic; 40% act.
Toxicology: LD50 0.25 ->1.95 g/kg; mod. to sl. toxic orally; mod. to severe eye irritant; skin irritant; ing. of large amounts may produce gastrointestinal disturbances including irritation, nausea, and diarrhea; noncarcinogenic
Environmental: 0% RVOC, biodeg.
Precaution: Wear safety goggles and gloves
Hazards: Oxides of nitrogen and ammonia and SOx
HMIS: Health 2, Flammability 1, Reactivity 0
Store: Store in sealed containers @ 7 C; avoid overheating or freezing

**STEPANQUAT® 65 NF** [Stepan http://www.stepan.com]
Chem. Descrip.: Benzalkonium chloride (> 50 %) and ethanol (4%) in water
CAS 63449-41-2; 64-17-5
Uses: Broad-spectrum preservative for personal care and pharmaceutical products such as eye contact lens solutions and topical antiseptics
Properties: Cl. liq.; sp. gr. 0.974; dens. 8.1 lb/gal; visc. 60cps (25 C); pout pt. -4 C; cloud pt. -3 C; 5 C; flash pt. (PMCC) > 56 C; pH (10% aq. sol'n.) 6.5; 50% act.
Toxicology: LD50 (oral, rat) >50 - 500 mg/kg; may be corrosive to eyes; may cause irritation to the respiratory system; excessive inh. causes headache, dizziness, nausea and loss of motor skills; not listed as carcinogenic
Environmental: 4% RVOC (Ethanol); biodeg.
Precaution: Corrosive and combustible; avoid contact with anionic materials, soap and sulfated oils
HMIS: Health 3, Flammability 2, Reactivity 0
Storage: Store in vessels of 316 stainless steel or fiberglass with a corrosion liner @ 85 - 120 F

**Sterotex® HM NF** [ABITEC http://www.abiteccorp.com]
Chem. Descrip.: Hydrogenated soybean oils; conforms to hydrogenated vegetable oil NF
CAS 8016-70-4; EINECS/ELINCS 232-410-2
Uses: Lubricant in pharmaceutical tableting, nutrition, powd. compression applics., suppositories
Regulatory: Kosher
Properties: Wh. fine powd., yel. oil when melted; insol. in water; sp.gr. 0.9; vapor pressure < 1 mm Hg; m.p. 67-70 C; b.p. > 500 F; acid no. 0.4 max.; iodine no. 5 max.; sapon. no. 186-196; flash pt. (COC) > 550 F
Toxicology: Veg. oil mists classified as 'nuisance particles'
Precaution: Oil-soaked materials may spontaneously combust; incompat. with strong oxidizers
Hazardous Decomp. Prods.: CO, CO2
Storage: Store in cool, dry place

**Sterotex® K, NF** [ABITEC http://www.abiteccorp.com]
Chem. Descrip.: Hydrogenated soybean oil (> 60%), hydrogenated castor oil (< 40%)
CAS 8016-70-4; 8001-78-3; EINECS/ELINCS
Trade Name Reference

232-410-3; 232-292-2
Uses: Lubricant in pharmaceutical tablet manufacturing and food supplements, sustained release applics., and as a binder
Regulatory: USP/NF; SARA §311/312, 313 nonreportable
Properties: Wh. powd.; sweet, vegetable oil-like odor; m.p. 140-145 F; b.p. > 500 F; flash pt. (COC) > 500 F
Toxicology: Not expected to be a serious irritant to eyes, skin, or by ing.; dust may be slightly irritating to the respiratory tract; noncarcinogenic; nonmutagenic; nonteratogenic
Environmental: Biodegrad.; avoid runoff into storm sewers and ditches which lead to waterways
Precaution: Combustible; incompat. with oxidizers
Hazardous Decomp. Prods.: COx
NFPA: Health 0, Flammability 1, Reactivity 0
Storage: Retest and requalify after 1 yr.; store in dry place @ R.T.; keep containers closed when not in use; provide adequate ventilation; minimize dust generation and accumulation.

Sterotex® K [ABITEC
http://www.abiteccorp.com]
Chem. Descrip.: Hydrogenated soybean oil, hydrogenated castor oil
Uses: Lubricant for pharmaceutical tablets, clinical nutrition, dermatologicals, suppositories, sustained release
Regulatory: Kosher
Properties: Wh. to lt. tan powd., odorless; insol. in water; sp.gr. 0.9; bulk dens. 0.48; m.p. 81-84 C; b.p. > 500 F; acid no. 1 max.; iodine no. 5 max.; sapon. no. 185-195; flash pt. (COC) > 600 F
Toxicology: Nontoxic; veg. oil mists classified as 'nuisance particles'
Precaution: Oil-soaked materials may spontaneously combust
Sterotex® NF [ABITEC
http://www.abiteccorp.com]
Chem. Descrip.: Hydrogenated cottonseed oil CAS 68334-00-0; EINECS/ELINCS 269-804-9
Uses: Emollient, lubricant, moisturizer, visc. modifier for tableting and compaction in pharmaceuticals, nutritional supplements, dermatologicals, encapsulation, suppositories
Regulatory: Kosher
Properties: Wh. powd. @ R.T., lt. yel. oil when melted; insol. in water; sp.gr. 0.9; m.p. 140-145 F; b.p. > 500 F; acid no. 0.4 max.; iodine no. 5 max.; sapon. no. 188-198; flash pt. (COC) > 640 F
Toxicology: Veg. oil mists classified as 'nuisance particles'; sl. irritating to eyes, skin
Environmental: Biodeg.
Precaution: Wear safety glasses, PVC gloves, work uniform; oil-soaked materials may spontaneously combust; incompat. with oxidizers
NFPA: Health 0, Flammability 1, Reactivity 0
Storage: Store in dry area; keep container closed when not in use

Stimu-Tex® AS [Pentapharm Ltd
http://www.pentapharm.com; Centerchem http://www.centerchem.com]
Chem. Descrip.: Spent grain wax, argania spinosa kernel oil, shea butter (Butyrospermum parkii) extract See Argan (Argania spinosa) kernel oil
Use: Skin protectant, anti-allergenic, anti-irritant, anti-itch agent for skin care
Properties: Pale yel., semi-solid lipidic mass; m.p. 40-50 C; acid no. <10; iodine no. 60-80; sapon. no. 170-20
Storage: 3 yr. shelf life when stored in the original sealed containers protected from light in a clean and cool place at temps. between 4-8 C; in order to avoid secondary microbial contamination after opening, containers should be handled with special care

Streptokinase Streptodornase [Amano Enzyme http://www.amano-enzyme.co.jp]
Chem. Descrip.: Streptokinase and streptodornase
Chem. Analysis: Streptokinase ≥ 1,000u/mg; streptokinase ≥ 250u/mg
CAS 9002-01-1; 9003-98-9
Uses: Anti-inflammatory for pharmaceuticals
Regulatory: JPC
Properties: Off-wh. to brown powd.; sl. odor; sol. in water
Toxicology: Inh. of aerosols or dust may induce sensitization and may cause allergic reactions in sensitized individuals; nontoxic
Environmental: Biodegrad.; not harmful to aquatic and marine organisms when dissolved with copious amounts of water
Precaution: Wear respirator, protective glasses, and impervious gloves; avoid dust formation
Hazardous Decomp. Prods.: None
Trade Name Reference

Storage: Store container in a cool and dry place
Struktol® TR 065 [Struktol
http://www.struktol.com]
Chem. Descrip.: Blend of med. m.w. resins
Uses: Moisture barrier on soft gelatin capsules
Features: Stable to 700 F processing temps.; compat. with polar and nonpolar polymers
Regulatory: FDA 21CFR §172.280, 172.615, 175.105, 175.125, 177.1200, 177.2600
Properties: Lt. tan color, resinous odor; sp.gr. 1.01; drop pt. 108 C
Storage: 2 yrs. min. stability under normal storage conditions

Sturcal® F PCC [Mins. Tech.
http://www.mineralstech.com]
Chem. Descrip.: Precipitated calcium carbonate
CAS 471-34-1; EINECS/ELINCS 207-439-9
Uses: Dentifrices; pharmaceuticals

Sturcal® H PCC [Mins. Tech.
http://www.mineralstech.com]
Chem. Descrip.: Precipitated calcium carbonate
CAS 471-34-1; EINECS/ELINCS 207-439-9
Uses: Dentifrices; pharmaceuticals; calcium source

Sugar Spheres NF Series [Chr. Hansen Inc http://www.chr-hansen.com]
Chem. Descrip.: Sucrose and starch NF
Uses: Carrier used in pharmaceutical industry in prod. of sustained or timed-release dosage forms
Features: Uniform sphere size; low friability
Regulatory: USP, NF, EP
Properties: Wh. uniform, consistent spheres; ranges in mesh size from 14/16 to 60/80; 62.5-91.5% sucrose, ≤ 4% moisture

Sugartab® [JRS Pharma
http://www.jrspharma.com]
Chem. Descrip.: Compressible sucrose (90-93%), invert sugar (6-9%)
Uses: Binder, diluent, carrier, vehicle, base, flow aid, flavor masking agent, sweetener for direct compression of pharmaceutical tablets, chewable tablets, water-sol. tablets, vitamin formulations
Features: Inert; exc. compressibility; produces hard, nonfriable, elegant tablets; relatively low hygroscopicity; smooth disintegration; noncloying sweetness; pleasant aftertaste
Properties: Wh. free-flowing powd.; 296 µ avg. particle size; 30% - 80 mesh; noncloying sweet taste; pleasant aftertaste; very sol. in water; sl. sol. in alcohol; dens. 0.6-0.9 g/ml (tapped)

Sulfochem® SLP-95 [Noveon
http://www.carbopol.com; http://www.noveoncoatings.com; C.P. Hall
http://www.cphall.com]
Chem. Descrip.: Sodium lauryl sulfate
CAS 151-21-3; EINECS/ELINCS 205-788-1
Uses: Foamer, dispersant, wetting agent, detergent for dentifrices
Properties: Wh. powd.; anionic; 95% act.

Super-Cepionate® [Zeon
http://www.zeon.co.jp]
Chem. Descrip.: Methyl dihydrojasmonate (30-33%)
CAS 24851-98-7
Uses: For flavor and fragrance applics., toiletry to perfume
Properties: Diffusive, long-lasting, jasmin-like odor; m.w. 226.3

Super Corona Lanolin [Croda Inc
http://www.croda.com]
**Superfine Lanolin** [Croda Inc](http://www.crodausa.com; http://www.croda.com)

Chem. Descrip.: Lanolin USP
CAS 8006-54-0; EINECS/ELINCS 232-348-6

Uses: Superfatting agent, emollient, emulsifier, moisturizer in topical pharmaceuticals, ointments, dressing creams, diaper rash and hemorrhoidal preps., acne formulations, ophthalmics

Properties: Yel./amber soft solid; low odor; partly sol. in min. oil; m.p. 38-44 C; acid no. 1.0 max.; iodine no. 18-36; nonionic

Toxicology: LD50 (oral, rat) > 20 g/kg; mild skin and eye irritant

**Superfine KCl** [Reheis](http://www.reheis.com)

CAS 7447-40-7; EINECS/ELINCS 231-211-8

Uses: Microencapsulant for pharmaceuticals

Properties: Powd.; 100-200 mesh

**Super Hartolan** [Croda Inc](http://www.crodausa.com; http://www.croda.com; Croda Chem. Europe Ltd http://www.croda.co.uk)

Chem. Descrip.: Lanolin alcohol NF/EP
CAS 8027-33-6; EINECS/ELINCS 232-430-1

Uses: W/o emulsifier, thickener, stabilizer, spreading agent, dispersant, plasticizer, emulsion stabilizer, emollient, plasticizer for topical pharmaceutical emulsions

Features: Enhances stability of acid-contg. emulsions

Properties: Golden solid wax; sol. in IPA, partly sol. in min. oil, disp. in propylene glycol; m.p. 60-70 C; HLB 4.0; acid no. 1.5 max.; sapon. no. 5 mg max.; nonionic; 100% conc.

**Superla® No. 5** [Chevron](http://www.chevron.com/)

Chem. Descrip.: Wh. mineral oil USP
CAS 8020-83-5; EINECS/ELINCS 232-384-2

Uses: Lubricant for pharmaceuticals, medicinal prods.

Features: Virtually free of nitrogen, sulfur, oxygen, aromatic hydrocarbons; free of water and solids

Regulatory: FDA 21 CFR §172.878, 178.3570, 178.3620, 573.680, USDA, USP, CTFA approved; kosher; pareve; RCRA, SARA §311/312/313 nonreportable; Australia AICS; Canada DSL; China ECS; Europe EINECS; Korea ECL; Philippines PICCS

Properties: Colorless, odorless, tasteless liq.; sol. in hydrocarbons; insol. in water; sp.gr. 0.831; visc. 7.84 cSt (40 C), 53 SUS (100 C); pour pt. -7 C; b.p. > 260 C; flash pt. 154 C; ref. index 1.4660; vapor pressure < 0.01 mmHg @ 100 F

Toxicology: Not expected to be eye, skin irritant; not expected to be harmful if ing., inh.; ACGIH TLV TWA 5 mg/m³, STEL 10 mg/m³; TSCA listed

Environmental: Not expected to be readily biodeg.

Precaution: Avoid release into sewage, drainage systems, bodies of water; use in well-ventilated area; incompat. with strong oxidizing agents

HMIS: Health 0, Flammability 1, Reactivity 0

Storage: Ground all containers

**Superla® No. 7** [Chevron](http://www.chevron.com/)

Chem. Descrip.: Wh. mineral oil USP
CAS 8020-83-5; EINECS/ELINCS 232-384-2

Uses: Lubricant for pharmaceuticals, medicinal prods.

Features: Virtually free of nitrogen, sulfur, oxygen, aromatic hydrocarbons; free of water and solids

Regulatory: FDA 21 CFR §172.878, 178.3570, 178.3620, 573.680, USDA, USP, CTFA approved; kosher; pareve; RCRA, SARA §311/312/313 nonreportable; Australia AICS; Canada DSL; China ECS; Europe EINECS; Korea ECL; Philippines PICCS

Properties: Colorless, odorless, tasteless liq.; sol. in hydrocarbons; insol. in water; sp.gr. 0.831

Toxicology: Not expected to be eye, skin irritant; not expected to be harmful if ing., inh.; ACGIH TLV TWA 5 mg/m³, STEL 10 mg/m³; TSCA listed

Environmental: Not expected to be readily biodeg.

Precaution: Avoid release into sewage, drainage systems, bodies of water; use in well-ventilated area; incompat. with strong oxidizing agents

HMIS: Health 0, Flammability 1, Reactivity 0

Storage: Ground all containers
Trade Name Reference

0.851; visc. 13.3 cSt (40 C), 75 SUS (100 C); pour pt. -18 C; b.p. > 260 C; flash pt. 182 C; ref. index 1.4666; vapor pressure < 0.01 mmHg @ 100 F

Toxicology: Not expected to be eye, skin irritant; not expected to be harmful if ing., inh.; ACGIH TLV TWA 5 mg/m³, STEL 10 mg/m³; TSCA listed

Environmental: Not expected to be readily biodeg.

Precaution: Avoid release into sewage, drainage systems, bodies of water; use in well-ventilated area; incompat. with strong oxidizing agents

HMIS: Health 0, Flammability 1, Reactivity 0

Storage: Ground all containers

Superla® No. 9 [Chevron http://www.chevron.com/]
Chem. Descrip.: Wh. mineral oil USP
CAS 8020-83-5; EINECS/ELINCS 232-384-2
Uses: Lubricant for pharmaceuticals, medicinal prods.
Features: Virtually free of nitrogen, sulfur, oxygen, aromatic hydrocarbons; free of water and solids

Regulatory: FDA 21CFR §172.878, 178.3570, 178.3620, 573.680, USDA, USP, CTFA approved; kosher; pareve; RCRA, SARA §311/312/313 nonreportable; Australia AICS; Canada DSL; China ECS; Europe EINECS; Korea ECL; Philippines PICCS
Properties: Colorless, odorless, tasteless liq.; sol. in hydrocarbons; insol. in water; sp.gr. 0.853; visc. 19.0 cSt (40 C), 96 SUS (100 C); pour pt. -12 C; b.p. > 260 C; flash pt. 188 C; ref. index 1.4728; vapor pressure < 0.01 mmHg @ 100 F

Toxicology: Not expected to be eye, skin irritant; not expected to be harmful if ing., inh.; ACGIH TLV TWA 5 mg/m³, STEL 10 mg/m³; TSCA listed

Environmental: Not expected to be readily biodeg.

Precaution: Avoid release into sewage, drainage systems, bodies of water; use in well-ventilated area; incompat. with strong oxidizing agents

HMIS: Health 0, Flammability 1, Reactivity 0

Storage: Ground all containers

Superla® No. 10 [Chevron http://www.chevron.com/]
Chem. Descrip.: Wh. mineral oil USP
CAS 8020-83-5; EINECS/ELINCS 232-384-2
Uses: Lubricant for pharmaceuticals, medicinal prods.
Features: Virtually free of nitrogen, sulfur, oxygen, aromatic hydrocarbons; free of water and solids

Regulatory: FDA 21CFR §172.878, 178.3570, 178.3620, 573.680, USDA, USP, CTFA approved; kosher; pareve; RCRA, SARA §311/312/313 nonreportable; Australia AICS; Canada DSL; China ECS; Europe EINECS; Korea ECL; Philippines PICCS
Properties: Colorless, odorless, tasteless liq.; sol. in hydrocarbons; insol. in water; sp.gr. 0.856; visc. 25.2 cSt (40 C), 127 SUS (100 C); pour pt. -12 C; b.p. > 260 C; flash pt. 193 C; ref. index 1.4728; vapor pressure < 0.01 mmHg @ 100 F

Toxicology: Not expected to be eye, skin irritant; not expected to be harmful if ing., inh.; ACGIH TLV TWA 5 mg/m³, STEL 10 mg/m³; TSCA listed

Environmental: Not expected to be readily biodeg.

Precaution: Avoid release into sewage, drainage systems, bodies of water; use in well-ventilated area; incompat. with strong oxidizing agents

HMIS: Health 0, Flammability 1, Reactivity 0

Storage: Ground all containers

Superla® No. 13 [Chevron http://www.chevron.com/]
Chem. Descrip.: Wh. mineral oil USP
CAS 8020-83-5; EINECS/ELINCS 232-384-2
Uses: Lubricant for pharmaceuticals, medicinal prods.
Features: Virtually free of nitrogen, sulfur, oxygen, aromatic hydrocarbons; free of water and solids

Regulatory: FDA 21CFR §172.878, 178.3570, 178.3620, 573.680, USDA, USP, CTFA approved; kosher; pareve; RCRA, SARA §311/312/313 nonreportable; Australia AICS; Canada DSL; China ECS; Europe EINECS; Korea ECL; Philippines PICCS
Properties: Colorless, odorless, tasteless liq.; sol. in hydrocarbons; insol. in water; sp.gr. 0.856; visc. 25.2 cSt (40 C), 127 SUS (100 C); pour pt. -12 C; b.p. > 260 C; flash pt. 193 C; ref. index 1.4728; vapor pressure < 0.01 mmHg @ 100 F

Toxicology: Not expected to be eye, skin irritant; not expected to be harmful if ing., inh.; ACGIH TLV TWA 5 mg/m³, STEL 10 mg/m³; TSCA listed

Environmental: Not expected to be readily biodeg.

Precaution: Avoid release into sewage, drainage systems, bodies of water; use in well-ventilated area; incompat. with strong oxidizing agents

HMIS: Health 0, Flammability 1, Reactivity 0

Storage: Ground all containers
Trade Name Reference

**Superla® No. 18** [Chevron http://www.chevron.com/]
Chem. Descrip.: Wh. mineral oil USP
CAS 8020-83-5; EINECS/ELINCS 232-384-2
Uses: Lubricant for pharmaceuticals, medicinal prods.
Features: Virtually free of nitrogen, sulfur, oxygen, aromatic hydrocarbons; free of water and solids
Regulatory: FDA 21CFR §172.878, 178.3570, 178.3620, 573.680, USDA, USP, CTFA approved; kosher; pareve; RCRA, SARA §311/312/313 nonreportable; Australia AICS; Canada DSL; China ECS; Europe EINECS; Korea ECL; Philippines PICCS
Properties: Colorless, odorless, tasteless liq.; sol. in hydrocarbons; insol. in water; sp.gr. 0.861; visc. 36.0 cSt (40 C), 186 SUS (100 C); pour pt. -12 C; b.p. > 260 C; flash pt. 202 C; ref. index 1.4738; vapor pressure < 0.01 mmHg @ 100 F
Toxicology: Not expected to be eye, skin irritant; not expected to be harmful if ing., inh.; ACGIH TLV TWA 5 mg/m³, STEL 10 mg/m³; TSCA listed
Environmental: Not expected to be readily biodeg.
Precaution: Avoid release into sewage, drainage systems, bodies of water; use in well-ventilated area; incompat. with strong oxidizing agents
HMIS: Health 0, Flammability 1, Reactivity 0
Storage: Ground all containers

Superla® No. 31 [Chevron http://www.chevron.com/]
Chem. Descrip.: Wh. mineral oil USP
CAS 8020-83-5; EINECS/ELINCS 232-384-2
Uses: Lubricant for pharmaceuticals, medicinal prods.
Features: Virtually free of nitrogen, sulfur, oxygen, aromatic hydrocarbons; free of water and solids
Regulatory: FDA 21CFR §172.878, 178.3570, 178.3620, 573.680, USDA, USP, CTFA approved; kosher; pareve; RCRA, SARA §311/312/313 nonreportable; Australia AICS; Canada DSL; China ECS; Europe EINECS; Korea ECL; Philippines PICCS
Properties: Colorless, odorless, tasteless liq.; sol. in hydrocarbons; insol. in water; sp.gr. 0.867; visc. 59.3 cSt (40 C), 310 SUS (100 C); pour pt. -12 C; b.p. > 260 C; flash pt. 227 C; ref. index 1.4763; vapor pressure < 0.01 mmHg @ 100 F
Toxicology: Not expected to be eye, skin irritant; not expected to be harmful if ing., inh.; ACGIH TLV TWA 5 mg/m³, STEL 10 mg/m³; TSCA listed
Environmental: Not expected to be readily biodeg.
Precaution: Avoid release into sewage, drainage systems, bodies of water; use in well-ventilated area; incompat. with strong oxidizing agents
HMIS: Health 0, Flammability 1, Reactivity 0
Storage: Ground all containers

Handbook of Pharmaceutical Additives, Third Edition 700
Trade Name Reference

**Superla® No. 35** [Chevron](http://www.chevron.com/)
Chem. Descrip.: Wh. mineral oil USP
CAS 8020-83-5; EINECS/ELINCS 232-384-2
Uses: Lubricant for pharmaceuticals, medicinal prods.
Features: Virtually free of nitrogen, sulfur, oxygen, aromatic hydrocarbons; free of water and solids
Regulatory: FDA 21CFR §172.878, 178.3570, 178.3620, 573.680, USDA, USP, CTFA approved; kosher; pareve; RCRA, SARA §311/312/313 nonreportable; Australia AICS; Canada DSL; China ECS; Europe EINECS; Korea ECL; Philippines PICCS
Properties: Colorless, odorless, tasteless liq.; sol. in hydrocarbons; insol. in water; sp.gr. 0.868; visc. 67.3 cSt (40 C), 353 SUS (100 C); pour pt. -12 C; b.p. > 260 C; flash pt. 229 C; ref. index 1.4772; vapor pressure < 0.01 mmHg @ 100 F
Toxicology: Not expected to be eye, skin irritant; not expected to be harmful if ing., inh.; ACGIH TLV TWA 5 mg/m³, STEL 10 mg/m³; TSCA listed
Environmental: Not expected to be readily biodeg.
Precaution: Avoid release into sewage, drainage systems, bodies of water; use in well-ventilated area; incompat. with strong oxidizing agents

HMIS: Health 0, Flammability 1, Reactivity 0
Storage: Ground all containers

**Superla® No. 50** [Chevron](http://www.chevron.com/)
Chem. Descrip.: Wh. mineral oil USP
Uses: Lubricant for pharmaceuticals, medicinal prods.
Features: Virtually free of nitrogen, sulfur, oxygen, aromatic hydrocarbons; free of water and solids
Regulatory: FDA 21CFR §172.878, 178.3570, 178.3620, 573.680, USDA, USP, CTFA approved; kosher; pareve; RCRA, SARA §311/312/313 nonreportable; Australia AICS; Canada DSL; China ECS; Europe EINECS; Korea ECL; Philippines PICCS
Properties: Colorless, odorless, tasteless liq.; sol. in hydrocarbons; insol. in water; sp.gr. 0.870; visc. 76.0 cSt (40 C), 390 SUS (100 C); pour pt. -12 C; b.p. > 260 C; flash pt. 268 C; vapor pressure < 0.01 mmHg @ 100 F
Toxicology: Not expected to be eye, skin irritant; not expected to be harmful if ing., inh.; ACGIH TLV TWA 5 mg/m³, STEL 10 mg/m³; TSCA listed
Environmental: Not expected to be readily biodeg.
Precaution: Avoid release into sewage, drainage systems, bodies of water; use in well-ventilated area; incompat. with strong oxidizing agents
HMIS: Health 0, Flammability 1, Reactivity 0
Storage: Ground all containers

**Superol™ K (kosher)** [Procter & Gamble](http://pgchemicals.com)
Chem. Descrip.: Glycerin USP (99.7% min.)
CAS 56-81-5; EINECS/ELINCS 200-289-5
Uses: Humectant in pharmaceuticals
Regulatory: USP/FCC, EP, DOT/ADR/RID/IMDG/ICAO/IATA not regulated; Canada DSL; Japan; Australia; Philippines; China; Korea
Trade Name Reference

**Properties:** APHA 10 max. visc. liq.; odorless; sweet taste; completely sol. in water; misc. with ethanol; sl. sol. in acetone; insol. in ether, chloroform; sp.gr. 1.2613 min.; visc. ≈ 1300 mPa•s; vapor pressure < 0.008 mm Hg; b.p. > 288 C; flash pt. (PMCC) > 198.9 C; auto-ignition temp. ≈ 400 C; 0.3% max. moisture

**Toxicology:** LD50 (oral, rat) > 2 g/kg; may cause mild, transient eye irritation; TSCA listed

**Environmental:** LC50 (goldfish, 24 h) > 5 g/l; LC0 (golden orfe, 48 h) > 250 mg/l; LC100 (rainbow trout, 96 h) 51-57 g/l; NOEC (chilomonas paramecium, 48 h) > 10 g/l; (entosiphon sulcatum, 72 h) 3200 mg/l; biodeg.

**Precaution:** Incompat. with strong oxidizers, strong acids

**Hazardous Decomp. Prods.:** Thermal reaction may release acrolein

**Storage:** Store in clean, tight containers to prevent moisture pickup from air; can be stored in aluminum, stainless steel, fiberglass or resin lined steel vessels

**Superol™ NK** [Procter & Gamble

http://pgchemicals.com]

Chem. Descrip.: Glycerin USP (99-100%)
CAS 56-81-5; EINECS/ELINCS 200-289-5

Uses: Humectant in pharmaceuticals

Regulatory: USP/FCC, EP, DOT/ADR/RID/IMDG/ICAO/IATA not regulated; Canada DSL; Japan; Australia; Philippines; China; Korea

**Properties:** APHA 10 max. visc. liq.; odorless; sweet taste; completely sol. in water; misc. with ethanol; sl. sol. in acetone; insol. in ether, chloroform; sp.gr. 1.2613 min.; visc. ≈ 1300 mPa•s; vapor pressure < 0.008 mm Hg; b.p. > 288 C; flash pt. (PMCC) > 198.9 C; auto-ignition temp. ≈ 400 C; 0.3% max. moisture

**Toxicology:** LD50 (oral, rat) > 2 g/kg; may cause mild, transient eye irritation; TSCA listed

**Environmental:** LC50 (goldfish, 24 h) > 5 g/l; LC0 (golden orfe, 48 h) > 250 mg/l; LC100 (rainbow trout, 96 h) 51-57 g/l; NOEC (chilomonas paramecium, 48 h) > 10 g/l; (entosiphon sulcatum, 72 h) 3200 mg/l; biodeg.

**Precaution:** Incompat. with strong oxidizers, strong acids

**Hazardous Decomp. Prods.:** Thermal reaction may release acrolein

**Storage:** Store in clean, tight containers to prevent moisture pickup from air; can be stored in aluminum, stainless steel, fiberglass or resin lined steel vessels

**Superpolystate®** [Gattefosse France

http://www.gattefosse.fr]

Chem. Descrip.: PEG-6 stearate SE
CAS 9004-99-3

Uses: O/w emulsifier, gellant, base for pharmaceutical o/w creams and lotions

Features: Self-emulsifying

Regulatory: DMF no. 6998

**Properties:** Gardner < 5 doughy solid; faint odor; very sol. in chloroform, methylene chloride; disp. in water; insol. in ethanol, min. oils; drop pt. 33-37 C; HLB 9.0; acid no. < 6; iodine no. < 3; sapon. no. 90-110; hyd. no. 75-105; nonionic; 100% conc.

**Use Level:** 8-12%

**Toxicology:** LD0 (oral, rat) > 2 g/kg;
Trade Name Reference

Super Refined® Corn NF [Croda Inc
http://www.croda.com;
http://www.crodausa.com]
Chem. Descrip.: Corn oil NF See Corn (Zea mays) oil
CAS 8001-30-7; EINECS/ELINCS 232-281-2
Uses: Solvent and vehicle for pharmaceuticals (orals, topicals, parenteral formulations for intramuscular administration, nutritional supplements, IV emulsions, liniments, ointments)
Features: Oleaginous
Properties: APHA 40 oil, odorless, tasteless; sol. in min. oil, IPA; insol. in water, propylene glycol; HLB 7.89
Toxicology: LD50 (oral, rat) > 30 g/kg; minimal skin irritant; nonirritating to eyes

Super Refined® Cottonseed NF [Croda Inc
http://www.croda.com;
http://www.crodausa.com]
Chem. Descrip.: Cottonseed oil NF/USP See Cottonseed (Gossypium) oil
CAS 8001-29-4; EINECS/ELINCS 232-280-7
Uses: Solvent, vehicle, emollient for pharmaceuticals (orals, topicals, parenteral formulations for intramuscular administration, nutritional supplements, IV emulsions, liniments, ointments)
Features: Oleaginous
Properties: APHA 50 oil, odorless, tasteless; sol. in min. oil, IPA; insol. in water, propylene glycol; HLB 7.85
Toxicology: LD50 (oral, rat) > 30 g/kg; minimal skin irritant; nonirritating to eyes

Super Refined® Crodamol IPM [Croda Inc
http://www.croda.com;
http://www.crodausa.com]
Chem. Descrip.: Isopropyl myristate NF
CAS 110-27-0; EINECS/ELINCS 203-751-4
Uses: Solvent absorption enhancer, viscosity modifier and emollient for topical pharmaceuticals
Features: Rapid absorp. into skin; highly purified
Properties: Colorless liq.; sol. in min. oil, IPA; insol. in water, propylene glycol; visc. 6.0
Use Level: 2-10%

Super Refined® Crodamol SCO [Croda Inc
http://www.croda.com;
http://www.crodausa.com]
Chem. Descrip.: Stearyl octanoate and cetyl octanoate

Super Refined® Oleic Acid NF [Croda Inc
http://www.croda.com;
http://www.crodausa.com; Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: Oleic acid NF
CAS 112-80-1; EINECS/ELINCS 204-007-1
Uses: Emulsifier, solubilizer, defoamer in topical pharmaceuticals; absorption enhancer in topical, transdermal and oral dosages; component of SE drug delivery systems; vehicle for parenteral and oral diagnostics; raw material for the production of other pharmaceutical ingredients
Features: Nonanimal in origin
Regulatory: NF, EP, FDA Inactive Ingredient Guide (inhalation and nasal aerosols, tablets, and transdermal preps.), 21 CFR 172
Properties: Cl. colorless liq.; insol. in water; sol. in min. oil, isopropanol, propylene glycol; HLB15.97; peroxide no. 5.0 max.; HLB 15.97; 80% min. oleic acid content
Toxicology: TSCA listed

Super Refined® Olive NF [Croda Inc
http://www.croda.com;
http://www.crodausa.com; Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: Olive (Olea europaea) oil NF
CAS 8001-25-0; EINECS/ELINCS 232-277-0
Uses: Solvent, vehicle, emollient, lubricant for pharmaceuticals (orals, topicals, parenteral formulations for intramuscular administration, nutritional supplements, IV emulsions, liniments, ointments)
Features: Oleaginous
Properties: APHA 30 oil, odorless, tasteless; sol. in min. oil, IPA; insol. in water, propylene glycol; HLB 7.66
Toxicology: LD50 (oral, rat) > 30 g/kg; minimal skin irritant; nonirritating to eyes

Super Refined® PEG-300 NF [Croda Inc
http://www.croda.com;
http://www.crodausa.com]
Chem. Descrip.: PEG 300 See PEG-6
CAS 2615-15-8; EINECS/ELINCS 203-989-9
Uses: Suspending agent, viscosity modifier
Trade Name Reference

in pharmaceutical topical, oral, and parenteral preps.; solvent in gelatin capsules; precipitant for DNA oligomers

Features: Nonsensitizing, hydrophilic, highly purified

Regulatory: NF, EP, JPE

Properties: Liq., water-sol.; nonionic

Super Refined® PEG-400 NF [Croda Inc http://www.croda.com; http://www.crodausa.com]

Chem. Descrip.: PEG 400 See PEG-8
CAS 5117-19-1; EINECS/ELINCS 225-856-4

Uses: Suspending agent, viscosity modifier in pharmaceutical topical (ointments), oral, and parenteral preps.; solvent in gelatin capsules; stabilizer and storage vehicle for hypericin which is used as a diagnostic tool in detecting certain TCC tumors

Features: Nonsensitizing, hydrophilic, highly purified, low peroxide value

Regulatory: NF, EP, JPE

Properties: Liq., water-sol.; m.w. 400 (avg. wt.); nonionic

Storage: Store in a cool area; after use, backfill the container with nitrogen

Super Refined® PEG-600 NF [Croda Inc http://www.croda.com; http://www.crodausa.com]

Chem. Descrip.: PEG 600 See PEG-12
CAS 6790-09-6; EINECS/ELINCS 229-859-1

Uses: Suspending agent, viscosity modifier in pharmaceutical topical (ointments), oral, and parenteral preps.; solvent in gelatin capsules; precipitant for DNA oligomers; vehicle for parenteral dosage forms (30% v/v concs.)

Features: Nonsensitizing, hydrophilic, highly purified, low peroxide value

Regulatory: NF, EP, JPE

Properties: Liq., water-sol.; m.w. 570-630; nonionic

Storage: Store in a cool area; after use, backfill the container with nitrogen

Super Refined® Peanut NF [Croda Inc http://www.croda.com; http://www.crodausa.com]

Chem. Descrip.: Peanut oil NF/USP See Peanut (Arachis hypogaea) oil
CAS 8002-03-7; EINECS/ELINCS 232-296-4

Uses: Solvent and vehicle for pharmaceuticals (orals, topicals, parenteral formulations for intramuscular administration, nutritional supplements, IV emulsions, liniments, ointments)

Features: Oleaginous

Properties: APHA 30 cl. oily liq., odorless, tasteless; sol. in min. oil, IPA; insol. in water, propylene glycol; HLB 7.78

Toxicology: LD50 (oral, rat) > 30 g/kg; minimal skin/eye irritant

Super Refined® Safflower USP [Croda Inc http://www.croda.com; http://www.crodausa.com; Croda Chem. Europe Ltd http://www.croda.co.uk]

Chem. Descrip.: Safflower oil USP See Safflower (Carthamus tinctorius) oil
CAS 8001-23-8; EINECS/ELINCS 232-276-5

Uses: Solvent, vehicle, emollient for pharmaceuticals (orals, topicals, parenteral formulations for intramuscular administration, nutritional supplements, IV emulsions, liniments, ointments)

Features: Oleaginous

Properties: APHA 30 mobile oil, odorless, tasteless; sol. in min. oil, IPA; insol. in water, propylene glycol; HLB 7.72

Toxicology: LD50 (oral, rat) > 5 g/kg; minimal skin/eye irritant

Super Refined® Sesame NF [Croda Inc http://www.croda.com; http://www.crodausa.com; Croda Chem. Europe Ltd http://www.croda.co.uk]

Chem. Descrip.: Sesame oil NF See Sesame (Sesamum indicum) oil
CAS 8008-74-0; EINECS/ELINCS 232-370-6

Uses: Solvent, vehicle, emollient, lubricant for pharmaceuticals (orals, topicals, parenteral formulations for intramuscular administration, nutritional supplements, IV emulsions, liniments, ointments); emollient in skin care preps.

Regulatory: NF, BP compliance

Properties: APHA 30 cl. oily liq., odorless, tasteless; sol. in min. oil, IPA; insol. in water, propylene glycol; sp.gr. 0.916-0.921; HLB 7.83; iodine no. 103-116; sapon. no. 188-195; hyd. no. 5 max.; ref. index 1.472-1.476; 0.05% max. moisture

Toxicology: LD50 (oral, rat) > 5 g/kg; mild skin irritant, minimal eye irritant

Super Refined® Soybean USP [Croda Inc http://www.croda.com; http://www.crodausa.com; Croda Chem. Europe Ltd http://www.croda.co.uk]

Chem. Descrip.: Soybean oil USP See Soybean (Glycine soja) oil

emulsions, liniments, ointments)
Trade Name Reference

CAS 8001-22-7; EINECS/ELINCS 232-274-4

Uses: Solvent, vehicle, nutritional source, lubricant for pharmaceuticals (orals, topicals, parenteral formulations for intramuscular administration, nutritional supplements, IV emulsions, liniments, ointments); emollient in skin care preps.

Features: Oleaginous

Properties: APHA 60 max. cl. oily liq., odorless, tasteless; sol. in min. oil, IPA; insol. in water, propylene glycol; sp.gr. 0.916-0.922; HLB 7.66; iodine no. 120-141; sapon. no. 180-200; hyd. no. 5 max.; ref. index 1.465-1.475

Toxicology: LD50 (oral, rat) > 5 g/kg; mild skin irritant, minimal eye irritant

Precaution: Wear safety glasses, rubber gloves, apron

Storage: Keep away from heat, flames

Supersat AWS-24 [RITA]
Chem. Descrip.: PEG-24 hydrog. lanolin See PEG-24 hydrogenated lanolin
CAS 68648-27-1

Uses: Emollient, plasticizer, emulsifier, visc. control agent, gellant, solubilizer for ointments, sun preps.; solubilizer for min./veg. oils and perfumes

Regulatory: RCRA nonreportable

Properties: Wh. flakes, bland odor; sol. in water; sp.gr. 0.98; vapor dens. < 1%; nonionic; 100% conc.

Toxicology: LD50 (oral, albino rat) > 54 cc/kg; primary skin irritation index 0.5 (rabbit)

Precaution: Wear safety glasses, rubber gloves, apron; incompat. with oxidizers

Hazardous Decomp. Prods.: Oxides of carbon

Storage: Keep away from heat, flames

Super Solan [Croda Inc]
Chem. Descrip.: PEG-75 lanolin
CAS 61790-81-6

Uses: Emulsifier, emollient, conditioner, superfatting agent, solubilizer, visc. builder, and plasticizer for topical pharmaceuticals

Properties: Yel. flake; sol. in water, propylene glycol; sol. warm in IPA; m.p. 46-54 C; nonionic

Use Level: 2-10%

Toxicology: LD50 (oral, rat) > 5 g/kg; skin irritant, nonirritating to eyes

Precaution: Wear safety glasses, rubber gloves, apron

Hazardous Decomp. Prods.: Oxides of carbon

Storage: Keep away from heat, flames

Supersat AWS-4 [RITA]
Chem. Descrip.: PEG-20 hydrog. lanolin See PEG-20 hydrogenated lanolin
CAS 68648-27-1

Uses: Emollient, emulsifier, visc. control agent, plasticizer, gellant, solubilizer for ointments, sun preps.; solubilizer for min./veg. oils and perfumes

Regulatory: RCRA nonreportable

Properties: Amber solid, bland odor; sl. water-sol.; sp.gr. 0.98; vapor dens. > 1; b.p. > 212 F; acid no. 1 max.; iodine no. 10 max.; sapon. no. 8 max.; hyd. no. 32-47; flash pt. (COC) > 300 F; volatiles < 1%; nonionic; 100% conc.

Toxicology: LD50 (oral, albino rat) > 50 cc/kg; mild eye irritant

Precaution: Wear safety glasses, rubber gloves, apron

Storage: Keep away from heat, flames
Trade Name Reference

white color, exhibiting elegant feel and texture

Regulatory: FDA 21CFR §172.880
Properties: Lovibond 0.5Y color; visc. 9-14 cSt (100 C); m.p. 50-56 C

Super White Protopet® [Chremtura
http://www.chemtura.com]
Chem. Descr.: Wh. petrolatum USP
CAS 8027-32-5; EINECS/ELINCS 232-373-2
Uses: Lubricant for cosmetics, pharmaceuticals, medicated ointments, dental adhesives, sun care prod.
Features: High purity, med. consistency, med. m.p. grade; rec. where extra whiteness is preferred
Regulatory: FDA 21CFR §172.880
Properties: Lovibond 1.0Y max. color; visc. 10-16 cSt (100 C); m.p. 54-60 C

Suppocire® A [Gattefosse France
http://www.gattefosse.fr]
Chem. Descr.: Semisynthetic glycerides
Uses: Excipient for pharmaceutical suppositories
Features: Self-lubricating; inert; very well tolerated; low polymorphism; rancidless
Regulatory: USP/NF, EP, JP compliance; DMF no. 5962
Properties: Waxy solid; faint odor; very sol. in diethyl oxide, chloroform, CCl₄, toluene, petrol. ether (40-60 C); sl. sol. in ethanol; insol. in water; sp.gr. 0.955 (20 C); drop pt. 33-35 C; acid no. < 0.2; iodine no. < 2; sapon. no. 225-245; hyd. no. < 6
Toxicology: LD₅₀ (oral, rat) > 20 ml/kg, nonirritating rectally; sl. irritating to eyes

Suppocire® AIM [Gattefosse France
http://www.gattefosse.fr]
Chem. Descr.: Semisynthetic glycerides
Uses: Excipient for pharmaceutical suppositories
Features: Self-lubricating; inert; very well tolerated; low polymorphism; rancidless
Regulatory: USP/NF, EP, JP compliance; DMF no. 5962
Properties: Waxy solid; faint odor; very sol. in diethyl oxide, chloroform, CCl₄, toluene, petrol. ether (40-60 C); sl. sol. in ethanol; insol. in water; sp.gr. 0.955 (20 C); drop pt. 33-35 C; acid no. < 0.5; iodine no. < 2; sapon. no. 225-245; hyd. no. < 6
Toxicology: LD₅₀ (oral, rat) > 20 ml/kg, nonirritating rectally; sl. irritating to eyes

Suppocire® AML [Gattefosse France
http://www.gattefosse.fr]
Chem. Descr.: Semisynthetic glycerides
Uses: Excipient for pharmaceutical suppositories
Features: Self-lubricating; inert; very well tolerated; low polymorphism; rancidless
Regulatory: USP/NF, EP, JP compliance; DMF no. 5962
Properties: Waxy solid; faint odor; very sol. in diethyl oxide, chloroform, CCl₄, toluene, petrol. ether (40-60 C); sl. sol. in ethanol; insol. in water; sp.gr. 0.955 (20 C); drop pt. 33-35 C; acid no. < 0.2; iodine no. < 2; sapon. no. 225-245; hyd. no. < 6
Toxicology: LD₅₀ (oral, rat) > 20 ml/kg, nonirritating rectally; sl. irritating to eyes

Suppocire® AML [Gattefosse France
http://www.gattefosse.fr]
Chem. Descr.: Semisynthetic glycerides
Uses: Excipient for pharmaceutical suppositories
Features: Self-lubricating; inert; very well tolerated; low polymorphism; rancidless
Regulatory: USP/NF, EP, JP compliance; DMF no. 5962
Properties: Waxy solid; faint odor; very sol. in diethyl oxide, chloroform, CCl₄, toluene, petrol. ether (40-60 C); sl. sol. in ethanol; insol. in water; sp.gr. 0.955 (20 C); drop pt. 33-35 C; acid no. < 0.2; iodine no. < 2; sapon. no. 225-245; hyd. no. < 6
Toxicology: LD₅₀ (oral, rat) > 20 ml/kg, nonirritating rectally; sl. irritating to eyes
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<tr>
<td><strong>Properties:</strong> Waxy solid; faint odor; very sol. in diethyl oxide, chloroform, CCl₄, toluene, petrol. ether (40-60 C); sl. sol. in ethanol; insol. in water; sp.gr. 0.955 (20 C); drop pt. 35-36.5 C; acid no. &lt; 0.5; iodine no. &lt; 2; sapon. no. 225-245; hyd. no. &lt; 6</td>
</tr>
<tr>
<td><strong>Toxicology:</strong> LD₅₀ (oral, rat) &gt; 20 ml/kg, nonirritating rectally</td>
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**Suppocire® AS2** [Gattefosse France](http://www.gattefosse.fr)

Chem. Descrip.: Semisynthetic glycerides

| Uses: Excipient for pharmaceutical suppositories |
| Features: Self-lubricating; inert; very well tolerated; low polymorphism; rancidless |
| Regulatory: USP/NF, EP, JP compliance; DMF no. 5962 |
| Properties: Waxy solid; faint odor; very sol. in diethyl oxide, chloroform, CCl₄, toluene, petrol. ether (40-60 C); sl. sol. in ethanol; insol. in water; sp.gr. 0.955 (20 C); drop pt. 35-36.5 C; acid no. < 0.5; iodine no. < 2; sapon. no. 225-245; hyd. no. < 6 |
| Toxicology: LD₅₀ (oral, rat) > 20 ml/kg |

**Suppocire® B** [Gattefosse France](http://www.gattefosse.fr)

Chem. Descrip.: Semisynthetic glycerides

| Uses: Excipient for pharmaceutical suppositories |
| Features: Self-lubricating; inert; very well tolerated; low polymorphism; rancidless |
| Regulatory: USP/NF, EP, JP compliance; DMF no. 5962 |
| Properties: Waxy solid; faint odor; very sol. in diethyl oxide, chloroform, CCl₄, toluene, petrol. ether (40-60 C); sl. sol. in ethanol; insol. in water; sp.gr. 0.955 (20 C); drop pt. 36-37.5 C; acid no. < 0.5; iodine no. < 2; sapon. no. 225-245; hyd. no. < 6 |
| Toxicology: LD₅₀ (oral, rat) > 20 ml/kg, nonirritating rectally; sl. irritating to eyes |

**Suppocire® BM** [Gattefosse France](http://www.gattefosse.fr)

Chem. Descrip.: Semisynthetic glycerides

| Uses: Excipient for pharmaceutical suppositories |
| Features: Self-lubricating; inert; very well tolerated; low polymorphism; rancidless |
| Regulatory: USP/NF, EP, JP compliance; DMF no. 5962 |
| Properties: Waxy solid; faint odor; very sol. in diethyl oxide, chloroform, CCl₄, toluene, petrol. ether (40-60 C); sl. sol. in ethanol; insol. in water; sp.gr. 0.955 (20 C); drop pt. 36-37.5 C; acid no. < 0.2; iodine no. < 2; sapon. no. 225-245; hyd. no. < 6 |
| Toxicology: LD₅₀ (oral, rat) > 20 ml/kg, nonirritating rectally |

**Suppocire® BML** [Gattefosse France](http://www.gattefosse.fr)

Chem. Descrip.: Semisynthetic glycerides

| Uses: Excipient for pharmaceutical suppositories |
| Features: Self-lubricating; inert; very well tolerated; low polymorphism; rancidless |
| Regulatory: USP/NF, EP, JP compliance; DMF no. 5962 |
| Properties: Waxy solid; faint odor; very sol. in diethyl oxide, chloroform, CCl₄, toluene, petrol. ether (40-60 C); sl. sol. in ethanol; insol. in water; sp.gr. 0.955 (20 C); drop pt. 36-37.5 C; acid no. < 0.5; iodine no. < 3; sapon. no. 225-245; hyd. no. < 6 |
| Toxicology: LD₅₀ (oral, rat) > 20 ml/kg, nonirritating rectally |

**Suppocire® BS2** [Gattefosse France](http://www.gattefosse.fr)

Chem. Descrip.: Semisynthetic glycerides

| Uses: Excipient for pharmaceutical suppositories |
| Features: Self-lubricating; inert; very well tolerated; low polymorphism; rancidless |
| Regulatory: USP/NF, EP, JP compliance; DMF no. 5962 |
Trade Name Reference

**Suppocire® BS2X** [Gattefosse France http://www.gattefosse.fr]
Chem. Descrip.: Semisynthetic glycerides
Uses: Excipient for pharmaceutical suppositories
Features: Self-lubricating; inert; very well tolerated; low polymorphism; rancidless
Regulatory: USP/NF, EP, JP compliance; DMF no. 5962
Properties: Waxy solid; faint odor; very sol. in diethyl oxide, chloroform, CCl₄, toluene, petrol. ether (40-60 C); sl. sol. in ethanol; insol. in water; sp.gr. 0.955 (20 C); drop pt. 38-40 C; acid no. < 0.2; iodine no. < 2; sapon. no. 220-240; hyd. no. < 6
Toxicology: LD₀ (oral, rat) > 20 ml/kg; nonirritating rectally

**Suppocire® C** [Gattefosse France http://www.gattefosse.fr]
Chem. Descrip.: Semisynthetic glycerides
Uses: Excipient for pharmaceutical suppositories
Features: Self-lubricating; inert; very well tolerated; low polymorphism; rancidless
Regulatory: USP/NF, EP, JP compliance; DMF no. 5962
Properties: Waxy solid; faint odor; very sol. in diethyl oxide, chloroform, CCl₄, toluene, petrol. ether (40-60 C); sl. sol. in ethanol; insol. in water; sp.gr. 0.955 (20 C); drop pt. 38-40 C; acid no. < 0.2; iodine no. < 2; sapon. no. 220-240; hyd. no. < 6
Toxicology: LD₀ (oral, rat) > 20 ml/kg, nonirritating rectally

**Suppocire® CM** [Gattefosse France http://www.gattefosse.fr]
Chem. Descrip.: Hydrogenated palm glycerides, hydrogenated palm kernel glycerides
Uses: Excipient for pharmaceutical suppositories
Features: Self-lubricating; inert; very well tolerated; low polymorphism; rancidless
Regulatory: USP/NF, EP, JP compliance; DMF no. 5962
Properties: Waxy solid; faint odor; very sol. in diethyl oxide, chloroform, CCl₄, toluene, petrol. ether (40-60 C); sl. sol. in ethanol; insol. in water; sp.gr. 0.955 (20 C); drop pt. 42-45 C; acid no. < 0.2; iodine no. < 2; sapon. no. 220-240; hyd. no. < 6
Toxicology: LD₀ (oral, rat) > 20 ml/kg; sl. irritating to eyes, nonirritating to skin

**Suppocire® CS2X** [Gattefosse France http://www.gattefosse.fr]
Chem. Descrip.: Semisynthetic glycerides
Uses: Excipient for pharmaceutical suppositories
Features: Self-lubricating; inert; very well tolerated; low polymorphism; rancidless
Regulatory: USP/NF, EP, JP compliance; DMF no. 5962
Properties: Waxy solid; faint odor; very sol. in diethyl oxide, chloroform, CCl₄, toluene, petrol. ether (40-60 C); sl. sol. in ethanol; insol. in water; sp.gr. 0.955 (20 C); drop pt. 38-40 C; acid no. < 0.2; iodine no. < 2; sapon. no. 220-240; hyd. no. 15-25
Toxicology: LD₀ (oral, rat) > 20 ml/kg

**Suppocire® D** [Gattefosse France http://www.gattefosse.fr]
Chem. Descrip.: Semisynthetic glycerides
Uses: Excipient for pharmaceutical suppositories
Features: Self-lubricating; inert; very well tolerated; low polymorphism; rancidless
Regulatory: USP/NF, EP, JP compliance; DMF no. 5962
Properties: Waxy solid; faint odor; very sol. in diethyl oxide, chloroform, CCl₄, toluene, petrol. ether (40-60 C); sl. sol. in ethanol; insol. in water; sp.gr. 0.955 (20 C); drop pt. 42-45 C; acid no. < 0.2; iodine no. < 2; sapon. no. 220-240; hyd. no. 15-25
Toxicology: LD₀ (oral, rat) > 20 ml/kg; sl. irritating to eyes, nonirritating to skin

**Suppocire® DM** [Gattefosse France http://www.gattefosse.fr]
Chem. Descrip.: Semisynthetic glycerides
Uses: Excipient for pharmaceutical suppositories
Features: Self-lubricating; inert; very well tolerated; low polymorphism; rancidless
Regulatory: USP/NF, EP, JP compliance; DMF no. 5962
Properties: Waxy solid; faint odor; very sol. in diethyl oxide, chloroform, CCl₄, toluene, petrol. ether (40-60 C); sl. sol. in ethanol; insol. in water; sp.gr. 0.955 (20 C); drop pt. 42-45 C; acid no. < 0.2; iodine no. < 2; sapon. no. 220-240; hyd. no. < 6
**Suppocire® NA** [Gattefosse France](http://www.gattefosse.fr)

**Chem. Descrip.**: Semisynthetic glycerides

**Uses**: Excipient for pharmaceutical suppositories

**Features**: Well tolerated; exc. resist. to solvs., essential oils, or liposoluble active ingreds; high mech. resist.; low polymorphism; rancidless

**Regulatory**: USP/NF, EP, JP compliance

**Properties**: Waxy solid; faint odor; m.p. 33-36 C; hyd. no. > 30

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**Suppocire® NAI 10** [Gattefosse France](http://www.gattefosse.fr)

**Chem. Descrip.**: Semisynthetic glycerides

**Uses**: Excipient for pharmaceutical suppositories

**Features**: Well tolerated; high mech. resist.; low polymorphism; rancidless

**Regulatory**: USP/NF, EP, JP compliance

**Properties**: Waxy solid; faint odor; m.p. 33-36 C; hyd. no. > 30

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**Suppocire® NA 50** [Gattefosse France](http://www.gattefosse.fr)

**Chem. Descrip.**: Semisynthetic glycerides

**Uses**: Excipient for pharmaceutical suppositories

**Features**: Well tolerated; high mech. resist.; low polymorphism; rancidless

**Regulatory**: USP/NF, EP, JP compliance

**Properties**: Waxy solid; faint odor; m.p. 33-36 C; hyd. no. > 30

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**Suppocire® NAS 40** [Gattefosse France](http://www.gattefosse.fr)

**Chem. Descrip.**: Semisynthetic glycerides

**Uses**: Excipient for pharmaceutical suppositories

**Features**: Well tolerated; exc. resist. to solvs., essential oils, or liposoluble active ingreds; high mech. resist.; low polymorphism; rancidless

**Regulatory**: USP/NF, EP, JP compliance

**Properties**: Waxy solid; faint odor; m.p. 33-36 C; hyd. no. > 30
Trade Name Reference

Chem. Descrip.: Semisynthetic glycerides

Uses: **Excipient for pharmaceutical suppositories**

Features: Well tolerated; high mech. resist.; low polymorphism; rancidless

Regulatory: USP/NF, EP, JP compliance

Properties: Waxy solid; faint odor; m.p. 33-36 C; hyd. no. > 30

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Suppocire® NAX [Gattefosse France http://www.gattefosse.fr]

Chem. Descrip.: Semisynthetic glycerides with nonionic emulsifier

Uses: **Excipient for pharmaceutical suppositories**

Features: Well tolerated; exc. resist. to solvs., essential oils, or liposoluble active ingreds; high mech. resist.; low polymorphism; rancidless

Regulatory: USP/NF, EP, JP compliance

Properties: Pastilles; very sol. in diethyl oxide, chloroform, CCl₄, toluene, petrol. ether (40-60 C); sl. sol. in ethanol; insol. in water; sp.gr. 0.955 (20 C); drop pt. 35.5-37.5 C; acid no. < 0.5; iodine no. < 2; sapon. no. 220-240; hyd. no. < 40

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Suppocire® NB [Gattefosse France http://www.gattefosse.fr]

Chem. Descrip.: Semisynthetic glycerides

Uses: **Excipient for pharmaceutical suppositories**

Features: Well tolerated; exc. resist. to solvs., essential oils, or liposoluble active ingreds; high mech. resist.; low polymorphism; rancidless

Regulatory: USP/NF, EP, JP compliance

Properties: Solid; very sol. in diethyl oxide, chloroform, CCl₄, toluene, petrol. ether (40-60 C); sl. sol. in ethanol; insol. in water; sp.gr. 0.955 (20 C); drop pt. 36.5-38.5 C; acid no. < 0.5; iodine no. < 2; sapon. no. 215-235; hyd. no. 20-30

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Suppocire® NBL [Gattefosse France http://www.gattefosse.fr]

Chem. Descrip.: Semisynthetic glycerides with phospholipid

Uses: **Excipient for pharmaceutical suppositories**

Features: Well tolerated; exc. resist. to solvs., essential oils, or liposoluble active ingreds; high mech. resist.; low polymorphism; rancidless

Regulatory: USP/NF, EP, JP compliance

Properties: Waxy solid; faint odor; m.p. 38-41 C; hyd. no. 20-30

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Suppocire® NC [Gattefosse France http://www.gattefosse.fr]

Chem. Descrip.: Semisynthetic glycerides

Uses: **Excipient for pharmaceutical suppositories**

Features: Well tolerated; exc. resist. to solvs., essential oils, or liposoluble active ingreds; high mech. resist.; low polymorphism; rancidless

Regulatory: USP/NF, EP, JP compliance

Properties: Solid; very sol. in diethyl oxide, chloroform, CCl₄, toluene, petrol. ether (40-60 C); sl. sol. in ethanol; insol. in water; sp.gr. 0.955 (20 C); drop pt. 39-41 C; acid no. < 0.5; iodine no. < 2; sapon. no. 220-240; hyd. no. 20-30

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Suppocire® ND [Gattefosse France http://www.gattefosse.fr]
Trade Name Reference

http://www.gattefosse.fr
Chem. Descrip.: Semisynthetic glycerides
Uses: Excipient for pharmaceutical suppositories
Features: Well tolerated; exc. resist. to solvs., essential oils, or liposoluble active ingreds.; high mech. resist.; low polymorphism; rancidless
Regulatory: USP/NF, EP, JP compliance
Properties: Waxy solid; faint odor; very sol. in diethyl oxide, chloroform, CCl4, toluene, petrol. ether (40-60 C); sl. sol. in ethanol; insol. in water; sp.gr. 0.955 (20 C); drop pt. 42-45 C; acid no. < 0.5; iodine no. < 2; sapon. no. 210-230; hyd. no. 20-30

Chem. Descrip.: Platy talc USP
Chem. Analysis: SiO2 (60.4%), MgO (32%)
CAS 14807-96-6; EINECS/ELINCS 238-877-9
Uses: Filler in pharmaceuticals, antiperspirants, creams, lotions
Features: Extremely platy talc with high brightness, exc. slip; recommended for formulations with very sensitive fragrances and pigments
Properties: Wh. fine powd.; 12 µ median diam.; 99% through 200 mesh; dens. 62 lb/ft3 (tapped); TAPPI brightness 89; pH 9 (10% slurry)

Chem. Descrip.: Platy talc USP
Chem. Analysis: SiO2 (60.4%), MgO (32%), Al2O3 (3%), Fe2O3 (1%)
CAS 14807-96-6; EINECS/ELINCS 238-877-9
Uses: Filler, slip agent for pharmaceuticals, antiperspirants, creams, lotions
Features: Extra fine, extremely platy talc; exc. brightness, purity, surface passivity
Properties: Powd.; 8 µ median diam.; 99.6% through 200 mesh; tappd dens. 59 lb/ft3; TAPPI brightness 88; pH 9 (10% slurry)

Chem. Descrip.: Talc USP
CAS 14807-96-6; EINECS/ELINCS 238-877-9
Uses: Filler in pharmaceuticals (tablets, medicated foot powds., creams/lotions/ointments); lubricant, glidant in tablet coatings; release agent in tablet molds
Features: Inert
Regulatory: DOT nonhazardous
Properties: Wh. to grayish-wh. fine powd.; 5 µ median particle size; 98% through 325 mesh; sl. earthy odor; sol. in hot, conc. phosphoric acid; insol. in water, cold acids and alkalis; sp.gr. 2.7-2.8; dens. 62 lb/ft3 (tapped), 26 lb/ft3 (loose); surf. area 4.0 m2/g; oil absorp. 27; brightness 94; pH sl. alkaline; hardness (Mohs) 1.0-1.5; 0.4% max. moisture
Toxicology: ACGIH TWA/TLV 2 mg/m3 (respirable dust); inh. of lg. amts. of dust may cause mucous membranes/respiratory tract irritation; chronic exposure may cause pulmonary fibrosis, shortness of breath, chronic cough, heart failure, pneumoconiosis; tumorigen; TSCA listed
Precaution: Very slippery when wet
Hazardous Ingredients: May contain 0-3% of: dolomite, chloride, calcite, magnesite
Hazardous Decomp. Prods.: None
HMIS: Health 1, Flammability 0, Reactivity 0
Storage: Store in sealed containers

Chem. Descrip.: Talc USP
Chem. Analysis: SiO2 (59%), MgO (30%), Al2O3 (3%), Fe2O3 (1%)
CAS 14807-96-6; EINECS/ELINCS 238-877-9
Uses: Filler for pharmaceuticals, antiperspirants, creams and lotions, aerosols
Features: Extremely platy talc with high slip, brightness, and purity
Properties: Wh. fine powd.; 5 µ median diam.; 99.9% min. through 325 mesh; dens. 44 lb/ft3 (tapped); TAPPI brightness 91; pH 9 (10% slurry)

Chem. Descrip.: Talc USP
CAS 14807-96-6; EINECS/ELINCS 238-877-9
Uses: Filler in pharmaceuticals (tablets, medicated foot powds., creams/lotions/ointments); lubricant, glidant in tablet coatings; release agent in tablet molds
Features: Inert
Regulatory: DOT nonhazardous
Properties: Wh. to grayish-wh. fine powd.; 5 µ median particle size; 98% through 325 mesh; sl. earthy odor; sol. in hot, conc. phosphoric acid; insol. in water, cold acids and alkalis;
Trade Name Reference

sp.gr. 2.7-2.8; dens. 42 lb/ft³ (tapped), 16 lb/ft³ (loose); surf. area 5.5 m²/g; oil absorp. 33; brightness 95; pH sl. alkaline; hardness (Mohs) 1.0-1.5; 0.4% max. moisture

Toxicology: ACGIH TWA/TLV 2 mg/m³ (respirable dust); inh. of lg. amts. of dust may cause mucous membranes/respiratory tract irritation; chronic exposure may cause pulmonary fibrosis, shortness of breath, chronic cough, heart failure, pneumoconiosis; tumorigen; TSCA listed

Precaution: Very slippery when wet

Hazardous Ingredients: May contain 0-3% of: dolomite, chlorite, calcite, magnesite

Hazardous Decomp. Prods.: None

HMIS: Health 1, Flammability 0, Reactivity 0

Storage: Store in sealed containers


Chem. Descrip.: Talc
CAS 14807-96-6; EINECS/ELINCS 238-877-9
Uses: Filler for antiperspirants
Properties: Wh. fine powd.; 7 µ median particle size; bulk dens. 22 lb/ft³ (loose); brightness (GE) 88

Surelease® [Colorcon http://www.colorcon.com]

Chem. Descrip.: Aq. fully plasticized liq. disp. of ethylcellulose
CAS 9004-57-3
Uses: Barrier coating for pharmaceutical controlled-release coatings, taste masking coatings, moisture protection, granulating apps., sealant/barrier coatings; binder for wet granulation
Properties: Provides pH-independent drug release
Regulatory: USP, EP
Environmental: Environmentally friendly

Sureteric™ [Colorcon http://www.colorcon.com]

Chem. Descrip.: Aq. blend of polyvinyl acetate phthalate, plasticizers, and other ingreds.
Uses: Enteric coating, film-former for pharmaceutical solid oral dosage forms incl. tablets, hard and soft gelatin capsules, and granules
Properties: Controlled release; provides optimum film-forming chars., resist. to gastric fluids, coated tablet stability
Storage: Re-evaluate after 1 yr from date of manufacture; keep @ 15-30 C ≤ 75% r.h.

Surfadone® LP-300 [ISP]

http://www.ispcorp.com]
Chem. Descrip.: Lauryl pyrrolidone (99%)
CAS 2687-96-9; EINECS/ELINCS 403-730-1
UN 1760
Uses: Absorption enhancer in pharmaceuticals
Features: VOC replacement

Environmental: DOT regulated; Canada DSL; ELINCS; Australia AICS

Properties: Pale yel. low visc., cl. to sl. hazy liq.; sol. in polar and nonpolar solvs. incl. ethanol, acetone, xylene, heptane, paraffin oil, Stod., perchloroethylene; sparingly sol. in water; m.w. 253; sp.gr. 0.90; b.p. 145 C (0.2 mm Hg); solid. pt. 10 C; HLB 3; flash pt. (TCC) 116 C; surf. tens. 26 dynes/cm; Draves wetting > 300 s (0.1%); Ross-Miles foam 13 mm (initial, 0.1%); nonionic; 97% min. act.

Use Level: 1-2%

Toxicology: LD50 (oral, rat) > 5 g/kg, (dermal, rabbit) > 2 g/kg; causes mouth, throat, stomach burns, permanent skin damage; not a primary skin or eye irritant; noncomedogenic; nonphotoallergenic; nonphototoxic; nonmutagenic; TSCA listed

Environmental: LC50 (bluegill sunfish, 96 h) 0.93 mg/l; EC50 (daphnia magna, 48 h) 0.27 mg/l, (elenatrum capricornutum, 96 h) 0.053 mg/l

Precaution: Corrosive; wear chemical goggles, impervious gloves

Surehope® SE Pharma D-1216 [Mitsubishi-Kagaku Foods http://www.mfc.co.jp/]

Chem. Descrip.: Sucrose laurate
CAS 25339-99-5; EINECS/ELINCS 246-873-3
Uses: Emulsifier and solubilizer for pharmaceuticals
Features: Yields heat-stable emulsions

Environmental: Environmentally friendly

Surehope® SE Pharma D-1615 [Mitsubishi-Kagaku Foods http://www.mfc.co.jp/]

Chem. Descrip.: Sucrose palmitate
CAS 26446-38-8; EINECS/ELINCS 247-706-7
Uses: Emulsifier for pharmaceuticals
Features: Yields heat-stable emulsions

Environmental: Environmentally friendly
Trade Name Reference

combined fatty acid; 70% mono ester, 30% di, tri, poly ester
Environmental: Environmentally friendly

Chem. Descrip.: Sucrose palmitate
CAS 26446-38-8; EINECS/ELINCS 247-706-7
Uses: Emulsifier, solubilizer for pharmaceuticals, microemulsions, o/w creams; dispersant for tablets
Features: Yields heat-stable emulsions
Properties: Powd.; HLB 7; nonionic; 70% purity combined fatty acid; 40% mono ester, 60% di, tri, poly ester
Environmental: Environmentally friendly

Chem. Descrip.: Sucrose stearate
CAS 25168-73-4; EINECS/ELINCS 246-705-9
Uses: Emulsifier for pharmaceuticals
Features: Yields heat-stable emulsions
Properties: Powd.; HLB 9; nonionic; 70% purity combined fatty acid; 50% mono ester, 50% di, tri, poly ester
Environmental: Environmentally friendly

Surfhope® SE Pharma D-1803 [Mitsubishi-Kagaku Foods http://www.mfc.co.jp/]
Chem. Descrip.: Sucrose stearate
CAS 25168-73-4; EINECS/ELINCS 246-705-9
Uses: Emulsifier, crystallization promoter for pharmaceuticals; lubricant for tablets
Features: Yields heat-stable emulsions
Properties: Powd.; HLB 16; nonionic; 80% purity combined fatty acid; 80% mono ester, 20% di, tri, poly ester
Environmental: Environmentally friendly

Chem. Descrip.: Sucrose stearate
CAS 25168-73-4; EINECS/ELINCS 246-705-9
Uses: Emulsifier, crystallization promoter for pharmaceuticals; lubricant for tablets
Features: Yields heat-stable emulsions
Properties: Powd.; HLB 15; nonionic; 70% purity combined fatty acid; 20% mono ester, 80% di, tri, poly ester
Environmental: Environmentally friendly

Surfhope® SE Pharma D-1815 [Mitsubishi-Kagaku Foods http://www.mfc.co.jp/]
Chem. Descrip.: Sucrose stearate
CAS 25168-73-4; EINECS/ELINCS 246-705-9
Uses: Emulsifier for pharmaceuticals; dispersant for tablets
Features: Yields heat-stable emulsions
Properties: Powd.; HLB 15; nonionic; 70% purity combined fatty acid; 30% mono ester, 30% di, tri, poly ester
Environmental: Environmentally friendly

Surfhope® SE Pharma D-1816 [Mitsubishi-Kagaku Foods http://www.mfc.co.jp/]
Chem. Descrip.: Sucrose stearate
CAS 25168-73-4; EINECS/ELINCS 246-705-9
Uses: Emulsifier, solubilizer for pharmaceuticals, microemulsions, o/w creams; dispersant for tablets
Features: Yields heat-stable emulsions
Properties: Powd.; HLB 16; nonionic; 70% purity combined fatty acid; 75% mono ester, 25% di, tri, poly ester
Environmental: Environmentally friendly
**Trade Name Reference**

**Sylysia 310P** [Fuji Silysia http://www.fuji-silysia.co.jp]
Chem. Descrip.: Syn. amorphous silica
Chem. Analysis: SiO₂ (99.5%)
CAS 112926-00-8; EINECS/ELINCS 231-545-4
Uses: Moisture control agent, anticaking agent in pharmaceuticals

**Sylysia 320** [Fuji Silysia http://www.fuji-silysia.co.jp]
Chem. Descrip.: Syn. amorphous silica
Chem. Analysis: SiO₂ (99.7%)
CAS 112926-00-8; EINECS/ELINCS 231-545-4
Uses: Carrier, moisture control agent,

**Sylysia 320** [Fuji Silysia http://www.fuji-silysia.co.jp]
Chem. Descrip.: Syn. amorphous silica
Chem. Analysis: SiO₂ (99.5%)
CAS 112926-00-8; EINECS/ELINCS 231-545-4
Uses: Moisture control agent, anticaking agent in pharmaceuticals

Properties: Wh. powd., odorless, tasteless; 2.7 µm avg. particle size; sp.gr. 2.15; surf. area 300 m²/g; oil absorp. 310 ml/100 g; brightness 92; ref. index 1.46; pH 3.0 (5% slurry)

Toxicology: Dust may cause irritation of skin, mucous membranes; LD50 (oral, rat) > 31,000 mg/kg (48 h), (dermal, rabbit) > 2000 mg/kg (48 h); ACGIH TLV 6 mg/m³ (total dust); very low oral toxicity; not considered an ocular irritant

Environmental: Not known to have any adverse effect on aquatic environment

Precaution: Nonflamm.; reacts with HF
HMIS: Health 0, Flammability 0, Reactivity 0
Storage: Keep tightly sealed to protect quality

**Sylysia 350** [Fuji Silysia http://www.fuji-silysia.co.jp]
Chem. Descrip.: Syn. amorphous silica
Chem. Analysis: SiO₂ (99.5%)
CAS 112926-00-8; EINECS/ELINCS 231-545-4
Uses: Moisture control agent, anticaking agent in pharmaceuticals

Regulatory: FDA 21CFR §160.105, 160.182, 172.480; USDA cleared for certain uses in salt and seasonings, curing mixts. for meat/poultry

Properties: Wh. free-flowing powd., odorless, tasteless; 1.7-2.1 µm avg. particle size; 0.05% max. 45 µ sieve; insol. in water; sp.gr. 2.1; surf. area 300-350 ml/100 g (linseed oil); brightness 95 min.; ref. index 1.46; pH 6.8-8.0 (5% ag. slurry)

Toxicology: Dust may cause irritation of skin, mucous membranes; LD50 (oral, rat) > 31,000 mg/kg (48 h), (dermal, rabbit) > 2000 mg/kg (48 h); ACGIH TLV 6 mg/m³ (total dust); very low oral toxicity; not considered an ocular irritant

Environmental: Not known to have any adverse effect on aquatic environment

Precaution: Nonflamm.; reacts with HF
HMIS: Health 0, Flammability 0, Reactivity 0
Storage: Keep tightly sealed to protect quality

**Sylysia 370** [Fuji Silysia http://www.fuji-silysia.co.jp]
Chem. Descrip.: Syn. amorphous silica
Chem. Analysis: SiO₂ (99.5%)
CAS 112926-00-8; EINECS/ELINCS 231-545-4
Uses: Moisture control agent, anticaking agent in pharmaceuticals

Regulatory: FDA 21CFR §160.105, 160.182,
Trade Name Reference

172.480; USDA cleared for certain uses in salt and seasonings, curing mixts. for meat/poultry

Properties: Wh. free-flowing powd., odorless, tasteless; 3.13 µm avg. particle size; insol. in water; sp.gr. 2.1; oil absorb. 306 ml/100 g; brightness 98.8; ref. index 1.46; pH 7.7 (5% slurry)

Toxicology: Dust may cause irritation of skin, mucous membranes; LD50 (oral, rat) > 31,000 mg/kg (48 h), (dermal, rabbit) > 2000 mg/kg (48 h); ACGIH TLV 6 mg/m³ (total dust); very low oral toxicity; not considered an ocular irritant

Environmental: Not known to have any adverse effect on aquatic environment

Precaution: Nonflamm.; reacts with HF

HMIS: Health 0, Flammability 0, Reactivity 0

Storage: Keep tightly sealed to protect quality

Sylysia 430 [Fuji Silysia http://www.fuji-silysia.co.jp]

Chem. Descrip.: Syn. amorphous silica See Silica, amorphous

Chem. Analysis: SiO₂ (99.7%)

CAS 112926-00-8; EINECS/ELINCS 231-545-4

Uses: Carrier, moisture control agent, anticaking agent in pharmaceuticals

Properties: Wh. powd., odorless, tasteless; 2.7 µm avg. particle size; sp.gr. 2.15; surf. area 500 m²/g; oil absorb. 160 ml/100 g; brightness 92; ref. index 1.46; pH 7.0 (5% slurry)

Precaution: Dissolves in HF and strong bases

Sylysia 550 [Fuji Silysia http://www.fuji-silysia.co.jp]

Chem. Descrip.: Syn. amorphous silica See Silica, amorphous

Chem. Analysis: SiO₂ (99.7%)

CAS 112926-00-8; EINECS/ELINCS 231-545-4

Uses: Carrier, moisture control agent, anticaking agent in pharmaceuticals

Properties: Wh. powd., odorless, tasteless; 2.7 µm avg. particle size; sp.gr. 2.15; surf. area 500 m²/g; oil absorb. 160 ml/100 g; brightness 92; ref. index 1.46; pH 7.0 (5% slurry)

Precaution: Dissolves in HF and strong bases

Sylysia 730 [Fuji Silysia http://www.fuji-silysia.co.jp]

Chem. Descrip.: Syn. amorphous silica See Silica, amorphous

Chem. Analysis: SiO₂ (99.7%)

CAS 112926-00-8; EINECS/ELINCS 231-545-4

Uses: Moisture control agent, anticaking agent in pharmaceuticals

Properties: Wh. powd., odorless, tasteless; 3.0 µm avg. particle size; sp.gr. 2.15; surf. area 700 m²/g; oil absorb. 95 ml/100 g; brightness 95; ref. index 1.46; pH 4.0 (5% slurry)

Precaution: Dissolves in HF and strong bases

Sylysia 740 [Fuji Silysia http://www.fuji-silysia.co.jp]

Chem. Descrip.: Syn. amorphous silica See Silica, amorphous

Chem. Analysis: SiO₂ (99.7%)

CAS 112926-00-8; EINECS/ELINCS 231-545-4

Uses: Carrier, moisture control agent, anticaking agent in pharmaceuticals

Properties: Wh. powd., odorless, tasteless; 3.5 µm avg. particle size; sp.gr. 2.15; surf. area 700 m²/g; oil absorb. 95 ml/100 g; brightness 95; ref. index 1.46; pH 4.0 (5% slurry)

Precaution: Dissolves in HF and strong bases

Sympatens-ALM/030 [Dr. W. Kolb AG http://www.kolb.ch]

Chem. Descrip.: Laureth-3

CAS 9002-92-0; EINECS/ELINCS 221-280-2

Uses: Solubilizer, consistency-giving and cleaning agent in pharmaceuticals

Properties: Liq.; HLB 8; nonionic

Precaution: Dissolves in HF and strong bases

Sympatens-ALM/V/114/99 [Dr. W. Kolb AG http://www.kolb.ch]

Chem. Descrip.: Laureth-3

CAS 68439-50-9; EINECS/ELINCS 221-280-2
Trade Name Reference

Uses: Solubilizer, consistency-giving and cleaning agent in pharmaceuticals
Properties: Liq.; HLB 8; nonionic

Sympatens-PEG/400 [Dr. W. Kolb AG
http://www.kolb.ch]
Chem. Descrip.: PEG-8
CAS 25322-68-3; EINECS/ELINCS 225-856-4
Uses: Solubilizer, stabilizer for skin, mouth care prod., pharmaceuticals
Properties: Liq.; HLB 8; nonionic

Sympatens-TR/350 [Dr. W. Kolb AG
http://www.kolb.ch]
Chem. Descrip.: PEG-35 castor oil
CAS 61791-12-6
Uses: Emulsifier, dispersant, solubilizer for pharmaceuticals
Properties: Liq.; nonionic

Synative FA C 8/98-100 [Cognis
http://www.cognis.de]
Chem. Descrip.: Caprylic acid
CAS 124-07-2; EINECS/ELINCS 204-677-5
Uses: Pharmaceuticals; flavors
Properties: Lt. liq.; typ. odor; acid no. 387-391; iodine no. 0-0.3; sapon. no. 387-392; 0-0.2% water
Storage: 1 yr. shelf life when stored in sealed original drums @ 30 C max.; 1 mo shelf life when stored in refined steel or aluminum tanks @ 20-30 C

Synative FA U 122 [Cognis
http://www.cognis.de]
Chem. Descrip.: Erucic acid
CAS 112-86-7; EINECS/ELINCS 204-011-3
Uses: Pharmaceuticals; flavors
Properties: Wh.; lt. odor; acid no. 163-167; iodine no. 74-78; sapon. no. 163-169; 0-0.2% water
Storage: 1 yr. shelf life when stored in original sealed drums below 30 C; 1 mo shelf life when stored in refined steel or aluminum tanks @ 45-55 C; 3 mos. shelf life when kept under nitrogen blanket

Synative FA V 85 [Cognis
http://www.cognis.de]
Chem. Descrip.: Caprylic acid/capric acid

Uses: Pharmaceuticals; flavors
Properties: Colorless liq.; typ. odor; acid no. 359-367; iodine no. 0-0.5; sapon. no. 359-368; 0-0.2% water
Storage: 6 mos. shelf life when stored in sealed original drums; 2 wk shelf life when stored in refined steel tanks; 4 wks shelf life when stored under nitrogen blanket

Syncal® CaS [PMC Spec.
http://www.pmcsg.com]
Chem. Descrip.: Calcium saccharin
USP/FCC/BP
CAS 6485-34-3; EINECS/ELINCS 229-349-9
Uses: Syn. sweetening agent for toothpastes, mouthwashes, pharmaceuticals
Regulatory: FDA 21CFR §180.37; BP compliance
Properties: Wh. fine free-flowing powd.; m.w. 404.45; 98% min. assay
Storage: Avoid excessive heat and humidity on storage to prevent caking

Syncal® GS [PMC Spec.
http://www.pmcsg.com]
Chem. Descrip.: Sodium saccharin
USP/FCC/BP See Saccharin sodium anhydrous
CAS 128-44-9; EINECS/ELINCS 204-886-1
Uses: Syn. sweetening agent for toothpastes, mouthwashes, pharmaceuticals
Regulatory: FDA 21CFR §180.37; BP compliance
Properties: Wh. nondusting, free-flowing gran., uniformly sized particles, odorless; sol. 46% in water; m.w. 241.20; sp.gr. > 1; 98-101% assay
 Toxicology: LD50 (oral, rat) 14,200 mg/kg; nuisance dust ACGIH 10 mg/m³; potential for foreign body irritation to eyes, skin, respiratory tract; suspect carcinogen in rats on extreme exposure
Precaution: Incompat. with oxidizing agents; hazardous decomp. prods.: CO, NOx, SO2
Storage: Avoid excessive heat and humidity on storage to prevent caking
Chem. Descrip.: Sodium saccharin USP/FCC/BP See Saccharin sodium anhydrous
CAS 128-44-9; EINECS/ELINCS 204-886-1
Uses: Syn. sweetening agent for toothpastes, mouthwashes, pharmaceuticals
Regulatory: FDA 21CFR §180.37; BP compliance
Properties: Wh. fine cryst. powd., odorless; m.w. 205.17; sp.gr. > 1; 98-101% assay
Toxicology: LD50 (oral, rat) 14,200 mg/kg; nuisance dust ACGIH 10 mg/m3; potential for foreign body irritation to eyes, skin, respiratory tract; suspect carcinogen in rats on extreme exposure
Precaution: Incompat. with oxidizing agents; hazardous decomp. prods.: CO, NOx, SO2
Storage: Avoid excessive heat and humidity on storage to prevent caking

Chem. Descrip.: Saccharin insoluble USP/FCC/BP
CAS 81-07-2; EINECS/ELINCS 201-321-0
Uses: Syn. sweetening agent for toothpastes, mouthwashes, pharmaceuticals
Regulatory: FDA 21CFR §180.37; BP compliance
Properties: Wh. powd., odorless; sol. 0.03% in water; m.w. 183.18; sp.gr. > 1; m.p. 226-230 C; 98-101% assay
Toxicology: Nuisance dust ACGIH 10 mg/m3
Precaution: Incompat. with oxidizing agents
Storage: Avoid excessive heat and humidity to prevent caking

Chem. Descrip.: Sodium saccharin USP/FCC/BP See Saccharin sodium anhydrous
CAS 128-44-9; EINECS/ELINCS 204-886-1
Uses: Syn. sweetening agent for toothpastes, mouthwashes, pharmaceuticals; for applics. requiring free flow chars. and low degree of dust
Regulatory: FDA 21CFR §180.37; USP/FCC/BP compliance
Properties: Wh. fine free-flowing spray-dried powd.; very fine particle size; sol. 46% in water; m.w. 205.17; sp.gr. > 1; 98-101% assay
Toxicology: Nuisance dust TLV 10 mg/m3
Precaution: Incompat. with oxidizing agents
Storage: Avoid excessive heat on storage to prevent caking

Syncrowax BB4 [Croda Inc http://www.croda.com; http://www.crodausa.com; Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: Synthetic beeswax See Beeswax, synthetic
CAS 71243-51-1; EINECS/ELINCS 275-286-5
Uses: Viscosity builder and emulsion stabilizer in pharmaceutical creams and ointments
Properties: Pale cream waxy flakes; oil-sol.; m.p. 60-65 C
Use Level: 1-5%

Syncrowax ERLC [Croda Inc http://www.croda.com; http://www.crodausa.com; Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: C18-36 acid glycol ester
CAS 94944-95-3; EINECS/ELINCS 305-673-7
Uses: Emulsifier, emollient, opacifier, lubricant, stabilizer, suspending agent, thickener, gloss aid for topical pharmaceuticals, anhyd. systems; stiffener for stick formulations
Features: Similar to candelilla; reduces bleeding and sweating
Properties: Pale yel. solid; mild waxy odor; m.p. 70-75 C; HLB 5.20; acid no. 10-15; iodine no. 3 max.; sapon. no. 155-160
Use Level: 1-4%

Syncrowax HGLC [Croda Inc http://www.croda.com; http://www.crodausa.com; Croda Chem. Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: C18-36 acid triglyceride
CAS 91052-08-3; EINECS/ELINCS 293-165-5
Uses: Emulsifier, emollient, opacifier, lubricant, suspending agent, strength improver, stabilizer, gloss aid for topical pharmaceuticals; stiffener for stick formulations
Features: Hard complex triglyceride wax; props. like carnauba
Properties: Lt. tan pastille; mild waxy odor; m.p.
Trade Name Reference

Syncrowax HR-C [Croda Inc
http://www.croda.com;
http://www.crodausa.com; Croda Chem.
Europe Ltd http://www.croda.co.uk]
Chem. Descrip.: Tribehenin
CAS 18641-57-1; EINECS/ELINCS 242-471-7
Uses: Emulsifier, emollient, opacifier,
suspending agent, stabilizer, stiffener,
thickener, gloss aid for oral and topical
pharmaceuticals
Features: Props. like beeswax; softest in range
Regulatory: FDA 21CFR §184.1555, GRAS
Properties:

70-75 C; HLB 6.43; acid no. 6-12; iodine no. 3
max.; sapon. no. 160-175
Use Level: 4-12%

Synperonic® L2 [Uniqema
http://www.uniqema.com; Uniqema Am.
http://www.uniqema.com]
Chem. Descrip.: Laureth-2
CAS 9002-92-0; EINECS/ELINCS 221-279-7
Uses: Detergent, emulsifier, rheology control
agent for pharmaceuticals
Properties: Colorless liq.; sol. in ethanol,
kerosene, chloroform, CCl4; insol. in water;
sp.gr. 0.901 (20 C); m.p. 8 C; HLB 5.9; acid
no. 0.2 max.; hyd. no. 203; cloud pt. 49 C
(10% in 25% BDG); nonionic; 100% act.
Environmental: Fully biodeg.

Synermonic® L11 [Uniqema
http://www.uniqema.com; Uniqema Am.
http://www.uniqema.com]
Chem. Descrip.: Laureth-11
CAS 9002-92-0
Uses: Emulsifier, rheology control agent in
pharmaceuticals
Properties: Colorless solid; sol. in water, ethanol,
chloroform, CCl4; insol. in kerosene; sp.gr.
0.983 (50 C); m.p. 25 C; HLB 14.0; acid no.
0.2 max.; hyd. no. 85; cloud pt. 87 C (1% aq.);
surf. tens. 32.8 mN/m (0.1%); Draves wetting
41 s (0.1%); Ross-Miles foam 113 mm (initial,
50 ppm CaCO3); nonionic; 100% act.
Environmental: Fully biodeg.

Synermonic® NP8 [Uniqema
http://www.uniqema.com; Uniqema Am.
http://www.uniqema.com]
Chem. Descrip.: Nonoxynol-8
CAS 9016-45-9
Uses: Emulsifier for creams, lotions;
solubilizer for topical pharmaceuticals
Properties: Pale yel. liq.; sol. in water, alcohol,
glycol ethers; dens. 1.053 g/ml; visc. 355 cps;
HLB 12.3; cloud pt. 30-34 C (1% aq.); pour pt.
< 0 C; surf. tens. 29.4 dynes/cm (0.1%); pH 6-
8 (1% aq.); nonionic; 99% min. act.

Synermonic® NP15 [Uniqema
http://www.uniqema.com; Uniqema Am.
http://www.uniqema.com]
Chem. Descrip.: Nonoxynol-15
CAS 9016-45-9
Uses: Emulsifier for creams, lotions;
solubilizer for topical pharmaceuticals
Properties: Pale yel. paste; sol. in water, alcohol,
glycol ethers; dens. 1.058 g/ml (40 C); visc.
168 cps (40 C); HLB 15.0; cloud pt. > 100 C
(1% aq.); pour pt. 30 C; surf. tens. 41.7
dynes/cm; pH 6-8 (1% aq.); nonionic; 99%
inact.

Synermonic® NP20 [Uniqema
http://www.uniqema.com; Uniqema Am.
http://www.uniqema.com]
Chem. Descrip.: Nonoxynol-20
CAS 9016-45-9
Uses: Emulsifier for creams, lotions;
solubilizer for topical pharmaceuticals
Properties: Pale yel. solid; sol. in water, alcohol,
glycol ethers; dens. 1.073 g/ml (40 C); visc.
198 cps (40 C); HLB 16.3; cloud pt. > 100 C
(1% aq.); pour pt. 30 C; surf. tens. 41.7
dynes/cm; pH 6-8 (1% aq.); nonionic; 100%
inact.

Synermonic® NP35 [Uniqema
http://www.uniqema.com; Uniqema Am.
http://www.uniqema.com]
Chem. Descrip.: Nonoxynol-35
CAS 9016-45-9
Uses: Emulsifier for creams, lotions;
solubilizer for topical pharmaceuticals
Properties: Pale yel. solid; sol. in water, alcohol,
glycol ethers; dens. 1.087 g/ml (40 C); visc.
242 cps (40 C); HLB 17.5; cloud pt. > 100 C
(1% aq.); pour pt. 40 C; surf. tens. 41.7
dynes/cm; pH 6-8 (1% aq.); nonionic; 100%
inact.
Synperonic® NP50 [Uniqema
http://www.uniqema.com; Uniqema Am.
http://www.uniqema.com]
Chem. Descrip.: Nonoxynol-50
CAS 9016-45-9
Uses: Emulsifier for creams, lotions; solubilizer for topical pharmaceuticals
Properties: Pale yel. solid; HLB 18.2; nonionic; 100% conc.

Synperonic® OP7.5 [Uniqema
http://www.uniqema.com; Uniqema Am.
http://www.uniqema.com]
Chem. Descrip.: Octoxynol-8
CAS 9002-93-1
Uses: Emulsifier for creams, lotions; solubilizer for topical pharmaceuticals
Properties: Pale yel. liq.; HLB 11.7; nonionic; 100% conc.

Synperonic® OP10 [Uniqema
http://www.uniqema.com; Uniqema Am.
http://www.uniqema.com]
Chem. Descrip.: Octoxynol-10
CAS 9002-93-1
Uses: Emulsifier for creams, lotions; solubilizer for topical pharmaceuticals
Properties: Pale yel. solid; HLB 16.2; nonionic

Synperonic® OP40 70% [Uniqema
http://www.uniqema.com; Uniqema Am.
http://www.uniqema.com]
Chem. Descrip.: Octoxynol-40
CAS 9002-93-1
Uses: Emulsifier for creams, lotions; solubilizer for topical pharmaceuticals
Properties: Liq.; HLB 17.4; nonionic; 70% conc.
**Trade Name Reference**

**consistency agent for topical pharmaceuticals, mouthwashes**

**Regulatory:** CERCLA, RCRA nonreportable; CA Prop. 65

**Properties:** Wh. flake; sol. in water, ethanol; partly sol. in toluene; m.w. 14,000; sp.gr. 1.06; m.p. 59 C; hyd. no. 7.7; cloud pt. > 100 C (10% aq.); pH 6.3 (2.5% aq.); surf. tens. 38 mN/m (0.1%, 20 C); Draves wetting > 360 s (0.1%); Ross-Miles foam 67 mm (initial, 0.1%); nonionic; 100% conc.

**Precaution:** Wear safety glasses with side shields; incompat. with oxidizers

**Hazardous Decomp. Prods.:** CO, CO2

**Storage:** Normal chemical handling and storage


Chem. Descrip.: Poloxamer 407
CAS 9003-11-6

Uses: Surfactant, wetting agent, o/w emulsifier, dispersant, solubilizer, consistency agent for topical pharmaceuticals, mouthwashes

Properties: Wh. flake; sol. in water, ethanol, toluene; m.w. 12,000; sp.gr. 1.05; m.p. 56 C; hyd. no. 10; cloud pt. > 100 C (10% aq.); pH 6.3 (2.5% aq.); surf. tens. 40.8 mN/m (0.1%, 20 C); Draves wetting > 360 s (0.1%); Ross-Miles foam 65 mm (initial, 0.1%); nonionic; 100% conc.

**Synperonic® PE/L44** [Uniqema http://www.uniqema.com]

Chem. Descrip.: Poloxamer 124
CAS 9003-11-6

Uses: Surfactant, wetting agent, o/w emulsifier, dispersant, detergent for topical pharmaceuticals and oral care

Properties: Colorless liq.; sol. in ethanol, toluene; m.w. 2200; sp.gr. 1.05; hyd. no. 51; pour pt. 16 C; cloud pt. 71 C (10% aq.); pH 6.3 (2.5% aq.); surf. tens. 34.5 mN/m (0.1%, 20 C); Draves wetting > 360 s (0.1%); Ross-Miles foam 76 mm (initial, 0.1%); nonionic; 100% conc.


Chem. Descrip.: Poloxamer 181
CAS 9003-11-6

Uses: Antifoam for fermentation, antibiotics, oral care

Features: Multiuse

Properties: Colorless liq.; sol. in ethanol, toluene; partly sol. in kerosene; insol. in water; m.w. 2100; sp.gr. 1.02; hyd. no. 53; pour pt. -30 C; cloud pt. 17 C (10% aq.); pH 6.3 (2.5% aq.); surf. tens. 36.6 mN/m (0.1%, 20 C); Ross-Miles foam 5 mm (initial, 0.1%); nonionic; 100% conc.


Chem. Descrip.: Poloxamer 231
CAS 9003-11-6

Uses: Antifoam for fermentation, antibiotics; o/w emulsifier, dispersant for topical pharmaceuticals

Features: Multiuse

Properties: Colorless liq.; sol. in ethanol, toluene; partly sol. in kerosene; insol. in water; m.w. 2750; sp.gr. 1.02; hyd. no. 41; pour pt. -27 C; cloud pt. 16 C (10% aq.); pH 6.3 (2.5% aq.); surf. tens. 35 mN/m (0.1%, 20 C); Ross-Miles foam 9 mm (initial, 0.1%); nonionic; 100% conc.


Chem. Descrip.: Poloxamer 331
CAS 9003-11-6

Uses: Antifoam for fermentation, antibiotics

Features: Multiuse

Properties: Colorless liq.; sol. in ethanol, toluene; insol. in water, ethylene glycol; m.w. 3800; sp.gr. 1.02; hyd. no. 29.5; pour pt. -9 C; cloud pt. 11 C (10% aq.); pH 6.3 (2.5% aq.); surf. tens. 32.4 mN/m (0.1%, 20 C); Ross-Miles foam 17 mm (initial, 0.1%); nonionic; 100% conc.


Chem. Descrip.: Poloxamer 401
CAS 9003-11-6

Uses: Antifoam for fermentation, antibiotics

Features: Multiuse

Properties: Colorless liq.; sol. in ethanol, toluene; insol. in water, ethylene glycol; m.w. 4400; sp.gr. 1.02; hyd. no. 25.5; pour pt. -6 C; cloud pt. 10 C (10% aq.); pH 6.3 (2.5% aq.); surf. tens. 32.5 mN/m (0.1%, 20 C); Ross-Miles foam 24 mm (initial, 0.1%); nonionic; 100% conc.
Trade Name Reference


**Chem. Descr.: Poloxamer 235**
CAS 9003-11-6

**Uses:** Surfactant, wetting agent, emulsifier, demulsifier, dispersant for pharmaceuticals, mouthwashes

**Properties:** Wh. paste; sol. in water, ethanol, toluene; m.w. 4650; sp.gr. 1.04; hyd. no. 23.5; pour pt. 29 C; cloud pt. 86 C (10% aq.); pH 6.3 (2.5% aq.); surf. tens. 37.4 mN/m (0.1%, 20 C); Draves wetting > 360 s (0.1%); Ross-Miles foam 76 mm (initial, 0.1%); nonionic; 100% conc.


**Chem. Descr.: Poloxamine 701**
CAS 11111-34-5

**Uses:** Antifoam for fermentation, antibiotics

**Properties:** Yel. liq.; insol. in water; m.w. 3700; sp.gr. 1.02; hyd. no. 61.5; pour pt. -24 C; cloud pt. 16.5 C (10% aq.); pH 10 (2.5% aq.); surf. tens. 34.2 mN/m (0.5%, 20 C); Ross-Miles foam 3 mm (initial, 0.1%); nonionic; 100% conc.


**Chem. Descr.: Poloxamine 1301**
CAS 11111-34-5

**Uses:** Antifoam for fermentation, antibiotics

**Properties:** Yel. liq.; insol. in water; m.w. 6900; sp.gr. 1.02; hyd. no. 33; pour pt. -15 C; cloud pt. 12.5 C (10% aq.); pH 10 (2.5% aq.); surf. tens. 33 mN/m (0.5%, 20 C); Ross-Miles foam 9 mm (initial, 0.1%); nonionic; 100% conc.

**Synpro® Aluminum Monostearate NF** [Ferro/Polymer Addit. http://www.ferro.com]

**Chem. Descr.: Aluminum monostearate NF**
See Aluminum stearate

**CAS 7047-84-9; EINECS/ELINCS 230-325-5**

**Uses:** Lubricant, gellant in oil-based pharmaceuticals

**Properties:** Powd.; 98% through 200 mesh; 15.3% assay (as Al2O3); 1.6% loss on drying

**Synpro® Calcium Stearate NF** [Ferro/Polymer Addit. http://www.ferro.com]

**Chem. Descr.: Calcium stearate NF**

**CAS 1592-23-0; EINECS/ELINCS 216-472-8**

**Uses:** Lubricant in pharmaceuticals, ointments, tableting operations

**Regulatory:** FDA 21CFR §177.2600, 178.2010

**Properties:** Wh. free-flowing fine powd.; 99% through 325 mesh; mild fatty odor; negligible sol. in water; sp.gr. > 1.0; apparent dens. 0.2 g/cc; m.p. 155 C; flash pt. (PMCC) > 500 F; 2.7% moisture

**Toxicology:** TLV 10 mg/m³; inh. of dust can cause discomfort of nose, throat, upper respiratory tract, coughing, choking; eye contact and prolonged skin contact may cause irritation; ingestion may cause gastrointestinal discomfort

**Precaution:** Incompat. with strong oxidizing agents; decomp. prods.: CO2, CaO; dust explosions can occur in presence of ignition source

**Storage:** Store in cool, dry area away from heat, spark or flame

**Synpro® Calcium Stearate NF Vegetable Grade** [Ferro/Polymer Addit. http://www.ferro.com]

**Chem. Descr.: Calcium stearate NF**

**CAS 1592-23-0; EINECS/ELINCS 216-472-8**

**Uses:** Excipient in pharmaceuticals; internal mold release agent, lubricant in pharmaceutical tablets
Properties: Wh. fine powd.; 99.9% through 325 mesh; 7.0 µ median particle size; 9.6% assay (as CaO); 2.8% moisture

Synpro® Magnesium Stearate NF
Chem. Descrip.: Magnesium stearate NF
CAS 557-04-0; EINECS/ELINCS 209-150-3
Uses: Lubricant in pharmaceuticals, ointments, tableting operations
Regulatory: FDA 21CFR §181.29, etc.
Properties: 85% through 200 mesh; 3.4% moisture

Synpro® Magnesium Stearate NF Veg.
Chem. Descrip.: Magnesium stearate NF
CAS 557-04-0; EINECS/ELINCS 209-150-3
Uses: Excipient in pharmaceuticals, ointments; internal mold release agent, lubricant in tableting operations; anticaking agent, flow aid in aerosols
Regulatory: FDA 21CFR §181.29
Properties: Wh. fine free-flowing powd.; 99.9% through 325 mesh; mild fatty odor; negligible sol. in water; sp.gr. > 1.0; apparent dens. 0.3 g/cc; m.p. 155 C; flash pt. (PMCC) > 500 F; 0.4% moisture
Toxicology: ACGIH TLV/TWA 10 mg/m3; inh. of dust can cause discomfort of nose, throat, upper respiratory tract, coughing, choking; ingestion can cause gastrointestinal discomfort; eye contact and prolonged skin contact can cause discomfort
Precaution: Incompat. with strong oxidizing agents; decomp. prods.: CO2, MgO; dust explosions can occur in presence of ignition source
Storage: Store in cool, dry area away from heat, sparks, or flame

Synpro® Zinc Stearate (Kosher)
Chem. Descrip.: Zinc stearate
CAS 557-05-1; EINECS/ELINCS 209-151-9
Uses: Lubricant, tablet mold release agent, flow aid in pharmaceuticals
Properties: Fine particulate; 99% through 200 mesh; apparent dens. 0.333 g/cc; m.p. 123 C; 0.2% moisture

Chem. Descrip.: Zinc stearate USP
CAS 557-05-1; EINECS/ELINCS 209-151-9
Uses: Lubricant for pharmaceuticals
Regulatory: FDA 21CFR §177.2600, 178.2010
Properties: Wh. fine free-flowing powd., mild fatty odor; 99% through 200 mesh; negligible sol. in water; sp.gr. > 1; apparent dens. 0.2 g/cc; m.p. 120-132 C; flash pt. (PMCC) > 500 F; 0.4% moisture
Toxicology: ACGIH TLV/TWA 10 mg/m3; inh. of dust can cause discomfort of nose, throat, upper respiratory tract, coughing, choking; ingestion can cause gastrointestinal discomfort; eye contact and prolonged skin contact can cause discomfort
Precaution: Incompat. with strong oxidizing agents; decomp. prods.: CO2, ZnO; dust explosions can occur in presence of ignition source
Storage: Store in cool, dry area away from heat, sparks, or flame

Synthalen® K [3V/Cosmetics; 3V Italia http://www.3v.com]
Chem. Descrip.: Polyacrylic acid (carbomer)
CAS 9003-01-4
Uses: Thickener for pharmaceuticals, skin creams, sun creams
Features: Produces high visc., very clear gels, and high visc. emulsions
Regulatory: DOT nonregulated; SARA §304/313 nonreportable
Properties: Wh. very fine powd.; sl. acetic odor; sol. in water, org. solvs.; bulk dens. 0.20-0.23 g/cm3; visc. 20,000-30,000 mPa•s (0.2%), 40,000-60,000 mPa•s (0.5%); equiv. wt. 76; m.p. 250 C; pH 2.7-3.5 (0.5% aq. disp.); anionic; 99% act.
Use Level: 0.2-1.5%
Toxicology: LD50 (oral) > 2000 mg/kg; not known to be dangerous; harmful if
Trade Name Reference

Swallowed; nonirritating to skin and eyes; TSCA listed

Environmental: Do not empty in drains or watercourses

Precaution: Combustible; can form explosive air/dust mixt.; incompat. with oxidizers and strong bases; slippery film forms with water contact

Hazardous Ingredients: 2-propenoic acid homopolymer (99%)

Hazardous Decomp. Prods.: On burning, carbon oxides and hydrocarbons can form

NFPA: Health 1, Flammability 1, Reactivity 0

Storage: Very hygroscopic; store tightly closed in cool, dry place

Synthalen® M [3V Italia http://www.3v.com]
Chem. Descrip.: Polyacrylic acid (carbomer)
CAS 9003-01-4
Uses: Thickener and stabilizer for o/w emulsions or dispersions of insol. act. principles in pharmaceuticals

Regulatory: DOT nonregulated; SARA §304/313 nonreportable

Properties: Wh. very fine powd.; sl. acetic odor; sol. in water, org. solvs.; bulk dens. 0.20-0.23 g/cm³; visc. 2000-5500 mPa•s, 30,000-40,000 mPa•s (0.5%); equiv. wt. 76; m.p. 250 C; pH 2.7-3.5 (0.5% aq.); anionic; 99% act.

Use Level: 0.2-1.5%

Toxicology: LD50 (oral) > 2000 mg/kg; not known to be dangerous; harmful if swallowed; nonirritating to skin and eyes; TSCA listed

Environmental: Do not empty in drains or watercourses

Precaution: Combustible; can form explosive air/dust mixt.; incompat. with oxidizers and strong bases; slippery film forms with water contact

Hazardous Ingredients: 2-propenoic acid homopolymer (99%)

Hazardous Decomp. Prods.: On burning, carbon oxides and hydrocarbons can form

NFPA: Health 1, Flammability 1, Reactivity 0

Storage: Very hygroscopic; store tightly closed in cool, dry place

TC-90™ Ascorbic Acid for DC [BASF http://www.basf.com]
Chem. Descrip.: Ascorbic acid (90%) and corn starch (10%)
See L-Ascorbic acid; Corn (Zea mays) starch
CAS 50-81-7; 9005-25-8; EINECS/ELINCS 200-066-2; 232-679-6
Uses: Dietary supplement in pharmaceutical tablets and nutritional supplements produced by direct compression

Features: Rapidly oxidizes in solution

Regulatory: USP/FCC

Properties: Wh. to yel. fine gran. powd.; almost odorless; sl. mild odor; m.w. 176.1; ≈ 90% act.

Storage: 30 month shelf-life; store in tightly closed containers @ R.T; protect from light and in a dry place

Chem. Descrip.: C12-15 pareth-2 phosphate
CAS 149919-05-1
Uses: Emulsifier and solubilizer for pharmaceuticals

Features: Can be neutralized with alkali

Properties: Yel. liq.; HLB 7.0; anionic; 100% conc.

Chem. Descrip.: Tri-PEG-6 alkyl ether phosphate
CAS 149919-06-2
Uses: Emulsifier and solubilizer for pharmaceuticals
### TDP-8
Chem. Descrip.: C12-15 pareth-8 phosphate
Uses: Emulsifier and solubilizer for pharmaceuticals
Features: Can be neutralized with alkali
Regulatory: JSCI listed
Properties: Yel. liq.; HLB 8.0; anionic; 100% conc.

### TDP-10
Chem. Descrip.: C12-15 pareth-10 phosphate
Uses: Emulsifier and solubilizer for pharmaceuticals
Features: Can be neutralized with alkali
Regulatory: JSCI listed
Properties: Yel. liq.; HLB 11.5; anionic; 100% conc.

### TL-10
Chem. Descrip.: Polysorbate 20
CAS 9005-64-5
Uses: Emulsifier, solubilizer, dispersant for pharmaceuticals
Features: Hydrophilic
Regulatory: JSCI listed
Properties: Pale yel. paste; HLB 14.0; anionic; 100% conc.

### TO-10V
Chem. Descrip.: Polysorbate 80
CAS 9005-65-6
Uses: Emulsifier, solubilizer, and dispersant for pharmaceuticals
Features: Hydrophilic
Regulatory: JSCI listed
Properties: Yel. liq.; water-sol.; HLB 16.9; nonionic; 100% conc.

### TP2
[**Undesa**](http://www.undesa.com); [**S. Black**](http://www.sblack.com)
Chem. Descrip.: Stearic acid
CAS 67701-03-5; EINECS/ELINCS 266-928-5
Uses: Emollient, emulsifier, thickener in pharmaceuticals
Regulatory: Not regulated for transport
Environmental: Biodeg. (28 d) > 90%
Precaution: Wear gloves, goggles, overall skin protection; avoid entry to sewers, drain and surface water
Storage: Store @ R.T. in original sealed container protected from heat sources

### TS-10V
Chem. Descrip.: Polysorbate 60
CAS 9005-67-8
Uses: Emulsifier, solubilizer, and dispersant for o/w prods., pharmaceuticals
Features: Hydrophilic
Regulatory: JSCI listed
Properties: Yel. visc. liq.; sol. in water, ethanol, ethyl acetate, toluene; HLB 15.0; nonionic; 100% conc.

### TS-30V
Chem. Descrip.: Polysorbate 85
CAS 9005-70-3
Uses: Emulsifier for pharmaceuticals, sol. oils
Features: Hydrophilic
Regulatory: JSCI listed
Properties: Yel. liq.; oil-sol.; water-disp.; HLB 11.0; nonionic; 100% conc.

### TO-106V
Chem. Descrip.: PEG-6 sorbitan oleate
CAS 9005-65-6
Uses: Emulsifier for pharmaceuticals
Features: Hydrophilic
Regulatory: JSCI listed
Properties: Yel. liq.; oil-sol.; water-disp.; HLB 10.0; nonionic; 100% conc.

### TP8
[**Undesa**](http://www.undesa.com); [**S. Black**](http://www.sblack.com)
Chem. Descrip.: Stearic acid
CAS 67701-03-5; EINECS/ELINCS 266-928-5
Uses: Emollient, emulsifier, thickener in pharmaceuticals
Regulatory: Not regulated for transport
Environmental: Biodeg. (28 d) > 90%
Precaution: Wear gloves, goggles, overall skin protection; avoid entry to sewers, drain and surface water
Storage: Store @ R.T. in original sealed container protected from heat sources

### TS-10V
Chem. Descrip.: Polysorbate 60
CAS 9005-67-8
Uses: Emulsifier, solubilizer, and dispersant for o/w prods., pharmaceuticals
Features: Hydrophilic
Regulatory: JSCI listed
Properties: Yel. visc. liq.; sol. in water, ethanol, ethyl acetate, toluene; HLB 14.9; sapon. no. 43-49; pH 5.7-7.7 (5%); nonionic; 100% conc.

### TS-30V
Trade Name Reference

http://www.nikkol.co.jp/index.html
Chem. Descrip.: Polysorbate 65
CAS 9005-71-4
Uses: Emulsifier, solubilizer for o/w prods., pharmaceuticals
Regulatory: JSCI listed
Properties: Yel. semisolid; water-disp.; HLB 10.5; nonionic; 100% conc.
Toxicology: TSCA listed

TS-106V [Nikko Chems. Co. Ltd
http://www.nikkol.co.jp/index.html]
Chem. Descrip.: PEG-6 sorbitan stearate
CAS 9005-67-8
Uses: Emulsifier, solubilizer for o/w prods., pharmaceuticals
Regulatory: JSCI listed
Properties: Yel. paste; water-disp.; HLB 9.6; nonionic
Toxicology: TSCA listed

Tablo® [Blanver Farmoquimica
http://www.blanver.com.br; Blanver USA
http://www.blanver.com.br]
Chem. Descrip.: Sodium starch glycolate
CAS 9063-38-1
Uses: Disintegrant, dissolution aid in pharmaceutical tablets, capsules, pellets, wet and dry granulation, dry blends, veterinary prods.
Features: Absorbs water rapidly; resulting swelling causes rapid disintegration of tablets and granules
Properties: Wh. to sl. yel. relatively free-flowing powd.; ≤ 10% on 200 mesh; odorless; tasteless; visc. 23 cps; pH 6.30 (1 g/30 ml water); 3.4% loss on drying
Use Level: 0.5-5%

Tabulose® 102 [Blanver Farmoquimica
http://www.blanver.com.br; Blanver USA
http://www.blanver.com.br]
Chem. Descrip.: Microcrystalline cellulose
CAS 9004-34-6
Uses: Binder, disintegrant, compression agent, compaction agent in pharmaceutical tablets, dry granulation
Features: Reduces friability of the final granulation
Properties: Wh. fine cryst. powd.; 100 µ avg. particle size; 8% max. on 60 mesh, 45% max. on 200 mesh; odorless; bulk dens. 0.2-0.4 g/cm³, 0.4-0.6 g/cm³ (tapped); < 5% loss on drying
Use Level: 2-10%

Tabulose® 103 [Blanver Farmoquimica
http://www.blanver.com.br; Blanver USA
http://www.blanver.com.br]
Chem. Descrip.: Microcrystalline cellulose
CAS 9004-34-6
Uses: Binder, disintegrant, compression agent, compaction agent in pharmaceutical tablets
Features: Low moisture; rec. for use with moisture-sensitive drugs
Properties: Wh. fine cryst. powd.; 50 µ avg. particle size; 1% max. on 60 mesh, 30% max. on 200 mesh; odorless; bulk dens. 0.2-0.4 g/cm³, 0.4-0.6 g/cm³ (tapped); < 3% loss on drying
Use Level: 10-50%

Tabulose® 122 [Blanver Farmoquimica
http://www.blanver.com.br; Blanver USA
http://www.blanver.com.br]
Chem. Descrip.: Microcrystalline cellulose
CAS 9004-34-6
Uses: Binder, disintegrant, compression agent, compaction agent in pharmaceutical tablets
Features: Low moisture; rec. for use with moisture-sensitive drugs
Properties: Wh. fine cryst. powd.; 50 µ avg. particle size; 1% max. on 60 mesh, 30% max. on 200 mesh; odorless; bulk dens. 0.28-0.33 g/cm³, 0.45-0.52 g/cm³ (tapped); < 3% loss on drying
Use Level: 10-50%
Tabulose® 200 [Blanver Farmoquimica
http://www.blanver.com.br; Blanver USA
http://www.blanver.com.br]
Chem. Descrip.: Microcrystalline cellulose
CAS 9004-34-6
Uses: Binder, disintegrant, compression agent, compaction agent in pharmaceutical tablets; flow aid for semi-automatic capsule mfg. equip.; absorp. enhancer in liq. extracts
Features: Reduces wt. variation
Properties: Wh. fine cryst. powd.; 190 μ avg. particle size; 30% min. on 60 mesh, 45% min. on 200 mesh; odorless; bulk dens. 0.2-0.4 g/cm³, 0.4-0.6 g/cm³ (tapped); < 5% loss on drying
Use Level: 10-50% (compression aid, flow aid); 30-70% (act. absorption)

Tabulose® 250 [Blanver Farmoquimica
http://www.blanver.com.br; Blanver USA
http://www.blanver.com.br]
Chem. Descrip.: Microcrystalline cellulose
CAS 9004-34-6
Uses: Binder, disintegrant, compression agent, compaction agent in pharmaceutical tablets; flow aid for semi-automatic capsule mfg. equip.; absorp. enhancer in liq. extracts
Features: Reduces wt. variation
Properties: Wh. fine cryst. powd.; 230 μ avg. particle size; 30% min. on 60 mesh, 60% min. on 200 mesh; odorless; bulk dens. 0.33-0.40 g/cm³, 0.4-0.6 g/cm³ (tapped); ≤ 7% loss on drying
Use Level: 10-50% (compression aid, flow aid); 30-70% (act. absorption)

Tabulose® 3E-150 [Blanver Farmoquimica
http://www.blanver.com.br; Blanver USA
http://www.blanver.com.br]
Chem. Descrip.: Microfine cellulose See Cellulose
CAS 9004-34-6; EINECS/ELINCS 232-674-9
Uses: Compression aid, compaction aid for pharmaceutical powds., tablets, capsules, wet and dry granulation; compression aid, filler in wet granulation (inc. drying speed, controls dye migration, reduces amt. of binder); flow aid, dissolution aid in capsules
Properties: Wh. solid; odorless
Use Level: 5-40% (wet granulation); 10-30% (dry granulation); 5-20% (capsules)

Tabulose® 500 [Blanver Farmoquimica
http://www.blanver.com.br; Blanver USA
http://www.blanver.com.br]
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<th>Trade Name Reference</th>
<th><a href="http://www.blanver.com.br">http://www.blanver.com.br</a></th>
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<tbody>
<tr>
<td><strong>Chem. Descrip.:</strong></td>
<td><strong>Cellulose gel</strong></td>
</tr>
<tr>
<td><strong>(microcrystalline cellulose and cellulose gum)</strong></td>
<td><strong>See Carboxymethylcellulose sodium</strong></td>
</tr>
<tr>
<td><strong>Chem. Analysis:</strong></td>
<td>Microcrystalline cellulose (89-93%), cellulose gum (7-11%)</td>
</tr>
<tr>
<td><strong>Uses:</strong></td>
<td>Suspending agent, visc. builder, thickener, compatibilizer, stabilizer in medicines, suspensions, sol'ns., emulsions</td>
</tr>
<tr>
<td><strong>Features:</strong></td>
<td>Hydrates rapidly; generates colloidal disp. with thixotropic props. in concs. as low as 1%; stable across wide temp. range</td>
</tr>
<tr>
<td><strong>Properties:</strong></td>
<td>Wh. to lt. cream fine powd.; ≤ 1% on 60 mesh, ≤ 45% on 200 mesh; odorless; insol. in water, org. solvs., dil. acids; pH 6-8 (1.2 g/100 ml water); 6.8-11.3% CMC content; ≤ 8% loss on drying</td>
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<tr>
<td><strong>Storage:</strong></td>
<td>Hygroscopic</td>
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<td><strong>Uses:</strong></td>
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<td><strong>Properties:</strong></td>
<td>Wh. to lt. cream fine powd.; ≤ 1% on 60 mesh, ≤ 45% on 200 mesh; odorless; insol. in water, org. solvs., dil. acids; pH 6-8 (1.2 g/100 ml water); 1% on 60 mesh, ≤ 45% on 200 mesh; odorless; insol. in water, org. solvs., dil. acids; pH 6-8 (1.2 g/100 ml water); ≤ 8% loss on drying</td>
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<td><strong>(microcrystalline cellulose and cellulose gum)</strong></td>
<td><strong>See Carboxymethylcellulose sodium</strong></td>
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<td><strong>Uses:</strong></td>
<td>Suspending agent, visc. builder, thickener, compatibilizer, stabilizer in medicines, suspensions, sol'ns., emulsions</td>
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<tr>
<td><strong>Features:</strong></td>
<td>Hydrates rapidly; generates colloidal disp. with thixotropic props. in concs. as low as 1%; stable across wide temp. range</td>
</tr>
<tr>
<td><strong>Properties:</strong></td>
<td>Wh. to lt. cream fine powd.; ≤ 1% on 60 mesh, ≤ 45% on 200 mesh; odorless; insol. in water, org. solvs., dil. acids; pH 6-8 (1.2 g/100 ml water); 8% loss on drying</td>
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<tr>
<td><strong>Storage:</strong></td>
<td>Hygroscopic</td>
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<tr>
<th><strong>Tagat® CH 40</strong></th>
<th>[Degussa Care Spec.]</th>
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<tbody>
<tr>
<td><strong>Chem. Descrip.:</strong></td>
<td><strong>PEG-40 hydrogenated castor oil</strong></td>
</tr>
<tr>
<td><strong>CAS</strong></td>
<td>61788-85-0</td>
</tr>
<tr>
<td><strong>Uses:</strong></td>
<td>Solubilizer for essential oils in toiletries and pharmaceuticals</td>
</tr>
<tr>
<td><strong>Properties:</strong></td>
<td>Solid; HLB ≈ 13; nonionic</td>
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<tr>
<td><strong>Tagat® CH 60</strong></td>
<td>[Degussa Care Spec.]</td>
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<tr>
<td><strong>Chem. Descrip.:</strong></td>
<td><strong>PEG-60 hydrogenated castor oil</strong></td>
</tr>
</tbody>
</table>
Trade Name Reference

**Oil**
CAS: 61788-85-0
Uses: Solubilizer for essential oils in pharmaceuticals; solubilizer for vitamins
Regulatory: Ph.Eur. listed
Properties: Solid

**Tagat® L2** [Degussa Care Spec.]
Chem. Descrip.: PEG-20 glyceryl laurate
CAS: 51248-32-9
Uses: Sec. surfactant, foaming agent, solubilizer for prep. of o/w emulsions for pharmaceuticals; solubilizer for flavors, perfumes, vitamin oils; dispersant
Regulatory: DAC, JClC registered
Properties: Ivory liq.; sol. in water; insol. in veg. and min. oils; m.p. 60-80 C; HLB 15.7; acid no. 2 max.; iodine no. 4 max.; sapon. no. 50-70; hyd. no. 60-80; nonionic; 100% conc.

**Tagat® O2** [Degussa Care Spec.]
Chem. Descrip.: PEG-20 glyceryl oleate
CAS: 51192-09-7
Uses: Sec. surfactant, foaming agent, solubilizer for prep. of o/w emulsions for pharmaceuticals; solubilizer for flavors, perfumes, vitamin oils, polar oils; dispersant
Regulatory: DAC, JClC registered
Properties: Yel. liq.; sol. in water; insol. in veg. and min. oils; m.p. 70-85 C; HLB 15.0; acid no. 2 max.; iodine no. 21-27; sapon. no. 40-55; hyd. no. 70-85; nonionic; 100% conc.

**Tagat® S** [Degussa Care Spec.]
Chem. Descrip.: PEG-30 glyceryl stearate
CAS: 51158-08-8
Uses: Solubilizer, emulsifier for prep. of o/w emulsions for pharmaceuticals; solubilizer for flavors, perfumes, vitamin oils; dispersant; emulsifier for o/w creams/lotions
Regulatory: DAC, JClC registered
Properties: Ivory solid, partially liq.; sol. with sl. turbidity in water; insol. in veg. and min. oils; HLB 16.4; acid no. 2 max.; iodine no. 2 max.; sapon. no. 30-47; hyd. no. 53-70; nonionic; 100% conc.

**Tagat® S2** [Degussa Care Spec.]
Chem. Descrip.: PEG-20 glyceryl stearate
CAS: 51158-08-8
Uses: Solubilizer for prep. of o/w emulsions for pharmaceuticals; solubilizer for flavors, perfumes, vitamin oils; emulsifier for o/w creams/lotions; dispersant
Regulatory: DAC, JClC registered
Properties: Ivory solid, partially liq.; sol. with sl. turbidity in water; insol. in veg. and min. oils; m.p. 65-85 C; HLB 15.0; acid no. 2 max.; iodine no. 2 max.; sapon. no. 40-60; hyd. no. 65-85; nonionic; 100% conc.

**Takalophane** [Nikko Chems. Co. Ltd
http://www.nikkol.co.jp/index.html]
Chem. Descrip.: Synthesized aluminum silicate
CAS: 1327-36-2; EINECS/ELINCS 215-475-1
Uses: Anti-acne ingred.
Properties: Wh. powd.
Toxicology: TSCA listed

**Talin®** [RFI Ingreds.
http://www.rfiingredients.com]
Chem. Descrip.: Thaumatin
CAS: 53850-34-3
Uses: Masks bitter and unpleasant aftertastes associated with vitamins and minerals
Features: Unusually stable to heat and pressure
Regulatory: FEMA GRAS 3732; EEC compliance
Properties: Freely sol. in water; sol. in aq. alcohol, glycerol, propylene glycol, sugar alcohols; sol. in 66% ethanol; 100%
Toxicology: JECFA classified as safe, no max. ADI

**TAPS** [Raschig AG http://www.raschig.de]
Chem. Descrip.: 3-[Tris-[hydroxymethyl]-methylamino]-propanesulfonic acid
 CAS: 29915-38-6; EINECS/ELINCS 249-954-1
Uses: Biological buffer for cell cultures, biological productions, electrophoresis, diagnostics, tissue studies, blotting techniques, chromatography

**Taste Masking Agent - 104** [Libraw Pharma
http://www.pharma-excipients.com]
Chem. Descrip.: Derived from crosslinked polymer of acrylic acid
Chem. Analysis: 10% max. moisture content
Uses: Taste masking agent for norfloxacin and ofloxacin; sustained release agent for nicotine
Regulatory: USP/NF, EP
Properties: Off-wh. flowing powd.; particle size 1% max retained on 100 BSS mesh; insol. in water and common solvents
Toxicology: Nontoxic
Hazardous Decomp. Prods.: None

**Taste Masking Rosin - 134** [Libraw Pharma
http://www.pharma-excipients.com]
Trade Name Reference

http://www.pharma-excipients.com
Chem. Descrip.: Crosslinked polymer of methacrylic acid
Chem. Analysis: 10% max. moisture content
Uses: Taste masking agent for palatable and chewable tablets, dispersible tablets and suspensions of bitter tasting drugs
Features: High purity polymer
Regulatory: USP/NF EP
Properties: Off-wh. flowing powd.; particle size 1% max retained on 100 BSS mesh; insol. in water and common solvents; noncombustible
Toxicology: Nontoxic
Storage: Store in tightly closed container away from moisture

Tauranol WS H.P. [Finetex http://www.finetexinc.com]
Chem. Descrip.: Sodium methyl cocoyl taurate
CAS 12765-39-8; EINECS/ELINCS 235-802-1
Uses: Foaming agent, detergent for pharmaceuticals
Features: Tolerant to electrolytes, hard water
Properties: Powd.; anionic; 95% conc.

TBC, NF [Morflex http://www.morflex.com]
Chem. Descrip.: Tri-n-butyl citrate
CAS 77-94-1; EINECS/ELINCS 201-071-2
Uses: Plasticizer for aq. pharmaceutical coatings including controlled sustained release, immediate release, and enteric; taste masking agent
Features: Protects drugs from gastric juices but allows its release into the intestine
Regulatory: NF, DMF, FDA 21 CFR §175.105
Properties: APHA 50 max., insol. in water; miscible in acetone, ethanol, toluene, heptane, and veg. oil; m.w. 360.4; sp.gr. 1.037-1.045; dens. 6.5 lb/gal; visc. 3.3 cps (30 C); vapor pressure ≤31 mm Hg; i.b.p. 81.5 C (760 mm Hg); f.p. 24.5 C; flash pt. (TCC) <11 C; 99.3% act.
Toxicology: LD50 (inh, rat), 4h 14,100 ppm, LD50 (oral, rat) 2,733 mg/kg, (skin, rabbit) > 2000 mg/kg; mod. to severe eye irritant; mildly irritating to skin; ing. of high doses may cause discomfort and irritation to GI tract and CNS depression (fatigue, dizziness and loss of concentration, collapse, coma and death in cases of severe overexposure
Precaution: Extremely flammable; avoid heat, sparks, open flame, other ignition sources, severe oxidizing conditions, elevated temperature with dehydrating conditions
Storage: Store in tightly closed/properly vented containers away from heat/sparks/open flame and strong oxidizing agents/acids; vapor space above stored liquid may be flammable/explosive unless blanketed with inert gas; protect from freezing

Teavigo™ TG [DSM Nutritional Prods. USA http://www.nutraaccess.com]
Chem. Descrip.: (−)-Epigallocatechin gallate granulated with pectin
Chem. Analysis: 5% max. loss on drying
CAS 989-51-5; 9000-69-5; EINECS/ELINCS $; 232-553-0
Uses: Dietary supplement and antioxidant in direct compression tablets
Properties: Off-wh. to pinkish-grey gran. powd.
Precaution: Wear safety glasses and rubber gloves; avoid ing., inh. of dust or direct contact

Storage: 36 mos. shelf life; store away from air, heat, light, and humidity in original containers @ < 25 C

Tebo® 99 [Lyondell http://www.lyondell.com]
Chem. Descrip.: High purity tert. butyl alcohol
See t-Butyl alcohol
CAS 75-65-0; EINECS/ELINCS 200-889-7
Uses: Solvent, cosolvent, compatibilizer, coupling agent, processing aid for pharmaceuticals; solvent and compatibilizer for diagnostic kits for the medical profession; denaturant for ethanol
Properties: Cl. colorless liq.; camphor-like odor; Pt-Co ≤ 10 color; sol. in water; misc. with most org. solvs.; sp.gr. 0.78; dens. 6.5 lb/gal; visc. 3.3 cps (30 C); vapor pressure ≤31 mm Hg; i.b.p. 81.5 C (760 mm Hg); f.p. 24.5 C; flash pt. (TCC) <11 C; 99.3% act.
Toxicology: LD50 (inh, rat), 4h 14,100 ppm, LD50 (oral, rat) 2,733 mg/kg, (skin, rabbit) > 2000 mg/kg; mod. to severe eye irritant; mildly irritating to skin; ing. of high doses may cause discomfort and irritation to GI tract and CNS depression (fatigue, dizziness and loss of concentration, collapse, coma and death in cases of severe overexposure
Precaution: Extremely flammable; avoid heat, sparks, open flame, other ignition sources, severe oxidizing conditions, elevated temperature with dehydrating conditions
Storage: Store in tightly closed/properly vented containers away from heat/sparks/open flame and strong oxidizing agents/acids; vapor space above stored liquid may be flammable/explosive unless blanketed with inert gas; protect from freezing

TEC, NF [Morflex http://www.morflex.com]
Chem. Descrip.: Triethyl citrate
CAS 77-93-0; EINECS/ELINCS 201-070-7
Uses: Plasticizer for aq. pharmaceutical coatings including controlled sustained release, immediate release, and enteric; taste masking agent
Features: Protects drugs from gastric juices but allows its release into the intestine
Regulatory: NF, DMF, FDA 21 CFR §175.105
Properties: APHA 50 max., sol. 6.5 g/100 ml water; miscible in acetone, ethanol; partly sol in toluene, heptane; insol. in veg. oil; m.w.
Tefose® 63 [Gattefosse
http://www.gattefossecorp.com; Gattefosse
Spain http://www.gattefosse.es]

Chem. Descrip.: PEG-6-32 stearate and glycol stearate See PEG-6 stearate; PEG-32 stearate
Uses: O/w emulsifier, base for pharmaceutical o/w emulsions, ointments, elegant cream formulations, esp. for antifungal, contraceptive; excipient for dermal/transdermal pharmaceuticals
Features: Self-emulsifying; produces emulsions with exc. skin and mucosal tolerance
Regulatory: FDA inact. ingreds. guide; DMF no. 6074
Properties: Gardner < 5 pasty solid; weak odor; sol. in chloroform, methylene chloride; sparingly sol. in ethanol; disp. in water, n-hexane; insol. in min. oils; m.p. 32-37 C; HLB 11.0; acid no. < 5; iodine no. < 3; sapon. no. 65-85; nonionic; 100% conc.
Use Level: 5-15%
Toxicology: Nonirritating to skin; sl. irritating to eyes

Tefose® 1500 [Gattefosse
http://www.gattefossecorp.com; Gattefosse
Spain http://www.gattefosse.es]

Chem. Descrip.: PEG-6-32 stearate See PEG-6 stearate; PEG-32 stearate
Uses: O/w emulsifier, base for pharmaceutical o/w emulsions (lotions and light creams); excipient for dermal/transdermal pharmaceuticals
Features: Self-emulsifying
Regulatory: JP compliance; DMF no. 6074
Properties: Gardner < 5 pasty solid; weak odor; sol. in ethanol, chloroform, methylene chloride; insol. in water, min. oils; m.p. 40-45 C; drop pt. 46-53 C; HLB 10.0; acid no. < 6; iodine no. < 3; sapon. no. 110-120; nonionic; 100% conc.
Use Level: 5-15%
Toxicology: Nonirritating to skin

Tefose® 2561 [Gattefosse
http://www.gattefossecorp.com; Gattefosse
Spain http://www.gattefosse.es]

Chem. Descrip.: PEG-6 stearate, glyceryl stearate, and ceteth-20
Uses: Base for pharmaceutical o/w emulsions, creams, lotions, ointments
Properties: Gardner < 3 pasty solid; acid stable; broad pH range
Use Level: 5-15%
Toxicology: LD0 (oral, rat) > 2 g/kg; sl. irritating to skin

Tegacid® Special [Goldschmidt AG
http://www.goldschmidt.com]

Chem. Descrip.: Glyceryl stearate, sodium lauryl sulfate
Uses: Forms very stable topical pharmaceuticals, emulsions, creams, lotions
Features: Acid stable; broad pH range
Properties: Flake; HLB 4.9; anionic; 100% conc.

Tegamine® 18 [Goldschmidt AG
http://www.goldschmidt.com]

Chem. Descrip.: Stearamidopropyl dimethylamine
CAS 7651-02-7; EINECS/ELINCS 231-609-1
Uses: Surfactant, conditioner for topical pharmaceuticals; aux. emulsifier for creams and lotions
Features: Good skin feel
Properties: Flake; cationic; 100% act.

Tegamine® Oxide WS-35 [Goldschmidt AG
http://www.goldschmidt.com]

Chem. Descrip.: Cocamidopropyl dimethylamine oxide
CAS 68155-09-9; EINECS/ELINCS 268-938-5
Uses: Foam booster/stabilizer, visc. builder for topical pharmaceuticals
Trade Name Reference

Properties: Liq.; nonionic; 35% conc.

**Tegin® [Degussa Care Spec.]**
Chem. Descrip.: Glyceryl stearate SE
CAS 11099-07-3
Uses: O/w emulsifier and raw material for pharmaceutical o/w emulsions
Features: Self-emulsifying; stable creams from pH 6.8-8.2; vegetable-based
Regulatory: JSCI, BfArM registered
Properties: Ivory pellets.; sl., typical odor
HLB 5.5; flash pt. >200 C; anionic; 100% conc.

**Toxicology:** No adverse health effects have been observed

**Environmental:** Biologically degradable; considered to be a weak water pollutant (German law).

Hazardous Decomp. Prods.: None

**Tegin® 90 [Degussa Care Spec.]**
Chem. Descrip.: Glyceryl stearate
CAS 123-94-4
Uses: Stabilizer for creamy and liq. o/w emulsions in pharmaceuticals
Regulatory: JSCI registered
Properties: Wh.-ivory powd.; sol. warm in min. and veg. oils; insol. in water; m.p. 67-72 C; HLB 4.5; acid no. 3 max.; iodine no. 2 max.; sapon. no. 155-170; nonionic; 100% conc.

**Tegin® 515 VA [Goldschmidt AG http://www.goldschmidt.com]**
Chem. Descrip.: Glyceryl stearate
CAS 123-94-4
Uses: Emulsifier, stabilizer, opacifier for topical pharmaceuticals, skin care creams and lotions
Features: Improved afterfeel for leave-on conditioners
Properties: Flake; HLB 3.8; nonionic; 100% conc.

**Tegin® 4100 [Degussa Care Spec.]**
Chem. Descrip.: Glyceryl stearate
CAS 31566-31-1
Uses: Stabilizer, consistency agent, coemulsifier for pharmaceuticals, o/w creams and lotions
Features: Vegetable-based
Regulatory: JSCI, DAB, Ph.Eur. registered
Properties: Wh.-ivory powd.; sol. warm in veg. and min. oils; insol. in water; m.p. 58-63 C; HLB 3.8; acid no. 2 max.; iodine no. 3 max.; sapon. no. 164-180; nonionic; 100% conc.; ≈ 45% monoester

**Tegin® G [Degussa Care Spec.]**
Chem. Descrip.: Glycol stearate SE
CAS 86418-55-5
Uses: O/w emulsifier, gloss aid, opacifier for pharmaceuticals, o/w emulsions
Features: Self-emulsifying; stable creams from pH 6.8-8.2; vegetable-based
Regulatory: JCIC, BfArM registered
Properties: Wh.-ivory waxy powd.; sol. warm in veg. and min. oils; disp. warm in water; m.p. 48-53 C; HLB 12.0; acid no. 36-38; iodine no. 3 max.; sapon. no. 150-165; anionic; 100% conc.

**Tegin® G 1100 [Degussa Care Spec.]**
Chem. Descrip.: Glycol distearate
CAS 627-83-8; EINECS/ELINCS 211-014-3
Uses: Gloss aid, pearlescent, opacifier for pharmaceuticals
Features: Non self-emulsifying; broad solidification range results in good processability
Regulatory: JCIC, BfArM registered
Properties: Wh.-ivory powd.; sol. warm in min. and veg. oils; insol. in water; m.p. 59-63 C; acid no. 6 max.; iodine no. 3 max.; sapon. no. 192-208; ≈ 90% diester

**Tegin® M [Degussa Care Spec.]**
Chem. Descrip.: Glyceryl stearate
CAS 123-94-4
Uses: Coemulsifier, stabilizer, consistency agent for o/w pharmaceuticals, creams, lotions
Features: Vegetable-based
Regulatory: JSCI, BfArM, DAC registered
Properties: Wh.-ivory powd.; sol. warm in veg. and min. oils; insol. in water; m.p. 58-63 C; HLB 3.8; acid no. 4 max.; iodine no. 3 max.; sapon. no. 192-208; ≈ 60% diester

**Tegin® O [Degussa Care Spec.]**
Chem. Descrip.: Glyceryl oleate
CAS 111-03-5; EINECS/ELINCS 203-827-7
Uses: W/o emulsifier for pharmaceutical emulsions
Features: Forms emulsions with good freeze/thaw and elevated temp. stability; PEG-free; based on natural raw materials
Regulatory: JCIC, DAC registered
Properties: Pale yel. paste; sol. in veg. and min. oils; insol. in water; HLB 3.3; acid no. 2 max.; iodine no. 70-76; sapon. no. 158-175; nonionic; 100% conc.
### Trade Name Reference

**Teginacid®** [Degussa Care Spec.]
*Chem. Descrip.: Glyceryl stearate and ceteareth-20*
*Uses: O/w emulsifier for pharmaceuticals, emulsions, skin care*
*Features: Stable emulsions from pH 4.0-8.5*
*Regulatory: BfArM registered*
*Properties: Powd.; HLB 12.0; nonionic; 100% conc.*

**Teginacid® C** [Degussa Care Spec.]
*Chem. Descrip.: Ceteareth-25 USP, NF*
*CAS 68439-49-6*
*Uses: O/w emulsifier for pharmaceutical creams*
*Features: Good elevated temp. and freeze/thaw stability; stable creams @ pH 4.5-8.5*
*Regulatory: JCIC, USP reg.*
*Properties: Powd.; HLB 11.2; nonionic; 100% conc.*

**Tego® Acid S 40 P** [Degussa Care Spec.]
*Chem. Descrip.: PEG-40 stearate USP*
*CAS 9004-99-3*
*Uses: O/w emulsifier for pharmaceutical emulsions*
*Features: Compat. with higher concs. of electrolytes; vegetable-based*
*Regulatory: USP, Ph.Eur. listed*
*Properties: Pellets*

**Tego® Acid S 100 P** [Degussa Care Spec.]
*Chem. Descrip.: PEG-100 stearate*
*CAS 9004-99-3*
*Uses: O/w emulsifier for pharmaceutical emulsions*
*Features: Compat. with higher concs. of electrolytes; vegetable-based*
*Regulatory: Ph.Eur. listed*
*Properties: Pellets*

**TEGO® Alkanol 16** [Degussa Care Spec.]
*Chem. Descrip.: Cetyl alcohol*
*CAS 36653-82-4; EINECS/ELINCS 253-149-0*
*Uses: Consistency agent, stabilizer in o/w emulsions, pharmaceuticals; structural surfactant for antiperspirant sticks*
*Features: Vegetable-based*
*Regulatory: DAB, Ph.Eur. listed*
*Properties: Wh. pellets; m.p. ≈ 49 C*
*Use Level: 1-5%*

**TEGO® Alkanol 18** [Degussa Care Spec.]
*Chem. Descrip.: Stearyl alcohol*
*CAS 112-92-5; EINECS/ELINCS 204-017-6*
*Uses: Consistency agent, stabilizer in o/w emulsions, pharmaceuticals; structural surfactant for antiperspirant sticks*
*Features: Vegetable-based*
*Regulatory: JCIC registered*
*Properties: Yel. liq.; pH 5-7; amphoteric; 30% act.; 15% NaCl*
*Use Level: 1-5%*

**TEGO® Alkanol 1618** [Degussa Care Spec.]
*Chem. Descrip.: Cetearyl alcohol*
*CAS 8005-44-5; EINECS/ELINCS 267-008-6*
*Uses: Consistency agent, stabilizer in o/w emulsions, pharmaceuticals; structural surfactant for antiperspirant sticks*
*Features: Vegetable-based*
*Regulatory: DAB, Ph.Eur. listed*
*Properties: Powd.; m.p. ≈ 54 C*
*Use Level: 1-5%*

**TEGO® Alkanol L 4** [Degussa Care Spec.]
*Chem. Descrip.: Laureth-4*
*CAS 9002-92-0; EINECS/ELINCS 226-097-1*
*Uses: Thickener, solubilizer for pharmaceuticals*
*Features: Optimal taste for oral care prod.; preservative-free*
*Regulatory: JCIC, BfArM listed*
*Properties: Powd.; amphoteric; ≈ 82% act.; ≈ 15% NaCl*

**TEGO®-Betain CK** [Degussa Care Spec.]
*Chem. Descrip.: Cocamidopropyl betaine*
*CAS 61789-40-0; EINECS/ELINCS 263-058-8*
*Uses: Anti-irritant for anionic surfactants*
*Features: Mild*
*Properties: Liq.; amphoteric; 30% act.; 5% NaCl*

**TEGO®-Betain CKD** [Degussa Care Spec.]
*Chem. Descrip.: Cocamidopropyl betaine*
*CAS 61789-40-0; EINECS/ELINCS 263-058-8*
*Uses: Surfactant for water-free formulations such as oral care prod.; pharmaceuticals*
*Features: Optimal taste for oral care prod.; preservative-free*
*Regulatory: JCIC, BfArM listed*
*Properties: Powd.; amphoteric; ≈ 82% act.; ≈ 15% NaCl*

**TEGO®-Betain F** [Degussa Care Spec.]
*Chem. Descrip.: Cocamidopropyl betaine*
*CAS 61789-40-0; EINECS/ELINCS 263-058-8*
*Uses: Surfactant for hygiene prod.; topical pharmaceuticals; anti-irritant for anionic surfactants*
*Features: Vegetable-based*
*Regulatory: JCIC registered*
*Properties: Yel. liq.; pH 5-7; amphoteric; 30% act.; 5% NaCl*

**TEGO®-Betain F 50** [Degussa Care Spec.]
*Chem. Descrip.: Cocamidopropyl betaine*
*CAS 61789-40-0; EINECS/ELINCS 263-058-8*
*Uses: Surfactant, thickener for pharmaceuticals; anti-irritant for anionic surfactant for antiperspirant sticks*
*Regulatory: Ph.Eur., DAB listed*
*Properties: Pellets; m.p. ≈ 59 C*
*Use Level: 1-5%*
**Trade Name Reference**

**surfactants**

**Features:** Conc.; microbiologically stable without preservatives; compat. with all surfactants

**Regulatory:** JCIC, DAC listed

**Properties:** Liq.; amphoteric; 38% act.; 6% NaCl

**TEGO®-Betain HS** [Degussa Care Spec.]
*Chem. Descrip.: Cocamidopropyl betaine and glyceryl laurate*

**Uses:** Surfactant, thickener, refatting agent for skin care prods., topical pharmaceuticals

**Features:** Mild

**Properties:** Yel. liq.; pH 6-7; amphoteric; 30% act.; 5% NaCl

**TEGO®-Betain L-7** [Degussa Care Spec.]
*Chem. Descrip.: Cocamidopropyl betaine*
*CAS 61789-40-0; EINECS/ELINCS 263-058-8*

**Uses:** Surfactant, detergent, emulsifier, foam stabilizer, visc. builder in topical pharmaceuticals; anti-irritant for anionic surfactants

**Regulatory:** JCIC, DAC registered

**Properties:** Yel. liq.; sp.gr. 1.040-1.050; pH 5; amphoteric; 30% act.; 5% NaCl

**Toxicology:** LD50 (acute oral) > 5 g/kg

**Environmental:** Do not allow to enter drains

**Precaution:** Wear PVC gloves, goggles or face shield; avoid dust formation

**Hazardous Decomp. Prods.:** CO, CO2

**Storage:** Store in cool, dry place; protect from heat, direct sunlight

**TEGO®-Betain ZF** [Degussa Care Spec.]
*Chem. Descrip.: Cocamidopropyl betaine*
*CAS 61789-40-0; EINECS/ELINCS 263-058-8*

**Uses:** Mild surfactant, visc. and foam booster for use in dental prods.

**Features:** Mild

**Regulatory:** JCIC registered

**Properties:** Yel. liq.; sp.gr. 1.040-1.050; pH 5; amphoteric; 30% act.; 5% NaCl

**Toxicology:** LD50 (acute oral) 8.10 ml/kg; nonirritating to eyes

**TEGO®-Betain 12** [Degussa Care Spec.]
*Chem. Descrip.: Carbomer USP*
*CAS 9003-01-4*

**Uses:** Gellant, emulsion stabilizer, visc. builder, visc. modifier for pharmaceuticals, low visc. formulations (o/w lotions)

**Features:** High electrolyte compat.

**Regulatory:** JSCI, Ph.Eur., USP registered

**Properties:** Powd.; anionic

**TEGO®-Betain 12** [Degussa Care Spec.]
*Chem. Descrip.: Carbomer USP*
*CAS 9003-01-4*

**Uses:** Gellant, emulsion stabilizer, visc. builder, visc. modifier for pharmaceuticals, high visc. formulations (o/w creams)

**Features:** Benzene-free

**Regulatory:** JSCI, Ph.Eur. registered

**Properties:** Wh. powd.; sl. acetic acid-like odor; dens. 1.4; dynamic visc. 15,000-30,000 mPa•s @ 6 g/l in water, 40,000-60,000 mPa•s @ 5 g/l in water; pH 2.7-3.3 @ 50 g/l in water; anionic

**Toxicology:** LD50 (oral, rat) > 5 g/kg

**Environmental:** Do not allow to enter drains

**Precaution:** Wear PVC gloves, goggles or face shield; avoid dust formation

**Hazardous Decomp. Prods.:** CO, CO2

**Storage:** Store in cool, dry place; protect from heat, direct sunlight

**TEGO®-Carbomer 141** [Degussa Care Spec.]
*Chem. Descrip.: Glyceryl stearate, steareth-25, ceteth-20, stearyl alcohol*

**Uses:** O/w emulsifier for topical pharmaceuticals, skin care creams and lotions

**Features:** Wax-like; balanced system; optimized for ease of formulation; produces creams with elevated temp. and freeze/thaw stability

**Regulatory:** BfArM registered

**Properties:** Ivory powd.; sol. warm in veg. and min. oils, cosmetic alcohol, 1,2-propylene glycol (sl. turbid); disp. warm in water; m.p. 52-58 C; HLB 12; acid no. 3 max.; sapon. no. 90-106; nonionic; 100% conc.

**Use Level:** 7-10%

**TEGO®-Care 450** [Degussa Care Spec.]
*Chem. Descrip.: Polyglyceryl-3 methyl glucose distearate*

**Uses:** O/w emulsifier, moisturizer for creams/lotions, sun prods., topical pharmaceuticals

**Features:** Produces stable emulsions with cosmetics oils and waxes; good elevated temp. and freeze/thaw stability; high skin mildness; for systems with pH of 6-9; PEG-free

**Properties:** Ivory pellets; sol. warm in paraffin and veg. oils; disp. warm in water; HLB 11.5±1; acid no. 12 max.; iodine no. 5 max.; sapon. no. 120-140; nonionic

**Use Level:** 3%
## Trade Name Reference

<table>
<thead>
<tr>
<th>Trade Name</th>
<th>CAS</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>Tego® SML 20</strong> [Degussa Care Spec.]</td>
<td>9005-64-5</td>
<td>Polysorbate 20 Uses: Emulsifier for o/w emulsions, pharmaceuticals; solubilizer for lipophilic substances Features: Hydrophobic; mild Regulatory: JSCI, Ph.Eur. registered Properties: Liq.; nonionic</td>
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<tr>
<td><strong>Tego® SMO 80 V</strong> [Degussa Care Spec.]</td>
<td>9005-65-6</td>
<td>Polysorbate 80 Uses: O/w emulsifier for emulsions, pharmaceuticals, skin care; solubilizer for lipophilic substances Features: Hydrophilic; vegetable-based Regulatory: JSCI, Ph.Eur. registered Properties: Sl. yel. liq.; odorless; sol. in water; dens. ≈ 1.08; visc. ≈ 425 mPa•s; vapor pressure &lt; 133.3 Pa; b.p. &gt; 100 C; flash pt. &gt; 149 C Toxicology: LD50 (oral, rat) &gt; 30 g/kg Environmental: LC50 (rainbow trout, 96 h) 471 mg/l; EC0 (pseudomonas putida) &gt; 10 g/l; do not allow to enter drains, sewers Precaution: Wear rubber gloves, goggles with side pieces, light protective clothing</td>
</tr>
<tr>
<td><strong>Tego® SMS</strong> [Degussa Care Spec.]</td>
<td>1338-43-8; EINECS/ELINCS 215-665-4</td>
<td>Cetyl octanoate Uses: W/o emulsifier for emulsions, pharmaceuticals, skin care creams/lotions, sun care prod.; coemulsifier for o/w emulsions Features: PEG-free Regulatory: JSCI, Ph.Eur. registered Properties: Powd.; nonionic</td>
</tr>
<tr>
<td><strong>Tegosoft® CO</strong> [Degussa Care Spec.]</td>
<td>59130-69-7; EINECS/ELINCS 261-619-1</td>
<td>Cetyl octanoate Uses: Emollient, skin softener, and moisture retention aid in sun protective and o/w creams/lotions, topical pharmaceuticals Features: Good spreadability; low occlusivity; oxidation stable gives pleasant skinfeel Regulatory: JSCI registered Properties: Colorless to yel. liq.; misc. with cosmetic oils and fats; dens. ≈0.85 g/cm³; visc. ≈12 mPas; pour pt. -2 C (DIN ISO 3016); flash pt. &gt;100 C (DIN 51758); nonionic Toxicology: LD50 (oral, mouse) &gt; 2 g/kg; nonirritating to eyes and skin; proper use provided, no adverse health effects observed Environmental: Considered to be a weak water pollutant (German law); do not allow to enter soil, waterways or waste water canal.</td>
</tr>
<tr>
<td><strong>Tegosoft® CT</strong> [Degussa Care Spec.]</td>
<td>65381-09-1; EINECS/ELINCS 265-724-3</td>
<td>Caprylic/capric triglyceride Uses: Emollient, skin softener, and moisture retention aid in topical pharmaceuticals, creams/lotions; solvent for lipophilic additives and UV filters Features: Pleasant skinfeel; vegetable-based Regulatory: JSCI, Ph.Eur. registered Properties: Colorless skinfeel; vegetable-based Toxicology: LD50 (oral, rat) 2 g/kg; proper use provided, no adverse health effects observed Environmental: Not considered to be a water pollutant (German law); do not allow to enter soil, waterways or waste water canal.</td>
</tr>
</tbody>
</table>

**Tego® SMO V** [Degussa Care Spec.] | 9005-64-5 | Polysorbate 20 Uses: Emulsifier for o/w emulsions, pharmaceuticals; solubilizer for lipophilic substances Features: Hydrophobic; mild Regulatory: JSCI, Ph.Eur. registered Properties: Liq.; nonionic |

**Tego® SMO 80 V** [Degussa Care Spec.] | 9005-65-6 | Polysorbate 80 Uses: O/w emulsifier for emulsions, pharmaceuticals, skin care; solubilizer for lipophilic substances Features: Hydrophilic; vegetable-based Regulatory: JSCI, Ph.Eur. registered Properties: Sl. yel. liq.; odorless; sol. in water; dens. ≈ 1.08; visc. ≈ 425 mPa•s; vapor pressure < 133.3 Pa; b.p. > 100 C; flash pt. > 149 C Toxicology: LD50 (oral, rat) > 30 g/kg Environmental: LC50 (rainbow trout, 96 h) 471 mg/l; EC0 (pseudomonas putida) > 10 g/l; do not allow to enter drains, sewers Precaution: Wear rubber gloves, goggles with side pieces, light protective clothing |


**Tego® SMS** [Degussa Care Spec.] | 1338-43-8; EINECS/ELINCS 215-665-4 | Cetyl octanoate Uses: W/o emulsifier for emulsions, pharmaceuticals, skin care creams/lotions, sun care prod.; coemulsifier for o/w emulsions Features: PEG-free Regulatory: JSCI, Ph.Eur. registered Properties: Powd.; nonionic |

**Tegosoft® CO** [Degussa Care Spec.] | 59130-69-7; EINECS/ELINCS 261-619-1 | Cetyl octanoate Uses: Emollient, skin softener, and moisture retention aid in sun protective and o/w creams/lotions, topical pharmaceuticals Features: Good spreadability; low occlusivity; oxidation stable gives pleasant skinfeel Regulatory: JSCI registered Properties: Colorless to yel. liq.; misc. with cosmetic oils and fats; dens. ≈0.85 g/cm³; visc. ≈12 mPas; pour pt. -2 C (DIN ISO 3016); flash pt. >100 C (DIN 51758); nonionic Toxicology: LD50 (oral, mouse) > 2 g/kg; nonirritating to eyes and skin; proper use provided, no adverse health effects observed Environmental: Considered to be a weak water pollutant (German law); do not allow to enter soil, waterways or waste water canal. |

**Tegosoft® CT** [Degussa Care Spec.] | 65381-09-1; EINECS/ELINCS 265-724-3 | Caprylic/capric triglyceride Uses: Emollient, skin softener, and moisture retention aid in topical pharmaceuticals, creams/lotions; solvent for lipophilic additives and UV filters Features: Pleasant skinfeel; vegetable-based Regulatory: JSCI, Ph.Eur. registered Properties: Colorless skinfeel; vegetable-based Toxicology: LD50 (oral, rat) 2 g/kg; proper use provided, no adverse health effects observed Environmental: Not considered to be a water pollutant (German law); do not allow to enter soil, waterways or waste water canal.
Trade Name Reference

Tegosoft® DO [Degussa Care Spec.]
Chem. Descrip.: Decyl olate
CAS 3687-46-5; EINECS/ELINCS 222-981-6
Uses: Emollient, refatting agent, skin softener, and moisture retention aid in dry skin treatment, creams/lotions, topical pharmaceuticals; solvent for lipophilic act. ingreds.
Features: Lipophilic
Regulatory: JSCI registered
Properties: Colorless liq.; insol. in water; dens. ≈0.86 g/cm³; visc. ≈14 mPas; pour pt. ≈6 C (DIN ISO 3016); flash pt. > 93 C; nonionic
Toxicology: Proper use provided, no adverse health effects observed
Environmental: Do not allow to enter drains or waterways or discharge into the subsoil/soil; considered to be a strong water pollutant (German law)
Hazardous Ingredients: None

Tegosoft® GC [Degussa Care Spec.]
Chem. Descrip.: PEG-7 glyceryl cocoate
CAS 68201-46-7
Uses: Surfactant, emollient, refatting agent, conditioner, foam booster/stabilizer for topical pharmaceuticals; anti-irritant for surfactants; solubilizer for lipophilic substances
Features: Hydrophilic; mild; rinses clean; leaves pleasant skinfeel; gives dense, creamy foam
Regulatory: Ph.Eur., JSCI registered
Properties: Liq.; very sol. in water; nonionic

Tegosoft® Liquid [Degussa Care Spec.]
Chem. Descrip.: Cetearyl octanoate
CAS 59130-70-7; EINECS/ELINCS 261-620-7
Uses: Emollient, spreading agent, skin softener, and moisture retention aid in creams/lotions, topical pharmaceuticals
Regulatory: JSCI registered
Properties: Liq.

Tegosoft® LSE 65 K [Degussa Care Spec.]
Chem. Descrip.: Sucrose cocoate
CAS 91031-88-8; EINECS/ELINCS 292-993-4
Uses: Anti-irritant for topical preparations
Features: Hydrophilic; exhibits pleasant refatting effect
Regulatory: JSCI registered
Properties: Lt. yel. odorless waxy solid; dispersible in water; dens. ≈1.21 g/cm³; m.p. ≈48 C; flash pt. > 180 C; pH ≈ 7.5 (50 g/l methanol/water); nonionic
Toxicology: LD50 (oral, rat) > 2 g/kg; sl. irritant to skin; nonirritant to eyes; no mutagenic activity (Ames Test); proper use provided, no adverse health effects observed

Tegosoft® M [Degussa Care Spec.]
Chem. Descrip.: Isopropyl myristate
CAS 110-27-0; EINECS/ELINCS 203-751-4
Uses: Emollient, spreading agent, skin softener, and moisture retention aid in topical pharmaceuticals, creams/lotions; solvent for lipophilic additives, act. ingreds., oil-sol. UV filters and pigments
Features: Very high spreadability; oxidation stable; excellent solvency for waxes, lipophilic UV filters and pigments; high polarity
Regulatory: JSCI, Ph.Eur. registered
Properties: Colorless to lt. yel. liq.; insol. in water; dens. ≈0.85 g/cm³; visc. ≈5 mPas; f.p. <0 C; b.p. ≈192 C; pour pt. 8 C (DIN ISO 3016); flash pt. > 110 C; surf. tens. (Ring method) ≈ 28 mN/m; nonionic

Tegosoft® OP [Degussa Care Spec.]
Chem. Descrip.: Octyl palmitate
CAS 29806-73-3; EINECS/ELINCS 249-862-1
Uses: Emollient, skin softener, and moisture retention aid in creams/lotions, topical pharmaceuticals; solubilizer for act. ingreds.
Regulatory: JSCI registered
Properties: Liq.

Tegosoft® OS [Degussa Care Spec.]
Chem. Descrip.: Octyl stearate
CAS 22047-49-0; EINECS/ELINCS 244-754-0
Uses: Emollient, spreading agent, skin softener, and moisture retention aid in creams/lotions, topical pharmaceuticals
Features: High polarity; excellent solvency for waxes, lipophilic UV filters and pigments; excellent spreading props.; oxidation stable
Regulatory: DAB 10. BP 1993, JSCI registered
Properties: Colorless to lt. yel. liq.; insol. in water; dens. ≈0.85 g/cm³; visc. ≈12 mPas; pour pt. 8 C (DIN ISO 3016); flash pt. > 100 C; surf. tens. (Ring method) ≈ 30 mN/m; nonionic
Toxicology: Proper use provided, no adverse health effects observed
Trade Name Reference

Environmental: Considered to be a weak water pollutant (German law); do not allow to enter soil, waterways or waste water canal.

**Tegosoft® P** [Degussa Care Spec.]
Chem. Descrip.: Isopropyl palmitate
CAS **142-91-6**; EINECS/ELINCS **205-571-1**
Uses: Emollient, spreading agent, refatting agent, skin softener, and moisture retention aid in creams/lotions, topical pharmaceuticals; solubilizer for act. ingreds.; solvent for lipophilic additives
Features: Oxidation stable; medium polarity; very high spreadability
Regulatory: JSCI registered
Properties: Colorless odorless liq.; insol. in water; dens. ≈0.85 g/cm³; visc. ≈6 mPas); b.p. ≈300 C; pour pt. 12 C (DIN ISO 3016); flash pt. > 170 C (ISO 2592 c.o.c.); surf. tens. (Ring method) ≈ 29 mN/m; nonionic
Environmental: LC50 (fish) >100 mg/l; EC50 (bacteria) >100 mg/l; not considered to be a water pollutant (German law); do not allow to enter soil, waterways or waste water canal.

**Tegosoft® S** [Degussa Care Spec.]
Chem. Descrip.: Isopropyl stearate
CAS **112-10-7**; EINECS/ELINCS **203-934-9**
Uses: Emollient, refatting agent, skin softener, and moisture retention aid in creams/lotions, topical pharmaceuticals; solubilizer for essential oils and lipophilic act. ingreds.
Properties: Liq.; nonionic

**Tegosoft® SH** [Degussa Care Spec.]
Chem. Descrip.: Stearyl heptanoate
CAS **66009-41-4**; EINECS/ELINCS **266-065-4**
Uses: Emollient, skin softener, and moisture retention aid in creams/lotions, topical pharmaceuticals; pharmaceutical ointment bases
Features: Lipophilic; melts at skin temp.; quickly absorbed, water-resistant; oxidation stable; gives silky, nonoily skinfeel
Regulatory: JCIC registered
Properties: Waxy solid; sl. typical odor; sol. in water; m.p. ≈23 - 27 C; dens. 0.9 g/cm³; flash pt. >100 C (DIN 51758)
Toxicology: LD50 (oral, mouse rat) 951 mg/kg, (skin, guinea pig) > 1000 mg/kg; causes mod. to strong eye/mod. skin irritation; extended contact may cause temporary skin discoloration; sl. skin sensitization; TSCA listed
Environmental: BOD5 70 mg/g; BOD20 2000 mg/g; COD 2200 mg/g; ThOD 2450 mg/g; LC50 (fathead minnow, 96 h) 0.6 mg/l, (daphnid, 96 h) 3.2 mg/l
Precaution: Powd. material may form explosive dust/air mixts.; minimize dust generation/accumulation; incompat. with strong oxidizing agents
HMIS: Health 2, Flammability 1, Reactivity 0
Storage: 6 mos. shelf life; store in closed container away from contamination

**Terathane® 650** [Invista]
Chem. Descrip.: Polytetramethylene ether glycol
CAS **25190-06-1**
Uses: Soft segment in PU resins used for catheters and other medical devices
Regulatory: FDA 21CFR §175.105, 177.1680
Properties: Wh. waxy solid melting to a cl.
Trade Name Reference

colorless liq. near R.T., odorless; sol. in alcohols, esters, ketones; m.w. 600-700; sp.gr. 0.978 (40 C); dens. 8.1 lb/gal; visc. 100-200 cP (40 C); m.p. 11-19 C; hyd. no. 172; flash pt. (TOC) > 163 C; ref. index 1.462; 100% conc.

Toxicology: LD50 (oral, rat) > 11,000 mg/kg; very low oral toxicity; mod. skin irritant; mild eye irritant; TSCA listed

Environmental: Aquatic toxicity: LC50 (96 h, fathead minnows) 7.8 mg/l

Precaution: Incompat. with strong oxidizers; thermal decomp. produces extremely flamm. tetrahydrofuran, CO; temps. as low as 100 C can cause dangerous pressure buildup in stored drums

Storage: Hygroscopic; can oxidize; store in completely enclosed tanks under a dry nitrogen blanket; store above 45 C to prevent solid.; do not store in materials with a low barrier to oxygen

Terathane® 1000 [Invista http://www.invista.com]

Chem. Descrip.: Polytetramethylene ether glycol

CAS 25190-06-1

Uses: Soft segment in PU resins used for catheters and other medical devices

Regulatory: FDA 21CFR §175.105, 177.1680

Properties: Wh. waxy solid melting to a cl. colorless liq. near R.T., odorless; sol. in alcohols, esters, ketones; m.w. 950-1050; sp.gr. 0.974 (40 C); dens. 8.1 lb/gal; visc. 260-320 cP (40 C); m.p. 25-33 C; hyd. no. 112; flash pt. (TOC) > 163 C; ref. index 1.463-1.465; 100% conc.

Toxicology: LD50 (oral, rat) > 11,000 mg/kg; very low oral toxicity; mod. skin irritant; mild eye irritant; TSCA listed

Environmental: Aquatic toxicity: LC50 (96 h, fathead minnows) 7.8 mg/l

Precaution: Incompat. with strong oxidizers; thermal decomp. produces extremely flamm. tetrahydrofuran, CO; temps. as low as 100 C can cause dangerous pressure buildup in stored drums

Storage: Hygroscopic; can oxidize; store in completely enclosed tanks under a dry nitrogen blanket; store above 45 C to prevent solid.; do not store in materials with a low barrier to oxygen

Terathane® 1400 [Invista http://www.invista.com]

Chem. Descrip.: Polytetramethylene ether glycol

CAS 25190-06-1

Uses: Soft segment in PU resins used for catheters and other medical devices

Regulatory: FDA 21CFR §175.105, 177.1680

Properties: Wh. waxy solid melting to a cl. colorless liq. near R.T., odorless; sol. in alcohols, esters, ketones; m.w. 1350-1450; sp.gr. 0.973 (40 C); dens. 8.1 lb/gal; visc. 525-600 cP (40 C); m.p. 27-35 C; hyd. no. 77-83; flash pt. (TOC) > 163 C; ref. index 1.464; 100% conc.

Toxicology: LD50 (oral, rat) > 11,000 mg/kg; very low oral toxicity; mod. skin irritant; mild eye irritant; TSCA listed

Environmental: Aquatic toxicity: LC50 (96 h, fathead minnows) 7.8 mg/l

Precaution: Incompat. with strong oxidizers; thermal decomp. produces extremely flamm. tetrahydrofuran, CO; temps. as low as 100 C can cause dangerous pressure buildup in stored drums

Storage: Hygroscopic; can oxidize; store in completely enclosed tanks under a dry nitrogen blanket; store above 45 C to prevent solid.; do not store in materials with a low barrier to oxygen

Terathane® 2000 [Invista http://www.invista.com]

Chem. Descrip.: Polytetramethylene ether glycol

CAS 25190-06-1

Uses: Soft segment in PU resins used for catheters and other medical devices

Regulatory: FDA 21CFR §175.105, 177.1680

Properties: Wh. waxy solid melting to a cl. colorless liq. near R.T., odorless; sol. in alcohols, esters, ketones; m.w. 1900-2100; sp.gr. 0.972 (40 C); dens. 8.1 lb/gal; visc. 525-600 cP (40 C); m.p. 27-35 C; hyd. no. 77-83; flash pt. (TOC) > 163 C; ref. index 1.464; 100% conc.

Toxicology: LD50 (oral, rat) > 11,000 mg/kg; very low oral toxicity; mod. skin irritant; mild eye irritant; TSCA listed

Environmental: Aquatic toxicity: LC50 (96 h, fathead minnows) 7.8 mg/l

Precaution: Incompat. with strong oxidizers; thermal decomp. produces extremely flamm. tetrahydrofuran, CO; temps. as low as 100 C can cause dangerous pressure buildup in stored drums

Storage: Hygroscopic; can oxidize; store in completely enclosed tanks under a dry nitrogen blanket; store above 45 C to prevent solid.; do not store in materials with a low barrier to oxygen
Trade Name Reference

Terathane® 2900 [Invista
http://www.invista.com]
Chem. Descrip.: Polytetramethylene ether glycol
CAS 25190-06-1
Uses: Soft segment in PU resins used for catheters and other medical devices
Regulatory: FDA 21CFR §175.105, 177.1680
Properties: Wh. waxy solid melting to a colorless liquid near R.T., odorless; sol. in alcohols, esters, ketones; m.w. 2825-2975; sp.gr. 0.97 (40 C); dens. 8.1 lb/gal; visc. 3200-4200 cP (40 C); m.p. 30-43 C; hyd. no. 38.7; flash pt. (TOC) > 163 C; ref. index 1.464; 100% conc.
Toxicology: LD50 (oral, rat) > 11,000 mg/kg; very low oral toxicity; mod. skin irritant; mild eye irritant; TSCA listed
Environmental: Aquatic toxicity: LC50 (96 h, fathead minnows) 7.8 mg/l
Precaution: Incompat. with strong oxidizers; thermal decomp. produces extremely flamm. tetrahydrofuran, CO; temps. as low as 100 C can cause dangerous pressure buildup in stored drums
Storage: Hygroscopic; can oxidize; store in completely enclosed tanks under a dry nitrogen blanket; store above 45 C to prevent solid.; do not store in materials with a low barrier to oxygen

Teric™ X40L [Huntsman
http://www.huntsman.com]
Chem. Descrip.: Octoxynol-40
CAS 9002-93-1
Uses: Emulsifier, detergent, wetting agent, dispersant, solubilizer, coupling agent for pharmaceuticals
Properties: APHA 100 color; sp.gr. 1.098; visc. 975 cps; HL 17.6; pour pt. 5 C; pH 7-9; surf. tens. 36.4 dynes/cm (0.1%); nonionic; 70% act.

Terra Alba [Allied Custom Gypsum
http://www.alliedcustomgypsum.com]
Chem. Descrip.: Calcium sulfate dihydrate (> 90%), calcium sulfate (< 10%), calcium carbonate (< 3%), crystalline silica (< 0.5%)
See Quartz
CAS 13397-24-5; 7778-18-9; 471-34-1; 14808-60-7; EINECS/ELINCS 231-900-3
Uses: Diluent in pharmaceutical tablets
Regulatory: FDA 21CFR §184.1230, GRAS
Properties: Wh. fine free-flowing powd., odorless, tasteless; 95% through 325 sieve; sl. sol. in water; m.w. 172.17; sp.gr. 2.32; bulk dens. 45 lb/ft3 (loose); pH 7-7.5; 98% min. assay
Toxicology: Nuisance particulate; high exposure to dust may cause eye and respiratory system irritation
Precaution: Incompat. with aluminum, strong acids
HMIS: Health 0, Flammability 0, Reactivity 0

Terra-Pure™ Certified Freeze Dried Aloe Vera Powder 200X [Terry Labs
http://www.terrylabs.com]
Chem. Descrip.: Aloe barbadensis leaf juice
Chem. Analysis: 100% aloe solids; 8% max. moisture
Uses: Moisturizer, soothing agent for OTC pharmaceuticals (topical analgesics/anesthetics, hydrocortisone creams, first aid sprays, anti-acne preps., medicated talcs)
Regulatory: USDA (NOP)/IFOAM certified organic
Properties: Wh. to lt. beige fine cryst. powd.; After reconstitution 1:199: sp.gr. 0.997-1.004; pH 3.5-5.0
Storage: Store in a cool, dry place; preserve after reconstitution; may darken with age

Terra-Pure™ Certified Spray Dried Aloe Vera Powder, 200X [Terry Labs
http://www.terrylabs.com; S. Black
http://www.sblack.com]
Chem. Descrip.: Aloe barbadensis leaf juice
Chem. Analysis: 100% aloe solids; 8% max. moisture
Uses: Moisturizer, soothing agent for OTC pharmaceuticals (topical analgesics/anesthetics, hydrocortisone creams, first aid sprays, anti-acne preps., medicated talcs)
Properties: Lt. cream to beige fine powd., mod. veg. odor; disperses rapidly in most aq. sol’ns.; After reconstituting 1:199 with DI water: sp.gr. 0.997-1.004; pH 3.5-5.0
Storage: Highly hygroscopic; store in cool, dry place with desiccant; add preservatives on reconstitution

Terra-Pure™ Non-Preserved Freeze Dried Aloe Vera Powder Decolorized, 200X [Terry...
Trade Name Reference

Labs [http://www.terrylabs.com]
Chem. Descrip.: Aloe vera powder See Aloe barbadensis leaf juice
Chem. Analysis: 100% aloe solids
Uses: Soothing agent and moisturizer OTC pharmaceuticals (topical analgesics/anesthetics, hydrocortisone creams, first aid sprays, anti-acne preps., medicated talcs, toothpaste)
Properties: Lt. cream to beige, fine crystalline powd.; sp.gr. 0.997-1.004 (25 C); pH 3.5-5.0
Storage: Store in a cool, dry place; preserve after reconstitution; may darken with age

Terra-Pure™ Non-Preserved Freeze Dried Aloe Vera Powder Reg., 200X [Terry Labs http://www.terrylabs.com]
Chem. Descrip.: Aloe barbadensis leaf juice
Chem. Analysis: 100% aloe solids
Uses: Soothing agent and moisturizer OTC pharmaceuticals (topical analgesics/anesthetics, hydrocortisone creams, first aid sprays, anti-acne preps., medicated talcs, toothpaste)
Properties: Lt. cream to beige, fine crystalline powd.; sp.gr. 0.997-1.004 (25 C); pH 3.5-5.0
Storage: Store in a cool, dry place; preserve after reconstitution; may darken with age

Terra-Pure™ Non-Preserved Spray Dried Aloe Vera Powder Reg., 200X [Terry Labs http://www.terrylabs.com]
Chem. Descrip.: Aloe barbadensis leaf juice
Chem. Analysis: 100% aloe solids
Uses: Moisten in OTC pharmaceuticals (topical analgesics/anesthetics, hydrocortisone creams, first aid sprays, anti-acne preps., medicated talcs, as moisturizing agent)
Properties: Lt. cream to beige, fine crystalline powd.; sp.gr. 0.997-1.004 (25 C); pH 3.5-5.0
Storage: Store in a cool, dry place; preserve after reconstitution; may darken with age

Terra-Spray™ Spray Dried Aloe Vera Powder 100X Regular [Terry Labs http://www.terrylabs.com; S. Black http://www.sblack.com]
Chem. Descrip.: Aloe barbadensis leaf juice, maltodextrin
Uses: Emollient in OTC pharmaceuticals (topical analgesics/anesthetics, hydrocortisone creams, first aid sprays, anti-acne preps., medicated talcs, as moisturizing agent)
Properties: Lt. cream to beige fine powd.; sp.gr. 0.997-1.004; pH 3.5-5.0; 50% min. aloe solids; 8% max. moisture
Storage: Once reconstituted, prod. will darken with age; preservatives must be added after reconstitution as this prod. is not preserved

Tetraglyme [Ferro http://www.ferro.com]
Chem. Descrip.: Tetraethylene glycol dimethyl ether See PEG-4 dimethyl ether
CAS 24991-55-7
Uses: Solvent for pharmaceuticals; drug carrier, stabilizer
Features: Tends to solvate cations
Properties: Colorless clear; mild, nonresidual odor; water-sol.; misc. with ethanol, acetone, benzene, diethyl ether, octane; m.w. 222.28; sp.gr. 1.0132; dens. 8.45 lb/gal; visc. 4.1 cP; f.p. -29.7 C; b.p. 275 C; flash pt. (CC) 141 C; ref. index 1.4330 (20 C); pH neutral; surf. tens. 33.8 dynes/cm (20 C); 98.0% min. purity
Toxicology: LD50 5100 mg/kg; low to mod. acute toxicity; chronic exposure may cause reproductive effects
Trade Name Reference

Environmental: Slowly biodeg.

**Tetronic® 50R1** [BASF http://www.basf.com]
Chem. Descrip.: EO/PO ethylene diamine block copolymer See EO/PO ethylenediamine block copolymer
Uses: Surfactant in the pharmaceutical industry
Properties: Liq.; m.w. 2640; visc. 670 cps; HLB 1-7; pour pt. -18 C; cloud pt. 29 C (1% aq.); surf. tens. 40 dynes/cm (0.1%); nonionic; 100% act.
Toxicology: LD50 (oral) > 10 g/kg, (dermal) > 5 g/kg; minimal skin and minimal to mild eye irritation

Chem. Descrip.: EO/PO ethylene diamine block copolymer See EO/PO ethylenediamine block copolymer
CAS 26314-40-5
Uses: Surfactant, emulsion stabilizer, solubilizer, dispersant, wetting agent, antistat, penetrant, plasticizer, defoamer, demulsifier in pharmaceuticals
Features: R series for low foaming applics.
Properties: Liq.; m.w. 7240; visc. 3870 cps; HLB 1-7; pour pt. 12 C; cloud pt. 43 C (1% aq.); surf. tens. 43 dynes/cm (0.1%); nonionic; 100% act.
Toxicology: LD50 (oral) > 10 g/kg, (dermal) > 5 g/kg; minimal skin and minimal to mild eye irritation

Chem. Descrip.: EO/PO ethylene diamine block copolymer See EO/PO ethylenediamine block copolymer
CAS 26314-40-5
Uses: Detergent, oil emulsifier, defoamer for pharmaceuticals
Features: Low foaming
Properties: Colorless liq.; m.w. 8000; visc. 1840 cps; HLB 1; pour pt. -17 C; cloud pt. 20 C (1% aq.); surf. tens. 33 dynes/cm (0.1%); nonionic; 100% act.
Toxicology: LD50 (oral) > 10 g/kg, (dermal) > 5 g/kg; minimal skin and minimal to mild eye irritation

Chem. Descrip.: Poloxamine 304
CAS 11111-34-5
Uses: Emulsifier, thickener, wetting agent, dispersant, solubilizer, stabilizer for pharmaceuticals
Properties: Colorless liq.; water-sol.; mild polyol odor; m.w. 3400; sp.gr. 1.02; visc. 575 cps; HLB 3; pour pt. -21 C; cloud pt. 22 C (1% aq.); surf. tens. 36.1 dynes/cm; Draves wetting 24 s (0.1%); Ross-Miles foam 2 mm (0.1% aq., 50 C); nonionic; 100% act.
Toxicology: LD50 (oral) > 10 g/kg, (dermal) > 5 g/kg; none to mild eye and minimal to moderate skin irritation; TSCA listed
Precaution: Wear chemical safety goggles; wear gloves, coveralls, apron, boots as necessary to minimize contact; use approved vapor mist respirator as necessary
NFPA: Health 1, Flammability 1, Reactivity 0

Chem. Descrip.: Poloxamine 701
CAS 11111-34-5
Uses: Detergent, oil emulsifier, thickener, wetting agent for pharmaceuticals
Features: Low foaming
Properties: Colorless liq.; m.w. 3400; sp.gr. 1.02; visc. 575 cps; HLB 3; pour pt. -21 C; cloud pt. 22 C (1% aq.); surf. tens. 36.1 dynes/cm; Draves wetting 24 s (0.1%); nonionic; 100% act.
Toxicology: LD50 (oral) > 10 g/kg, (dermal) > 5 g/kg; none to mild eye and minimal to moderate skin irritation

Chem. Descrip.: Poloxamine 704
CAS 11111-34-5
Uses: Emulsifier, thickener, wetting agent, dispersant, solubilizer, stabilizer for pharmaceuticals
Properties: Colorless liq.; m.w. 5500; ref. index 1.4613; water-sol.; sp.gr. 1.04; visc. 850 cps; HLB 15; pour pt. 65 C (1%); surf. tens. 40.3 dynes/cm (0.1%); nonionic; 100% act.
Trade Name Reference

Chem. Descrip.: Poloxamine 901
CAS 11111-34-5
Uses: Detergent, oil emulsifier, thickener, wetting agent, defoamer, dispersant, solubilizer, stabilizer for pharmaceuticals
Features: Low foaming
Regulatory: Kosher
Properties: Colorless liq.; moderate sol. in water; m.w. 4750; sp.gr. 1.02; visc. 700 cps; HLB 2.5; pour pt. -23 C; cloud pt. 20 C (1%); flash pt. (COC) > 468 F; ref. index 1.4545; pH 8-11 (2.5% aq. sol'n.); surf. tens. 36 dynes/cm (0.1%); nonionic; 100% act.
Toxicology: LD50 (oral) > 10 g/kg, (dermal) > 5 g/kg; none to mild eye and minimal to moderate skin irritation; TSCA listed
Precaution: Wear chemical safety goggles; wear gloves, coveralls, apron, boots as necessary to minimize contact
NFPA: Health 1, Flammability 1, Reactivity 0

Chem. Descrip.: Poloxamine 904
CAS 11111-34-5
Uses: Emulsifier, thickener, wetting agent, dispersant, solubilizer, stabilizer for pharmaceuticals
Properties: Colorless liq.; high polyol odor; water-sol.; m.w. 7500; sp.gr. 1.04; visc. 6000 cps; HLB 14.5; cloud pt. 64 C (1%); pour pt. 29 C; flash pt. (COC) > 468 F; ref. index 1.4604; pH 8-11 (2.5% aq. sol'n.); surf. tens. 45.7 dynes/cm (0.1%); nonionic; 100% act.
Toxicology: LD50 (oral) > 10 g/kg, (dermal) > 5 g/kg; none to mild eye and minimal to moderate skin irritation; TSCA listed
Precaution: Wear chemical safety goggles; wear gloves, coveralls, apron, boots as necessary to minimize contact
NFPA: Health 1, Flammability 1, Reactivity 0

Chem. Descrip.: Poloxamine 908
CAS 11111-34-5
Uses: Emulsifier, thickener, wetting agent, dispersant, solubilizer, stabilizer for pharmaceuticals
Properties: Flakes; m.w. 27,000; water-sol.; m.p. 58 C; HLB 30.5; cloud pt. > 100 C (1%); surf. tens. 45.7 dynes/cm (0.1%); nonionic; 100% act.
Toxicology: LD50 (oral) > 10 g/kg, (dermal) > 5 g/kg; none to mild eye and minimal to moderate skin irritation; TSCA listed
Precaution: Wear chemical goggles; wear gloves, coveralls, apron, boots as necessary to minimize contact
Environmental: Do not discharge into waterways
Storage: Store at moderate temps. in tightly closed container

Chem. Descrip.: Poloxamine 1107
CAS 11111-34-5
Uses: Emulsifier, thickener, wetting agent, dispersant, solubilizer, stabilizer for pharmaceuticals
Properties: Solid; mild polyol odor; water-sol.; m.w. 14,500; sp.gr. 1.04; visc. 1.1 poise; m.p. 51 C; HLB 24; cloud pt. > 100 C; flash pt. (COC) > 469 F; pH 8-11 (2.5% aq. sol'n.); surf. tens. 42.9 dynes/cm (0.1%); nonionic; 100% act.
Toxicology: LD50 (oral) > 10 g/kg, (dermal) > 5 g/kg; none to mild eye and minimal to moderate skin irritation; TSCA listed
Precaution: Wear chemical goggles; wear gloves, coveralls, apron, boots as necessary to minimize contact
NFPA: Health 1, Flammability 1, Reactivity 0

Chem. Descrip.: Poloxamine 1301
CAS 11111-34-5
Uses: Emulsifier, thickener, wetting agent, dispersant, solubilizer, stabilizer for pharmaceuticals
Properties: Colorless liq.; mild polyol odor; sl. sol. in water; m.w. 6800; sp.gr. 1.02; visc. 1000 cps; f.p. = -9 C; HLB 1.5; cloud pt. 16 C (1%); pour pt. -9 C; flash pt. (COC) > 476 F; ref. index 1.4545; pH 8-11 (2.5% aq. sol'n.); surf. tens. 33.4 dynes/cm; nonionic; 100% act.
Toxicology: LD50 (oral) > 10 g/kg, (dermal) > 5 g/kg; none to mild eye and minimal to moderate skin irritation; TSCA listed

Precaution: Wear chemical safety goggles; wear gloves, coveralls, apron, boots as necessary to minimize contact
NFPA: Health 1, Flammability 1, Reactivity 0

**Tetronic® 1304** [BASF http://www.basf.com]
Chem. Descrip.: Poloxamine 1304  CA$ 11111-34-5
Uses: Emulsifier, thickener, wetting agent, dispersant, solubilizer, stabilizer for pharmaceuticals
Properties: Paste; m.w. 10,500; water-sol.; m.p. 36 C; HLB 13.5; cloud pt. 78 C (1%); surf. tens. 35.5 dynes/cm (0.1%); nonionic; 100% act.
Toxicology: LD50 (oral) > 10 g/kg, (dermal) > 5 g/kg; none to mild eye and minimal to moderate skin irritation

Chem. Descrip.: Poloxamine 1307  CA$ 11111-34-5
Uses: Emulsifier, thickener, wetting agent, dispersant, solubilizer, stabilizer for pharmaceuticals
Properties: Solid; m.w. 18,600; water-sol.; m.p. 54 C; HLB 23.5; cloud pt. > 100 C (1%); surf. tens. 43.8 dynes/cm (0.1%); nonionic; 100% act.
Toxicology: LD50 (oral) > 10 g/kg, (dermal) > 5 g/kg; none to mild eye and minimal to moderate skin irritation

**Tewax TC 65** [Cesalpinia http://www.cesalpinia.com]
Chem. Descrip.: Glyceryl stearate and PEG-100 stearate
Uses: Emulsifier for pharmaceuticals
Properties: Flakes; HLB 11.0; nonionic; 100% conc.

**Texapon® K-12 Needles** [Cognis/Care Chems.; Cognis http://www.cognis.de]
Chem. Descrip.: Sodium lauryl sulfate
CAS 151-21-3; EINECS/ELINCS 205-788-1
Uses: Foamer for dentifrices, tablets
Regulatory: FDA 21CFR §176.170, 178.3400, BGA, NF, JP compliance
Properties: Wh. to lt. yel. needles, almost odorless; dens. 400-500 g/l; pH 6.5-9.0 (1%); anionic; 90% min. act.
Storage: 1 yr. min. storage life in orig. unopened containers at temps. below 40 C, protected from moisture

**Thiamine Hydrochloride USP, FCC** [DSM Nutritional Prods. USA http://www.nutraaccess.com]
CAS 67-03-8; EINECS/ELINCS 200-641-8
Uses: Nutrient, thiamine source in pharmaceutical liqs. (polyvitamin drops), dry prods
Features: Not rec. for dry prods. with high moisture content
Regulatory: USP, FCC, Ph. Eur.
Properties: Wh. or almost wh. powd.; freely sol. in water
Precaution: Avoid heat, alkalis, prolonged light exposure
Storage: Store in dry place in tightly closed container

**Thiamine Mononitrate 98 DC** [DSM Nutritional Prods. USA http://www.nutraaccess.com]
Chem. Descrip.: Vitamin B1 mononitrate
Thiolsome (P) [CLR http://www.clr-berlin.de; Actives Int'l.]
Chem. Descrip.: Water, phospholipids, acetyl methionine, acetyl cysteine See Acetylcysteine; N-Acetyl-L-methionine
Uses: For aq. gels and emulsions for appl. to skin and scalps with excess sebum secretion, and to stressed and damaged hair
Properties: Ivory suspension; char. odor; < 150 nm mean particle size of liposomes; dens. 1.010-1.020 g/ml (20 C); pH 5.6-6.5
Use Level: 5-10%

Chem. Descrip.: Trihydroxystearin
CAS 139-44-6; EINECS/ELINCS 205-364-6
Uses: For topical ointments
Features: For use in aliphatic solv. systems
Regulatory: FDA approved; DOT nonregulated; SARA §313 nonreportable; Canada DSL, EU, Australia, Japan, Korea, Philippine listed
Properties: Wh. fine powd.; fineness 99.8% min. through 200 mesh; odorless; sp.gr. 1.023; dens. 8.51 lb/gal; m.p. 86 C; 100% NV
Use Level: 0.2-0.8% on total wt.
Toxicology: ACGIH TLV/TWA (8 h) 10 mg/m³ (total), 5 mg/m³ (respirable); nuisance dust; may cause sl. eye/skin irritation; may cause sl. irritation on inh.; chronic exposure may damage lungs
Precaution: Minimize dusting; prevent static discharges; spillages may be slippery when wet; incompat. with strong oxidizers
HMIS: Health 1, Flammability 0, Reactivity 0

Thymo 50 [S. Black http://www.sblack.com]
Chem. Descrip.: Myristyl myristate
CAS 221-787-9; EINECS/ELINCS 221-787-9
Uses: Solubilizer, vehicle for medicines; emollient in antiperspirants
Features: Changes skin feel, rub out props. and greasiness; veg. oil substitute; vaseline substitute

Thymol 3X USP [Am. Labs http://www.americanlaboratories.com]
Chem. Descrip.: Thyroid
Uses: Pharmaceutical additive, drug
Regulatory: USP compliance
Properties: Ylsh. to buff-colored amorphous powd., sl. char. meat-like odor, saline taste
Storage: Store in tight containers

Thymol 10X USP [Am. Labs http://www.americanlaboratories.com]
Chem. Descrip.: Thyroid
Uses: Pharmaceutical additive, drug

Chem. Descrip.: Glyceryl myristate
CAS 589-66-4; EINECS/ELINCS 248-329-0
Uses: Vehicle for injectable substances; facilitates the incorporation of liposoluble active ingredients
Properties: Nonionic

Thyroid 3X USP [Am. Labs http://www.americanlaboratories.com]
Chem. Descrip.: Thyroid
Uses: Pharmaceutical additive, drug
Regulatory: USP compliance
Properties: Ylsh. to buff-colored amorphous powd., sl. char. meat-like odor, saline taste
Storage: Store in tight containers

Thyroid USP [Am. Labs http://www.americanlaboratories.com]
Chem. Descrip.: Thyroid
Uses: Pharmaceutical additive, drug
Trade Name Reference

Regulatory: USP compliance
Properties: Ylsh. to buff-colored amorphous powd., sl. char. meat-like odor, saline taste
Storage: Store in tight containers

Ticaxan® Regular [TIC Gums http://www.ticgums.com]
Chem. Descrip.: Xanthan gum
CAS 11138-66-2; EINECS/ELINCS 234-394-2
Uses: Stabilizer, thickener, emulsifier, suspending agent, binder, moisture control agent in pharmaceuticals (ointments, lotions, suspensions)

TIC Pretested® Agar Agar 100 FCC/NF Powder [TIC Gums http://www.ticgums.com]
Chem. Descrip.: Agar agar gum See Agar
CAS 9002-18-0; EINECS/ELINCS 232-658-1
Uses: Gellant for dental impressions
Features: Rigid gel which must boil to hydrate; stable under low pH conditions; tolerates large percentages of salts without changes in gel structure
Regulatory: Kosher
Properties: Med. mesh powd.; 90% through 100 mesh; m.w. 5000-30,000; visc. forms gel on heating; gel pt. 88-103 F; pH 4-7; 20% max. moisture

TIC Pretested® Agar Agar 110 FCC/NF Powd. [TIC Gums http://www.ticgums.com]
Chem. Descrip.: Agar
CAS 9002-18-0; EINECS/ELINCS 232-658-1
Uses: Gellant in pharmaceuticals
Regulatory: Kosher
Properties: 100 mesh powd.; sol. in water @ 212 F for 5 min

TIC Pretested® Agar Agar 150 FCC/NF Powd. [TIC Gums http://www.ticgums.com]
Chem. Descrip.: Agar
CAS 9002-18-0; EINECS/ELINCS 232-658-1
Uses: Gellant in pharmaceuticals
Regulatory: Kosher
Properties: 150 mesh powd.; sol. in water @ 212 F for 5 min

TIC Pretested® Agar RS-100 Powder [TIC Gums http://www.ticgums.com]
Chem. Descrip.: Agar
CAS 9002-18-0; EINECS/ELINCS 232-658-1
Uses: Gellant in pharmaceuticals
Regulatory: Kosher
Properties: Powd.; sol. in water @ 150-180 F

Uses: Gellant in pharmaceuticals
Regulatory: Kosher
Properties: Powd.; sol. in water @ 150-180 F

TIC Pretested® Arabic FT-1 Powder [TIC Gums http://www.ticgums.com]
Chem. Descrip.: Gum Arabic See Acacia
CAS 9000-01-5; EINECS/ELINCS 232-519-5
Uses: Carrier, antioxidant, flavor retention aid for spray-dried flavors
Features: Provides clean taste; may be labeled 'natural'
Regulatory: Kosher
Properties: Powd.; 85% min. dietary fiber, 15% max. moisture

TIC Pretested® Bright Gum Arabic FCC/NF Powder [TIC Gums http://www.ticgums.com]
Chem. Descrip.: Gum Arabic See Acacia
CAS 9000-01-5; EINECS/ELINCS 232-519-5
Uses: Film-former, starch replacer, excipient in pharmaceutical tablets; encapsulant for flavors; flavor carrier
Features: Good adhesion and water binding; superior white/bright color chars. in finished prods.
Properties: Bright wh. freeflowing powd.; odorless; bland taste; 80% min. through USS #80 mesh; low visc.

TIC Pretested® Bright Gum Arabic NF/USP Powder [TIC Gums http://www.ticgums.com]
Chem. Descrip.: Gum Arabic See Acacia
CAS 9000-01-5; EINECS/ELINCS 232-519-5
Uses: Tablet binder, excipient, wet granulating agent, flavor carrier, film-former in pharmaceuticals; sugar coating plasticizer
Features: Rec. for light colored applics.
Regulatory: Kosher
Properties: Sol. in cold water
Use Level: 3-30%

TIC Pretested® Bright Gum Arabic Pre-Hydrated® [TIC Gums http://www.ticgums.com]
Chem. Descrip.: Gum Arabic See Acacia
CAS 9000-01-5; EINECS/ELINCS 232-519-5
Uses: Flavoring agent in pharmaceuticals
Features: Dust-free; rapid hydration
Regulatory: Kosher
Properties: Wh. coarse powd.; sol. in cold water
TIC Pretested® CMC 2500 S [TIC Gums http://www.ticgums.com]
Chem. Descrip.: Sodium carboxymethylcellulose See Carboxymethylcellulose sodium
CAS 9004-32-4; EINECS/ELINCS 265-995-8
Uses: Thickener for pharmaceuticals
Regulatory: FDA GRAS, FCC
Properties: Off-wh. to tan free-flowing powd., odorless, bland flavor; 25% min. on 140 mesh, 65% max. through 140 mesh; sol. in cold or hot water; visc. 1400-2400 cps; pH 6.0-8.5; 99.5% min. purity, 8% max. moisture

TIC Pretested® Colloid 688T Powd. [TIC Gums http://www.ticgums.com]
Chem. Descrip.: Sodium alginate See Algin
CAS 9005-38-3
Uses: Gellant, film-former, emulsifier, suspending agent for pharmaceuticals (lotions, vitamin suspensions)
Features: Reactive with milk, calcium ions
Properties: Powd.; sol. in cold water; med. visc.

TIC Pretested® Colloid 602 Powder [TIC Gums http://www.ticgums.com]
Chem. Descrip.: Propylene glycol alginate
CAS 9005-37-2
Uses: Gellant, film-former, emulsifier, suspending agent for pharmaceuticals (lotions, vitamin suspensions)
Features: Reactive with milk
Properties: Powd.; sol. in cold water

TIC Pretested® Colloid 10002-M Powd. [TIC Gums http://www.ticgums.com]
Uses: Gellant in pharmaceuticals
Regulatory: Kosher

TIC Pretested® Gum Arabic #1 Powder [TIC Gums http://www.ticgums.com]
Chem. Descrip.: Gum Arabic See Acacia
CAS 9000-01-5; EINECS/ELINCS 232-519-5
Uses: Flavoring agent in pharmaceuticals
Properties: Sol. in cold water

Chem. Descrip.: Gum Arabic See Acacia
CAS 9000-01-5; EINECS/ELINCS 232-519-5
Uses: Flavoring agent in pharmaceuticals
Features: Easy dispersing, but takes longer to hydrate
Properties: Gran.; sol. in cold water

TIC Pretested® Gum Arabic BEV-101 GR Powd. [TIC Gums http://www.ticgums.com]
Chem. Descrip.: Gum Arabic See Acacia
CAS 9000-01-5; EINECS/ELINCS 232-519-5
Uses: Flavoring agent in pharmaceuticals
Features: Dust-free; rapid hydration; high in sol.
<table>
<thead>
<tr>
<th>Trade Name Reference</th>
<th>Gum Arabic</th>
<th>Gum Guar</th>
<th>Nutriloid® Arabic Spray Dry</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dietary Fiber</strong></td>
<td>(Typically 85%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Regulatory</strong></td>
<td>Kosher</td>
<td>Kosher</td>
<td>Kosher</td>
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<tr>
<td><strong>Properties</strong></td>
<td>Sol. in cold water</td>
<td></td>
<td></td>
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<tr>
<td><strong>TIC Pretested® Gum Arabic Spray Dry FCC Powd.</strong></td>
<td><a href="http://www.ticgums.com">TIC Gums</a></td>
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<td><strong>Chem. Descrip:</strong></td>
<td>Gum Arabic FCC See Acacia</td>
<td></td>
<td></td>
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<tr>
<td><strong>CAS</strong></td>
<td>9000-01-5</td>
<td>9000-30-0</td>
<td>9000-01-5</td>
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<td><strong>EINECS/ELINCS</strong></td>
<td>232-519-5</td>
<td>232-536-8</td>
<td>232-519-5</td>
</tr>
<tr>
<td><strong>Uses</strong></td>
<td>Flavoring agent in pharmaceuticals</td>
<td>Stabilizer, thickener, emulsifier in pharmaceuticals</td>
<td>Flavoring agent in pharmaceuticals</td>
</tr>
<tr>
<td><strong>Features</strong></td>
<td>Highest purity</td>
<td>High visc., milk reactivity</td>
<td>Provides creamy texture without</td>
</tr>
<tr>
<td><strong>Regulatory</strong></td>
<td>Kosher</td>
<td>Kosher</td>
<td>Kosher</td>
</tr>
<tr>
<td><strong>Properties</strong></td>
<td>Sol. in cold water</td>
<td>Sol. in cold water</td>
<td>Sol. in cold water</td>
</tr>
<tr>
<td><strong>Use Level</strong></td>
<td>3-30%</td>
<td>0.1-1%</td>
<td>0.1-1.0%</td>
</tr>
<tr>
<td><strong>TIC Pretested® Gum Arabic Spray Dry NF/USP Powd.</strong></td>
<td><a href="http://www.ticgums.com">TIC Gums</a></td>
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<tr>
<td><strong>Chem. Descrip:</strong></td>
<td>Gum Arabic FCC See Acacia</td>
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<td><strong>CAS</strong></td>
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<td>9000-01-5</td>
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<td>232-519-5</td>
<td>232-536-8</td>
<td>232-519-5</td>
</tr>
<tr>
<td><strong>Uses</strong></td>
<td>Stabilizer, thickener, emulsifier, flavor in pharmaceuticals</td>
<td>Thickener, film-former, binder for pharmaceutical suspensions</td>
<td></td>
</tr>
<tr>
<td><strong>Features</strong></td>
<td>Produces highest whiteness powd. and sol'n. color</td>
<td>Precipitated with alcohol to remove the protein; superior clarity alone and when used with other gums for gels; gelatin replacement</td>
<td></td>
</tr>
<tr>
<td><strong>Regulatory</strong></td>
<td>Kosher</td>
<td>Kosher</td>
<td>Kosher</td>
</tr>
<tr>
<td><strong>Properties</strong></td>
<td>Sol. in cold water</td>
<td>Sol. in water @ 165 F</td>
<td>Sol. in cold water</td>
</tr>
<tr>
<td><strong>Use Level</strong></td>
<td>0.15-1.0%</td>
<td>0.15-1.0%</td>
<td>0.1-1.0%</td>
</tr>
<tr>
<td><strong>TIC Pretested® Gum Arabic White 3871 Powd.</strong></td>
<td><a href="http://www.ticgums.com">TIC Gums</a></td>
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<tr>
<td><strong>Chem. Descrip:</strong></td>
<td>Gum Arabic See Acacia</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CAS</strong></td>
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<td>9000-40-2</td>
<td>9000-01-5</td>
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<td><strong>EINECS/ELINCS</strong></td>
<td>232-519-5</td>
<td>232-541-5</td>
<td>232-519-5</td>
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<tr>
<td><strong>Uses</strong></td>
<td>Film-former, flavor carrier in pharmaceutical tablets</td>
<td>Gellant for foods, clear prods., pharmaceuticals; thickener</td>
<td></td>
</tr>
<tr>
<td><strong>Features</strong></td>
<td>Produces highest whiteness powd. and sol'n. color</td>
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<td>Kosher</td>
<td>Kosher</td>
</tr>
<tr>
<td><strong>Properties</strong></td>
<td>Sol. in cold water</td>
<td></td>
<td>Sol. in cold water</td>
</tr>
<tr>
<td><strong>TIC Pretested® Gum Guar 8/22 NF (USP) Powd.</strong></td>
<td><a href="http://www.ticgums.com">TIC Gums</a></td>
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<tr>
<td><strong>Chem. Descrip:</strong></td>
<td>Guar gum NF See Guar (Cyanopsis tetragonoloba) gum</td>
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</tr>
<tr>
<td><strong>CAS</strong></td>
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<td>9000-01-5</td>
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<td>232-541-5</td>
<td>232-519-5</td>
</tr>
<tr>
<td><strong>Uses</strong></td>
<td>Stabilizer, thickener, emulsifier in pharmaceuticals</td>
<td>Suspending agent, stabilizer, thickener, emulsifier in pharmaceuticals</td>
<td></td>
</tr>
<tr>
<td><strong>Regulatory</strong></td>
<td>Kosher</td>
<td>Kosher</td>
<td>Kosher</td>
</tr>
<tr>
<td><strong>Properties</strong></td>
<td>Fine mesh powd.; sol. in cold water</td>
<td>Sol. in 165 F water</td>
<td>Sol. in cold water</td>
</tr>
<tr>
<td><strong>Use Level</strong></td>
<td>0.1-1.0%</td>
<td>0.15-1.0%</td>
<td>0.1-1.1%</td>
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<tr>
<td><strong>TIC Pretested® Gum Guar 8/22A NF (USP) Powd.</strong></td>
<td><a href="http://www.ticgums.com">TIC Gums</a></td>
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<tr>
<td><strong>Chem. Descrip:</strong></td>
<td>Gum Arabic See Acacia</td>
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<td>232-519-5</td>
</tr>
<tr>
<td><strong>Uses</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Features</strong></td>
<td></td>
<td>Provides creamy texture without</td>
<td></td>
</tr>
</tbody>
</table>

Handbook of Pharmaceutical Additives, Third Edition
**Trade Name Reference**

- adding visc.; high in sol. dietary fiber (typically 85%)
- Regulatory: Kosher
- Properties: Powd.; sol. in cold water


Chem. Descrip.: Pectin, low methoxyl
CAS 9000-69-5; EINECS/ELINCS 232-553-0
Uses: Gellant in foods, fruit gels, yogurt, pharmaceuticals; thickener
Features: Good at pH 2.8-6.5; sets @ 50-70 C; synergistic with locust bean gum
Regulatory: Kosher

**TIC Pretested® Pectin LM 35 Powd.** [TIC Gums http://www.ticgums.com]

Chem. Descrip.: Pectin, amidated low methoxyl
CAS 9000-69-5; EINECS/ELINCS 232-553-0
Uses: Gellant in pharmaceuticals
Features: Best at pH 3.2-3.6; sets @ 40-70 C; synergistic with locust bean gum
Regulatory: Kosher

**TIC Pretested® Pre-Hydrated® Bright Gum Arabic** [TIC Gums http://www.ticgums.com]

Chem. Descrip.: Gum Arabic See Acacia
CAS 9000-01-5; EINECS/ELINCS 232-519-5
Uses: Excipient in pharmaceutical tablets; carrier for flavors; flavoring agent
Features: Dust-free; rapid hydration; high in sol. dietary fiber
Regulatory: Kosher

**TIC Pretested® Pre-Hydrated® Gum Arabic FT Powd.** [TIC Gums http://www.ticgums.com]

Chem. Descrip.: Gum Arabic See Acacia
CAS 9000-01-5; EINECS/ELINCS 232-519-5
Uses: Excipient in pharmaceutical tablets; carrier for flavors; flavoring agent
Features: Dust-free; rapid hydration; high in sol. dietary fiber
Regulatory: Kosher

**TIC Pretested® Pre-Hydrated® Ticalose® CMC PH-2500 Powd.** [TIC Gums http://www.ticgums.com]

Chem. Descrip.: Cellulose gum USP/FCC See Carboxymethylcellulose sodium
CAS 9004-32-4; EINECS/ELINCS 265-995-8
Uses: Thickener, stabilizer in pharmaceuticals
Features: Prehydrated; synergistic with casein, most proteins; stable over pH 4-10
Properties: Dust-free powd., odorless, tasteless; 60% min. on 100 mesh; sol. in hot or cold water; visc. 1500-2500 cps (1%); pH 6.0-8.5; 99.5% min. purity

**TIC Pretested® Pre-Hydrated® Ticagel® 550-PT Powd.** [TIC Gums http://www.ticgums.com]

Chem. Descrip.: Xanthan NF See Xanthan gum
CAS 11138-66-2; EINECS/ELINCS 234-394-2
Uses: Suspending agent, stabilizer, thickener, emulsifier in pharmaceuticals, liq. suspensions
Regulatory: Kosher
Properties: Sol. in cold water
Use Level: 0.05-0.35%

**TIC Pretested® Ticagel® 550-PT Powd.** [TIC Gums http://www.ticgums.com]

Chem. Descrip.: Hydrocolloid
Uses: Gellant in pharmaceuticals
Trade Name Reference

**Features:** Forms rigid gel @ 1.5% gum level when heated to 180 F and cooled to ambient temps.; resultant gel is heat reversible and relatively stable with minimal syneresis during prolonged storage

**Regulatory:** Kosher

**Properties:** Sol. in water @ 180 F

**TIC Pretested® Ticage® 795 Powd.** [TIC Gums http://www.ticgums.com]
**Chem. Descrip.:** Carrageenan See Carrageenan (Chondrus crispus)
**CAS 9000-07-1; EINECS/ELINCS 232-524-2**
**Uses:** Gelant, binder, film-former for pharmaceuticals, toothpaste
**Features:** Yields soft, flexible gel that forms a stable film after drying; compat. with polyols and other bulking agents

**Regulatory:** Kosher

**Properties:** Powd.; sol. in water @ 180 F

**TIC Pretested® Ticaloid® Lite Powd.** [TIC Gums http://www.ticgums.com]
**Uses:** Gelant in pharmaceuticals

**Regulatory:** Kosher

**Properties:** Powd.; sol. in cold water

**TIC Pretested® Ticalose® CMC 15 Fine Powd.** [TIC Gums http://www.ticgums.com]
**Chem. Descrip.:** Cellulose gum See Carboxymethylcellulose sodium
**CAS 9004-32-4; EINECS/ELINCS 265-995-8**
**Uses:** Thickener, moisture retention aid, binder, lubricant, film-former for pharmaceuticals, vitamins
**Features:** Low-visc. grade; rec. where high solids levels, encapsulation, or film-forming are desirable; stable @ pH 4-10

**Properties:** Fine particle size (120 mesh); odorless; tasteless; visc. 10-15 cps (1%), 25-50 cps (2%); anionic

**TIC Pretested® Ticalose® CMC 2500 Std. Powd.** [TIC Gums http://www.ticgums.com]
**Chem. Descrip.:** Cellulose gum See Carboxymethylcellulose sodium
**CAS 9004-32-4; EINECS/ELINCS 265-995-8**
**Uses:** Thickener, suspending agent, stabilizer, visc. builder, mouthfeel enhancer for pharmaceuticals
**Features:** High-visc.; stable @ pH 4-10

**Properties:** Std. particle size (80 mesh); odorless; tasteless; visc. 1500-2500 cps (1%); anionic

**TIC Pretested® Ticaxan® Xanthan 200**

**FCC/USP/NF Powd.** [TIC Gums http://www.ticgums.com]
**Chem. Descrip.:** Xanthan gum
**CAS 11138-66-2; EINECS/ELINCS 234-394-2**
**Uses:** Stabilizer, thickener, processing aid for pharmaceuticals
**Features:** Features pseudoplasticity, heat and pH stability, high visc., good sol

**Regulatory:** FDA approved

**Properties:** Cream-colored free-flowing powd., nearly odorless, typ. bland flavor; 95% min. through 200 mesh, 70% min. through 270 mesh; sol. in cold water; visc. 1000 cps; pH 6.5-7.5; 15% max. moisture
**Use Level:** 0.05-0.35%

**TIC Pretested® Ticaxan® Xanthan NF Powd.** [TIC Gums http://www.ticgums.com]
**Chem. Descrip.:** Xanthan gum
**CAS 11138-66-2; EINECS/ELINCS 234-394-2**
**Uses:** Thickener, suspending agent, stabilizer, emulsifier in pharmaceuticals

**Regulatory:** Kosher

**Properties:** Sol. in cold water

**Tilol 161** [Undesa http://www.undesa.com; S. Black http://www.sblack.com]
**Chem. Descrip.:** PEG-4 oleate
**CAS 10108-25-5; EINECS/ELINCS 233-293-0**
**Uses:** O/w emulsifier, thickener, antifoam, dispersant, base for pharmaceuticals
**Features:** Certified organic; replaces maltodextrin and modified food starch in spray-dried flavors, flavor emulsions, confections; replaces corn syrup and high fructose corn syrup as binder, viscosifier

**Regulatory:** Kosher

**Properties:** Sol. in cold water

**Precaution:** Wear glove, goggles, overalls;
Trade Name Reference


Chem. Descrip.: PEG-6 oleate
CAS 9004-96-0
Uses: O/w emulsifier, thickener, antifoam, dispersant, base for pharmaceuticals
Regulatory: Not considered to be dangerous for transport
Properties: Yel. liq.; typical odor; disp. in water; sol. in fat; dens. 1.00; f.p. 0 C max.; flash pt. > 232 C; nonionic
Environmental: Biodeg.; keep out of sewers, drains, surface and underground water; considered to be of low toxicity for aquatic life
Precaution: Wear glove, goggles, overalls; avoid contact with flames
Hazardous Decomp. Prods.: Can generate adductors of ethylene oxide
Storage: Store in original, closed container @ R.T.; protect from dampness, heat sources


Chem. Descrip.: PEG-10 oleate
CAS 9004-96-0
Uses: O/w emulsifier, thickener, antifoam, dispersant, base for pharmaceuticals
Regulatory: Not considered to be dangerous for transport
Properties: Yel. liq.; typical odor; disp. in water; sol. in fat; dens. ≈ 1.02; f.p. 6 C.; flash pt. > 265 C; nonionic
Environmental: Biodeg.; keep out of sewers, drains, surface and underground water; considered to be of low toxicity for aquatic life
Precaution: Wear glove, goggles, overalls; avoid contact with flames
Hazardous Decomp. Prods.: Can generate adductors of ethylene oxide
Storage: Store in original, closed container @ R.T.; protect from dampness, heat sources


Chem. Descrip.: PEG-8 dioleate
CAS 9005-07-6
Uses: O/w emulsifier, thickener, antifoam, dispersant, base for pharmaceuticals
Regulatory: Not considered to be dangerous for transport
Properties: Yel. liq.; typical odor; insol. in water; sol. in waxes, vegetable and mineral oils; dens. ≈ 0.86; f.p. ≈ 5 C.; b.p. ≈ 225; flash pt. ≈ 190 C
Toxicology: Nontoxic by inh., contact, ing.
Trade Name Reference

Environmental: Biodeg.; keep out of sewers, drains, surface and underground water; considered to be of low toxicity for aquatic life
Precaution: Wear glove, goggles, overalls; avoid contact with flames; incompat. with strong oxidants
Hazardous Decomp. Prods.: CO, CO₂
Storage: Store in original, closed container @ R.T.; protect from dampness, heat sources

Chem. Descrip.: Ethyl olate
CAS 111-62-6; EINECS/ELINCS 203-889-5
Uses: Vehicle for injections; solubilizer for vitamin oils, hormones; vehicle for medicines; excipient for injectable substances
Features: Veg. oil substitute; vaseline substitute
Properties: Low visc. oil
Toxicology: Low toxicity

Chem. Descrip.: Polyglyceryl polyricinoleate
Uses: Vehicle for injectable substances; facilitates the incorporation of liposoluble active ingredients
Properties: Nonionic

Chem. Descrip.: Glycerol olate
CAS 111-03-5; EINECS/ELINCS 203-827-7
Uses: Vehicle for injectable substances; facilitates the incorporation of liposoluble active ingredients
Properties: Nonionic

Chem. Descrip.: Isopropyl olate
CAS 112-11-8; EINECS/ELINCS 203-935-4
Uses: Solubilizer, vehicle for medicines; excipient for injectable substances; emollient in antiperspirants
Features: Changes skin feel, rub out props. and greasiness; veg. oil substitute; vaseline substitute
Regulatory: Not considered to be dangerous for transport
Properties: Yel. liq.; typical odor; insol. in water; sol. in mineral oils, most org. solvs.; dens. ≈ 0.86; f.p. < 5 C.; flash pt. ≈ 180 C

Toxicology: Nontoxic by inh., contact, ing.
Environmental: Biodeg.; keep out of sewers, drains, surface and underground water; considered to be of low toxicity for aquatic life
Precaution: Wear glove, goggles, overalls; avoid contact with flames; incompat. with strong oxidants
Hazardous Decomp. Prods.: CO, CO₂
Storage: Store in original, closed container @ R.T.; protect from dampness, heat sources

Tiolisina Complex® [Sinerga Srl http://www.sinerga.it]
Chem. Descrip.: Lysine carboxymethyl cysteinate and lysine thiazolidine carboxylate
CAS 79458-68-7; 444-27-9; EINECS/ELINCS 279-164-2; 207-104-6
Uses: Sebum normalizer esp. on scalp, for use in greasy hair shampoos and lotions, skin care
Properties: Liq.; characteristic odor; dens. 1.05 - 1.15 g/ml; ref. index 1.378 - 1.398; pH 6.5-7.5

Tioxolone Water Soluble 5% [Provital; S. Black http://www.sblack.com]
Chem. Descrip.: Alcohol, PEG-40 castor oil, and tioxolone
CAS 64-17-5; 61791-12-6 (generic); 4991-65-5; EINECS/ELINCS 200-578-6; $; 225-653-0
Uses: Antiseborrheic and anti-acne props.

TIPA 99 [Dow http://www.dow.com]
Chem. Descrip.: Triisopropanolamine
CAS 122-20-3; EINECS/ELINCS 204-528-4
Uses: Used to produce pharmaceuticals
Properties: Sp.gr. 0.988 (70/4 C); dens. 8.24 lb/gal (70 C); visc. 100 cps (60 C); f.p. 44 C; b.p. 306 C (760 mm Hg); flash pt. (COC) 320 F; ref. index 1.4595 (30 C)

Tixosil® 63 [Rhodia HPCII http://www.rhodia-hpacci.com]
Chem. Descrip.: Hydrated silica See Silica, hydrated
CAS 1343-98-2; EINECS/ELINCS 215-683-2
Uses: Cleaning agent, abrasive in dentifrices
Properties: Wh. powd.; density, tapped =0.34
Storage: 24 mo. shelf life

Tixosil® 73 [Rhodia HPCII http://www.rhodia-hpacci.com]
Chem. Descrip.: Hydrated silica See Silica, hydrated
Chem. Analysis: ≥ 97.0
CAS 1343-98-2; EINECS/ELINCS 215-683-2
Trade Name Reference

**Tixosil® 123**  [Rhodia HPCIi](http://www.rhodia-hpcii.com)

Chem. Descr.: Hydrated silica  See Silica, hydrated

CAS 1343-98-2; EINECS/ELINCS 215-683-2

Uses: Polishing agent in dentifrices

Features: Low abrasivity

**Tixosil® 331**  [Rhodia HPCIi](http://www.rhodia-hpcii.com)

Chem. Descr.: Hydrated silica, amorphous  See Silica, hydrated

CAS 1343-98-2; EINECS/ELINCS 215-683-2

Uses: Rheology control agent for solv. and water-based systems; used in toothpaste, pharmaceuticals

Properties: Wh. powd.; 3 µ avg. particle size; < 0.1% retained 325 mesh; Hegman grind 7; dens. 17.1 lb/gal; surf. area 310 m²/g; oil absorp. 320%; ref. index 1.45; pH 7; 96% SiO₂

**T-Maz® 20**  [BASF/Perf. Chems.](http://www.basf.com/static/988804217008.html)

Chem. Descr.: Polysorbate 20

CAS 9005-64-5

Uses: Emulsifier, solubilizer, wetting agent, stabilizer, dispersant, visc. modifier, suspending agent for pharmaceuticals; emulsifier for skin care emulsions

Regulatory: Kosher

Properties: Yel. liq.; sol. in water, ethanol, acetone, toluene, veg. oil, propylene glycol; sp.gr. 1.1; visc. 400 cps; HLB 16.7; acid no. 2 max.; sapon. no. 40-50; hyd. no. 96-108; flash pt. (PMCC) > 350 F; nonionic; 97% act.

**T-Maz® 28**  [BASF/Perf. Chems.](http://www.basf.com/static/988804217008.html)

Chem. Descr.: PEG-80 sorbitan laurate

CAS 9005-64-5

Uses: Emulsifier, solubilizer, wetting agent, visc. modifier, stabilizer, dispersant for pharmaceuticals; emulsifier for skin care emulsions

Properties: Pale yel. liq.; sol. in water; sp.gr. 1.0; visc. 1100 cps; HLB 19.2; acid no. 2 max.; sapon. no. 5-15; hyd. no. 25-40; flash pt. (PMCC) > 350 F; 30% max. water

**T-Maz® 60K**  [BASF/Perf. Chems.](http://www.basf.com/static/988804217008.html)

Chem. Descr.: Polysorbate 60

CAS 9005-67-8

Uses: Wetting agent, visc. modifier, emulsifier, stabilizer, dispersant, solubilizer, suspending agent for pharmaceuticals


Properties: Yel. to amber cl. gel, bland odor; sol. in water, ethanol, min. spirits, toluene; disp. in propylene glycol; sp.gr. 1.08; m.p. 23-25 C; b.p. > 300 F; HLB 14.9; acid no. 2 max.; sapon. no. 45-55; hyd. no. 81-96; flash pt. (PMCC) > 350 F; nonionic; 100% conc.

**T-Maz® 65K**  [BASF/Perf. Chems.](http://www.basf.com/static/988804217008.html)

Chem. Descr.: Polysorbate 65

CAS 9005-71-4

Uses: Wetting agent, visc. modifier, emulsifier, stabilizer, dispersant, solubilizer, suspending agent for pharmaceuticals


Properties: Tan waxy paste, char. ester odor; sol. @ 2% in ethanol, veg. oil, disp. in water, insol. in min. oil, propylene glycol; m.p. 30-32 C; b.p. > 300 F; HLB 10.5; acid no. 2 max.; sapon. no. 88-98; hyd. no. 44-60; flash pt. (PMCC) > 350 F; nonionic; 100% conc.

Toxicology: LD₅₀ (oral, rat) > 39.8 g/kg; nonirritating, nonsensitizing

Storage: Store in well-ventilated area below 120 F

**T-Maz® 80**  [BASF/Perf. Chems.](http://www.basf.com/static/988804217008.html)

Chem. Descr.: Polysorbate 80

CAS 9005-65-6

Uses: Emulsifier, solubilizer, wetting agent, stabilizer, dispersant, visc. modifier, suspending agent for pharmaceuticals; emulsifier for skin care emulsions; solubilizer for fragrances and emollients

Features: Mild
Trade Name Reference

Properties: Yel. liq.; sol. in water, ethanol, veg. oil, toluol; sp.gr. 1.0; visc. 400 cps; HLB 15.0; sapon. no. 45-55; hyd. no. 65-80; flash pt. (PMCC) > 350 F; nonionic; 97% min. act.

T-Maz® 80K  [BASF/Perf. Chems.  
http://www.basf.com/static/988804217008.html]
Chem. Descrip.:  Polysorbate 80
CAS  9005-65-6
Uses:  Wetting agent, visc. modifier, stabilizer, dispersant, emulsifier, solubilizer for pharmaceuticals; solubilizer, emulsifier for vitamins, edible oils, essential oils, fragrances
Properties:  Yel. cl. liq., bland odor; sol. in water, ethanol, veg. oil; disp. in propylene glycol, toluene; sp.gr. 1.09; b.p. > 300 F; HLB 15.0; acid no. 2 max.; sapon. no. 45-55; hyd. no. 65-80; flash pt. (PMCC) > 350 F; nonionic; 100% conc.
Toxicology:  LD50 (oral, rat) > 30 ml/kg (mild); nonirritating, noncomedogenic
Storage:  Store in well-ventilated area below 120 F

T-Maz® 80KLM  [BASF/Perf. Chems.  
http://www.basf.com/static/988804217008.html]
CAS  9005-65-6
Uses:  Emulsifier, solubilizer, wetting agent, stabilizer, dispersant, visc. modifier, suspending agent for pharmaceuticals
Regulatory:  Kosher
Properties:  Gardner 5 liq.; sol. @ 5% in water, veg. oil, @ 2% in ethanol; disp. in toluene, propylene glycol, toluene; sp.gr. 1.09; b.p. > 300 F; HLB 15.0; acid no. 2 max.; sapon. no. 45-55; hyd. no. 65-80; flash pt. (PMCC) > 350 F; nonionic; 100% conc.

T-Maz® 81  [BASF/Perf. Chems.  
http://www.basf.com/static/988804217008.html]
Chem. Descrip.:  Polysorbate 81
CAS  9005-65-6
Uses:  Emulsifier, solubilizer, wetting agent, stabilizer, dispersant, visc. modifier, suspending agent for pharmaceuticals
Properties:  Gardner 6 liq.; sol. in min. spirits; disp. in water, min. oils, toluene, veg. oils; HLB 10.0; sapon. no. 96-104; hyd. no. 134-150; flash pt. (PMCC) > 350 F; nonionic; 100% conc.

Properties: Amber liq.; sol. in water, ethanol, toluol, veg. oil; sp.gr. 1.0; visc. 500 cps; HLB 14.9; sapon. no. 45-55; hyd. no. 65-80; flash pt. (PMCC) > 350 F; nonionic; 97% min. act.

Chem. Descrip.: Dl-α-Tocopherol
CAS 10191-41-0; EINECS/ELINCS 233-466-0
Uses: Antioxidant in pharmaceuticals
Regulatory: Kosher
Properties: Yel. to amber visc. oil; sl. mild odor; m.w. 430.69; 96% act.
Precaution: Rapidly turns dk. in presence of oxygen and high temps.; degrades rapidly
Storage: 2 yr shelf-life; store in closed containers under inert gas at R.T. or below; protect from light

Toho PEG #200 [Toho Chem. Ind. http://www.toho-chem.co.jp]
Chem. Descrip.: Polyethylene glycol
Uses: Base for creams/lotions, face cleansing foams, pharmaceutical ointments, suppositories, tablets
Properties: Cl. liq.; hyd. no. 534-590

Toho PEG #300 [Toho Chem. Ind. http://www.toho-chem.co.jp]
Chem. Descrip.: Polyethylene glycol
Uses: Base for creams/lotions, face cleansing foams, pharmaceutical ointments, suppositories, tablets
Properties: Cl. liq.; hyd. no. 356-393

Toho PEG #400 [Toho Chem. Ind. http://www.toho-chem.co.jp]
Chem. Descrip.: Polyethylene glycol
Uses: Base for creams/lotions, face cleansing foams, pharmaceutical ointments, suppositories, tablets
Properties: Cl. liq.; hyd. no. 268-294

Toho PEG #600 [Toho Chem. Ind. http://www.toho-chem.co.jp]
Chem. Descrip.: Polyethylene glycol
Uses: Base for creams/lotions, face cleansing foams, pharmaceutical ointments, suppositories, tablets
Properties: Cl. liq.; hyd. no. 178-196

Toho PEG #1000 [Toho Chem. Ind. http://www.toho-chem.co.jp]
Chem. Descrip.: Polyethylene glycol
Uses: Base for creams/lotions, face cleansing foams, pharmaceutical ointments, suppositories, tablets
Properties: Wh. solid; hyd. no. 107-118

Baypure® CX 100 [Bayer http://www.bayerus.com]
Chem. Descrip.: Iminodisuccinate, tetrasodium salt (26% min.) See Tetrasodium iminodisuccinate
Uses: Chelating agent for metal ions for use in pharmaceuticals
Properties: Colorless to lt. yel. sol'n.; sl. odor; misc. with water; sp.gr. 1.3 (20 C); visc. 30-60 mPa•s (20 C); b.p. 100 C (1013 mbar); pH 10.3-11.4; 33-35% act.
Toxicology: LD50 (oral, rat) > 2000 mg/kg; no indication of mutagenic or clatogenic effects
Environmental: Readily degrad.; LC0 (Brachydanio rerio, 96 h) > 82.6 mg/l
Hazardous Decomp. Prods.: Upon thermal decomp. COx, NOx, and other toxic gases
Storage: Store tightly sealed in original container; protect from temperatures <5 C

Tragacanth Gum Ribbon No. 1 NF FCC [Frutarom http://www.frutarom.com]
Chem. Descrip.: Tragacanth gum See Tragacanth (Astragalus gummifer) gum
CAS 9000-65-1; EINECS/ELINCS 232-552-5
Uses: Thickener, water binder, suspending agent, emulsifier for toothpastes, medicinal emulsions, pharmaceutical jellies and creams
Properties: Water-sol.
Chem. Descrip.: Glycerlyl triacetate See Triacetin
CAS 102-76-1; EINECS/ELINCS 203-051-9
Uses: Vehicle for injectable substances; facilitates the incorporation of liposoluble active ingredients
Properties: Nonionic

Tri-CAL WG [Innophos http://www.innophos.com/updates.asp?show=107]
Chem. Descrip.: Tricalcium phosphate anhyd. NF, FCC See Calcium phosphate tribasic
CAS 7758-87-4; EINECS/ELINCS 231-840-8
Uses: Excipient for wet granulation of tablets; mineral supplement
Features: Noncombustible
Regulatory: NF, FCC, FDA 21CFR §182.1217; DOT nonregulated; SARA nonreportable
Properties: Wh. gran. solid; odorless; 1% on 40 mesh, 54% on 100 mesh, 15% through 325 mesh; odorless; tasteless; sol. in dill. min. acid; pract. insol. in water; insol. in alcohol; m.w. 1004.6; m.p. 1670 C; pH 6.8 (20%); 100% act.; < 9% max. loss on ignition; 17.3% P, 37.6% Ca
Toxicology: LD50 (oral, rat) > 5000 mg/kg, (skin, rabbit) > 2000 mg/kg; dusts may cause eye irritation, upper respiratory tract irritation; low acute dermal and oral toxicity; ing. of lg. amts. may cause abdominal pain/cramps, nausea, vomiting, diarrhea; TSCA listed
Hazardous Decomp. Prods.: None known
HMIS: Health 0, Flammability 0, Reactivity 0
Storage: 24 mos. shelf life; store in tightly closed containers in cool, dry, sanitary area; avoid contamination of storage containers

Chem. Descrip.: Glycerin tricaprylate/tricaprate See Caprylic/capric triglyceride
CAS 73398-61-5; EINECS/ELINCS 277-452-2
Uses: Vehicle for pharmaceutical injections, oral suspensions, and suppositories
Regulatory: Not regulated for transport
Properties: Colorless liq.; typical odor; insol. in water; sol. in fat; dens. ≈ 0.95; flash pt. > 200 C
Trade Name Reference

Environmental: Keep our of sewers, drains, surface and underground water
Precaution: Wear gloves, goggles, overall skin protection; avoid contact with flames

Chem. Descrip.: Glycerol trioleate See Triolein
CAS 122-32-7; EINECS/ELINCS 204-534-7
Uses: Vehicle for injectable substances; facilitates the incorporation of liposoluble active ingredients
Properties: Nonionic

Tri Amino® 40% [ANGUS http://www.dow.com/angus/]
Chem. Descrip.: Tris (hydroxymethyl) aminomethane
CAS 77-86-1; EINECS/ELINCS 201-064-4
Uses: Buffer in pharmaceuticals, diagnostics, and biochemical apps.
Properties: Misc. with water; 40% act.

Tri Amino® Crystals [ANGUS http://www.dow.com/angus/]
Chem. Descrip.: Tris (hydroxymethyl) aminomethane
CAS 77-86-1; EINECS/ELINCS 201-064-4
Uses: Buffer in pharmaceuticals, diagnostics, and biochemical apps.
Properties: Sol. 80 g/100 ml water (20 C); m.w. 121.14; m.p. 171-172 C; b.p. 219-220 C (10 mm); pH 10.4 (0.1M aq., 20 C); 60% water

Tri Amino® Ultra Pure Standard [ANGUS http://www.dow.com/angus/]
Chem. Descrip.: Tris (hydroxymethyl) aminomethane
CAS 77-86-1; EINECS/ELINCS 201-064-4
Uses: Buffer for diagnostic/biological apps., contact lens cleaners, in prod. of enzymes; buffer and solubilizer in pharmaceuticals (injectables, orals, topicals, ophthalmics); CO2 scavenger/buffer for blood plasma; treats/prevents acidosis
Regulatory: USP, German, Japanese pharmacopoeia compliance
Properties: Wh. cryst. solid; sol. 80 g/100 ml in water (20 C); sol. in alcohols, glycols; m.w. 121.14; m.p. 168-172 C; b.p. 219 C; pH 10.0-11.5 (5% aq.); 99.9-100.1% purity
Precaution: Mildly alkaline

Tri Nitro® [Dow http://www.dow.com]
Chem. Descrip.: Tris (hydroxymethyl) nitromethane
CAS 126-11-4; EINECS/ELINCS 204-769-5
Uses: Antibacterial agent for cosmetics
Properties: 100% act. solid or 50% aq. sol'n.

NF, FCC See Calcium phosphate tribasic
CAS 7758-87-4; EINECS/ELINCS 231-840-8
Uses: Excipient for direct compression of tablets; mineral supplement
Regulatory: NF, FCC , DMF no. 5670
Properties: Wh. gran. solid; 0% on 20 mesh, 15% max. on 30 mesh, 5% max. through 30 mesh; odorless; tasteless; sol. in dil. min. acid; pract. insol. in water; insol. in alcohol; m.w. 1004.6; m.p. 1670 C; pH 7.2 (20% aq. slurry); 99.9-100.1% purity
Toxicology: LD50 (dermal, rabbit) > 2000 mg/kg; dust may cause eye irritation; low acute dermal toxicity; ing. of large quantities may cause abdominal pain, abdominal cramps, nausea, vomiting, diarrhea; not a suspected carcinogen; TSCA listed
Storage: 24 mos. shelf life; store in tightly closed containers in an area that is isolated from all toxic and harmful substances, sanitary, dry, cool

Triton® X-100 [Dow http://www.dow.com]
Chem. Descrip.: Octoxynol-9 (9-10 EO)
CAS 9002-93-1
Uses: Excipient in pharmaceuticals
Regulatory: FDA 21CFR §172.710, 175.105, 176.210, 178.3400, EPA compliance
Properties: Cl. liq.; sol. in water, toluene, xylene, trichlorethylene, ethylene glycol, alcohols; m.w. 628; sp.gr. 1.065; dens. 8.9 lb/gal; visc. 240 cps; HLB 13.5; cloud pt. 65 C (1% aq.); flash pt. > 300 F (TOC); pour pt. 45 F; pH 6 (5% aq.); surf. tens. 30 dynes/cm (1%); Ross-Miles foam 110 mm (0.1%, 120 F); nonionic; 100% act.

Trypsin 1:75 [Am. Labs http://www.americanlaboratories.com]
Chem. Descrip.: Trypsin
CAS 9002-07-7; EINECS/ELINCS 232-650-8
Uses: Proteolytic enzyme for pharmaceuticals, protein digestion, in tissue culture
Properties: Cream-colored amorphous powd.,
Trade Name Reference

char. nonoffensive odor
Storage: Preserve in tight containers in cool, dry place

Trypsin 1:150 [Am. Labs
http://www.americanlaboratories.com]
Chem. Descrip.: Trypsin
CAS 9002-07-7; EINECS/ELINCS 232-650-8
Uses: Proteolytic enzyme for pharmaceuticals, protein digestion, in tissue culture
Properties: Cream-colored amorphous powd., char. nonoffensive odor
Storage: Preserve in tight containers in cool, dry place

Trypsin 1:150 [Am. Labs
http://www.americanlaboratories.com]
Chem. Descrip.: Trypsin
CAS 9002-07-7; EINECS/ELINCS 232-650-8
Uses: Proteolytic enzyme for pharmaceuticals, protein digestion, in tissue culture
Properties: Cream-colored amorphous powd., char. nonoffensive odor
Storage: Preserve in tight containers in cool, dry place

Tullanox® HM-100 [Tulco
http://www.tulcocorp.com]
Chem. Descrip.: Precipitated silica See Silica, hydrated
CAS 1343-98-2; EINECS/ELINCS 215-683-2
Uses: Provides reinforcement, whiteness and water repellency in tooth filling compound
Features: Same base as Tullanox HM-250, but with different rheology
Properties: Wh. powd.

Tullanox® HM-150 [Tulco
http://www.tulcocorp.com]
Chem. Descrip.: Precipitated silica See Silica, hydrated
CAS 1343-98-2; EINECS/ELINCS 215-683-2
Uses: Provides reinforcement, whiteness and water repellency in tooth filling compound

Tullanox® HM-250 [Tulco
http://www.tulcocorp.com]
Chem. Descrip.: Hydrophobic precipitated silica, modified by org. silazane compd. See Silica, hydrated
CAS 1343-98-2; EINECS/ELINCS 215-683-2
Uses: Provides reinforcement, whiteness and water repellency in tooth filling compound
Features: High surf. area, high water repellency; hydrophobic
Properties: Wh. powd., extremely fine particle size; 0.3 µ particle diam.; sp.gr. 2.2; bulk dens. 5-6 lb/ft³; surf. area 125±20 m²/g; ref. index 1.45-1.46; pH > 9 (4% in 50/50 IPA/water)
Use Level: 0.1-2.0%
Toxicology: May cause eye irritation

Tulsion® CXO-18 [Thermax India
http://www.thermaxindia.com]
Chem. Descrip.: Ion exchange resin (polyacrylic copolymer matrix, carboxylic functional group, weak acid type)
Uses: Excipient for antibiotic purification
Features: Specially purified
Properties: Lt. colored free-flowing powd.; 0.08-0.15 mm particle size; 100-200 mesh size; pH 5-14; 52% moisture

Tulsion® T-44 [Thermax India
http://www.thermaxindia.com]
Chem. Descrip.: Ion exchange resin (polystyrene copolymer matrix, sulfonic functional group, strong acid type)
Uses: Excipient for antibiotic purification
Features: Specially purified
Properties: Lt. colored free-flowing powd.; 0.3-1.2 mm particle size; 16-50 mesh size; pH 5-14; 52% moisture

Tulsion® T-335 [Thermax India
http://www.thermaxindia.com]
Chem. Descrip.: Ion exchange resin (polyacrylic copolymer matrix, carboxylic functional group, weak acid type)
Uses: Excipient for pharmaceutical sustained-release formulations
Properties: 0.1-0.3 mm particle size; 50-140 mesh size; pH 0-14; cationic; < 5% moisture

Tulsion® T-339 [Thermax India
http://www.thermaxindia.com]
Chem. Descrip.: Ion exchange resin (polyacrylic copolymer matrix, carboxylic functional group, weak acid type)
Uses: Excipient, stabilizer, taste masking agent for pharmaceuticals, Vitamin B12 recovery and stabilization
Features: No side reactions
Properties: Powd.; < 0.15 mm particle size; < 100 mesh size; pH 5-14; < 10% moisture

Tulsion® T-343 [Thermax India
http://www.thermaxindia.com]
Chem. Descrip.: Ion exchange resin (polystyrene copolymer matrix, sulfonic functional group, strong acid type)
Uses: Excipient, taste masking agent, tablet disintegrant for pharmaceuticals
Features: No side reactions
Properties: Powd.; < 0.15 mm particle size; < 100 mesh size; pH 5-14; < 10% moisture

Tulsion® T-339 [Thermax India
http://www.thermaxindia.com]
Chem. Descrip.: Ion exchange resin (polyacrylic copolymer matrix, carboxylic functional group, weak acid type)
Uses: Excipient, taste masking agent for
Trade Name Reference

**pharmaceutical sustained-release formulations**

Properties: Lt. brn. free-flowing powd.; < 0.15 mm particle size; < 100 mesh size; pH 0-14; < 10% moisture

**Tulsion® T-344** [Thermax India http://www.thermaxindia.com]

Chem. Descrip.: Ion exchange resin (polystyrene copolymer matrix, sulfonic functional group, strong acid type)

Uses: Excipient, taste masking agent for pharmaceutical sustained-release formulations

Properties: Lt. colored free-flowing powd.; < 0.15 mm particle size; < 100 mesh size; pH 0-14; < 10% moisture

**Turpinal® SL** [Cognis/Care Chems.]

Chem. Descrip.: Etidronic acid (CAS 2809-2-1; EINECS/ELINCS 220-552-8)

Uses: Chelating agent for heavy metal ions; stabilizer, antioxidant for pharmaceuticals

Properties: Colorless to sl. ylsh. liq., neutral inherent odor; sp.gr. 1.445-1.458; 58-61% conc.

Use Level: 0.1-2%

Toxicology: Protect skin and eyes from contact

Precaution: Corrosive


Chem. Descrip.: Polysorbate 20 NF

CAS 9005-64-5

Uses: Solubilizer, o/w emulsifier in topical pharmaceuticals; emulsifier for flavors

Regulatory: USP/NF, EP compliance; FDA 21CFR §172.515

Properties: Pale yel. liq.; sol. in water, methanol, ethanol, IPA, propylene glycol, ethylene glycol, cottonseed oil; sp.gr. 1.1; visc. 400 cps; HLB 16.7; flash pt. > 300 F; sapon. no. 40-50; nonionic; 100% act.


Chem. Descrip.: Polysorbate 40 NF

CAS 9005-66-7 (generic)

Uses: O/w emulsifier, solubilizer in pharmaceuticals

Regulatory: USP/NF, EP compliance

Properties: Solid; HLB 9.6


Chem. Descrip.: Polysorbate 80

CAS 9005-65-6

Uses: O/w emulsifier, wetting agent, dispersant, solubilizer for topical pharmaceuticals


Properties: Yel. brn. liq.; sol. in water, at low levels in cottonseed oil; visc. 460 cps; HLB 15.0; nonionic


Chem. Descrip.: Polysorbate 81

CAS 9005-65-6

Uses: Emulsifier, wetting agent, dispersant, solubilizer for flavors, vitamin oils

Regulatory: SARA §311/312, 313 nonreportable
Trade Name Reference

**Properties:** Yel. brn. oily liq.; sol. in min. and corn oil, dioxane, Cellosolve, methanol, ethanol, ethyl acetate, aniline; disp. in water; sp.gr. 1; visc. 450 cps; HLB 10.0; flash pt. > 300 F; sapon. no. 96-104; nonionic; 100% act.

**Environmental:** BOD (28 d) 50%; COD 2.2g

**Precaution:** Wear safety goggles with side shields and impervious gloves; avoid strong oxidizing agents

**Hazardous Decomp. Prods.:** COx

**HMIS:** Health 0, Flammability 1, Reactivity 0

**Storage:** Store in original containers

**Tylopur® C 300 P2** [Clariant http://www.clariant.com; http://www.clariant-northamerica.com]

Chem. Descrip.: Sodium carboxymethylcellulose, normal etherification See Carboxymethylcellulose sodium

CAS 9004-32-4; EINECS/ELINCS 265-995-8

**Uses:** Binder for toothpaste; emulsifier, stabilizer, visc. modifier in pharmaceutical syrups, emulsions, suspensions, ointments, liniments

**Features:** Highly purified

**Properties:** Powd.; 95% min. through 80 mesh, 60% min. through 140 mesh; sol. in water; visc. 300 mPa•s (1.8%, 20 C); pH 6-8 (1%); anionic; 99.5% min. act.; 10% max. moisture

**Storage:** Long shelf life if stored in closed bags under dry conditions

**Tylopur® C 3000 P2** [Clariant http://www.clariant.com; http://www.clariant-northamerica.com]

Chem. Descrip.: Sodium carboxymethylcellulose, normal etherification See Carboxymethylcellulose sodium

CAS 9004-32-4; EINECS/ELINCS 265-995-8

**Uses:** Binder, crystallization control agent in ice cream; visc. modifier, stabilizer in yogurt, sour milk drinks, fruit and vegetable juices; visc. modifier, stabilizer in pharmaceutical syrups, emulsions, suspensions; binder, disintegrant in pharmaceutical tablets

**Features:** Highly purified

**Properties:** Gran.; 95% min. through 18 mesh; 20% max. through 80 mesh; sol. in water; visc. 6000 mPa•s (1.8%, 20 C); pH 6-8 (1%); anionic; 99.5% min. act.; 10% max. moisture

**Storage:** Long shelf life if stored in closed bags under dry conditions

**Tylopur® C 1000 P2** [Clariant http://www.clariant.com]

Chem. Descrip.: Sodium carboxymethylcellulose, See Carboxymethylcellulose sodium

CAS 9004-32-4; EINECS/ELINCS 265-995-8

**Uses:** Thickener, binder for sauces, soups, gravies; stabilizer, shelf-life extender in bakery and dough prods.; thickener, stabilizer in pharmaceutical syrups, emulsions, suspensions; binder, disintegrant in pharmaceutical tablets

**Features:** Highly purified

**Properties:** Powd.; 95% min. through 80 mesh, 60% min. through 140 mesh; sol. in water;
Trade Name Reference

visc. 10,000 mPa•s (1.8%, 20 C); pH 6-8 (1%);
anionic
Storage: Long shelf life if stored in closed bags under dry conditions

Tylopur® CB 30000 G1 [Clariant
http://www.clariant.com;
http://www.clariant-northamerica.com]
Chem. Descrip.: Sodium carboxymethylcellulose, highly etherified
See Carboxymethylcellulose sodium
CAS 9004-32-4; EINECS/ELINCS 265-995-8
Uses: Thickener, stabilizer in pharmaceutical syrups
Features: Highly purified
Properties: Wh. to pale ylsh. gran.; 95% min. through 18 mesh, 20% max. through 80 mesh; sol. in water; visc. 30,000 mPa•s (1.8%, 20 C); pH 6-8 (1%); anionic; 99.5% min. act.; 10% max. moisture
Storage: Long shelf life if stored in closed bags under dry conditions

Chem. Descrip.: Sodium carboxymethylcellulose, highly etherified
See Carboxymethylcellulose sodium
CAS 9004-32-4; EINECS/ELINCS 265-995-8
Uses: Thickener, stabilizer in pharmaceutical syrups
Features: Highly purified
Properties: Powd.; 95% min. through 80 mesh, 60% min. through 140 mesh; sol. in water; visc. 30,000 mPa•s (1.8%, 20 C); anionic; 99.5% min. act.; 10% max. moisture
Storage: Long shelf life if stored in closed bags under dry conditions

Tylose® H 20 P2 PHA [Shin-Etsu http://www.silicone.jp/e/]
CAS 9004-62-0
Uses: Binder, controlled release agent in pharmaceutical gran., tablets, controlled-release preps.; film-former, protectant in pharmaceutical coatings
Features: Highly purified
Properties: Powd.; 95% min. through 80 mesh, 40% min. through 140 mesh; sol. in water; visc. 20 mPa•s (1.9%, 20 C); pH 6.0-8.5 (1%); nonionic; 10% max. moisture
Storage: Long shelf life if stored in closed bags under dry conditions

Tylose® H 300 G4 PHA [Shin-Etsu http://www.silicone.jp/e/]
CAS 9004-62-0
Uses: Film-former, protectant in pharmaceutical coatings; visc. modifier, water retention aid, film-former in pharmaceutical ointments, gels, syrups, nasal, eye, and ear drops
Features: Highly purified
Properties: Wh. to sl. yel. gran.; odorless; 98% min. through 35 mesh, 25% max. through 120 mesh; sol. in water; insol. in fat; dens. 1.38-1.4; bulk dens. 400 kg/m³; visc. 300 mPa•s (1.9%, 20 C); ignition temp. > 360 C; self-ignition temp. > 190 C; pH 6.0-8.5 (1%); octanol/water partition < 3; nonionic; 10% max. moisture
Toxicology: LD50 (oral, rat) > 2 g/kg
Environmental: LC50 (zebra fish, 96 hr) > 500 mg/l; EC50 (bacteria) > 1 g/l; biodeg. 10-30% (OCED 302 B); DOC 500 mg/g; COD 1200 mg/g; do not allow to enter drains, waterways
Precaution: Wear rubber gloves, safety glasses; slippery when wet
Storage: Long shelf life if stored in closed bags under dry conditions

Tylose® H 30000 P2 PHA [Shin-Etsu http://www.silicone.jp/e/]
CAS 9004-62-0
Uses: Binder, controlled release agent in pharmaceutical gran., tablets, timed-release preps.; visc. modifier, emulsifier, water retention aid, film-former in pharmaceutical ointments, gels, syrups, emulsions, suspensions, nasal/eye/ear drops
Features: Highly purified
Properties: Gran.; 98% min. through 35 mesh, 25% max. through 120 mesh; sol. in water; visc. 4000 mPa•s (1.9%, 20 C); pH 6.0-8.5 (1%); nonionic; 10% max. moisture
Storage: Long shelf life if stored in closed bags under dry conditions

Tylose® H 30000 P2 PHA [Shin-Etsu http://www.silicone.jp/e/]
CAS 9004-62-0
Uses: Emulsifier, visc. modifier, thickener,
Tylose® H 100000 P2 PHA [Shin-Etsu http://www.silicone.jp/e/]
CAS 9004-62-0
Uses: Thickener, stabilizer in pharmaceutical syrups, emulsions, suspensions; emulsifier, binder
Features: Highly purified
Properties: Wh. to sl. yel. powd.; odorless; 95% min. through 80 mesh, 40% min. through 140 mesh; sol. in water; insol. in fat; dens. 1.38-1.40; bulk dens. ≈ 450 k/m³; visc. 30,000 mPa•s (1.9%, 20 C); ignition temp. > 360 C; self-ignition temp. > 190 C; pH 6.0-8.5 (1%); nonionic; 10% max. moisture
Toxicology: LD50 (oral, rat) > 2 g/kg; non-irritating to skin, eyes
Environmental: LC50 (zebra fish, 96 h) > 500 mg/l; EC50 (activated sludge) > 1000 mg/l; biodeg. 10-30%; do not allow to enter drains or waterways; dissolved org. carbon 500 mg/g; chemical oxygen demand 1200 mg/g
Precaution: Wear rubber gloves, dust mask, safety glasses; forms slippery surfaces with water
Storage: Long shelf life if stored in closed bags under dry conditions

Tylose® MH Grades [Shin-Etsu http://www.silicone.jp/e/]

Chem. Descrip.: Methyl hydroxyethylcellulose
CAS 9032-42-2
Uses: Binder, thickener, pigment/foam/filler stabilizer, dispersant, emulsifier, plasticizer, visc. control agent, protective colloid for pharmaceuticals
Properties: Gran.; water-sol.; nonionic; 100% act.
Toxicology: LD50 (oral, rat) > 2 g/kg; non-irritating to skin, eyes
Environmental: LC50 (zebra fish, 96 h) > 500 mg/l; EC50 (activated sludge) > 1000 mg/l; biodeg. 10-30%; do not allow to enter drains or waterways; dissolved org. carbon 500 mg/g; chemical oxygen demand 1200 mg/g
Precaution: Wear rubber gloves, dust mask, safety glasses; capable of dust explosion; forms slippery surfaces with water
Storage: Long shelf life if stored in closed bags under dry conditions

Tylose® MHB [Shin-Etsu http://www.silicone.jp/e/]
Chem. Descrip.: Methyl hydroxyethylcellulose
CAS 9032-42-2
Uses: Binder, thickener, pigment/foam/filler stabilizer, dispersant, emulsifier, plasticizer, visc. control agent, protective colloid for pharmaceuticals
Properties: Gran.; water-sol.; nonionic
Toxicology: LD50 (oral, rat) > 2 g/kg; non-irritating to skin, eyes
Environmental: LC50 (zebra fish, 96 h) > 500 mg/l; EC50 (activated sludge) > 1000 mg/l; biodeg. 10-30%; do not allow to enter drains or waterways; dissolved org. carbon 500 mg/g; chemical oxygen demand 1200 mg/g
Precaution: Wear rubber gloves, dust mask, safety glasses; capable of dust explosion; forms slippery surfaces with water
Storage: Long shelf life if stored in closed bags under dry conditions

Type CG6/AW 8x30 [Cameron Carbon http://www.cameroncarbon.com/]
Chem. Analysis: Moisture 5%; ash 8%
CAS 7440-44-0; EINECS/ELINCS 231-153-3
Uses: Pharmaceutical purification
Properties: Gran.; mesh size 8x30; sp.gr. 0.45; iodine no. 950; hardness 76

Type CG6/AW 12x40 [Cameron Carbon http://www.cameroncarbon.com/]
Chem. Analysis: Moisture 5%; ash 8%
CAS 7440-44-0; EINECS/ELINCS 231-153-3
Uses: Pharmaceutical purification
Properties: Gran.; mesh size 12x40; sp.gr. 0.49; iodine no. 1000; hardness 76

Type SG6 [Cameron Carbon http://www.cameroncarbon.com/]
Chem. Descrip.: Activated coconut shell carbon See Carbon, activated
Chem. Analysis: Moisture 5%; ash 8%
CAS 7440-44-0; EINECS/ELINCS 231-153-3
Uses: For dechlorination of water and ultra pure water applics. that involve low concs. of low m.w. organics; also for precious metal recovery; pharm. purification
Properties: Gran.; sp.gr. 0.49; surf. area 1100 B.E.T./N2; iodine no. 1050; hardness 97; 60% act.; 2% moisture

Chem. Descrip.: Polyol alkoxylate
Trade Name Reference

**Uses:** Antifoam for fermentation, antibiotics

**Properties:** Colorless liq.; sp. gr. 1.04; hyd. no. 50; pour pt. -28 C; cloud pt. 40 C (1% aq.); pH 5.5 (10% in 10/1 methanol/water); surf. tens. 41 mN/m (0.5%, 20 C); nonionic; 100% act.

**Ultrafino®** [Luzenac Am.](http://www.luzenac.com)

**Chem. Descrip.:** Talc USP/FCC

**Chem. Analysis:** SiO₂ (62%), MgO (32%)

**CAS** 14807-96-6; EINECS/ELINCS 238-877-9

**Uses:** Filler for pharmaceuticals, formulations with sensitive fragrances and pigments, antiperspirants, and aerosols

**Features:** Highly refined, extra-fine talc with exc. slip and lustrous, translucent appearance

**Properties:** Powd.; 99.96% through 325 mesh; median diam. 4 µ; tapped dens. 35 lb/ft³; TAPPI brightness 89; pH 9 (10% slurry)

**Ultrapeg 300 USP** [Oxiteno](http://www.oxiteno.com.br/in/index.htm)

**Chem. Descrip.:** Polyethyleneglycol 300 See PEG-6

**Chem. Analysis:** Water 1.0% max.

**CAS** 25322-68-3

**Uses:** Carrier, lubricant, and humectant in ointments and pharmaceutical creams; solubilizer in liq. preps.

**Regulatory:** USP

**Properties:** Cl. liq.; avg. m.w. 285-315; pH 4.5-7.5 (5% aq. sol'n); acid value 0.5 max.; hydroxyl value 356-394; ash content 0.1% max

**Toxicology:** Sl. toxic

**Precaution:** Wear safety goggles, PVC gloves, apron

**Hazardous Decomp. Prods.:** Irritating fumes

**Storage:** 24 mos. when stored in original packaging in dry, covered area away from heat sources on cemented floor

**Ultrapeg 400 USP** [Oxiteno](http://www.oxiteno.com.br/in/index.htm)

**Chem. Descrip.:** Polyethyleneglycol 400 See PEG-8

**Chem. Analysis:** Water 1.0% max.

**CAS** 25322-68-3; EINECS/ELINCS 225-856-4

**Uses:** Carrier, lubricant, and humectant in ointments and pharmaceutical creams; carrier and lubricant in suppositories

**Regulatory:** USP

**Properties:** Solid; avg. m.w. 950-1050; pH 4.5-7.5 (5% aq. sol'n); acid value 0.5 max.; hydroxyl value 107-118; ash content 0.1% max

**Toxicology:** Sl. toxic

**Precaution:** Wear safety goggles, PVC gloves, apron

**Hazardous Decomp. Prods.:** Irritating fumes

**Storage:** 24 mos. when stored in original packaging in dry, covered area away from heat sources on cemented floor

**Ultrapeg 600 USP** [Oxiteno](http://www.oxiteno.com.br/in/index.htm)

**Chem. Descrip.:** Polyethyleneglycol 600 See PEG-12

**Chem. Analysis:** Water 1.0% max.

**CAS** 25322-68-3; EINECS/ELINCS 229-859-1

**Uses:** Carrier, lubricant, and humectant in ointments and pharmaceutical creams; solubilizer in liq. preps.

**Regulatory:** USP

**Properties:** Liq.; avg. m.w. 570-630; pH 4.5-7.5 (5% aq. sol'n); acid value 0.5 max.; hydroxyl value 178-197; ash content 0.1% max

**Toxicology:** Sl. toxic

**Precaution:** Wear safety goggles, PVC gloves, apron

**Hazardous Decomp. Prods.:** Irritating fumes

**Storage:** 24 mos. when stored in original packaging in dry, covered area away from heat sources on cemented floor

**Ultrapeg 1000 USP** [Oxiteno](http://www.oxiteno.com.br/in/index.htm)

**Chem. Descrip.:** Polyethyleneglycol 1000 See PEG-20

**Chem. Analysis:** Water 1.0% max.

**CAS** 25322-68-3; EINECS/ELINCS 203-989-9

**Uses:** Carrier, lubricant, and humectant in ointments and pharmaceutical creams; carrier and lubricant in suppositories

**Regulatory:** USP

**Properties:** Solid; avg. m.w. 950-1050; pH 4.5-7.5 (5% aq. sol'n); acid value 0.5 max.; hydroxyl value 107-118; ash content 0.1% max

**Toxicology:** Sl. toxic

**Precaution:** Wear safety goggles, PVC gloves, apron

**Hazardous Decomp. Prods.:** Irritating fumes

**Storage:** 24 mos. when stored in original packaging in dry, covered area away from heat sources on cemented floor

**Ultrapeg 1500 F USP** [Oxiteno](http://www.oxiteno.com.br/in/index.htm)

**Chem. Descrip.:** Polyethyleneglycol 1500 See PEG-32

**Chem. Analysis:** Water 2.0% max.

**CAS** 25322-68-3; EINECS/ELINCS 203-989-9

**Uses:** Carrier, lubricant, and humectant in ointments and pharmaceutical creams; carrier and lubricant in suppositories

**Regulatory:** USP

**Properties:** Solid; avg. m.w. 950-1050; pH 4.5-7.5 (5% aq. sol'n); acid value 0.5 max.; hydroxyl value 107-118; ash content 0.1% max

**Toxicology:** Sl. toxic

**Precaution:** Wear safety goggles, PVC gloves, apron

**Hazardous Decomp. Prods.:** Irritating fumes

**Storage:** 24 mos. when stored in original packaging in dry, covered area away from heat sources on cemented floor
**Trade Name Reference**

carrier and lubricant in suppositories

Regulatory: USP

Properties: Wh. flakes; avg. m.w. 1425-1575; pH 4.5-7.5 (5% aq. sol'n); acid value 0.5 max.; hydroxyl value 71-78; ash content 0.1% max

Toxicology: Sl. toxic

Precaution: Wear safety goggles, PVC gloves, apron

Hazardous Decomp. Prods.: Irritating fumes

Storage: 24 mos. when stored in original packaging in dry, covered area away from heat sources on cemented floor

Ultrapeg 1500 USP [Oxiteno](http://www.oxiteno.com.br/in/index.htm)

Chem. Descrip.: Polyethyleneglycol 1500 See PEG-32

Chem. Analysis: Water 1.0% max.

CAS 25322-68-3; EINECS/ELINCS 203-989-9

Uses: Carrier, lubricant, and humectant in ointments and pharmaceutical creams; carrier and lubricant in suppositories

Regulatory: USP

Properties: Solid; avg. m.w. 1425-1575; pH 4.5-7.5 (5% aq. sol'n); acid value 0.5 max.; hydroxyl value 71-78; ash content 0.1% max

Toxicology: Sl. toxic

Precaution: Wear safety goggles, PVC gloves, apron

Hazardous Decomp. Prods.: Irritating fumes

Storage: 24 mos. when stored in original packaging in dry, covered area away from heat sources on cemented floor

Ultrapeg 4000 F USP [Oxiteno](http://www.oxiteno.com.br/in/index.htm)

Chem. Descrip.: Polyethyleneglycol 4000 See PEG-75

Chem. Analysis: Water 1.0% max.

CAS 25322-68-3; EINECS/ELINCS 203-989-9

Uses: Carrier, lubricant, and humectant in ointments and pharmaceutical creams; carrier and lubricant in suppositories

Regulatory: USP

Properties: Wh. flakes; avg. m.w. 3600-4400; pH 4.5-7.5 (5% aq. sol'n); acid value 25-31; ash content 0.1% max

Toxicology: Sl. toxic

Precaution: Wear safety goggles, PVC gloves, apron

Hazardous Decomp. Prods.: Irritating fumes

Storage: 24 mos. when stored in original packaging in dry, covered area away from heat sources on cemented floor

Ultrapeg 6000 F USP [Oxiteno](http://www.oxiteno.com.br/in/index.htm)

Chem. Descrip.: Polyethyleneglycol 6000 See PEG-150

Chem. Analysis: Water 1.0% max.

CAS 25322-68-3; EINECS/ELINCS 203-989-9

Uses: Carrier, lubricant, and humectant in ointments and pharmaceutical creams; carrier and lubricant in suppositories

Regulatory: USP

Properties: Wh. flakes; avg. m.w. 5400-6600; pH 4.5-7.5 (5% aq. sol'n); acid value 0.5 max.; hydroxyl value 17-21; ash content 0.1% max

Toxicology: Sl. toxic

Precaution: Wear safety goggles, PVC gloves, apron

Hazardous Decomp. Prods.: Irritating fumes

Storage: 24 mos. when stored in original packaging in dry, covered area away from heat sources on cemented floor

Ultrapure ES Liquid [Ultra Chemical](http://www.ultrachem.com)

Chem. Descrip.: White petrolatum USP

Chem. Analysis: Lovibond 2Y max. color; sp. gr. 0.815-0.855; visc. 50-60 SUS (210 F); m.p. 105-115 F

Features: Used where extra-soft, low melting point petrolatum is desired

Regulatory: USP

Properties: Lovibond 2Y max. color; sp. gr. 0.815-0.855; visc. 50-60 SUS (210 F); m.p. 105-115 F
Trade Name Reference

Ultrapure L [Ultra Chemical
http://www.ultrachem.com]
Chem. Descr.: White petrolatum USP
CAS 8027-32-5; EINECS/ELINCS 232-373-2
Uses: Base, skin protectant, penetrant,
moisture retention aid for skin care prods.,
pharmaceuticals
Regulatory: USP
Properties: Lovibond 2Y max. color; sp. gr.
0.815-0.855; visc. 50-60 SUS (210 F); m.p. 52-
60 C

Ultrapure Liquid [Ultra Chemical
http://www.ultrachem.com]
Chem. Descr.: White petrolatum USP
CAS 8027-32-5; EINECS/ELINCS 232-373-2
Uses: Base, skin protectant, penetrant,
moisture retention aid for skin care prods.,
pharmaceuticals
Features: Used where extra-soft, low melting
point petrolatum is desired
Regulatory: USP
Properties: Lovibond 2Y max. color; sp. gr.
0.815-0.855; visc. 50-60 SUS (210 F); m.p.
105-115 F

Ultrapure SC [Ultra Chemical
http://www.ultrachem.com]
Chem. Descr.: White petrolatum USP
CAS 8027-32-5; EINECS/ELINCS 232-373-2
Uses: Base, skin protectant, penetrant,
moisture retention aid for skin care prods.,
pharmaceuticals
Features: Less greasy afterfeel; no drag; easy to
emulsify
Regulatory: USP
Properties: Lovibond 1Y max. color; visc. 50-60
SUS (210 F); m.p. 52-60 C

http://www.nationalstarch.com]
Chem. Descr.: Corn starch See Corn (Zea
mays) starch
CAS 9005-25-8; EINECS/ELINCS 232-679-6
Uses: Binder, filler, disintegrant for
pharmaceutical tablets and preps.; volume
adjuster in hard capsules; lubricant
Features: High whiteness
Regulatory: USP/NF
Properties: Wh. free-flowing powd.; pH 4.5-7;
14% max. moisture

http://www.nationalstarch.com]
Chem. Descr.: Corn starch NF See Corn
(Zea mays) starch
CAS 9005-25-8; EINECS/ELINCS 232-679-6
Uses: Excipient, anticaking agent for
pharmaceutical tablet compression,
capsule filling
Features: Low moisture content; protects
moisture-sensitive ingreds.
Regulatory: USP/NF
Properties: Wh. powd.; pH 4.5-7.0; 2% max.
moisture

Unicerin C-30 [Induchem AG
http://www.induchem.com]
Chem. Descr.: Lactose, cellulose, sericin,
hydroxypropyl methylcellulose, Cl 77492
Uses: Protectant, anti-irritant for cosmetic
prods. such as transparent or semi-transparent
gels or emulsions
Regulatory: EEC, Japan, U.S. approved
Features: Low moisture content; protects
moisture-sensitive ingreds.
Regulatory: USP/NF
Properties: Wh. powd.; pH 4.5-7.0; 2% max.
moisture

Unichem BZBN [Universal Preserv-A-Chem
http://www.upichem.com]
Chem. Descr.: Benzyl benzoate
CAS 120-51-4; EINECS/ELINCS 204-402-9
Uses: External medicine

Unichem ZPS [Universal Preserv-A-Chem
http://www.upichem.com]
Chem. Descr.: Zinc phenolsulfonate
CAS 127-82-2; EINECS/ELINCS 204-867-8
Uses: Antiseptic
Trade Name Reference

**Trade Name Reference**

**Properties:** Colorless solid; sol. in water  
**Use Level:** 0.1-0.4%  
**Storage:** > 1 yr. shelf life if stored @ R.T. and protected from it.

**Unifilter U-41** [Induchem AG  
http://www.induchem.com; Lipo  
http://www.lipochemicals.com]

Chem. Descrip.: Butyl methoxydibenzoylmethane, octyl methoxycinnamate, 3-benzylidene camphor  
See Butyl methoxy dibenzoyl methane

Uses: Broad spectrum sunscreen and uv-absorbers for suntan prods., stabilization of light-sensitive prods.

Features: Broad spectrum  
Regulatory: EU permitted

**Properties:** Ylsh. liq.; oil-sol.

**Use Level:** 1-13%

**Storage:** > 1 yr. shelf life if stored @ R.T. and protected from lt.

**Unifluorid D 401** [Induchem AG  
http://www.induchem.com]

Chem. Descrip.: Propylene glycol, olaflur

Uses: Pharmaceutical ingred. for caries prophylaxis; for toothpastes, gels, and mouthwashes  
Regulatory: EU permitted

Properties: Ylsh. liq.; water-sol.; 33% act.

**Use Level:** Up to 6%

**Storage:** > 1 yr. shelf life if stored @ R.T. and protected from lt.

**Unifluorid H 101** [Induchem AG  
http://www.induchem.com]

Chem. Descrip.: Cetylamine hydrofluoride  
CAS 3151-59-5; EINECS/ELINCS 221-588-7

Uses: Pharmaceutical ingred. for caries prophylaxis, toothpastes, gels, mouthwashes  
Regulatory: EU permitted

Properties: Yel. liq.; water-sol.

**Use Level:** Up to 2%

**Storage:** > 1 yr. shelf life if stored @ R.T. and protected from it.

**Uniglucan G-51** [Induchem AG  
http://www.induchem.com; Lipo  
http://www.lipochemicals.com]

Chem. Descrip.: Butylene glycol, yeast polysaccharides

Uses: Immune system activator, anti-irritant, protectant for skin and body care prods., sun protection prods., after sun prods.

Regulatory: EEC, Japan, U.S. approved

**Unipabol U-17** [Induchem AG  
http://www.induchem.com; Lipo  
http://www.lipochemicals.com]

Chem. Descrip.: PEG-25 PABA  
CAS 113010-52-9

Uses: UV-B sunscreen for pharmaceuticals, skin care prods., stabilization of light-sensitive prods.

Regulatory: USA, EU, and Japan permitted

Properties: Yel. liq.; water-sol.

**Use Level:** 5-10%

**Storage:** > 1 yr. shelf life if stored @ R.T. and protected from lt.

**Unipectine™ UHM Series** [Cargill Texturizing Solutions  
http://www.cargilltexturizing.com]

Chem. Descrip.: Pectin  
CAS 9000-69-5; EINECS/ELINCS 232-553-0

Uses: Excipient, dispersant, act. ingred. in pharmaceuticals

**Unipertan P-24** [Induchem AG  
http://www.induchem.com; Lipo  
http://www.lipochemicals.com]

Chem. Descrip.: Hydrolyzed collagen, acetyl tyrosine, riboflavin  
See Acetyltirosine

Uses: Tanning accelerator complex for
Trade Name Reference

**pharmaceuticals**

*Regulatory:* EU, USA permitted  
*Properties:* Yel. liq.; water-sol.  
*Use Level:* 5%  
*Storage:* > 1 yr. shelf life if stored @ R.T. and protected from it.

**Unipertan P-242**  
[Induchem AG  
http://www.induchem.com; Lipo  
http://www.lipochemicals.com]

*Chem. Descrip.:* Hydrolyzed collagen, acetyl tyrosine, adenosine triphosphate  
*See Acetyltyrosine*

*Uses:* Tanning accelerator complex for pharmaceuticals  
*Regulatory:* EU, USA permitted  
*Properties:* Brown liq.; water-sol.  
*Use Level:* 5%  
*Storage:* > 1 yr. shelf life if stored @ R.T. and protected from it.

**Unipertan P-2002**  
[Induchem AG  
http://www.induchem.com; Lipo  
http://www.lipochemicals.com]

*Chem. Descrip.:* Hydrolyzed collagen, acetyl tyrosine, adenosine triphosphate, and riboflavin  
*See Acetyltyrosine*

*Uses:* Tanning accelerator complex for suntan prods.  
*Regulatory:* USA and EU permitted  
*Properties:* Yel. liq.  
*Use Level:* 5%  
*Storage:* > 1 yr. shelf life if stored @ R.T. and protected from it.

**Uniphen P-23**  
[Induchem AG  
http://www.induchem.com; Lipo  
http://www.lipochemicals.com]

*Chem. Descrip.:* Phenoxyethanol, methylparaben, ethylparaben, propylparaben, butylparaben  
*Uses:* Preservative, bactericide, fungicide for pharmaceuticals  
*Features:* Esp. to preserve the oil phase of emulsions  
*Regulatory:* USA, Japan, and Europe approvals  
*Properties:* Colorless cl. sl. visc. liq., faint aromatic odor; sol. in oil, ethanol, aq. ethanol, ethylene glycol, propylene glycol; misc. with acetone, chloroform; sl. sol. in water; sp.gr. 1.120-1.126; ref. index 1.540-1.543  
*Use Level:* 0.3-1.0%  
*Storage:* > 1 yr. shelf life if stored @ R.T. and protected from it.

**Uniplex 82**  
[Unitec  
http://www.unitexchemical.com]

*Chem. Descrip.:* Acetyl triethyl citrate  
*CAS 77-89-4; EINECS/ELINCS 201-066-5  
*Uses:* Plasticizer for bandages  
*Features:* Produces resins with exc. heat stability and low toxicity  
*Regulatory:* FDA approved  
*Properties:* APHA 50 max. color, essentially odorless; sol. 0.72 g/100 ml water; m.w. 318.3; sp.gr. 1.135-1.139; dens. 9.47 lb/gal; visc. 53.7 cps; b.p. 132 C (1 mm Hg); pour pt. -45 F; flash pt. (COC) 188 C; ref. index 1.438; 99% min. assay

**Uniplex 504**  
[Unitec  
http://www.unitexchemical.com]

*Chem. Descrip.:* Pentaperythritol tetraacetate  
*CAS 597-71-7; EINECS/ELINCS 209-907-8  
*Uses:* Used therapeutically as an antilipemic (counteracts high levels of lipids in the blood)  
*Features:* Stable  
*Regulatory:* DOT nonregulated; SARA §303/304/311/312/313 nonreportable  
*Properties:* Off-wh. to beige cryst. powd., mild acetic odor; cl. yel. liq. @ 90 C; sl. sol. in water; m.w. 304; vapor pressure negligible; m.p. 80-84 C; b.p. 225 C; hyd. no. 10-15; flash pt. 217 C; 100% act.  
*Toxicology:* LD50 (oral, mouse) 3500 mg/kg, (IP, mouse) 4850 mg/kg; mod. toxic by ing.; may cause mild eye irritation; TSCA listed  
*Precaution:* Dust/air mixts. may ignite or explode; incompat. with oxidizing agents  
*Hazardous Decomp. Prods.:* Thermal decomp. prod.: COx  
*NFPA:* Health 0, Flammability 1, Reactivity 0

**Uniquart CPC**  
[Universal Preserv-A-Chem  
http://www.upichem.com]

*Chem. Descrip.:* Cetyl pyridinium chloride  
*See Cetylpyridinium chloride*  
*CAS 123-03-5; EINECS/ELINCS 204-593-9  
*Uses:* Emulsifier; antibacterial, preservative for pharmaceuticals  
*Properties:* Cationic

**Unisol S-22**  
[Induchem AG  
http://www.induchem.com]

*Chem. Descrip.:* 3-Benzylidene camphor  
*CAS 15087-24-8; EINECS/ELINCS 239-139-9  
*Uses:* Uv-B sunscreen for suntan prods., stabilization of light-sensitive prods.  
*Regulatory:* EU permitted  
*Properties:* Colorless solid; oil-sol.  
*Use Level:* 1-5%
Trade Name Reference

Storage: > 1 yr. shelf life if stored @ R.T. and protected from it.

Chem. Descrip.: Lauryl alcohol 23 EO See Laureth-23
CAS 9002-92-0
Uses: Detergent for medicinal, mild shampoos
Properties: Solid; cloud pt. 70 C; acid value 0.5 max.; hydroxyl value 39-48; pH 6.0-8.0; HLB 16.9
Toxicology: Sl. toxic; can cause skin irritation
Precaution: Wear personal protection equipment
Storage: 24 mos. when stored in original packaging under adequate conditions

Chem. Descrip.: Farnesyl acetate, farnesol, panthenyl triacetate
Uses: Emollient, skin moisture regulator, cell regenerator for pharmaceuticals, skin and lip care prods.
Features: A bioactive complex; smoothes wrinkles, improves skin elasticity, regulates skin moisture and sebaceous levels
Regulatory: EU and USA permitted
Properties: Ylsh. liq.; oil-sol.
Use Level: 2-8%
Storage: > 1 yr. shelf life if stored @ R.T. and protected from it.

Chem. Descrip.: Calcium sulfate dihydrate (90-98%)
CAS 10101-41-4; EINECS/ELINCS 231-900-3
Uses: Filler for pharmaceuticals
Regulatory: FCC, NF, GRAS compliance
Properties: Off-wh. to wh. powd.; low to no odor; 12 µ median particle size; low odor; sol. in water ≈ 0.21 g/100 g sol’n.; sp.gr. 2.32-2.96; bulk dens. ≈ 45-150 lb/ft³; m.p. 1450 C (dec.); pH 7.3
Toxicology: Exposure to high dust levels may irritate the skin, eyes, nose, throat, or upper respiratory tract; TSCA listed
Environmental: Zero VOC content; no known adverse effect on the ecology
Hazardous Decomp. Prods.: CaO, SO₂
NFPA: Health 0, Flammability 0, Reactivity 0
Storage: Store @ R.T. in dry location; keep containers closed when not in use

Chem. Descrip.: Magnesium ascorbyl phosphate
CAS 114040-31-2
Uses: Water-sol. vitamin C deriv.; whitening agent for skin lightening creams; promotes collagen synthesis; inhibits lipid-peroxidation; for cosmetics use
Regulatory: JSCI listed
Properties: Wh. cryst. powd.; water-sol.; 85% min. conc.

Chem. Descrip.: Disodium ascorbate sulfate See Disodium ascorbyl sulfate
CAS 53910-28-4
Uses: Water-sol. vitamin C deriv.; whitening agent; promotes collagen synthesis; for cosmetics use
Regulatory: JSCI listed
Properties: Wh. cryst. powd.; water-sol.; 98% min. conc.

Chem. Descrip.: Colloidal magnesium aluminum silicate (smectite) (94-97%), opal CT (3-6%) See Noncrystalline hydrated silica
CAS 12199-37-0; 20243-18-9; EINECS/ELINCS 235-374-6
Uses: Absorbent, opacifier, visc. control agent, thixotrope, thickener, visc. modifier, emulsion stabilizer for pharmaceuticals; spreading agent for ointments
Regulatory: RCRA nonreportable; DOT not regulated
Properties: Off-wh. grans.; insol. in cold water; sp.gr. 2.6
Toxicology: May cause mechanical eye, skin irritation; TSCA listed
Precaution: Wear splash goggles, dust respirator; slippery when wet; avoid generating dust; avoid breathing dust; incompat. with strong oxidizers
NFPA: Health 0, Flammability 0, Reactivity 0
Storage: Keep container closed
Trade Name Reference

**Trade Name Reference**

**CAS 18472-51-0; EINECS/ELINCS 242-354-0**

**UN 3082**

**Uses:** Bactericide for hand washes and scrubs (for hospitals, veterinary establishments, food processing plants, dental surgeries, domestic/household use), oral care (mouthwashes), veterinary applics. (teat dips, udder washes), skin care

**Features:** Broad spectrum; fast acting; limited compat. with anionic surfactants, alkyl sulfonates and inorg. salts such as saline; compat. with nonionic surfactants, glycols, glycol ethers, EDTA and most strong acids

**Regulatory:** EINECS, Australia ACOIN/AICS, Japan MITI, Canada DSL, Korea, China listed; EP compliance; Drug Master File listed (Europe)

**Properties:** Colorless to pale yel. liq., odorless; sol. in acetone, ethanol; misc. in water; sp.gr. 1.06-1.07; b.p. ≈ 105 C; flash pt. none; pH 5.5-7.0; 20% act. w/w

**Use Level:** 15-20% (hand wash/scrubs for intact skin), 5% (hand wash/scrubs for damaged skin), 0.6-1.0% (mouthwashes); 1.5-2.0% (veterinary applics.); 1.0-1.5% (cosmetics preservative)

**Toxicology:** STEL 0.1 mg/m^3^; may cause skin irritation in sensitive individuals; may cause skin irritation on repeated/prolonged contact; causes irritation to eyes; ing. causes irritation to mucosa

**Environmental:** LC50 (rainbow trout, 96 h) 3.2 mg/l; environmentally hazardous; toxic to aquatic organisms, sewage microorganisms; may cause long-term adverse effects in aquatic environment; prevent entry into drains, sewers, watercourses

**Storage:** Keep container tightly closed; stable when stored @ 0-25 C; if frozen, allow to thaw at room temp. and stir thoroughly before use; protect from light

**Vanzan NF** [R.T. Vanderbilt http://www.rtvanderbilt.com]

**Chem. Descrip.:** Xanthan gum

**CAS 11138-66-2; EINECS/ELINCS 234-394-2**

**Uses:** Thickener, viscosifier, emulsion and suspension stabilizer for pharmaceuticals and personal care; emulsifier

**Features:** Multi-purpose

**Properties:** Wh. to ylsh. powd.; very sl. sol. in cold water; sp.gr. 0.8; dens. 0.8 mg/m^3^ (25 C); pH 7 (1%)

**TOXICOLOGY:** LD50 (acute oral, rat) 45,000 mg/kg; inh. of dust may cause irritation of mucous membrane and respiratory tract; TSCA listed

**HMIS:** Health 1, Flammability 1, Reactivity 0

**Storage:** Keep container tightly closed in a cool, well-ventilated area

**Vanzan NF-C** [R.T. Vanderbilt http://www.rtvanderbilt.com]

**Chem. Descrip.:** Xanthan gum

**CAS 11138-66-2; EINECS/ELINCS 234-394-2**

**Uses:** Thickener, viscosifier, emulsion and suspension stabilizer for pharmaceuticals and personal care; emulsifier

**Features:** Multi-purpose

**Properties:** Wh. to ylsh. powd.; very sl. sol. in cold water; sp.gr. 0.8; dens. 0.8 mg/m^3^ (25 C); pH 7 (1%)

**Toxicology:** LD50 (oral, rat) 45,000 mg/kg; inh. of dust may cause irritation of mucous membrane and respiratory tract; TSCA listed

**HMIS:** Health 1, Flammability 1, Reactivity 0

**Storage:** Keep container tightly closed in a cool, well-ventilated area

**Vanzan NF-ED** [R.T. Vanderbilt http://www.rtvanderbilt.com]

**Chem. Descrip.:** Xanthan gum

**CAS 11138-66-2; EINECS/ELINCS 234-394-2**

**Uses:** Thickener, viscosifier, emulsion and suspension stabilizer for pharmaceuticals and personal care; emulsifier

**Features:** Multi-purpose

**Properties:** Wh. to ylsh. powd.; very sl. sol. in cold water; sp.gr. 0.8; dens. 0.8 mg/m^3^ (25 C); pH 7 (1%)

**Toxicology:** LD50 (acute oral, rat) 45,000 mg/kg; inh. of dust may cause irritation of mucous membrane and respiratory tract; TSCA listed

**HMIS:** Health 1, Flammability 1, Reactivity 0

**Storage:** Keep container tightly closed in a cool, well-ventilated area

**Vanzan NF-F** [R.T. Vanderbilt http://www.rtvanderbilt.com]

**Chem. Descrip.:** Xanthan gum

**CAS 11138-66-2; EINECS/ELINCS 234-394-2**

**Uses:** Thickener, viscosifier, emulsion and suspension stabilizer for pharmaceuticals and personal care; emulsifier

**Features:** Multi-purpose

**Properties:** Wh. to ylsh. powd.; very sl. sol. in cold water; sp.gr. 0.8; dens. 0.8 mg/m^3^ (25 C); pH 7 (1%)

**Toxicology:** LD50 (acute oral, rat) 45,000 mg/kg; inh. of dust may cause irritation of mucous membrane and respiratory tract; TSCA listed

**HMIS:** Health 1, Flammability 1, Reactivity 0

**Storage:** Keep container tightly closed in a cool, well-ventilated area
Trade Name Reference

pH 7 (1%)
Toxicology: LD50 (acute oral, rat) 45,000 mg/kg; inh. of dust may cause irritation of mucous membrane and respiratory tract; TSCA listed
HMIS: Health 1, Flammability 1, Reactivity 0
Storage: Keep container tightly closed in a cool, well-ventilated area

Vanzan NF-ST [R.T. Vanderbilt
Chem. Descrip.: Xanthan gum
CAS 11138-66-2; EINECS/ELINCS 234-394-2
Uses: Thickener, viscosifier, emulsion and suspension stabilizer for pharmaceuticals and personal care; emulsifier
Features: Multi-purpose
Properties: Wh. to ylsh. powd.; very sl. sol. in cold water; sp.gr. 0.8; dens. 0.8 mg/m3 (25 C); pH 7 (1%)
Toxicology: LD50 (acute oral, rat) 45,000 mg/kg; inh. of dust may cause irritation of mucous membrane and respiratory tract; TSCA listed
HMIS: Health 1, Flammability 1, Reactivity 0
Storage: Keep container tightly closed in a cool, well-ventilated area

Vazo® 56 WSP [DuPont
Chem. Descrip.: Azo initiator contg. polyethylene glycol to minimize dusting
Uses: Binder, thickener for pharmaceuticals, controlled-release tablets
Properties: Wh. dry powd.; sol. in water

Vazo® 56 WSW [DuPont
Chem. Descrip.: Azo
Uses: Binder, thickener for pharmaceuticals, controlled-release tablets
Properties: Wh. wet powd.; sol. in water

Vazo® 68 WSP [DuPont
Chem. Descrip.: Azo
Uses: Binder, thickener for pharmaceuticals, controlled-release tablets
Properties: Wh. dry powd.; sol. in water

Vee Gee Bone Hydrolysate Gelatin [Vyse Gelatin
Chem. Descrip.: Hydrolyzed gelatin derived from ossein
CAS 68410-45-7; EINECS/ELINCS 270-082-2
Uses: Film-former in pharmaceuticals (microencapsulation, arthritis relief formulas, tableting, nutritional formulas); protein source
Features: Nongelling
Regulatory: USP/NF, GRAS
Properties: Off-wh. to amber spray-dried powd.; typ. bouillon-like odor and flavor; bulk dens. 300-500 g/l; sol. in cold water; pH 5-6 (10% sol'n.); 8% max. moisture

Vee Gee Fish Hydrolysate Gelatin [Vyse Gelatin
Chem. Descrip.: Hydrolyzed gelatin derived from fish collagen
CAS 68410-45-7; EINECS/ELINCS 270-082-2
Uses: Film-former in pharmaceuticals (microencapsulation, arthritis relief formulas, tableting, nutritional formulas); protein source
Features: Nongelling
Regulatory: USP/NF, GRAS
Properties: Off-wh. to lt. amber spray-dried powd.; typ. bouillon-like odor and flavor; bulk dens. 250-500 g/l; sol. in cold water; pH 5-6 (10% sol'n.); 10% max. moisture

Vee Gee Pharmaceutical Gelatins [Vyse Gelatin
Chem. Descrip.: Gelatin NF
CAS 9000-70-8; EINECS/ELINCS 232-554-6
Uses: Tablet binder, gellant, protective colloid, film-former, stabilizer, binder, dispersant, softener, tenderizer, foaming/whipping agent, water imbiber, flocculant, clarifier, protein source for pharmaceuticals, health foods
Regulatory: USP/NF, GRAS
Properties: Lt. straw coarse gran. to fine powds., sl. typ. bouillon-like odor and flavor; insol. in cold water, but swells and softens on immersion; dissolves in hot water; insol. in
Veegum® [R.T. Vanderbilt
http://www.rtvanderbilt.com]
Chem. Descrip.: smectite clay (96-98%), opal CT (2-4%); see Magnesium aluminum silicate; Noncrystalline hydrated silica
CAS 12199-37-0; 20243-18-9; EINECS/ELINCS 235-374-6
Uses: Thickener, visc. modifier, emulsion stabilizer for pharmaceuticals
Features: Microfine grade; no ozone-depleting substances
Regulatory: RCRA nonreportable; DOT not regulated
Properties: Wh. microfine powd., odorless, tasteless; insol. in water or alcohol; swells to many times original vol. in water to form colloidal disp.; dens. 2.6 mg/m³; visc. 250 cps±25% (5% aq. disp.); pH 9.5 (5% aq. disp.); < 8% moisture
Toxicology: May cause mechanical eye, skin irritation; TSCA listed
Precaution: Wear splash goggles, dust respirator; avoid dust generation; slippery when wet
NFPA: Health 0, Flammability 0, Reactivity 0
Storage: Keep container closed

Veegum® D [R.T. Vanderbilt
http://www.rtvanderbilt.com]
Chem. Descrip.: Magnesium aluminum silicate (96-98%), opal CT (2-4%); quartz (0.15%); see Noncrystalline hydrated silica
CAS 12199-37-0; 20243-18-9; 14808-60-7; EINECS/ELINCS 235-374-6
Uses: Thickener, visc. modifier, emulsion stabilizer for pharmaceuticals
Features: Fast dispersing, fluoride compat. grade; good for dentifrice binder systems; no ozone-depleting substances
Regulatory: SARA §311/312 Acute, Chronic Health Hazard; RCRA nonreportable; DOT not regulated; PA, MA Right-to-Know
Properties: Wh. gran., odorless, tasteless; insol. in water; sp.gr. 2.6; visc. 100-300 cps (5% aq. disp.)
Toxicology: May cause mechanical eye, skin irritation in high concs.; prolonged inh. may cause lung injury; TSCA listed
Precaution: Wear splash goggles, dust respirator; slippery when wet
NFPA: Health 0, Flammability 0, Reactivity 0
Storage: Keep container closed

Veegum® F [R.T. Vanderbilt
http://www.rtvanderbilt.com]
Chem. Descrip.: Magnesium aluminum silicate (96-98%), opal CT (2-4%); see Noncrystalline hydrated silica
CAS 12199-37-0; 20243-18-9; EINECS/ELINCS 235-374-6
Uses: Thickener, visc. modifier, emulsion stabilizer for pharmaceuticals
Features: Microfine grade; no ozone-depleting substances
Regulatory: RCRA nonreportable; DOT not regulated
Properties: Wh. microfine powd., odorless, tasteless; insol. in water or alcohol; swells to many times original vol. in water to form colloidal disp.; sp.gr. 2.6; visc. 187-312 cps (5.5% disp.); pH 9.5 (5% aq. disp.); < 8% moisture
Toxicology: May cause mechanical skin, eye irritation; TSCA listed
Precaution: Wear splash goggles, dust respirator; avoid dust generation; incompatible with strong oxidizers
NFPA: Health 0, Flammability 0, Reactivity 0
Storage: Keep container closed
Veegum® HS [R.T. Vanderbilt
http://www.rtvanderbilt.com]
Chem. Descrip.: Magnesium aluminum silicate
(96-98%), opal CT (2-4%) See Noncrystalline hydrated silica
CAS 12199-37-0; 20243-18-9; EINECS/ELINCS 235-374-6
Uses: Thickener, visc. modifier, emulsion stabilizer for pharmaceuticals
Features: Max. electrolyte stability; no ozone-depleting substances
Regulatory: RCRA nonreportable; DOT not regulated
Properties: Wh. flakes, odorless, tasteless; insol. in water or alcohol; swells to many times original vol. in water to form colloidal disp.; sp.gr. 2.6; visc. 75-225 cps (5.5% disp.); pH 9 (5% aq. disp.); < 8% moisture
Toxicology: May cause mechanical skin, eye irritation; TSCA listed
Precaution: Wear splash goggles, dust respirator; avoid dust generation; incompat. with strong oxidizers
NFPA: Health 0, Flammability 0, Reactivity 0
Storage: Keep container closed

Veegum® K [R.T. Vanderbilt
http://www.rtvanderbilt.com]
Chem. Descrip.: Magnesium aluminum silicate (92-96%), opal CT (4-8%), quartz (0.68%) See Noncrystalline hydrated silica
CAS 12199-37-0; 20243-18-9; 14808-60-7; EINECS/ELINCS 235-374-6
Uses: Thickener, visc. modifier, emulsion stabilizer for pharmaceutical emulsions, suspensions, sol’ns., liqs., creams, pastes, and esp. acid suspensions, and for toothpaste
Features: Has low acid demand and high acid compatibility; no ozone-depleting substances
Regulatory: SARA §311/312 Acute, Chronic Health Hazard; OSHA hazardous; RCRA nonreportable; DOT not regulated; PA, MA Right-to-Know
Properties: Wh. flakes, odorless, tasteless; insol. in water or alcohol; swells to many times original vol. in water to form colloidal disp.; sp.gr. 2.6; visc. 165-275 cps (5.5% disp.); pH 9.5 (5% aq.); < 8% moisture
Toxicology: May cause mechanical skin, eye irritation; TSCA listed
Precaution: Wear splash goggles, dust respirator; avoid dust generation; slippery when wet; incompat. with strong oxidizers
NFPA: Health 0, Flammability 0, Reactivity 0
Storage: Keep container closed

Veegum® HV [R.T. Vanderbilt
http://www.rtvanderbilt.com]
Chem. Descrip.: Magnesium aluminum silicate (96-98%), opal CT (2-4%) See Noncrystalline hydrated silica
CAS 12199-37-0; 20243-18-9; EINECS/ELINCS 235-374-6
Uses: Thickener, visc. modifier, emulsion stabilizer for pharmaceutical emulsions, suspensions, sol’ns., liqs., creams, pastes, toothpaste; suspending agent, binder, dispersant for powds. and pigments; disintegrand for tablets; spreading agent for lotions, creams, and ointments
Features: High visc. at low solids is desired; emulsification and suspension are obtained at low solids; no ozone-depleting substances
Regulatory: RCRA nonreportable; DOT not regulated
Properties: Wh. flakes, odorless, tasteless; insol. in water or alcohol; swells to many times original vol. in water to form colloidal disp.; sp.gr. 2.6; visc. 187-312 cps (4% aq. disp.); < 8% moisture
Toxicology: May cause mechanical skin, eye irritation; TSCA listed
Precaution: Wear splash goggles, dust respirator; avoid dust generation; slippery

Veegum® PRO [R.T. Vanderbilt
http://www.rtvanderbilt.com]
Chem. Descrip.: 2-Amino-2-(hydroxymethyl)-1,3-propanediol modified hectorite (100%)
CAS 68511-77-3
Uses: Emulsion stabilizer, suspending agent for pharmaceuticals, veterinary prods.
Features: Hydrates rapidly in cold or hot water to form high visc. disps.; superior soap and surfactant compatibility; no ozone-depleting substances
Regulatory: RCRA nonreportable; DOT not regulated
Properties: Wh. flakes, odorless, tasteless; insol. in cold water; swells many times the original volume when added to water; sp.gr. 2.2; visc. 300-500 cps (1.5% aq. disp.); pH 8.5
Toxicology: Eye irritant; may cause skin irritation in high concs.; prolonged inh. may cause lung injury; TSCA listed

Trade Name Reference

Veegum® HS [R.T. Vanderbilt
http://www.rtvanderbilt.com]
Chem. Descrip.: Magnesium aluminum silicate
(96-98%), opal CT (2-4%) See Noncrystalline hydrated silica
CAS 12199-37-0; 20243-18-9; EINECS/ELINCS 235-374-6
Uses: Thickener, visc. modifier, emulsion stabilizer for pharmaceuticals
Features: Max. electrolyte stability; no ozone-depleting substances
Regulatory: RCRA nonreportable; DOT not regulated
Properties: Wh. flakes, odorless, tasteless; insol. in water or alcohol; swells to many times original vol. in water to form colloidal disp.; sp.gr. 2.6; visc. 75-225 cps (5.5% disp.); pH 9 (5% aq. disp.); < 8% moisture
Toxicology: May cause mechanical skin, eye irritation; TSCA listed
Precaution: Wear splash goggles, dust respirator; avoid dust generation; incompat. with strong oxidizers
NFPA: Health 0, Flammability 0, Reactivity 0
Storage: Keep container closed

Veegum® K [R.T. Vanderbilt
http://www.rtvanderbilt.com]
Chem. Descrip.: Magnesium aluminum silicate (92-96%), opal CT (4-8%), quartz (0.68%) See Noncrystalline hydrated silica
CAS 12199-37-0; 20243-18-9; 14808-60-7; EINECS/ELINCS 235-374-6
Uses: Thickener, visc. modifier, emulsion stabilizer for pharmaceutical emulsions, suspensions, sol’ns., liqs., creams, pastes, and esp. acid suspensions, and for toothpaste
Features: Has low acid demand and high acid compatibility; no ozone-depleting substances
Regulatory: SARA §311/312 Acute, Chronic Health Hazard; OSHA hazardous; RCRA nonreportable; DOT not regulated; PA, MA Right-to-Know
Properties: Wh. flakes, odorless, tasteless; insol. in water or alcohol; swells to many times original vol. in water to form colloidal disp.; sp.gr. 2.6; visc. 165-275 cps (5.5% disp.); pH 9.5 (5% aq.); < 8% moisture
Toxicology: May cause mechanical skin, eye irritation; TSCA listed
Precaution: Wear splash goggles, dust respirator; avoid dust generation; slippery when wet; incompat. with strong oxidizers
NFPA: Health 0, Flammability 0, Reactivity 0
Storage: Keep container closed

Veegum® HV [R.T. Vanderbilt
http://www.rtvanderbilt.com]
Chem. Descrip.: Magnesium aluminum silicate (96-98%), opal CT (2-4%) See Noncrystalline hydrated silica
CAS 12199-37-0; 20243-18-9; EINECS/ELINCS 235-374-6
Uses: Thickener, visc. modifier, emulsion stabilizer for pharmaceutical emulsions, suspensions, sol’ns., liqs., creams, pastes, toothpaste; suspending agent, binder, dispersant for powds. and pigments; disintegrand for tablets; spreading agent for lotions, creams, and ointments
Features: High visc. at low solids is desired; emulsification and suspension are obtained at low solids; no ozone-depleting substances
Regulatory: RCRA nonreportable; DOT not regulated
Properties: Wh. flakes, odorless, tasteless; insol. in water or alcohol; swells to many times original vol. in water to form colloidal disp.; sp.gr. 2.6; visc. 187-312 cps (4% aq. disp.); < 8% moisture
Toxicology: May cause mechanical skin, eye irritation; TSCA listed
Precaution: Wear splash goggles, dust respirator; avoid dust generation; slippery

Veegum® PRO [R.T. Vanderbilt
http://www.rtvanderbilt.com]
Chem. Descrip.: 2-Amino-2-(hydroxymethyl)-1,3-propanediol modified hectorite (100%)
CAS 68511-77-3
Uses: Emulsion stabilizer, suspending agent for pharmaceuticals, veterinary prods.
Features: Hydrates rapidly in cold or hot water to form high visc. disps.; superior soap and surfactant compatibility; no ozone-depleting substances
Regulatory: RCRA nonreportable; DOT not regulated
Properties: Wh. flakes, odorless, tasteless; insol. in cold water; swells many times the original volume when added to water; sp.gr. 2.2; visc. 300-500 cps (1.5% aq. disp.); pH 8.5
Toxicology: Eye irritant; may cause skin irritation in high concs.; prolonged inh. may cause lung injury; TSCA listed

Handbook of Pharmaceutical Additives, Third Edition 770
Trade Name Reference

**Precaution:** Wear splash goggles, dust respirator; slippery when wet  
**NFPA:** Health 1, Flammability 0, Reactivity 0  
**Storage:** Keep container closed

**Vegetable Protein Extract** [Carrubba http://www.carrubba.com]

**Uses:** Odor neutralizer for perspiration, human waste, vomit, ostomies, menstruation, depilatories

**Properties:** pH 3-5

**Velsicol 6959** [Velsicol http://www.velsicol.com]

**Chem. Descrip.:** Tri (2-ethylhexyl) trimellitate  
See Tri-2-ethylhexyl trimellitate  
**CAS** 3319-31-1; EINECS/ELINCS 222-020-0  
**Uses:** Plasticizer for PVC for medical applics. incl. blood bags, dialysis tubing, catheters  
**Features:** High purity; exc. clarity, low temp. flexibility, low extractability  
**Properties:** APHA 100 max. cl. liq.; m.w. 546; sp.gr. 0.980-0.990; m.p. -50 F; acid no. 0.1 max.; flash pt. (COC) 500 F; ref. index 1.4848; 99% act.

**Versagel™ R 500** [Penreco http://www.penreco.com]

**Chem. Descrip.:** Hydrocarbon  
**Uses:** Emollient and occlusivity agent in lip balms and pharmaceuticals  
**Features:** Stable and compat. with most chemicals  
**Properties:** Cl. solid gel; Saybolt color 27 min.; visc. 100 cps (110 C); vapor pressure <0.1 mm Hg; m.p. 160-200 F; flash pt. (COC) 425 F  
**Toxicology:** ACGIH TWA 5 mg/m³; nontoxic  
**Precaution:** Avoid sources of ignition and strong oxidizers  
**Hazardous Decomp. Prods.:** COx

**NFPA:** Health 1, Flammability 0, Reactivity 0  
**Storage:** Store in tightly closed containers cool, dry, well-ventilated area away from heat and all sources of ignition

**Versagel™ R 750** [Penreco http://www.penreco.com]

**Chem. Descrip.:** Hydrocarbon  
**Uses:** Emollient and occlusivity agent in lip balms and pharmaceuticals  
**Features:** Stable and compat. with most chemicals  
**Properties:** Cl. solid gel; Saybolt color 27 min.; visc. 200 cps (110 C); vapor pressure <0.1 mm Hg; m.p. 160-200 F; flash pt. (COC) 425 F  
**Toxicology:** ACGIH TWA 5 mg/m³ (oil mist); nontoxic  
**Precaution:** Avoid sources of ignition and strong oxidizers  
**Hazardous Decomp. Prods.:** COx

**NFPA:** Health 1, Flammability 0, Reactivity 0  
**Storage:** Store in tightly closed containers cool, dry, well-ventilated area away from heat and all sources of ignition

**Versagel™ R 1600** [Penreco http://www.penreco.com]

**Chem. Descrip.:** Hydrocarbon  
**Uses:** Emollient and occlusivity agent in lip balms and pharmaceuticals  
**Features:** Stable and compat. with most chemicals  
**Properties:** Cl. semi-solid, odorless gel; Saybolt color 27 min.; sp. gr. 0.87; m.p. 160-200 F; flash pt. (COC) 425 F  
**Toxicology:** ACGIH TWA 5 mg/m³; nontoxic  
**Precaution:** Avoid sources of ignition and strong oxidizers  
**Hazardous Decomp. Prods.:** COx

Environmental: LC50 (daphnia magna, 24h)  
0.27 mg/l, (fathead minnow, 96h) 15 mg/l  
**HMIS:** Health 1, Flammability 1, Reactivity 0

**Velsicure® BTF** [Velsicol http://www.velsicol.com]

**Chem. Descrip.:** Benzophenone  
**CAS** 119-61-9; EINECS/ELINCS 204-337-6  
**Uses:** Intermediate for pharmaceuticals (antihistamines, hypnotics)  
**Regulatory:** Clean Air Act §111 Potential Human Health Hazard (40CFR 60.489); Hazardous Organic NESHAP (HON) Synthetic Organic Chemicals (40CFR 63.100-106)  
**Properties:** APHA 0.1 max. off-wh. solid flake; insol. in cold water, sol. in chloroform, ethyl alcohol; m.w. 182.21; sp.gr. 1.08 (54/4 C); m.p. 47-49 C; b.p. 306.1 C; vapor pressure 1.1; flash pt. 138 C; 99.9% min. assay  
**Toxicology:** ACGIH TWA 5 mg/m³ (oil mist); nontoxic  
**Precaution:** Avoid sources of ignition and strong oxidizers  
**Hazardous Decomp. Prods.:** COx

**NFPA:** Health 1, Flammability 0, Reactivity 0  
**Storage:** Store in tightly closed containers cool, dry, well-ventilated area away from heat and all sources of ignition

**Versagel™ Benzophenone** [Velsicol http://www.velsicol.com]

**Chem. Descrip.:** Benzophenone perfume grade  
**CAS** 119-61-9; EINECS/ELINCS 204-337-6  
**Uses:** Preservative  
**Regulatory:** SARA §311/312, 313 nonreportable  
**Properties:** Cl. solid gel; Saybolt color 27 min.; m.p. 160-200 F; flash pt. (COC) 425 F  
**Toxicology:** ACGIH TWA 5 mg/m³; nontoxic  
**Precaution:** Avoid sources of ignition and strong oxidizers  
**Hazardous Decomp. Prods.:** COx
Trade Name Reference

NFPA: Health 1, Flammability 0, Reactivity 0
Storage: Store in tightly closed containers cool, dry, well-ventilated area away from heat and all sources of ignition

Versagel™ RE 750 [Penreco http://www.penreco.com]
Chem. Descrip.: Hydrogenated polybutene
CAS 68937-10-0
Uses: Emollient and occlusivity agent in lip balms and pharmaceuticals
Features: Stable and compat. with most chemicals

Regulatory: SARA §311/312, 313 nonreportable
Properties: Cl. elastic solid; Saybolt color 27 min.; insol. in water; visc. 200 cps (110 C); flash pt. (COC) > 280 F
Toxicology: ACGIH TWA 5 mg/m3 (oil mist);
LD50 (oral, rat) 34,600 mg/kg, (dermal, rat) 10, 250 mg/kg); minimally irritating to the eyes; nonirritant to skin; nontoxic; TSCA listed

Environmental: Not biodegrad.
Precaution: Avoid breathing vapors or mist Hazardous Decomp. Prods.: COx
HMIS: Flammability 1, Reactivity 1
Storage: Store in a tightly closed container in well-ventilated area away from heat, sparks, open flame, or oxidizing materials

Versene 100 [Dow http://www.dow.com; Dow Europe]
Chem. Descrip.: Tetrasodium EDTA
CAS 64-02-8; EINECS/ELINCS 200-573-9
Uses: Chelating agent controlling trace metal ions in pharmaceuticals, for heavy metal poisoning treatment and drug stabilization (deactivates metal ions that interfere with drug performance)
Features: High purity, crystal form of Versene 100
Properties: Wh. cryst.; m.w. 452; dens. 45 lb/ft3; pH 10.5-11.5 (1% aq.); chel. value 219; 99% act.

Versene 100 XL [Dow http://www.dow.com]
Chem. Descrip.: Tetrasodium EDTA
CAS 64-02-8; EINECS/ELINCS 200-573-9
Uses: Chelating agent controlling trace metal ions in pharmaceuticals, for heavy metal poisoning treatment and drug stabilization (deactivates metal ions that interfere with drug performance)
Features: Low NTA version of Versene 100
Properties: Cl. liq.; m.w. 380; sp.gr. 1.255-1.290; bulk dens. 10.5 lb/gal; pH 11.0-11.8 (1% aq.); chel. value 100; 38% min. act.

Versene 220 [Dow http://www.dow.com]
Chem. Descrip.: Tetrasodium EDTA tetrahydrate
CAS 64-02-8; EINECS/ELINCS 200-573-9
Uses: Chelating agent controlling trace metal ions in pharmaceuticals, for heavy metal poisoning treatment and drug stabilization (deactivates metal ions that interfere with drug performance)
Features: High purity, crystal form of Versene 100
Properties: Cl. liq.; m.w. 380; sp.gr. 1.255-1.290; bulk dens. 10.5 lb/gal; pH 11.0-11.8 (1% aq.); chel. value 219; 99% act.

Versene CA [Dow http://www.dow.com]
Chem. Descrip.: Calcium-disodium EDTA See Calcium disodium EDTA
CAS 62-33-9; EINECS/ELINCS 200-529-9
Uses: Chelating agent controlling trace metal ions in pharmaceuticals and medical appls., for heavy metal poisoning treatment and drug stabilization (deactivates metal ions that interfere with drug performance)
Properties: Wh. powd.; m.w. 292; dens. 54 lb/ft3; pH 2.5-3.0 (sat. aq. sol'n.); chel. value 339; 99% act.

Versene Acid [Dow http://www.dow.com]
Chem. Descrip.: EDTA See Edetic acid
CAS 60-00-4; EINECS/ELINCS 200-449-4
Uses: Chelating agent controlling trace metal ions in pharmaceuticals, for heavy metal poisoning treatment and drug stabilization (deactivates metal ions that interfere with drug performance); intermediate for prep. of other salt forms of EDTA
Properties: Wh. powd.; m.w. 452; dens. 45 lb/ft3; pH 2.5-3.0 (sat. aq. sol'n.); chel. value 339; 99% act.
Versene Diammonium EDTA [Dow http://www.dow.com]
Chem. Descrip.: Diammonium EDTA
CAS 20824-56-0; EINECS/ELINCS 244-063-4
Uses: Chelating agent controlling trace metal ions in pharmaceuticals, for heavy metal poisoning treatment and drug stabilization (deactivates metal ions that interfere with drug performance)
Features: Used when very sol. chelates are required or where sodium ions are undesirable
Properties: Lt. straw-colored liq.; m.w. 326;
sp.gr. 1.19-1.22; dens. 10.0 lb/gal; pH 4.6-5.2;
chel. value 137; 44.6% act.

Versene NA [Dow http://www.dow.com]
Chem. Descrip.: Disodium EDTA dihydrate
USP, FCC
CAS 6381-92-6; EINECS/ELINCS 205-358-3
Uses: Chelating agent controlling trace metal ions in pharmaceuticals and medical applics., for heavy metal poisoning treatment and drug stabilization (deactivates metal ions that interfere with drug performance); preservative in ocular care products; stabilizes colors and ingreds. in syrups; prevents and slows oxidative rancidity in creams and ointments
Regulatory: FCC, USP, and Kosher compliance
Properties: Wh. cryst.; m.w. 372; dens. 67 lb/ft³;
pH 4.3-4.7 (1%); chel. value 267; 99% act.

Versene Na₂ [Dow http://www.dow.com]
Chem. Descrip.: Disodium EDTA dihydrate
USP, FCC
CAS 6381-92-6; EINECS/ELINCS 205-358-3
Uses: Chelating agent in pharmaceuticals
Properties: Wh. cryst.; m.w. 372; dens. 67 lb/ft³;
pH 4.3-4.87 (1%); chel. value 267; 99% min. act.

Versene Tetraammonium EDTA [Dow http://www.dow.com]
Chem. Descrip.: Tetraammonium EDTA
Uses: Chelating agent controlling trace metal ions in pharmaceuticals, for heavy metal poisoning treatment and drug stabilization (deactivates metal ions that interfere with drug performance)
Features: Used when very sol. chelates are required or where sodium ions are undesirable; for chelation of iron to pH 9.5
Properties: Lt. straw-colored liq.; m.w. 360;
sp.gr. 1.16-1.19; dens. 9.7 lb/gal; pH 9.0-9.5;
chel. value 130; 46.8% act.

Versenex 80 [Dow http://www.dow.com]
Chem. Descrip.: Pentasodium DTPA  See Pentasodium pentetate
CAS 140-01-2; EINECS/ELINCS 205-391-3
Uses: Chelating agent controlling trace metal ions in pharmaceuticals, for heavy metal poisoning treatment and drug stabilization (deactivates metal ions that interfere with drug performance)
Features: Used when oxidative conditions exist or when chelates of greater stability are required
Properties: Lt. straw-colored liq.; m.w. 503;
sp.gr. 1.26-1.31; dens. 10.7 lb/gal; pH 11.0-11.8 (1% aq.); chel. value 80; 40.2% act.

Chem. Descrip.: Precipitated calcium carbonate USP
CAS 471-34-1; EINECS/ELINCS 207-439-9
Uses: Neutralizer, colorant, opacifier in pharmaceuticals
Features: Preferred for its smoothness, taste, and feel
Regulatory: USP
Properties: Prismatic cryst.; 0.7 µ size

Chem. Descrip.: Precipitated calcium carbonate
CAS 471-34-1; EINECS/ELINCS 207-439-9
Uses: Neutralizer, colorant, opacifier in chewable tablets
Features: Similar tapped dens. and surf. areas to ViCALity™ Medium
Properties: Prismatic cryst.; 0.8 µ size

Chem. Descrip.: Precipitated calcium carbonate
Trade Name Reference

CAS **471-34-1**; EINECS/ELINCS **207-439-9**

Uses: Calcium source in antacid preps.,
calcium supplement tablets, toothpaste

Features: Low surf. area; high tapped dens.

Properties: Cubic cryst.; 4.5 µ median particle size

ViCALity® Extra Light PCC [Mins. Tech. 
http://www.mineralstech.com]

Chem. Descrip.: Precipitated calcium carbonate USP

CAS **471-34-1**; EINECS/ELINCS **207-439-9**

Uses: Neutralizer, colorant, opacifier in visc.
gels, creams, pastes, pharmaceuticals

Features: High surf. area; low tapped dens.

Properties: Scalenohedral cryst.; 1.8-2.6 µ median particle sizes

ViCALity® Heavy PCC [Mins. Tech. 
http://www.mineralstech.com]

Chem. Descrip.: Precipitated calcium carbonate USP

CAS **471-34-1**; EINECS/ELINCS **207-439-9**

Uses: Calcium source in antacid preps.,
calcium supplement tablets, toothpaste

Features: Low surf. area; high tapped dens.

Properties: Cubic cryst.; 3 µ median particle size

ViCALity® Light PCC [Mins. Tech. 
http://www.mineralstech.com]

Chem. Descrip.: Precipitated calcium carbonate USP

CAS **471-34-1**; EINECS/ELINCS **207-439-9**

Uses: Neutralizer, colorant, opacifier in visc.
gels, creams, pastes, pharmaceuticals

Features: High surf. area; low tapped dens.

Properties: Scalenohedral cryst.; 1.8-2.6 µ median particle sizes

ViCALity® Medium PCC [Mins. Tech. 
http://www.mineralstech.com]

Chem. Descrip.: Precipitated calcium carbonate USP

CAS **471-34-1**; EINECS/ELINCS **207-439-9**

Uses: Neutralizer, colorant, opacifier in visc.
gels, creams, pastes, pharmaceuticals

Features: High surf. area; low tapped dens.

Properties: Scalenohedral cryst.; 1.8-2.6 µ median particle sizes

Vigilan™ [Fanning 
http://www.fanncorp.com]

Chem. Descrip.: Lanolin oil

CAS **8038-4**; EINECS/ELINCS **274-559-6**

Uses: Emulsifier, emollient, conditioner,
misturizer for pharmaceuticals, o/w and/or
w/o emulsions; coupling agent for castor
and min. oils; spreading agent

Properties: Pale yel.-cream soft solid, slight,
char. sterol odor; oil sol.; m.p. 40-46 C; b.p.
316 C; HLB 9.5; acid no. 1.0 max.; sapon. no.

Vigilan™ AWS [Fanning 
http://www.fanncorp.com]

Chem. Descrip.: PPG-12-PEG-65 lanolin oil

Uses: O/w emulsifier, plasticizer, emollient,
solubilizer, and wetting agent in pharmaceuticals

Properties: Gardner 9-11 color; sol. in water,
ethanol, castor oil, propylene glycol laurate,
acetone, ethyl acetate; HLB 13.5; acid no. 3.0
max.; iodine no. 15 max.; sapon. no. 10-25; pH
7 max. (10%); nonionic; 100% conc.

Vigilan™ Super [Fanning 
http://www.fanncorp.com]

Chem. Descrip.: Lanolin oil

CAS **8038-4**; EINECS/ELINCS **274-559-6**

Uses: Counter-irritant for skin (counteracts
drying caused by alkaline soaps and
detergents); moisturizer, emollient in
cosmetics, pharmaceuticals

Features: Lighter color than Vigilan; unique fluid
appearance due to low m.p.; compat. with aerosol propellants; cholesterol source

Properties: Gardner 8 max. color; mild pleasant
odor; sol. in IPM, castor oil, min. oil, propylene
glycol laurate, ethyl acetate, silicone fluids;
insol. in water, aceotne, glycerin; sp.gr. 0.94-
0.97 (15 C); b.p. 350 F; acid no. 2 max.; iodine
no. 36 max.; sapon. no. 105 max.; cloud pt. 20
C; flash pt. (OC) 500 F; 0.25% moisture

Toxicology: No effects from overexposure

Vilvanolin® C [Noveon 
http://www.carbopol.com; 
http://www.noveoncoatings.com]

Chem. Descrip.: Petrolatum (69%), lanolin (21%), lanolin alcohol (10%)

CAS **8027-32-5**; **8006-54-0**; **8027-33-6**;
EINECS/ELINCS **232-373-2**; **232-348-6**; **232-430-1**

Uses: Absorp. base, aux. emulsifier and
stabilizer for o/w systems, conditioner,
emollient, moisturizer, vehicle for
pharmaceuticals (creams, ointments,
dermatologicals, lotions)

Properties: Pale yel.-cream soft solid, slight,
char. sterol odor; oil sol.; m.p. 40-46 C; b.p.
316 C; HLB 9.5; acid no. 1.0 max.; sapon. no.

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Trade Name Reference

Vilvanolin® CAB [Noveon
http://www.carbopol.com;
http://www.noveoncoatings.com]
Chem. Descrip.: Petrolatum, lanolin alcohol
Uses: Emollient, w/o emulsifier, moisturizer, stabilizer, plasticizer for therapeutic ointments, burn preps., dermatological prods., hypoallergenic preps., pharmaceuticals, absorp. bases
Properties: Pale cream soft solid, faint, char. sterol odor; oil sol.; HLB 9.0; m.p. 40-46 C; acid no. 1 max.; sapon. no. 1.0 max.; nonionic; 100% conc.

Vilvanolin L-101® [Noveon
http://www.carbopol.com;
http://www.noveoncoatings.com]
Chem. Descrip.: Mineral oil (88%), lanolin alcohol (12%)
CAS 8012-95-1; 8027-33-6
Uses: Emollient, penetrant, w/o emulsifier, moisturizer, softener, stabilizer, vehicle for pharmaceuticals
Features: Improves emulsion appearance; provides emollience
Properties: Pale yel. oily liq., faint char. sterol odor; oil sol.; sp.gr. 0.840-0.860; sp. gr. 0.85; visc. 20-30 cps; b.p. 316 C; acid no. 1 max.; sapon. no. 1 max.; flash pt. (COC) 179 C; nonionic; 100% conc.

Viobin Octacosanol [Viobin
http://www.viobinusa.com/viohome.htm]
Chem. Descrip.: Octacosanol
CAS 557-61-9
Uses: High potency direct compression prod., suitable for tableting/capsules/powd. mixes

Viscarin® GP-109NF [FMC Biopolymer
http://www.fmcbiopolymer.com]
Chem. Descrip.: lambda-Carrageenan USP/NF
See Carrageenan (Chondrus crispus)
CAS 9000-07-1; EINECS/ELINCS 232-524-2
Uses: Excipient, gellant, visc. builder for pharmaceuticals (cough/cold liqs., antibiotic suspensions, topical creams/lotions, medicated shampoos)
Features: Med. visc.; nongelling; protein reactive; polyol reactive
Properties: Sol. in hot water; partly sol. in cold water
Use Level: 0.1-1.0%

Viscocel® SC-580F [Blanver Farmoquimica
http://www.blanver.com.br; Blanver USA
http://www.blanver.com.br]
Chem. Descrip.: Cellulose gel (microcrystalline cellulose and cellulose gum) See Carboxymethylcellulose sodium
Chem. Analysis: Microcrystalline cellulose (86-92%), cellulose gum (8-14%)
Uses: Suspending agent, visc. builder, thickener, compatibilizer, stabilizer in pharmaceuticals, suspensions, sol'ns., emulsions
Features: Hydrates rapidly; generates colloidal
Trade Name Reference


Chem. Descrip.: Cellulose gel (microcrystalline cellulose and cellulose gum) See Carboxymethylcellulose sodium Chem. Analysis: Microcrystalline cellulose (89-93%), cellulose gum (7-11%) Uses: Suspending agent, visc. builder, thickener, compatibilizer, stabilizer in pharmaceuticals, suspensions, solns., emulsions Features: Hydrates rapidly; generates colloidal disp. with thixotropic props. in concs. as low as 1%; stable across wide temp. range Properties: Wh. to lt. cream fine powd.; ≤ 1% on 60 mesh, ≤ 45% on 200 mesh; odorless; insol. in water, org. solvs., dil. acids; visc. 72-168 cps (1.2% solids); pH 6-8 (1.2 g/100 ml water); 8.3-13.8% CMC content; ≤ 8% loss on drying Storage: Hygroscopic

Chem. Descrip.: Cellulose gel (microcrystalline cellulose and cellulose gum) See Carboxymethylcellulose sodium Chem. Analysis: Microcrystalline cellulose (81-89%), cellulose gum (11-19%) Uses: Suspending agent, visc. builder, thickener, compatibilizer, stabilizer in pharmaceuticals, suspensions, solns., emulsions Features: Hydrates rapidly; generates colloidal disp. with thixotropic props. in concs. as low as 1%; stable across wide temp. range Properties: Wh. to lt. cream fine powd.; ≤ 1% on 60 mesh, ≤ 45% on 200 mesh; odorless; insol. in water, org. solvs., dil. acids; visc. 51-150 cps (2.6% solids); pH 6-8 (1.2 g/100 ml water); 11.3-18.8% CMC content; ≤ 8% loss on drying Storage: Hygroscopic

Chem. Descrip.: Cellulose gel (microcrystalline cellulose and cellulose gum) See Carboxymethylcellulose sodium Chem. Analysis: Microcrystalline cellulose (86-92%), cellulose gum (8-14%) Uses: Suspending agent, visc. builder, thickener, compatibilizer, stabilizer in pharmaceuticals, suspensions, solns., emulsions Features: Hydrates rapidly; generates colloidal disp. with thixotropic props. in concs. as low as 1%; stable across wide temp. range Properties: Wh. to lt. cream fine powd.; ≤ 1% on 60 mesh, ≤ 45% on 200 mesh; odorless; insol. in water, org. solvs., dil. acids; visc. 340-540 cps (2.6% solids); pH 6-8 (1.2 g/100 ml water); 11.3-18.8% CMC content; ≤ 8% loss on drying Storage: Hygroscopic

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Trade Name Reference

Features: Wh. to lt. cream fine powd.; ≤ 1% on 60 mesh, ≤ 45% on 200 mesh; odorless; insol. in water, org. solvs., dil. acids; visc. 72-168 cps (1.2% solids); pH 6-8 (1.2 g/100 ml water); 8.3-13.8% CMC content; ≤ 8% loss on drying
Storage: Hygroscopic

Vitagen™ [Engelhard]
Chem. Descrip.: Aminopropyl ascorbyl phosphate
CAS 220644-17-7
Uses: Vitamin C source, antioxidant, skin conditioner, collagen synthesis promoter, cell growth promoter, melanin formation inhibitor for skin care
Features: Reduces the appearance of fine-lines, wrinkles, and age spots
Properties: Wh. to pale ylsh. powd.; sl. char. odor; sol. in water; pH 1.7-3.7
Toxicology: Nontoxic; nonirritating to the skin
Storage: Keep sealed at room temperature in a dry place; keep in a dry place.; shelf life 5 yrs.

Vitamin A Acetate/D2 500/50 [BASF AG http://www.basf.de]
Chem. Descrip.: Vitamin A acetate and Vitamin D2 in a modified food starch matrix of gelatin and sucrose, stabilized with BHT and sodium aluminum silicate as a flow aid See Ergocalciferol; Food starch, modified; Retinyl acetate; Sodium silicoaluminate
CAS 127-47-9; 50-14-6; 53124-00-8; 9000-70-8; 57-50-1; 128-37-0; 1344-00-9;
EINECS/ELINCS 204-844-2; 200-014-9; $; 232-554-6; 200-334-9; 204-881-4; 215-684-8
Uses: Dietary supplement for multivitamin-mineral tablets and hard gelatin capsules
Features: Very good stability even in the presence of minerals
Regulatory: USP, EP, FCC
Properties: Lt. yel. powd., spherical particles; particle size US Sieve #40 (425 μ) min 94.5% thru; sol. in water (35-40 C) forming a milky emulsion; m.w. 328.5 (Vitamin A acetate), 384.7 (Vitamin D3); 500,000 IU/g Vitamin A acetate; 50,000 or 100,000 IU/g of Vitamin D3 assay
Storage: 2 yrs. shelf life when stored in unopened original containers @ 8-15 C

Vitamin A and D-3 Blend [DSM Nutritional Prods. USA http://www.nutraaccess.com]
Chem. Descrip.: Retinyl palmitate, cholecalciferol, in corn (Zea mays) oil, and dl-α-tocopherol as an antioxidant See Corn (Zea mays) oil unsaponifiables
CAS 79-81-2; 67-97-0; 8001-30-7; 1406-18-4;
EINECS/ELINCS 201-228-5; 200-673-2; 232-281-2; 215-798-8
Uses: Vitamin supplement for pharmaceutical preps.
Properties: Greenish yel. to golden yel., oil liq.; acid value 2.0 (max); Vitamin A 1.0 million UI/g and Vitamin D3 100,000 IU/g
Toxicology: Sustained daily intakes of Vitamin A exceeding 50,000 IU in adults and 20,000 IU in infants and young children may cause toxic manifestations
Storage: May crystallize on storage, sensitive to air, heat and light; keep container sealed tightly and store below 15 C

Vitamin A Palmitate 1.0 in Sunflower Oil [BASF AG http://www.basf.de]
Chem. Descrip.: Vitamin A palmitate in sunflower oil and an antioxidant See Retinyl palmitate; Sunflower (Helianthus annuus) flower extract
CAS 79-81-2; 8001-21-6; EINECS/ELINCS 201-228-5; 232-273-9
Uses: Dietary supplement in liquid pharmaceutical preps. e.g., soft gelatin capsules
Features: Potency degrades over time; once
Trade Name Reference

opened use as rapidly as possible

Regulatory: USP, EP, FCC
Properties: Visc. yel, oil; sol. in fats, oils, and hydrocarbons; m.w. 524.9
Storage: 2 yrs. shelf life when stored in unopened original containers @ 8-15 °C

Vitamin A Palmitate 1.7 USP/EP/FCC [BASF AG http://www.basf.de]
Chem. Descrip.: Vitamin A palmitate See Retinyl palmitate
CAS 79-81-2; EINECS/ELINCS 201-228-5
Uses: Dietary supplement in liquid pharmaceutical preps. e.g., soft gelatin capsules
Features: Potency degrades over time; once opened use as rapidly as possible
Regulatory: USP, EP, FCC
Properties: Visc. yel, oil; sol. in fats, oils, and hydrocarbons; m.w. 524.9
Storage: 2 yrs. shelf life when stored in unopened original containers @ 8-15 °C

Vitamin A Palmitate 500 [BASF AG http://www.basf.de]
Chem. Descrip.: Vitamin A palmitate in a modified food starch coated matrix of gelatin and sucrose; stabilized with BHT and sodium aluminum silicate as a flow aid See Food starch, modified; Retinyl palmitate; Sodium silicoaluminate
CAS 79-81-2; 53124-00-8; 9000-70-8; 57-50-1; 128-37-0; 1344-00-9; EINECS/ELINCS 201-228-5; $; 232-554-6; 200-334-9; 204-881-4; 215-684-8
Uses: Dietary supplement for multivitamin-mineral tablets and hard gelatin capsules
Features: Stable in dry powder form; even in presence of minerals; good compression characteristics; recommended for preps. that are to be stored in climates with high relative humidity
Regulatory: USP, EP, FCC
Properties: Lt. yel. powd, spherical particles; particle size US Sieve #20 (850 μ) min 99.5% thru; m.w. 524.9
Storage: 2 yrs. shelf life when stored in unopened original containers @ 8-15 °C

Vitamin A Palmitate USP, FCC Type P1.7 [DSM Nutritional Prods. USA http://www.nutraaccess.com]
Chem. Descrip.: Vitamin A palmitate USP-FCC See Retinyl palmitate
CAS 79-81-2; EINECS/ELINCS 201-228-5
Uses: Used when max. vitamin A conc.

Vitamin B12 0.1% SD [DSM Nutritional Prods. USA http://www.nutraaccess.com]
Chem. Descrip.: Cyanocobalamin stabilized in a matrix of modified food starch with sodium citrate, citric acid, preservatives (sodium benzoate, sorbic acid), silicon dioxide See Food starch, modified; Silica
Uses: Easy blending and distribution in pharmaceuticals, premixes, dry prods., liq. mixts. or suspensions
Properties: Pink fine powd.; sl. hygroscopic; 98% min. through 40 mesh; disperses in cold or warm water; insol. in org. solvs.
Storage: Store in cool dry place in tightly closed container, optimally @ 46-59 °C; avoid excessive heat

Vitamin B12 1% Trituration [DSM Nutritional Prods. USA http://www.nutraaccess.com]
Chem. Descrip.: Cyanocobalamin USP with carrier (calcium phosphate dibasic)
Uses: Used in dry formulations, pharmaceutical tablets/capsules where water sol. is not critical and reducing agents or moisture are not present
Regulatory: USP, FCC, Ph. Eur.
Properties: Lt. pink fine powd.; 99% min. through 100 mesh; insol. in water and org. solvs.; m.w. 1355.38
Storage: Store in cool dry place in tightly closed container, optimally @ 46-59 °C

Vitamin B12 Cryst. USP, FCC [DSM Nutritional Prods. USA http://www.nutraaccess.com]
Chem. Descrip.: Cyanocobalamin USP, FCC, EP
CAS 68-19-9; EINECS/ELINCS 200-680-0
Uses: Vitamin source in solid and
Trade Name Reference

**pharmaceutical liq. preps.**

**Regulatory:** USP, FCC, Ph. Eur.

**Properties:** Red to purplish-red cryst. powd., pract. odorless and begins to darken at about 200 C without melting; 100% through 100 mesh; highly hygroscopic; sparingly sol. in water; sl. sol. in alcohol, and insol. in acetone, chlorine, and ether; m.w. 1355.38; pH neutral; 96-100.5% assay

**Precaution:** Loses activity in presence of alkalis or strong acids; in aq. sol'ns., deteriorates in presence of ascorbic acid, ferrous sulfate, and other reducing agents

**Storage:** Store in cool, dry place at below 25 C; keep container tightly closed

**Vitamin D 2 850** [BASF AG http://www.basf.de]

**Chem. Descrip.:** Vitamin D 2 in a modified food starch matrix of gelatin and sucrose, stabilized with BHT and sodium aluminum silicate as a flow aid See Ergocalciferol; Food starch, modified; Sodium silicoaluminate

**CAS** 50-14-6; 53124-00-8; 9000-70-8; 57-50-1; 128-37-0; 1344-00-9; EINECS/ELINCS 200-014-9; $; 232-554-6; 200-334-9; 204-881-4; 215-684-8

**Uses:** Dietary supplement for direct compression of multivitamin-mineral tablets and hard gelatin capsules

**Features:** Excellent flow and tableting properties

**Properties:** Off-wh. powd., spherical particles; particle size US Sieve #40 (600 μ) min 100% thru; disp. in warm water (35-40 C) forming a milky emulsion; m.w. 396.7; 850,000 IU/g of Vitamin D 2 assay

**Storage:** 2 yr shelf life when stored in tightly closed, original containers away from light, and moisture @ ≤ 25 C

**Vitamin D 3 100 HP** [BASF AG http://www.basf.de]

**Chem. Descrip.:** Vitamin D 3 and a modified food starch coated with a matrix of gelatin and sucrose, stabilized with BHT and sodium aluminum silicate as a flow aid See Cholecalciferol; Food starch, modified; Sodium silicoaluminate

**CAS** 67-97-0; 53124-00-8; 9000-70-8; 57-50-1; 128-37-0; 1344-00-9; EINECS/ELINCS 200-673-2; $; 232-554-6; 200-334-9; 204-881-4; 215-684-8

**Uses:** Dietary supplement for multivitamin-mineral tablets and hard gelatin capsules; for the manufacture of Vitamin D tablets

**Features:** Very good stability even in the presence of minerals

**Properties:** Free-flowing wh. powd., spherical particles; particle size US Sieve #30 (600 μ) min 100% thru; sol. in water (35-40 C) forming a milky emulsion; m.w. 384.7; 100,000 IU/g of Vitamin D 3 min. assay

**Storage:** 2 yr shelf life when stored in tightly closed, original containers away from light, and moisture @ ≤ 25 C

**Vitamin D 3 850** [BASF AG http://www.basf.de]

**Chem. Descrip.:** Vitamin D 3 and a modified food starch coated with a matrix of gelatin and sucrose, stabilized with BHT and sodium aluminum silicate as a flow aid See Cholecalciferol; Food starch, modified; Sodium silicoaluminate

**CAS** 67-97-0; 53124-00-8; 9000-70-8; 57-50-1; 128-37-0; 1344-00-9; EINECS/ELINCS 200-673-2; $; 232-554-6; 200-334-9; 204-881-4; 215-684-8

**Uses:** Dietary supplement for direct compression multivitamin-mineral tablets and hard gelatin capsules; for the manufacture of Vitamin D tablets

**Features:** High potency grade; very good stability even in the presence of minerals

**Properties:** Free-flowing wh. powd., spherical particles; particle size US Sieve #30 (600 μ) min 100% thru; sol. in water (35-40 C) forming a milky emulsion; m.w. 328.5 (Vitamin A acetate), 384.7 (Vitamin D3); 100,000 IU/g of Vitamin D 3 min. assay

**Storage:** 2 yr shelf life when stored in tightly closed, original containers away from light, and moisture @ ≤ 25 C
Vitamin F Water-Soluble CLR [CLR http://www.clr-berlin.de; Actives Int'l.]
Chem. Descrip.: Polysorbate 20, linoleic acid, and linolenic acid
Uses: For treatment of dry skin and hair and preventive care of skin and scalps
Properties: Yel. liq.; weak char. odor; sol. in water, water-alcohol mixts. (< 30% v/v alcohol), surfactants; dens. 1.074-1.084 g/ml (20 C); acid no. 19-22; ref. index 1.470-1.472 (20 C); pH 4-5 (10% aq.)
Use Level: 1-5%

Vitamin K₁ Dry Powd. 1% GFP [BASF AG http://www.basf.de]
Chem. Descrip.: Vitamin K₁
CAS 84-80-0; EINECS/ELINCS 201-564-2
Uses: Vitamin for pharmaceuticals
Features: Gelatin-free
Properties: Dry powd.

Vitamin K₁ Dry Powd. 5% GFP [BASF AG http://www.basf.de]
Chem. Descrip.: Vitamin K₁
CAS 84-80-0; EINECS/ELINCS 201-564-2
Uses: Vitamin for pharmaceuticals
Features: Gelatin-free
Properties: Dry powd.

Vitamin A, C & E Liposomes [Engelhard]
Chem. Descrip.: Water, phospholipids, tocopheryl acetate, retinyl palmitate, ascorbyl palmitate
Uses: Delivery system for antioxidants (Vitamins C and E) and Vitamin A in sunscreens
Features: Reduces melanin levels in skin

Vivapharm® 3 [JRS Pharma http://www.jrspharma.com]
Chem. Descrip.: Hydropromellose See Hydroxypropyl methylcellulose
CAS 9004-65-3
Uses: Film coating for oral sustained-release pharmaceutical prods.

Vivapharm® 5 [JRS Pharma http://www.jrspharma.com]
Chem. Descrip.: Hydropromellose See
Hydroxypropyl methylcellulose
CAS 9004-65-3
Uses: Film coating for oral sustained-release pharmaceutical prods.
Regulatory: USP, EP
Properties: Wh. to off-wh. gran. powd.; sol. in most polar solvs., cold water; swells in water to produce a clear to opalescent visc. colloidal sol'n.; insol. in hot water and in anhyd. alcohol, ether, chloroform; visc. 6 mPa•s

Vivapharm® 6 [JRS Pharma]
http://www.jrspharma.com
Chem. Descrip.: Hypromellose See Hydroxypropyl methylcellulose
CAS 9004-65-3
Uses: Film coating for oral sustained-release pharmaceutical prods.
Regulatory: USP, EP
Properties: Wh. to off-wh. gran. powd.; sol. in most polar solvs., cold water; swells in water to produce a clear to opalescent visc. colloidal sol'n.; insol. in hot water and in anhyd. alcohol, ether, chloroform; visc. 6 mPa•s

Vivapharm® 15 [JRS Pharma]
http://www.jrspharma.com
Chem. Descrip.: Hypromellose See Hydroxypropyl methylcellulose
CAS 9004-65-3
Uses: Film coating and suspension thickener for oral sustained-release pharmaceutical prods.
Regulatory: USP, EP
Properties: Wh. to off-wh. gran. powd.; sol. in most polar solvs., cold water; swells in water to produce a clear to opalescent visc. colloidal sol'n.; insol. in hot water and in anhyd. alcohol, ether, chloroform; visc. 15 mPa•s

Vivapharm® 50 [JRS Pharma]
http://www.jrspharma.com
Chem. Descrip.: Hypromellose See Hydroxypropyl methylcellulose
CAS 9004-65-3
Uses: Film coating and binder in granulation for oral sustained-release pharmaceutical prods.
Regulatory: USP, EP
Properties: Wh. to off-wh. gran. powd.; sol. in most polar solvs., cold water; swells in water to produce a clear to opalescent visc. colloidal sol'n.; insol. in hot water and in anhyd. alcohol, ether, chloroform; visc. 50 mPa•s

Vivapur® 12 [JRS Pharma]
http://www.jrspharma.com
Chem. Descrip.: Microcrystalline cellulose
CAS 9004-34-6; EINECS/ELINCS 232-674-9
Uses: Excipient, binder, flow aid for pharmaceutical tableting, esp. direct compression, prod. of herbal drugs
Features: Coarse grade; good compactibility and outstanding flow; provides content uniformity at low weight variation, even when used with low concentrations of fine actives.
Regulatory: NF, EP, JP
Properties: Powd.; 180 µm avg. particle size; bulk dens. 0.30-0.36 g/cm³; 5% max. moisture

Vivapur® 14 [JRS Pharma]
http://www.jrspharma.com
Chem. Descrip.: Microcrystalline cellulose
CAS 9004-34-6; EINECS/ELINCS 232-674-9
Uses: Excipient, binder, flow aid for pharmaceutical tableting, esp. direct compression, prod. of herbal drugs
Features: Equal quality to Vivapur®12, but very low moisture content (<1.5%) for processing water-sensitive actives
Regulatory: NF, EP, JP
Properties: Powd.; 180 µm avg. particle size; bulk dens. 0.34-0.42 g/cm³; 5% max. moisture

Vivapur® 101 [JRS Pharma]
http://www.jrspharma.com
Chem. Descrip.: Microcrystalline cellulose
CAS 9004-34-6; EINECS/ELINCS 232-674-9
Uses: Excipient for pharmaceutical tableting, esp. for wet granulation and spheronization
Features: Indigestible; high chemical and microbial purity; pleasant mouthfeel
Regulatory: DAB, Ph.Eur., NF, JP compliances; kosher
Properties: Wh. powd.; 50 µm particle size; neutral flavor and odor; bulk dens. 320 g/l; water-binding capacity 255%; pH 5.5-7.0 (10% susp.); 99.5% act.

Vivapur® 102 [JRS Pharma]
http://www.jrspharma.com
Chem. Descrip.: Microcrystalline cellulose
CAS 9004-34-6; EINECS/ELINCS 232-674-9
Uses: Excipient for pharmaceutical tableting, esp. direct compression; flow aid for capsule filling
Features: Indigestible; high chemical and microbial purity; pleasant mouthfeel
Regulatory: DAB, Ph.Eur., NF, JP compliances; kosher
Properties: Wh. powd.; 100 µm particle size; neutral flavor and odor; bulk dens. 350 g/l;
Trade Name Reference

Vivapur® 103 [JRS Pharma
http://www.jrspharma.com]
Chem. Descrip.: Microcrystalline cellulose
CAS 9004-34-6; EINECS/ELINCS 232-674-9
Uses: Excipient for pharmaceutical tableting, esp. for tableting of water-sensitive ingreds.
Features: Very low moisture
Regulatory: DAB, Ph.Eur., NF, JP compliances; kosher
Properties: Powd.; 50 µm avg. particle size; bulk dens. 0.32 g/cm³; 3% max. moisture

Vivapur® 105 [JRS Pharma
http://www.jrspharma.com]
Chem. Descrip.: Microcrystalline cellulose
CAS 9004-34-6; EINECS/ELINCS 232-674-9
Uses: Carrier for noncrystalline substances and herbal extracts; helps avoid tears and craters in suppositories
Features: Indigestible; high chemical and microbial purity; pleasant mouthfeel; very good absorp. of oily substances
Regulatory: DAB, Ph.Eur., NF, JP compliances; kosher
Properties: Wh. powd.; 20 µm particle size; neutral flavor and odor; bulk dens. 0.20-0.26 g/cm³; water-binding capacity 270%; pH 5.5-7.0 (10% susp.); 99.5% act.

Vivapur® 112 [JRS Pharma
http://www.jrspharma.com]
Chem. Descrip.: Microcrystalline cellulose
CAS 9004-34-6; EINECS/ELINCS 232-674-9
Uses: Excipient for pharmaceutical tableting, esp. tableting of water-sensitive ingreds.
Features: Very low moisture
Regulatory: DAB, Ph.Eur., NF, JP compliances; kosher
Properties: Powd.; 90 µm avg. particle size; bulk dens. 0.30-0.36 g/cm³; 3% max. moisture

Vivapur® 200 [JRS Pharma
http://www.jrspharma.com]
Chem. Descrip.: Microcrystalline cellulose
CAS 9004-34-6; EINECS/ELINCS 232-674-9
Uses: Excipient, flow aid for pharmaceutical tableting, esp. direct compression
Features: Large size MCC grade with excellent flow properties for a variety of direct compression formulations
Regulatory: NF, EP, JP
Properties: Wh. powd.; 250 µm particle size; neutral flavor and odor; bulk dens. 0.31-0.37 g/cm³; water-binding capacity 244%; pH 5.5-7.0 (10% susp.); 99.5% act.

Vivapur® 301 [JRS Pharma
http://www.jrspharma.com]
Chem. Descrip.: Microcrystalline cellulose
CAS 9004-34-6; EINECS/ELINCS 232-674-9
Uses: Excipient for pharmaceutical tableting
Features: Higher bulk dens. and better flow than Vivapur 101 with same particle size distribution
Regulatory: NF, EP, JP
Properties: Powd.; 65 µm avg. particle size; bulk dens. 0.35-0.46 g/cm³; 5% max. moisture

Vivapur® 302 [JRS Pharma
http://www.jrspharma.com]
Chem. Descrip.: Microcrystalline cellulose
CAS 9004-34-6; EINECS/ELINCS 232-674-9
Uses: Excipient for pharmaceutical tableting especially suited for high speed tableting and processing high density actives.
Features: Higher bulk dens. and better flow than Vivapur 102
Regulatory: NF, EP, JP
Properties: Powd.; 100 µm avg. particle size; bulk dens. 0.35-0.50 g/cm³; 5% max. moisture

Vivasol® [JRS Pharma
http://www.jrspharma.com]
Chem. Descrip.: Croscarmellose sodium
Ph.Eur., NF
CAS 74811-65-7
Uses: Superdisintegrant for all tableting processes in pharmaceuticals, especially good for medium soluble actives
Features: Provides good results for tablet disintegration and dissolution
Regulatory: Ph.Eur., NF
Properties: Almost wh. powd.; 2% max. > 75 µm, 10% max. > 46 m; pract. insol. in acetone, ethanol, ether, toluene; pH 5-7; 6% max. moisture
Use Level: 1 - 2% only
Storage: Very hygroscopic; store dry at R.T. or below

Vivastar® M 1500 [JRS Pharma
http://www.jrspharma.com]
Chem. Descrip.: Sodium starch glycolate
(produced from corn starch) Eu.Ph., USP/NF
CAS 9063-38-1
Uses: Disintegrant for pharmaceuticals, aq. granulation, reconstitutible dry suspensions
Properties: Almost wh. fine, free-flowing powd.;
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pract. insol. in methylene chloride; visc. ≥ 1500 mPa•s; pH 5.5-7.5; 7% max. moisture; 1% max. NaCl
Storage: Very hygroscopic

Vivastar® P [JRS Pharma
http://www.jrspharma.com]
Chem. Descrip.: Sodium starch glycolate (produced from potato starch) Eu.Ph., USP/NF
CAS 9063-38-1
Uses: Superdisintegrant for rapid and high degree of swelling for pharmaceutical capsules
Features: Especially for poor water soluble actives and tablet matrices with lower pH value
Properties: Almost wh. fine, free-flowing powd.; pract. insol. in methylene chloride; nonvisc.; pH 5.5-7.5; 7% max. moisture; 7% max. NaCl
Storage: Very hygroscopic

Vivastar® P 1000 [JRS Pharma
http://www.jrspharma.com]
Chem. Descrip.: Sodium starch glycolate (produced from potato starch) Eu.Ph., USP/NF
CAS 9063-38-1
Uses: Disintegrant for pharmaceuticals, aq. granulation, reconstitutable dry suspensions
Properties: Almost wh. fine, free-flowing powd.; pract. insol. in methylene chloride; visc. ≤ 2000 mPa•s; pH 5.5-7.5; 7% max. moisture; 1% max. NaCl
Storage: Very hygroscopic

Vivastar® P 3500 [JRS Pharma
http://www.jrspharma.com]
Chem. Descrip.: Sodium starch glycolate (produced from potato starch) Eu.Ph., USP/NF
CAS 9063-38-1
Uses: Disintegrant for pharmaceuticals, aq. granulation, reconstitutable dry suspensions
Properties: Almost wh. fine, free-flowing powd.; pract. insol. in methylene chloride; visc. ≥ 2000-5000 mPa•s; pH 5.5-7.5; 7% max. moisture; 1% max. NaCl
Storage: Very hygroscopic

Vivastar® PSF [JRS Pharma
http://www.jrspharma.com]
Chem. Descrip.: Sodium starch glycolate (produced from potato starch without crosslinking) Eu.Ph., USP/NF
CAS 9063-38-1
Uses: Superdisintegrant for rapid and high degree of swelling for pharmaceutical capsules
Features: Hygroscopic; special grade with very low methanol content; especially suited for alcohol and moisture sensitive actives
Regulatory: USP, EP
Properties: Almost wh. fine, free-flowing powd.; pract. insol. in methylene chloride; translucent suspension in water; pH 5.5-7.5
Storage: Very hygroscopic

VM&P Naphtha HT [Shell
http://www.shellchemicals.com;
http://www.shell-lubricants.com]
Chem. Descrip.: Solvent naphtha (petroleum), light aliphatic, contains ethylbenzene (0.12-0.25%) See Naphtha, light aliphatic
CAS 64742-89-8; EINECS/ELINCS 265-192-2
UN 1268
Uses: Solvent for pharmaceuticals
Features: Fast/med.-evaporating, high solvency; hydrotreating removes unwanted compds. (e.g., sulfur, nitrogen, oxygen), converts unsat. hydrocarbons (olefins, acetylenes, aromatics), results in relatively low odor; no more than trace amts. of HAPs
Regulatory: SARA §311/312 acute health/fire hazard, §313 nonreportable
Properties: Lt. colored liq.; hydrocarbon odor; negligible sol. in water; sp.gr. 0.743 (60 F); vapor pressure 10 mm Hg (68 F); b.p. 253-282 F; flash pt. (TCC) 13.89 C; KB value 35; VOC 6.2 lb/gal (60 F); 100% act.
Toxicology: LD50 (oral, rat) 5840 mg/kg, (skin, rat) 2920 mg/kg; LC50 (inh., rat) 3400 ppm; if aspirated, can cause severe lung damage, chem. pneumonitis; may be fatal if swallowed; may cause CNS depression,
Trade Name Reference

dizziness, lightheadedness, headache, nausea, loss of coordination, unconsciousness, death; may cause temporary eye irritation, sl. skin irritation; TSCA listed

Environmental: Prevent entry into waterways, sewers

Precaution: Flamm.; flamm. in air 1-7 vol.%; vapors are heavier than air, may flash back; prevent vapor accumulation; floats on water; static electricity may accumulate and create a fire hazard; bond and ground equip. and transfer containers; avoid contact with strong oxidizing agents; prevent entry into basements, confined areas

Hazardous Decomp. Prods.: Complex mixt. of airborne solids, liqs., and gases incl. CO, CO₂, other org. compds.

HMIS: Health 1, Flammability 3, Reactivity 0

Storage: Keep containers closed when not in use; keep away from heat, sparks, flame


Chem. Descrip.: Bentonite USP/NF
Chem. Analysis: SiO₂ (63.02%), Al₂O₃ (21.08%), moisture (5-8%), Fe₂O₃ (3.25%), MgO (2.67%), Na₂O (2.57%)
CAS 1302-78-9; EINECS/ELINCS 215-108-5
Uses: Suspending agent, gellant, binder for pharmaceuticals
Features: Rec. where color is not critical
Properties: Gray to tan air-floated powd.; odorless; tasteless; 99% through 200 mesh; insol. in water, alcohol; sp.gr. 2.6; visc. 8-30 cps (6.25% solids); pH 9.5-10.5 (2% disp.)

Volpo 3 [Croda Inc http://www.croda.com; http://www.crodausa.com]

Chem. Descrip.: Oleth-3
CAS 9004-98-2
Uses: Dispersant, emollient, lubricant, w/o emulsifier, solubilizer, wetting agent, gellant, spreading agent for topical pharmaceuticals; petrolatum emulsifier with Volpo S series
Properties: Off-wh. hazy liq.; sol. in alcohols, glycols, ketones, and chlorinated and aromatic solvs., min. oil, and nonpolar oils; disp. in water; HLB 6.6; acid no. 2.0 max.; iodine no. 57-62; hyd. no. 135-150; pH 5-7 (3% aq.); nonionic
Use Level: 0.5-5%
Toxicology: LD50 (oral, rat) 12.2 g/kg; skin irritant; nonirritating to eyes

Volpo 5 [Croda Inc http://www.croda.com; http://www.crodausa.com]
Chem. Descrip.: Oleth-5
CAS 9004-98-2
Uses: Dispersant, emollient, lubricant, emulsifier, solubilizer, wetting agent, gellant for topical pharmaceuticals; petrolatum emulsifier with Volpo S series
Properties: Off-wh. hazy liq.; sol. in alcohols, glycols, ketones, and chlorinated and aromatic solvs., min. oil, and nonpolar oils; disp. in water; HLB 8.8; acid no. 2.0 max.; iodine no. 40-52; hyd. no. 120-135; pH 5-7 (3% aq.); nonionic; 100% conc.
Use Level: 0.5-5%
Toxicology: LD50 (oral, rat) 5 g/kg; mild skin irritant, moderate eye irritant

Volpo 10 [Croda Inc http://www.croda.com; http://www.crodausa.com]
Chem. Descrip.: Oleth-10 NF
CAS 9004-98-2
Uses: Dispersant, emollient, lubricant, o/w emulsifier, solubilizer, wetting agent, gellant for topical pharmaceuticals, clear gels
Properties: Off-wh. semisolid; sol. in alcohols, glycols, ketones, and chlorinated and aromatic solvs., and water; HLB 12.4; acid no. 2.0 max.; iodine no. 31-37; hyd. no. 79-91; pH 5-7 (3% aq.); nonionic; 100% conc.
Use Level: 0.5-5%
Toxicology: LD50 (oral, rat) 4.3 g/kg; skin irritant, nonirritating to eyes

Volpo 20 [Croda Inc http://www.croda.com; http://www.crodausa.com]
Chem. Descrip.: Oleth-20
CAS 9004-98-2
Uses: Dispersant, emollient, lubricant, o/w emulsifier, fragrance solubilizer for topical pharmaceuticals, clear gels
Features: Works well with carnauba wax
Properties: Off-wh. soft solid; sol. in water, IPA, propylene glycol; insol. in min. oil; HLB 15.4; cloud pt. 100 C (1% aq.); acid no. 2.0 max.; iodine no. 18-25; hyd. no. 50-58; pH 5-7 (3% aq.); nonionic; 100% conc.
Use Level: 0.5-5%
Toxicology: LD50 (oral, rat) 15.1 g/kg; mild skin and eye irritant
Volpo C2  [Croda Chem. Europe Ltd  
http://www.croda.co.uk]  
Chem. Descrip.: Ceteth-2  
CAS 9004-95-9  
Uses: Surfactant, antistat, detergent, dispersant, emulsifier, leveling agent, plasticizer, scouring agent, solubilizer, and wetting agent in pharmaceuticals  
Properties: Wh. waxy solid; sol. in ethanol, trichloroethylene, butyl stearate, methyl oleate, xylene; partially sol. in min. oil and rapeseed oil; insol. in water, kerosene; HLB 5.3; acid no. 1.0 max.; hyd. no. 160-180; nonionic  
Toxicology:  
Storage: Hygroscopic  

Volpo C20  [Croda Inc  
http://www.croda.com;  
http://www.crodausa.com]  
Chem. Descrip.: Ceteareth-20  
CAS 68439-49-6 (generic)  
Uses: Emulsifier, dispersant, wetting agent, gellant for pharmaceuticals  
Properties: Off-wh. hard waxy solid; sol. in water, ethanol, trichloroethylene, oleic acid, xylene; HLB 15.4; acid no. 1 max.; hyd. no. 45-55; cloud pt. 78 C (1% aq.); surf. tens. 41.5 dynes/cm (0.1% aq.); pH 6.0-7.5 (3%); nonionic; 97% conc.  
Toxicology: LD50 (oral, rat) 2.1 g/kg; mild skin irritant, moderate eye irritant  

Volpo CS2  [Croda Chem. Europe Ltd  
http://www.croda.co.uk]  
Chem. Descrip.: Ceteareth-2  
CAS 9004-95-9  
Uses: Emulsifier, wetting agent, solubilizer for pharmaceuticals  
Properties: Wh. waxy solid; sol. in ethanol, kerosene, trichloroethylene, xylene; partially sol. in butyl stearate; insol. in min. oil, methyl oleate, rapeseed oil, kerosene; HLB 15.4; acid no. 1.0 max.; hyd. no. 45-60; nonionic  
Toxicology:  
Precaution: Avoid use in prods. used near eyes or in high conc. in skin cosmetics  
Storage: Hygroscopic  

Volpo CS20  [Croda Inc  
http://www.croda.com;  
http://www.crodausa.com]  
Chem. Descrip.: PEG-25 Cetostearyl ether  
See Ceteareth-25  
CAS 68439-49-6 (generic)  
Uses: Emulsifier, dispersant and wetting agent in pharmaceutical creams and lotions  
Features: Stable to moderately strong acids and alkalis  
Regulatory: FDA Inactive Ingredients Guide listed  
Properties: Wh. waxy pastilles; HLB 16.2; nonionic  

Volpo CS25  [Croda Inc  
http://www.croda.com;  
http://www.crodausa.com]  
Chem. Descrip.: PEG-3 lauryl alcohol  
See Laureth-3  
CAS 9002-92-0; EINECS/ELINCS 221-280-2  
Uses: Surfactant, antistat, detergent, dispersant, emulsifier, leveling agent, plasticizer, scouring agent, solubilizer, and wetting agent in pharmaceuticals  
Properties: Essentially colorless cl. liq.; sol. in trichloroethylene, xylene, rapeseed oil, min oil, butyl stearate, kerosene, methyl oleate; insol. in water; HLB 7-8; acid no. 1.0 max.; hyd. no. 165-180; nonionic  
Toxicology:  
Storage: Hygroscopic  

Volpo L3  [Croda Chem. Europe Ltd  
http://www.croda.co.uk]  
Chem. Descrip.: PEG-3 lauryl alcohol  
See Laureth-3  
CAS 9002-92-0; EINECS/ELINCS 221-280-2  
Uses: Surfactant, antistat, detergent, dispersant, emulsifier, leveling agent, plasticizer, scouring agent, solubilizer, and wetting agent in pharmaceuticals  
Properties: Essentially colorless cl. liq.; sol. in trichloroethylene, xylene, rapeseed oil, min oil, butyl stearate, kerosene, methyl oleate; insol. in water; HLB 7-8; acid no. 1.0 max.; hyd. no. 165-180; nonionic  
Toxicology:  
Storage: Hygroscopic  

Volpo L3 Special  [Croda Chem. Europe Ltd  
http://www.croda.co.uk]  
Chem. Descrip.: PEG (3) lauryl alcohol  
See
**Laureth-3**

CAS **9002-92-0**; EINECS/ELINCS **221-280-2**  
*Uses:* Emulsifier, wetting agent, spreading agent, dispersant in medically prescribed dispersible bath oils  
*Features:* Chemically stable to strong acids and alkalis and high levels of electrolytes  
*Regulatory:* EP, FDA Inactive Ingredients Guide listed  
*Properties:* Colorless cl. liq.; sol. in lipophilic materials; readily disp. in solvs.; HLB 8.0; acid no. 1; hyd. no. 165-180; nonionic  
*Use Level:* 1%  
*Toxicology:* Essentially nonirritating to skin

**Volpo L4** [Croda Chem. Europe Ltd  
[http://www.croda.co.uk]]  
*Chem. Descrip.:* C12-13 pareth-4  
*CAS* **66455-14-9**  
*Uses:* Emulsifier, wetting agent, spreading agent, dispersant in medically prescribed dispersible bath oils  
*Features:* Chemically stable to strong acids and alkalis and high levels of electrolytes  
*Regulatory:* EP, FDA Inactive Ingredients Guide listed  
*Properties:* Essentially colorless cl. liq.; sol. in min. oil, kerosene, trichloroethylene, butyl stearate, rapeseed oil, methyl oleate, xylene; insol. in water; HLB 9.5; acid no. 1 max.; hyd. no. 145-160; nonionic; 97% conc.  
*Volpo L23* [Croda Chem. Europe Ltd  
[http://www.croda.co.uk]]  
*Chem. Descrip.:* C12-13 pareth-23  
*CAS* **66455-14-9**  
*Uses:* Spreading agent, foaming agent, dispersant, o/w emulsifier and solubilizer for pharmaceutical topicals  
*Features:* Chemically stable to strong acids and alkalis and high levels of electrolytes  
*Regulatory:* FDA Inactive Ingredients Guide listed  
*Properties:* Wh. to off-wh. opaque liq.; sol. in water, ethanol, min. oil, trichloroethylene, rapeseed oil, methyl oleate, xylene; partly sol. in butyl stearate, kerosene, butyl stearate; HLB 12.4; acid no. 0.5 max.; iodine no. 33-38; hyd. no. 75-90; nonionic; 97% conc.  

**Volpo N5** [Croda Chem. Europe Ltd  
[http://www.croda.co.uk]]  
*Chem. Descrip.:* Oleth-5, distilled  
*CAS* **9004-98-2**  
*Uses:* Emulsifier, dispersant, wetting agent, gellant, and solubilizer for pharmaceutical topicals  
*Features:* Chemically stable to strong acids and alkalis and high levels of electrolytes  
*Regulatory:* EP  
*Properties:* Wh. turbid liq. to soft paste; sol. in water, ethanol, min. oil, trichloroethylene, xylene; partly sol. in kerosene, butyl stearate, rapeseed oil, methyl oleate; HLB 15.5; acid no. 0.5 max.; iodine no. 19-24; hyd. no. 45-55; nonionic; 97% conc.  
*Volpo N10* [Croda Inc  
[http://www.croda.com;  
http://www.crodausa.com]]  
*Chem. Descrip.:* Oleth-10, distilled  
*CAS* **9004-98-2**  
*Uses:* Emulsifier, dispersant, wetting agent, gellant for pharmaceuticals  
*Properties:* Wh. waxy solid; sol. in water, ethanol, min. oil, trichloroethylene, xylene; partly sol. in kerosene, butyl stearate, rapeseed oil, methyl oleate; HLB 16.7; acid no. 1 max.; hyd. no. 45-55; nonionic; 97% conc.  

**Volpo N20** [Croda Chem. Europe Ltd  
[http://www.croda.co.uk]]  
*Chem. Descrip.:* Oleth-20, distilled  
*CAS* **9004-98-2**  
*Uses:* Emulsifier, dispersant, wetting agent, gellant, and solubilizer for pharmaceutical topicals  
*Features:* Chemically stable to strong acids and alkalis and high levels of electrolytes  
*Properties:* Wh. soft solid; sol. in water, ethanol, min. oil, trichloroethylene, xylene; partly sol. in butyl stearate, rapeseed oil, methyl oleate; HLB 15.5; acid no. 0.5 max.; iodine no. 19-24; hyd. no. 45-55; nonionic; 97% conc.  
*Toxicology:* May cause skin/eye irritation

**Volpo N3** [Croda Chem. Europe Ltd  
[http://www.croda.co.uk]]  
*Chem. Descrip.:* Oleth-3, distilled  
*CAS* **9004-98-2**  
*Uses:* Emulsifier, dispersant, wetting agent, gellant for pharmaceuticals  
*Properties:* Colorless to pale yel. cl. to sl. hazy liq.; sol. in ethanol, min. oil, kerosene, trichloroethylene, rapeseed oil, methyl oleate, xylene; partly sol. in butyl stearate; insol. in water; HLB 6.6; acid no. 0.5 max.; iodine no. 58-66; hyd. no. 130-150; nonionic; 97% conc.  
*Toxicology:* May cause skin/eye irritation
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>CAS 9005-00-9</td>
<td>CAS 78330-21-9</td>
</tr>
<tr>
<td>Uses: Aux. emulsifier for o/w or w/o topical pharmaceutical emulsions</td>
<td>Uses: Emulsifier, dispersant, wetting agent, gellant, scouring agent, solubilizer for pharmaceuticals</td>
</tr>
<tr>
<td>Features: Stable over wide pH range; synergistic with Volpo 3, 5 and Polychols</td>
<td>Properties: Wh. soft paste; sol. in water, rapeseed oil, methyl oleate, xylene; partly sol. in kerosene, butyl stearate; insol. in min. oil; HLB 15.4; acid no. 1 max.; hyd. no. 65-75; nonionic; 97% conc.</td>
</tr>
<tr>
<td>Regulatory: USP/NF, EP, FDA Inactive Ingredients Guide listed</td>
<td>Use Level: 0.5-5%</td>
</tr>
<tr>
<td>Properties: Wh. translucent plastic wax; sol. in alcohol, glycols, methyl oleate, xylene, ketones, most chlorinated and aromatic solvs., kerosene, min. oil; HLB 4.9; acid no. 1.0 max.; hyd. no. 150-170; cloud pt. &lt; 55 C (1% aq.); pH 6.0-7.0 (3%); nonionic; 100% conc.</td>
<td>Toxicology: LD50 (oral, rat) 2.07 g/kg; nonirritating to skin; moderate eye irritant</td>
</tr>
<tr>
<td>Use Level: 0.5-5%</td>
<td>Volpo T15  [Croda Chem. Europe Ltd <a href="http://www.croda.co.uk">http://www.croda.co.uk</a>]</td>
</tr>
<tr>
<td>Toxicology: LD50 (oral, rat) 21 g/kg; mild skin irritation, nonirritating to eyes</td>
<td>Chem. Descr.:  Trideceth-15</td>
</tr>
<tr>
<td>Chem. Descr.:  Steareth-10</td>
<td>Uses: Emulsifier, dispersant, wetting agent, gellant, scouring agent, solubilizer for pharmaceuticals</td>
</tr>
<tr>
<td>CAS 9005-00-9</td>
<td>Properties: Wh. waxy solid, low odor; sol. in water, alcohol, glycol, ketone, most chlorinated and aromatic solvs.; insol. in oil; HLB 12.4; acid no. 1.0 max.; hyd. no. 75-90; cloud pt. 65-75 C (1% aq.); pH 6.0-7.0 (3%); nonionic; 100% conc.</td>
</tr>
<tr>
<td>Uses: O/w emulsifier for topical pharmaceutical emulsions</td>
<td>Use Level: 0.5-5%</td>
</tr>
<tr>
<td>Features: Stable over wide pH range; synergistic with Polychol 15, Volpo 10 and 20; provides superior stability to systems contg. cetyl or stearyl alcohols</td>
<td>Toxicology: LD50 (oral, rat) 2.1 g/kg; moderate skin irritant, severe eye irritant</td>
</tr>
<tr>
<td>Properties: Wh. solid; sol. in water, alcohols, glycols, ketones, most chlorinated and aromatic solvs.; insol. in oil; HLB 15.3; acid no. 1.0 max.; hyd. no. 45-60; cloud pt. &gt; 100 C (1% aq.); nonionic; 100% conc.</td>
<td>Chem. Descr.:  Steareth-20</td>
</tr>
<tr>
<td>Use Level: 0.5-5%</td>
<td>CAS 9005-00-9</td>
</tr>
<tr>
<td>Use Level: 0.5-5%</td>
<td>Uses: O/w emulsifier for topical pharmaceutical emulsions</td>
</tr>
<tr>
<td>Features: Stable over wide pH range</td>
<td>Regulatory: USP/NF, EP, FDA Inactive Ingredients Guide listed</td>
</tr>
<tr>
<td>Properties: Wh. solid; sol. in water, alcohols, glycols, ketones, most chlorinated and aromatic solvs.; insol. in oil; HLB 15.3; acid no. 1.0 max.; hyd. no. 45-60; cloud pt. &gt; 100 C (1% aq.); nonionic; 100% conc.</td>
<td>Properties: Wh. soft paste; sol. in water, ethanol, trichloroethylene, methyl oleate, xylene; partly sol. in butyl stearate, rapeseed oil; HLB 15.4; acid no. 1 max.; hyd. no. 65-75; nonionic; 97% conc.</td>
</tr>
<tr>
<td>Toxicology: LD50 (oral, rat) 2.07 g/kg; nonirritating to skin; moderate eye irritant</td>
<td>Volpo T15  [Croda Chem. Europe Ltd <a href="http://www.croda.co.uk">http://www.croda.co.uk</a>]</td>
</tr>
<tr>
<td>Chem. Anal.:  SiO₂ (60.0%); MgO (32.0%); Al₂O₃ (1.0%); Fe₂O₃ (1.2%); CaO (0.20%)</td>
<td>CAS 14807-96-6; EINECS/ELINCS 238-877-9</td>
</tr>
<tr>
<td>CAS 14807-96-6</td>
<td>Uses: Filler in pharmaceuticals, tablets, medicated powders, creams/lotions/ointments; lubricant, glidant in tablet coatings; release agent in tablet molds</td>
</tr>
<tr>
<td>Properties: Wh. soft paste; sol. in water, rapeseed oil, methyl oleate, xylene; partly sol. in butyl stearate, rapeseed oil; HLB 15.4; acid no. 1 max.; hyd. no. 65-75; nonionic; 97% conc.</td>
<td>Features: Inert; contains no ozone depleting chems.</td>
</tr>
<tr>
<td>Use Level: 0.5-5%</td>
<td>Regulatory: USP, DOT nonregulated; SARA §311/312 acute health hazard</td>
</tr>
<tr>
<td>Toxicology: LD50 (oral, rat) 2.1 g/kg; mild skin irritation, nonirritating to eyes</td>
<td>Properties: Wh. soft paste; sol. in water, ethanol, trichloroethylene, methyl oleate, xylene; partly sol. in butyl stearate, rapeseed oil; HLB 15.4; acid no. 1 max.; hyd. no. 65-75; nonionic; 97% conc.</td>
</tr>
<tr>
<td>Volpo S20  [Croda Inc <a href="http://www.croda.com">http://www.croda.com</a>; <a href="http://www.crodausa.com">http://www.crodausa.com</a>]</td>
<td>Toxicology: Dust may cause mech. irritation to eyes, respiratory tract, skin; inh. of dust may cause sneezing, coughing, nose irritation; chronic exposure may cause talcosis, possibly severe/permanent lung damage, disability, death; ing. may cause GI irritation;</td>
</tr>
</tbody>
</table>
Trade Name Reference

TSCA listed
Precaution: Avoid water and moisture
Hazardous Ingredients: Cryst. silica (0.1-1.0%)
HMIS: Health 1, Flammability 0, Reactivity 0
Storage: Store in clean, dry area; minimize or avoid dust generation

WCD 2755 [MPSI http://www.mp-solutionsinc.com]
Chem. Descrip.: Talc USP
Chem. Analysis: SiO2 (60.0%); MgO (32.0%); Al2O3 (1.0%); Fe2O3 (1.2%); CaO (0.20%)
CAS 14807-96-6; EINECS/ELINCS 238-877-9
Uses: Filler in pharmaceuticals, tablets, medicated foot powds., creams/lotions/ointments; lubricant, glidant in tablet coatings; release agent in tablet molds
Features: Inert; contains no ozone depleting chems.
Regulatory: USP, DOT nonregulated; SARA §311/312 acute health hazard
Properties: Wh. powd.; 1.2 µ median particle size; 100% through 325 mesh; odorless; insol. in water; sp.gr. 2.80; dens. 22.6 lb/ft3 (tapped), 7.5 lb/ft3 (loose); oil absorp. 54; dry brightness 89; noncombustible; pH 8.8; 0.5% max. moisture
Toxicology: Dust may cause mech. irritation to eyes, respiratory tract, skin; inh. of dust may cause sneezing, coughing, nose irritation; chronic exposure may cause talcosis, possibly severe/permanent lung damage, disability, death; ing. may cause GI irritation; TSCA listed
Precaution: Avoid water and moisture
Hazardous Ingredients: Cryst. silica (0.1-1.0%)
HMIS: Health 1, Flammability 0, Reactivity 0
Storage: Store in clean, dry area; minimize or avoid dust generation

Chem. Descrip.: Fumed silica (100%) See Silica, fumed
CAS 112945-52-5; EINECS/ELINCS 231-545-4
Uses: Thickener, thixotrope, antisetting agent for pharmaceuticals (toothpaste, tablets, powds., aerosols, suspensions, ointments, creams); flow aid for powds., pigments, and salts
Features: Hydrophilic
Regulatory: DOT not regulated; CERCLA nonreportable; Canada DSL; China IECSC; Japan ENCS; Philippines PICCS; Korea ECL; Australia AICS; New Zealand HSNO; MA, NJ, PA Right-to-Know
Properties: Wh. powd.; virtually insol. in water; dens. ≈ 2.2; bulk dens. 40 g/l (tamped); m.p. 1700 C; surf. area 200±30 m2/g; ref. index 1.45; pH 3.6-4.3 (4% aq.)
Use Level: 5-35% (rubber), 15-35% (high temp. curing silicone rubber), 0.8-1.2% (adhesives)
Toxicology: LD50 (oral, rat) > 5 g/kg, (dermal rabbit) > 5 g/kg; LC50 (inh., rat, 4 h) > 0.139 mg/l; nuisance dust; use barrier cream to prevent drying of skin; TSCA listed
Environmental: EC50 (daphnia magna, 24 h) > 10 g/l; LC50 (zebra fish, 96 h) > 10 g/l
Precaution: Wear rubber gloves, safety glasses with side shields or chemical safety goggles; avoid dust formation; take precautions against electrostatic charging
HMIS: Health 1, Flammability 0, Reactivity 0
Storage: 1 yr. storage stability in dry area in unopened containers

Chem. Descrip.: Fumed silica See Silica, fumed
CAS 112945-52-5; EINECS/ELINCS 231-545-4
Uses: Thickener, thixotrope, excipient, flow aid for pharmaceutical powds.
Features: Hydrophobic
Properties: Wh. powd.; bulk dens. 40 g/l (tamped); surf. area 170±30 m2/g; ref. index 1.45; pH 3.8-4.5 (4% in 1:1 water/methanol disp.)
Storage: 1 yr. storage stability in unopened containers

Chem. Descrip.: Fumed silica See Silica, fumed
CAS 112945-52-5; EINECS/ELINCS 231-545-4
Uses: Thickener, thixotrope for toothpaste
Properties: Pure wh. powd.; odorless; < 0.04% > 40 µm sieve residue; bulk dens. 105 g/l (tamped); surf. area 200±30 m2/g; ref. index 1.45; pH 3.6-4.3 (4% disp. in water)
Storage: 1 yr. shelf life in closed containers

Chem. Descrip.: Fumed silica See Silica, fumed
CAS 112945-52-5; EINECS/ELINCS 231-545-4
Uses: Thickener, thixotrope for toothpaste
Properties: Pure wh. powd.; odorless; < 0.04% > 40 µm sieve residue; bulk dens. 105 g/l (tamped); surf. area 200±30 m2/g; ref. index 1.45; pH 3.6-4.3 (4% disp. in water)
Storage: 1 yr. shelf life in closed containers

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Trade Name Reference

Chem. Descrip.: Fumed silica (100%) See Silica, fumed
CAS 112945-52-5; EINECS/ELINCS 231-545-4
Uses: Thickener, thixotropic agent, filler, antissettling agent for pharmaceuticals (suspensions, ointments, creams); flow aid for powds.
Properties: Wh. powd.; odorless; insol. in water; dens. ≈ 2.2; bulk dens. 50 g/l (tamped); m.p. 1700 C; surf. area 150±30 m²/g; ref. index 1.45; pH 3.6-4.3 (4% aq.)
Regulatory: DOT, TDG, IMDG, ICAO, IATA non regulated; CERCLA, SARA §302/311/312/313 nonreportable; MA, PA, NJ Right-to-Know; Canada DSL; China IECSC; Japan ENCS; Philippines PICCS; Korea ECL; Australia AICS; New Zealand HSNO
Toxicology: LD50 (oral, rat) > 5000 mg/kg, (skin, rabbit) > 5000 mg/kg, (inh., rat, 4 h) > 0.139 mg/l; use barrier cream to prevent drying of skin; nuisance dust
Environmental: (EC50 (daphnia magna, 24 h) > 10 kg/l; LC50 (zebra fish, 96 h) > 10 kg/l
Precaution: Wear rubber gloves, safety glasses with side shields or chemical safety goggles; avoid dust formation; take precautions against electrostatic charging
HMIS: Health 1, Flammability 0, Reactivity 0
Storage: 1 yr. storage stability in dry area in unopened containers

Chem. Descrip.: Carboxymethylcellulose sodium, high purity
CAS 9004-32-4; EINECS/ELINCS 265-995-8
Uses: Excipient, disintegration aid, film former, thickener, and stabilizer in creams, gels, and ointments; binder and phase separation inhibitor in bulk laxatives; thickener and suspending agent in syrups and pharmaceutical suspensions; viscosity regulator in nose and ear drop, injections and infusion preps.
Regulatory: USP, EP, GRAS, kosher
Properties: Solid; visc. 30 cps
Storage: Store in its original packaging in a clean and dry place, away from heat source

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<table>
<thead>
<tr>
<th>Trade Name Reference</th>
<th>Handbook of Pharmaceutical Additives, Third Edition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Walocel® C 10000 A</strong> <a href="http://www.wolff-walsrode.de">Wolff Walsrode AG</a></td>
<td><strong>Chem. Descrip.:</strong> Carboxymethylcellulose sodium, high purity</td>
</tr>
<tr>
<td><strong>Walocel® C 10000 A</strong> <a href="http://www.wolff-walsrode.de">Wolff Walsrode AG</a></td>
<td><strong>CAS:</strong> 9004-32-4; EINECS/ELINCS 265-995-8</td>
</tr>
<tr>
<td><strong>Walocel® C 10000 A</strong> <a href="http://www.wolff-walsrode.de">Wolff Walsrode AG</a></td>
<td><strong>Uses:</strong> Excipient, disintegration aid, film former, thickener, and stabilizer in creams, gels, and ointments; binder and phase separation inhibitor in bulk laxatives; thickener and suspending agent in syrups and pharmaceutical suspensions; stabilizer in antacid, secretion absorber in band aids and gels</td>
</tr>
<tr>
<td><strong>Walocel® CRT 2000 A</strong> <a href="http://www.wolff-walsrode.de">Wolff Walsrode AG</a></td>
<td><strong>Chem. Analysis:</strong> 99.5% assay</td>
</tr>
<tr>
<td><strong>Walocel® CRT 2000 A</strong> <a href="http://www.wolff-walsrode.de">Wolff Walsrode AG</a></td>
<td><strong>Uses:</strong> Visc. builder for foods, cosmetics, pharmaceuticals</td>
</tr>
<tr>
<td><strong>Walocel® CRT 2000 A</strong> <a href="http://www.wolff-walsrode.de">Wolff Walsrode AG</a></td>
<td><strong>Properties:</strong> Grans. or powd.; Brookfield visc. 550-800 mPa•s</td>
</tr>
<tr>
<td><strong>Walocel® CRT 19000 A</strong> <a href="http://www.wolff-walsrode.de">Wolff Walsrode AG</a></td>
<td><strong>Chem. Descrip.:</strong> Carboxymethylcellulose sodium</td>
</tr>
<tr>
<td><strong>Walocel® CRT 19000 A</strong> <a href="http://www.wolff-walsrode.de">Wolff Walsrode AG</a></td>
<td><strong>Chem. Analysis:</strong> 99.5% assay</td>
</tr>
<tr>
<td><strong>Walocel® CRT 19000 A</strong> <a href="http://www.wolff-walsrode.de">Wolff Walsrode AG</a></td>
<td><strong>Uses:</strong> Visc. builder for foods, cosmetics, pharmaceuticals</td>
</tr>
<tr>
<td><strong>Walocel® CRT 19000 A</strong> <a href="http://www.wolff-walsrode.de">Wolff Walsrode AG</a></td>
<td><strong>Properties:</strong> Grans. or powd.; Brookfield visc. 1900-2800 mPa•s</td>
</tr>
<tr>
<td><strong>Walocel® CRT 20000 A</strong> <a href="http://www.wolff-walsrode.de">Wolff Walsrode AG</a></td>
<td><strong>Chem. Descrip.:</strong> Carboxymethylcellulose sodium</td>
</tr>
<tr>
<td><strong>Walocel® CRT 20000 A</strong> <a href="http://www.wolff-walsrode.de">Wolff Walsrode AG</a></td>
<td><strong>Chem. Analysis:</strong> 99.5% assay</td>
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<td><strong>Walocel® CRT 20000 A</strong> <a href="http://www.wolff-walsrode.de">Wolff Walsrode AG</a></td>
<td><strong>Uses:</strong> Visc. builder for foods, cosmetics, pharmaceuticals</td>
</tr>
<tr>
<td><strong>Walocel® CRT 20000 A</strong> <a href="http://www.wolff-walsrode.de">Wolff Walsrode AG</a></td>
<td><strong>Properties:</strong> Grans. or powd.; Brookfield visc. 1900-2600 mPa•s</td>
</tr>
<tr>
<td><strong>Walocel® CRT 30000 A</strong> <a href="http://www.wolff-walsrode.de">Wolff Walsrode AG</a></td>
<td><strong>Chem. Descrip.:</strong> Carboxymethylcellulose sodium</td>
</tr>
<tr>
<td><strong>Walocel® CRT 30000 A</strong> <a href="http://www.wolff-walsrode.de">Wolff Walsrode AG</a></td>
<td><strong>Chem. Analysis:</strong> 99.5% assay</td>
</tr>
<tr>
<td><strong>Walocel® CRT 30000 A</strong> <a href="http://www.wolff-walsrode.de">Wolff Walsrode AG</a></td>
<td><strong>Uses:</strong> Visc. builder for foods, cosmetics, pharmaceuticals</td>
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<td><strong>Properties:</strong> Grans. or powd.; Brookfield visc. 1900-2600 mPa•s</td>
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<td><strong>Walocel® CRT 30000 A</strong> <a href="http://www.wolff-walsrode.de">Wolff Walsrode AG</a></td>
<td><strong>Properties:</strong> Grans. or powd.; Brookfield visc. 1900-2600 mPa•s</td>
</tr>
</tbody>
</table>
Trade Name Reference

methylcellulose

Uses: Film former, shelf life extender, hardener, taste masking agent in coatings for pills/tablets
Features: Does not affect active substance release; compatible with colorants, pigments and emollients
Use Level: 5-15% use level

Walocel® HM 5 PPA 2910 [Wolff Walsrode AG](http://www.wolff-walsrode.de)
Chem. Descrip.: Hydroxypropyl methylcellulose
Uses: Film former, shelf life extender, hardener, taste masking agent in hard capsules for sustained release
Features: Very rapidly dissolving HPMC; does not affect active substance release; compatible with colorants, pigments and emollients

Walocel® HM 6 PPA 2910 [Wolff Walsrode AG](http://www.wolff-walsrode.de)
Chem. Descrip.: Hydroxypropyl methylcellulose
Uses: Film former in coatings for pills/tablets
Features: Gluten-free; BSE/TSE- and GMO-free; good freeze/thaw stability; very stable in systems with high salt content
Regulatory: Kosher; FDA 21 CFR §172.874; EU E 464
Properties: Odorless; tasteless; Brookfield visc. 80-120 mPa*s

Walocel® HM 15 PA [Wolff Walsrode AG](http://www.wolff-walsrode.de)
Chem. Descrip.: Hydroxypropyl methylcellulose
Uses: Film former, shelf life extender, hardener, taste masking agent in hard capsules for sustained release
Features: Gluten-free; BSE/TSE- and GMO-free; good freeze/thaw stability; very stable in systems with high salt content
Regulatory: Kosher; FDA 21 CFR §172.874; EU E 464
Properties: Odorless; tasteless; Brookfield visc. 12-18 mPa*s
Use Level: 5-15% use level

Walocel® HM 15 PPA 2910 [Wolff Walsrode AG](http://www.wolff-walsrode.de)
Chem. Descrip.: Hydroxypropyl methylcellulose
Uses: Film former, shelf life extender, hardener, taste masking agent in hard capsules for sustained release
Features: Very rapidly dissolving HPMC; does not affect active substance release; compatible with colorants, pigments and emollients

Walocel® HM 50 PA [Wolff Walsrode AG](http://www.wolff-walsrode.de)
Chem. Descrip.: Hydroxypropyl methylcellulose
Uses: Used in coatings for pills/tablets
Features: Gluten-free; BSE/TSE- and GMO-free; good freeze/thaw stability; very stable in systems with high salt content
Regulatory: Kosher; FDA 21 CFR §172.874; EU E 464
Properties: Odorless; tasteless; Brookfield visc. 1200-1800 mPa*s

Walocel® HM 1500 PA [Wolff Walsrode AG](http://www.wolff-walsrode.de)
Chem. Descrip.: Hydroxypropyl methylcellulose
Uses: Used in coatings for pills/tablets
Features: Gluten-free; BSE/TSE- and GMO-free; good freeze/thaw stability; very stable in systems with high salt content
Regulatory: Kosher; FDA 21 CFR §172.874; EU E 464
Properties: Odorless; tasteless; Brookfield visc. 320-480 mPa*s

Walocel® HM 4000 PA [Wolff Walsrode AG](http://www.wolff-walsrode.de)
Chem. Descrip.: Hydroxypropyl methylcellulose
Uses: Used in coatings for pills/tablets
Features: Gluten-free; BSE/TSE- and GMO-free; good freeze/thaw stability; very stable in systems with high salt content
Regulatory: Kosher; FDA 21 CFR §172.874; EU E 464
Properties: Odorless; tasteless; Brookfield visc. 1200-1800 mPa*s
methylcellulose

**Uses:** Film former, shelf life extender, hardener, taste masking agent in coatings for pills/tablets

**Features:** Gluten-free; BSE/TSE- and GMO-free; good freeze/thaw stability; very stable in systems with high salt content

**Regulatory:** Kosher; FDA 21 CFR §172.874; EU E 464

**Properties:** Odorless; tasteless; Brookfield visc. 3200-4800 mPa•s

**Walocel® HM 4000 PPA 2208** [Wolff Walsrode AG http://www.wolff-walsrode.de]

**Chem. Descrip.:** Hydroxypropyl methylcellulose

**Uses:** Matrix former for hard matrix tablets, vitamin sustained release tablets; stabilizer in antacids

**Properties:** Solid

**Walocel® HM 15000 PA** [Wolff Walsrode AG http://www.wolff-walsrode.de]

**Chem. Descrip.:** Hydroxypropyl methylcellulose

**Uses:** Film former, shelf life extender, hardener, taste masking agent in coatings for pills/tablets

**Features:** Gluten-free; BSE/TSE- and GMO-free; good freeze/thaw stability; very stable in systems with high salt content

**Regulatory:** Kosher; FDA 21 CFR §172.874; EU E 464

**Properties:** Odorless; tasteless; Brookfield visc. 12,000-18,000 mPa•s

**Walocel® HM 100000 PPA 2208** [Wolff Walsrode AG http://www.wolff-walsrode.de]

**Chem. Descrip.:** Hydroxypropyl methylcellulose

**Uses:** Rheology control agent for aq. sol’n.; fat/protein replacer, coatings for pills/tablets

**Features:** Gluten-free; BSE/TSE- and GMO-free; good freeze/thaw stability; very stable in systems with high salt content

**Regulatory:** Kosher; FDA 21 CFR §172.874; EU E 464

**Properties:** Odorless; tasteless; Brookfield visc. 80,000-120,000 mPa•s

**Water Lock® A-100** [Grain Processing http://www.grainprocessing.com]

**Chem. Descrip.:** Starch/acrylates/acrylamide copolymer

**Uses:** Superabsorbent polymer for wound dressings, topical apps.

**Features:** Able to absorb or immobilize large quantities of aq. fluids, such as alkalis, dilute acids, body fluids

**Properties:** 98% through 20 mesh; pH 7.8

**Water Lock® A-120** [Grain Processing http://www.grainprocessing.com]

**Chem. Descrip.:** Starch/acrylates/acrylamide copolymer

**Uses:** Superabsorbent polymer for wound dressings, topical apps.

**Features:** Able to absorb or immobilize large quantities of aq. fluids, such as alkalis, dilute acids, body fluids

**Properties:** 98+% through 40 mesh; pH 7.8

**Water Lock® A-140** [Grain Processing http://www.grainprocessing.com]

**Chem. Descrip.:** Starch/acrylates/acrylamide copolymer

**Uses:** Superabsorbent polymer for wound dressings, topical apps.

**Features:** Able to absorb or immobilize large quantities of aq. fluids, such as alkalis, dilute acids, body fluids

**Properties:** 98+% through 80 mesh; pH 7.8

**Water Lock® A-180** [Grain Processing http://www.grainprocessing.com]

**Chem. Descrip.:** Starch/acrylates/acrylamide copolymer

**Uses:** Superabsorbent polymer for wound dressings, topical apps., pharmaceutical body and aerosol powds.

**Features:** Able to absorb or immobilize large quantities of aq. fluids, such as alkalis, dilute acids, body fluids

**Properties:** 98+% through 200 mesh; pH 7.8

**Water Lock® A-220** [Grain Processing http://www.grainprocessing.com]

**Chem. Descrip.:** Starch/acrylates/acrylamide copolymer

**Uses:** Superabsorbent polymer for wound
Trade Name Reference

dressings
Features: Able to absorb or immobilize body fluids

**Water Lock® C200** [Grain Processing http://www.grainprocessing.com]
Uses: Superabsorbent polymer, filler, humectant, cryst. growth inhibitor for pharmaceutical creams/lotions
Features: Nonirritating; builds solids

**Water Lock® G400** [Grain Processing http://www.grainprocessing.com]
Uses: Superabsorbent polymer for pharmaceutical spill kits
Features: Nonirritating; builds solids

**WECOBEE® FS** [Stepan http://www.stepan.com]
Chem. Descrip.: Hydrogenated vegetable oil
CAS 68334-28-1; EINECS/ELINCS 269-820-6
Uses: Cocoa butter replacement, excipient, emollient, base for pharmaceuticals (suppositories, creams, ointments), antiperspirant sticks
Features: Exc. mold release
Regulatory: FDA 21CFR §170.30, 175.105, 176.210, GRAS; kosher; Europe, Canada, Australia, Philippines, Korea listed
Properties: Wh. to off-wh. solid; bland odor and taste; sp.gr. 0.90; dens.7.5 lb/gal; visc. 14.0 cps (150 F); m.p. 44 C; acid no. 0.20 max.; iodine no. 3; sapon. value 240; flash pt. (PMCC) > 282 C; 0% RVOC; 300 ppm moisture
Toxicology: LD50 > 5 ml/kg; may cause minimal eye but no skin irritation; TSCA listed
Environmental: Biodeg.
Storage: Store in sealed containers below 32 C; avoid overheating

**WECOBEE® M** [Stepan http://www.stepan.com]
Chem. Descrip.: Hydrogenated vegetable oil
Chem. Analysis: 100% Hydrogenated vegetable oil
CAS 68938-37-4; EINECS/ELINCS 269-820-6
Uses: Cocoa butter replacement, excipient, emollient, base for pharmaceuticals (suppositories, creams, ointments), antiperspirant sticks
Features: Exc. mold release
Regulatory: FDA 21CFR §170.30, 175.105, 176.210, GRAS; kosher; conforms to USP/NF (hard fat); Europe, Korea, Canada, Australia listed
Properties: Wh. cryst. flakes, typ. waxy odor; negligible sol. in water; sp.gr. 0.82-0.84 (50 C); m.p. 43-47 C; acid no. 2 max.; iodine no. 1 max.; sapon. no. 109-120; flash pt. (COC) 450 F
Toxicology: Nontoxic; passes LD50 toxicity and rabbit eye and skin irritation tests; inh. may cause respiratory irritation; ingestion may cause gastrointestinal irritation
Environmental: Readily biodeg.
Precaution: Incompat. with oxidizing agents
Hazardous Decomp. Prods.: Oxides of carbon, smoke

**W.G.S. Synaceti 116** [Werner G. Smith http://www.wernergsmith.com]
Chem. Descrip.: Cetyl esters (syn. spermaceti)
CAS 8002-23-1
Uses: Emollient, bodying agent for pharmaceuticals
Features: Extremely stable; environmentally friendly
Regulatory: FDA 21CFR §175.105, 175.300
Properties: Wh. cryst. flakes, typ. waxy odor; negligible sol. in water; sp.gr. 0.82-0.84 (50 C); m.p. 43-47 C; acid no. 2 max.; iodine no. 1 max.; sapon. no. 109-120; flash pt. (COC) 450 F
Toxicology: Nontoxic; passes LD50 toxicity and rabbit eye and skin irritation tests; inh. may cause respiratory irritation; ingestion may cause gastrointestinal irritation
Environmental: Readily biodeg.
Trade Name Reference

Storage: Keep away from heat, sources of ignition; keep container closed when not in use.

**Wheat Germ Oil CLR** [CLR [http://www.clr-berlin.de; Actives Int'l.]

Chem. Descrip.: Wheat (Triticum vulgare) germ oil

CAS 8006-95-9

Uses: Emulsified and oily cosmetics for preventive skin and hair care; also for skin and scalpS poorly supplied with blood.

Properties: Brn. oil; weak char. odor; sol. in oils and fats; dens. 0.922-0.929 g/ml (20 C); acid no. < 12; iodine no. 120-140; ref. index 1.475-1.478 (20 C)

Use Level: 2-5%

**Wheat Starch TB** [Roquette [http://www.roquette.fr]

Chem. Descrip.: Wheat starch  See Wheat (Triticum vulgare) starch

CAS 9005-25-8; EINECS/ELINCS 232-679-6

Uses: Diluent and disintegrant for pharmaceutical tablets and capsules.

Features: Uniform particle size

Regulatory: USP/NF, EP, JP

Properties: Wh. to grayish-wh. fine powd.; 92% through 325 mesh; 3-5 µ median particle size; 38-45 lb/ft³ (tapped), 14-18 lb/ft³ (loose); oil absorp. 30-45; dry brightness 90; decomp. pt. 900-1000 C; pH 9.0; 97-100% conc.; 0.5% max. moisture; 6.5% max. loss on ignition.

**White Swan** [Croda Chem. Europe Ltd [http://www.croda.co.uk]


CAS 8006-54-0; EINECS/ELINCS 232-348-6

Uses: Conditioner, moisturizer, w/o emulsifier, and emollient for pharmaceuticals; pigment dispersant

Properties: Yel. unctuous mass; nonionic


Chem. Descrip.: Talc USP

Chem. Analysis: SiO₂ (59-62%); MgO (28-31%); Al₂O₃ (2-4%); Fe₂O₃ (0.1-0.4%); CaO (0.60-1.40%)

CAS 14807-96-6; EINECS/ELINCS 238-877-9

Uses: Filler in pharmaceutical tablets, medicated foot powds., creams, lotions, ointments; lubricant, glidant in tablet coatings; release agent in tablet molds.

Features: Inert

Regulatory: USP, DOT nonregulated; SARA §313 nonreportable

Properties: Wh. to grayish-wh. fine powd.; 92% through 325 mesh; 10-12 µ median particle size; sl. earthy odor; sol. in conc. hot H₃PO₄; insol. in water, cold acids/alkalis; sp.gr. 2.70; dens. 63-70 lb/ft³ (tapped), 25-30 lb/ft³ (loose); oil absorp. 26-30; dry brightness 90; decomp. pt. 900-1000 C; pH 9.0; 97-100% conc.; 0.5% max. moisture; 6.5% max. loss on ignition.

**Whittaker IMP1885L** [MPSI [http://www.mp-solutionsinc.com; Luzenac Am. [http://www.luzenac.com]

Chem. Descrip.: Talc USP

Chem. Analysis: SiO₂ (61-63%); MgO (30-33%); Al₂O₃ (1-2.5%); Fe₂O₃ (0.1-0.5%); CaO (0.05-0.30%)

CAS 14807-96-6; EINECS/ELINCS 238-877-9

Uses: Filler in pharmaceutical tablets, medicated foot powds., creams, lotions, ointments; lubricant, glidant in tablet coatings; release agent in tablet molds.

Features: Inert

Regulatory: USP, DOT nonregulated; SARA §313 nonreportable

Properties: Wh. to grayish-wh. fine powd.; 99.7% through 325 mesh; 3-5 µ median particle size; sl. earthy odor; sol. in conc. hot H₃PO₄; insol. in water, cold acids/alkalis; sp.gr. 2.70; dens. 38-45 lb/ft³ (tapped), 14-18 lb/ft³ (loose); oil absorp. 30-45; dry brightness 88; decomp. pt. 900-1000 C; pH 8.9-9.9; 97-100% conc.; 0.5% max. moisture; 6.5% max. loss on ignition.

Toxicology: ACGIH TWA 2 mg/m³ (respirable dust); inh. may cause irritation of mucous membranes, respiratory tract; skin contact may cause mild irritation, dryness; eye contact may cause irritation, inflamm.; harmless and inert if ing.; TSCA listed

HMIS: Health 1, Flammability 0, Reactivity 0

**Whittaker IMP1889L** [MPSI [http://www.mp-solutionsinc.com; Luzenac Am. [http://www.luzenac.com]

Chem. Descrip.: Talc USP

Chem. Analysis: SiO₂ (61-63%); MgO (30-33%); Al₂O₃ (1-2.5%); Fe₂O₃ (0.1-0.5%); CaO (0.05-0.30%)

CAS 14807-96-6; EINECS/ELINCS 238-877-9

Uses: Filler in pharmaceutical tablets, medicated foot powds., creams, lotions, ointments; lubricant, glidant in tablet coatings; release agent in tablet molds.

Features: Inert

Regulatory: USP, DOT nonregulated; SARA §313 nonreportable

Properties: Wh. to grayish-wh. fine powd.; 99.7% through 325 mesh; 3-5 µ median particle size; sl. earthy odor; sol. in conc. hot H₃PO₄; insol. in water, cold acids/alkalis; sp.gr. 2.70; dens. 38-45 lb/ft³ (tapped), 14-18 lb/ft³ (loose); oil absorp. 30-45; dry brightness 88; decomp. pt. 900-1000 C; pH 8.9-9.9; 97-100% conc.; 0.5% max. moisture; 6.5% max. loss on ignition.

Toxicology: ACGIH TWA 2 mg/m³ (respirable dust); inh. may cause irritation of mucous membranes, respiratory tract; skin contact may cause mild irritation, dryness; eye contact may cause irritation, inflamm.; harmless and inert if ing.; TSCA listed

HMIS: Health 1, Flammability 0, Reactivity 0

Handbook of Pharmaceutical Additives, Third Edition 794
Trade Name Reference

Properties: Wh. to grayish-wh. fine powd.; 99.9% through 325 mesh; 100% through 200 mesh; 3-5 µ median particle size; sl. earthy odor; sol. in conc. hot H₃PO₄; insol. in water, cold acids/alkalis; sp.gr. 2.85; dens. 38-46 lb/ft³ (tapped), 14-18 lb/ft³ (loose); oil absorb. 33-39; dry brightness 90; decomp. pt. 900-1000 C; 97-100% conc.; 6.5% max. loss on ignition

Toxicology: ACGIH TWA 2 mg/m³ (respirable dust); inh. may cause irritation of mucous membranes, respiratory tract; skin contact may cause mild irritation, dryness; eye contact may cause irritation, inflammm.; harmless and inert if ing.; TSCA listed

HMIS: Health 1, Flammability 0, Reactivity 0

Chem. Descrip.: Talc USP
Chem. Analysis: SiO₂ (61-63%); MgO (32-34%); Al₂O₃ (0.4-0.5%); Fe₂O₃ (0.4-0.5%); CaO (0.4-0.60%)
CAS 14807-96-6; EINECS/ELINCS 238-877-9

Uses: Filler in pharmaceutical tablets, medicated foot powds., creams, lotions, ointments; lubricant, glidant in tablet coatings; release agent in tablet molds

Features: Inert

Regulatory: USP, DOT nonregulated; SARA §313 nonreportable

Properties: Wh. to grayish-wh. fine powd.; 97% through 325 mesh, 99% through 200 mesh; 5-8 µ median particle size; sl. earthy odor; sol. in conc. hot H₃PO₄; insol. in water, cold acids/alkalis; sp.gr. 2.70; dens. 53-63 lb/ft³ (tapped), 21-26 lb/ft³ (loose); oil absorb. 27-32; dry brightness 88; decomp. pt. 900-1000 C; pH 8.2-9.5; 97-100% conc.; 0.5% max. moisture; 6.5% max. loss on ignition

Toxicology: ACGIH TWA 2 mg/m³ (respirable dust); inh. may cause irritation of mucous membranes, respiratory tract; skin contact may cause mild irritation, dryness; eye contact may cause irritation, inflammm.; harmless and inert if ing.; TSCA listed

HMIS: Health 1, Flammability 0, Reactivity 0

Wickenol® 142 [Alzo http://www.alzointernational.com]
Chem. Descrip.: Octyl decyl myristate
CAS 22766-83-2; EINECS/ELINCS 255-623-2

Uses: Emollient, plasticizer for pharmaceuticals

Properties: Gardner 2+ color; sol. in alcohol, animal, veg., and wh. oils; insol. in water; pour pt. 0 C; acid no. 0.1; ref. index 1.460

Wickenol® 155 [Alzo http://www.alzointernational.com]
Chem. Descrip.: Octyl palmitate
CAS 29806-73-3; EINECS/ELINCS 249-862-1

Uses: Emollient, moisturizer, pigment wetting agent/dispersant in topical pharmaceuticals

Features: Increases water vapor porosity of fatty components

Properties: Gardner -1 color; sol. in alcohol, animal, veg., and min. oils; insol. in water; pour pt. -3 C; acid no. 0.10; ref. index 1.445

Wickenol® 156 [Alzo http://www.alzointernational.com]
Chem. Descrip.: Octyl stearate
CAS 22047-49-0; EINECS/ELINCS 244-754-0

Uses: Emollient, moisturizer, pigment wetting agent/dispersant in topical pharmaceuticals

Features: Increases water vapor porosity of fatty components

Properties: Gardner -1 color; sol. in alcohol, animal, veg., and min. oils; pour pt. 5 C; acid...
**Wickenol® 158 [Alzo](http://www.alzointernational.com)**

Chem. Descrip.: Dioctyl adipate
CAS 103-23-1; EINECS/ELINCS 203-090-1
Uses: Emollient, moisturizer, pigment wetting agent/dispersant, cosolvent in topical pharmaceuticals
Features: Increases water vapor porosity of fatty components
Properties: Gardner -1 color; sol. in alcohol, animal, veg., and min. oils; pour pt. -20 C; acid no. 0.10; ref. index 1.445

**Wickenol® 159 [Alzo](http://www.alzointernational.com)**

Chem. Descrip.: Dioctyl succinate
CAS 2915-57-3; EINECS/ELINCS 220-836-1
Uses: Emollient, moisturizer, pigment wetting agent/dispersant in topical pharmaceuticals
Features: Increases water vapor porosity of fatty components
Properties: Gardner 2+ color; sol. in alcohol, animal, veg., and min. oils; pour pt. -18 C; acid no. 0.7; ref. index 1.443

**Wickenol® 160 [Alzo](http://www.alzointernational.com)**

Chem. Descrip.: Octyl pelargonate
CAS 59587-44-9; EINECS/ELINCS 261-819-9
Uses: Emollient, moisturizer, pigment wetting agent/dispersant in topical pharmaceuticals, stick formulations
Features: Increases water vapor porosity of fatty components
Properties: Gardner 2+ color; sol. in alcohol, animal, veg., and min. oils; pour pt. -18 C; acid no. 0.10; ref. index 1.437

**Wickenol® 161 [Alzo](http://www.alzointernational.com)**

Chem. Descrip.: Dioctyl adipate, octyl stearate, octyl palmitate
Uses: Emollient, moisturizer, pigment wetting agent/dispersant in topical pharmaceuticals
Features: Increases water vapor porosity of fatty components
Properties: Gardner -1 color; sol. in alcohol, animal, veg., and min. oils; pour pt. -12 C; acid no. 0.1; ref. index 1.446

**Wickenol® 535 [Alzo](http://www.alzointernational.com)**

Chem. Descrip.: Wheat germ glycerides
CAS 68990-07-8
Uses: Anti-irritant for skin care prods.
Features: Hydrophilic/hydrophobic
Properties: Gardner 2+ liq.; sol. in acetone, castor, corn, and min. oil, IPA, acetone, chloroform; insolv. in water; acid no. 0.8; iodine no. 118; 100% act.
### Trade Name Reference

**Storage:** Do not store in close proximity to excessive heat, open flames, strong acids or strong bases; keep container tightly closed when not in use; exposure to air causes degradation


Chem. Descrip.: Caprylic/capric glycerides  
CAS 85409-09-2; EINECS/ELINCS 287-075-5

Uses: Surfactant, emulsifier, solubilizer, dispersant, plasticizer, lubricant, consistency regulator, skin/mucous membrane protectant, refatting agent, penetrant, carrier, adsorp. promoter for pharmaceuticals  
Properties: Sl. ylsh. oil; sol. in water/ethanol (50/50), acetone; sol. cloudy in ether, heptane; dens. 1.02 kg/dm⁴; visc. 190 mPa·s; acid no. 2 max.; iodine no. 1 max.; sapon. no. 230-260; flash pt. > 180 C; nonionic; 40-42% monoglycerides

**Witepsol® E75** [Sasol Germany](http://www.sasol.com; http://www.sasololefinssurfactants.com; Sasol N. Am. http://www.sasolnorthamerica.com]

Chem. Descrip.: Hydrogenated coco-glycerides and beeswax  
Uses: Hard fat base for suppositories and capsules  
Properties: Pellets; m.p. 37-39 C; solid. pt. 32-36 C; acid no. 1.3 max.; iodine no. 3 max.; sapon. no. 220-230; hyd. no. 15 max.

**Witepsol® E76** [Sasol Germany](http://www.sasol.com; http://www.sasololefinssurfactants.com; Sasol N. Am. http://www.sasolnorthamerica.com]

Chem. Descrip.: Hydrogenated coco-glycerides  
Uses: Hard fat base for suppositories and capsules  
Properties: Pellets; m.p. 37-39 C; solid. pt. 31-35 C; acid no. 0.3 max.; iodine no. 3 max.; sapon. no. 220-230; hyd. no. 30-40


Chem. Descrip.: Hydrogenated coco-glycerides  
Uses: Hard fat base for suppositories and capsules; carrier in capsule filling and dental products; surface treatment and binder in tablets  
Properties: Pellets; m.p. 34-36 C; solid. pt. 33-35 C; acid no. 0.2 max.; iodine no. 2 max.; sapon. no. 235-245; hyd. no. 5 max.

**Witepsol® H5** [Sasol Germany](http://www.sasol.com; http://www.sasololefinssurfactants.com; Sasol N. Am. http://www.sasolnorthamerica.com]

Chem. Descrip.: Hydrogenated coco-glycerides  
Uses: Hard fat base for suppositories and capsules; carrier in capsule filling and dental products; surface treatment and binder in tablets  
Properties: Pellets; m.p. 34-36 C; solid. pt. 33-35 C; acid no. 0.2 max.; iodine no. 2 max.; sapon. no. 235-245; hyd. no. 5 max.

**Witepsol® H12** [Sasol Germany](http://www.sasol.com; http://www.sasololefinssurfactants.com; Sasol N. Am. http://www.sasolnorthamerica.com]

Chem. Descrip.: Hydrogenated coco-glycerides  
Uses: Hard fat base for suppositories and capsules; carrier in capsule filling and dental products; surface treatment and binder in tablets  
Properties: Pellets; m.p. 34-36 C; solid. pt. 33-35 C; acid no. 0.2 max.; iodine no. 2 max.; sapon. no. 235-245; hyd. no. 5 max.
Trade Name Reference

Witepsol® H15 [Sasol Germany

http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com;
Eigenmann & Veronelli
http://www.eigver.it]

Chem. Descrip.: Hydrogenated coco-glycerides
Uses: Hard fat base for suppositories and capsules; carrier in capsule filling and dental products; surface treatment and binder in tablets
Regulatory: USP, EP, JPE
Properties: Pellets; m.p. 33.5-35.5 C; solid. pt. 32.5-33 C; acid no. 0.2 max.; iodine no. 3 max.; sapon. no. 225-245; hyd. no. 3 max.

Witepsol® H175 [Sasol Germany

http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]

Chem. Descrip.: Hydrogenated coco-glycerides and beeswax
Uses: Hard fat base for suppositories and capsules; carrier in capsule filling and dental products; surface treatment and binder in tablets
Regulatory: USP, EP
Properties: Pellets; m.p. 34.5-35.5 C; solid. pt. 32-34 C; acid no. 0.7 max.; iodine no. 3 max.; sapon. no. 220-235; hyd. no. 15 max.

Witepsol® H185 [Sasol Germany

http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]

Chem. Descrip.: Hydrogenated coco-glycerides
Uses: Hard fat base for suppositories and capsules; carrier in capsule filling and dental products; surface treatment and binder in tablets
Regulatory: USP, EP, JPE
Properties: Pellets; m.p. 38-39 C; solid. pt. 34-37 C; acid no. 0.2 max.; iodine no. 3 max.; sapon. no. 220-235; hyd. no. 15 max.
Witepsol® S51 [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: Hydrogenated coco-
glycerides, ceteareth-25, and glyceryl
ricinoleate
Uses: Hard fat base for suppositories and capsules; carrier in capsule filling and dental products; surface treatment and binder in tablets
Properties: Pellets; m.p. 30-32 C; solid. pt. 25-27 C; acid no. 0.5 max.; iodine no. 8 max.; sapon. no. 215-230; hyd. no. 55-70

Witepsol® S52 [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: Hydrogenated coco-
glycerides and ceteareth-25
Uses: Hard fat base for suppositories and capsules; carrier in capsule filling and dental products; surface treatment and binder in tablets
Properties: Pellets; m.p. 30-32 C; solid. pt. 25-27 C; acid no. 0.5 max.; iodine no. 8 max.; sapon. no. 215-230; hyd. no. 55-70

Witepsol® S55 [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: Hydrogenated coco-
glycerides, ceteareth-25, beeswax
Uses: Hard fat base for suppositories and capsules; carrier in capsule filling and dental products; surface treatment and binder in tablets
Properties: Pellets; m.p. 30-32 C; solid. pt. 25-27 C; acid no. 0.5 max.; iodine no. 8 max.; sapon. no. 215-230; hyd. no. 55-70

Witepsol® S58 [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: Hydrogenated coco-
glycerides, ceteareth-25, and glyceryl
ricinoleate
Uses: Hard fat base for suppositories and capsules; carrier in capsule filling and dental products; surface treatment and binder in tablets
Properties: Pellets; m.p. 30-32 C; solid. pt. 25-27 C; acid no. 0.5 max.; iodine no. 8 max.; sapon. no. 215-230; hyd. no. 55-70

Witepsol® W25 [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: Hydrogenated coco-
glycerides
Uses: Hard fat base for suppositories and capsules
Regulatory: USP, EP, JPE
Properties: Pellets; m.p. 33.5-35.5 C; solid. pt. 29-33 C; acid no. 0.3 max.; iodine no. 3 max.; sapon. no. 225-240; hyd. no. 20-30

Witepsol® W31 [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: Hydrogenated coco-
glycerides
Uses: Hard fat base for suppositories and capsules
Regulatory: USP, EP, JPE
Properties: Pellets; m.p. 35-37 C; solid. pt. 30-33 C; acid no. 0.3 max.; iodine no. 3 max.; sapon. no. 225-240; hyd. no. 20-30
Trade Name Reference

Witepsol® W35 [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com;
Eigenmann & Veronelli
http://www.eigver.it]
Chem. Descrip.: Hydrogenated coco-glycerides
Uses: Hard fat base for suppositories and capsules
Regulatory: USP, EP, JPE
Properties: Pellets; m.p. 33.5-35.5 C; solid. pt. 27-32 C; acid no. 0.3 max.; iodine no. 3 max.; sapon. no. 225-235; hyd. no. 40-50

Witepsol® W45 [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: Hydrogenated coco-glycerides
Uses: Hard fat base for suppositories and capsules
Regulatory: USP, EP, JPE
Properties: Pellets; m.p. 33.5-35.5 C; solid. pt. 29-34 C; acid no. 0.3 max.; iodine no. 3 max.; sapon. no. 225-235; hyd. no. 40-50

Witocan® 42/44 [Sasol Germany
http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Sasol N. Am.
http://www.sasolnorthamerica.com]
Chem. Descrip.: Hydrogenated coco-glycerides
Uses: Consistency agent, coating, sustained release
Features: High melting
Regulatory: USP, Ph.Eur.
Properties: Block, pellets; m.p. 42-44 C; acid no. 0.3 max.; iodine no. 2 max.; sapon. no. 220-230; hydroxyl value 15 max.

WS-3 [Millennium/F&F
http://www.aromachem.com]
Chem. Descrip.: Cyclohexanecarboxamide, N-ethyl-5-methyl-2-(1-methylethyl)- See N-Ethyl-p-menthane-3-carboxamide
CAS 39711-79-0; EINECS/ELINCS 254-599-0
Uses: Coolant in medicinal preps., oral care prods.
Regulatory: DOT: Chemicals n.o.i.
Properties: Wh. cryst.; sl. menthol-like odor; >0.1% sol. in water; 100% sol. in alcohol; 0.1% max. sol. in water; m.p. 87-102 C; flash pt. (TCC) 212 F; pH 6.1; nonmutagenic (Ames test); 99% min. purity
Toxicology: LD50 (oral, rat) > 3000 mg/kg; similar menthane derivs. have caused temporary local anesthetic action on the eye
Environmental: SARA Title III Section 311/312 Hazardous Decomp. Prods.: CO, CO2, NOx, acrid fumes
NFPA: Health 1, Flammability 1, Reactivity 1
Storage: Do not store near excessive heat, open flames, strong acids or bases; avoid exposure to air; keep in tightly closed containers

Xantural® 11K [CP Kelco
http://www.cpkelco.com]
CAS 11138-66-2; EINECS/ELINCS 234-394-2
Uses: Excipient, thickener in pharmaceuticals for controlled release, dry blend, and reconstitutable powd. applics.
Features: Provides stable visc. over wide temp. range; compat. with high ionic environments
Properties: Agglomerated grade

Xantural® 75 [CP Kelco
http://www.cpkelco.com]
CAS 11138-66-2; EINECS/ELINCS 234-394-2
Uses: Excipient, thickener in pharmaceuticals for controlled release, dry blend, and reconstitutable powd. applics.
Features: Provides stable visc. over wide temp. range; compat. with high ionic environments
Properties: Fine mesh grade

Xantural® 180 [CP Kelco
http://www.cpkelco.com]
CAS 11138-66-2; EINECS/ELINCS 234-394-2
Uses: Excipient, thickener in pharmaceuticals for controlled release, dry blend, and reconstitutable powd. applics.
Features: Provides stable visc. over wide temp. range; compat. with high ionic environments
Properties: Fine mesh grade

Xylisorb® 90 [Roquette
http://www.roquette.fr]
Chem. Descrip.: Xylitol
CAS 87-99-0; EINECS/ELINCS 201-788-0
Uses: Sweetener, cooling agent for sugarless, pharmaceutical chewing gums; nutrient in parenteral pharmaceuticals; excipient for coatings, candying of lozenges; diluent for tablets, sachets
Features: Noncariogenic; cooling effect in
Trade Name Reference

Xylisorb® 300 [Roquette http://www.roquette.fr]
Chem. Descrip.: Xylitol
CAS 87-99-0; EINECS/ELINCS 201-788-0
Uses: Sweetener, cooling agent for sugarless, pharmaceutical chewing gums; nutrient in parenteral pharmaceuticals; excipient for coatings, candying of lozenges; diluent for tablets
Features: Noncariogenic; cooling effect in mouth; sweetening power equal to sucrose
Regulatory: USP/NF, EP, JP
Properties: Wh. crystalline powd.; odorless; sweet taste; mean particle diameter 90 µm; sol. 168 g/100 ml

Xylisorb® 700 [Roquette http://www.roquette.fr]
Chem. Descrip.: Xylitol
CAS 87-99-0; EINECS/ELINCS 201-788-0
Uses: Sweetener, cooling agent for sugarless, pharmaceutical chewing gums; nutrient in parenteral pharmaceuticals; excipient for coatings, candying of lozenges; diluent for tablets
Features: Noncariogenic; cooling effect in mouth; sweetening power equal to sucrose
Regulatory: USP/NF, EP, JP
Properties: Wh. crystalline powd.; odorless; sweet taste; mean particle diameter 250 µm; sol. 168 g/100 ml

Xylisorb® PF [Roquette http://www.roquette.fr]
Chem. Descrip.: Xylitol
CAS 87-99-0; EINECS/ELINCS 201-788-0
Uses: Sweetener, cooling agent for sugarless, pharmaceutical chewing gums; nutrient in parenteral pharmaceuticals; excipient for coatings, candying of lozenges; diluent for tablets
Features: Pyrogen-free; noncariogenic; cooling effect in mouth; sweetening power equal to sucrose
Regulatory: USP/NF, EP, JP
Properties: Wh. crystalline powd.; odorless; sweet taste; sol. in water (168 g/100 ml)

Xylitab® 100 [Danisco Sweeteners http://www.daniscosweeteners.com]
Chem. Descrip.: Xylitol (95% min.) with polydextrose (3.5% max.) as binder
Uses: Nutritive sweetener and excipient for pharmaceutical tablets
Features: Stable to air and heat
Regulatory: USP/NF, Ph. Eur, JP, FCC
Properties: Wh. cryst. gran.; pract. odorless; very sweet, cool taste; highly sol. in water; pract. insol. in most org. solvs.; bulk dens. 0.5-0.7 g/ml; 0.5% max. moisture
Toxicology: Relatively nontoxic by ing.; may cause skin/eye irritation; prolonged inh. (nuisance particle) may cause respiratory irritation; excessive consumption can cause laxation
Precaution: Sl. fire hazard when exposed to heat or flame; may burn but does not ignite readily; dust-air mixts. may ignite or explode; avoid contact with strong oxidizers, excessive heat, sparks, flame
Hazardous Decomp. Prods.: Thermal decomp. may release toxic/hazardous gases, CO, CO₂, furfural
Storage: 3 mos. shelf life when stored in original sealed pkg. below 25 C and < 65% r.h.; marginally hygroscopic

Xylitab® 200 [Danisco Sweeteners http://www.daniscosweeteners.com]
Chem. Descrip.: Xylitol (96.5% min.) with sodium carboxymethyl cellulose (2% max.) as binder See Carboxymethylcellulose sodium
Uses: Nutritive sweetener and excipient for pharmaceutical tablets
Features: Stable to air and heat
Regulatory: USP/NF, Ph. Eur, JP, FCC
Properties: Wh. cryst. gran.; pract. odorless; very sweet, cool taste; highly sol. in water; pract. insol. in most org. solvs.; bulk dens. 0.5-0.7 g/ml; 0.5% max. moisture
Toxicology: Relatively nontoxic by ing.; may cause skin/eye irritation; prolonged inh. (nuisance particle) may cause respiratory irritation; excessive consumption can cause laxation
Precaution: Sl. fire hazard when exposed to heat or flame; may burn but does not ignite readily; dust-air mixts. may ignite or explode; avoid contact with strong oxidizers, excessive heat, sparks, flame
Hazardous Decomp. Prods.: Thermal decomp. may release toxic/hazardous gases, CO,
Trade Name Reference

CO₂, furfural
Storage: 3 mos. shelf life when stored in original sealed pkg. below 25 C and < 65% r.h.; marginally hygroscopic

Xylitol 300 [Danisco Sweeteners
http://www.daniscosweeteners.com]
Chem. Descrip.: Xylitol (98.5-101%)
CAS 87-99-0; EINECS/ELINCS 201-788-0
Uses: Nutritive sweetener and excipient for pharmaceutical tablets
Features: Stable to air and heat
Regulatory: USP/NF, Ph. Eur, JP, FCC
Properties: Wh. cryst. gran.; pract. odorless; very sweet, cool taste; highly sol. in water; pract. insol. in most org. solvs.; bulk dens. 0.4-0.7 g/ml; 0.5% max. moisture
Toxicology: LD₅₀ (oral, mouse) 22 g/kg, (IP, mouse) 22,100 mg/kg; relatively nontoxic by ing.; may cause skin/eye irritation; prolonged inh. (nuisance particle) may cause respiratory irritation; excessive consumption may cause laxation
Precaution: Si. fire hazard when exposed to heat or flame; may burn but does not ignite readily; dust-air mixts. may ignite or explode; avoid contact with strong oxidizers, excessive heat, open flame
Hazardous Decomp. Prods.: Thermal decomp. may release toxic/hazardous gases
Storage: 3 mos. shelf life when stored in original sealed pkg. below 25 C and < 65% r.h.; marginally hygroscopic

Xylitol CFP [Danisco Sweeteners
http://www.daniscosweeteners.com]
Chem. Descrip.: Xylitol (96.5% min.)
CAS 87-99-0; EINECS/ELINCS 201-788-0
Uses: For parenteral pharmaceuticals
Features: Pyrogen free; marginally hygroscopic
Regulatory: FCC, USP, NF, Ph.Eur.
Properties: Wh. cryst. powd.; pract. odorless; very sweet

Xylitol CG [Danisco Sweeteners
http://www.daniscosweeteners.com]
Chem. Descrip.: Xylitol (96.5% min.)
CAS 87-99-0; EINECS/ELINCS 201-788-0
Uses: Nutritive sweetener and excipient for pharmaceutical tablets
Features: Food grade; stable to air and heat
Regulatory: FCC, USP, NF, Ph.Eur.
Properties: Wh. cryst. gran.; pract. odorless; very sweet, cool taste; highly sol. in water; pract. insol. in most org. solvs.; bulk dens. 0.5-0.7 g/ml; 0.5% max. moisture
Toxicology: LD₅₀ (oral, mouse) 22 g/kg, (IP, mouse) 22,100 mg/kg; relatively nontoxic by ing.; may cause skin/eye irritation; prolonged inh. (nuisance particle) may cause respiratory irritation; excessive consumption may cause laxation
Precaution: Sl. fire hazard when exposed to heat or flame; may burn but does not ignite readily; dust-air mixts. may ignite or explode; avoid contact with strong oxidizers, excessive heat, open flame
Hazardous Decomp. Prods.: Thermal decomp. may release toxic/hazardous gases
Storage: 3 yr. shelf life when stored in original sealed pkg. below 25 C and < 65% r.h.; marginally hygroscopic

Yelkin® F [ADM Lecithin
http://www.admworld.com]
Chem. Descrip.: Deoiled lecithin
CAS 8030-76-0; EINECS/ELINCS 232-307-2
Uses: Emulsifier, wetting agent, emollient, binder for pharmaceuticals
Properties: Lt. gold fine gran.

Yelkin® G [ADM Lecithin
http://www.admworld.com]
Chem. Descrip.: Deoiled lecithin
CAS 8030-76-0; EINECS/ELINCS 232-307-2
Uses: Emulsifier, wetting agent, emollient, binder for pharmaceuticals
Properties: Lt. gold gran.

Yelkinol F [ADM Lecithin
http://www.admworld.com]
Chem. Descrip.: Deoiled lecithin
CAS 8002-43-5; EINECS/ELINCS 232-307-2
Uses: Emulsifier for w/o or o/w emulsions, dispersant, dietary supplement for pharmaceuticals, salves, ointments
Properties: Lt. gold fine gran.; HLB 7.0; 1% max. water

Yelkinol G [ADM Lecithin
http://www.admworld.com]
Chem. Descrip.: Deoiled lecithin
CAS 8002-43-5; EINECS/ELINCS 232-307-2
Uses: Emulsifier for w/o or o/w emulsions, dispersant, dietary supplement for pharmaceuticals, salves, ointments
Properties: Lt. gold gran.; HLB 7.0; 1% max. water

Yelkinol P [ADM Lecithin
http://www.admworld.com]
Chem. Descrip.: Deoiled lecithin

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<th>Trade Name Reference</th>
<th>Hazardous Decomp. Prods.:</th>
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**Zinc Oxide USP-511** [Horsehead Corp.](http://www.horsehead.com)

**Chem. Descr.:** Zinc oxide USP (99.8%)
**Chem. Analysis:** 99.9% zinc oxide
**CAS 1314-13-2; EINECS/ELINCS 215-222-5**

- **Uses:** Opacifier, protective astringent in dermatological ointments and lotions, e.g., calamine lotion, coal tar ointment, zinc gelation, zinc oxide ointment, zinc oxide paste, and in zinc-eugenol dental cement
- **Features:** Fast curing; high activity; the high reactivity prevents formation of blk. tin and iron sulfides that discolor foods
- **Regulatory:** USP/NF, EP, JP, BP
- **Properties:** Wh. odorless powd.; 0.12 µ mean particle size; 99.99% through 325 mesh; odorless; negligibly sol. in water; sp.gr. 5.6; pkg. dens. 30 lb/ft³; surf. area 9.5 m²/g; oil absorp. 12 lb oil/100 lb ZnO
- **Toxicology:** TWA 15 mg/m³ (total dust); inh. of high levels of zinc oxide may result in tightness of chest, metallic taste, cough, dizziness, fever, chills, headache, nausea, and dry throat; overexposure may produce symptoms known as metal fume fever or zinc shakes; an acute, self-limiting condition without recognized complications
- **Precaution:** Wear goggles and gloves

**Zinc Omadine® 48% Fine Particle Size** [Arch Biocides](http://www.archbiocides.com)

**Chem. Descr.:** Zinc pyrithione
**CAS 13463-41-7; EINECS/ELINCS 236-671-3**

- **Uses:** Antidandruff agent for shampoos; preservative for acne preps., topical antibacterial prods.
- **Features:** Inhibits growth of gram-negative and gram-positive bacteria, fungi, mold and yeast
- **Regulatory:** EPA reg. no. 1258-840, 1258-841
- **Properties:** Off-wh. disp. (particle size 90% < 1 µ), mild odor; m.w. 317.7 (zinc pyrithione); dens. 10 lb/gal; pH 6.5-8.5 (5% aq.); 48-50% ac.
- **Storage:** Store in dry place at 10-54 C; keep containers tightly closed when not in use; do not store with strong oxidizing agents; shake or stir before use; protect from freezing

**Zinc Omadine® Powd.** [Arch Biocides](http://www.archbiocides.com)

**Chem. Descr.:** Zinc pyrithione

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Trade Name Reference

CAS 13463-41-7; EINECS/ELINCS 236-671-3
Uses: Antidandruff agent for shampoos; preservative for acne preps., topical antibacterial prods.
Features: Inhibits growth of gram-negative and gram-positive bacteria, fungi, mold and yeast
Regulatory: EPA reg. no. 1258-840, 1258-841
Properties: Off-wh. powd., mild odor; 70 < 25 \( \mu \) particle size; insol. in water; m.w. 317.7 (zinc pyrithione); sp.gr. 1.782; bulk dens. 0.35 g/ml; m.p. ≈ 240 C (dec.); pH 6.5-8.5 (5% aq.); 95-99% assay
Storage: Store in dry place at 10-54 C; keep containers tightly closed when not in use; do not store with strong oxidizing agents

Zinc Omadine® 48% Std. Disp. [Arch Biocides http://www.archbiocides.com]

Chem. Descrip.: Zinc pyrithione
CAS 13463-41-7; EINECS/ELINCS 236-671-3
Uses: Antidandruff agent for shampoos; preservative for acne preps., topical antibacterial prods.
Features: Inhibits growth of gram-negative and gram-positive bacteria, fungi, mold and yeast
Regulatory: EPA reg. no. 1258-840, 1258-841
Properties: Off-wh. disp. (particle size 90% < 5 \( \mu \)), mild odor; m.w. 317.7 (zinc pyrithione); dens. 10 lb/gal; pH 6.5-8.5 (5% aq.); 48-50% act.
Storage: Store in dry place at 10-54 C; keep containers tightly closed when not in use; do not store with strong oxidizing agents; shake or stir before use; protect from freezing

Zinc Oxide 66 [MPSI http://www.mp-solutionsinc.com]

Chem. Descrip.: Zinc oxide USP
Chem. Analysis: ZnO (99.0-100.5%)
CAS 1314-13-2; EINECS/ELINCS 215-222-5
Uses: Protectant, astringent in pharmaceuticals (dermatological ointments/lotions, calamine lotions, phenolated calamine lotions, coal tar ointment, zinc oxide ointment and pastes); dental cements
Regulatory: USP, DOT nonregulated; SARA §313 reportable
Properties: Wh. powd.; 0.12 \( \mu \) avg. particle size; 99.9% through 325 mesh, 100% through 200 mesh; odorless; sol. 0.00016 g/cc in water; sp.gr. 5.60; dens. 30 lb/ft\(^3\) (tapped); surf. area 9.0 m\(^2\)/g; oil absorp. 14-18; dry brightness 97-100; m.p. 3587 F; nonflamm.; pH 6.8-7.8; 0% volatiles
Toxicology: ACGIH TWA (8 h) 10 mg/m\(^3\); inh. may cause metallic taste, cough, dizziness, fever, chills, headache, nausea; overexposure may produce metal fume fever; skin/eye irritant; chronic exposure may cause respiratory irritation; TSCA listed
Precaution: Reacts violently with magnesium when heated resulting in explosion; mixts. with chlorinated rubber explode when heated above 215 C
Hazardous Ingredients: Zinc oxide (99.9%); lead (0.0025%); cadmium (0.005%)
Hazardous Decomp. Prods.: None; toxic fumes are produced in fire
HMIS: Health 0, Flammability 0, Reactivity 0
Storage: Store in cool, dry, well-ventilated area; keep containers tightly closed; handle in well-ventilated areas only

Zinc Oxide 6601 [MPSI http://www.mp-solutionsinc.com]

Chem. Descrip.: Zinc oxide USP
Chem. Analysis: ZnO (99.0-100.5%)
CAS 1314-13-2; EINECS/ELINCS 215-222-5
Uses: Protectant, astringent in pharmaceuticals (dermatological ointments/lotions, calamine lotions, phenolated calamine lotions, coal tar ointment, zinc oxide ointment and pastes); dental cements
Regulatory: USP, DOT nonregulated; SARA §313 reportable
Properties: Wh. powd.; 0.12 \( \mu \) avg. particle size; 99.9% through 325 mesh, 100% through 200 mesh; odorless; sol. 0.00016 g/cc in water; sp.gr. 5.60; dens. 30 lb/ft\(^3\) (tapped); surf. area 9.0 m\(^2\)/g; oil absorp. 14-18; dry brightness 97-100; m.p. 3587 F; nonflamm.; pH 6.8-7.8; 0% volatiles
Toxicology: ACGIH TWA (8 h) 10 mg/m\(^3\); inh. may cause metallic taste, cough, dizziness, fever, chills, headache, nausea; overexposure may produce metal fume fever; skin/eye irritant; chronic exposure may cause respiratory irritation; TSCA listed
Precaution: Reacts violently with magnesium when heated resulting in explosion; mixts. with chlorinated rubber explode when heated above 215 C
Hazardous Ingredients: Zinc oxide (99.9%); lead (0.0025%); cadmium (0.005%)
Hazardous Decomp. Prods.: None; toxic fumes are produced in fire
HMIS: Health 0, Flammability 0, Reactivity 0
Storage: Store in cool, dry, well-ventilated area; keep containers tightly closed; handle in well-ventilated areas only

Zinc Oxide 6601 [MPSI http://www.mp-solutionsinc.com]

Chem. Descrip.: Zinc oxide USP
Chem. Analysis: ZnO (99.0-100.5%)
CAS 1314-13-2; EINECS/ELINCS 215-222-5
Uses: Protectant, astringent in pharmaceuticals (dermatological ointments/lotions, calamine lotions, phenolated calamine lotions, coal tar ointment, zinc oxide ointment and pastes); dental cements
Regulatory: USP, DOT nonregulated; SARA §313 reportable
Properties: Wh. powd.; 0.12 \( \mu \) avg. particle size; 99.9% through 325 mesh, 100% through 200 mesh; odorless; sol. 0.00016 g/cc in water; sp.gr. 5.60; dens. 30 lb/ft\(^3\) (tapped); surf. area 9.0 m\(^2\)/g; oil absorp. 14-18; dry brightness 97-100; m.p. 3587 F; nonflamm.; pH 6.8-7.8; 0% volatiles
Toxicology: ACGIH TWA (8 h) 10 mg/m\(^3\); inh. may cause metallic taste, cough, dizziness, fever, chills, headache, nausea; overexposure may produce metal fume fever; skin/eye irritant; chronic exposure may cause respiratory irritation; TSCA listed
Precaution: Reacts violently with magnesium when heated resulting in explosion; mixts. with chlorinated rubber explode when heated above 215 C
Hazardous Ingredients: Zinc oxide (99.9%); lead (0.0025%); cadmium (0.005%)
Hazardous Decomp. Prods.: None; toxic fumes are produced in fire
HMIS: Health 0, Flammability 0, Reactivity 0
Storage: Store in cool, dry, well-ventilated area; keep containers tightly closed; handle in well-ventilated areas only

Handbook of Pharmaceutical Additives, Third Edition 804
Trade Name Reference

keep containers tightly closed; handle in well-ventilated areas only

Zinc Oxide 6605 [MPSI http://www.mp-solutionsinc.com]
Chem. Descrip.: Zinc oxide USP
Chem. Analysis: ZnO (99.9%)
CAS 1314-13-2; EINECS/ELINCS 215-222-5
Uses: Protectant, astringent in pharmaceuticals (dermatological ointments/lotions; calamine lotions; phenolated calamine lotions; coal tar ointment; zinc oxide ointment and pastes); dental cements
Regulatory: USP, FCC, BP, EP, JP, DOT nonregulated; SARA §313 reportable
Properties: Wh. odorless powd.; 99.9% through 325 mesh; sol. 0.00016 g/cc in water; sp.gr. 5.61; dens. 30.0 lb/ft³ (apparent); m.p. 3587 F; nonflamm.; 0.20 max. moisture
Toxicology: ACGIH TWA (8 h) 10 mg/m³; inh. may cause metallic taste, cough, dizziness, fever, chills, headache, nausea; overexposure may produce metal fume fever; skin/eye irritant; chronic exposure may cause respiratory irritation; TSCA listed
Precaution: Reacts violently with magnesium when heated resulting in explosion; mixts. with chlorinated rubber explode when heated above 215 C
Hazardous Ingredients: Zinc oxide (99.9%); lead (0.0025%); cadmium (0.005%)
Hazardous Decomp. Prods.: None; toxic fumes are produced in fire
HMIS: Health 0, Flammability 0, Reactivity 0
Storage: Store covered in cool, dry, well-ventilated area

Chem. Descrip.: Zinc oxide
CAS 1314-13-2; EINECS/ELINCS 215-222-5
Uses: Supplement in pharmaceuticals
Regulatory: DOT nonregulated
Properties: Wh. fine powd.; odorless; 99.9% min. on 325 mesh; 0.51 µ particle size (Fisher); sol. 1.6 mg in water (29 C); sol. in ammonia, ammonium chloride, diluted acetic acid, or min. acids and strong bases; insol. in alcohol, ether, diluted sulfuric acid; m.w. 81.37; sp.gr. 5.6; surf. area 4.5 m²/g; m.p. 1975 C; pH 6
Toxicology: May irritate eyes; no skin irritation with short exposure; toxic by absorp. through peritoneum; inh. of fumes may cause fume fever
Precaution: Incompat. with chlorinated rubber, flax oil, magnesium, and strong bases and acids
Hazardous Decomp. Prods.: When heated can produce toxic fumes
HMIS: Health 0, Flammability 0, Reactivity 0
Storage: Store covered in cool, dry, well-ventilated area

Zinc Oxide Grade AZO 66USP [U.S. Zinc http://www2.uszinc.com]
Chem. Descrip.: Zinc oxide
CAS 1314-13-2; EINECS/ELINCS 215-222-5
Uses: Pigment, filler in pharmaceuticals, ointments
Features: Rec. where purity and uniformity are required
Regulatory: USP, FDA certified
Properties: Bright wh. free-flowing granular powd.; 0.17-0.27 µ mean particle size; ≥ 99.9% through 325 mesh; apparent dens. 25-45 lb/ft³;
Trade Name Reference

surf. area 4.0-6.0 m²/g; vapor pressure 12 mm Hg; m.p. 1975 C; ≤ 0.2% moisture; ZnO (≥ 99.7%), Pb (≤ 0.002%), Cd (≤ 0.0015%), Fe (≤ 0.001%), As (≤ 0.0003%)

Toxicology: Acute respiratory irritant
Precaution: Incomp. with heated magnesium and chlorinated rubber > 215 C

Hazardous Ingredients: Zinc oxide

HMIS: Health 1, Flammability 0, Reactivity 0
Zinc Oxide NDM [Symrise USA http://www.symrise.com]

Chem. Descrip.: Zinc oxide, dimethicone
Uses: UV absorber for dermatologicals
Features: Transparent on the skin's surface and shows no unacceptable whitening effect
Regulatory: FDA approved
Properties: Wh. to ylsh. powd. (20 C), pract. odorless; dispersible in oil; sp.gr. ≈ 4.9 g/cm³; bulk dens. 200-400 kg/m³ (20 C); m.p. ≈ 1,970 C
Toxicology: TSCA listed
Storage: 1 yr. min. shelf life when stored in a cool, dark and dry place

Zinc Stearate 695 [MPSI http://www.mp-solutionsinc.com]

Chem. Descrip.: Zinc stearate USP
CAS 557-05-1; EINECS/ELINCS 209-151-9
Uses: Lubricant, mold release agent for pharmaceuticals
Properties: 99% max. through 325 mesh; bulk dens. 0.20 g/ml; m.p. 120 C; 0.4% max. moisture; 12.5-14.0% oxide
Toxicology: LD50 (oral, rat) >2,000 mg/kg, (dermal, rat) >2,000 mg/kg
Environmental: Biodegrad. (28 days) 93%
Precaution: Wear protective glasses and solvent-proof gloves; avoid contact with strong oxidizers and acids, halogens
Hazardous Decomp. Prods.: COx, ZnO
HMIS: Health 0, Flammability 1, Reactivity 0
Storage: Store in a clean, dry, well-ventilated area @ ambient temp. away from ignition sources

Zinc Stearate 916-G [MPSI http://www.mp-solutionsinc.com]

Chem. Descrip.: Zinc stearate
CAS 557-05-1; EINECS/ELINCS 209-151-9
Uses: Binder, lubricant, and mold release agent for pharmaceutical tablets
Regulatory: USP, kosher
Properties: Solid wh. odorless powd.; 99.5% max. through 200 mesh; bulk dens. 28.1-40.6 lb/ft³; m.p. 244-251 F; pH 7-9; acid no. 195-210; 12.5-14.0% oxide
Toxicology: LD50 (oral, rat) >2,000 mg/kg, (dermal, rat) >2,000 mg/kg
Environmental: Biodegrad. (28 days) 93%
Precaution: Wear protective glasses and solvent-proof gloves; avoid contact with strong oxidizers and acids, halogens
Hazardous Decomp. Prods.: COx, ZnO
HMIS: Health 0, Flammability 1, Reactivity 0
Storage: Store in a clean, dry, well-ventilated area @ ambient temp. away from ignition sources

Zinc Stearate 921-G [MPSI http://www.mp-solutionsinc.com]

Chem. Descrip.: Zinc stearate
CAS 557-05-1; EINECS/ELINCS 209-151-9
Uses: Binder, lubricant, and mold release agent for pharmaceutical tablets
Regulatory: USP, kosher
Properties: Solid wh. odorless powd.; 99.5% max. through 200 mesh; bulk dens. 18.7 lb/ft³; m.p. 244-251 F; pH 7-9; acid no. 195-210; 1.0% max. moisture; 12.5-14.0% oxide
Toxicology: LD50 (oral, rat) >2,000 mg/kg, (dermal, rat) >2,000 mg/kg
Environmental: Biodegrad. (28 days) 93%
Precaution: Wear protective glasses and solvent-proof gloves; avoid contact with strong oxidizers and acids, halogens
Hazardous Decomp. Prods.: COx, ZnO
HMIS: Health 0, Flammability 1, Reactivity 0
Storage: Store in a clean, dry, well-ventilated area @ ambient temp. away from ignition sources
Trade Name Reference

area @ ambient temp. away from ignition sources

Zinc Stearate 925 [MPSI https://www.mp-solutionsinc.com]
Chem. Descrip.: Zinc stearate USP
CAS 557-05-1; EINECS/ELINCS 209-151-9
Uses: Lubricant for pharmaceuticals
Features: Vegetable grade; eliminates BSE concern
Properties: 99% max. through 200 mesh; bulk dens. 0.12 g/ml; m.p. 118-122 C; 0.4% max. moisture; 13.8% oxide

Zinc Stearate D USP [Chemtura http://www.chemtura.com]
Chem. Descrip.: Zinc stearate
CAS 557-05-1; EINECS/ELINCS 209-151-9
Uses: Anticaking agent, colorant, visc. builder, lubricant, mold release agent, water repellent, w/o emulsifier for pharmaceuticals
Properties: Wh. powd.; 99.9% through 325 mesh; sol. in hot turpentine, benzene, toluene, xylene, CCl4, veg. and min. oils, waxes; sp.gr. 1.09; soften. pt. 120 C

Zoco 112 USP [ZOCHEM http://www.zochem.com]
Chem. Descrip.: French process zinc oxide (99.7%), USP
CAS 1314-13-2; EINECS/ELINCS 215-222-5
Uses: Colorant, protectant in pharmaceutical salves, creams, lotions, and ointments; activator, reinforcing agent, hiding pigment for medical and pharmaceutical rubber
Features: High purity
Properties: Wh. fine powd.; odorless; 99.995% through 325 mesh; sp.gr. 5.6; apparent dens. 18 lb/ft³; bulk dens. 50 lb/ft³; surf. area 4.75 m²/g
Toxicology: Nontoxic

Zohar GLST [Zohar Detergent Factory http://www.zohardalia.com]
Chem. Descrip.: Glyceryl stearate
CAS 123-94-4
Uses: Emulsifier, thickener, superfatting agent for pharmaceuticals
Properties: Wh. flakes; m.p. 55-60 C; acid no. 5 max.; sapon. no. 165-175; nonionic; 100% conc.
Storage: Store under cover

Chem. Descrip.: Glyceryl stearate SE
CAS 11099-07-3
Uses: Emulsifier, coemulsifier, thickener, opacifier, and superfatting agent for pharmaceuticals
Features: Self-emulsifying
Properties: Wh. flakes; m.p. 55-60 C; acid no. 5; sapon. no. 155-170; anionic/nonionic; 100% conc.
Storage: Store under cover

Zoharpon LAS [Zohar Detergent Factory http://www.zohardalia.com]
Chem. Descrip.: Sodium lauryl sulfate USP/BP
CAS 151-21-3; EINECS/ELINCS 205-788-1
Uses: Raw material, foaming agent for toothpaste, pharmaceuticals
Features: Mild to skin
Regulatory: USP and BP approved
Properties: Liq. to paste; pH 7-8.5 (10%); anionic; 30% conc.
Storage: Store under cover

Chem. Descrip.: Sodium lauryl sulfate USP/BP
CAS 151-21-3; EINECS/ELINCS 205-788-1
Uses: Surfactant, raw material for toothpaste, pharmaceuticals
Properties: Powd.; anionic; 92% conc.
Storage: Store under cover

Zoharpon SLS [Zohar Detergent Factory http://www.zohardalia.com]
Chem. Descrip.: Sodium lauryl sulfate USP/BP
CAS 151-21-3; EINECS/ELINCS 205-788-1
Uses: Surfactant, foaming agent, raw material for toothpaste, dentifrices, pharmaceuticals
Features: Mild to skin
Properties: Free-flowing nondusty compact gran.; bulk dens. 600-800 g/l; pH 6-9 (1%); anionic; 95% conc.
Storage: Store under cover
Part II: Chemical Component Cross-Reference
AA. See Adipic acid
Abies balsamea; Abies balsamea balsam; Abies balsamea oleoresin. See Balsam Canada (Abies balsamea)
Absinthe oil; Absinthium oil. See Wormwood (Artemisia absinthium) oil
Absolute alcohol; Absolute ethanol. See Alcohol
ACAC. See Acetylacetone

Acacia
CAS 9000-01-5; EINECS/ELINCS 232-519-5
FEMA 2001; INS414; E414
Synonyms: Acacia farnesiana; Acacia gum; Acacia senegal; Acacia syrup; Arabic gum; Australian gum; Gum Arabic; Gum hashab; Gum ovaline; Gum senegal; Indian gum; Kordofan gum; Senegal gum; Sudan gum
Classification: Water-sol. gum
Definition: Dried gummy exudate from stems and branches of Acacia farnesiana or A. senegal
Properties: Ylsh.-wh. angular fragments, odorless; sol. in water; insol. in alcohol; m.w. 240,000
Toxicology: LD50 (oral, rat) 18 g/kg; very low toxicity by ing.; inh. or ing. may produce hives, eczema, angioedema, asthma; allergic responses; people prone to allergies should avoid acacia; severe eye irritant; experimental reproductive effects; mutation data; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke
Uses: Emulsifier, solubilizer, flavor, suspending agent, stabilizer, thickener for pharmaceuticals, orals; lubricant; emollient; adhesive, binder, coating, excipient for tablets; film-former for coated pills; protective colloid; mfg. of spray-dried flavors; gellant in medicated cough drops; encapsulation for liposol. vitamins; suspending agent in syrups; demulcent in cough drops and syrups; treatment of diarrhea, dysentery, catarrh
Regulatory: FDA 21CFR §169.179, 169.182, 172.230, 172.510, 184.1330, GRAS; FEMA GRAS; Japan approved; Europe listed; UK approved; ADI not specified (JECFA);
USP/NF, EP, BP compliance
Manuf./Distrib.: AAA Int'l. http://www.aaainternational.com; AB R


Functional Foods† http://www.functionalfoods.com
Manuf./Distrib.: AAE Int'l. http://www.aaainternational.com; AB R
Gum Arabic

**Botanicals**

Acacia farnesiana. See Cassie (Acacia farnesiana) flowers; Acacia farnesiana flowers. See Cassie (Acacia farnesiana) flowers

Acacia gum; Acacia senegal; Acacia syrup. See Acacia

Aceite de Algodon. See Cottonseed (Gossypium) oil

Aceite de ricino. See Castor (Ricinus communis) oil

Acesulfame K. See Acesulfame potassium

Acesulfame potassium

CAS 55589-62-3; EINECS/ELINCS 259-715-3

**Synonyms:** Acesulfame K; 6-Methyl-1,2,3-oxathiazine-4 [3H]-one 2,2 dioxide, potassium salt; Potassium acesulfame; Potassium 6-methyl-1,2,3-oxathiazine-4(3H)-1,2,2-dioxide; Sunnette

**Definition:** Potassium salt of 6-methyl-1,2,3-oxathiazine-4(3H)-one-2,2-dioxide

**Empirical:** C4H4NO4S • K

**Properties:** Wh. cryst. solid, odorless, sweet taste, very sl. bitter aftertaste; very sol. in water, DMF, DMSO; sol. in alcohol, glycerin-water; m.w. 201.24; about 200 times sweeter than sucrose; m.p. 250 C
Acetaldehyde diethyl acetal; 1,1-Diethoxyacetal; 1,1-Diethoxyethane; Diethyl acetal; Ethylidene diethyl ether

**Properties:** Colorless volatile liq.; agreeable green woody solvent odor; fruity green flavor; very sol. in ethanol, diethyl ether; sol. in heptane, methycyclohexane, ethyl acetate, acetone, chloroform, propyl alcohol, butyl alcohol, IPA; sl. sol. in water; m.w. 118.18; dens. 0.831; vapor pressure 10 mm Hg (8 C); m.p. -100 C; b.p. 107-112 C; flash pt. (CC) 36 C

**Toxicology:** LD50 (oral, rat) 4.57 g/kg, (IP, rat) 900 mg/kg; moderately toxic by ingestion and IP route; skin and eye irritant; narcotic; TSCA listed

**Precaution:** Highly flamm.; dangerous fire hazard exposed to heat or flames; tends to polymerize on standing; can react vigorously with oxidizers; forms heat-sensitive explosive peroxides on contact with air; readily decomposed by dil. acids

**Hazardous Decomp. Prods.:** CO, CO2; heated to decomp., emits acrid smoke and fumes

**NFPA:** Health 2, Flammability 3, Reactivity 0

**Storage:** Keep away from ignition sources; light-sensitive, heat-sensitive, moisture-sensitive

**Uses:** Synthetic flavor for pharmaceuticals

**Regulatory:** FDA §172.515; FEMA GRAS; Canada DSL


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**Acetaldehyde phenethyl propyl acetal**

**CAS:** 75-07-0; EINECS/ELINCS 200-836-8

**UN 1089 (DOT); FEMA 2003**
### Chemical Component Cross-Reference

**Synonyms:** Acetic aldehyde; Ethanal; Ethyl aldehyde  
**Classification:** Aldehyde  
**Empirical:** $\text{C}_2\text{H}_4\text{O}$  
**Formula:** $\text{CH}_3\text{CHO}$  

**Properties:** Colorless fuming liq. or gas; pungent fruity odor; misc. in water, alcohol, ether, oxygenated and aromatic solvs.; m.w. 44.06; dens. 0.788 (16/4 C); m.p. -123.5 C; b.p. 20.8 C; flash pt. (CC) -38 C; ref. index 1.3316 (20 C)  

**Toxicology:** ACGIH TLV/TWA 100 ppm; STEL 150 ppm; LD50 (oral, rat) 1930 mg/kg, (subcut., rat) 640 mg/kg, (skin, rabbit) 3540 mg/kg; poison by intratracheal/IV routes; human systemic irritant by inh.; narcotic; lachrymator; irritating to eyes, respiratory system; confirmed carcinogen; human mutagenic data; experimental tumorigen, teratogen; skin and severe eye irritant; TSCA listed  

**Precaution:** Flamm. liq. (DOT); can react violently with acid anhydrides, alcohols, ketones, phenols, NH$_3$, halogens, etc.; reaction with oxygen may lead to detonation; common air contaminant  

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and fumes  

**NFPA:** Health 3, Flammability 4, Reactivity 2  

**Storage:** Air-sensitive; store below 4 C  

**Uses:** Synthetic flavor in pharmaceuticals  

**Regulatory:** FDA 21 CFR §177.2410, 182.60, 27 CFR §21.93, GRAS; FEMA GRAS; HAP; mfg. of pharmaceuticals  

**Manuf./Distrib.:** Acros Org.  
http://www.acros.com; Advanced BioTech  
http://www.adv-bio.com; Aldrich†  
http://www.sigma-aldrich.com; Alfa Aesar  
http://www.alfa.com; Allchem Ind.  
http://www.allchem.com  
Astral Extracts  
http://www.astralextracts.com; Augustus Oils Ltd  
http://www.augustus-oils.ltd.uk; Axxence Aromatic GmbH  
http://www.axxence.com; http://www.axxence.de; BP Chemicals†  
http://www.bp.com; Cargill Flavors & Fruit Systems USA  
http://www.flavors-fruitsystems.com  
Celanese  
http://www.celanesechemicals.com;  
http://www.chemvip.com; Chem-Supply  
http://www.chemsupply.com.au; Eastman  

†=pharmaceutical grade  

http://www.eastman.com; Fleurchem  
http://www.fleurchem.com; Fluka  
http://www.sigma-aldrich.com; Frutarom Ltd  
http://www.frutarom.com; Givaudan Fragrances  
http://www.givaudan.com; Integrat†  
http://www.integrachem.com; Lluch  
Essence http://www.lluch-essence.com;  
Lonza http://www.lonza.com  
Mallinckrodt Baker†  
http://www.mallbaker.com; Oxford Chems. Ltd  
http://www.oxfordchemicals.com;  
Penta Mfg.† http://www.pentamfg.com;  
SAFC Specialties http://www.safoods.com; Sigma  
http://www.sigma-aldrich.com/belgium  
Triple Crown Am.†  

Acetaldehyde benzyl β-methoxyethyl acetal. See Benzyl methoxyethyl acetal  

Acetaldehyde diethyl acetal. See Acetaldehyde, ((3,7-dimethyl-6-octenyl) oxy)-. See Citronelloxyacetaldehyde  

Acetaldehyde, methylethyl-. See 2-Methylbutyraldehyde  

Acetaldehyde phenethyl propyl acetal  
CAS 7493-57-4; EINECS/ELINCS 231-327-9  

FEMA 2004  

**Synonyms:** Acetal R; Acetaldehyde phenyl ethyl propyl acetal; Benzene, (2-(1-propoxyethoxy) ethyl); Pepital; 1-Phenethoxy-1-propoxyethane; [2-(1-Propoxyethoxy) ethyl] benzene; Propyl phenethyl acetal  

**Definition:** From acetaldehyde with a mixture of propyl and β-phenyl ethyl alcohols  

**Empirical:** $\text{C}_{13}\text{H}_{20}\text{O}_2$  

**Properties:** Colorless to pale yel. stable liquid; strong odor of green leaves; m.w. 208.30; dens. 0.951; flash pt. 95 C  

**Toxicology:** LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; primary eye irritant; TSCA listed  

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating vapors  

**Uses:** Synthetic flavor for pharmaceuticals
Acetaldehyde phenyl ethyl propyl acetal. See Acetaldehyde phenethyl propyl acetal

Acetamide
CAS 60-35-5; EINECS/ELINCS 200-473-5
Synonyms: Acetic acid amide; Acetic acid amine; Acetimidic acid; Ethanamide; Ethanolamide; Methanecarboxamide
Classification: Nonaromatic amide
Empirical: C₂H₅NO
Formula: CH₃CONH₂
Properties: Wh. cryst.; odorless when pure, but frequently has mousy odor; sol. in water, alcohol, chloroform, glycerol, hot benzene; m.w. 59.07; dens. 1.159; vapor pressure negligible; m.p. 82 C; b.p. 221 C; ref. index 1.4274; neutral reaction
Toxicology: LD₅₀ (oral, rat) 7 g/kg, (IP, rat) 10,300 mg/kg, (subcut., rat) 10 g/kg; eye/skin/respiratory tract irritant; may cause sleep disturbances, muscle weakness, dyspnea, spastic paralysis, lacrimation, change in heart rate; cancer suspect agent; tumorigen; reproductive effector; mutagen; target organ: liver; TSCA listed
Precaution: Incompat. with strong oxidizers, metals, halogenated materials; avoid ignition sources, excess heat, elec. sparks
Hazardous Decomp. Prods.: CO, CO₂, NOₓ
Storage: Hygroscopic, deliq.; store under nitrogen in cool, dry, well-ventilated area away from incompat. substances
Uses: Vehicle in pharmaceuticals; antidote; drug intermediate in mfg. of ampicillin, cephaclor, etc.
Regulatory: HAP; Canada DSL

†=pharmaceutical grade
Mallinckrodt Baker† http://www.mallbaker.com; McIntyre http://www.mcintyregroup.com
VWR Int’l.† http://www.vwrsp.com

Acetamide, 2-chloro-. See Chloroacetamide

Acetamide MEA
CAS 142-26-7; EINECS/ELINCS 205-530-8
Synonyms: 2-Acetamidoethanol; N-Acetyl ethanolamine; N-Ethanolacetamide; Hydroxyethyl acetamide; β-Hydroxyethylacetamide; N-(2-Hydroxyethyl) acetamide; N-β-Hydroxyethylacetamide
Classification: Aliphatic amide
Empirical: C₄H₉NO₂
Formula: CH₃CONHCH₂CH₂OH
Properties: Brn. visc. liq.; misc. with water; m.w. 103.14; dens. 1.12 (20/4 C); f.p. 15.8 C; b.p. 195-196 C; flash pt. (OC) 355 F; dec. on heating; nonionic
Toxicology: LD₅₀ (oral, rat) 26,950 mg/kg; mildly toxic by ing.; skin and severe eye irritant; TSCA listed
Precaution: Combustible exposed to heat or flame; can react vigorously with oxidizers
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOₓ
Uses: Solubilizer, humectant, conditioner, coupling agent, pigment dispersant in topical pharmaceuticals
Regulatory: FDA 21CFR §175.105; Canada DSL

Trade Names: Schercomid AME-70; Schercomid AME-100
Trade Names Containing: Lipomectant AL
3-Acetamido-5-(acetamidomethyl)-2,4,6-triodobenzoic acid. See Iodamide
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Chemical Component</th>
<th>CAS Number</th>
<th>Synonyms</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Acetamidoethanol. See Acetamide MEA</td>
<td>100-06-1</td>
<td></td>
</tr>
<tr>
<td>(S)-2-Acetamido-3-(4-hydroxyphenyl) propanoic acid. See Acetylyrosine</td>
<td></td>
<td></td>
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<tr>
<td>L-2-Acetamido-3-mecaptopropionic acid. See Acetylcysteine</td>
<td></td>
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<tr>
<td>Acetanhydride. See Acetic anhydride</td>
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</tr>
</tbody>
</table>

#### Definitions and Classification

**Empirical:**

- **2-Acetamidoethanol:** $\text{C}_2\text{H}_10\text{O}_2$
- **Formula:** $\text{CH}_3\text{COCH}_3$
- **Properties:** Colorless to ylsh.-wh. cryst.; pleasant floral odor; bitter, unpleasant taste; sol. in fixed oils, propylene glycol, most org. solvs.; misc. with glycerin; sl. sol. in water; m.w. 150.18; dens. 1.08 kg/l (41 C); m.p. 38 C; b.p. 265 C
- **Toxicology:** LD50 (oral, rat) 1720 mg/kg, (skin, rabbit) > 5 g/kg; mod. toxic by ing.; human systemic effects by inh. (pulse rate and blood pressure changes); primary skin irritant; TSCA listed
- **Precaution:** Flamm.
- **Flash point:** 43 C; autoignition temp. 463 C; vapor pressure 11.4 mm Hg (20 C)
- **Incompatibility:** incompat. with many chems. and explosive or violent reactions
- **Health effects:** corrosive; strong irritant to eyes, skin, and tissue; caustic; can cause burns, lachrymation; human systemic effects by inh.; experimental reproductive effects; mutation data possible; incompatible with many chems.; a common air pollutant

**Quality Prods.:**

- **Acetate C-1**
- **Acetate C-7**
- **Acetate C-8**
- **Acetate C-9**
- **Acetate C-10**
- **Acetate C-11**
- **Acetate C-12**

**Regulatory:**

- **FDA:** 21CFR §172.515; FEMA 2005; INS260; E260
- **UN:** 2789 (DOT); UN 2790 (DOT); FEMA 2006; INS260; E260
- **TSCA listed:**
- **EINECS/ELINCS:**
- **ACGIH:** TLV/TWA 10 ppm, STEL 15 ppm
- **LD50:** (oral, rat) 3310 mg/kg, (skin, rabbit) 1060 mg/kg; mod. toxic by ingestion, inhalation; corrosive; strong irritant to eyes, skin, and tissue; caustic; can cause burns, lachrymation; human systemic effects by inh.; experimental reproductive effects; mutation data reported; TSCA listed

**Environmental:**

- **VOC:**
- **BOD5:** 0.65
- **COD:** 1.09
- **ThOD:** 1.07

**Precaution:** Flamm.; moderate fire and explosion hazard exposed to heat or flame; can react vigorously with oxidizers; explosive or violent reactions possible; incompatible with many chems.; a common air pollutant

**Hazardous Decomp. Prods.:** Heated to heats, emits acrid smoke and irritating fumes
Acetic acid, aluminum salt. See Aluminum

†=pharmaceutical grade

Acetic acid amide; Acetic acid amine.  See Acetamide
Acetic acid, amino-s-butyl-.  See L-Isoleucine
Acetic acid ammonium salt.  See Ammonium acetate
Acetic acid amyl ester.  See Amyl acetate
Acetic acid, anhydride.  See Acetic anhydride
Acetic acid, benzyol-, ethyl ester.  See Ethyl benzoylecetate
Acetic acid benzyl ester.  See Benzyl acetate
Acetic acid, butyl ester; Acetic acid n-butyl ester.  See n-Butyl acetate
Acetic acid, cellulose ester.  See Cellulose acetate
Acetic acid chloride.  See Acetyl chloride
Acetic acid, cinnamyl ester.  See Cinnamyl acetate
Acetic acid, citronellyl ester.  See Citronellyl acetate
Acetic acid cyclohexyl ester.  See Cyclohexyl acetate
Acetic acid, cyclohexylethyl ester.  See Cyclohexylethyl acetate
Acetic acid, diethylphosphono-, ethyl ester.  See Triethyl phosphonoacetate
Acetic acid, dimethyl-.  See Isobutyric acid
Acetic acid dimethylamide.  See Dimethyl acetamide
Acetic acid 3,7-dimethyl-octa-2,6-dienyl ester.  See Neryl acetate
Acetic acid-3,7-dimethyl-6-octen-1-yl ester.  See Citronellyl acetate
Acetic acid, dodecyl ester.  See Lauryl acetate
Acetic acid, esters with lanolin alcohols.  See Acetylated lanolin alcohol
Acetic acid esters of mono- and diglycerides; Acetic acid esters of mono- and diglycerides of fatty acids.  See Acetylated mono- and diglycerides of fatty acids
Acetic acid, ethenyl ester, homopolymer.  See Polyvinyl acetate
Acetic acid, ethenyl ester, polymer with ethene.  See Ethylene/VA copolymer
Acetic acid ethenyl ester, polymer with ethenol.  See Polyvinyl alcohol (partially hydrolyzed)
Acetic acid ethenyl ester, polymer with 1-ethenyl-2-pyrrolidinone.  See PVP/VA copolymer
Acetic acid 2-ethylbutyl ester.  See 2-Ethylbutyl acetate
Acetic acid, (ethylene dinitrilo) tetra-, calcium disodium salt.  See Calcium disodium

EDTA
Acetic acid, (ethylenedinitrilo) tetra-, sodium salt.  See Sodium ferric EDTA
Acetic acid, (ethylenedinitrilo) tetra-, tetrasodium salt.  See Tetrasodium EDTA
Acetic acid, (ethylenedinitrilo) tetra-, trisodium salt.  See Trisodium EDTA
Acetic acid, ethyl ester.  See Ethyl acetate
Acetic acid geraniol ester.  See Geranyl acetate
Acetic acid, glutaric
CAS 64-19-7; EINECS/ELINCS 200-580-7
UN 2789; UN 2790; FEMA 2006; INS260; E260
Synonyms:  Concentrated acetic acid; Ethanoic acid; Ethanolic acid; Glacial acetic acid; Vinegar acid
Classification:  Aliphatic organic acid
Definition:  Pure compd. (99.8% min.) as distinguished from the usual aq. sol'n's.
Empirical:  C₂H₄O₂
Formula:  CH₃COOH
Properties:  Clear colorless liq., pungent char. odor, acid taste when dil. with water; misc. with water, alcohol, acetone, glycerol, ether; insol. in chloroform; m.w. 60.05; dens. 1.049 (20/4 C); m.p. 16.2 C; b.p. 118 C; flash pt. 40 C; ref. index 1.3720
Toxicology:  TLV/TWA 10 ppm; human poison by unspecified routes; mod. toxic by various routes; corrosive; severe eye and skin irritant; can produce lung obstruction; TSCA listed
Precaution:  DOT: Corrosive material
NFPA:  Health 3, Flammability 2, Reactivity 0
Uses:  Acidifier, buffer, solvent in pharmaceuticals, injectables, ophthalmics, orals,otics
Regulatory:  USP/NF, BP, EP compliance; Canada DSL
Aldrich† [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
Eastman [http://www.eastman.com](http://www.eastman.com)
Equivar [http://www.equistarchem.com](http://www.equistarchem.com)
Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
Frutarom [http://www.frutarom.com](http://www.frutarom.com)
Galbraith Labs† [http://www.galbraith.com](http://www.galbraith.com)
Houghton Chem.

Handbook of Pharmaceutical Additives, Third Edition 816
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Chemical Component</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetic acid heptyl ester</td>
<td>See Heptyl acetate</td>
</tr>
<tr>
<td>Acetic acid hexyl ester</td>
<td>See Hexyl acetate</td>
</tr>
<tr>
<td>Acetic acid isobutyl ester</td>
<td>See Isobutyl acetate</td>
</tr>
<tr>
<td>Acetic acid, isononyl ester</td>
<td>See Isononyl acetate</td>
</tr>
<tr>
<td>Acetic acid isopentyl ester</td>
<td>See Isoamyl acetate</td>
</tr>
<tr>
<td>Acetic acid isopropyl ester</td>
<td>See Isopropyl acetate</td>
</tr>
<tr>
<td>Acetic acid, linalool ester</td>
<td>See Linalyl acetate</td>
</tr>
<tr>
<td>Acetic acid, magnesium salt</td>
<td>See Magnesium acetate</td>
</tr>
<tr>
<td>Acetic acid, p-menth-3-yl ester, DL-</td>
<td>See Dimethyl acetate</td>
</tr>
<tr>
<td>Acetic acid, mercapto-, monosodium salt.</td>
<td>See Sodium thiglycolate</td>
</tr>
<tr>
<td>Acetic acid, mercury (2+) salt</td>
<td>See Mercury acetate (ic)</td>
</tr>
<tr>
<td>Acetic acid 4-methoxybenzyl ester</td>
<td>See p-Anisyl acetate</td>
</tr>
<tr>
<td>Acetic acid 2-methylbutyl ester</td>
<td>See 2-Methylbutyl acetate</td>
</tr>
<tr>
<td>Acetic acid methyl ester</td>
<td>See Methyl acetate</td>
</tr>
<tr>
<td>Acetic acid 1-methylethyl ester</td>
<td>See Isopropyl acetate</td>
</tr>
<tr>
<td>Acetic acid, 2-methylphenyl ester</td>
<td>See o-Cresyl acetate</td>
</tr>
<tr>
<td>Acetic acid 4-methylphenyl ester</td>
<td>See p-Cresyl acetate</td>
</tr>
<tr>
<td>Acetic acid 2-methylpropyl ester</td>
<td>See Isobutyl acetate</td>
</tr>
<tr>
<td>Acetic acid nonyl ester; Acetic acid n-nonyl ester</td>
<td>See n-Nonyl acetate</td>
</tr>
<tr>
<td>Acetic acid octyl ester</td>
<td>See Octyl acetate</td>
</tr>
<tr>
<td>Acetic acid pentyl ester</td>
<td>See Amyl acetate</td>
</tr>
<tr>
<td>Acetic acid perillyl ester</td>
<td>See Perillyl acetate</td>
</tr>
<tr>
<td>Acetic acid, phenyl-, butyl ester</td>
<td>See Butyl phenylacetate</td>
</tr>
</tbody>
</table>

†=pharmaceutical grade

- Acetic acid, phenyl-, 3,7-dimethyl-2,6-octadienyl ester, (E)-. See Geranyl phenylacetate
- Acetic acid, phenyl-, 3,7-dimethyl-6-octenyl ester. See Citronellyl phenylacetate
- Acetic acid, phenyl-, 3,7-dimethyl-7-octenyl ester. See Rhodinyl phenylacetate
- Acetic acid, 1-phenylethyl ester. See α-Methylbenzyl acetate
- Acetic acid, 2-phenylethyl ester. See 2-Phenylethyl acetate
- Acetic acid, phenyl-, isobutyl ester. See Isobutyl phenylacetate
- Acetic acid phenylmethyl ester. See Benzyl acetate
- Acetic acid potassium salt. See Potassium acetate
- Acetic acid propyl ester; Acetic acid n-propyl ester. See Propyl acetate
- Acetic acid, retinyl ester. See Retinyl acetate
- Acetic acid sodium salt anhydrous. See Sodium acetate anhydrous
- Acetic acid sodium salt trihydrate. See Sodium acetate trihydrate
- Acetic acid, strontium salt. See Strontium acetate
- Acetic acid, sulfo-, 1-dodecyl ester, sodium salt; Acetic acid, sulfo-, dodecyl ester, Sodium salt. See Sodium lauryl sulfoacetate
- Acetic acid, tetraester with 2,2-bis (hydroxymethyl)-1,3-propanediol. See Penterythrityl tetraacetate
- Acetic acid, o-tolyl ester. See o-Cresyl acetate
- Acetic acid, 3,5,5-trimethylhexyl ester. See 3,5,5-Trimethylhexyl acetate
- Acetic acid, vinyl ester, polymer; Acetic acid vinyl ester polymers. See Polyvinyl acetate
- Acetic acid, zinc salt. See Zinc acetate
- Acetic aldehyde. See Acetaldehyde
- Acetic anhydride
  - CAS 108-24-7; EINECS/ELINCS 203-564-8
  - UN 1715 (DOT)
  - Synonyms: Acetanhydride; Acetic acid, anhydride; Acetic oxide; Acetyl anhydride; Acetyl ether; Acetyl oxide; Ethanoic anhydride
  - Classification: Carboxylic acid anhydride
  - Empirical: C₄H₆O₃
  - Formula: (CH₃CO)₂O
  - Properties: Colorless liq., strong acetic odor; sol.
Chemical Component Cross-Reference

in chloroform, ether; sol. in ethanol forming ethyl acetate; misc. in benzene, acetic acid; sl. sol. in water; dec. in hot water, hot alcohol; m.w. 102.09; dens. 1.08 (15/4 C); m.p. -73 C; b.p. 138-140 C; flash pt. 49 C; ref. index 1.3904 (20 C)

Toxicology: ACGIH TLV/CL 5 ppm; LD50 (oral, rat) 1.78 g/kg, (skin, rabbit) 4000 mg/kg; corrosive; produces irritation and necrosis of tissues in liq. or vapor state; can cause severe lung damage, which could be fatal; mod. toxic by inh., ing., skin contact; skin and severe eye irritant; lachrymator; TSCA listed

Precaution: DOT: Corrosive material; flamm.; fire/explosion hazard exposed to heat or flame; explosive and violent reactions possible; can react vigorously with oxidizers; incompat. with aniline, chlorosulfonic acid, ethylenediamine, HF, water, H2SO4, etc.

Hazardous Decomp. Prods.: CO, CO2, ketone, ethene; heated to decomp., emits toxic fumes

NFPA: Health 3, Flammability 2, Reactivity 1

Uses: Dehydrating agent, acetylating agent, acidifier for pharmaceuticals, orals, prod. of aspirin and acetaminophen

Regulatory: FDA 21CFR §172.892, esterifier for food starch, in combination with adipic anhydride (0.12% max. adipic anhydride, 5% max. acetic anhydride); BP compliance; Canada DSL

Acetoacetic acid, butyl ester. See Butyl acetoacetate
Acetoacetic acid ethyl ester. See Ethylacetoacetate
Acetoacetic acid isobutyl ester. See Isobutyl acetoacetate
Acetoacetic acid methyl ester. See Methyl acetoacetate
Acetoacetic ester. See Ethylacetoacetate
Acetoacetone. See Acetylacetone
Acetocumenel. See p-Isopropylacetophenone
Acetodiphosphonic acid. See Etidronic acid
Acetoglycerides. See Acetylated mono- and diglycerides of fatty acids
Acetoin. See Acetyl methyl carbinol
β-Acetonaphthalene; Acetonaphthone. See 2'-Acetonaphthone
2'-Acetonaphthone
CAS 93-08-3; EINECS/ELINCS 202-216-2
FEMA 2723
Synonyms: β-Acetonaphthalene; Acetonaphthone; 2-Acetonaphthone; β-Acetinaphthalene; Methyl naphthy ketone; Methyl 2-naphthyl ketone; Methyl β-naphthyl ketone; β-Methyl naphthyl ketone; 1-(2-Naphthalenyl) ethanone; 2-Naphthyl methyl ketone; β-Naphthyl methyl ketone; Orange crystals
Classification: aliphatic ketone
Empirical: C12H16O
Properties: Wh. or nearly wh. cryst. solid, orange blossom odor, strawberry-like flavor; sol. in most common org. solvs., fixed oils; sl. sol. in propylene glycol; insol. in water, glycerin; m.w. 170.21; m.p. 53 C; b.p. 301-303 C; flash pt. 168 C
Toxicology: LD50 (oral, mouse) 599 mg/kg; mod. toxic by ing.; human skin irritant; TSCA listed
Precaution: DOT: Flamm. liq.
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21 CFR §172.515; FEMA GRAS; Japan approved as flavoring; Canada DSL
Manufact./Distrib.: ABCR UK http://www.abcr.de

2-Acetonaphthone; β-Acetonaphthone. See 2'-Acetonaphthone

Acetone
CAS 67-64-1; EINECS/ELINCS 200-662-2
UN 1090 (DOT); UN 1091 (DOT); FEMA 3326
Synonyms: Acetone oils; Dimethyl formaldehyde; Dimethyletal; Dimethyleketone; DMP; Ketone, dimethyl; Ketone propane; β-Ketopropane; Methyl ketone; Propanone; 2-Propanone; Pyroacetic acid; Pyroacetic ether
Classification: Aliphatic ketone
Empirical: C₃H₆O
Formula: CH₃COCH₃
Properties: Colorless volatile transparent liq., sweetish odor, pungent sweetish taste; sol. in water, alcohol, chloroform, dimethylformamide, ether, most volatile oils; m.w. 58.09; sp.gr. 0.792 (20/20 C); vapor pressure 400 mm Hg (39.5 C); m.p. -94.3 C; b.p. 56.2 C; flash pt. (CC) -18 C
Toxicology: ACGIH TLV/TWA 750 ppm; STEL 1000 ppm; LD50 (oral, mouse) 3000 mg/kg; narcotic in high conc.; moderately toxic by ingestion and inhalation; lg. doses may cause narcosis; extreme concs. may cause collapse, coma, death; inh. irritates lungs; ing. may cause throat, esophagus, and stomach irritation; peeling and splitting of nails, skin rashes; eye irritant; common air contaminant; TSCA listed
Environmental: BOD5 0.85; COD 1.12-2.07; ThOD 2.21
Precaution: DOT: flamm. liq.; dangerous fire risk; explosive limit in air 2.6-12.8%; reacts violently with oxidizing agents, chlorinated solv./alkali mixts.; reacts vigorously with sulfur dichloride, potassium t-butoxide, hexachlorodimethane
Hazardous Decomp. Prods.: Complete combustion yields CO₂, water vapor;
Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Component</th>
<th>Trade Names Containing:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Celtone; Eudragit® E 12.5; Eudragit® RL 12.5; Eudragit® RS 12.5; Punctilious® SDA 23A 190 Proof; Punctilious® SDA 23A Anhydrous; Punctilious® SDA 23H 190 Proof; Acetone chloroform. See Chlorobutanol hemihydrate; Chlorobutanol; Acetone dimethyl acetal. See</td>
</tr>
</tbody>
</table>

 incomplete combustion can produce CO

**NFPA:** Health 1, Flammability 3, Reactivity 0

**Storage:** Store in cool, dry, well-ventilated area, out of direct sunlight

**Uses:** Solvent, flavor for pharmaceuticals

**Features:** Apple-, grape-, pear-, pineapple-like flavor

**Regulatory:** FDA 21CFR §73.1, 73.30, 73.345, 73.615, 173.210, 175.105, 175.320, 176.180, 176.300, 177.2600, 182.99; 40CFR §180.1001; 30 ppm tolerance in spice oleoresins; FEMA GRAS; SARA §313 reportable; CERCLA hazardous substance; Canada DSL; Japan approved with restrictions; USP/NF, BP, EP compliance; VOC-exempt

**Manuf./Distrib.:** AAE Chemie NV†
http://www.allchem.com
Amyl http://www.amyl.com; Arch Chems.
http://www.archchemicals.com; Arkema
http://www.total.com; Ashland†
http://www.ashchem.com; Axxence
BASF http://www.basf.com; BP Chemicals†
http://www.bp.com; BP Chems. Ltd
http://www.bp.com/chemicals; Baychem;
Brenntag AG† http://www.brenntag.de
C.P. Hall http://www.cphall.com; Cargill
Flavors & Fruit Systems USA
http://www.flavors-fruit-systems.com;
Chem-Supply
Chemcentral http://www.chemcentral.com;
Chemical http://www.thechemco.com
Chevron http://www.chevron.com;
Columbus Chem. Ind.
http://www.columbuschemical.com; Dow†
http://www.dow.com; Eastman†
http://www.eastman.com; ExxonMobil
http://www.exxonmobilchemical.com
Fisher Scientific
Fleurchem http://www.fleurchem.com;
Fluka http://www.sigma-aldrich.com; GE
Plastics http://www.geplastics.com;
General Chem.
http://www.genchemcorp.com
Georgia Gulf http://www.ggc.com;
Haltermann Prods. UK
http://www.haltermann.com; Harcros
http://www.harcsc.com; Hatco†
http://www.hatcocompany.com;
Honeywell Perf. Polymers
http://www.honeywellplastics.com;
http://www.honeywell-plastics.com
Houghton Chem.
http://www.houghtonchemical.com; Hukill
http://www.hukill.com; INEOS Phenol†
http://www.phenolchemie.de; Integra†
http://www.integrachem.com; J.C. Wilson
Kyowa Hakko Kogyo
http://www.kyowa.co.jp; Mallinckrodt
Baker† http://www.mallbaker.com;
MelChem† http://www.melchem.com;
Mitsubishi Chem. http://www.m-kagaku.co.jp/index_en.htm; Nippon
Penta Mfg.† http://www.pentamfg.com;
Primachem; Quaker City; R.E. Carroll
http://www.recarroll.com; Romil Ltd
http://www.romil.com
Ruger† http://www.rugerchemical.com;
SAFC Specialties
http://www.safespecialisities.com; Sal Chem.
http://www.salchem.com; Schenectady
Herdillia Ltd
http://www.sligroup.com/herdillia/index.htm;
Seeler Ind. http://www.seeler.com
Shell† http://www.shellchemicals.com;
http://www.shell-lubricants.com; Sigma-
Aldrich† http://www.sigma-aldrich.com;
Sigma http://www.sigma-
aldrich.com/belgium; Spectrum Quality
Prods.†
http://www.spectrumchemical.com;
Sumitomo Chem. http://www.sumitomo-
chem.co.jp
Sunoco http://www.sunocochem.com;
Total Spec. Chems.
http://www.totaltsc.com; Universal Preserv-
A-Chem† http://www.upichem.com; VWR
Int’l.† http://www.vwrsp.com
Veckridge; Xinchem†
http://www.finechemnet.com
Chemical Component Cross-Reference

**Dimethoxypropane**

**Acetone glycerol.** See 2,2-Dimethyl-1,3-dioxolane-4-methanol

**Acetone oils.** See Acetone

**Acetone sodium bisulfite**
CAS 540-92-1; EINECS/ELINCS 208-761-2

**Synonyms:** 2-Hydroxy-2-propane sulfonic acid sodium salt acetone sulfite; Sodium acetone bisulfate; Sodium acetone bisulfite

**Empirical:** C₃H₇NaO₄S

**Formula:** (CH₃)₂C(OH)SO₃Na

**Properties:** Cryst., sl. SO₂ odor, fatty feel; sol. in water; sl. sol. in alcohol; m.w. 162.15

**Toxicology:** LD₅₀ (IP, mouse) > 1 g/kg; TSCA listed

**Precaution:** Combustible

**Storage:** Keep refrigerated

**Uses:** In pharmaceutical injectables, inhalers

**Regulatory:** FDA approved

**Manuf./Distrib.:** Aceto† http://www.aceto.com; Aldrich http://www.sigma-aldrich.com; Alfa Aesar http://www.alfachem1.com; Allchem

**UN 1648 (DOT)**: Flamm. liq.

**Chemical Component Cross-Reference:†=pharmaceutical grade**

ammonia, hydrogen cyanide; heated to decomp., emits highly toxic fumes of CN⁻, NOₓ

**NFPA:** Health 2, Flammability 3, Reactivity 0

**Storage:** Store in cool, dry, well-ventilated area, out of direct sunlight

**Uses:** Intermediate for mfg. of synthetic pharmaceuticals, Vitamin B; solvent in pharmaceuticals

**Regulatory:** SARA reportable; HAP; Canada DSL

**Manuf./Distrib.:** Aceto† http://www.aceto.com; Aldrich† http://www.sigma-aldrich.com; Alfa Aesar http://www.alfachem1.com; Allchem

**Chemical Component Cross-Reference:†=pharmaceutical grade**

ammonia, hydrogen cyanide; heated to decomp., emits highly toxic fumes of CN⁻, NOₓ

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**Uses:** Intermediate for mfg. of synthetic pharmaceuticals, Vitamin B; solvent in pharmaceuticals

**Regulatory:** SARA reportable; HAP; Canada DSL

**Manuf./Distrib.:** Aceto† http://www.aceto.com; Aldrich† http://www.sigma-aldrich.com; Alfa Aesar http://www.alfachem1.com; Allchem

**Chemical Component Cross-Reference:†=pharmaceutical grade**

ammonia, hydrogen cyanide; heated to decomp., emits highly toxic fumes of CN⁻, NOₓ

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**Uses:** Intermediate for mfg. of synthetic pharmaceuticals, Vitamin B; solvent in pharmaceuticals

**Regulatory:** SARA reportable; HAP; Canada DSL

**Manuf./Distrib.:** Aceto† http://www.aceto.com; Aldrich† http://www.sigma-aldrich.com; Alfa Aesar http://www.alfachem1.com; Allchem

**Acetone oils.** See Acetone
Acetylbenezene; Benzoyl methide; Hypnone; Ketone methyl phenyl; Methyl phenyl ketone; 1-Phenylethanone; 1-Phenyl-1-ethanone; Phenyl methyl ketone

Classification: Aromatic ketone

Empirical: C₈H₈O

Formula: C₆H₅COCH₃

Properties: Colorless to lt. yel. liq. or plates; sweet pungent odor and taste; sol. in alcohol, chloroform, ether, fatty oils, glycerol; sl. sol. in water; m.w. 120.15; dens. 1.030 (20/20 C); b.p. 201.7 C; flash pt. 82.2 C; ref. index 1.5339 (20 C)

Toxicology: LD50 (oral, rat) 815 mg/kg; poison by IP, subcut. routes; moderate toxicity by ing.; skin and severe eye irritant; narcotic in high concs.; a hypnotic; may cause allergic reaction; mutagenic data; TSCA listed

Precaution: DOT: Combustible liq.; flamm. exposed to heat, flames, or oxidizers

Hazardous Decomp. Prods.: Heated to decom., emits acrid smoke and fumes

NFPA: Health 1, Flammability 2, Reactivity 0

Uses: Synthetic flavor for pharmaceuticals; intermediate for pharmaceuticals

Features: Sweet flavor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; HAP; Japan approved for flavoring; Canada DSL


†=pharmaceutical grade


Acetophenone, 2'-hydroxy- See o-Hydroxyacetoephonene

Acetophenone, 4'-isopropyl- See p-Isopropylacetophenone

Acetose. See Cellulose acetate

p-Acetotoluene. See 4'-Methyl acetophenone

Acetoxyethane. See Ethyl acetate

1-Acetoxyhexadecane. See Cetyl acetate

Acetoxy. See Benzoyl peroxide

9-Acetoxy-1-para-menthene. See p-Menth-1-en-9-yl acetate

(Acetoxymercuri) benzenes. See Phenylmercuric acetate

1-Acetoxy-2-methoxy-4-allylbenzene. See Eugenyl acetate

4-Acetoxy-3-methoxybenzaldehyde. See Vanillin acetate

3-(4-Acetoxy-3-methoxyphenyl) propene. See Eugenyl acetate

4-Acetoxy-3-methoxy-1-propenylbenzene. See Acetisoegenol

Acetoxyethylbenzene. See Benzyl acetate

Acetoxyphenylmercury. See Phenylmercuric acetate

1-Acetoxypropane. See Propyl acetate

2-Acetoxypropane. See Isopropyl acetate

4-[3-Acetoxypropyl] amino]-2,2-dimethyl-4-oxobutane-1,3-diyl diacetate. See Panthenyl triacetate
### Chemical Component Cross-Reference

| 4-Acetoxytoluene | See p-Cresyl acetate |
| α-Acetoxytoluene | See Benzyl acetate |
| o-Acetoxytoluene | See o-Cresyl acetate |
| p-Acetoxytoluene | See p-Cresyl acetate |
| Acetyl butyrate | See Butan-3-one-2-yl butyrate |
| Acetylacetonate | See Acetylacetone |

#### Acetylacetone

| CAS 123-54-6; EINECS/ELINCS 204-634-0 UN 2310 (DOT) |
| Synonyms: ACAC; Acetoacetone; Acetylacetonate; Acetyl 2-propanone; Diacetylmethane; Pentan-2,4-dione; 2,4-Pentanedione; Pentanedione-2,4 |
| Empirical: C₅H₈O₂ |
| Formula: CH₃COCH₂COCH₃ |
| Properties: Colorless to sl. yel. liq., pleasant odor; misc. with alcohol, benzene, ether, chloroform, acetone, glc. acetic acid, propylene glycol; insol. in water; m.w. 100.13; dens. 0.952-0.962; m.p. -23.2°C; b.p. 139°C (746 mm); flash pt. (TOC) 40.5°C |
| Toxicology: LD₅₀ (oral, rat) 1000 mg/kg, (IP, mouse) 750 mg/kg; mod. toxic by ingestion, IP, inh. routes; skin and severe eye irritant; narcotic in high doses; TSCA listed |
| Precaution: Flamm. exposed to heat or flame; incompat. with oxidizing materials |
| NFPA: Health 2, Flammability 2, Reactivity 0 |
| Storage: Light-sensitive; refrigerate |
| Uses: Synthetic flavor in pharmaceuticals; synthesis of vitamin B₆ and K; intermediate for drugs |
| Regulatory: Canada DSL |

#### Acetylated glycerin monostearate

| See Acetylated glycerin monostearate |

#### Acetylated glycerin monostearate

| Synonyms: Glycerides, cottonseed-oil, monohydrogenated, acetates |
| Definition: Acetyl ester of the monoglyceride derived from hydrogenated cottonseed oil |
| Properties: Nonionic |
| Uses: Plasticizer in pharmaceutical film coatings; taste masking agent; sustained release solid dosage forms |
| Regulatory: FDA 21CFR §172.828, 175.230 |

#### Acetylated hydrogenated cottonseed glyceride

| See Acetylated hydrogenated cottonseed glyceride |

#### Acetylated hydrogenated cottonseed glyceride

| Synonyms: Glycerides, cottonseed-oil, monohydrogenated, acetates |
| Definition: Acetyl ester of hydrogenated linolein |
| Uses: Emollient |
| Trade Names: Monestriol DM |

#### Acetylated hydrogenated linolein

| CAS 91053-41-7; EINECS/ELINCS 293-306-0 |
| Synonyms: Lanolin, hydrogenated, acetylated |
| Definition: Acetyl ester of hydrogenated linolein |
| Uses: Emollient |
| Trade Names: Lipocerina |

#### Acetylated hydrogenated soybean oil glycereides

| See Acetylated hydrogenated soybean oil glycereides |

#### Acetylated hydrogenated vegetable glycereides

| Properties: Nonionic |
| Uses: Plasticizer in pharmaceutical film coatings; taste masking agent; sustained-release solid dosage forms |

#### Acetylated lanolin

| CAS 61788-48-5; EINECS/ELINCS 262-979-2 |
| Synonyms: Lanolin, acetate, Lanolin, acetates |
| Definition: Acetyl ester of lanolin |
Chemical Component Cross-Reference

Properties: Yel. soft solid; sapon. no. 95-120; nonionic
Toxicology: TSCA listed
Uses: Superfatting agent, emollient, emulsifier, conditioner, lubricant for pharmaceuticals; film-former for creams and lotions, water-resistant films
Features: Lipid; repels water better than regular lanolin
Regulatory: Canada DSL
Trade Names: Acyan; Modulan®; Ritacetyl®

Acetylated lanolin alcohol
CAS 61788-49-6; EINECS/ELINCS 262-980-8
Synonyms: Acetic acid, esters with lanolin alcohols; Lanolin, alcohols, acetates
Definition: Acetyl ester of lanolin alcohol
Properties: Pale yel. liq.; HLB 1.0; sapon. no. 180-200; nonionic
Toxicology: TSCA listed
Uses: Surfactant, emulsifier, emollient, spreading agent for pharmaceutical creams and lotions
Regulatory: Canada DSL
Trade Names Containing: Crodalan AWS; Crodalan LA; Fancol™ ALA; Ritawax AEO; Solulan® 98

Acetylated mono- and diglycerides. See Acetylated mono- and diglycerides of fatty acids

Acetylated mono- and diglycerides of fatty acids
CAS 68990-55-6
INS472a; E472a
Synonyms: Acetic acid esters of mono- and diglycerides; Acetic acid esters of mono- and diglycerides of fatty acids; Acetoglycerides; Acetylated mono- and diglycerides; Mono- and diglycerides, acetic acid esters
Definition: Partial or complete esters of glycerin with a mixture of acetic acid and edible fat-forming fatty acids
Properties: Wh. to pale yel. oily to waxy liq.; bland taste; sol. in alcohol, acetone; disp. to sol. in edible oils and fats; insol. in water; HLB 2-3; nonionic; HLB 2.0-3.0
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Uses: Emulsifier, coating agent, stabilizer, lubricant, solvent, texturizer for pharmaceuticals; plasticizer for fats
Regulatory: FDA 21CFR §172.828; Europe listed; UK approved

Acetylated POE (10) lanolin alcohol. See Laneth-10 acetate

Acetylated sucrose distearate
cas 121684-92-2
Synonyms: α-D-Glucopyranoside, β-D-fructofuranosyl, acetate dioctadecanoate; Sucrose distearate, acetates
Definition: Acetyl ester of sucrose distearate
Properties: Nonionic
Uses: Emollient, emulsifier, wetting agent, dispersant for pharmaceuticals

Acetylbenezene. See Acetophenone

Acetylbenzoyl. See 1-Phenyl-1,2-propanedione

Acetyl butyl citrate. See Acetyl tributyl citrate

Acetyl butyryl
CAS 3848-24-6; EINECS/ELINCS 223-350-8
UN 1993; FEMA 2558
Synonyms: Acetyl-n-butyryl; 2,3-Hexanedione; Hexane-2,3-dione; Methyl propyl diketone
Classification: Nonaromatic ketone
Empirical: C₆H₁₀O₂
Formula: CH₃CH₂CH₂COCOCH₃
Properties: Yel. oily liq., powerful creamy sweet buttery odor, butter cheese taste; sol. in alcohol, propylene glycol; sl. sol. in water; m.w. 114.15; dens. 0.934 (20/4 C); b.p. 128 C; flash pt. 83 F; ref. index 1.412 (20 C)
Toxicology: LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; primary irritant; irritating to eyes, skin, respiratory system; TSCA listed
Precaution: Flammable
Uses: Synthetic flavor for pharmaceuticals
Features: Sweet flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

†=pharmaceutical grade
Acetyl-n-butyl. See Acetyl butyryl
Acetyl-L-carnitine chloride; acetylcarcinine L-form hydrochloride. See Acetyl-L-carnitine hydrochloride

Acetyl-L-carnitine hydrochloride
CAS 5080-50-2
Synonyms: Acetyl-L-carnitine chloride; acetylcarcinine L-form hydrochloride; o-Acetyl-L-carnitine hydrochloride; 1-Propanaminium, 2-(acetyloxy)-3-carboxy-N,N,N-trimethyl-chloride, (R)- (9CI)
Classification: Carnitine derivative
Empirical: C9H17NO4HCl
Properties: Colorless liq., pungent odor; misc. with benzene, chloroform, ether; m.w. 239.70; m.p. 187 C
Uses: Antioxidant in dietary supplements
Trade Names: L-Carnipure® ALC

Acetyl chloride
CAS 75-36-5; EINECS/ELINCS 200-865-6
Synonyms: Acetic acid chloride; Acetic chloride; Ethanol chloride
Empirical: C2H3ClO
Formula: CH3COCI
Properties: Colorless liq., pungent odor; misc. with benzene, chloroform, ether; m.w. 78.50; dens. 1.104; m.p. -112 C; b.p. 52 C; flash pt. 40 F; ref. index 1.398; fumes in moist air; hydrolyzed by water and alcohol
Toxicology: LD50 (oral, rat) 910 mg/kg; poison by inh.; mod. toxic by ing.; corrosive; human systemic irritant by inh.; extremely irritating to eyes; causes severe burns; TSCA listed
Precaution: DOT: Flammable; fire and explosion hazard; dec. violently by water or alcohol; may dec. during prep.
Hazardous Decomp. Prods.: Heated to decomp., emits highly toxic fumes of phosgene and Cl\(^{-}\)
NFPA: Health 3, Flammability 3, Reactivity 2
Storage: Dangerous when wet

Acetylcitrlic acid, tributyl ester. See Acetyl tributyl citrate
Acetyl o-cresol. See o-Cresyl acetate
Acetyl p-cresol. See p-Cresyl acetate
p-Acetyl cumol. See p-Isopropylacetophenone

Acetylcysteine
CAS 616-91-1; EINECS/ELINCS 210-498-3
Synonyms: L-2-Acetamido-3-mecaptopropionic acid; Acetin; N-Acetyl-L-cysteine; L-Cysteine, N-acetyl-
Classification: Organic compd.
Empirical: C5H9NO3S
Properties: M.w. 163.20; m.p. 104-110 C; pH 2.0-2.8 (1%)
Storage: Keep under argon; sensitive to air
3-Acetyl-2,5-dimethyl furan. See 3-Acetyl-2,5-dimethyl furan

Acetylene dichloride. See cis-trans-1,2-Dichloroethylene (mixed isomers)

Acetylene trichloride. See Trichloroethylene

N-Acetyl ethanolamine. See Acetamide MEA

Acetyl ether. See Acetic anhydride

Acetyl eugenol. See Eugenyl acetate

Acetyl formaldehyde. See Pyruvaldehyde

Acetylformic acid. See Pyruvic acid

Acetylformyl. See Pyrvaldehyde

Acetyl guaiacol. See Guaiacyl acetate

Acetyl hydroperoxide. See Peracetic acid

3-Acetyl-5-hydroxy-3-oxo-4-hexenoic acid Δ-lactone. See Dehydroacetic acid

Acetyl isobutyryl. See 4-Methyl-2,3-pentanedione

Acetyl isoeugenol. See Acetisoegenol

1,4-Acetyl-isopropyl benzol. See p-Isopropylacetophenone

Acetyl methionine (INCI); N-Acetylmetionine. See N-Acetyl-L-methionine

N-Acetyl-L-methionine

CAS 65-82-7; 1115-47-5; EINECS/ELINCS 200-617-7; 214-224-3

Synonyms: N-Acetyl-L-2-amino-4-(methylthio)butyric acid; Acetyl methionine (INCI); N-Acetylmetionine; Methionamine; L-Methionine, N-acetyl-

Classification: Substituted amino acid

Definition: Deriv. of the amino acid methionine; free or anhyd. form, or as sodium or potassium salts

Empirical: C7H13NO2S

Formula: CH3CH2CH2CH(NHCOCH3)COOH

Properties: Colorless or lustrous wh. cryst. or powd., odorless; sol. in water, alcohol, alkali, dil. min. acids; insol. in ether; m.w. 191.24; m.p. 104-107 C
Chemical Component Cross-Reference

**Acetyl methyl carbinol**
CAS 513-86-0; EINECS/ELINCS 208-174-1
UN 2621 (DOT); FEMA 2008

**Synonyms:** Acetoin; 2,3-Butanalone; 2-Butan-3-one; Dimethylketol; 3-Hydroxy-2-butane; 1-Hydroxymethyl methyl ketone; γ-Hydroxy-β-oxobutane

**Classification:** Aliphatic organic compd.

**Empirical:** C₄H₈O₂

**Formula:** CH₃CO(OH)CH₃

**Properties:** Colorless to sl. yel. liq. or cryst. solid; buttery odor; sol. in ethanol; sl. sol. in ether; misc. with water, alcohol, propylene glycol; insol. in veg. oil; m.w. 88.12; dens. 1.016; m.p. 15 C; b.p. 147-148 C; flash pt. 106 F; ref. index 1.417

**Toxicology:** LD₅₀ (oral, rat) > 5 g/kg; TDLo (oral, rat, 42 days) 12,600 mg/kg; LDLo (subcut., rat) 14 g/kg; mildly toxic by subcut. route; moderate skin irritant; experimental reproductive effects; TSCA listed

**Precaution:** DOT: flamm. liq.; wear protective gloves, splash-proof eye goggles; incompat. with strong oxidizers, alkalies

**Hazardous Decomp. Prods.:** Heated to decomp., emits COₓ, acrid smoke and fumes

**Storage:** Keep in original, tightly closed container; keep away from heat, sparks, open flame

**Uses:** Flavor, aroma carrier in pharmaceuticals; prep. of flavors and essences

**Features:** Buttery creamy flavor

**Regulatory:** FDA §182.60, GRAS; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI


3-Acetyl-6-methyl-1,2-pyran-2,4(3H)-dione; 3-Acetyl-6-methyl-2,4-pyridandione; 3-Acetyl-6-methylpyrandonde-2,4; 3-Acetyl-6-methyl-2H-pyran-2,4(3H)-dione. See Dehydroacetic acid
2-Acetylpyrazine
CAS 22047-25-2; EINECS/ELINCS 244-753-5
UN 1325; FEMA 3126
Synonyms: Acetyl pyrazine; Methyl pyrazinyl ketone; Methyl 2-pyrazinyl ketone; 1-Pyrazinylethanone; Pyrazin-1-ylethan-1-one; 1-Pyrazin-2-yl-ethanone
Classification: pyrazine
Empirical: C9H7N2O
Properties: Colorless to pale yel. cryst. or liq.; nutty odor; sol. in acids, alcohol, ether, water @ 230 C; m.w. 122.13; dens. 1.100-1.115 (20 C); m.p. 76-80 C; ref. index 1.530-1.540
Toxicology: Irritating to eyes, skin, respiratory system; TSCA listed
Environmental: Keep run-off water out of sewers, water sources
Precaution: Flamm. solid; wear protective gloves, splash-proof eye goggles; incompat. with strong oxidizers, acids, alkalies
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx
HMIS: Health 1, Flammability 2, Reactivity 0
Storage: Keep in original, tightly closed container; keep away from heat, sparks, open flame
Uses: Flavor for pharmaceuticals
Regulatory: FEMA GRAS; Canada DSL
Manuf./Distrib.: ABCR http://www.abcr.de;
†=pharmaceutical grade

http://www.advancedsynthesis.com; Alfa
Aesar http://www.alfa.com
Beyo Chem. Co. Ltd http://www.beyochem.com; Cargill Flavors & Fruit Systems USA http://www.flavors-fruit-systems.com; Chunking
http://www.chunkingchem.com; Citrus and Allied Essences
http://www.citrusandallied.com; De Monchy Aromatics
http://www.demonchyaromatics.com
Epochem http://www.epochem.com;
Eurolabs Ltd http://www.eurolabs.co.uk;
Fisher Scientific UK http://www.fisher.co.uk; Fleurchem
http://www.fleurchem.com; Frutarom Ltd http://www.frutarom.com
Lancaster Synthesis http://www.alfa.com;
Oxford Chems. Ltd http://www.oxfordchemicals.com;
TCI Am. http://www.tciamerica.com;
Wutong Aroma http://www.wu-tong.com

2-Acetylpyridine
CAS 1122-62-9; EINECS/ELINCS 214-355-6
FEMA 3251
Synonyms: Ethanone, 1-(2-pyridinyl)-; Methyl 2-pyridyl ketone; Popcorn pyridine; 2-pyridyl methyl ketone
Empirical: C7H7NO
Properties: Pale yel. to brn. liq.; sol. in oxygenated solvs.; m.w. 121.13; dens. 1.082; f.p. 10.7 C; b.p. 76-79 C; flash pt. 164 F; ref. index 1.524
Toxicology: Irritant; TSCA listed
Uses: Flavor and fragrance for pharmaceuticals
Features: Cornmeal with a nutty and bready nuance taste; popcorn heavy oily fatty tobacco odor
Regulatory: FEMA GRAS; Canada DSL
Epochem http://www.epochem.com
3-Acetylpyridine
CAS 350-03-8; EINECS/ELINCS 206-496-7
FEMA 3424
Synonyms: Methyl 3-pyridyl ketone; Methyl \( \beta \)-pyridyl ketone; 1-(3-Pyridenyl) ethanone; 1-Pyridin-3-yl ethanone
Classification: 6-Membered aromatic heterocyclic
Empirical: \( \text{C}_7\text{H}_7\text{NO} \)
Properties: Colorless to yel. liq.; sweet, nutty, popcorn odor; sol. in acids, alcohol, ether, water; m.w. 121.14; dens. 1.102; m.p. 13-14 C; b.p. 220 C; flash pt. 302 F; ref. index 1.5340
Toxicology: LD50 (oral, quail) 422 mg/kg, (IP, mouse) \( >4\text{ g/kg} \); highly toxic; irritating to eyes, skin, respiratory system; possible teratogen; target organs: nerves; TSCA listed
Uses: Flavor for pharmaceuticals
Features: Sweet flavor
Regulatory: FEMA GRAS; Canada DSL
Manuf./Distrib.: Advanced BioTech
http://www.adv-bio.com; Eurolabs Ltd
http://www.eurolabs.co.uk; Fluka
http://www.sigma-aldrich.com; Penta Mfg.
http://www.pentamfg.com; R.C. Treatt & Co. Ltd
http://www.rctreatt.com
Raschig; SAFC Specialties
http://www.safcspecialties.com; Sigma
http://www.sigma-aldrich.com/belgium;
Wutong Aroma http://www.wu-tong.com

p-Acetyl toluene. See 4´-Methyl acetophenone

Acetyl tributyl citrate
CAS 77-90-7; EINECS/ELINCS 201-067-0
FEMA 3080
Synonyms: Acetyl butyl citrate; Acetylcitric acid, tributyl ester; 2-(Acetyloxy)-1,2,3-propanetricarboxylic acid, tributyl ester; Acetyl tri-n-butyl citrate; ATBC; Citric acid, tributyl ester, acetate; 1,2,3-Propanetricarboxylic acid, 2-(acetyloxy)-tributyl ester; Tributyl acetyl citrate; Tri-n-butyl O-acetylcitrate; Tributyl O-

†=pharmaceutical grade
acetylcitrate; Tributyl 2-(acetyloxy)-1,2,3-propanetricarboxylate; Tributyl citrate acetate; Tri-n-butyl citrate acetate
Classification: Aliphatic ester
Definition: Ester of citric acid
Empirical: \( \text{C}_{20}\text{H}_{34}\text{O}_8 \)
Formula: \( \text{CH}_3\text{COOC}_3\text{H}_4(\text{COOC}_4\text{H}_9)_3 \)
Properties: Colorless sl. visc. liq., sweet herbaceous odor; sol. in alcohol; insol. in water; m.w. 402.49; dens. 1.14; b.p. > 300 C; flash pt. 204 C; ref. index 1.4408
Toxicology: LD50 (IP, mouse) > 4 g/kg; low toxicity by ing., skin contact, and IP routes; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Synthetic flavor in pharmaceutical orals; plasticizer for pharmaceuticals, aq. coatings, sustained-release drugs
Features: Sweet flavor
Regulatory: USP/NF compliance; FDA 21 CFR §172.515, 175.105, 175.300, 175.320, 178.3910, 181.22, 181.27; FEMA GRAS; Canada DSL
Manuf./Distrib.: Alfa Chem
http://www.alfachem1.com; Allan
http://www.allanchem.com; Ailchem Ind.
http://www.allchem.com; ChemService
http://www.chemservice.com; Chemial SpA
http://www.chemial.com
Jungbunzlauer
http://www.jungbunzlauer.com
Hakko Kogyo http://www.kyowa.co.jp
Morflex† http://www.morflex.com; Pechiney
http://www.pentamfg.com
Pfizer Int’l. http://www.pfizer.com; Reilly
Chems. SA†; SAFC Specialties
http://www.safcspecialties.com; Sanken
Synasia† http://www.synasia.com
Unitex http://www.unitexchemical.com;
Universal Preserv-A-Chem†
http://www.upichem.com

Acetyl tri-n-butyl citrate. See Acetyl tributyl citrate

Acetyl triethyl citrate
CAS 77-89-4; EINECS/ELINCS 201-066-5
Synonyms: 2-(Acetyloxy)-1,2,3-
propanetricarboxylic acid, triethyl ester; ATEC; Tricarballylic acid-β-acetoxytributyl ester; Triethyl acetylcitrate; Triethyl o-acetylcitrate

Classification: Aliphatic ester
Empirical: C_{14}H_{22}O_{8}
Formula: CH_{3}COOC_{3}H_{4}(COOC_{2}H_{5})_{3}
Properties: Colorless liq.; odorless; sl. sol. in water; m.w. 318.36; dens. 1.135 (25 C); m.p. -50 C; flash pt. 187 C
Toxicology: Moderate toxicity by IP route; mild toxicity by ing.; TSCA listed
Precaution: Combustible
Uses: Solvent for pharmaceuticals; plasticizer for aq. coatings, sustained-release drugs
Regulatory: USP/NF compliance; FDA 21CFR §175.105, 175.300, 175.320, 178.3910, 181.22, 181.27; Canada DSL
Trade Names: ATEC, NF; Citrofol® All; Uniplex 82

Acetyl triethylhexyl citrate. See Acetyl trioctyl citrate

Acetyl trioctyl citrate

CAS 144-15-0; EINECS/ELINCS 205-617-0
Synonyms: 2-(Acetoxy)-1,2,3-propanetricarboxylic acid, tris (2-ethylhexyl) ester; Acetyl triethylhexyl citrate; 1,2,3-Propanetricarboxylic acid, 2-(acetoxy)-, tris (2-ethylhexyl) ester; Tris (2-ethylhexyl) 2-(acetoxyloxy) propane-1,2,3-tricarboxylate
Classification: Aliphatic ester
Empirical: C_{32}H_{58}O_{8}
Uses: Emollient
Trade Names: Citrofol® AHII

Acetytyrosine
CAS 537-55-3; EINECS/ELINCS 208-671-3
Synonyms: (S)-2-Acetamido-3-(4-hydroxyphenyl) propanoic acid; N-Acetyl-L-tyrosine

Classification: Organic compd.
Empirical: C_{11}H_{13}NO_{4}
Properties: Wh. cryst. powd.; pract. odorless; m.w. 223.23; very sol. in water; m.p. 145-150 C
Toxicology: May be harmful by inh., ing., or skin absorp.; may cause eye/skin/mucous membrane/upper respiratory tract irritation; TSCA listed
Precaution: Incompat. with strong oxidizing agents; avoid raising dust
Hazardous Decomp. Prods.: Toxic fumes of CO, CO_{2}, NO_{x}; emits toxic fumes under fire conditions
Storage: Store in cool, dry place; keep tightly closed
Uses: Biological additive in nutritional sol'ns.; absorption enhancer; ingred. in tanning accelerator complexes
Regulatory: BP, EP compliance
Trade Names Containing: Unipertan P-24; Unipertan P-242; Unipertan P-2002

N-Acetyl-L-tyrosine. See Acetytyrosine
Acetyl valeryl. See 2,3-Heptanedione
Acetyl vanillin. See Vanillin acetate
Achillea; Achillea millefolium. See Yarrow (Achillea millefolium)
Achillea millefolium. See Yarrow (Achillea millefolium)
Achilleic acid. See Aconitic acid
Achiote. See Annatto (Bixa orellana); Annatto (Bixa orellana) extract
Acid amaranth. See Amaranth
Acid ammonium carbonate. See Ammonium bicarbonate

Acid blue 9
CAS 3844-45-9; EINECS/ELINCS 223-339-8
INS133; E133
Synonyms: Acid blue 9 disodium salt; Brilliant
### Chemical Component Cross-Reference

**Empirical:** C_{16}H_{8}N_{2}O_{8}S_{2} • 2Na

**Classification:** Triphenylmethane color

**Properties:** Growth in oral and topical drugs, buccals; biological stain

**Uses:** Colorant for pharmaceuticals, oral tablets and capsules, nylon surgical sutures, buccals; dye in functional kidney test

**Regulatory:** Europe listed; banned in Norway; FD&C Blue No. 2: FDA 21CFR §74.102, 74.1102, 81.1; FDA approved for orals, buccals; not permitted in food (EU)

**Manuf./Distrib.:**
- Aldrich† [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
- Anar Int'l. [http://www.anarchem.com](http://www.anarchem.com)
- Noveon† [http://www.noveoncoatings.com](http://www.noveoncoatings.com)
- Ruger† [http://www.rugerchemical.com](http://www.rugerchemical.com)
- Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)
- Spectrum Quality Prods. [http://www.spectrumchemical.com](http://www.spectrumchemical.com)
- TKB Trading [http://www.wholesalecolors.com](http://www.wholesalecolors.com)

**See also** FD&C Blue No. 1

**Acid blue 74**

**CAS:** 860-22-0; EINECS/ELINCS: 212-728-8

**Synonyms:** Blue X; Ceruleinum; CI 73015; 2-(1,3-Dihydro-3-oxo-5-sulfo-2H-indol-2-ylidene)-2,3-dihydro-3-oxo-1H-indole-5-sulfonic acid disodium salt; Disodium indigo-5,5-disulfonate; FD&C Blue No. 2; Food blue 1; Indigo carmine; Indigo

**†=pharmaceutical grade**

- Carmine disodium salt: 5,5´-Indigotin disulfonic acid; Indigotin disodium salt; Sodium 5,5´-indigotidisulfonate; Soluble indigo

**Classification:** Indigoid color

**Definition:** Disodium salt of 5,5´-indigotin disulfonic acid

**Empirical:** C_{16}H_{8}N_{2}O_{8}S_{2} • 2Na

**Properties:** Blue-brn. to red-brn. powd.; sol. in water, conc. sulfuric acid; sl. sol. in alcohol; m.w. 466.36

**Toxicology:** LD_{50} (oral, rat) 2 g/kg, (IV, rat) 93 mg/kg; poison by IV route; mod. toxic by ing., subcut. routes; may cause brain tumors, asthma, rashes, hyperactivity; IV use may produce severe headache, acute pulmonary edema with cardiac arrest, hypertension; questionable carcinogen; experimental neoplastigen; mutagenic data; TSCA listed

**Precaution:** Sensitive to oxidizing agents

**Hazardous Decomp. Prods.:** Heated to decomp., emits very toxic fumes of NO_{x}, Na_{2}O, and SO_{x}

**Uses:** Colorant in oral and topical drugs, buccals; biological stain

**Storage:** Light-sensitive

**Regulatory:** Europe listed; banned in Norway; FD&C Blue No. 2: FDA 21CFR §74.102, 74.1102, 81.1; FDA approved for orals, buccals; not permitted in food (EU)

**Manuf./Distrib.:**
- AB R Lundberg [http://www.norfoods.se/lundberg](http://www.norfoods.se/lundberg)
- Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
- Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
- Noveon† [http://www.noveoncoatings.com](http://www.noveoncoatings.com)
- Ruger† [http://www.rugerchemical.com](http://www.rugerchemical.com)
- Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)
- Spectrum Quality Prods. [http://www.spectrumchemical.com](http://www.spectrumchemical.com)

**See also** CI 73015; FD&C Blue No. 2

**Acid blue 9 aluminum lake.** See FD&C Blue No. 1 Aluminum Lake

**Acid blue 9 ammonium salt.** See D&C Blue No. 4

**Acid blue 9 disodium salt.** See FD&C Blue No. 1; Acid blue 9

**Acid calcium phosphate.** See Calcium
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<th>Chemical Component Cross-Reference</th>
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<td>Acridium. See D&amp;C Red No. 33</td>
</tr>
<tr>
<td>Acid green 25. See D&amp;C Green No. 5; Cl 61570</td>
</tr>
<tr>
<td>Acid leather orange extra. See D&amp;C Orange No. 4; Acid orange 7</td>
</tr>
<tr>
<td>Acid orange 7</td>
</tr>
<tr>
<td>CAS 633-96-5; EINECS/ELINCS 211-199-0</td>
</tr>
<tr>
<td>Synonyms: Acid leather orange extra; Acid orange 7 monosodium salt; Benzenesulfonic acid, 4-((2-hydroxy-1-naphthalenyl) azo)-, monosodium salt; Betanaphthol orange; Cl 15510; D&amp;C Orange No. 4; 4-[(2-Hydroxy-1-naphthalenyl) azo] benzenesulfonic acid monosodium salt; 4-[(2-Hydroxy-1-naphthylazo) benzenesulfonic acid sodium salt; p-[(2-Hydroxy-1-naphthyl) azo] benzenesulfonic acid sodium salt; Naphthalene Orange G; Naphthol orange; β-Naphthol orange; β-Naphthyl orange; Orange II; Persian orange; Sodium 4-[(2-hydroxy-1-naphthyl) azo] benzenesulfonate</td>
</tr>
<tr>
<td>Classification: Monoazo color</td>
</tr>
<tr>
<td>Empirical: C_{16}H_{11}N_{2}NaO_{4}S</td>
</tr>
<tr>
<td>Formula: C_{16}H_{11}N_{2}NaO_{4}S • Na</td>
</tr>
<tr>
<td>Properties: Orange to red crystal powd.; odorless; sol. in water; m.w. 350.32</td>
</tr>
<tr>
<td>Toxicology: TDLo (oral, male rat, 43 wks) 150 g/kg; irritating to eyes, skin, respiratory system; may cause liver and blood changes; experimental reproductive effects; mutagenic data; TSCA listed</td>
</tr>
<tr>
<td>Precaution: Avoid breathing dust, vapor, mist, or gas; avoid contact with skin and eyes; avoid strong oxidizing agents; Wear safety goggles, protective gloves and clothing to avoid contact with skin</td>
</tr>
<tr>
<td>Hazardous Decomp. Prods.: Heated to decomp., emits toxic vapors of NOx and SOx</td>
</tr>
<tr>
<td>HMIS: Health 2, Flammability 1, Reactivity 0</td>
</tr>
<tr>
<td>Storage: Store in a tightly closed container in cool, dry place</td>
</tr>
<tr>
<td>Uses: Colorant for external pharmaceuticals; biological stain</td>
</tr>
<tr>
<td>Regulatory: D&amp;C Orange No. 4: FDA 21CFR §74.1254, 74.2254, 82.1254; permanently listed</td>
</tr>
<tr>
<td>Manuf./Distrib.: Acros Org.</td>
</tr>
<tr>
<td>†=pharmaceutical grade</td>
</tr>
<tr>
<td><a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a>; Fluka</td>
</tr>
<tr>
<td>See also D&amp;C Orange No. 4</td>
</tr>
<tr>
<td>Acid orange 10</td>
</tr>
<tr>
<td>CAS 1936-15-8; EINECS/ELINCS 217-705-6</td>
</tr>
<tr>
<td>Synonyms: Acid orange 10, disodium salt; Cl 16230; D&amp;C Orange No. 3; Food orange 4; 7-Hydroxy-8-(phenylazo)-1,3-naphthalenedisulfonic acid, disodium salt; 1,3-Naphthalenedisulfonic acid, 7-hydroxy-8-(phenylazo)-, disodium salt; Orange G; 1-Phenylazo-2-naphthol-6,8-disulfonic acid, disodium salt; Wool orange G</td>
</tr>
<tr>
<td>Classification: Azobenzene</td>
</tr>
<tr>
<td>Empirical: C_{16}H_{10}N_{2}Na_{2}O_{7}S_{2}</td>
</tr>
<tr>
<td>Properties: Orange microcryst. solid; sl. odor; sol. 5-10 g/100 ml water (23.5 C); sol. &lt; 1 mg/ml in DMSO, 95% ethanol, acetone; sl. sol. in Cellosolve; insol. in org. solvs.; m.w. 452.37; vapor pressure negligible; m.p. 300-375 C (dec.)</td>
</tr>
<tr>
<td>Toxicology: ACGIH 10 mg/m³ total dust (nuisance particulates); TDLo (oral, rat, 15 wks continuous) 26,250 mg/kg; irritating to eyes, skin, respiratory system; may cause changes in liver/spleen wt., normocytic anemia; tumorigen; reproductive effector; mutagenic data but inconclusive; TSCA listed</td>
</tr>
<tr>
<td>Precaution: Probably combustible; incompat. with oxidizing agents; becomes redder and more dull when mixed with copper; almost destroyed when mixed with iron</td>
</tr>
<tr>
<td>Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of COx, NOx, SOx, disodium oxide; burning will produce oxides of carbon, nitrogen and sulfur</td>
</tr>
<tr>
<td>Storage: Store in cool, dry place; keep containers tightly closed</td>
</tr>
<tr>
<td>Uses: Colorant in pharmaceuticals</td>
</tr>
<tr>
<td>Regulatory: Canada DSL</td>
</tr>
<tr>
<td>Manuf./Distrib.: Acros Org.</td>
</tr>
<tr>
<td>†=pharmaceutical grade</td>
</tr>
<tr>
<td><a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a>; Anar Int'l.</td>
</tr>
<tr>
<td>See also D&amp;C Orange No. 4</td>
</tr>
</tbody>
</table>
Acid orange 11. See D&C Orange No. 5
Acid orange 24. See D&C Brown No. 1
Acid orange 10, disodium salt. See Acid orange 10
Acid orange 7 monosodium salt. See D&C Orange No. 4; Acid orange 7
Acid potassium carbonate. See Potassium bicarbonate
Acid potassium tartrate. See Potassium acid tartrate
Acid red 18
CAS 2611-82-7; EINECS/ELINCS 220-036-2
INS124; E124
Synonyms: CI 16255; Coccine; Coccin red; Cochineal; Cochineal Red A; Food red 7; 7-Hydroxy-8-[(4-sulfo-1-naphthalenyl) azo]-1,3-naphthalenedisulfonic acid, trisodium salt; 1,3-Naphthalenedisulfonic acid, 7-hydroxy-8-[(4-sulfo-1-naphthalenyl) azo]-1,3-Naphthalenedisulfonic acid, disodium salt; 7-Hydroxy-8-[(4-sulfo-1-naphthalenyl) azo]-1,3-Naphthalenedisulfonic acid, disodium salt; New coccine; Ponceau 4R; 1-(4-Sulfo-1-naphthylazo)-2-naphthol-6,8-disulfonic acid, disodium salt; SX purple; Trisodium 1-(1-naphthylazo)-2-hydroxynaphthalene-4´,6,8-trisulfonate
Classification: Monoazo color; azobenzene
Empirical: C₁₈H₁₄N₂Na₃O₇S₂
Properties: M.w. 607.51
Toxicology: LD₅₀ (oral, rat) > 8 g/kg, (IP, rat) 600 mg/kg, (IV, rat) 1 g/kg; may cause somnolence, convulsions, coma, changes in tubules, acute renal failure, blood changes, enzyme inhibition; tumorigen; mutagen; TSCA listed
Precaution: Avoid strong oxidants
Hazardous Decomp. Prods.: Irritating and toxic fumes and gases
Storage: Store in cool, dry place; keep container closed when not in use
Uses: Colorant
Manuf./Distrib.: AB R Lundberg

Fuerst Day Lawson http://www.fdl.co.uk; Pangaea Sciences http://www.pangaeasciences.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names Containing: Kaydol®

Acid red 26
CAS 3761-53-3; EINECS/ELINCS 223-178-3
Synonyms: Acid red 26, disodium salt; CI 16150; D&C Red No. 5; 4-(1,4-Dimethylphenyl) azo)-3-hydroxy-2,7-naphthalenedisulfonic acid, disodium salt; Disodium (2,4-dimethylphenylazo)-2-hydroxynaphthalene-3,6-disulfonate; Food Red 5; 3-Hydroxy-4-(2,4-xyllylazo)-3,7-naphthalenedisulfonic acid, disodium salt; 2,7-Naphthalenedisulfonic acid, 3-hydroxy-4-(2,4-xyllylazo)-, disodium salt; Ponceau MX; Ponceau red; Xylidine ponceau; Xylidine red; 1-Xyllylazo-2-naphthol-3,6-disulfonic acid, disodium salt; 1-(2,4-Xyllylazo)-2-naphthol-3,6-disulfonic acid, disodium salt
Classification: Azobenzene
Empirical: C₁₈H₁₄N₂Na₂O₇S₂
Properties: Dk. red cryst.; sol. (mg/ml): 1-10 mg water (20 C), < 1 mg in DMSO, 95% ethanol, methanol, acetone, toluene (20 C); very sl. sol. in ether; insol. in oil, org. solvs.; m.w. 480.44; m.p. > 300 C
Toxicology: LD₅₀ (oral, rat) 23,160 mg/kg, (IP, rat) > 1 g/kg, (IV, mouse) 1530 mg/kg; harmful by inh., skin contact; danger of cumulative effects; may cause somnolence, muscle weakness, ataxia, convulsions, antipsychotic behavior, changes in liver/kidney/spleen wt.; suspected carcinogen; tumorigen; mutagen; TSCA listed
Precaution: Probably combustible; incompat. with strong oxidizing agents
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of CO, CO₂, NOₓ, SOₓ
Storage: Store @ ambient temps.
Uses: Colorant in pharmaceuticals
Regulatory: Canada DSL

Acid red 27 (INCI). See Amaranth
Acid red 33. See CI 17200; D&C Red No. 33
Acid red 51
CAS 16423-68-0; EINECS/ELINCS 240-474-8
INS127; E127
Synonyms: 9-(o-Carboxyphenyl)-6-hydroxy-2,4,5,7-tetraiodo-3-isoxanthone; CI 45430;
Chemical Component Cross-Reference

3,6'-Dihydroxy-2',4',5',7'-tetrabromodiphenyl [2H]-fluorene-3-one disodium salt; Erythrocin; Erythrosin B; Erythrosine; FD&C Red No. 3; Fluorescein, 2',4',5',7'-tetrabromo-, disodium salt; Food red 14; Iodoesoin; Solvent red 140; Spiro [isobenzofuran-1(3H),9'-[9H] xanthene]-3-one, 3',6'-dihydroxy-2',4',5',7'-tetrabromo-, disodium salt; 2',4',5',7'-Tetraiodofluorescein disodium salt; Tetraiodofluorescein sodium salt

Classification: Xanthene color; azobenzene

Definition: Disodium salt of 2',4',5',7'-tetrabromofluorescein

Empirical: C_{20}H_{6}I_{4}Na_{2}O_{5}

Formula: C_{20}H_{6}I_{4}Na_{2}O_{5} • 2Na

Properties: Bluish pink to brown powd. or gran.; sol. (oz/gal): 30 oz glycerin, 28 oz propylene glycol, 12 oz dist. water, 2 oz 95% ethanol; m.w. 879.84

Toxicology: LD_{50} (oral, rat) 1840 mg/kg, (IP, rat) 300 mg/kg, (IV, rat) 200 mg/kg; by IV route; mod. toxic by ing.; harmful if swallowed; may cause convulsions, GI changes, changes in thyroid wt. and blood (leukocyte count), thyroid tumors, chromosomal damage, asthma, rashes, hyperactivity; tumorigen; neoplastigen; reproductive effector; mutagen; human mutagenic data; TSCA listed

Precaution: Photosensitizer

Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of Na_{2}O and I\(^{-}\)

Storage: Hygroscopic

Uses: Colorant in ingested pharmaceuticals; biological stain; as plasma stain for nerve cells (with methylene blue); as a phosphorescent triple probe for studying diffusion of membrane proteins

Regulatory: FD&C Red No. 3: FDA 21CFR §74.303, 74.1303; cosmetic use terminated

Manuf./Distrib.: Acros Org.

http://www.acros.com; Aldrich†

http://www.sigma-aldrich.com; Dudley

http://www.dudley-chem.com; Fluka

http://www.sigma-aldrich.com; ProSciTech

http://www.proscitech.com.au

Acid red 51. See FD&C Red No. 3

Acid red 87

CAS 548-26-5; 17372-87-1; EINECS/ELINCS 208-953-6; 241-409-6

Synonyms: Bromofluoresceic acid; CI 45380; 2-[2,4,5,7-tetrabromo-3-oxoanthene-9-yl]benzoate; Eosin disodium; Eosine; Eosine G; Eosin Y; Eosin YS; Spiro [isobenzofuran-1(3H),9'-[9H] xanthene]-3-one, 2',4',5',7'-tetrabromo-3',6'-dihydroxy-, disodium salt; 2',4',5',7'-Tetrabromofluorescein disodium salt; Tetraiodofluorescein sodium salt

Classification: Indible xanthene color

Definition: Disodium salt of eosin

Empirical: C_{20}H_{8}Br_{4}Na_{2}O_{5}

Formula: C_{20}H_{8}Br_{4}Na_{2}O_{5} • 2Na

Properties: Red cryst. with bluish tinge or brownish red powd.; freely sol. in water; m.w. 693.90; dens. 1.015

Toxicology: LD_{50} (IV, mouse) 550 mg/kg; tumorigen; mutagen; TSCA listed

Uses: Colorant in pharmaceuticals, oral capsules and tablets; biological stain

Regulatory: D&C Red No. 22: FDA 21CFR §74.1322, 74.2122, 82.1322; FDA approved for orals; permanently listed; Canada DSL §74.303, 74.1303; cosmetic use terminated

Manuf./Distrib.: AMRESCO

http://www.amresco-inc.com; Aldrich†

http://www.sigma-aldrich.com; Fluka

http://www.sigma-aldrich.com; Noveon†

http://www.carbopol.com;

http://www.noveoncoatings.com; RTD Hallstar http://www.rtdhallstar.com

Ruger† http://www.rugerchemical.com

Sigma http://www.sigma-aldrich.com/belgium

See also D&C Red No. 22

Acid red 92. See CI 45410; D&C Red No. 28

Acid red 95

CAS 33239-19-9; EINECS/ELINCS 251-419-2

Synonyms: 9-(o-Carboxyphenyl)-3,6-dihydroxy-4,5-diiodoxanthene-9-spiro-1H-isobenzofuran-3'-one disodium salt; CI 45425; D&C Orange No. 11; 3,6-Dihydroxy-4,5-diidoanthene-9-spiro-1H-isobenzofuran-3'-one disodium salt; 3',6'-Dihydroxy-4',5'-diiodospiro [isobenzofuran-1(3H),9'-[9H] xanthene]-3-one, disodium salt; Erythrosine yellowish NA; Spiro [isobenzofuran-1(3H),9'-[9H] xanthene]-3-one, 3',6'-dihydroxy-4',5'-diido-, disodium salt

Classification: Xanthene color

Definition: Disodium salt of eosin

Empirical: C_{20}H_{10}I_{2}O_{5} • 2Na

Formula: C_{20}H_{10}I_{2}O_{5} • 2Na

Properties: M.w. 630.08

Toxicology: TSCA listed

Uses: Colorant in pharmaceuticals

†=pharmaceutical grade

D&C Red No. 22: Disodium 2-(2,4,5,7-tetrabromo-6-oxido-3-oxoxanthene-9-yl) benzoate; Eosin disodium; Eosine; Eosine G; Eosin Y; Eosin YS; Spiro [isobenzofuran-1(3H),9'-[9H] xanthene]-3-one, 2',4',5',7'-tetrabromo-3',6'-dihydroxy-, disodium salt; 2',4',5',7'-Tetrabromofluorescein disodium salt; Tetraiodofluorescein sodium salt

Classification: Indible xanthene color

Definition: Disodium salt of eosin

Empirical: C_{20}H_{8}Br_{4}Na_{2}O_{5}

Formula: C_{20}H_{8}Br_{4}Na_{2}O_{5} • 2Na

Properties: Red cryst. with bluish tinge or brownish red powd.; freely sol. in water; m.w. 693.90; dens. 1.015

Toxicology: LD_{50} (IV, mouse) 550 mg/kg; tumorigen; mutagen; TSCA listed

Uses: Colorant in pharmaceuticals, oral capsules and tablets; biological stain

Regulatory: D&C Red No. 22: FDA 21CFR §74.1322, 74.2122, 82.1322; FDA approved for orals; permanently listed; Canada DSL §74.303, 74.1303; cosmetic use terminated

Manuf./Distrib.: AMRESCO

http://www.amresco-inc.com; Aldrich†

http://www.sigma-aldrich.com; Fluka

http://www.sigma-aldrich.com; Noveon†

http://www.carbopol.com;

http://www.noveoncoatings.com; RTD Hallstar http://www.rtdhallstar.com

Ruger† http://www.rugerchemical.com

Sigma http://www.sigma-aldrich.com/belgium

See also D&C Red No. 22

Acid red 92. See CI 45410; D&C Red No. 28

Acid red 95

CAS 33239-19-9; EINECS/ELINCS 251-419-2

Synonyms: 9-(o-Carboxyphenyl)-3,6-dihydroxy-4,5-diidoanthene-9-spiro-1H-isobenzofuran-3'-one disodium salt; CI 45425; D&C Orange No. 11; 3,6-Dihydroxy-4,5-diidoanthene-9-spiro-1H-isobenzofuran-3'-one disodium salt; 3',6'-Dihydroxy-4',5'-diiodospiro [isobenzofuran-1(3H),9'-[9H] xanthene]-3-one, disodium salt; Erythrosine yellowish NA; Spiro [isobenzofuran-1(3H),9'-[9H] xanthene]-3-one, 3',6'-dihydroxy-4',5'-diido-, disodium salt

Classification: Xanthene color

Definition: Disodium salt of eosin

Empirical: C_{20}H_{10}I_{2}O_{5} • 2Na

Formula: C_{20}H_{10}I_{2}O_{5} • 2Na

Properties: M.w. 630.08

Toxicology: TSCA listed

Uses: Colorant in pharmaceuticals
Acid red 95. See D&C Orange No. 11
Acid red 26, disodium salt. See Acid red 26
Acid red 27, trisodium salt. See Amaranth
Acids, coconut, hydrogenated. See
Hydrogenated coconut acid
Acids, lanolin. See Lanolin acid
Acids, menhaden, hydrogenated. See
Hydrogenated menhaden acid
Acid sodium phosphate. See Sodium phosphate
Acid sodium sulfate. See Sodium bisulfate
Acid-spar. See Calcium fluoride
Acids, soy. See Soy acid
Acids, tallow. See Tallow acid
Acid violet 49
CAS 1694-09-3
Synonyms: Acid violet 49, sodium salt;
Ammonium, (4-(p-(dimethylamino)-α-(p-
ethyl (m-sulfobenzyl) amino) phenyl)
benzylidene)-2,5-cyclohexadien-1-ylidene)
ethyl (m-sulfobenzyl), hydroxide, inner
salt, sodium salt; Benzenemethanaminium,
N-[4-[4-[4-(dimethylamino) phenyl] [4-ethyl
[[3-sulfophenyl] methyl] amino] phenyl]
methylene]-2,5-cyclohexadien-1-ylidene]-N-
ethyl-3-sulfob-, inner salt, sodium salt;
Benzy! violet; Benzyl violet 4B; CI 42640;
Coomassie violet; D&C Violet No. 1; FD&C
Violet No. 1; Food violet 2; Violet 2; Wool
violet
Empirical: C_{39}H_{41}N_{3}NaO_{6}S_{2}
Properties: Blk. fine powd.; sol. (mg/ml): < 1 mg
in water, DMSO, 95% ethanol, methanol,
acetone, toluene (20 C); insol. in veg. oils;
m.w. 734.94; m.p. 245-250 C (dec.)
Toxicology: TDLo (oral, rat, 28 wks
continuous) 498 g/kg; experimental
carcinogen, tumorigen; mutagenic data;
TSCA listed
Precaution: Probably combustible
Hazardous Decomp. Prods.: Heated to
decomp., emits very toxic fumes of NOx,
ammonia, sodium oxide, SOx
Storage: Store @ ambient temps.
Uses: Colorant for pharmaceuticals;
biological stain
Regulatory: FDA/USDA prohibited; Canada DSL
Manuf./Distrib.: Aakash Chems. & Dyestuffs
http://www.aakashchemicals.com; Albanil
†=pharmaceutical grade
Indo Colchem http://www.indocol.com;
Leadertech Colors http://www.leadertechcolors.com; Rite Ind.
Spectra Colors http://www.spectracolors.com
Acid violet 49, sodium salt. See Acid violet 49
Acid yellow 1. See CI 10316; Ext. D&C Yellow
No. 7
Acid yellow 3
CAS 8004-92-0; EINECS/ELINCS 305-897-5
INS104; E104
Synonyms: CI 47005; D&C Yellow No. 10: Dye
quinoline yellow; FD&C Yellow No. 10; Food
yellow 3; Food yellow 13; 1H-Indene-1,3(2H)-dione, 2-(2-quinoliny1)-, sulfonated,
sodium salts; Quinoline yellow; 2-(2-
Quinolino)-1,3-indandione disulfonic acid
disodium salt
Classification: Quinoline color
Definition: Mixt. of the disodium salts of the
mono- and disulfonic acids of 2-(2-quinolino)-
1H-indene-1,3(2H)-dione
Empirical: C_{18}H_{12}N_{2}Na_{2}O_{6}S_{2}
Properties: Bright greenish yel.; sol. in water; sl.
sol. in ethanol; pract. insol. in veg. oils; m.w.
477.37
Toxicology: LD50 (oral, rat) > 2 g/kg; low
toxicity by ing.; irritant; potential allergen;
mutagen; TSCA listed
Hazardous Decomp. Prods.: Heated to
decomp., emits toxic vapors of NOx and
SOx
Uses: Colorant for pharmaceuticals
Regulatory: D&C Yellow No. 10: FDA 21CFR
§74.2710, 74.3710, 82.1710; FDA approved
for dentals, implants, orals, rectals,
sublicuals, topical
Manuf./Distrib.: AB R Lundberg
http://www.norfoods.se/lundberg; Aldrich†
http://www.sigma-aldrich.com; Fluka
http://www.sigma-aldrich.com; Noveon
http://www.carbopol.com;
http://www.noveoncoatings.com; Ruger
http://www.rugerchemical.com
Sigma http://www.sigma-
aldrich.com/belgium; Spectrum Quality
Prods. http://www.spectrumchemical.com;
TKB Trading http://www.wholesalecolors.com
See also CI 47005; D&C Yellow No. 10
Acid yellow 23 (INCI). See FD&C Yellow No.
5; Tartrazine
Acid yellow 73. See D&C Yellow No. 7
Acid yellow 23 aluminum lake (INCI). See FD&C Yellow No. 5 aluminum lake
Acid yellow 73 sodium salt (INCI). See D&C Yellow No. 8; Fluorescein sodium
Acid yellow 23 trisodium salt. See FD&C Yellow No. 5; Tartrazine
Acimention. See DL-Methionine
ACN. See Acetonitrile
Aconitic acid
CAS 499-12-7; EINECS/ELINCS 207-877-0
FEMA 2010
Synonyms: Achilleic acid; Citric acid; Equisetic acid; 1-Propene-1,2,3-tricarboxylic acid; 1,2,3-Propenetricarboxylic acid
Definition: Occurs in leaves and tubers of Aconitum napellus and other Ranunculaceae
Empirical: C6H6O6
Formula: C3H3(COOH)3
Properties: Wh. or ylsh. cryst. solid; sol. in water, alcohol; sl. sol. in ether; m.w. 174.11; m.p. > 195 C; dec. 198-199 C
Toxicology: LD50 (IV, mouse) 180 mg/kg; poison by IV route; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Uses: Natural flavor in pharmaceuticals
Regulatory: FDA 21CFR §184.1007, 184.2010, 582.60, GRAS; FEMA GRAS; Canada DSL
Manuf./Distrib.: Aesar
http://www.alfa.com; Biosynth Int'l.
http://www.biosynth.com; CTC Orgs.; Degussa AG/Health & Nutrition; SAFC
Specialties http://www.saftcspecialties.com
Acorus calamus; Acorus calamus oil. See Calamus oil
Acoraldehyde. See Acrolein
Acrolein
CAS 107-02-8; EINECS/ELINCS 203-453-4
UN 1092 (DOT); UN 2607
Synonyms: Acraldehyde; Acrylaldehyde; Acrylic aldehyde; Allyl aldehyde; Ethylene aldehyde; Prop-2-enal; 2-Propenal; Propylene aldehyde
Classification: Acrylic aldehyde
Empirical: C3H4O
Formula: CH2:CHCHO
Properties: Colorless to yel. liq.; pungent, burnt sweet odor; sol. in water, ethanol, diethyl ether, petrol. ether, acetone, oil; m.w. 56.06; dens. 0.8389 (20 C); m.p. -88 C; b.p. 52.5 C
Health 4, Flammability 3, Reactivity 3
Regulatory: FDA 21CFR §172.892, 176.300; SARA reportable; HAP; Canada DSL
Manuf./Distrib.: Atofina UK http://www1.arkemagroup.com/uk/gb/f_elf_2.cfm
Dow http://www.dow.com; Fisher Scientific UK http://www.fisher.co.uk; Fluka
http://www.sigma-aldrich.com
LKT Labs http://www.lktlabs.com; Sigma http://www.sigma-aldrich.com/belgium;
Acrylaldehyde. See Acrolein
Acrylamide homopolymer; Acrylamide, polymers. See Polyacrylamide
Acrylamide/sodium acrylate copolymer
CAS 25085-02-3
Synonyms: Acrylamide/sodium acrylate resin; Poly (acrylamide-sodium acrylate); 2-Propenamide, polymer with 2-propenoic acid, sodium salt; 2-Propenoic acid, sodium salt, polymer with 2-propenamide
Definition: Polymer of acrylamide and sodium acrylate monomers
Formula: (C3H5NO • C3H4O2 • Na)x
Toxicology: TSCA listed
Uses: Thickener, film-former for pharmaceuticals
Regulatory: FDA 21CFR §172.710, 173.5,
Acrylamide/sodium acrylate resin. See Acrylamide/sodium acrylate copolymer
2-Acrylamido-2-methylpropane sulfonic acid sodium salt. See Sodium 2-acrylamido-2-methylpropanesulfonate

Acrylates/C10-30 alkyl acrylate crosspolymer
Definition: C10-30 alkyl acrylates and monomer(s) of acrylic or methacrylic acid or esters crosslinked with an allyl ether of sucrose or pentaerythritol
Properties: Anionic
Uses: Emulsifier, rheology control agent, film-former, stabilizer, moisturizer, thickener, gellant for topical pharmaceuticals, low-irritancy creams and lotions, topical gels, skin care prods.; emulsion stabilizer
Trade Names: Carbopol® 1342 NF; Carbopol® 1382
Trade Names Containing: Aloe Vera Gel Thickened

Acrylates copolymer
CAS 25133-97-5; 28572-98-7
Synonyms: Acrylic/acrylate copolymer; Acrylic copolymer; 2-Propenoic acid, 2-methyl-; polymer with ethyl 2-propenoate and methyl 2-methyl-2-propenoate
Definition: Polymers of two or more monomers consisting of acrylic acid, methacrylic acid, or their simple esters
Properties: Anionic
Uses: Film-former
Regulatory: FDA 21CFR §175.105, 175.210, 175.300, 175.320, 176.170, 176.180, 177.1010, 178.3790; Canada DSL

†=pharmaceutical grade
Thibaut & Walker; Tri-Iso http://www.triiso.com
Trade Names: Eastacryl 30D

Acrylates copolymer. See Methacrylic acid/ethyl acrylate copolymer

Acrylates/ vinyl isodecanoate crosspolymer
Definition: Copolymer of ester of vinyl isodecanoate and one or more monomers of acrylic acid, methacrylic acid, or their esters crosslinked with polyalkenyl polyether
Properties: Anionic
Uses: Film-former
Trade Names: Pionier® NP 37 S

Acrylic. See Acrylic resin

Acrylic acid/acylonitrogens copolymer
CAS 61788-40-7; 136505-00-5; 136505-01-6
Synonyms: 2-Propenenitrile, homopolymer, hydrolyzed, block, reaction prods. with N,N-dimethyl-1,3-propanediamine
Definition: Copolymer formed by the controlled hydrolysis of polyacrylonitrile
Uses: Emulsifier, thickener, gellant, film-former for pharmaceuticals

Acrylic acid, ethyl ester. See Ethyl acrylate
Acrylic acid homopolymer. See Polyacrylic acid

Acrylic acid, 2-methyl-. See Methacrylic acid
Acrylic acid methyl ester. See Methyl acrylate
Acrylic acid 6-methylheptyl ester. See Isooctyl acrylate

Acrylic acid, 2-methyl-, methyl ester. See Methyl methacrylate
Acrylic acid polymer; Acrylic acid, polymers. See Polyacrylic acid
Acrylic acid, polymer with sucrose-polyallyl ether. See Carbomer
Acrylic acid resin. See Polyacrylic acid
Acrylic/acrylate copolymer. See Acrylates copolymer
Chemical Component Cross-Reference

Acrylic aldehyde. See Acrolein
Acrylic copolymer. See Acrylates copolymer
Acrylic polymer; Acrylic polymer resins. See Polyacrylic acid

Acrylic resin
Synonyms: Acrylic; Acrylic fiber; Acrylic polymer; Acrylic sheet
Definition: Thermoplastic polymer or copolymer of acrylic acid, methacrylic acid, esters of these acids, or acrylonitrile
Properties: Varies from hard to brittle solids to fibrous elastomeric structures, to viscous liqs.; able to transmit light for sheet and rod forms
Toxicology: Dust may cause skin, eye, and respiratory tract irritation; TSCA listed
Precaution: Combustible
Uses: Excipient for pharmaceutical tablets, coatings
Regulatory: FDA 21CFR §177.1010
Manuf./Distrib.: Air Prods./Polymers
http://www.airproducts.com; Akzo Nobel
http://www.akzonobel.com; Anderson Development
http://www.andersondevelopment.com; Ashland http://www.ashchem.com
Cook Composites & Polymers
http://www.ccponline.com; Cyro Ind.
http://www.cyro.com; Cytec Conap
http://www.conap.com; Cytec Ind.
http://www.cytec.com
Deeks http://www.deeksandco.com; Dow
http://www.dow.com; DuPont
http://www.frpservices.com; H.B. Fuller
http://www.hbfuller.com; Kaneka
http://www.kaneka.co.jp
King Ind. http://www.kingindustries.com;
http://www.morton.com;
http://www.rohmhaas.com
Nat’l. Starch & Chem.
http://www.nationalstarch.com; Noveon
http://www.carbopol.com;
http://www.noveoncoatings.com; Plaskolite
http://www.plaskolite.com
Reichhold http://www.reichhold.com;
Rohm & Haas http://www.rohmhaas.com;
†=pharmaceutical grade
http://www.acusol.com; Showa
Highpolymer http://www.shp.co.jp; Thibaut & Walker; Toyota Tsusho Am.
http://www.taialmerica.com
Trade Names: Eudragit® E 100; Eudragit® E PO; Eudragit® FS 30 D
Trade Names Containing: Eudragit® E 12.5
See also Polyacrylic acid

Acrylic sheet. See Acrylic resin

Acrylonitrile copolymer
Synonyms: Propenenitrile copolymer; Vinyl cyanide copolymer
Uses: Porous membrane for dialysis
Regulatory: FDA 21CFR §175.105

Actin hydrolysate. See Hydrolyzed actin
Activated alumina; Activated aluminum oxide. See Alumina
Activated attapulgite. See Attapulgite
Activated carbon. See Carbon, activated
Activated charcoal. See Charcoal, activated
Active amyl alcohol. See 2-Methyl-1-butanol
Active carbon. See Carbon, activated
Active primary amyl alcohol. See 2-Methyl-1-butanol
Active valeric acid. See 2-Methylbutyric acid
N-(Aclycolaminoformulmethyl) pyridinium chloride. See Lapyrium chloride
Adenosine, 5´-(tetrahydrogen triphosphate). See Adenosine triphosphate

Adenosine triphosphate
CAS 56-65-5; EINECS/ELINCS 200-283-2
Synonyms: Adenosine, 5´-(tetrahydrogen triphosphate); Adenosine-5´-triphosphate; Adenosine-5´-triphosphoric acid; Adenylpyrophosphoric acid; 9-β-d-Arabinoofuranosyladenine 5´-triphosphate; ATP; Triphosphoric acid adenosine ester
Classification: Organic compd.
Empirical: C₁₀H₁₆N₅O₁₃P₃
Properties: Solid; sol. in water; m.w. 507.22; m.p. 143-145 C (dec.)
Toxicology: LD₅₀ (IP, rat) 200 mg/kg; poison by IP route; human mutation data reported; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of POₓ and NOₓ
Uses: Biochemical research; energy carrier in plants and animals; energy source within the cell for biological processes such as photosynthesis, muscle contraction, and the synthesis of proteins; neurotransmitter; ingred. in tanning accelerator complexes
Adenosine-5′-triphosphate; Adenosine-5′-triphosphoric acid; Adenylypyrophosphoric acid. See Adenosine triphosphate

Adips lanae. See Lanolin

Adips solidus. See Lanolin wax

Adips suillus. See Lard

Adermine hydrochloride. See Pyridoxine HCl

Adipic acid
CAS 124-04-9; EINECS/ELINCS 204-673-3
UN NA 9077 (DOT); FEMA 2011; INS355
Synonyms: AA; 1,4-Butanedicarboxylic acid; Butane-1,4-dicarboxylic acid; Dicarboxylic acid C6; Hexanedioic acid; 1,6-Hexanediolic acid
Classification: Organic dicarboxylic acid
Empirical: C8H10O4
Formula: HOOC(CH₂)₄COOH
Properties: Wh. monoclinic prisms, prct. odorless; very sol. in alcohol; sol. in acetone, oxygenated solvs.; sl. sol. in water; m.w. 146.16; dens. 1.360 (25/4 C); vapor pressure 1 mm Hg (159.5 C); m.p. 152 C; b.p. 337.5 C; flash pt. (CC) 385 F
Toxicology: LD50 (oral, mouse) 1900 mg/kg; ACGIH TLV/TWA 5 mg/m³; poison by IP route; mod. toxic by other routes; severe eye irritant; may cause occupational asthma; TSCA listed
Precaution: Combustible; can react with oxidizing material
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes

†=pharmaceutical grade

NFPA: Flammability 1, Reactivity 0
Uses: Buffer, neutralizer for pharmaceutical slow-release and microencapsulation prods.

Regulatory: NF, BP, EP compliance; FDA 21CFR §131.111, 131.136, 131.144, 175.300, 175.320, 176.170, 176.180, 177.1200, 177.1390, 177.1500, 177.1630, 177.1680, 177.2420, 177.2600, 184.1009, 582.1009, GRAS; FEMA GRAS; Canada DSL; USDA 9CFR §318.7; Japan approved; Europe listed (ADI 0-5 mg/kg, free acid basis); UK approved

Manuf./Distrib.: ADA Int’l.
Ashland† http://www.ashchem.com;
http://www.honeywell-plastics.com;
http://www.kicgroup.com; Kanto Denka Kogyo http://www.kantodenka.co.jp

Handbook of Pharmaceutical Additives, Third Edition 839
SAFC Specialties
http://www.safcspecialties.com; Sigma
http://www.sigma-aldrich.com/belgium;
Solutia http://www.solutia.com;
http://www.coatings-solutia.com; Spectrum
Quality Prods.;
http://www.spectrumchemical.com;
Sumitomo Chem. http://www.sumitomochem.co.jp

Total Spec. Chems.
http://www.totaltsccom; U.S. Chems.
http://www.uschemicals.com; United Min. &
Chem. http://www.umccorp.com; Universal
Preserv-A-Chem†
http://www.upichem.com; VWR Int'l.†
http://www.vwrsp.com
Voigt Global Distrib.
http://www.vgdllc.com; Whyte Chems. Ltd
http://www.whytechemicals.co.uk

Adipic acid bis (2-ethylhexyl) ester. See
Dioctyl adipate
Adipic acid, dibutyl ester. See Dibutyl adipate
Adipic acid diisopropyl ester. See
Diisopropyl adipate
Adipic acid, oxybispropanediol diester, esters
with mixed caprylic, capric, isostearic, and
hydroxystearic acids. See Bis-diglyceryl
polyacyladipate-1
Adipiodone; 3,3′-(Adipoyldiamino) bis [2,4,6-
triodobenzoic acid]; 3,3′-(Adipoyldiimino)
bis (2,4,6-triodobenzoic acid). See
Iodipamide
ADPA. See Etdronic acid
Adronol acetate. See Cyclohexyl acetate
AEP. See Aminoethylpiperazine
AEPD. See Aminoethyl propanediol
Aesculus hippocastanum; Aesculus
hippocastanum extract. See Horse
chestnut (Aesculus hippocastanum) extract
AFCF. See Ferric ammonium ferrocyanide
Agalmatolite. See Pyrophyllite
Agar
CAS 9002-18-0; EINECS/ELINCS 232-658-1
FEMA 2012; INS406; E406
Synonyms: Agar-agar; Agar agar flake; Agar
agar gum; Bengal gelatin; Bengal isinglass;
Ceylon isinglass; Chinese isinglass;
Gelose; Japan agar; Japan isinglass
Definition: A colloidal polygalactoside derived
from Gelidium spp. or red algae, Rhodyceae;
 polysaccharide mixture of agarose and
agaropentin
Properties: Wh. to pale yel. flake, powd., or

†=pharmaceutical grade
gran., either odorless or sl. char. odor; sol. in
boiling water; insol. in cold water, org. solvs.
Toxicology: LD50 (oral, rat) 11 g/kg; mildly
toxic by ing.; occasional allergen; TSCA
listed
Hazardous Decomp. Prods.: Heated to
decomp., emits acrid smoke and fumes
HMIS: Health 0, Flammability 1, Reactivity 0
Uses: Protective colloid, stabilizer, carrier,
emulsifier, emollient for orals, slow-release
capsules, suppositories, surgical
lubricants, emulsions; excipient,
disintegrant, bulking agent in tablets;
laxative suspending agent for barium
sulfate
Regulatory: FDA 21CFR §150.141, 150.161,
184.1115, GRAS; USDA 9CFR §318.7; FEMA
GRAS; Europe listed; UK approved; USP/NF,
BP, EP compliance; Canada DSL

Manuf./Distrib.: AAA Int'l.
http://www.aaainternational.com; AB R
Lundberg
http://www.norfoods.se/lundberg; AEP
Colloids http://www.aepcolloids.com;
AMRESCO† http://www.amresco-inc.com;
Adept Sol'ns.t
Aldrich† http://www.sigma-aldrich.com;
Alfa Aesar http://www.alfa.com; Alfa
Chem† http://www.alfachem1com; Alfred
L. Wolff Inc† http://www.awolff.com; Am.
Bionergics
Amerol http://www.amerolcorp.com;
Amersham Health
http://www.amersham.com; Anilax;
Ashland† http://www.ashchem.com;
Atomergic Chemetals
http://www.atomergic.com
CarboMer† http://www.carbomer.com;
Charkit http://www.charkit.com; Chart
http://www.chartcorp.com; Colloides
Naturels
Colony Ind.; Degussa AG/Health &
Nutrition; F. Gutkind & Co. Ltd
http://www.fgutkind.com; Fabrichem
http://www.fabricheminc.com; Fluka
http://www.sigma-aldrich.com
Frutarom† http://www.frutarom.com;
Functional Foods†
http://www.functionalfoods.com; Gumix
Int'l.†; Healan Ingreds. Ltd
http://www.healan.com
Hispanagar http://www.hispanagar.com;
Honeywill & Stein
http://www.honeywill.co.uk; Integra†
Chemical Component Cross-Reference

http://www.integrachem.com; Lucid Colloids†  http://www.lucidgroup.com; MLG Enterprises

Trade Names: Agar Agar NF MK-80-B Powdered; Agar Agar NF S-100 Powdered; Agar Agar NF S-150-B Powdered; Agar S-100; MingQiong Brand Powdered Agar Agar Bacteriological Grade; Powdered Agar Agar Type K-60; Powdered Agar Agar Type K-80; Powdered Agar Agar Type K-100; Powdered Agar Agar Type K-150  TIC Pretested® Agar Agar 100 FCC/NF Powder; TIC Pretested® Agar Agar 110 FCC/NF Powd.; TIC Pretested® Agar Agar 150 FCC/NF Powd.; TIC Pretested® Agar RS-100 Powder
Agaragar; Agar agar flake; Agar agar gum. See Agar
Agate. See Quartz
Agricultural lime. See Calcium hydroxide
Agricultural limestone. See Calcium carbonate
Alabaster. See Calcium sulfate dihydrate
†=pharmaceutical grade

β-Alanine, N-(2,4-dihydroxy-3,3-dimethyl-1-oxobutyl)-, monosodium salt (R)-. See Sodium pantothenate
Alanine, phenyl-; Alanine, 3-phenyl-; l-Alanine, phenyl-. See L-Phenylalanine
Albacol. See Propyl alcohol
Alba red. See D&C Red No. 39

Albumen
CAS 9006-50-2; EINECS/ELINCS 232-936-2
Synonyms: Albumin; Dried egg white; Egg albumin

Definition: Dried whites of chicken eggs
Properties: Yel. amorphous lumps, scales, or powd.; swells in water, then dissolves gradually; decomp. in moist air; dens. 1.035; m.p. -0.42 C; coagulating temp. 61 C; ref. index 1.356; pH 7.6
Toxicology: May cause allergic reactions in people allergic to milk or eggs; TSCA listed
Uses: Emulsifier; binder, coagulant, film-former in pharmaceuticals; in tablet film for erythromycin; antidote to mercury poisoning; in pharmaceutical compounding to make various albumates; microencapsulation
Regulatory: FDA 21CFR §160.145


Trade Names: Sol-U-Tein EA

Albumin
CAS 70024-90-7; EINECS/ELINCS 274-272-6
Synonyms: Human albumin; Human serum
albumin

Classification: Plasma protein

Definition: Protein derived from human sources

Toxicology: May cause immune responses, anaphylactoid reactions

Precaution: Incompat. with strong oxidizing agents

Uses: Buffer in pharmaceuticals; used intravenously as plasma extenders; in microencapsulation, oral formulations; diluent for prep. of allergy extracts

Regulatory: FDA 21CFR §133.124, 166.110; BP compliance for albumin sol'n.

Manuf./Distrib.: AMRESCO†

See also Albumen

ALCA. See Alcloxa

Alcalase. See Protease

(-)-Alcanfor. See L-Camphor

Alcloxa

CAS 1317-25-5; EINECS/ELINCS 215-262-3

Synonyms: ALCA; Aluminum, chloro [(2,5-dioxo-4-imidazolidinyl) ureato] tetrahydroxydi-; Aluminum chlorohydroxylallantoinate; Aluminum, chlorotetrahydroxy (2-hydroxy-5-oxo-2-imidazolin-4-yl) ureato) di-; Chlorhydroxyaluminum allantoinate; Chloro

†=pharmaceutical grade

[(2,5-dioxo-4-imidazolidinyl) ureato] tetrahydroxydialuminum;
Chlorohydroxyaluminum allantoinate;
Chlorotetrahydroxy ((2-hydroxy-5-oxo-2-imidazolin-4-yl) ureato) dialuminum;
Dialuminum tetrahydroxychloro allantoinate

Classification: Heterocyclic org. compd.

Empirical: C_{4}H_{9}Al_{2}ClIN_{4}O_{7}

Properties: M.w. 314.58

Toxicology: LD50 (oral, rat) > 8 g/kg, (subcut., mouse) > 8 g/kg; sl. toxic; primary irritant; eye irritant; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits toxic vapors of NOx and Cl–

Uses: Soothing and healing agent with mild bacteriostatic effect used in anti-acne, hemorrhoidal, and foot preps. for athlete's foot, onychomycosis, hyperhydrosis, dermatophytosis, epidermal macerations.; in treatment of diaper rash; in oral prods. for periodontal and gum diseases (like gingivitis, irritable and bleeding gums

Features: Nonsensitizing and nonirritating; stable in the pH 3-8 range and to 80 C process heating

Regulatory: Canada DSL

Manuf./Distrib.: Akema Fine Chems.† http://www.akema.it/contacts.htm

Alcohol

CAS 64-17-5; EINECS/ELINCS 200-578-6

UN 1170 (DOT); UN 1986 (DOT); UN 1987 (DOT); FEMA 2419

Synonyms: Absolute alcohol; Absolute ethanol; Distilled spirits; Ethanol; Ethanol, undenatured; Ethyl alcohol; Ethyl alcohol, undenatured; Ethyl hydrate; Ethyl hydroxide; EtOH; Grain alcohol; IMS; Industrial methylated spirit; Methylcarbinol; Spirits of wine

Definition: Undenatured ethyl alcohol

Empirical: C_{2}H_{6}O

Formula: CH_{3}CH_{2}OH

Properties: Colorless limpid, volatile liq., vinous odor, pungent taste; misc. with water, methanol, ether, chloriform, 95% acetone, oxygenated/chlorinated solvs.; m.w. 46.08; dens. 0.816 (15.5 C); vapor pressure 44.6 mm Hg (20 C); f.p. -117.3 C; b.p. 78.3 C; flash pt. (CC) 12.7 C; autoignition temp. 362 C; ref. index 1.365 (15 C); surf. tens. 21.99 dynes/cm

Toxicology: ACGIH TLV/TWA 1000 ppm; LD50 (oral, rat) 7060 mg/kg, (IP, rat) 3750 mg/kg;
## Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Mod. toxic to humans by ing.; mod. toxic by IV and IP routes; mildly toxic by inh., skin contact; eye, skin, and mucous membrane irritant; severe skin irritant; human systemic effects; CNS depressant; ing. of lg. doses can cause alcohol poisoning; human carcinogen; experimental tumorigen, teratogen; human reproductive effects by ing., IV; human mutagenic data; TSCA listed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental: VOC; BOD5 1.27; COD 1.99; ThOD 2.09</td>
</tr>
<tr>
<td>Precaution: DOT: Flamm. liq.; dangerous fire and explosion hazard; can react vigorously with oxidizers; reacts violently with many chemicals</td>
</tr>
<tr>
<td>NFPA: Health 0, Flammability 3, Reactivity 0</td>
</tr>
<tr>
<td>Storage: Hygroscopic</td>
</tr>
<tr>
<td>Uses: Solvent, excipient in oral pharmaceuticals; extraction medium; mfg. of tonics; component of flavored vehicles; active ingred. in OTC drugs; externally as an antiseptic; internally as a stimulant and hypnotic</td>
</tr>
<tr>
<td>Regulatory: FDA 21CFR §73.30, 73.345, 73.615, 169.3, 169.175, 169.176, 169.177, 169.178, 169.180, 169.181, 172.340, 172.560, 175.105, 176.200, 176.210, 177.1200, 177.1440, 177.1650, 178.1010, 184.1293, GRAS; 27CFR §2.5, 2.12; FEMA GRAS; 177.1440, 177.1650, 178.1010, 184.1293, 175.105, 176.200, 176.210, 177.1200, 177.1440, 177.1650, 178.1010, 184.1293, GRAS; 27CFR §2.5, 2.12; FEMA GRAS; Canada DSL; NF compliance (alcohol diluted); SARA §311/312 acute health/chronic health/fire hazard; BP, EP compliance; Japan restricted</td>
</tr>
</tbody>
</table>


### Trade Names: Punctilious® Ethyl Alcohol 190 |
| Proofs Pure USP; Punctilious® Ethyl Alcohol 200 Proof Pure USP; Punctilious® SDA 1-2 |
| Trade Names Containing: Bardac® 2270E; BioGentle® Formulation; BTC® 2125M; Certified® Pharmaceutical Glaze; CrystaLac® Continuous Glaze; DeCONC HS-30; Filmex® A-2 190 Proof; Filmex® A-2 Anhydrous; Filmex® B 190 Proof; Filmex® B Anhydrous |

†=pharmaceutical grade

### Sources

- DSM Food Spec. [http://www.dsm.com]
- Degussa AG/Health & Nutrition; Delta Distributors†; Dow† [http://www.dow.com]
- EMCO Chem. Distributors† [http://www.emcochem.com]
- Eastman† [http://www.eastman.com]
- Equistarch† [http://www.equistarch.com]
- Fluka [http://www.sigma-aldrich.com]
- Galbraith Labs† [http://www.galbraith.com]
- Georgia-Pacific Resins [http://www.gp.com/chemical]
- Penta Mfg.† [http://www.pentamfg.com]
Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Chemical Component Cross-Reference</th>
<th>†=pharmaceutical grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol C11 undecylic. See Undecyl alcohol</td>
<td></td>
</tr>
<tr>
<td>Alcohol, C8-10. See C8-10 alcohols</td>
<td></td>
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<tr>
<td>Alcohol, C10-14. See C10-14 alcohols</td>
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<tr>
<td>Alcohol, C12-18. See C12-18 alcohols</td>
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<tr>
<td>Alcohol, C16-18. See Cetearyl alcohol</td>
<td></td>
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<tr>
<td>Alcohol, C20-24. See C20-24 alcohols</td>
<td></td>
</tr>
<tr>
<td>Alcohol, coco, mixed esters with octanoic and decanoic acids. See Coco caprylate/caprate</td>
<td></td>
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<tr>
<td>Alcohol, lanolin. See Lanolin alcohol</td>
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<tr>
<td>ALDA. See Aldioxa</td>
<td></td>
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<tr>
<td>Aldehyde 14. See Undecanal</td>
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<tr>
<td>Aldehyde C1. See Formaldehyde</td>
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<td>Aldehyde C3. See Propionaldehyde</td>
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<tr>
<td>Aldehyde C-5. See n-Valeraldehyde</td>
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<tr>
<td>Aldehyde C-6. See Hexanal</td>
<td></td>
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<tr>
<td>Aldehyde C-7. See Heptanal</td>
<td></td>
</tr>
<tr>
<td>Aldehyde C-8. See n-Octanal</td>
<td></td>
</tr>
<tr>
<td>Aldehyde C-9. See Nonanal</td>
<td></td>
</tr>
<tr>
<td>Aldehyde C-10. See Decanal</td>
<td></td>
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<tr>
<td>Aldehyde C-12. See Lauric aldehyde; Methyl nonyl acetaldehyde</td>
<td></td>
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<tr>
<td>Aldehyde C-14. See Myristaldehyde</td>
<td></td>
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<tr>
<td>Aldehyde C14. See γ-Undecalactone</td>
<td></td>
</tr>
<tr>
<td>Aldehyde C-16. See Ethyl methylphenylglycidate</td>
<td></td>
</tr>
<tr>
<td>Aldehyde C18. See γ-Nonalactone</td>
<td></td>
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<tr>
<td>Aldehyde C-7 dimethyl acetal. See Heptanal dimethyl acetal</td>
<td></td>
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<tr>
<td>Aldehyde C-10 dimethyl acetal. See Decanal dimethyl acetal</td>
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<tr>
<td>Aldehyde C-12 lauric; Aldehyde C-12 lauryl. See Lauric aldehyde</td>
<td></td>
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<tr>
<td>Aldehyde C-12 MNA. See Methyl nonyl acetaldehyde</td>
<td></td>
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<tr>
<td>Aldehyde C-14, myristic. See Myristaldehyde</td>
<td></td>
</tr>
<tr>
<td>Aldehyde C14 pure. See γ-Undecalactone</td>
<td></td>
</tr>
<tr>
<td>Aldehyde C-16 pure. See Ethyl methylphenylglycidate</td>
<td></td>
</tr>
<tr>
<td>Aldehyde C-11 undecylic. See Undecanal</td>
<td></td>
</tr>
<tr>
<td>Aldehyde C-11 undecylenic. See 9-Undecenal; 10-Undecenal</td>
<td></td>
</tr>
<tr>
<td>Aldehyde MNA. See Methyl nonyl acetaldehyde</td>
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<tr>
<td>Aldioxa</td>
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<tr>
<td>CAS 5579-81-7; EINECS/ELINCS 226-964-4</td>
<td></td>
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<tr>
<td>Synonyms: ALDA; Aluminum, (allantoinato) dihydroxy-; Aluminum, [[2,5-dioxo-4-imidazolidinyl] ureato] dihydroxy-; Dihydroxyaluminum allantoinate</td>
<td></td>
</tr>
<tr>
<td>Empirical: C₄₉H₄₂AlNa₅O₅</td>
<td></td>
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<tr>
<td>Properties: Wh. powd.; insol. in polar and nonpolar solvs.; m.w. 218.13; m.p. 230 C</td>
<td></td>
</tr>
</tbody>
</table>
Chemical Component Cross-Reference

†=pharmaceutical grade

sodium salt; Algin (polysaccharide);
Sodium alginate; Sodium polypeamnuronate

Classification: Hydrophilic polysaccharide

Definition: Purified carbohydrate prod. extracted
from brown seaweed; sodium salt of alginic
acid

Empirical: \((C_6H_7NaO_6)_n\)

Properties: Cream-colored powd., pract.
oodorless and tasteless; sol. in water forming a
gel; insol. in alcohol, ether, chloroform; m.w.
198.11; dens. 1.59 kg/l; dec. on heating above
150 C

Toxicology: LD50 (oral, rat) > 5 g/kg, (IV, rat)
1000 mg/kg, (IP, cat) 250 mg/kg; poison by
IV and IP routes; causes blood hemorrhage
in mice; TSCA listed

Hazardous Decomp. Prods.: Heated to
decom., emits toxic fumes of Na2O

HMIS: Health 1, Flammability 0, Reactivity 0

Uses: Suspending agent, gellant, thickener,
emulsifier, excipient, tablet binder,
stabilizer in pharmaceutical orals; film-
former for microencapsulation

Regulatory: FDA 21CFR §133.133, 133.134,
133.162, 133.178. 133.179, 150.141, 150.161,
173.310, 184.1724, GRAS; FEMA GRAS;
Japan approved; Europe listed; UK approved;
FDA approved for orals; NF, BP, EP
compliance; Canada DSL

Aleurites moluccana; Aleurites moluccana oil.
See Kukui (Aleurites moluccana) nut oil

Alfalfa extract; Alfalfa herb extract. See
Alfalfa (Medicago sativa) extract

Alfalfa, herb and seed. See Alfalfa (Medicago sativa)

Alfalfa (Medicago sativa)

CAS 977092-93-5

Synonyms: Alfalfa, herb and seed; Lucerne

Definition: Herb and seed from Medicago sativa

Toxicology: No known toxicity

Uses: Natural flavor for pharmaceuticals

Regulatory: FDA 21CFR §182.10, GRAS

Manuf./Distrib.: Alfa Chem

http://www.alfachem1.com; Amerol
http://www.amerolcorp.com; Chart
http://www.chartcorp.com; Frutarom
http://www.frutarom.com

Alfalfa (Medicago sativa) extract

CAS 84082-36-0; EINECS/ELINCS 281-984-0

FEMA 2013

Synonyms: Alfalfa extract; Alfalfa herb
extract; Lucerne extract; Medicago sativa;
Medicago sativa extract; Purple medick
extract

Definition: Extract of alfalfa, Medicago sativa

Uses: Natural flavor for pharmaceuticals

Regulatory: FDA 21CFR §182.20, GRAS; FEMA
GRAS

Manuf./Distrib.: Bell Flavors & Fragrances

http://www.bellff.com; Bio-Botanica
http://www.bio-botanica.com; Carrubba
http://www.carrubba.com; Chart
http://www.chartcorp.com; Frutarom
http://www.frutarom.com

Grau Aromatics http://www.grau-aromatics.de

Algaroba. See Locust bean (Ceratonia
siliqua) gum

Algerian geranium oil. See Geranium
maculatum oil

Algin

CAS 9005-38-3

FEMA 2014, 2015; INS401; E401

Synonyms: Algin, sodium salt; Alginic
acid, monosodium salt; Alginic acid,
Chemical Component Cross-Reference

AG/Health & Nutrition; Delta Distributors†; FMC Biopolymer†
http://www.fmcbiopolymer.com
Fallek
http://www.iccchem.com/fallchem.htm;
Fluka http://www.sigma-aldrich.com;
http://www.mpbio.com; Indofine
http://www.indofinechemical.com
Integra† http://www.integrachem.com;
Lancaster Synthesis http://www.alfa.com;
MPSI† http://www.mp-solutionsinc.com;
Multi-Kem† http://www.multikem.com;
Pangaea Sciences†
http://www.pangaeasciences.com; Penta Mfg.†
http://www.pentamfg.com;
Pfaltz & Bauer http://www.pfaltzandbauer.com;
Primera Foods†
http://www.primerafoods.com; Ruger
http://www.rugerchemical.com
SAFC Specialties
http://www.safcspecialties.com; San Yuan;
Sanofi Synthelabo† http://www.sanofi-aventis.us; Sansho†
http://www.sansho.co.jp; Sigma
http://www.sigma-aldrich.com/belgium
Spectrum Quality Prods.†
http://www.spectrumchemical.com; Tiger Chem.
http://www.tigerchem.com; Univar Ltd†
http://www.univar.co.uk; Universal
Preserv-A-Chem†
http://www.upichem.com; V.L. Clark
http://www.vlclark.com

Trade Names: KELCOSOL®, KELGIN® F;
KELGIN® HV; KELGIN® LV; KELGIN® MV
KELGIN® QL; KELGIN® XL; KELSET®;
KELTONE® HV; KELTONE® HVC
KELTONE® LVCR; KELTONE® LVNF;
KELVIS®, MANUCOL® DM; MANUCOL®
DMF
MANUCOL® LB; MANUCOL® LKX;
MANUGEL® DMB; Protana®, Scogin™ HV
Scogin™ LV; Scogin™ MV; TIC Pretested®
Colloid 488T Powd.

Alginate, sodium salt. See Algin
Algina gum. See Calcium carrageenan

Alginic acid
CAS 9005-32-7; EINECS/ELINCS 232-680-1
INS400; E400
Synonyms: Landalgine; Norgine;
Polymannuronic acid; Sazzio

†=pharmaceutical grade

Definition: Hydrophilic colloidal carbohydrate derived from brown seaweed, *Phaeophyceae*; polysaccharide composed of β-d-mannuronic acid residues

Empirical: (C₆H₈O₆)ₙ

Properties: Wh. to yel. fibrous powd., odorless, tasteless; sol. in alkaline sol'n.; very sl. sol. in water; insol. in org. solvs.; capable of absorbing 200-300 times its wt. of water; m.w. ≈ 240,000; acid no. ≥ 230; pH 1.5-3.5 (3% disp.)

Toxicology: LD₅₀ (IP, rat) 1600 mg/kg; moderately toxic by IP route; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Suspending agent, thickener, gellant, binder, emulsifier, and stabilizer in pharmaceuticals, ophthalmics, orals; protective colloid in pharmaceuticals, toothpaste; tablet binder, disintegrant

Regulatory: FDA 21CFR §184.1011, GRAS;
Japan approved; Europe listed; UK approved;
USP/NF, BP, EP compliance; Canada DSL

Manuf./Distrib.: AB R Lundberg
http://www.norfoods.se/lundberg; Aceto†
http://www.aceto.com; Aldrich†
http://www.sigma-aldrich.com;
Alfa Aesar† http://www.alfa.com;
Alfa Chem† http://www.alfachem1.com
Arthur Branwell† http://www.branwell.com;
Atomergic Chemetals†
http://www.atomergic.com; CP Kelco†
http://www.cpkelco.com; Camida Ltd†
http://www.camida.com; CarboMer†
http://www.carbomer.com
Chemacon GmbH†
http://www.chemacon.de; Danisco Cultor†
http://ingredients.danisco.com; Degussa
AG/Health & Nutrition; FMC Biopolymer†
http://www.fmcbiopolymer.com; Fluka
http://www.sigma-aldrich.com
Frutarom† http://www.frutarom.com; ISP
Alginates† http://www.ispcorp.com;
Mutchler† http://www.mutchlerchem.com;
Penta Mfg.† http://www.pentamfg.com;
Polysciences† http://www.polysciences.com
Sanofi Synthelabo† http://www.sanofi-aventis.us; Sansho†
http://www.sansho.co.jp; Sigma
http://www.sigma-aldrich.com/belgium;
Spectrum Quality Prods.†
Chemical Component Cross-Reference


Trade Names: KELACID® NF; Protacid™ F
120 NM Alginic Acid; Satialgine™ H8;
Satialgine™ UH8 USP

Alginic acid, ammonium salt. See Ammonium alginate
Alginic acid, calcium salt. See Calcium alginate
Alginic acid, ester with 1,2-propanediol. See Propylene glycol alginate
Alginic acid, glyceryl ester. See Glyceryl alginate
Alginic acid, monosodium salt. See Algin
Alginic acid, potassium salt. See Potassium alginate
Alginic acid, sodium salt; Algin (polysaccharide). See Algin
Aliphatic petroleum distillate. See Naphtha, light aliphatic
Aliphatic petroleum solvent (naphtha). See Naphtha, medium aliphatic

Alitame
CAS 80863-62-3 (anhyd.); CAS 99016-42-9 (hyd.)
INS956
Synonyms: L-α-Aspartyl-N-(2,2,4,4-tetramethyl-3-thietanyl)-D-alaninamide, hydrated
Definition: Dipeptide made of two amin acids, L-aspartic acid and D-alanine
Empirical: C14H25N3O4S • 2.5 H2O
Properties: Wh., crystalline powd., odorless or sl. characteristic odor; freely sol. in water and ethanol; ≈ 2000 times sweeter than sucrose
Uses: Sweetener in pharmaceuticals
Trade Names: Aclame™

Alizarine cyanine green F. See D&C Green No. 5
Alizarin oil. See Sulfated castor oil
Alizuroil purple SS. See D&C Violet No. 2; Disperse blue 72
Alkane C4. See Butane

†=pharmaceutical grade

Alkane C5. See n-Pentane
Alkane C6. See Hexane
Alkane C7. See Heptane
Alkanes, C13-14-iso-. Alkanes, iso-, C13-14. See C13-14 isoparaaffin

Alkanet (Alkanna tinctoria) extract
CAS 85251-58-7; 23444-65-7; EINECS/ELINCS 286-471-5
FEMA 2016; INS103
Synonyms: Alkanet extract; Alkanet root extract; Alkanna tinctoria; Alkanna tinctoria extract; Spanish bugloss extract
Definition: Extract of the roots of Alkanna tinctoria
Uses: Colorant in pharmaceuticals
Regulatory: Cleared by MID; not listed as approved colorant for cosmetics under FDA 21CFR §73 and 74; FEMA GRAS delisted; Japan approved; not permitted for food (EU)

Alkanet extract; Alkanet root extract; Alkanna tinctoria; Alkanna tinctoria extract. See Alkanet (Alkanna tinctoria) extract

Alkanoic acids, C10-30, prod. w/ cholesterol and lanosta-8,24-dien-3-ol, (3-β). See C10-30 cholesterol/lanosterol esters

n-Alkanol (C16-C18). See Cetearyl alcohol

Alkenyl succinic anhydride
CAS 70983-55-0
Synonyms: (2-Alkenyl) succinic anhydride; ASA
Definition: (2-Alkenyl) succinic anhydrides in which the alkenyl groups are derived from olefins which contain not less than 78% C30 and higher groups
Properties: Lt. amber liq.; dens. 0.952 g/ml; vapor pressure < 1 mm Hg (20 C); b.p. 250 C (5 mm Hg); flash pt. (PM) 204 C
Toxicology: LD50 (oral, rat) > 5000 mg/kg, (skin, rabbit) > 5000 mg/kg; expected to have a low level of acute toxicity; may cause skin sensitization; nonmutagenic
Storage: Store under nitrogen blanket is rec. to prevent hydrolysis of the anhydride moiety
Uses: Hardener for pharmaceuticals
Regulatory: FDA 21CFR §175.105, 176.170, 176.180
<table>
<thead>
<tr>
<th>Chemical Component Cross-Reference</th>
<th>Toxicology: Nontoxic by ing.; nonirritating; nonallergenic; TSCA listed</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2-Alkenyl) succinic anhydride. See Alkenyl succinic anhydride</td>
<td>Precaution: Conc. powd. may present an explosion hazard</td>
</tr>
<tr>
<td>Alkylbenzylidimethylammonium chloride. See Benzalkonium chloride</td>
<td>Hazardous Decomp. Prods.: CO₂, CO, NOₓ, ammonia above 230 C</td>
</tr>
<tr>
<td>Alkyl (C12-15) benzoate. See C12-15 alkyl benzoate</td>
<td>HMIS: Health 1, Flammability 1, Reactivity 0</td>
</tr>
<tr>
<td>Alkyl (C13-15) dimethylamine. See Dimethyl C13-15 alkyl amine</td>
<td>Uses: Biochemical research; medicine (wound treatment; antisporiatic drug); emollient, protectant for skin care prods.; stimulates growth of healthy tissue; oral care agent</td>
</tr>
<tr>
<td>Alkyl dimethyl amine oxide. See Palmitamine oxide</td>
<td>Regulatory: FDA approved as Category I (safe and effective) skin protectant; BP, EP compliance; Canada DSL</td>
</tr>
<tr>
<td>Alkyl dimethyl benzyl ammonium chloride. See Benzalkonium chloride</td>
<td></td>
</tr>
<tr>
<td>Alkyl dimethyl betaine. See Coco-betaine</td>
<td></td>
</tr>
<tr>
<td>Alkyl dimethyl ethylbenzyl ammonium chloride</td>
<td></td>
</tr>
<tr>
<td>CAS 68956-79-6; 85409-23-0 Classification: Quaternary Toxicology: LD50 (oral, rat) 300 mg/kg; poison by ing.; mod. toxic by skin contact; severe eye irritant Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of Cl⁻ and NOₓ Uses: Surfactant, antimicrobial, bactericide, and fungicide for pharmaceuticals</td>
<td></td>
</tr>
<tr>
<td>Regulatory: Canada DSL Trade Names Containing: BTC® 2125; BTC® 2125-80; BTC® 2125M; BTC® 2125M-80%; BTC® 2125M-90%; BTC® 2125M P-40; BTC® 2125 P-40 Alkylidimethyl (phenylmethyl) quaternary ammonium chlorides; Alkyl (ethylphenyl) methyl dimethyl quaternary ammonium chlorides. See Benzalkonium chloride Alkylmethyl siloxane copolymer. See Silicone alkylmethyl glycol Allantoin CAS 97-59-6; EINECS/ELINCS 202-592-8 Synonyms: (2,5-Dioxo-4-imidazolidinyl) urea; Glyoxyldiureide; Urea-(2,5-dioxo-4-imidazolidinyl); 5-Ureidohydantoin Definition: Heterocyclic organic compd.; prod. of animal metabolism, excreted in urine Empirical: C₉H₇N₄O₃ Properties: Wh. to colorless powd. or cryst., odorless, tasteless; sol. in hot water; sol. 1 g in 190 cc water or 500 cc alcohol; sol. alkaline media; almost insol. in ether; m.w. 158.08; m.p. 230 C (dec.); pH 5.5 (sat.)</td>
<td></td>
</tr>
</tbody>
</table>
Chemical Component Cross-Reference

Allene. See 4-Hydroxy-2,5-dimethyl-3(2H)-furanone
Allied whitening. See Calcium carbonate
Alligator pear oil. See Avocado (Persea gratissima) oil
Allium cepa; Allium cepa oil. See Onion (Allium cepa) oil
Allium sativum oil. See Garlic (Allium sativum) oil
DL-allo-Isoleucine. See DL-Isoleucine
Allomaleic acid. See Fumaric acid
Allspice (Pimenta officinalis)
CAS 977051-72-1
FEMA 2017
Synonyms: Pimenta oil; Pimento oil
Definition: Distilled from the fruit of Pimenta officinalis
Properties: Yel. to red-yel. liq., odor and taste of allspice; dens. 1.018-1.048; ref. index 1.527-1.540 (20 C)
Toxicology: Skin irritant
Precaution: Combustible
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §101.22, 182.10, GRAS; FEMA GRAS; Japan approved

Allura red; Allura red AC. See FD&C Red No. 40
Allyl acetate; Allylacetic acid. See 4-Pentenoic acid
Allyl alcohol dibromide. See 2,3-Dibromo-1-propanol
Allyl aldehyde. See Acrolein
Allyl 2-aminobenzoate; Allyl o-aminobenzoate. See Allyl anthranilate
4-Alllylanisole; p-Alllylanisole. See Estragole
Allyl anthranilate
CAS 7493-63-2; EINECS/ELINCS 231-331-0
UN 2810 (DOT); FEMA 2020
Synonyms: Allyl 2-aminobenzoate; Allyl o-aminobenzoate; 2-Aminobenzoic acid, allyl ester; Benzoic acid, 2-amino-, 2-propenyl ester
Empirical: C₁₀H₁₁NO₂
Properties: Colorless to golden clear liq.; floral grape odor; sol. in alcohol, DMSO, benzene; insol. in water; m.w. 177.21; sp.gr. 1.1100-1.1200; b.p. 105 C (2 mm Hg); flash pt. (CC) 110 C; ref. index 1.566-1.576 (20 C)
**Allyl caproate**

**CAS**: 123-68-2; EINECS/ELINCS 204-642-4

**UN**: 2810; FEMA 2032

**Synonyms**: Allyl capronate; Allyl hexanoate; Allyl hexoate; Caproic acid allyl ester; Hexanoic acid, 2-propenyl ester; 2-Propenyl hexanoate; 2-Propenyl-N-hexanoate

**Empirical**: C9H16O2

**Formula**: CH3(CH2)4COOCH2CH=CH2

**Properties**: Colorless to light yellow liq., pineapple aroma; misc. with alcohol, ether; insol. in water; sol. in most org. solvs.; m.w. 188.24; dens. 1.052 (25/25 C); b.p. 150-152 C

**Toxicology**: LD50 (oral, rat) 218 mg/kg, (skin, rabbit) 300 mg/kg; poison by ing., skin contact; human skin irritant; mutation data; respiratory system irritant; TSCA listed

**Precaution**: Wear protective goggles, splash-proof gloves.

**Hazardous Decomp. Prods.**: Heated to decomps., emits acrid smoke and irritating fumes, COX

**NFPA**: Health 1, Flammability 2, Reactivity 0

**Storage**: Keep away from heat, sparks, open flame; keep in original, tightly closed container

**Uses**: Fragrance and flavor for pharmaceuticals; emollient

**Features**: Pungent, fatty, fruity, pineapple-like flavor and fragrance (rum- and pineapple-like on dilution)

**Regulatory**: FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Japan approved; Canada DSL


**Allergies**: See Allyl caproate

**Allyl caprylate**

**CAS**: 1866-31-5; EINECS/ELINCS 217-477-8

**FEMA**: 2022

**Synonyms**: Allyl-3-phenylacrylate; Propenyl cinnamate; 3-Propenyl 3-phenyl-2-propenoate; Vinyl carbonyl cinnamate

**Empirical**: C12H12O2

**Properties**: Colorless to light yellow liq.; cherry odor; sol. in ether, alcohol; insol. in water; m.w. 188.24; dens. 1.052 (25/25 C); b.p. 150-152 C (15 mm); flash pt. >230 F; ref. index 1.5661

**Toxicology**: LD50 (oral, rat) 1520 mg/kg, (skin, rabbit) > 5 g/kg; mod. toxic by ing.; human skin irritant; TSCA listed

**Hazardous Decomp. Prods.**: Heated to decomps., emits acrid smoke and fumes

**Uses**: Synthetic flavor for pharmaceuticals

**Features**: Peach-like flavor

**Regulatory**: FDA 21CFR §172.515; FEMA GRAS; Canada DSL


**Allergy**: See Allyl caproate

**Allyl cyclohexanecacetate**

**CAS**: 4728-82-9; EINECS/ELINCS 225-230-0

**FEMA**: 2023

**Synonyms**: Allyl cyclohexylacetate; Cyclohexylactic acid allyl ester; 2-Propenyl cyclohexanecacetate

**Empirical**: C11H18O2

**Properties**: Liq., intense fruity aroma; m.w. 182.26; b.p. 66 C; ref. index 1.4574

**Toxicology**: LD50 (oral, rat) 900 mg/kg, (skin, rabbit) 1250 mg/kg; mod. toxic by ing. and
Chemical Component Cross-Reference

**Allyl cyclohexanebutyrate**

CAS 7493-65-4  
FEMA 2024  
Synonyms: Allyl cyclohexyl butyrate; Allyl 4-cyclohexyl butyrate; Allyl hexahydrophenyl butyrate; 2-Propen-1-yl cyclohexane butyrate

Empirical: \( \text{C}_{13}\text{H}_{22}\text{O}_2 \)

Properties: Colorless liq., pineapple odor; m.w. 210.31; b.p. 104 °C (1 mm); ref. index 1.4608 (20 C)

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Allyl cyclohexanehexanoate

CAS 7493-66-5  
FEMA 2025  
Synonyms: Allyl cyclohexylcaproate; Allyl cyclohexylcapronate

Empirical: \( \text{C}_{15}\text{H}_{26}\text{O}_2 \)

Properties: Colorless, cl. liq.; m.w. 238.37; sp. gr. 0.90000-0.90500

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Allyl cyclohexaneacetate. See Allyl cyclohexaneacetate

Allyl cyclohexanevalerate

CAS 7493-68-7  
FEMA 2027  
Synonyms: Allyl cyclohexylpentanoate

Empirical: \( \text{C}_{14}\text{H}_{24}\text{O}_2 \)

Properties: LColorless, cl. liq., char. fruity aroma; m.w. 224.34; b.p. 119 °C; ref. index 1.4605

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Allyl-3-cyclohexanepropionate. See Allyl cyclohexanepropionate

Allergen: 1-Allyl-3,4-dimethoxybenzene. See Methyl eugenol

†=pharmaceutical grade
Chemical Component Cross-Reference

†=pharmaceutical grade

4-Allyl-1,2-dimethoxybenzene.  See Methyl isoeugenol; Methyl eugenol
Allyl trans-2,3-dimethylacrylate.  See Allyl tiglate

Allyl disulfanyl-propene.  See Allyl disulfide

Allyl disulfide
CAS 2179-57-9; EINECS/ELINCS 218-548-6
UN 2810; FEMA 2028
Synonyms: Allyl disulfanyl-propene; Diallyl disulfide; Disulfide, di-2-propenyl; 4,5-Dithia-1,7-octadiene; 2-Propenyl disulfide
Classification: Nonaromatic mercaptan
Empirical: C₆H₁₀S₂
Properties: Liq., char. garlic odor; sol. in most common org. solvs.; insol. in water; m.w. 146.28; dens. 1.008; b.p. 138-139 C; flash pt. 144 F; ref. index 1.541
Toxicology: LD₅₀ (oral, rat) 260 mg/kg, (skin, rabbit) 3600 mg/kg; toxic; severe irritant; stench; TSCA listed
Precaution: Combustible; wear protective gloves, splash-proof eye goggles; incompat. with strong oxidizers, acids
Hazardous Decomp. Prods.: COₓ, SOₓ
Storage: Refrigerate
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Allyl enanthate.  See Allyl heptanoate

Allyl 2-ethylbutyrate
CAS 7493-69-8; EINECS/ELINCS 231-332-6
FEMA 2029
Empirical: C₁₀H₁₆O₂
Properties: Liq., ethereal aroma; m.w. 156.23; b.p. 165-167 C; ref. index 1.4240
Toxicology: TSCA listed
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Allyl heptanoate
CAS 142-19-8; EINECS/ELINCS 205-527-1
FEMA 2031
Synonyms: Allyl enanthate; Allyl heptanoate; Allyl heptylate; Allyl oenanthate; 2-Propenyl heptanoate
Empirical: C₁₀H₁₈O₂
Formula: CH₃(CH₂)₅COOCH₂CHCH₂
Properties: Colorless to pale yel. liq., fruity sweet pineapple, ester-like odor; insol. in water; sol. in most org. solvs.; m.w. 170.28; dens. 0.880; vapor dens. 5.8; b.p. 210 C; flash pt. 154 F; ref. index 1.426
Toxicology: LD₅₀ (oral, rat) 500 mg/kg, (skin, rabbit) 810 mg/kg; mod. toxic by ingestion, skin contact; human skin irritant; TSCA listed
Precaution: Combustible liq.
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes, COₓ
Uses: Synthetic flavor for pharmaceuticals
Features: Apricot, banana, berry, pineapple-like flavor
Regulatory: FEMA GRAS; Canada DSL

Allyl guaiacol; 4-Allylguaiacol.  See Eugenol
Allyl hendecenoate.  See Allyl 10-undecenoate

Allyl heptanoate
Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Chemical Component</th>
<th>CAS Number</th>
<th>EINECS/ELINCS</th>
<th>Properties</th>
<th>Use Level</th>
<th>Regulatory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allyl isorhodanide; Allyl isosulfocyanate</td>
<td>57-06-7</td>
<td>200-309-2</td>
<td>Colorless-pale yel. liq., pungent irritable odor, sharp pungent mustard taste; misc. with alcohol, carbon disulfide, ether, most org. solvs.; sl. sol. in water; m.w. 99.16; dens. 1.003-1.016; m.p. -80 C; b.p. 150.7 C; flash pt. 115 F; ref. index 1.5</td>
<td>Trace to 2%</td>
<td>FDA 21CFR §172.515; FEMA GRAS; Japan approved as flavoring; Canada DSL</td>
</tr>
</tbody>
</table>

†=pharmaceutical grade

- Isothiocyanato-1-propene; Isothiocyanic acid allyl ester; Mustard oil; 3-Propenyl isothiocyanate; Synthetic mustard oil; Volatile oil of mustard

**Classification:** Isothiocyanate

**Empirical:** C\(_4\)H\(_5\)NS

**Formula:** CH\(_2=\)CH\(_2\)NCS

**Properties:** Colorless-pale yel. liq., pungent irritable odor, sharp pungent mustard taste; misc. with alcohol, carbon disulfide, ether, most org. solvs.; sl. sol. in water; m.w. 99.16; dens. 1.003-1.016; m.p. -80 C; b.p. 150.7 C; flash pt. 115 F; ref. index 1.5

**Toxicology:** LD\(_{50}\) (oral, rat) 339 mg/kg, (subcut., rat) 92 mg/kg, (skin, rabbit) 88 mg/kg; poison by ing., inh., skin contact, IV, subcut., and IP routes; lachrymator; allergen; eye irritant; may cause contact dermatitis; mutagen; suspected carcinogen; experimental teratogenic/reproductive effects; TSCA listed

**Precaution:** Volatile; combustible liq.; fire risk; highly reactive

**Hazardous Decomp. Prods.:** Heated to decom. or on contact with acid or acid fumes, emits highly toxic fumes of CN\(^-\), SO\(_x\), and NO\(_x\)

**Uses:** Synthetic flavor for pharmaceuticals; counter-irritant in external analgesic prods.; ointments

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Japan approved as flavoring; Canada DSL

Allyl isovalerate
CAS 2835-39-4; EINECS/ELINCS 220-609-7
FEMA 2045

Synonyms: Allyl isovalerianate; Allyl 3-methylbutyrate; Isovaleric acid allyl ester; 3-Methylbutanoic acid, 2-propenyl ester; 3-Methylbutyric acid, allyl ester; 2-Propenyl isovalerate; 2-Propenyl 3-methylbutanoate

Empirical: C₈H₁₄O₂

Properties: Colorless to pale yel. liq., apple aroma; m.w. 142.20; b.p. 89-90 C; ref. index 1.4162

Toxicology: LD₅₀ (oral, rat) 230 mg/kg, (skin, rabbit) 560 mg/kg; poison by ing.; mod. toxic by skin contact; experimental carcinogen, tumorigen; skin irritant; TSCA listed

Precaution: Wear protective gloves, splash-proof eye goggles; incompat. with strong oxidizers, acids

Hazardous Decomp. Prods.: Heated to decomp. emits COₓ, acid smoke and fumes

Storage: Keep in original, tightly closed container; keep away from heat, sparks, open flame

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL


Allyl methacrylates crosspolymer
CAS 182212-41-5

Properties: Fine wh. powd.

Uses: Adsorbent microporous polymer, delivery system for pharmaceutical controlled-release applics.

4-Allyl-1-methoxybenzene. See Estragole
4-Allyl-2-methoxyphenol. See Eugenol
4-Allyl-2-methoxyphenyl acetate. See Eugenyl acetate
4-Allyl-2-methoxyphenyl benzoate. See Eugenyl benzoate
4-Allyl-2-methoxyphenyl formate. See Eugenyl formate
4-Allyl-2-methoxyphenyl tiglate. See Allyl tiglate
4-Allyl-3-methylbutyrate. See Allyl isovalerate
4-Allyl trans-2-methyl-2-butoanoate. See Allyl tiglate
4-Allyl nonanoate
CAS 7493-72-3; EINECS/ELINCS 231-334-7
FEMA 2036

Synonyms: Allyl pelargonate; 2-Propenyl tiglate
Chemical Component Cross-Reference

**nonanoate**
- **Empirical:** C\(_{12}\)H\(_{22}\)O\(_2\)
- **Formula:** C\(_3\)H\(_5\)OOC(CH\(_2\))\(_7\)CH\(_3\)
- **Properties:** Mobile liq., pineapple odor; m.w. 198.31; b.p. 151 C; ref. index 1.4302
- **Precaution:** Combustible
- **Uses:** Synthetic flavor for pharmaceuticals
- **Features:** Sweet, fruity flavor
- **Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Allyl octanoate**
- **CAS:** 4230-97-1; EINECS/ELINCS 224-184-9
- **FEMA:** 2037
- **Synonyms:** Allyl caprylate; Allyl octylate; Octanoic acid allyl ester; Octanoic acid-2-propenyl ester
- **Empirical:** C\(_{11}\)H\(_{20}\)O\(_2\)
- **Properties:** Colorless liq., fruity odor; sol. in alcohol, fixed oils; sl. sol. in propylene glycol; insol. in glycerin, water; m.w. 184.31; dens. 0.8550; b.p. 87-88 C; flash pt. > 100 C; ref. index 1.5131 (25.5 C)
- **Toxicology:** LD\(_{50}\) (oral, rat) 475 mg/kg, (skin, rabbit) 820 mg/kg; mod. toxic by ingestion and skin contact; TSCA listed
- **Hazardous Decomp. Prods.:** Heated to decomps., emits acrid smoke and fumes
- **Uses:** Synthetic flavor for pharmaceuticals
- **Features:** Honey, pineapple-like flavor
- **Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Allyl phenylacetate**
- **CAS:** 1797-74-6; EINECS/ELINCS 217-281-2
- **FEMA:** 2039
- **Synonyms:** Allyl α-toluate; Benzeneacetic acid 2-propenyl ester; 2-Propenyl benzenecacetate
- **Empirical:** C\(_{11}\)H\(_{12}\)O\(_3\)
- **Properties:** Colorless to lt. yel. liq., fruity banana honey odor; m.w. 176.22; b.p. 89-93 C; ref. index 1.5122
- **Toxicology:** LD\(_{50}\) (oral, rat) 650 mg/kg; mod. toxic by ing.; human skin irritant; TSCA listed
- **Hazardous Decomp. Prods.:** Heated to decomps., emits acrid smoke and irritating fumes
- **Uses:** Synthetic flavor for pharmaceuticals
- **Features:** Sweet, honey-like flavor
- **Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Chemical Component Cross-Reference

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Allyl-3-phenylacrylate. See Allyl cinnamate
Allyl propanoate. See Allyl propionate

Allyl propionate
CAS 2408-20-6; EINECS/ELINCS 219-307-8
FEMA 2040
Synonyms: Allyl propanoate; 2-Propenyl propanoate
Empirical: C6H10O2
Properties: Colorless liq.; apricot-apple odor; m.w. 114.15; sp.gr. 0.914; b.p. 122-123 C; ref. index 1.4105 (20 C), 1.4142 (14 C)
Uses: Synthetic flavor for pharmaceuticals
Features: Imitation apricot aroma
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Allyl sorbate
CAS 7493-75-6; 30895-79-5
FEMA 2041
Synonyms: Allyl 2,4-hexadienoate
Empirical: C9H12O2
Properties: M.w. 152.19
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Allyl sulfhydrate. See Allyl mercaptan

Allyl sulfdie
CAS 592-88-1; EINECS/ELINCS 209-775-1
FEMA 2042
Synonyms: Allyl monosulfide; Diallyl monosulfide; Diallyl sulfide;

†=pharmaceutical grade

Diallylthioether; ‘Oil garlic’; Thioallyl ether; 3,3’-Thiobis-1-propene
Empirical: C6H10S
Formula: (CH2:CHCH2)2S
Properties: Colorless liq.; garlic odor; misc. with alcohol, ether, chloroform, CCl4; insol. in water; m.w. 114.20; dens. 0.887 (20/4 C); m.p. -83 C; b.p. 138 C; flash pt. 23 C; ref. index 1.4877 (27 C)
Toxicology: LD50 (oral, rat) 2980 mg/kg, (skin, rabbit) > 5 g/kg; poison by IV route; mod. toxic by ing.; irritating to skin, eyes, mucous membranes; TSCA listed
Precaution: Flamm.; explosive reaction with N-bromosuccinimide
Hazardous Decomp. Prods.: Heated to decomp., emits toxic SOx, CO, CO2
Storage: Store at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI

Alllyl thiocarbonimide. See Allyl isothiocyanate

Allylthiol. See Allyl mercaptan

Alllyl tiglate
CAS 7493-71-2; EINECS/ELINCS 231-333-1
FEMA 2043
Synonyms: Allyl trans-2,3-dimethylacrylate; Allyl trans-2-methyl-2-butenoate
Empirical: C8H12O2
Properties: Fruity odor; m.w. 140.18; dens. 0.926; flash pt. 140 F
Uses: Synthetic flavor for pharmaceuticals
Features: Berry, jam-like flavor
Regulatory: FDA 21CFR §172.515; FEMA
**Chemical Component Cross-Reference**

GRAS; Canada DSL

**Manuf./Distrib.:** SAFC Specialties

http://www.saftcspecialties.com

**All**yl α-toluate. See Allyl phenylacetate

**All**yl 10-undecenoate

CAS 7493-76-7

**FEMA** 2044

**Synonyms:** Allyl hendecenoate; Allyl undecylenate; Allyl-2-undecylenate; Allyl undecylenoate

**Empirical:** C14H24O2

**Properties:** Liq., pineapple odor; misc. with most org. solvs.; insol. in water; m.w. 224.34; b.p. 180 C; ref. index 1.4448

**Uses:** Synthetic flavor for pharmaceuticals

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Manuf./Distrib.:** ABCR

http://www.abcr.de

Advanced Synthesis Tech.

http://www.advancesyntheses.com

Allyl undecylenate; Allyl-2-undecylenate; Allyl undecylenoate. See Allyl 10-undecenoate

**4-All**yl veratrole. See Methyl eugenol

Almond artificial essential oil. See Benzaldehyde

Almond, bitter, oil. See Bitter almond (Prunus amygdalus amara) oil

Almond oil. See Sweet almond (Prunus amygdalus dulcis) oil

Almond oil, bitter. See Bitter almond (Prunus amygdalus amara) oil

Almond oil PEG-6 esters

CAS 124046-50-0

**Definition:** Mixt. from the transesterification of almond oil and PEG-6

**Uses:** Emollient in pharmaceuticals; amphiphilic agent improving drug delivery

**Trade Names:** Saboderm AMD

Almond oil, sweet. See Sweet almond (Prunus amygdalus dulcis) oil

A**l**nose. See 4-Hydroxy-2,5-dimethyl-3(2H) furanone

Aloe barbadensis

CAS 8001-97-6; EINECS/ELINCS 232-295-9

**Synonyms:** Aloe vera

**Definition:** Plant material derived from the leaves of the aloe, Aloe barbadensis

**Toxicology:** LD50 (oral, rat) > 5 g/kg, (oral, mouse) > 10 g/kg; mutagen

**Storage:** Store @ R.T. protected from oxidation

**Uses:** Emollient in topical pharmaceuticals

**Regulatory:** FDA 21CFR §172.510

**Manuf./Distrib.:** Alfa Chem

http://www.alfachem1.com; Aloe Labs;

Ashland http://www.ashchem.com; Bio-Botanica† http://www.bio-botanica.com;

Frutarom http://www.frutarom.com

George Uhe http://www.uhe.com; R.W. Greeff† http://www.pechinent-chemicals.com; RTD Hallstar
Aloe barbadensis leaf juice

Synonyms: Barbadensis leaf juice
Uses: Moisturizer, soothing agent
Regulatory: BP, EP compliance

Trade Names: Aloe Vera Gel Regular 1X; Aloe Vera Gel Regular 10X; Terra-Pure™ Non-Preserved Freeze Dried Aloe Vera Powder, 200X; Terra-Pure™ Non-Preserved Freeze Dried Aloe Vera Powder Reg., 200X
Trade Names Containing: SheAloe™; Terra-Spray™ Spray Dried Aloe Vera Powder 100X Regular; Terra-Spray™ Spray Dried Aloe Vera Powder 100X

Aloe extract
CAS 84837-08-1; 85507-69-3; EINECS/ELINCS 305-181-2
FEMA 2047
Synonyms: Aloe barbadensis extract; Barbados aloe extract; Curacao aloe extract
Definition: Extract of leaves of one or more species of Aloe
Properties: Bitter char. flavor
Uses: Natural flavor, thickener, stabilizer, emollient for pharmaceuticals and health
Regulatory: FDA 21CFR §172.510 (roots and flowers); FEMA GRAS; Canada DSL

See also Althea officinalis extract

Althea (Althea officinalis) root
CAS 977005-75-6
Synonyms: Hibiscus moscheutos; Marshmallow
Definition: Dried root of Althea officinalis
Toxicology: Nontoxic
Uses: Flavor in oral pharmaceuticals; emollient; boiled root used as demulcent in ointments to soothe mucous membranes; externally as a poultice
Regulatory: FDA 21CFR §172.510
Manuf./Distrib.: Frutarom http://www.frutarom.com

Althea extract; Althea officinalis. See Althea officinalis extract

Althea officinalis extract
CAS 97676-24-9
FEMA 2048
Synonyms: Althea extract; Althea officinalis; Marshmallow root extract
Definition: Extract of the roots of the marshmallow, Althea officinalis
Uses: Natural flavor for pharmaceuticals; emollient
Regulatory: FDA 21CFR §172.510 (roots and flowers); FEMA GRAS; Canada DSL
Chemical Component Cross-Reference
dodecahydrate

Alumina
CAS 1344-28-1; 1333-84-2 (hydrate);
EINECS/ELINCS 215-691-6
Synonyms: Activated alumina; Activated aluminum oxide; Alumina, activated;
Alumina, calcined; Alumina, tabular;
Aluminium oxide alumite; Aluminium oxides C; Aluminum oxide; Aluminum oxide (2:3);
Alumite; Alundum; Calcined alumina;
Tabular alumina
Classification: Inorganic compd.
Definition: Occurs in nature as the minerals bauxite, bayerite, boehmite, corundum,
diaspore, gibbsite
Empirical: Al2O3
Properties: Wh. cryst. powd., balls, or lumps,
odorless, tasteless; pract. insol. in water; very
sl. sol. in min. acids; m.w. 101.96; dens. 3.5-4;
vapor pressure 1 mm Hg (2158 C); bulking
value 0.032 gal/lb; m.p. 2050 C; b.p. 2977 C;
oil absorp. 13; hardness (Mohs) 8.8
Toxicology: TLV/TWA 10 mg/m3 (dust); toxic
by inhalation of dust; inh. may cause
Shaver's disease; may be irritating to
respiratory tract; eye irritant by mech.
abrasion; skin drying, peeling; experimental
tumorigen and neoplastigen by implant;
TSCA listed
Precaution: Noncombustible; incompat. with
hot chlorinated rubber
Hazardous Decomp. Prods.: Exothermic
reaction above 200 C with halocarbon
vapors produces toxic HCl and phosgene
Storage: Very hygroscopic
Uses: Colorant, dispersant in pharmaceutical
orals; abrasive; opacifier; visc. control
agent; dental cements
Regulatory: FDA 21CFR §73.1010, 177.1460;
exempt from certification, permanently listed;
Canada DSL
Manuf./Distrib.: Air Prods.
http://www.airproducts.com; Alcan
http://www.alcan.com; Alcoa
http://www.aldoaco.com; Aldrich†
http://www.sigma-aldrich.com; Alfa Aesar†
http://wwwalfa.com
AluChem http://www.aluchem.com;
Ashland† http://www.ashchem.com;
Atlantic Equip. Engrs.
http://www.micronmetals.com; Atomergic
Chemets† http://www.atomergic.com;
†=pharmaceutical grade
Cambrex Karlskoga AB†; Composition
Materials http://www.compmat.com;
Degussa http://www.degussa.com; Electro
Abratives http://www.electroabrasives.com;
Ferro/Transelco
Fluka http://www.sigma-aldrich.com; H.M.
Royal http://www.hmroyal.com; Honeywell
Spec. Chems.
http://www.honeywell.com/sites/sm/index.jsp;
Integra† http://www.integrachem.com;
Kahn & Co http://www.kahn.com
Lonza Sarl; MPS† http://www.mp-
solutionsinc.com; Mallinckrodt Baker†
http://www.mailbaker.com; NetQem
http://www.netqem.us; Nissan Chem. Ind.
http://www.nissanchem.co.jp
Noah http://www.noahtech.com; PQ
http://www.pqcorp.com; Penta Mfg.†
http://www.pentamfg.com; Reade Advanced
Materials http://www.reade.com; Rhodia
http://www.rhodia.com
SPI Pharma† http://www.spipharma.com;
San Yuan; Sasol N. Am.
http://www.sasolnorthamerica.com; Selecto
Scientific† http://www.selectoinc.com;
Spectrum Quality Prods.†
http://www.spectrumchemical.com
Sumitomo Chem. http://www.sumitomo-
chem.co.jp; Symrise USA†
http://www.symrise.com; VWR Int’l.†
http://www.vwrsp.com; Wilshire
http://users.aol.com/wilshrchem/chmlist2.ht
m; Zircar Zirconia
http://www.zircarzirconia.com
Trade Names: Selexsorb® CDO-200
Alumina, activated; Alumina, calcined. See
Alumina
Alumina hydrate; Alumina hydrated. See
Alumina hydroxide
Alumina, tabular. See Alumina
Alumina trihydrate; Aluminic acid. See
Aluminum hydroxide
Aluminium. See Aluminum
Aluminium oxide alumite; Aluminium oxides
C. See Alumina
Aluminophosphoric acid. See Aluminum
orthophosphate
Aluminosilicic acid, magnesium salt. See
Magnesium aluminum silicate
Aluminosilicic acid, sodium salt. See Sodium
silicoaluminate
### Aluminum

**CAS**: 7429-90-5; EINECS/ELINCS 231-072-3  
**UN**: 1309 (DOT); 1396 (DOT); NA 9260; INS 173; E173

**Synonyms**: Alumínium; Aluminium bronze; Aluminum dehydrated; Aluminum flake; Aluminum metal; Aluminum powder (INCI); CI 77000; Pigment metal 1

**Classification**: Metallic element

**Empirical**: Al

**Properties**: Silvery wh. cryst. solid; sol. in HCl, sulfuric acid; insol. in water, alcohol; a.w. 26.98; dens. 2.708; m.p. 660°C; b.p. 2450°C

**Toxicology**: ACGIH TLV/TWA 10 mg/m³ (dust), 2 mg/m³ (sol. salt), 5 mg/m³ (welding fumes); inh. of fine powds. can cause pulmonary fibrosis; overexposure may cause irritation to skin, eye, and respiratory tract; TSCA listed

**Precaution**: Flamm. in air; dust is explosive by heat, flame, or reaction with oxidizers; reactive; no stable isotopes; dangerous when wet

**HMIS**: Health 1, Flammability 0, Reactivity 3

**Storage**: Moisture-sensitive

**Uses**: Colorant for external pharmaceuticals, incl. those for eye area use

**Regulatory**: FDA 21CFR §175.105, 176.170, 178.3297; exempt from certification; permanently listed for drug use; Japan approved

**Manuf./Distrib.**: Alemark  
http://www.amsyn.com; Alfa Aesar  
http://www.alfa.com; Alfa Chem†  
http://www.alfachem1.com; Ashland†  
http://www.ashchem.com; Chattem†  
http://www.chattemchemicals.com  
GFS†  
http://www.gfschemicals.com  
Integra†  
http://www.integrachem.com  
Jarchem Ind.  
http://www.jarchem.com  
Mallinckrodt Baker†  
http://www.mallbaker.com; OM Group  
http://www.omg.com  
Penta Mfg.†  
http://www.pentamfg.com  
Ruger†  
http://www.rugerchemical.com  
Spectrum Quality Prods.†  
http://www.spectrumchemical.com  
Universal Preserv-A-Chem†  
http://www.upichem.com; VWR Int'l.†  
http://www.vwrsp.com  
Voigt Global Distrib.†  
http://www.vgdllc.com

**See also**: Aluminum diacetate

### Aluminum acetate

**CAS**: 139-12-8; EINECS/ELINCS 205-354-1

**Synonyms**: Acetic acid, aluminum salt; Aluminum acetate, basic; Aluminum hydroxide acetate; Aluminum subacetate; Hydroxyaluminum di (acetate)

**Definition**: Aluminum salt of acetic acid

**Empirical**: C₂H₄O₂ • 1/3Al

**Formula**: (CH₃COO)₃Al

**Properties**: Wh. powd.; water-sol.; m.w. 69.02; m.p. 54°C

**Toxicology**: Harmful if swallowed, inhaled, or absorbed through skin; irritant; inh. of dust may cause irritation to upper respiratory tract; dust may irritate eyes

**Hazardous Decomp. Prods.**: CO, CO₂

**Storage**: Keep in tightly closed containers

**Uses**: Antiseptic; astringent; wet dressing for skin inflammations; antiperspirant

**Regulatory**: BP compliance; FDA 21CFR §175.105, 176.170; Canada DSL

**Manuf./Distrib.**: Alemark  
http://www.amsyn.com; Alfa Aesar  
http://www.alfa.com; Alfa Chem†  
http://www.alfachem1.com; Ashland†  
http://www.ashchem.com; Chattem†  
http://www.chattemchemicals.com  
GFS†  
http://www.gfschemicals.com  
Integra†  
http://www.integrachem.com

**See also**: Aluminum diacetate; Aluminum acetate; Aluminum diacetate basic; Aluminum diacetate; Aluminum, (allantoinato) dihydroxy-; Aldioxo; Aluminum ammonium bis (sulfate); Aluminum
Aluminum chloride (INCI). See Aluminum chloride anhydrous

Aluminum chloride anhydrous
CAS 7446-70-0; EINECS/ELINCS 231-208-1
UN 1726 (DOT); UN 2581 (DOT)

Synonyms: Aluminum chloride (INCI);
Aluminum trichloride; Trichloroaluminum

Classification: Inorganic salt

Empirical: AlCl3

Properties: Wh. or ylsh. cryst. powd. or solid, hydrochloric acid type odor, sweet, very astringent taste; very sol. in water; freely sol. in alcohol; sol. in glycerin, ether, benzene, HCl; m.w. 133.34; dens. 2.44; m.p. 190 C (2.5 atm); b.p. 182.7 C (752 mm)

Toxicology: LD50 (oral, rat) 3450 mg/kg, (skin, rabbit) 72 g/kg; irritant; lethal to mammals when ingested in large doses; allergic reactions in susceptible persons; TSCA listed

Precaution: Corrosive

Hazardous Decomp. Prods.: HCl

NFPA: Health 3, Flammability 0, Reactivity 2

Storage: Hygroscopic, deliq.; moisture-sensitive

Uses: Mfg. of pharmaceuticals; antiseptic; antiperspirant

Regulatory: Canada DSL

Manuf./Distrib.: AMRESCO†
http://www.amresco-inc.com; Albemarle†
http://www.albemarle.com; Aldrich†
http://www.sigma-aldrich.com; Alfa Aesar†
http://www.alfa.com; Alfa Chem†
http://www.alfachem1.com
Arkema http://www.total.com/; Asada
Chem. Ind.; Ashland†
http://www.ashchem.com; Atomergic
Chemets† http://www.atomergic.com;
BASF† http://www.basf.com
BCH Brühl http://www.bch-bruehl.de; Delta
http://www.deltachemical.com; Elementis
Pigments UK http://www.elementis.com;

†=pharmaceutical grade

GFS† http://www.gfschemicals.com;
General Chem.
http://www.genchemcorp.com; Geo Spec.
http://www.honeywell.com/sites/sm/index.jsp
Integra† http://www.integrachem.com; J.C.
Wilson; Mallinckrodt Baker†
http://www.mallbaker.com; Noah
http://www.noahitech.com; PCAS†
http://www.pcas.fr
Penta Mfg.† http://www.pentamfg.com;
Reheis† http://www.reheis.com; Sigma
http://www.sigma-aldrich.com/belgium;
Spectrum Quality Prods.†
http://www.spectrumchemical.com;
Universal Preserv-A-Chem†
http://www.upichem.com
VWR Int'l.† http://www.vwrsp.com;
Vanchlor http://www.vanchlor.com; Whyte
Chems. Ltd
http://www.whytechemicals.co.uk

Aluminum chloride basic. See Aluminum chlorohydrate

Aluminum chloride hexahydrate
CAS 7784-13-6; EINECS/ELINCS 231-208-1

Synonyms: Aluminum (III) chloride, hexahydrate; Aluminum chloride hydrated; Aluminum trichloride hexahydrate

Classification: Inorganic salt

Empirical: AlCl3H12O6

Formula: AlCl3 • 6H2O

Properties: Wh. to pale yel. moist cryst. or powd.; sol. in water; m.w. 241.43; dens. 2.398 g/ml; vapor pressure 1 mm Hg (100 C)

Toxicology: ACGIH TLV/TWA 2 mg/m3 (Al);
LD50 (oral, mouse) 1990 mg/kg, (IP, rat) 728 mg/kg; corrosive; causes burns; irritating to skin, eyes, mucous membranes, upper respiratory tract; may be harmful if swallowed, by skin absorp., inh.; inh. may cause spasm, inflamm./edema of larynx/bronchi, chem. pneumonitis, pulmonary edema; may cause burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, vomiting; TSCA listed

Precaution: Avoid moisture; may dec. on exposure to moist air or water; incompat. with strong acids

Hazardous Decomp. Prods.: Hydrogen chloride gas, aluminum oxide; thermal
Aluminum (III) chloride, hexahydrate; Aluminum chloride hydrated. See Aluminum chloride hexahydrate

Aluminum chloride hydroxide. See Aluminum sesquichlorohydrate; Aluminum chlorohydrate

Aluminum, chloro [(2,5-dioxo-4-imidazolidinyl) ureato] tetrahydroxydi- . See Alcloxa

Aluminum chlorohydrate

CAS 12042-91-0; EINECS/ELINCS 234-933-1

Synonyms: Aluminum chlorohydrate; Aluminum chlorohydrol; Aluminum chlorohydroxide; Aluminum chloride basic; Aluminum chloride hydroxide; Aluminum chlorohydrol; Aluminum chlorohydroxide; Aluminum hydroxide chloride; Aluminum hydroxychloride; Basic aluminum chloride; Basic aluminum chloride; Chlorohydrol; Chloropentahydroxydialuminum; Dialuminum chloride pentahydroxide; PAC

Classification: Inorganic salt

Definition: Prod. with OH:Al ratio of 2.5 (basic aluminum chloride prods. with lower OH:Al ratios are called polyaluminum chloride)

Empirical: H₅Al₂ClO₅; H₅Al₂ClO₅ • 2H₂O (dihydrate)

Formula: Al₂(OH)₅Cl; Al₂(OH)₅Cl • 2H₂O (dihydrate)

Properties: Wh. powd. (dihydrate) or sol'n.; dissolves in water forming sl. turbid colloidal sol'n. (up to 55% w/w); m.w. 174.46 (anhyd.), 210.48 (dihydrate); pH 4.0-4.4 (15%)

Toxicology: ACGIH TLV/TWA 2 mg(Al)/m³;

TDL0 (oral, rat) 13 g/kg; mild human skin irritant; TSCA listed

Hazardous Decomp. Prods.: Heated to comp., emits toxic fumes of Cl⁻

HMIS: Health 2, Flammability 0, Reactivity 0

Uses: Antiperspirant active, deodorant; astringent

Regulatory: BP, EP compliance; DOT nonregulated


Aluminum, chloro [(2,5-dioxo-4-imidazolidinyl) ureato] tetrahydroxydi- . See Alcloxa

Aluminum chlorohydrate

CAS 12042-91-0; EINECS/ELINCS 234-933-1

Synonyms: Aluminum chlorohydrate; Aluminum chlorohydrol; Aluminum chlorohydroxide; Aluminum chloride basic; Aluminum chloride hydroxide; Aluminum chlorohydrol; Aluminum chlorohydroxide; Aluminum hydroxide chloride; Aluminum hydroxychloride; Basic aluminum chloride; Basic aluminum chloride; Chlorohydrol; Chloropentahydroxydialuminum; Dialuminum chloride pentahydroxide; PAC

Classification: Inorganic salt

Definition: Prod. with OH:Al ratio of 2.5 (basic aluminum chloride prods. with lower OH:Al ratios are called polyaluminum chloride)
### Chemical Component Cross-Reference

**Aluminum chlorohydrex PG**

**CAS**: [245090-52-2](#); **EINECS/ELINCS**: [258-309-3](#)

**Synonyms**: Aluminum chlorohydrex propylene glycol complex; 1,2-Propanediol, reaction prods. with aluminum chloride hydroxide (Al₂Cl(OH)₃)

**Definition**: Coordination complex of aluminum chlorohydrate and propylene glycol in which some of the water molecules have been displaced by the propylene glycol

**Properties**: Sol. in alcohol

**Uses**: Antiperspirant; OTC active

**Trade Names**: Reach® 301 PG Powd.; Rehydrol® II

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**Aluminum chlorohydrex propylene glycol complex**: See Aluminum chlorohydrex PG

**Aluminum chlorohydrol**: See Aluminum chlorohydrex PG

**Aluminum chlorohydroxide**: See Aluminum chlorohydrex PG

**Aluminum chlorohydroxyallantoinate**: See Alcloxa

**Aluminum, chlorohydroxy lactate sodium complexes**: See Sodium aluminum chlorohydroxy lactate

**Aluminum, chlorotetrahydroxy ((2-hydroxy-5-oxo-2-imidazolin-4-yl) ureato) dihydroxy**: See Aldioxa

**Aluminum diacetate**

**CAS**: [142-03-0](#); **EINECS/ELINCS**: [205-518-2](#)

**Synonyms**: Aluminum acetate; Aluminum acetate basic; Aluminum, bis (acetato-O) hydroxy-; Aluminum diacetate hydroxide; Aluminum hydroxyacetate; Aluminum subacetate; Basic aluminum acetate; Bis (acetato-O) hydroxyaluminum; Hydroxyaluminum diacetate; Mordant rouge

**Classification**: Salt

**Empirical**: C₄H₇AlO₅

**Formula**: Al(OH)(CH₃CO₂)₂

**Properties**: Wh. amorphous powd.; insol. in water, alcohol, ether; forms gel w/ aliphatic and aromatic hydrocarbons; m.w. 162.08; dens. 1.009; m.p. 145°C

**Toxicology**: ACGIH TLV/TWA 10 mg/m³; nuisance dust; TSCA listed

**Hazardous Decomp. Prods.**: Heated to decomp., emits acrid smoke and irritating vapors

**HMIS**: Health 1, Flammability 0, Reactivity 0

**Uses**: Emulsion stabilizer; opacifier; visc. control agent


**Trade Names**: Aluminum Stearate 22; Kemilub EA

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**Aluminum diacetate hydroxide**: See

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**Aluminum distearate**

**CAS**: [300-92-5](#); **EINECS/ELINCS**: [206-101-8](#)

**Synonyms**: Aluminum hydroxide distearate; Aluminum, hydroxybis (octadecanoato-o) -; Aluminum, hydroxybis (stearato)-; Aluminum hydroxydistearate; Monohydroxyaluminum distearate

**Definition**: Aluminum salt of stearic acid

**Empirical**: C₃₆H₇₁AlO₅

**Formula**: [CH₃(CH₂)₁₆COO]₂Al(OH)

**Properties**: Wh. powd.; insol. in water, alcohol, ether; forms gel w/ aliphatic and aromatic hydrocarbons; m.w. 611.05; dens. 1.009; m.p. 145°C

**Hazardous Decomp. Prods.**: Heated to decomp., emits acrid smoke and irritating vapors

**HMIS**: Health 1, Flammability 0, Reactivity 0

**Uses**: Emulsion stabilizer; opacifier; visc. control agent


**Trade Names**: Aluminum Stearate 22; Kemilub EA

---

**Aluminum diacetate**

**Aluminum, dihydroxy (octadecanoato-o) -**

**See Aluminum stearate**

**Aluminum, [[2,5-dioxo-4-imidazolidiyl] ureato] dihydroxy-**

**See Aldioxa**

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**Aluminum flake**: See Aluminum

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**Aluminum formate**

**CAS**: [7360-53-4](#); **EINECS/ELINCS**: [230-898-1](#)

**Synonyms**: Aluminum formate, trihydrate; Aluminum triformal; Formic acid, aluminum salt

**Definition**: Aluminum salt of formic acid

**Empirical**: C₃H₉AlO₆

**Formula**: [CH₃CO₂]₃Al(OH)

**Properties**: Wh. cryst.; m.w. 152.03

**Toxicology**: Aq. sol'n. explodes when heated in air

**Precaution**: Aq. sol'n. explodes when heated in air

**Uses**: Antimicrobial in pharmaceuticals; in antiperspirants

**Regulatory**: Canada DSL

**Manuf./Distrib.**: Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)

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**Aluminum diacetate**

**Aluminum diacetate hydroxide**

**†=pharmaceutical grade**
**Chemical Component Cross-Reference**


**Aluminum formate, trihydrate.** See Aluminum formate

**Aluminum hydrate.** See Aluminum hydroxide

**Aluminum hydroxide**

**CAS** 21645-51-2; EINECS/ELINCS 244-492-7

**Synonyms:** Alumina hydrate; Alumina hydrated; Alumina trihydrate; Aluminic acid; Aluminum hydrate; Aluminum oxide hydrate; Aluminum trihydrate; Aluminum trihydroxide; ATH; Hydrated alumina; Hydrated aluminum oxide; Trihydrated alumina

**Classification:** Inorganic compd.

**Empirical:** Al(H₃O)₃

**Formula:** Al(OH)₃

**Properties:** Wh. cryst. powd. or gran.; odorless; insol. in water, alcohol; sol. in min. acids, caustic soda; m.w. 78.01; dens. 2.42; bulkling value 0.050 gal/lb; m.p. loses water @ 300 C; oil absorp. 32-38; GE brightness 93-99; ref. index 1.57; hardness (Mohs) 2.5-3.5

**Toxicology:** TLV/TWA 2 mg (Al)/m³; LDLo (IP, rat) 150 mg/kg; poison by IP route; human systemic effects by ing. (fever, GI effects); irritant; no known skin toxicity; mutagenic data; TSCA listed

**Precaution:** Incompat. with chlorinated rubber; when coprecipitated with bismuth hydroxide, and reduced by H₂, it is violently flammable in air; incompat. with strong acids, strong bases

**HMIS:** Health 1, Flammability 0, Reactivity 1

**Storage:** Store in closed containers; avoid generating dust

**Uses:** Emollient, humectant, visc. control agent, stabilizer, filler, abrasive, mild astringent, adsorbent, protein binder in pharmaceuticals, orals; antiperspirants; dusting powds.; gastric antacid in medicine; polishing agent, abrasive in dentifrices

**Regulatory:** FDA 21CFR §73.1010, 175.300, 176.170, 176.210, 177.1200, 177.2600, 178.3297, 182.90; Canada DSL

**Manuf./Distrib.:** AXO Chem. [http://www.axochemical.com]; Akrochem

†=pharmaceutical grade

http://www.akrochem.com; Alcan
http://www.alcan.com; Alcoa
http://www.aldoaco.com; Aldrich†
http://www.sigma-aldrich.com

### Chemical Component Cross-Reference

†=pharmaceutical grade

http://www.upichem.com; VWR Int’l†
http://www.vwrsp.com; Voigt Global Distrib.†
http://www.vgdllc.com
ZenPharm Int’l†
http://www.zenpharm.com

**Trade Names:**
- HT-550;
- HT-636;
- HT-910;
- Hydral® 710;
- Hydral® PGA-HD
- Rehydragel® CG;
- Rehydragel® HPA;
- Rehydragel® LV;
- SB-30

### Trade Names:
- Trade Names: **HT-550**;
- Trade Names: **HT-636**;
- Trade Names: **HT-910**;
- Trade Names: **Hydral® 710**;
- Trade Names: **Hydral® PGA-HD**
- Trade Names: **Rehydragel® CG**;
- Trade Names: **Rehydragel® HPA**;
- Trade Names: **Rehydragel® LV**;
- Trade Names: **SB-30**

### Aluminum hydroxide acetate
- See Aluminum acetate

### Aluminum hydroxide chloride
- See Aluminum chlorohydrate

### Aluminum hydroxide distearate
- See Aluminum distearate

### Aluminum hydroxyacetate
- See Aluminum diacetate

### Aluminum, hydroxybis (octadecanoato-o)-
- See Aluminum diesterate

### Aluminum, hydroxybis (stearato)-
- See Aluminum diesterate

### Aluminum hydroxychloride
- See Aluminum chlorohydrate

### Aluminum hydroxydistearate
- See Aluminum distearate

### Aluminum-L-2-hydroxypropionate
- See Aluminum lactate

### Aluminum lactate
- CAS 18917-91-4; EINECS/ELINCS 242-670-9
- Synonyms: **Aluminophosphoric acid**;
  - **Aluminum phosphate**;
  - **Aluminum phosphate tribasic**;
  - **Aluphos**;
  - **Phosphoric acid, aluminum salt (1:1)**

### Empirical:
- $\text{C}_9\text{H}_{15}\text{AlO}_9$

### Formula:
- $\text{AlPO}_4$

### Properties:
- Wh. cryst.; insol. in water and alcohol; sl. sol. in HCl, nitric acid; m.w. 121.95; dens. 2.566; m.p. > 300 C; isomorphous with quartz

### Toxicology:
- Sol’ns. are corrosive to tissue; can cause severe irritation and burns to eyes and skin; inh. can irritate nose, throat, lungs and cause coughing, shortness of breath; avoid contact and inh.; prolonged/repeated exposure can irritate lungs, cause bronchitis; TSCA listed

### Hazardous Decomp. Prods.:
- Produces poisonous gases in fire

### Uses:
- Lubricant; pharmaceuticals; dental cements; antacid

### Regulatory:
- Canada DSL

### Manuf./Distrib.:**
- ABDT http://www.abcr.de;
- AMRESCO† http://www.amresco-inc.com;
- Aldrich† http://www.sigma-aldrich.com;
- Fluka http://www.sigma-aldrich.com; GFS†
Chemical Component Cross-Reference

†=pharmaceutical grade

Aluminum sesquichlorohydrate PEG
Aluminum sesquichlorohydrate, complex with 1,2-propanediol. See Aluminum sesquichlorohydrate PG

Aluminum sesquichlorohydrate PG
Synonyms: Aluminum sesquichlorohydrate, complex with oxyirane polymer; Aluminum sesquichlorohydrax polyethylene glycol complex

Definition: Coordination complex of aluminum sesquichlorohydrate and polyethylene glycol in which some of the water molecules have been displaced by the polyethylene glycol

Uses: Antiperspirant active; OTC drug active

Aluminum sesquichlorohydrax propylene glycol complex
Synonyms: Aluminum sesquichlorohydrate, complex with 1,2-propanediol; Aluminum sesquichlorohydrax propylene glycol complex

Definition: Coordination complex of aluminum sesquichlorohydrate and propylene glycol in which some of the water molecules have been displaced by the propylene glycol

Uses: Antiperspirant active; OTC drug active

Aluminum silicate
CAS 1327-36-2; EINECS/ELINCS 215-475-1
INS559

Synonyms: Aluminum oxide silicate; CI 77004; Pyrophyllite; Willinite

Definition: Complex inorganic salt with 1 mole alumina, 1-3 moles silica; naturally occurring forms: andalusite, cyanite, sillimanite; other aluminum silicate mins. incl. kaolinite, kochite, mullite, newtonite, pyrophyllite, etc.

Properties: Varying proportions of Al₂O₃ and SiO₂: wh. mass, crystals, or whiskers; high str.; insol. in water; dens. 2.63; oil absorp. 35-45; GE brightness 82-92; ref. index 1.56; hardness (Mohs) 2

Toxicology: Essentially harmless when given orally or applied to skin; questionable carcinogen with experimental tumorigenic data by implantation

Uses: Thickener, absorbent, opacifier for pharmaceuticals, orals; mild abrasive for dentifrices; reinforcing agent, extender,
pigment in dental cements; protective agent for stomach mucosa

Regulatory: FDA 21 CFR §175.300, 177.1200, 177.1460, 177.2600, 184.1155; Canada DSL


Trade Names: Kaopolite® 1147; Kaopolite® SF; Sipernat® 44; Takallophane
See also Pyrophylite

Aluminum silicate dihydrate; Aluminum silicate hydrated; Aluminum silicate hydrous; Aluminum silicate hydroxide. See Kaolin

Aluminum sodium silicate. See Sodium silicoaluminate

Aluminum starch octenyl succinate

CAS 9087-61-0

†=pharmaceutical grade

Synonyms: Starch aluminum octenyl succinate; Starch, hydrogen octenylbutanedioate, aluminum salt; Starch, octenylbutanedioate, aluminum salt

Definition: Aluminum salt of the prod. of octenylsuccinic anhydride with starch

Properties: Free-flowing wh. powd.

Toxicology: TSCA listed

Uses: Absorbent, visc. control agent in pharmaceutical topicals and ointments

Regulatory: FDA Inactive Ingredients Guide listed, FDA 21CFR §172.892, 175.105; Canada DSL

Aluminum stearate

CAS 7047-84-9; EINECS/ELINCS 230-325-5

INS470

Synonyms: Aluminum, dihydroxy (octadecanoato-o-); Aluminum monobasic stearate; Aluminum monostearate; Aluminum stearate, monobasic; Dihydroxyaluminum monostearate; Dihydroxyaluminum stearate; Octadecanoic acid, aluminum salt; Stearic acid, aluminum dihydroxide salt; Stearic acid, aluminum salt

Classification: Aliphatic organic; sat. aliphatic carboxylic acid salt

Definition: Aluminum salt of stearic acid

Empirical: C_{18}H_{37}AlO_4

Formula: CH_3(CH_2)_{16}COOAl(OH)_2

Properties: Wh. to ylsh. fine powd., faint char. odor; sol. in alkali, petrol., turpentine oil; insol. in water, alcohol, ether; m.w. 344.48; dens. 1.070; m.p. 115 C

Toxicology: ACGIH TWA 10 mg/m^3; TLV/TWA 2 mg(Al)/m^3; LD50 (oral, rat) > 5 g/kg; essentially nontoxic; nuisance dust; inh. of high concs. of dust may cause coughing and mild temporary irritation; sl. eye irritant; TSCA listed

Precaution: Combustible dust; may form explosive dust-air mixts.; incompat. with acids (reacts vigorously)

Hazardous Decomp. Prods.: Thermal decomp. prods.: CO, CO_2, aluminum oxide; heated to decomp., emits acrid smoke and irritating fumes

HMIS: Health 1, Flammability 1, Reactivity 0

Storage: Store in cool area away from ignition sources

Uses: Suspending agent, emollient, emulsion stabilizer, opacifier, visc. builder, gellant in pharmaceuticals
Chemical Component Cross-Reference

Regulatory: FDA §121.1099, 172.863, 173.340, 175.105, 175.210, 175.300, 176.170, 176.200, 176.210, 177.1200, 177.1460, 177.2260, 177.2800, 178.3297, 178.3910, 179.45, 181.22, 181.29; USP/NF compliance; Canada DSL


Trade Names: Alugel 30DF; Synpro® Aluminum Monostearate NF; Synpro® Aluminum Monostearate NF Gellant

Trade Names Containing: Dehymuls® E; Pionier® L-15; Pionier® SVE; Pionier® T-0145; Pionier® T-0150; Pionier® WWH-N; Pionier® WWH-Soft

Aluminum stearate, monobasic. See Aluminum stearate

†=pharmaceutical grade

Aluminum subacetate. See Aluminum acetate; Aluminum diacetate

Aluminum sulfate

CAS 10043-01-3 (anhyd.); 17927-65-0 (hydrate); EINECS/ELINCS 233-135-0
UN 1760 (sol'n.) (DOT); INS520

Synonyms: Alum; Aluminum trisulfate; Cake alum; Dialuminum sulfate; Dialuminum trisulfate; Papermakers' alum; Patent alum; Pearl alum; Sulfuric acid aluminum salt; Sulfuric acid, aluminum salt (3:2)

Classification: Inorganic salt

Empirical: Al₂O₃S₃

Formula: Al₂(SO₄)₃ • 14H₂O

Properties: Wh. cryst. powd., odorless, sweet taste; sol. 36.4% in water (20 C); insol. in alcohol; m.w. 342.14 (anhyd.); dens. 2.71; b.p. dec. @ 770 C; stable in air

Toxicology: ACGIH TLV-TWA 2 mg/m³; LD50 (oral, mouse) 6207 mg/kg; mod. toxic by ing. and IP routes; irritating to skin, eyes, respiratory tract; ing. causes nausea, vomiting, abdominal pain; hydrolyzes to form sulfuric acid which irritates tissue, esp. lungs; TSCA listed

Precaution: Forms sulfuric acid with water; dec. to sulfur oxides at high temps.

Hazardous Decomp. Prods.: SOₓ

HMIS: Health 1, Flammability 0, Reactivity 0

Storage: Hygroscopic

Uses: Firming agent in pharmaceuticals, otics; antiseptic, astringent, and detergent in antiperspirants, skin treatments; 20% sol'n. for treatment of insect or marine organism venom

Regulatory: FDA 21CFR §172.892, 173.3120, 182.1125, GRAS; BP, EP compliance; Canada DSL

<table>
<thead>
<tr>
<th>Chemical Component Cross-Reference</th>
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<td><strong>Giulini Chemie</strong> <a href="http://www.bk-giulini.com/e-index1.htm">http://www.bk-giulini.com/e-index1.htm</a></td>
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<td><strong>Degussa AG/Health &amp; Nutrition</strong> <a href="http://www.deltachemical.com">http://www.deltachemical.com</a>; Delta <a href="http://www.deltachemical.com">http://www.deltachemical.com</a></td>
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<td><strong>Mallinckrodt Baker†</strong> <a href="http://www.mallbaker.com">http://www.mallbaker.com</a>; <strong>Melchemie bv</strong> <a href="http://www.melchemie.com">http://www.melchemie.com</a>; <strong>Mutchler</strong> <a href="http://www.mutchlerchem.com">http://www.mutchlerchem.com</a>; <strong>Penta Mfg.†</strong> <a href="http://www.pentamfg.com">http://www.pentamfg.com</a>; <strong>Rasa Ind.</strong> <a href="http://www.rasa.co.jp">http://www.rasa.co.jp</a></td>
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### Aluminum, tris (lactato)‐
See **Aluminum lactate**

### Aluminum trisulfate
See **Aluminum sulfate**

### Aluminum zirconium chlorohydrax glycine
**CAS 134-58-7**; EINECS/ELINCS **205-146-1**

**Synonyms:** 5-Amino-1,4-dihydro-7H-1,2,3-triazolo(4,5-d)pyrimidin-7-one; 2-Amino-6-hydroxy-8-azapurin; 2-Amino-6-oxy-8-azapurin; AZG

**Formula:** C₄H₄N₆O

**Properties:** Lt.-orange powd. or wh. to off-wh. crystalline powd.; insol. in water; m.w. 152.1152; m.p. > 300 C (decomposes); assay > 99%

**NFPA:** Health 1, Flammability 1, Reactivity 0

**Uses:** Antiperspirant active

**Regulatory:** FDA GRAS

**Trade Names:** AAZG-507; AAZG-6313; AAZG-7160; AAZG-7167; AAZG-7168; AAZG-368; AAZG-369; AAZG-370; AAZG-417; AAZG-442

### Aluminum zirconium octachlorohydrax GLY
**CAS 90064-80-1; 174514-58-0**; EINECS/ELINCS **292-375-4**

**Synonyms:** Aluminum zirconium octachlorohydrax glycine complex

**Definition:** Coordination complex of aluminum zirconium octachlorohydrax and glycine in which some of the water molecules have been displaced by the glycine

**Uses:** Antiperspirant active; OTC drug active

### Aluminum zirconium octachlorohydrax glycine complex
See **Aluminum zirconium octachlorohydrax GLY**

### Aluminum zirconium pentachlorohydrax
**CAS 98106-54-8**; EINECS/ELINCS **308-575-2**

**Synonyms:** Octa(Aluminum zirconium pentachlorohydrax GLY)

**Definition:** Polymeric, complex basic aluminum zirconium chloride, loosely hydrated, with aluminum to zirconium atomic ratios from 6.0 up to and including 10.0 to 1 and total metals to chloride ratios from 2.1 down to but not
Aluminum zirconium pentachlorohydrex GLY

**Definition:** Coordination complex of aluminum zirconium trichlorohydrate and glycine where glycine replaces water molecule

**Uses:** Antiperspirant active; OTC drug active

**Trade Names:** Rezal® 67 (40% Sol’n.); Rezal® 67P

**Manuf./Distrib.:** Reheis†

**CAS:** 90604-80-1; 125913-22-6; EINECS/ELINCS 292-375-4

**Synonyms:**
- Aluminum zirconium pentachlorohydrex glycine complex;
- Zirconium, chloro glycine hydroxy aluminum complexes

**Definition:** Coordination complex of aluminum zirconium pentachlorohydrate and glycine in which some of the water molecules have been displaced by the glycine

**Uses:** Antiperspirant active; OTC drug active

**Aluminum zirconium pentachlorohydrex glycine complex.** See Aluminum/zirconium trichlorohydrrex GLY

**Aluminum zirconium tetrachlorohydrex GLY**

**Definition:** Coordination complex of aluminum/zirconium tetrachlorohydrate and glycine where glycine replaces water molecule

**Uses:** Antiperspirant active; OTC drug active

**Manuf./Distrib.:** Reheis†

**CAS:** 90604-80-1; 134910-86-4; EINECS/ELINCS 292-375-4

**Synonyms:**
- Aluminum zirconium tetrachlorohydrex glycine complex;
- Zirconium, chloro glycine hydroxy aluminum complexes

**Aluminum/zirconium trichlorohydrex GLY**

**Definition:** Coordination complex of aluminum zirconium trichlorohydrate and glycine where glycine replaces water molecule

**Uses:** Antiperspirant active; OTC drug active

**Manuf./Distrib.:** Reheis†

**CAS:** 915-67-3; EINECS/ELINCS 213-022-2

**Synonyms:**
- Acid amaranth; Acid red 27 (INCI);
- Acid red 27, trisodium salt; Azorubin S; CI 16185; D&C Red No. 2; Fast red; FD&C Red No. 2; Food red 2; Food red 9; 2-Hydroxy-1,1′-azonaphthalene-3,6,4′-trisulfonic acid trisodium salt; 3-Hydroxy-4-(4-sulfo-1-naphthalenyl) azo]-2,7-naphthalenesulfonic acid trisodium salt; 3-Hydroxy-4-(4-sulfo-1-naphthyl) azo)-2,7-naphthalenedisulfonic acid, trisodium salt; Naphthol red; Naphthylamine red; Red cockscomb; Red dye no. 2; Red no. 2; 1-(4-Sulfo-1-naphthylazo)-2-naphthol-3,6-disulfonic acid trisodium salt

**Classification:** Monoazo dye

**Empirical:** C_{20}H_{11}N_{2}Na_{3}O_{10}S_{3}

**Formula:** NaSO_{3}C_{10}H_{5}N=NC_{10}H_{4}(SO_{3}Na)_{2}OH

**Properties:** Dk. red to purple powd.; pract. odorless; saline taste; sol. in water, glycerol, propylene glycol, citric acid, tartaric acid; very sl. sol. in alcohol, Cellosolve; insol. in oil, fat, most org. solvs.; m.w. 604.48; dens. ≈ 1.50; m.p. > 300 C; pH = 10.8 (1% aq.); anionic

**Toxicology:** LD_{50} (IP, rat) 1 g/kg, (IV, rat) 1 g/kg; harmful by inh., ing., skin contact; irritating to eyes, skin, respiratory system; may cause anaphylactic symptoms, urticaria; possible carcinogen; reproductive effector; tumorigen; mutagen; TSCA listed

**Precaution:** Probably combustible
Ambretolide
CAS 123-69-3; 7779-50-2; EINECS/ELINCS 204-644-5; 231-929-1
FEMA 2555
Synonyms: ω-6-Hexadecenolactone; 6-Hexadecenolide; 6-Hexadecen-16-olide; 7-Hexadec-7-en-16-olide; 16-Hydroxy-6-hexadecenoic acid, ω-lactone; Natural musk ambrette; 1-Octacycloheptadec-7-en-2-one; Oxacycloheptadec-8-en-2-one, (Z)-
Classification: lactone; macrocyclic musk
Empirical: C_{16}H_{28}O_2
Properties: Colorless liq.; powerful musk odor; m.w. 252.44; dens. 0.956; b.p. 185-190 C (16 mm); flash pt. > 110 C; ref. index 1.4790
Toxicology: LD_{50} (oral, rat) 339 mg/kg; LD_{50} (oral, mouse) 1600 mg/kg; poison by ing.; eye irritant; may be irritating to skin, mucous membranes, upper respiratory tract; may be harmful by inh., ing., or skin absorp.; TSCA listed
Precaution: Incompat. with strong oxidizing agents, strong acids, strong bases
Hazardous Decomp. Prods.: Toxic fumes of CO, CO_{2}; heated to decomp., emits acrid smoke and irritating vapors; emits toxic fumes under fire conditions
Storage: Store in cool, dry place; keep tightly closed
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Givaudan Fragrances, Givaudan, Givaudan; Penta Mfg., Penta Mfg.; SAFC Specialties, SAFC Specialties, SAFC Specialties

American dill seed oil. See Dill (Anethum graveolens) seed oil

Amethyst. See Quartz

Ametiodinic acid. See Iodamide

Amide C_{1}. See Formamide

Amides, C12-14, N,N-bis (hydroxyethyl). See Lauramide/myristamide DEA

Amides, coco, N,N-bis (2-hydroxyethyl). See Cocamide DEA

Amides, coco, N-3-(dimethylamino) propyl], N-oxides. See Cocamidopropylamine oxide

Amides, coco, N-2-hydroxypropyl). See Cocamide MIPA

Amides, palm kernel oil, N,N-bis (hydroxyethyl). See Palm kernelamide DEA

Amides, soya, N,N-bis (hydroxyethyl). See
### Chemical Component Cross-Reference

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<td>Amides, tall oil fatty, N,N-bis (hydroxyethyl)-.</td>
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<td>4-Aminobenzenesulfonamide; p-Aminobenzenesulfonamide. See Sulfanilamide</td>
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<tr>
<td>1-Aminobenzene-3-sulfonic acid; 3-Aminobenzenesulfonic acid; m-Aminobenzenesulfonic acid. See Metanilic acid</td>
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<td>Aminobenzoate sodium. See Sodium aminobenzoate</td>
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<td>Aminobenzoic acid. See p-Aminobenzoic acid</td>
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</tr>
<tr>
<td>p-Aminobenzoic acid</td>
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</table>

**Synonyms:** Aminobenzoic acid; 4-Aminobenzoic acid; γ-Aminobenzoic acid; 1-Amino-4-carboxybenzene; Anticanitic vitamin; Antichromotrichia factor; Benzoic acid, 4-amino-; 4-Carboxyanilide; p-Carboxybenzaldehyde; p-Carboxyphenylamine; Chromotrichia factor; PABA (INCI); Vitamin

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### Handbooks and Databases

- **H: Vitamin BX**
- **Classification:** Aromatic acid
- **Definition:** A compound of the vitamin B complex that is necessary for folic acid synthesis, but not essential for the human diet
- **Empirical:** C₇H₇NO₂
- **Formula:** NH₂C₆H₄CO₂H
- **Properties:** Colorless to yel. monoclinic prisms; sol. in oxygenated solvs., ethyl acetate, glacial acetic acid, water; sl. sol. in benzene; insol. in petrol. ether; m.w. 137.13; dens. 1.374; m.p. 187 C
- **Toxicology:** LD₅₀ (oral, mouse) 2850 mg/kg, (IV, rabbit) 2000 mg/kg; mod. toxic by ing., IV routes; ingesting lg. amts. can cause nausea, vomiting, skin rash, methemoglobinemia, possibly toxic hepatitis; irritant; can cause allergic eczema and lt. sensitivity in susceptible persons; experimental reproductive effects; mutation data; TSCA listed
- **Precaution:** Combustible, Hazardous Decomp. Prods.: Heated to decom., emits toxic fumes of NOx
- **HMIS:** Health 2, Flammability 1, Reactivity 0
- **Storage:** Light-sensitive
- **Uses:** OTC drug active; UV absorber in pharmaceuticals; local anesthetic in sunburn prods.; pharmaceutical intermediate; to treat arthritis; nutrition
- **Regulatory:** BP, EP compliance; GRAS; Canada DSL
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<td>p-Aminobenzoic acid ethyl ester.</td>
<td>See Ethyl-p-aminobenzoate</td>
</tr>
<tr>
<td>2-Aminobenzoic acid methyl ester; o-Aminobenzoic acid methyl ester.  See</td>
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</tbody>
</table>
### Chemical Component Cross-Reference

- [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
- [http://www.hampshire-chemical.com](http://www.hampshire-chemical.com)
- [Indofine](http://www.indofinechemical.com)
- [Penta Mfg.](http://www.pentamfg.com)
- [Sigma](http://www.sigma-aldrich.com/belgium)

**Trade Names:**
- AEP®

### 1-Amino-2-carboxybenzene

**See Anthranilic acid**

### 1-Amino-4-carboxybenzene

**See p-Aminobenzoic acid**

### 3-Amino-N-(α-carboxyphenethyl) succinic acid

**See Aspartame**

### 1-Amino-2-chlorobenzene

**See o-Chloroaniline**

### 1-Amino-3-chlorobenzene

**See m-Chloroaniline**

### 1-Amino-4-chlorobenzene

**See p-Chloroaniline**

### 2-Amino-1-chlorobenzene

**See o-Chloroaniline**

### 3-Amino-1-chlorobenzene

**See m-Chloroaniline**

### 4-Amino-1-chlorobenzene

**See p-Chloroaniline**

### m-Aminochlorobenzene

**See m-Chloroaniline**

### o-Aminochlorobenzene

**See o-Chloroaniline**

### p-Aminochlorobenzene

**See p-Chloroaniline**

### 2-Amino-2-deoxy-(1-4)-β-D-glucopyrananose

**See Chitosan**

### 2-Amino-2-deoxy-β-D-glucopyranose; 2-Amino-2-deoxyxylose

**See Glucosamine**

### N-[4-[[2-Amino-1,4-dihydro-4-oxo-6-pteridinyl] methyl] amino] benzoyl]-L-glutamic acid

**See Folic acid**

### 2-Amino-1,7-dihydro-6H-purin-6-one

**See Guanine**

### 5-Amino-1,4-dihydro-7H-1,2,3-triazolo(4,5-d)pyrimidin-7-one

**See Aluminum zirconium chlorohydrate glycine**

### 2-Amino-2,2-dimethylethanol

**See Aminomethyl propanol**

### 4-Aminodiphenylamine; p-Aminodiphenylamine

**See N-phenyl-p-phenylenediamine**

### 2-Aminoethanesulfonic acid

**See Taurine**

### 2-Aminoethanol; 2-Aminoethyl alcohol; β-Aminoethyl alcohol

**See Ethanolamine**

### Aminoethylpiperazine

**CAS 140-31-8;** EINECS/ELINCS 205-411-0

**UN 2815 (DOT)**

**Synonyms:** AEP; 1-(2-Aminoethyl) piperazine; N-Aminoethyl piperazine; N-(2-Aminoethyl) piperazine; N-(β-Aminoethyl) piperazine; 1-Piperazineethanamine; 2-Piperazinylethylamine; 1-(1-Piperazinyl)-2-aminobenzene; 2-Piperazin-1-yl ethylamine

**Classification:** Nonaromatic amine

**Empirical:** C₈H₁₃N₃

**Formula:** H₂N(CH₃)₂N⁺CH₂CH₂NH₂CH₂CH₂

**Properties:** Colorless or pale yel liq.; sol. in water; misc. with alcohols, ether, aromatic solvs.; m.w. 129.24; dens. 0.9837; f.p. 17.6 C; b.p. 222.0 C; flash pt. 200 F; ref. index 1.499

**Toxicology:**
- LD₅₀ (oral, rat) 214 mg/kg, (IP, mouse) 250 mg/kg, (skin, rabbit) 880 mg/kg; corrosive; strong irritant to tissue; poison by IP route; mod. toxic by ing. and skin contact; readily absorbed through skin; mutagen; TWA; OSHA 1.00 ppm, ACGIH 1.00 ppm; TSCA listed

**Precaution:** Combustible; corrosive to copper

**Hazardous Decomp. Prods.:** Heated to comp., emits toxic fumes of NOₓ

**Uses:** Intermediate for pharmaceuticals, anthelmintics

**Regulatory:** Canada DSL

**Manuf./Distrib.:** Akzo Nobel

- [http://www.akzonobel.com](http://www.akzonobel.com)
- [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
- [Fluka](http://www.sigma-aldrich.com/belgium)
- [BASF AG](http://www.basf.de)
- [Dow](http://www.dow.com)
- [Alfa Aesar](http://www.alfa.com)
- [Tosoh](http://www.tosoh.co.jp)

**†=pharmaceutical grade**
Chemical Component Cross-Reference

Aminoethyl propanediol
CAS 115-70-8; EINECS/ELINCS 204-101-2
Synonyms: AEPD; Aminoamylene glycol; 2-Amino-2-ethyl-1,3-propanediol; 2-Ethyl-2-amino-1,3-propanediol; 2-Ethyl-2-amino-1,3-propanediol; 1,3-Propanediol; 2-Amino-2-ethyl
Classification: Aliphatic diol; amino glycol
Empirical: C₅H₁₅NO₂
Formula: CH₂OHC(C₂H₅)NH₂CH₂OH
Properties: Cryst. solid or viscous liq.; nearly odorless (solid), mild amine odor (liq.); sol. in alcohols; misc. in water; sl. sol. in aromatic hydrocarbons; m.w. 119.16; sp.gr. 1.099 (20/20 C); m.p. 38 C; b.p. 153 C (10 mm Hg); sol. in hydrocarbons; m.w. 119.16; sp.gr. 1.099 (20/20 C); m.p. 38 C; b.p. 153 C (10 mm Hg); flash pt. > 110 C
Precaution: Can burn if strongly heated
Hazardous Decomp. Prods.: Thermal decomp. prods.: CO, CO₂, NOₓ; during a fire, irritating/toxic NOₓ fumes may be generated
Uses: Pharmaceutical intermediate
Regulatory: Canada DSL
Manuf./Distrib.: ANGUS
http://www.dow.com/angus/; Sigma
http://www.sigma-aldrich.com/belgium
Trade Names: AEPD®

†=pharmaceutical grade

5-Amino-4-hydroxy-3-(phenylazo)-2,7-naphthaledisulfonic acid disodium salt. See CI 17200; D&C Red No. 33
L-α-Amino-β-(4-hydroxyphenyl) propionic acid; (S)-2-Amino-3-(4-hydroxyphenyl) propionic acid. See L-Tyrosine
1-Amino-2-hydroxypropane. See Isopropanolamine
2-Amino-3-hydroxypropionic acid. See L-Serine
1-N-[(2-Amino-4-hydroxy-6-pteridinyl) methyl] amino] benzoyl] glutamic acid. See Folic acid
2-Amino-6-hydroxypurine; 2-Aminohypoxanthine. See Guanine
α-Amino-β-imidazolepropionic acid; L-α-Amino-β-imidazolepropionic acid. See L-Histidine
1-α-Amino-4 (or 5)-imidazolepropionic acid monohydrochloride. See Histidine hydrochloride monohydrate
(±)-2-Amino-3-(3-indolyl)propionic acid. See DL-α-Tryptophan
2-Aminoisobutane. See t-Butylamine
L-α-Aminoisocaproic acid; α-Aminoisocaproic acid. See L-Leucine
α-Aminoisopropyl alcohol. See Isopropanolamine
α-Aminoisovaleric acid. See DL-α-Valine; L-Valine
DL-2-Aminoisovaleric acid. See DL-α-Valine
L-(+)
-α-Aminoisovaleric acid. See L-Valine
(±)-α-Aminoisovaleric acid. See DL-α-Valine

Handbook of Pharmaceutical Additives, Third Edition 875
### Chemical Component Cross-Reference

| Chemical Component |CAS| Synonyms| Uses
|-------------------|---|---------|------------
| L-2-Amino-3-mercapto propanoic acid |115-69-5 | See L-Cysteine | Emulsifier in pharmaceutical creams and lotions; in medicines that reduce body water; pharmaceutical intermediate; alkaline buffer |
| L-2-Amino-3-mercapto propanoic acid monohydrochloride |124-68-5 | See Cysteine hydrochloride anhydrous | |
| L-2-Amino-3-mercapto propanoic acid monohydrate |124-70-8 | See Cysteine hydrochloride monohydrate | |
| (+)-2-Amino-3-mercaptopropanoic acid | | | |
| Aminomercaptobutyric acid | | | |
| Aminomethanamidine hydrochloride | | | |
| 1-Amino-2-methoxybenzene | | | |
| 1-Amino-4-methoxybenzene | | | |
| 2-Amino-1-methyl-4-imidazolidinone | | | |
| Creatinine | | | |
| 4-Amino-N-(5-methyl-3-isoxazolyl) benzenesulfonamide | | | |
| Sulfamethoxazole | | | |
| 1-α-Amino-γ-methyl mercapto butyric acid; (S)-2-Amino-4-(methyl mercapto) butyric acid | | | |
| See L-Methionine | | | |
| (±)-2-Amino-4-(methyl mercapto) butyric acid | | | |
| See DL-Methionine | | | |
| 2-Amino-3-methylpentanoic acid | | | |
| 2-Amino-4-methylpentanoic acid | | | |
| L-2-Amino-3-methylpentanoic acid | | | |
| 2-Amino-2-methylpropane | See t-Butylamine | | |
| Aminomethyl propanediol | | | |
| CAS 115-69-5; EINECS/ELINCS 204-100-7 | | | |
| Synonyms: Aminobutylene glycol; Aminoglycol; 2-Amino-2-methyl-1,3-propanediol; AMPD; Butanediolamine; Isobutandiol-2-amine; Pentaerythritol dichlorohydrin | | | |
| Classification: Aliphatic diol; amino glycol | | | |
| Empirical: C₄H₁₁NO₂ | | | |
| Formula: CH₂OCH(CH₃)NH₂CH₂OH | | | |
| Properties: Clear liq.; sol. in water and alcohol; m.w. 105.14; m.p. 110 C; b.p. 151 C (10 mm) | | | |
| Toxicology: LD₅₀ (oral, rat) 17 g/kg; poison by ing.; prolonged skin exposure may cause irritation; TSCA listed | | | |
| Precaution: Combustible; can react with oxidizers; corrosive to copper, brass, aluminum | | | |
| Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOₓ | | | |

### Handbook of Pharmaceutical Additives, Third Edition

**Uses:** Emulsifier in pharmaceutical creams and lotions; in medicines that reduce body water; pharmaceutical intermediate; alkaline buffer

**Regulatory:** Canada DSL

**Manuf./Distrib.:** ANGUS

- [Aldrich](http://www.sigma-aldrich.com)
- [Alfa Aesar](http://www.alfa.com)
- [Fluka](http://www.sigma-aldrich.com)
- [Monomer-Polymer & Dajac Labs](http://www.monomerpolymer.com)
- [Sigma](http://www.sigma-aldrich.com)
- [http://www.spectrumchemical.com](http://www.spectrumchemical.com)

**2-Amino-2-methyl-1,3-propanediol.** See Aminomethyl propanediol

### Aminomethyl propanol

**CAS 124-68-5; EINECS/ELINCS 204-709-8**

**Synonyms:** 2-Amino-2,2-dimethylethanol; 2-Amino-2-methyl-1-propanol; AMP; 1,1-Dimethyl-2-hydroxyethylamine; Isobutanolamine; Isobutanol-2 amine; 2-Methyl-2-amino-1-propanol

**Classification:** Substituted aliphatic alcohol

**Empirical:** C₄H₁₁NO

**Formula:** CH₃(CH₃)(NH₂)CH₂OH

**Properties:** Solid or visc. liq.; nearly odorless; very sol. in alcohol; misc. with water; sl. sol. in aromatic hydrocarbons; m.w. 89.14; dens. 0.93 (20/4 C); m.p. 30 C; b.p. 165 C (760 mm); flash pt. (TOC) 67 C; pH 11.3 (0.1M aq.)

**Toxicology:** Moderately toxic by ing.; irritating to eyes and skin; TSCA listed

**Precaution:** Flamm. exposed to heat or flame; can form explosive mixts. with air ≥ 67 C; corrosive to copper, brass, and aluminum

**Hazardous Decomp. Prods.:** Thermal decomp. prods.: CO, CO₂, NOₓ

**NFPA:** Health 2, Flammability 2, Reactivity 0

**Uses:** Buffer in pharmaceutical, diagnostic, and biochem. applics.

**Regulatory:** FDA 21CFR §175.105, 176.170; Canada DSL

**Manuf./Distrib.:** ANGUS

- [Aldrich](http://www.sigma-aldrich.com)
- [Alfa Aesar](http://www.alfa.com)
- [Fluka](http://www.sigma-aldrich.com)
- [Monomer-Polymer & Dajac Labs](http://www.monomerpolymer.com)
- [Sigma](http://www.sigma-aldrich.com)
- [http://www.spectrumchemical.com](http://www.spectrumchemical.com)

**Aldrich†**

- [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)
- [Spectrum Quality](http://www.sigma-aldrich.com)
- [Adept](http://www.aldey.com)
- [Alfa Chem†](http://www.alfa.com)
- [http://www.alfachem1.com](http://www.alfachem1.com)
- [Allchem Ind.](http://www.allchem.com)
- [Ashland](http://www.ashchem.com)
- [Dow†](http://www.dow.com)

**†=pharmaceutical grade**
2-Amino-2-methyl-1-propanol.  See  Aminomethyl propanol
3-[(4-Amino-2-methyl-5-pyrimidinyl) methyl]- 5-(2-hydroxyethyl)-4-methylthiazolium chloride.  See Thiamine
3-[(4-Amino-2-methyl-5-pyrimidinyl)methyl]-4-(2-hydroxyethyl)-4-methylthiazolium nitrate.  See Thiamine nitrate
4-Amino-N-(5-methyl-1,3,4-thiadiazol-2-yl) benzenesulfonamide.  See Sulfamethizole
DL-2-Amino-4-methylthiobutanoic acid; DL-2-Amino-4-(methylthio) butyric acid.  See DL-Methionine
L-2-Amino-4-methylthiobutyric acid.  See L-Methionine
1,2-Amino-4-methylvaleric acid.  See L-Leucine
2-Amino-3-methylvaleric acid.  See L-Isoleucine
2-Amino-4-methylvaleric acid.  See L-Leucine
α-Amino-β-methylvaleric acid.  See L-Isoleucine
α-Amino-γ-methylvaleric acid.  See L-Leucine
DL-2-Amino-3-methylvaleric acid.  See DL-Isoleucine
2-Amino-6-oxy-8-azapurine.  See Aluminum zirconium chlorohydrex glycine
2-Amino-6-oxypurine.  See Guanine
1-Aminopentane.  See Pentylamine
2-Aminopentane.  See Diethylamine
2-Aminopentanedioic acid; L-2-Aminopentanedioic acid.  See L-Glutamic acid
2-Aminopentanedioic acid hydrochloride.  See L-Glutamic acid hydrochloride
α-Amino-β-phenylpropionic acid.  See DL-Phenylalanine; L-Phenylalanine
DL-α-Amino-β-phenylpropionic acid.  See DL-Phenylalanine
L-α-Amino-β-phenylpropionic acid.  See L-Phenylalanine
4-Aminophenylsulfonamide; p-Aminophenylsulfonamide.  See Sulfanilamide
3-(p-Aminophenylsulfonamido)-5-methylisoxazole.  See Sulfamethoxazole
2-Aminopropane.  See Isopropylamine
1-Aminopropane-1,3-dicarboxylic acid.  See L-Glutamic acid
1-Amino-2-propanol; 1-Aminopropan-2-ol.  See Isopropanolamine
Aminopropyl ascorbyl phosphate
CAS 220644-17-7
Empirical: C₉H₁₆NO₇P
Properties: Wh. or sl/ yel. powd.; sol. in deionized water; insol. in ethanol, corn oil, olive oil, and mineral oil
Uses: Vitamin C source, antioxidant, skin conditioner, collagen synthesis promoter, cell growth promoter
Trade Names: Vitagen™
N-(3-Aminopropyl) diethanolamine
CAS 4985-85-7
UN 1760 (DOT)
Synonyms: APDEA; Ethanol, 2,2´-((3-aminopropyl)lmino)bis-
Classification: Alkanolamine
Properties: Colorless clear liq.; ammonia-like odor; sol. > 10% in water; sp.gr. 1.07; vapor pressure < 1 mm Hg (68 F); b.p. 167 C (760 mm); flash pt. (COC) 340 F; ref. index 1.4965
Toxicology: LD₅₀ (oral, rat) 3.50 ml/kg (sl. toxic), (dermal, rabbit) > 2.50 ml/kg (sl. toxic); causes eye and skin burns; harmful or fatal if swallowed; harmful if absorbed through skin; causes respiratory tract irritation and can cause damage; TSCA listed
Environmental: LC₅₀ (96 h) > 100-1000 ppm; pract. nontoxic
Precaution: Corrosive; reacts violently with acids
Hazardous Decomp. Prods.: Burning in limited air supply may produce combustion prods. of nitrogen, CO, CO₂, irritating aldehydes and ketones, and toxic levels of ammonia
HMIS: Health 3, Flammability 1, Reactivity 0
Storage: Minimize exposure to high temps.; avoid water contamination
Uses: Mfg. of pharmaceuticals
Regulatory: SARA §311 acute hazard; Canada DSL
Manuf./Distrib.: Huntsman
http://www.huntsman.com
Chemical Component Cross-Reference

(+)-Aminosuccinic acid; L-Aminosuccinic acid; L-α-Aminosuccinic acid. See L-Aspartic acid

α-Amino-β-thiopropionic acid; L-2-Amino-3-thiopropionic acid. See L-Cysteine

Aminotoluene; α-Aminotoluene. See N-Benzylamine

Aminotrimethylolmethane;
Aminotris(hydroxymethyl) methane. See Tris (hydroxymethyl) aminomethane

Ammonia
CAS 7664-41-7; EINECS/ELINCS 231-635-3
UN 1005 (anhyd.); UN 2672; UN 2073 (sol’ns.)
Synonyms: Ammonia anhydrous; Ammonia gas; Anhydrous ammonia
Classification: Inorganic nitrogen compd.
Empirical: \( \text{H}_3\text{N} \)
Formula: \( \text{NH}_3 \)

Properties: Colorless gas or liq., sharp, intensely irritating odor; easily liquefied by pressure; sol. in water, alcohol, ether; m.w. 17.03; sp.gr. 0.682 (-33.4 C); f.p. -77 C; b.p. -33.5 C; pH 11.6 (1N aq.)

Toxicology: ACGIH TLV/TWA 25 ppm; STEL 35 ppm; LD50 (inh., mouse, 1 h) 4837 ppm, (oral, rat) 350 mg/kg (ammonium hydroxide); corrosive; inh. of conc. fumes may be fatal; irritating to eyes and mucous membranes; shown to produce cancer of the skin in human doses of 1000 mg/kg of body wt.; TSCA listed

Precaution: Moderate fire risk; caustic

Hazardous Decomp. Prods.: Exposed to heat, emits toxic fumes of \( \text{NH}_3 \) and NOx

NFPA: Health 3, Flammability 1, Reactivity 0
Uses: Alkalizer, buffer for pharmaceuticals, orals; microbial fermentation nutrient

Regulatory: BP, EP compliance; FDA 27CFR §21.95; SARA reportable (anhyd.); Canada DSL; Japan approved


†=pharmaceutical grade


Ammonia anhydrous. See Ammonia
Ammonia aqua; Ammonia aqueous. See Ammonium hydroxide
Chemical Component Cross-Reference

Ammonia gas. See Ammonia
Ammonia solution; Ammonia solution, strong. See Ammonium hydroxide
Ammoniated glycyrrhizin. See Ammonium glycyrrhizate
Ammoniated mercury. See Mercury ammonium chloride
Ammonia water. See Ammonium hydroxide

Ammonio methacrylate copolymer
Definition: Fully polymerized copolymer of acrylic and methacrylic acid esters with a low content of quat. ammonium groups
Properties: Colorless clear to wh.-opaque gran., faint amine odor; sol. in methanol, alcohol, IPA, acetone, ethyl acetate, methylene chloride; insol. in water, petrol. ether
Uses: Excipient in pharmaceuticals; film coating agent for sustained-release pharmaceuticals; membrane transport for drugs
Regulatory: BP, EP, USP/NF compliance
Trade Names: Eudragit® RL 30 D; Eudragit® RL 100; Eudragit® RS 30 D; Eudragit® RS 100; Eudragit® RS PO
Trade Names Containing: Eudragit® RL 12.5; Eudragit® RS 12.5

Ammonium acetate
CAS 631-61-8; EINECS/ELINCS 211-162-9
INS264
Synonyms: Acetic acid ammonium salt
Classification: Aliphatic organic compd.
Empirical: C2H7NO2
Formula: CH3COONH4
Properties: Colorless or wh. crystals, sl. acetous odor; sol. in alcohol, oxygenated solvs.; sl. sol. in acetone; very sl. sol. in water; m.w. 77.08; dens. 1.07; m.p. 114 C; pH 6.7-7.3 (5%)
Toxicology: LD50 (IP, rat) 632 mg/kg, (IV, mouse) 386 mg/kg; poison by IV route; mod. toxic by IP route; gastric irritant; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx and NH3
HMIS: Health 2, Flammability 0, Reactivity 0
Storage: Hygroscopic, deliq.; store @ 2-8 C
Uses: Buffer in pharmaceuticals; diuretic/diaphoretic drug; in injectables; microbial fermentation nutrient
Regulatory: Canada DSL
Manuf./Distrib.: AMRESCO†
http://www.amresco-inc.com; Aldrich

†=pharmaceutical grade
http://www.sigma-aldrich.com; Alemark
http://www.amsyn.com; Alfa Aesar
http://www.alfa.com; Allan
http://www.allanchem.com
Allichem Ind. http://www.allchem.com; Am. Biorganics; Am. Int'l.†
http://www.aicma.com; Ashland†
http://www.ashchem.com; Cater Chems.
http://www.caterchem.com
Daito Chem. Ind. http://www.dcg.co.jp; Daiwa†
http://www.ocrgp.co.jp/en/group/daiwa.html
Fluka http://www.sigma-aldrich.com
GFS† http://www.gfschemicals.com
Hawkins Chem.†
http://www.hawkinschemical.com
Heico
http://www.rutherfordchemicals.com
Honeywell Spec. Chems.
http://www.honeywell.com/sites/sm/index.jsp
Honig; Integra†
http://www.integrachem.com; J.C. Wilson
Johnson Matthey http://www.matthey.com
Kemira ChemSolutions BV
http://www.kemira.com; Lohmann
http://www.lohmann-chemikalien.de
Magnablend http://www.magnablend.com
Mallinckrodt Baker†
http://www.mallbaker.com; Min. R&D
http://www.mrdc.com; Noah
http://www.noahtech.com; Penta Mfg.†
http://www.pentamfg.com
Ruger http://www.rugerchemical.com
Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality Prods.†
http://www.spectrumchemical.com; St. Lawrence
http://www.stlawrencechem.com; Synasia†
http://www.synasia.com
Tomiyama Pure Chem. Ind.
http://www.tomypure.co.jp; Universal Preserv-A-Chem†
http://www.upichem.com
VWR Int'l.†
http://www.vwrsp.com

Ammonium acid phosphate. See Ammonium phosphate

Ammonium alginate
CAS 9005-34-9
FEMA 2015; INS403; E403
Synonyms: Alginic acid, ammonium salt; Ammonium polymannuronate
Chemical Component Cross-Reference

Classification: Hydrophilic colloid
Definition: Ammonium salt of alginic acid
Empirical: \((C_6H_7O_6NH_4)_n\)
Properties: Filamentous, grainy, granular, or powd.; colorless or sl. yel.; sl. smell or taste; slowly sol. in water forming visc. sol'n.; insol. in alcohol; pH 5-6 (1%)
Toxicology: TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx
Uses: Emulsifier, thickener, gellant, stabilizer, humectant, film-former, color diluent in pharmaceuticals
Regulatory: FDA 21CFR §173.310, 178.3900, 184.1133, GRAS; FEMA GRAS; USDA 9CFR 318.7; Europe listed; UK approved; Canada DSL
Manuf./Distrib.: AB R Lundberg
Trade Names Containing: KELTOSE®

Ammonium, alkylbenzyltrimethyl-, saccharinate. See Benzalkonium saccharinate

Ammonium, alkyldimethyl (phenylmethyl)-, chloride. See Benzalkonium chloride

Ammonium alum
CAS 7784-25-0; 7784-26-1; EINECS/ELINCS 232-055-3

INS523
Synonyms: Alum, ammonium; Aluminum ammonium bis (sulfate); Aluminum ammonium sulfate; Ammonium aluminum alum; Ammonium aluminum sulfate; Burnt ammonium alum; Exsiccated ammonium alum; Sulfuric acid, aluminum ammonium salt (2:1:1), dodecahydrate
Classification: Inorganic aluminum compd.
Empirical: Al • H3N • 2H2O4S • 12H2O
Formula: AlNH4(SO4)2 • 12H2O
Properties: Wh. cryst. powd., odorless, strong sweet astringent taste; freely sol. in glycerol; pract. insol. in alcohol; sol. 1 g/7 ml in water;

†=pharmaceutical grade

m.w. 453.33; dens. 1.645; m.p. 94.5 C; b.p. dec. > 280 C; noncombustible
Toxicology: TLV/TWA 2 mg/m³ (sol. salts, as Al); irritating if inhaled or ingested; causes redness and irritation to skin and eyes when sulfuric acid forms in presence of moisture
Precaution: Incompat. with strong bases (can react vigorously)
Hazardous Decomp. Prods.: On decomp., emits toxic fumes of NOx and SOx
HMIS: Health 1, Flammability 0, Reactivity 0
Storage: Store in cool, dry area in labeled dust-tight containers; keep closed when not in use
Uses: Astringent; antiseptic; antiperspirant
Regulatory: FDA 21CFR §178.3120, 182.90, 182.1127, GRAS; Japan approved except for miso; Canada DSL
Manuf./Distrib.: AMRESCO†

Ammonium aluminum alum; Ammonium aluminum sulfate. See Ammonium alum

Ammonium benzoate
CAS 1863-63-4; EINECS/ELINCS 217-468-9
Synonyms: Benzoic acid, ammonium salt
Classification: Aromatic amino acids and acid salts

Handbook of Pharmaceutical Additives, Third Edition 880
Chemical Component Cross-Reference

Empirical: C7H9NO2
Formula: C6H5COONH4
Properties: Wh. cryst. or powd.; odorless or faint benzoic acid odor; sol. in water, alcohol, glycerol; m.w. 139.17; dens. 1.26; sublimes @ 160 C; m.p. 198 C (dec.)
Toxicology: LD50 (oral, rat) 825 mg/kg, (oral, mouse) 235 mg/kg; LDLo (IV, rabbit) 400 mg/kg; poison by ing. and IV routes; irritant; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits toxic vapors of NOx and NH3
Storage: Keep well sealed; hygroscopic
Uses: Preservative in pharmaceuticals; medicine
Regulatory: FDA 21CFR §175.105; Canada DSL

Ammonium, benzyldiethyl ((2,6-xyllylcarbamoyl) methyl)-, benzoate. See Denatonium benzoate
Ammonium, benzyldimethylctoacetadecyl-, chloride. See Stearalkonium chloride
Ammonium, benzylmethyl (2-(2-(4-(1,1,3,3-tetramethylbutyl) tolyloxy) ethoxy) ethyl)-, chloride. See Methylbenzethonium chloride
Ammonium, benzyldecosylmethyl-, chloride. See Behenalkonium chloride
Ammonium, benzylhexadecylmethyl-, chloride. See Cetalkonium chloride

†=pharmaceutical grade

Ammonium bicarbonate
CAS 1066-33-7; EINECS/ELINCS 213-911-5
UN NA 9081 (DOT); INS503(ii); E503
Synonyms: Acid ammonium carbonate; Ammonium bicarbonate (1:1); Ammonium carbonate; Ammonium hydrogen carbonate; Carbonic acid monoammonium salt; Monoammonium carbonate
Classification: Inorganic salt
Empirical: CH2O3 • H3N
Formula: NH4HCO3
Properties: Colorless or wh. hard cryst. or cryst. powd., faint ammonia odor; sol. 17.4% in water (20 C); dec. by hot water; insol. in alcohol, acetone; m.w. 79.1; dens. 1.586; m.p. dec. 36-60 C; pH 7.0-7.8 (5%)
Toxicology: LD50 (IV, mouse) 245 mg/kg; poison by intravenous route; TSCA listed
Precaution: Can cause skin rashes of scalp, forehead, or hands; evolves irritating fumes on heating to 35 C
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx and NH3
HMIS: Health 1, Flammability 0, Reactivity 0
Uses: Prod. of pharmaceuticals; medicinally as expectorant and to break up intestinal gas; buffer
Regulatory: FDA 21CFR §73.85, 163.110, 163.111, 163.112, 182.1135, 184.1135, GRAS; Japan approved; Europe listed; UK approved; BP, EP compliance; Canada DSL
Ammonium carbonate

CAS 506-87-6; 8000-73-5†; 10361-29-2;
EINECS/ELINCS 233-786-0
UN 9084; INS503(i); E503

Synonyms: Carbonic acid, ammonium salt;
Carbonic acid, diammonium salt;
Diammonium carbonate; Hartshorn

Definition: Mixt. of ammonium bicarbonate and ammonium carbamate

Empirical: CH₈N₂O₃
Formula: (NH₄)₂CO₃

Properties: Wh. powd. or wh. or translucent hard mass, strong ammonia odor, sharp taste; slowly sol. in 4 parts water; dec. by hot water; m.w. 96.11; m.p. 58 C

Toxicology: LD₅₀ (IV, mouse) 96 mg/kg; poison by subcutaneous and IV routes; TSCA listed

Precaution: Dec. on exposure to air; volatilizes at 60 C; incompat. with acids, acid salts, salts of iron and zinc, alkaloids, alum, tartar emetic

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOₓ and NH₃

HMIS: Health 2, Flammability 0, Reactivity 1

Storage: Light-sensitive; keep tightly closed in cool place

Uses: Alkalizer, buffer for pharmaceuticals; ammonia source; medicine (expectorant)

Regulatory: FDA 21CFR §73.85, 163.110, 163.111, 163.112, 184.1137, GRAS; BATF

See also: Ammonium bicarbonate

Ammonium, (carboxymethyl) trimethyl-, chloride. See Betaine hydrochloride Ammonium, (9-(o-carboxyphenyl)-6-(diethylamino)-3H-xanthen-3-ylidene) diethyl-, chloride. See Basic violet 10; D&C Red No. 19

Ammonium, didecyldimethyl-, chloride. See Didecylammonium chloride Ammonium dihexadecylmethyl-, chloride. See Dicetyltrimmonium chloride Ammonium dihydrogen orthophosphate; Ammonium dihydrogen phosphate. See Ammonium phosphate

†=pharmaceutical grade

Ammonium, (4-(p-(dimethylamino)-α-(p-ethyl (m-sulfobenzyl) amino) phenyl) benzylidene)-2,5-cyclohexadien-1-ylidene) ethyl (m-sulfobenzyl)-, hydroxide, inner salt, sodium salt. See Acid violet 49

Ammonium, didecyl sulfate; Ammonium-N-dodecyl sulfate. See Ammonium lauryl sulfate

Ammonium, ethyl(4-(p-(ethyl)-(m-sulfobenzyl) amino)-α-(o-sulfophenyl) benzylidene)-2,5-cyclohexadien-1-ylidene)(m-sulfobenzyl)-, hydroxide, inner salt, diammonium salt. See D&C Blue No. 4

Ammonium, ethylhexadecyldimethyl-, bromide. See Cetyltrimethylammonium bromide

Ammonium ferric citrate. See Iron ammonium citrate

Ammonium-ferric-cyanoferrate (II); Ammonium-ferric-ferrocyanide. See Ferric ammonium ferrocyanide

Ammonium fluorosilicate (INCI); Ammonium fluosilicate. See Ammonium silicofluoride

Ammonium glycyrrhizinate

CAS 53956-04-0; EINECS/ELINCS 258-887-7

Synonyms: Ammoniated glycyrrhizin; α-D-Glucopyranosiduronic acid, (3β,20β)-20-carboxy-11-oxo-30-norlecan-12-en-3-yl-2-O-β-D-glucopyranuronosyl-, ammoniate; α-D-Glucopyranosiduronic acid, (3β,20β)-20-carboxy-11-oxo-30-norlecan-12-en-3-yl-2-O-β-D-glucopyranuronosyl-, monoammonium salt; Glycamil; Glycyrrh; Glycyrrhizic acid, ammonium salt; Glycyrrhizic acid, monoammonium salt; Glycyrrhizin, ammoniated; MAG; Monoammonium glycyrrhizinate; Monoammonium glycyrrhizinate

Definition: Ammonium salt of glycyrrhizin acid

Empirical: C_{42}H_{62}O_{16} • H_{3}N

Properties: Wh. powd.; m.w. 840.08; m.p. 209 C (dec.)

Toxicology: LD50 (oral, rat) > 10 g/kg, (IP, rat) > 300 mg/kg, (IV, mouse) 540 mg/kg; harmful by ing.; may be harmful by inh., skin absorp.; may cause eye/skin irritation, changes in heart/bladder/adrenal wt., hepatitis, changes in blood count; overexposure can cause sodium retention and potassium loss leading to hypertension, water retention, and electrolyte imbalance; mutagen; reproductive effector; target
Ammonium glycyrhrizinate
CAS 1407-03-0
FEMA 2528
Synonyms: Monoammonium glycyrhrizinate
Definition: Obtained by extraction from ammoniated glycyrrhizin, derived from roots of Glycyrrhiza glabra
Empirical: C42H65NO16 • 5H2O
Properties: Wh. powder; sweet taste; sol. in ammonia; insol. in glacial acetic acid; m.w. 839.91
Toxicology: LD50 (IV, mouse) 540 mg/kg; mutagen; reproductive effector; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Flavor, flavor enhancer, sweetness potentiator, surfactant, masking agent for pharmaceuticals, orals
Regulatory: FDA 21CFR §184.1408, GRAS; not permitted for use as nonnutritive sweetener in sugar substitutes; FEMA GRAS; FDA approved for orals; BP compliance
Manuf./Distrib.: ADA Int'l.
http://www.joinme.net/ada/index.htm; Adept Sol'ns.†; Alfa Chem
http://www.alfachem1.com; Amerol
CarboMer† http://www.carbomer.com; Functional Foods† http://www.functionalfoods.com; Mafco Worldwide† http://www.functionalfoods.com; Mafco
http://www.carbomer.com
Trade Names: Magnasweet® 100;
Magnasweet® 110; Magnasweet® 115;
Magnasweet® 118; Magnasweet® 120;
Magnasweet® 125; Magnasweet® 135;
Magnasweet® 136; Magnasweet® 150;
Magnasweet® 165
Magnasweet® 180; Magnasweet® 185;
Magnasweet® Ammonium hexafluorosilicate. See Ammonium silicofluoride
Ammonium hydrogen carbonate. See Ammonium bicarbonate
Ammonium hydrogen sulfide. See Ammonium sulfide
Ammonium hydrogen sulfite. See Ammonium bisulfite
Ammonium hydrosulfide. See Ammonium sulfide
Ammonium hydroxide
CAS 1336-21-6; EINECS/ELINCS 215-647-6
UN NA 2672 (DOT); INS527; E527
Synonyms: Ammonia aqua; Ammonia aqueous; Ammonia solution; Ammonia solution, strong; Ammonia water; Aqua ammonia; Aqua ammonium; Aqueous ammonia; Spirit of Hartshorn; Strong ammonia solution
Classification: Inorganic base
Empirical: H5NO
Formula: NH4OH
Properties: Clear colorless liq., very pungent odor, acrid taste; sol. in water; m.w. 35.06; dens. 0.90; m.p. -77 C; flash pt. none; pH 13.6
Toxicology: LD50 (oral, rat) 350 mg/kg; LDLo (IV, rabbit) 10 mg/kg; human poison by ing.; experimental poison by inh. and ing.; inhalation irritant; severe eye irritant; liq.
Ammonium-L-2-hydroxy propionate. See Ammonium lactate

Ammonium iodide
CAS 12027-06-4; EINECS/ELINCS 234-717-7
Classification: Inorganic salt
Empirical: $\text{H}_4\text{IN}$
Formula: $\text{NH}_4\text{I}$
Properties: Wh. cryst. or powd.; sol. in water, alcohol; m.w. 145; dens. 2.56; vapor pressure 1 mm (210.9 C); m.p. sublimes with decomp. (551 C); b.p. 220 C (vac)
Toxicology: Mod. toxic
Precaution: Incomp. with BrF$_3$, IF$_7$, K
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of I–, NH$_3$, NO$_x$
Storage: Hygroscopic; light-sensitive
Uses: Antimicrobial in pharmaceuticals; medicine (expectorant)
Regulatory: Canada DSL

Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com
http://www.alfa.com
http://www.atomergic.com
http://www.brownchem.com
http://www.charkit.com
http://www.chemimpex.com
http://www.thechemco.com
http://www.coynechemical.com
http://www.cytec.com
Degussa AG/Health & Nutrition; Fisher
Scientific
Frutarom Ltd http://www.frutarom.com;
GFS† http://www.gfscemicals.com
Honeywell Perf. Polymers
http://www.honeywelpppc.com;
http://www.honeywell-plastics.com; ICN
http://www.mpbio.com; Integra†
http://www.integchem.com; J.C. Wilson;
Lancaster Synthesis http://www.alfa.com
Lonza http://www.lonza.com; Mallinckrodt
Baker† http://www.mallbaker.com; Miljac
http://www.miljac.com; Omya Peralta
http://www.omya-veralta.de; Penta Mfg.;
http://www.pentamfg.com

†=pharmaceutical grade

Pfaltz & Bauer
http://www.pfaltzandbauer.com; Pharmco
Romil Ltd http://www.romil.com; Ruger†
http://www.rugerchemical.com; Sal Chem.
http://www.salchem.com
Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality
Prods.†
http://www.spectrumchemical.com;
Universal Preserv-A-Chem†
http://www.upichem.com; VWR Int'l.†
http://www.vwrsp.com; Voigt Global Distrib.
http://www.vgdllc.com

Handbook of Pharmaceutical Additives, Third Edition 885
Ammonium isovalerate

CAS 7563-33-9; EINECS/ELINCS 231-458-1
FEMA 2054

Synonyms: Isovaleric acid ammonium salt
Empirical: C₅H₁₃O₂N
Properties: Deliq. cryst.; sol. in alcohol, water; m.w. 109
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Oxford Chems. Ltd
http://www.oxfordchemicals.com

Ammonium lactate

CAS 515-98-0; 52003-58-4; EINECS/ELINCS 208-214-8

Synonyms: Ammonium-L-2-hydroxypropionate; Lactic acid, ammonium salt; Propanoic acid, 2-hydroxy-, ammonium salt
Definition: Ammonium salt of lactic acid
Empirical: C₃H₉NO₃
Formula: CH₃CHOHCOONH₄
Properties: Colorless to yel. syrupy liq.; sol. in water, alcohol; m.w. 107.08; dens. 1.19-1.21 (15 C); m.p. 91-94 C
Uses: Pharmaceutical intermediate; buffer
Regulatory: Canada DSL

AMRESCO†
http://www.amresco-inc.com; Aldrich†
http://www.sigma-aldrich.com; Ashland
http://www.ashchem.com; Ferro Pfanstiehl
Europet†
http://www.gfsciences.com
Generichem† http://www.generichem.com;
Lohmann http://www.lohmann-chemikalien.de; Magnablend
http://www.magnablend.com; PURAC Am.†
http://www.purac.com
Penta Mfg.† http://www.pentamfg.com;
Reliable Biopharmaceutical†
http://www.reliablebiopharm.com;
Spectrum Quality Prods.†
http://www.spectrumchemical.com;

Trade Names: Colonial ALES-1; Colonial ALES-2; STEOL® CA-130; STEOL® CA-230D; STEOL® CA-330
STEOL® CA-460

Trade Names Containing: STEPANOL® AEG; STEPANOL® AEM; STEPANOL® PB

Ammonium laureth sulfate

CAS 32612-48-9 (generic); 67762-19-0
Synonyms: Ammonium lauryl ether sulfate; PEG (1-4) lauryl ether sulfate, ammonium salt; POE (1-4) lauryl ether sulfate, ammonium salt
Definition: Ammonium salt of ethoxylated lauryl sulfate

Formula: (C₂H₄O)ₙ • C₁₂H₂₆O₄S • H₃N, avg. n = 1-4
Properties: Anionic
Toxicology: LD₅₀ (oral, rat) 630 mg/kg; moderate toxicity by ing.; skin and eye irritant; TSCA listed
Uses: Surfactant, emulsifier in pharmaceutical creams and lotions
Regulatory: FDA 21CFR §175.105

AXO Chem.
http://www.axochemical.com; Allchem Ind.
http://www.allchem.com; Arch Personal Care Prods.†
http://www.archchemicals.com; Ashland†
http://www.ashchem.com; Chemron
http://www.chemron.com
Clariant† http://www.clariant.com;
http://www.clariant-northamerica.com;
Clariant/Functional Chems.†
http://www.fun.clariant.com; CoKEM
Assoc.† Cognis/Care Chems.; Cytec Ind.
http://www.cytec.com; DeForest Enterprises http://www.deforest.net
Independent Chem.
Lonz‡ http://www.lonz.com; Norman, Fox
http://www.normfoxx.com
Pilot http://www.pilotchemical.com; RTD
Hallstar† http://www.rtdhallstar.com;
Rhodia HPCII http://www.rhodia-hpcii.com;
Rhodia/Phosphorus Perf. Derivs.
http://www.rhodia-ppd.com; Sea-Land
http://www.sealandchem.com
Stepan http://www.stepan.com; Universal

Trade Names: Colonial ALES-1; Colonial ALES-2; STEOL® CA-130; STEOL® CA-230D; STEOL® CA-330
STEOL® CA-460

Trade Names Containing: STEPANOL® AEG; STEPANOL® AEM; STEPANOL® PB

Ammonium lauryl sulfate

CAS 2235-54-3; 68081-96-9; 90583-12-3;
EINECS/ELINCS 218-793-9

Synonyms: Ammonium dodecyl sulfate; Ammonium-N-dodecyl sulfate; Dodecyl ammonium sulfate; Lauryl ammonium sulfate; Lauryl sulfate ammonium salt; Sulfuric acid, lauryl ester, ammonium salt;
Chemical Component Cross-Reference

- Sulfuric acid, monododecyl ester, ammonium salt
  - **Definition:** Ammonium salt of lauryl sulfate
  - **Empirical:** C_{12}H_{26}O_{4}S • H_{3}N
  - **Properties:** M.w. 283.48; HLB 31.0; anionic
  - **Toxicology:** Skin and eye irritant; TSCA listed
  - **Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of NH_{3}, NO_{x}, SO_{x}
  - **Uses:** Foaming agent, visc. builder in pharmaceuticals
  - **Regulatory:** FDA 21CFR §175.105, 175.210, 176.170, 177.1200; Canada DSL
  - **Manufacturers/Distributors:**
    - Alfa Chem†
      - [http://www.alfachem1.com](http://www.alfachem1.com);
    - Allchem Ind.
      - [http://www.allchem.com](http://www.allchem.com);
    - Arch Personal Care Prods.
      - [http://www.archchemicals.com](http://www.archchemicals.com);
    - Ashland†
      - [http://www.ashchem.com](http://www.ashchem.com);
    - Chemron
      - [http://www.chemron.com](http://www.chemron.com)
    - Clariant†
      - [http://www.clariant.com](http://www.clariant.com);
    - Clariant/Functional Chems.†
      - [http://www.fun.clariant.com](http://www.fun.clariant.com);
    - Cognis/Care Chems.
      - [http://www.cognis.com](http://www.cognis.com)
    - Dai-ichi Karkaria
      - [http://www.dai-ichiindia.com](http://www.dai-ichiindia.com/);
    - DeForest Enterprises
      - [http://www.deforest.net](http://www.deforest.net);
    - ISP†
      - [http://www.ispcorp.com](http://www.ispcorp.com)
    - Independent Chem.
      - [http://www.independentchemical.com](http://www.independentchemical.com);
    - Kraft Chem.†
      - [http://www.kraftchemical.com](http://www.kraftchemical.com);
    - Lonza
      - [http://www.lonza.com](http://www.lonza.com);
    - Pilot
      - [http://www.pilotchemical.com](http://www.pilotchemical.com)
    - RTD Hallstar†
      - [http://www.rtdhallstar.com](http://www.rtdhallstar.com);
    - Reliable Biopharmaceutical†
      - [http://www.reliablebiopharm.com](http://www.reliablebiopharm.com);
    - Rhodia HPCII
      - [http://www.rhodia-hpcii.com](http://www.rhodia-hpcii.com);
    - SeaLand
      - [http://www.sealandchem.com](http://www.sealandchem.com);
    - Stepan
      - [http://www.stepan.com](http://www.stepan.com)
    - Universal Preserv-A-Chem†
      - [http://www.upichem.com](http://www.upichem.com)
  - **Trade Names:** STEPANOL® AM; STEPANOL® AM-V
  - **Trade Names Containing:** STEPANOL® AEG; STEPANOL® PB

**Ammonium mercaptan; Ammonium monosulfide.** See Ammonium sulfide

**Ammonium monosulfite.** See Ammonium bisulfite

**Ammonium phosphate**

- CAS 7722-76-1; EINECS/ELINCS 231-764-5
- **Synonyms:** Ammonium acid phosphate; Ammonium biphosphate; Ammonium dihydrogen orthophosphate; Ammonium dihydrogen phosphate; Ammonium phosphate monobasic; MAP; Monoammonium phosphate; Primary ammonium phosphate
  - **Empirical:** H_{8}NO_{4}P
  - **Formula:** NH_{4}H_{2}PO_{4}
  - **Properties:** Brilliant wh. cryst. or powd., odorless; mildly acidic in reaction; moderately sol. in water; sl. sol. in alcohol; pract. insol. in acetone; m.w. 115.04; dens. 1.803; m.p. 190 C; pH 4.5 (1%, 20 C)
  - **Toxicology:** LD_{50} (oral, rat) 3160-4500 mg/kg; irritant; TSCA listed
  - **Precaution:** Incompat. with NaOCl
  - **NFPA:** Health 2, Flammability 0, Reactivity 0
  - **Uses:** Buffer for pharmaceuticals; mold culture nutrient in mfg. of pharmaceuticals
  - **Storage:** Store @ R.T.
  - **Regulatory:** FDA 21CFR §73.85, 184.1141a, GRAS; Japan approved; Canada DSL
  - **Manufacturers/Distributors:** AMRESCO†
    - [http://www.amresco-inc.com](http://www.amresco-inc.com);
    - AXO Chem.
      - [http://www.axochemical.com](http://www.axochemical.com)
    - Agrium
      - [http://www.agrium.com](http://www.agrium.com);
    - Aldrich
      - [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com);
    - Alfa Aesar
      - [http://www.alfa.com](http://www.alfa.com);
    - Alfa Chem†
      - [http://www.alfachem1.com](http://www.alfachem1.com)
    - Am. Biorganics
      - [http://www.americanorganics.com](http://www.americanorganics.com);
    - Ashland†
      - [http://www.ashchem.com](http://www.ashchem.com);
    - Atomergic Chemetals†
      - [http://www.atomergic.com](http://www.atomergic.com);
    - Avatar†
      - [http://www.avatarcorp.com](http://www.avatarcorp.com)
    - Cargill Fertilizer
    - Cater Chems.
      - [http://www.caterchem.com](http://www.caterchem.com);
    - Charkit
      - [http://www.charkit.com](http://www.charkit.com);
    - China Nat’l. Chem. Construction
      - [http://www.cnccc-shenzhen.com](http://www.cnccc-shenzhen.com);
    - Chisso Am.
      - [http://www.chissoamerica.com](http://www.chissoamerica.com)
    - Coyne
      - [http://www.coynechemical.com](http://www.coynechemical.com);
    - Degussa AG/Health & Nutrition; FMC Foret
      - [http://www.fmcforet.com](http://www.fmcforet.com);
    - Fluka
      - [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com);
    - FMC Foret
      - [http://www.fmcforet.com](http://www.fmcforet.com);
    - Fluka
      - [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com);
    - GFS†
      - [http://www.gfschemicals.com](http://www.gfschemicals.com)
    - Gallard-Schlesinger Ind.†
      - [http://www.gallard-schlesinger.com](http://www.gallard-schlesinger.com);
    - Heico
      - [http://www.rutherfordchemicals.com](http://www.rutherfordchemicals.com);
    - ICL Performance Prods.
      - [http://www.astaris.com](http://www.astaris.com);
    - Integrat
      - [http://www.integrachem.com](http://www.integrachem.com);
    - J.C. Wilson
      - [http://www.stephan.com](http://www.stephan.com)
    - Mallinckrodt Baker†
      - [http://www.mallbaker.com](http://www.mallbaker.com);
    - Noah
      - [http://www.mallbaker.com](http://www.mallbaker.com);
    - Occidental
Chemical Component Cross-Reference

- http://www.pentamfg.com
- Research Organics  http://www.resorg.com;
- Rhodia/Phosphorus Perf. Derivs.
- http://www.rhodia-ppd.com; Rhodia
- http://www.rhodia.com; Ruger
- http://www.rugerchemical.com; San Yuan
- Showa Denko  http://www.sdk.co.jp; Sigma
- http://www.sigma-aldrich.com/belgium;
- Solutia  http://www.solutia.com;
- http://www.spectrumchemical.com
- Surfachem Ltd  http://www.surfachem.com
- Thomas Scientific
- Preserv-A-Chem
- http://www.upichem.com; VWR Int'l.
- http://www.vgdllc.com
- Xiamen Topusing  http://www.topusing.com

See also Ammonium phosphate, dibasic

Ammonium phosphate, dibasic
CAS 7783-28-0; EINECS/ELINCS 231-987-8

Synonyms: Ammonium phosphate; DAP; Diammonium hydrogen orthophosphate; Diammonium hydrogen phosphate; Diammonium phosphate; Dibasic ammonium phosphate; Phosphoric acid diammonium salt; Secondary ammonium phosphate

Classification: Inorganic salt

Empirical: \( \text{H}_3\text{N}_2\text{O}_4\text{P} \)

Formula: \((\text{NH}_4)_2\text{HPO}_4\)

Properties: Wh. cryst. or powd., odorless, cooling salty taste; mildly alkaline in reaction; sol. 1 g/1.7 ml in water; pract. insol. in alcohol, acetone; m.w. 132.07; dens. 1.619; m.p. 155 \(^\circ\)C (dec.); pH \(\approx 8\) (1%); noncombustible

Toxicology: \(LD_{50}\) (oral, rat) 3160-4500 mg/kg; low to moderate toxicity; TSCA listed

Hazardous Decomp. Prods.: Heated to comp., emits very toxic fumes of PO\(_x\), NO\(_x\), and NH\(_3\)

HMIS: Health 1, Flammability 0, Reactivity 0

Storage: Store @ R.T.; keep well closed

Uses: Buffer, processing aid for pharmaceuticals; in ammonical dentifrices; microbial fermentation nutrient

Regulatory: FDA 21 CFR §73.85, 184.1141b, 573.320, GRAS; BATF 27 CFR 240.1051, limitation 0.17% as yeast nutrient in wine

†=pharmaceutical grade

prod., 0.8% in sparkling wines; Japan approved; NF compliance; Canada DSL

Manuf./Distrib.: AMRESCO†
- http://www.amresco-inc.com; Agrium
- http://www.agrium.com; Aldrich
- http://www.sigma-aldrich.com; Alfa Aesar
- http://www.alfa.com; Am. Biorganics
- Ashland†  http://www.ashchem.com;
- Atomergic Chemetals†
- http://www.atomergic.com; Brenntag
- Southeast†; Brown
- http://www.brownchem.com; Cargill Fertilizer
- ChemTech Specialties†
- http://www.chemtechspecialties.com; China Nat'l. Chem. Construction
- http://www.cnccc-shenzhen.com; Chisso Am.; Coyne
- http://www.coynechemical.com
- Dastech Int'l†  http://www.dastech.com;
- Degussa AG/Health & Nutrition; Delta Distributors†; EMD Chems.
- http://www.emdchemicals.com; Fluka
- http://www.sigma-aldrich.com
- GFS†  http://www.gfschemicals.com;
- Gallard-Schlesinger Ind.†
- http://www.gallard-schlesinger.com; Heico
- http://www.astaris.com; Integra†
- http://www.integachem.com
- MPSI†  http://www.mp-solutionsinc.com;
- Mallinckrodt Baker†
- http://www.mallbaker.com; Noah
- http://www.noahtech.com; Occidental
- http://www.oxychem.com
- Penta Mfg.†  http://www.pentamfg.com;
- Research Organics  http://www.resorg.com;
- Rhodia/Phosphorus Perf. Derivs.
- http://www.rhodia-ppd.com; Rhodia
- http://www.rhodia.com; Ruger
- http://www.rugerchemical.com
- San Yuan; Seeler Ind.
- http://www.seeler.com; Sigma
- http://www.sigma-aldrich.com/belgium;
- Solutia  http://www.solutia.com;
- http://www.coatings-solutia.com; Spectrum Quality Prods.†
- http://www.spectrumchemical.com
- Thomas Scientific†
Ammonium phosphate

Ammonium phosphate monobasic. See Ammonium phosphate

Ammonium polymannuronate. See Ammonium alginate

Ammonium polysulfide. See Ammonium sulfide

Ammonium saccharin

CAS 6381-61-9; EINECS/ELINCS 228-971-8
Synonyms: 1,2-Benzisothiazolin-3-one 1,1-dioxide ammonium salt; Saccharin ammonium; Saccharinate ammonium
Empirical: C7H8N2O3S
Properties: Wh. cryst. or cryst. powd., intense sweet taste; sol. in water; m.w. 200.21
Toxicology: Severe eye irritant
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx
Uses: Sweetener for chewable vitamin tablets; sugar substitute
Features: Noncaloric
Regulatory: FDA 21CFR §180.37; USDA 9CFR §318.7 (limitation 0.01%)

Ammonium silicofluoride

CAS 1309-32-6; 16919-19-0; EINECS/ELINCS 240-968-3
UN 2854 (DOT)
Synonyms: Ammonium fluorosilicate (INCI); Ammonium fluosilicate; Ammonium hexafluorosilicate; Silicate (2-), hexafluoro-, diammonium
Empirical: F6H8N2Si
Formula: (NH₄)₂SiF₆
Properties: Wh. cryst. powd.; odorless; sol. in alcohol, water; m.w. 178.19; dens. 2.011; dec. on heating
Toxicology: TLV 2.5 mg(F)/m³ of air; LD50 (oral, mouse) 70 mg/kg; corrosive; toxic; breathing dust may irritate nose and throat and cause coughing and chest discomfort; poison by ing. and subcut. routes; strong irritant to eyes and skin; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of F⁻, NH₃, and NOx
Uses: Oral care agent
Regulatory: FDA 21CFR §73.85, 177.1200, 184.1143, GRAS; Japan approved; Canada DSL

Ammonium sulfate

CAS 7783-20-2; EINECS/ELINCS 231-984-1
UN 2506 (DOT); INS517; E517
Synonyms: Diammonium sulfate; Mascagnite; Sulfate of ammonia; Sulfuric acid diammonium salt
Classification: Inorganic salt
Empirical: H₈N₂O₄S
Formula: (NH₄)₂SO₄
Properties: Colorless or wh. cryst. or gran., odorless; sol. in water; insol. in alcohol, acetone; m.w. 132.16; dens. 1.77; m.p. > 280 C (dec.)
Toxicology: LD50 (oral, rat) 2840 mg/kg, (oral, mouse) 640 mg/kg; moderately toxic by several routes; TSCA listed
Precaution: Incandescent reaction on heating with potassium chlorate; reaction with sodium hypochlorite gives the unstable explosive nitrogen trichloride
Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of NOx, NH₃, and SOx
HMIS: Health 2, Flammability 0, Reactivity 0
Storage: Store @ R.T. in dry location; sl. hygroscopic; keep container well sealed
Uses: Reducing agent, visc. control agent in pharmaceuticals; microbial fermentation nutrient
Regulatory: FDA 21CFR §73.85, 177.1200, 184.1143, GRAS; Japan approved; Canada DSL
### Ammonium sulfide

**CAS**: 12135-76-1 (sol’n.); 12124-99-1; EINECS/ELINCS 235-223-4

**UN**: 2683 (DOT; UN sol’n.); FEMA 2053

**Synonyms**: Ammonium bisulfide; Ammonium hydrogen sulfide; Ammonium hydrosulfide; Ammonium mercaptan; Ammonium monosulfide; Ammonium polysulfide; Ammonium sulfhydrate; Monoammonium sulfide

**Empirical**: H₈N₂S

**Formula**: (NH₄)₂S

**Properties**: Yel. cryst.; liq. @ R.T.; sol. in alcohol, ammonia, cold water; m.w. 68.15; dens. 0.997 (20/4 C); m.p. dec.; flash pt. 90 F

**Toxicology**: LDLo (oral, mouse) 80 mg/kg, (skin mouse) 2457 mg/kg, IP (mouse) 10 mg/kg; poison by ing., skin contact, subcut., IV, IP routes; corrosive; strong irritant to skin and mucous membranes; readily absorbed through skin; sol’n.: fatal poisoning has been reported from use in hair waves; TSCA listed

**Precaution**: Flamm. liq.; unstable except in absence of moisture and below 0 C; incompat. with zinc

**Hazardous Decomp. Prods.**: Heated to decomp., emits very toxic fumes of SOₓ, NOₓ, and NH₃

**Storage**: Hygroscopic cryst.

**Uses**: Synthetic flavor for pharmaceuticals

**Regulatory**: FDA 21 CFR §172.515; FEMA GRAS; Canada DSL

**Manuf./Distrib.**: Alfa Aesar

**Ammonium sulfite**

**CAS**: 10196-04-0; EINECS/ELINCS 233-484-9

**Synonyms**: Sulfurous acid, diammonium salt

**Classification**: Inorganic salt

**Empirical**: H₈N₂O₃S

**Formula**: (NH₄)₂SO₃ • H₂O (commercial form)

**Properties**: Colorless cryst., acrid sulfurous taste; sol. in water; m.w. 116.14; dens. 1.41; sublimes @ 150 C with decomp.
### Chemical Component Cross-Reference

**Storage:** Hygroscopic  
**Uses:** Reducing agent in pharmaceuticals; medicine  
**Regulatory:** FDA 21CFR §73.85; Canada DSL  
**Manuf./Distrib.:** Alfa Aesar  
  [http://www.ashchem.com; Charkit](http://www.ashchem.com)  
  [http://www.charkit.com; O.C. Lugo](http://www.charkit.com)  
  [http://www.oclugocom; Penta Mfg.†](http://www.oclugocom)  
  [http://www.pentamfg.com](http://www.pentamfg.com)  
  [http://www.vwrsp.com](http://www.vwrsp.com)

**Ammonium, tetradecyltrimethyl-, bromide.** See Mytrimonium bromide  
**Ammonium, trimethylpentadecyl-, chloride.** See Steartrimonium chloride  
**Ammonium, trimethyltetradecyl-, bromide.** See Mytrimonium bromide  
**Amorphous silica.** See Diatomaceous earth, amorphous; Silica, amorphous hydrated  
**Amorphous silica dust.** See Silica, fumed  
**Amorphous silica gel.** See Silica, amorphous  
**AMP.** See Aminomethyl propanol  
**t-AMP.** See p-t-Amylphenol  
**AMPD.** See Aminomethyl propanediol  
**Amygdalin.** See Bitter almond (Prunus amygdalus amara) oil  
**Amygdalinic acid.** See Mandelic acid  
**Amygdalose.** See Gentiobiose  

**Amyl acetate**  
CAS: 628-63-7; EINECS/ELINCS 211-047-3  
UN: 1104 (DOT)  
**Synonyms:** Acetic acid amyl ester; Acetic acid pentyl ester; n-Amyl acetate; Amylacetic ester; Amylacetic ether; Pear oil; Pentacetic acid; 1-Pentanol acetate; Pentyl acetate; 1-Pentyl acetate; n-Pentyl acetate; Pentyl ethanoate; Primary amyl acetate  
**Classification:** Carboxylic acid ester  
**Definition:** Ester of amyl alcohol and acetic acid  
**Empirical:** C₇H₁₄O₂  
**Formula:** CH₃COOC₅H₁₁  
**Properties:** Colorless liq. (pure), yel. liq. (commercial); pear or banana-like odor; completely sol. in alcohol, ether; sl. sol. in water; m.w. 130.19; sp.gr. 0.876 (20 C); vapor pressure 3.5 mm Hg; m.p. -70.8 C; b.p. 149 C; flash pt. (CC) 25 C; autoignition temp. 360 C; ref. index 1.4013; surf. tens. 25.13 dynes/cm; dielec. const. 4.475  
**Toxicology:** ACGIH TLV/TWA 100 ppm; LD₅₀ 6500 mg/kg; mod. toxic by IP route; skin and eye irritant; inh. of vapor can irritate nose/throat; higher exposure may cause breathing difficulty, increased heart rate, CNS depression; severe exposures may cause unconsciousness; low order of chronic toxicity; TSCA listed  
**Environmental:** VOC; BOD₅ 0.72; ThOD 2.34  
**Precaution:** Flamm.; LEL 1.1%; UEL 7.5%; dangerous fire hazard exposed to heat or flame; mod. explosive as vapor exposed to flame; incomp. with reducing agents, strong acids, strong bases (decomp. can occur), oxidizing agents (increased risk of fire and explosion)  
**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes  
**NFPA:** Health 1, Flammability 3, Reactivity 0  
**Storage:** Store in cool, dry, well-ventilated area, out of direct sunlight; avoid generating mist  
**Uses:** Flavor for pharmaceuticals; anti-inflammatory agent; solvent; extraction of penicillin  
**Features:** Banana-like flavor  
**Regulatory:** FDA 21CFR §175.105; FEMA GRAS; CERCLA hazardous substance; Canada DSL  
**Manuf./Distrib.:** A.P. Chems. Ltd  
  [http://www.chemical.com; Aceto](http://www.chemical.com)  
  [http://www.aceto.com; Aldrich](http://www.aceto.com)  
  [http://www.sigma-aldrich.com; Alfa Aesar](http://www.sigma-aldrich.com)  
  [http://www.alfa.com; Ashland](http://www.alfa.com)  
  [http://www.ashchem.com](http://www.ashchem.com)  
  [http://www.vwrsp.com](http://www.vwrsp.com)  
  [Augustus Oils Ltd](http://www.augustus-oils.ltd.uk)  
  [BP Chems. Ltd](http://www.bp.com/chemicals/)  
  [Bell Flavors & Fragrances](http://www.bellff.com; Berje)  
  [http://www.berjeinc.com](http://www.berjeinc.com)  
  [Cargill Flavors & Fruit Systems USA](http://www.flavors-fruit-systems.com)  
  [Chemcentral](http://www.chemcentral.com)  
  [Coyne](http://www.coynechemical.com)  
  [Creative Fragrances](http://www.creativefragrances.com; Dow)  
  [http://www.dow.com; Fluka](http://www.dow.com)  
  [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)  
  [Grau Aromatics](http://www.grau-aromatics.de)  
  [Houghton Chem.](http://www.houghtonchemical.com)  
  [Hukill](http://www.hukill.com)  
  [Indofine](http://www.indofinechemical.com)  
  [J.H. Calo](http://www.jhcalo.com)  
  [Augustus Oils Ltd](http://www.augustus-oils.ltd.uk)  
  [BP Chems. Ltd](http://www.bp.com/chemicals/)  
  [Bell Flavors & Fragrances](http://www.bellff.com; Berje)  
  [http://www.berjeinc.com](http://www.berjeinc.com)  
  [Cargill Flavors & Fruit Systems USA](http://www.flavors-fruit-systems.com)  
  [Chemcentral](http://www.chemcentral.com)  
  [Coyne](http://www.coynechemical.com)  
  [Creative Fragrances](http://www.creativefragrances.com; Dow)  
  [http://www.dow.com; Fluka](http://www.dow.com)  
  [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)  
  [Grau Aromatics](http://www.grau-aromatics.de)  
  [Houghton Chem.](http://www.houghtonchemical.com)  
  [Hukill](http://www.hukill.com)  
  [Indofine](http://www.indofinechemical.com)  
  [J.H. Calo](http://www.jhcalo.com)
n-Amyl acetate; Amylactic ester; Amylactic ether.  See Amyl acetate

n-Amyl alcohol
CAS 71-41-0; EINECS/ELINCS 200-752-1
UN 1105 (DOT); FEMA 2056
Synonyms: Alcohol C-5; Amyl alcohol, normal; n-Butyl carbinol; 1-Pentanol; Pentanol-1; Pentan-1-ol; n-Pentanol; Pentyl alcohol; n-Pentyl alcohol; Primary amyl alcohol
Classification: Primary aliphatic alcohol
Empirical: C₅H₁₂O
Formula: CH₃(CH₂)₄OH
Properties: Colorless clear liq., somewhat sweet balsamic odor; sl. sol. in water; misc. with alcohol, ether, m.w. 88.15; sp.gr. 0.812 (20/4 C); vapor pressure 2.2 mm Hg; m.p. -79 C; b.p. 137-139 C; flash pt. (CC) 38 C; autoignition temp. 300 C; ref. index 1.409; surf. tens. 25.6 dynes/cm; dielec. const. 13.9
Toxicology: LD₅₀ (oral, rat) 3030 mg/kg, (skin, rabbit) 4490 mg/kg; highly toxic; corrosive; narcotic; ingestion of 30 mg can cause death in humans; irritating to respiratory tract; severe eye and skin irritant; can be absorbed through skin in toxic amts.; inh. can cause nose/throat irritation, CNS depression; extreme exposure may cause double vision, deafness, delirium, fatalities; may cause severe lung damage, respiratory/cardiac arrest, or death if aspirated into lungs; TSCA listed
Environmental: VOC; BOD₅ 1.55; TThOD 2.73
Precaution: DOT: Flamm. liq.; incompat. with oxidizing agents (increases fire/explosion risk)
NFPA: Health 1, Flammability 3, Reactivity 0
Storage: Store in cool, dry, well-ventilated area, out of direct sunlight
Uses: Solvent, synthetic flavor for pharmaceuticals; raw material for pharmaceutical preps.
Features: Sweet flavor
Regulatory: FDA 21CFR §172.515, 176.180, 176.210; FEMA GRAS; Canada DSL
Trade Names Containing: Pentanol 45

s-Amyl alcohol
CAS 6032-29-7; EINECS/ELINCS 227-907-6
UN 1105 (DOT); FEMA 3316
Synonyms: 2-Hydroxypentane; 1-Methyl-1-butanol; Methyl propyl carbinol; Pentan-2-ol; 2-Pentanol; Pentanol-2; s-Pentyl alcohol
Classification: Sec. aliphatic alcohol
Empirical: C₅H₁₂O
Formula: CH₃CH₂CH₂CH(OH)CH₃
Properties: Colorless liq.; mild winery, ethereal

†=pharmaceutical grade
Chemical Component Cross-Reference

odor; sol. in water, alcohol, ether m.w. 88.15; sp.gr. 0.8098 (20 C); f.p. -50 C; m.p. -75 C; b.p. 118-119 C; flash pt. (CC) 33 C; ref. index 1.403-1.409 (20 C)

Toxicology: LD50 (oral, rat) 1470 mg/kg; mod. toxic by ing., IP route; narcotic; skin and severe eye irritant; can be absorbed through skin; inh. may cause nose/throat irritation, headache, dizziness, coughing, nausea, vomiting; severe exposure may cause double vision, deafness, delirium, severe nervous symptoms, fatalities; ing. may cause 'alcohol' intoxication symptoms; may cause severe lung damage, respiratory failure, cardiac arrest, death if aspirated into lungs; TSCA listed

Precaution: Flamm. exposed to heat or flame; severe explosion hazard exposed to heat or flame; incomp. with oxidizing agents (increases fire/explosion hazard), hydrogen trisulfide (explosive reaction possible)

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 0, Flammability 2, Reactivity 0

Storage: Store in cool, dry, well-ventilated area out of direct sunlight

Uses: Intermediate for pharmaceuticals

Regulatory: FEMA GRAS; Canada DSL


s-n-Amyl alcohol. See 3-Pentanol

t-Amyl alcohol

CAS 75-85-4; EINECS/ELINCS 200-908-9

UN 1105 (DOT)

Synonyms: Amylene hydrate; Dimethyl ethyl carbinol; 2-Methyl-2-butanol; 2-Methylbutanol-2; 3-Methylbutan-3-ol; t-Pentanol; t-Pentyl alcohol

Classification: Tert. aliphatic alcohol

Empirical: C₅H₁₂O

Formula: CH₃CH₂C(CH₃)₂OH

Properties: Colorless clear volatile liq., char. camphoraceous odor, burning taste; sol. in 8 parts water; misc. with alcohol, ether, benzene, chloroform, glycerin, oils; m.w. 88.15; sp.gr. 0.808 (20/4 C); vapor pressure 10 mm Hg (17.2 C); m.p. -9 C; b.p. 100-103 C; flash pt. (CC) 19 C; ref. index 1.405

Toxicology: LD50 (oral, rat) 1 g/kg; mod. toxic

†=pharmaceutical grade

by ing., IP, subcut. routes; mod. irritating to human mucous membranes; inh. of vapors may cause nose/throat irritation, headache, dyspnea, coughing, nausea, vomiting; drying to skin; can be absorbed thru skin; narcotic in high concs.; a hypnotic agent; ing. may cause 'alcohol' intoxication symptoms; may cause severe lung damage, respiratory and cardiac arrest, death if aspirated into lungs; TSCA listed

Precaution: Flamm. exposed to heat, flame, or oxidizing materials; mod. explosive as vapor exposed to heat or flame

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 0, Flammability 3, Reactivity 0

Storage: Store in cool, well-ventilated area; keep tightly closed; protect from light

Uses: Solvent for pharmaceuticals; medicine (hypnotic, sedative)

Regulatory: USP/NF compliance; Canada DSL


Amyl alcohol, active. See 2-Methyl-1-butanol

Amyl alcohol, commercial. See Fusel oil refined

Amyl alcohol, normal. See n-Amyl alcohol

Amyl alcohols, mixed. See Fusel oil refined

Amylaldehyde. See n-Valeraldehyde

Amylamine; n-Amylamine. See Pentalamine

Amylase

CAS 9000-92-4; EINECS/ELINCS 232-567-7

INS1100

Synonyms: 1,4-D-Glucan glucanohydrolase; Glycogenase

Classification: Enzyme

Definition: Mixt. of enzymes that catalyze the hydrolysis of glycosidic linkages of
chemical component cross-reference

polysaccharides such as glycogen, starch, or their degradation prod.

Properties: Off-wh. powd. or suspension

Toxicology: LD50 (oral, rat) > 15 g/kg; may produce hypersensitivity reactions; TSCA listed

Storage: Hygroscopic; keep under argon

Uses: Enzyme for conversion of starch-glucose sugars in pharmaceuticals; ingred. in digestive enzyme preps.; reduces respiratory tract inflammation and local swelling

Manufacturer/Distributor: Fluka http://www.sigma-aldrich.com; Pangaea Sciences http://www.pangaeaasciences.com

Trade Names: Diastase J-P

Trade Names Containing: Biodiastase 1000; Biodiastase 2000; Pancreatin 3X USP Powder; Pancreatin 4X USP Granular; Pancreatin 5X USP Powder; Pancreatin 6X USP Powder; Pancreatin BP 98; Pancreatin USP 23; Pancreatin USP Powder; Pancrelipase USP Powder; SPL High Lipase Pancreatic Enzyme Conc. (PEC); SPL Pancreatin 4X USP; SPL Pancreatin 6X USP; SPL Pancreatin 8X USP; SPL Pancrelipase USP

Amyl butyrate

CAS 540-18-1; EINECS/ELINCS 208-739-2

UN 2620; FEMA 2059

Synonyms: n-Amyl butyrate; Butanoic acid pentyl ester; Pentyl butanoate; Pentyl butyrate

Empirical: C9H18O2

Formula: CH3(CH2)2CH2COOCH2(CH2)3CH3

Properties: Colorless liq.; strong, penetrating apricot-like odor, sweet taste; very sol. in alcohol, ether; sol. 0.54 g/l in water (50 C); m.w. 158.24; dens. 0.8713 (15/4 C); m.p. 73.2 C; b.p. 185-186 C; ref. index 1.4110 (20 C)

Toxicology: LD50 (oral, rat) 12,210 mg/kg; mildly toxic by ing.; TSCA listed

Hazardous Decom. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 1, Flammability 2, Reactivity 0

Uses: Synthetic flavor for pharmaceuticals

Features: Imitation banana flavor; also in apricot, cherry, pear, plum, and pineapple flavors

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Japan approved as flavoring; Canada DSL

†=pharmaceutical grade

n-Amyl butyrate. See Amyl butyrate

γ-N-Amylbutyrolactone. See γ-Nonalactone

Amyl caproate; Amyl capronate. See Amyl hexanoate

Amyl caprylate. See Amyl octanoate

Amylcarbinol. See Hexyl alcohol

Amyl cinnalaldehyde. See α-Amylcinnamaldehyde

α-Amylcinnamaldehyde CAS 122-40-7; EINECS/ELINCS 204-541-5

FEMA 2061

Synonyms: Amyl cinnamal (INCI); Amyl cinnamaldehyde; Amyl cinnamic aldehyde; α-Amyl cinnamic aldehyde; α-Amyl phenylacetolein; 2-Benzylideneheptanal; Heptanal, 2-(phenylmethylene); Jasminaldehyde; Jasmine aldehyde; α-Pentylaldehyde; α-Pentylcinnamaldehyde; 3-Pentyl-3-phenyl-2-propenal; 2-(Phenylmethylene) heptanal

Classification: Organic aromatic compd.

Empirical: C14H18O

Formula: C6H4CH:C(CHO)CH2(CH2)3CH3

Properties: Yellow clear oily liq.; floral (jasmine) odor; sol. in most fixed oils; sol. in 6 vols. of 80% alcohol; m.w. 202.30; dens. 0.970; b.p. 153-154 C (10 mm); flash pt. > 230 F; ref. index 1.5552 (20 C)

Toxicology: LD50 (oral, rat) > 15 g/kg; may produce hypersensitivity reactions; TSCA listed

Precaution: Combustible

Hazardous Decom. Prods.: Heated to decomp., emits acrid smoke and fumes

Uses: Synthetic flavor, fragrance for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Japan approved as flavoring; Canada DSL
α-Amyl cinnamaldehyde

CAS 91-87-2; EINECS/ELINCS 202-104-3
FEMA 2062

Synonyms: Amylcinnamaldehyde; α-N-Amyl cinnamaldehyde; α-N-Amyl-β-phenyl acrolein dimethyl acetal; 1,1-Dimethoxy-2-amyl-3-phenyl-2-propene; (2-(Dimethoxymethyl)-1-heptenyl) benzene

Empirical: C_{16}H_{22}O_2

Formula: C_6H_5CH=CH(CH_2)_4CH_3CH(OCH_3)_2

Properties: Pale yel. liq.; sol. in alcohol; insol. in water; m.w. 248.37; sp. gr. 0.953-0.963; b.p. 300 C; acid no. 1.0 max.; ref. index 1.508-1.513

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL


Aryl cinnamic aldehyde. See α-Aryl cinnamic aldehyde

Aryl cinnamal dimethyl acetal; α-N-Aryl cinnamal dimethyl acetal. See α-Aryl cinnamaldehyde dimethyl acetal

Aryl cinnamic acetate. See α-Aryl cinnamal acetate

α-Aryl cinnamic alcohol; n-Aryl cinnamic alcohol. See α-Aryl cinnamal alcohol

Aryl cinnamic aldehye; α-Aryl cinnamic aldehyde. See α-Aryl cinnamaldehyde

†=pharmaceutical grade

α-Amyl cinnamyl acetate

CAS 7493-78-9; EINECS/ELINCS 231-339-4
FEMA 2064

Synonyms: Amyl cinnamic acetate; α-N-Amyl-β-phenylacryl acetate; 2-Benzylidene-1-heptanol acetate; Cinnamyl alcohol, α-pentyl, acetate; α-Pentyl cinnamyl acetate; 2-(Phenylethylen) heptyl acetate

Empirical: C_{16}H_{22}O_2

Formula: C_6H_5CH=C[(CH_2)_4CH_3]-CH_2OCO-CH_3

Properties: Colorless to pale yel. liq.; sol. in alcohol; insol. in water; m.w. 246.35; sp. gr. 0.953-0.961; acid no. 1.0 max.; ref. index 1.4870-1.495

Toxicology: Mod. toxic skin irritant; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals

Features: Floral jasmine chocolate leather fruity balsam odor; earthy, fruity, spicy, powdery and balsamic taste

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com

α-Aryl cinnamyl alcohol

CAS 101-85-9; EINECS/ELINCS 202-982-8
FEMA 2065

Synonyms: α-Aryl cinnamic alcohol; n-Aryl cinnamic alcohol; 2-Aryl-3-phenyl-2-propen-1-ol; 2-Benzylidene-heptan-2-ol; 2-Benzylidene-1-heptanol; α-Pentylcinnamyl alcohol; 2-Pentyl-3-phenylprop-2-en-1-ol

Empirical: C_{14}H_{20}O

Properties: Ylsh. liq.; m.w. 204.31; flash pt. > 100 C; ref. index 1.5330-1.5400 (20 C)

Toxicology: LD50 (oral, rat) 4 g/kg, (skin, rabbit) > 5 g/kg; mod. toxic by ing.; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL


Handbook of Pharmaceutical Additives, Third Edition 895
α-Amylcinnamyl formate
CAS 7493-79-0; EINECS/ELINCS 231-341-5
FEMA 2066
Synonyms: α-n-Amyl-β-phenylacryl formate; 2-Benzylidene-1-heptyl for; α-Pentylcinnamyl formate; 2-(Phenyl methylene) heptyl formate

Empirical: C15H20O2

Properties: Colorless cl. liq., herbaceous odor; sol. in alcohol; m.w. 232.33
Uses: Synthetic flavor for pharmaceuticals
Features: Sweet oily herbal green odor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

α-Amylcinnamyl isovalerate
CAS 7493-80-3
FEMA 2067
Synonyms: α-n-Amyl-β-phenylacryl isovalerate; Floxin isovalerate; α-Pentylcinnamyl isovalerate

Empirical: C19H28O2

Properties: Colorless liq., mild fruity odor, somewhat spicy flavor; sol. in alcohol; m.w. 288.43
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

2-Amylecyclopentanoneacetic acid methyl ester. See Methyl dihydrojasmonate
Amylene hydrate. See t-Amyl alcohol
Amyl ethyl carbinol. See 3-Octanol
Amyl ethyl ketone; n-Amyl ethyl ketone. See 3-Octanone

Amyl formate
CAS 638-49-3; EINECS/ELINCS 211-340-6
UN 1109 (DOT); FEMA 2068
Synonyms: n-Amyl formate; Formic acid, pentyl ester; Pentyl formate; n-Pentyl formate

Empirical: C6H12O2
Formula: HCOOC5H11

Properties: Colorless liq.; plum-like odor; misc. with oils, hydrocarbons, alcohols, ether, ketones; sl. sol. in water; m.w. 116.16; dens. 0.880-0.885; m.p. -73.5 C; b.p. 123.5 C; flash pt. 26.6 C

Toxicology: LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; toxic by inh. and ing.; mod. irritant by skin contact; TSCA listed
Precaution: Flamm.; dangerous fire risk;
-reacts vigorously with heat, flame, oxidizing materials
NFPA: Health 1, Flammability 3, Reactivity 0
Uses: Synthetic flavor for pharmaceuticals
Features: Fruity flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: Grau Aromatics

Amyl heptanoate
CAS 7493-82-5
FEMA 2073
Synonyms: n-Amyl heptanoate; Amyl heptatel; Amyl heptylate; Pentyl heptanoate

Empirical: C12H24O2

Properties: Colorless liq., fruity odor; sol. in most organic solvents; m.w. 200.32; b.p. 245.4 C; ref. index 1.42627 (20 C)

Toxicology: TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Uses: Flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: Grau Aromatics
http://www.grau-aromatics.de; Lluch Essence http://www.lluch-essence.com

n-Amyl heptanoate; Amyl heptatel; Amyl heptylate. See Amyl heptanoate
<table>
<thead>
<tr>
<th>Chemical Component Cross-Reference</th>
<th>p-t-Amylphenol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amyl hexanoate</td>
<td>CAS 80-46-6; EINECS/ELINCS 201-280-9</td>
</tr>
<tr>
<td>Synonyms:</td>
<td>t-AMP; 4-t-Amylphenol; p-(1,1-Dimethylpropyl) phenol; Pentaphen, 2-methyl-2-p-hydroxyphenyl-butane; p-t-Pentylphenol; PTAP</td>
</tr>
<tr>
<td>Empirical:</td>
<td>C11H18O</td>
</tr>
<tr>
<td>Properties:</td>
<td>Colorless needles or wh. cryst.; sol. in org. solvs.; insol. in water; m.w. 164.25; dens. 0.962; m.p. 88-89 C; b.p. 255 C; flash pt. (OC) 232 F</td>
</tr>
<tr>
<td>Toxicology:</td>
<td>LD50 (oral, rat) 1830 mg/kg, (skin, rabbit) 2000 mg/kg; corrosive; harmful; mod. toxic by ing. and skin contact; severe eye irritant; TSCA listed</td>
</tr>
<tr>
<td>Hazardous Decomp. Prods.:</td>
<td>Heated to decomp., emits toxic fumes</td>
</tr>
<tr>
<td>Uses:</td>
<td>Biocide in pharmaceuticals</td>
</tr>
<tr>
<td>Regulatory:</td>
<td>Canada DSL</td>
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<tr>
<td>Trade Names:</td>
<td>Nipacide® PTAP</td>
</tr>
<tr>
<td><strong>α-Amyl β-phenylacrolein.</strong></td>
<td>See α-Amylcinnamaldehyde</td>
</tr>
<tr>
<td><strong>α-N-Amyl-β-phenyl acrolein dimethyl acetal.</strong></td>
<td>See α-Amylcinnamaldehyde dimethyl acetal</td>
</tr>
<tr>
<td><strong>α-N-Amyl-β-phenylacryl acetate.</strong></td>
<td>See α-Amylcinnamyl acetate</td>
</tr>
<tr>
<td><strong>α-n-Amyl-β-phenylacryl formate.</strong></td>
<td>See α-Amylcinnamyl formate</td>
</tr>
<tr>
<td><strong>α-n-Amyl-β-phenylacryl isovalerate.</strong></td>
<td>See α-Amylcinnamyl isovalerate</td>
</tr>
<tr>
<td><strong>2-Amyl-3-phenyl-2-propen-1-ol.</strong></td>
<td>See α-Amylcinnamyl alcohol</td>
</tr>
</tbody>
</table>

**Amyl hexanoate**
CAS 540-07-8; EINECS/ELINCS 208-732-4
FEMA 2074

**Synonyms:** Amyl caproate; Amyl capronate; Amyl hexylate; Hexanoic acid, pentyl ester; Pentyl caproate; Pentyl hexanoate

**Empirical:** C11H22O2

**Properties:** Colorless liq.; banana odor; m.w. 186.30; sp.gr. 0.8612; m.p. -47 C; b.p. 226 C; flash pt. 89 C; ref. index 1.4202 (25 C)

**Toxicology:** LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; severe eye irritant; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating vapors

**Uses:** Flavor for pharmaceuticals

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL


**Trade Names:** Nipacide® PTAP

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**Amyl octanoate**
CAS 638-25-5; EINECS/ELINCS 211-328-0
FEMA 2079

**Synonyms:** Amyl caprylate; n-Amyl octanoate; Pentyl octanoate

**Empirical:** C13H26O2

**Properties:** Liq., orris odor; m.w. 214.35; sp.gr. 0.8562; m.p. -34 C; b.p. 260 C; flash pt. 121 C; ref. index 1.4262 (25 C)

**Toxicology:** TSCA listed

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Sweet flavor

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Manuf./Distrib.:** Grau Aromatics [http://www.grau-aromatics.de]; SAFC Specialties [http://www.safcspecialties.com]

**Trade Names:** Nipacide® PTAP

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**n-Amyl octanoate.** See Amyl octanoate

**α-Amylose.** See Cellulose

**Amylotriose.** See Maltotriose

**4-t-Amylphenol.** See p-t-Amylphenol
Chemical Component Cross-Reference

208.26; dens. 1.053; b.p. 277-278 C; flash pt. > 230 F; ref. index 1.5050-1.5080 (20 C)

Toxicology: Severe skin irritant; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 0, Flammability 1, Reactivity 0
Uses: Synthetic flavor, fragrance for pharmaceuticals
Regulatory: FEMA GRAS; Canada DSL

Manuf./Distrib.: Akzo Nobel
http://www.akzonobel.com; Aldrich
http://www.sigma-aldrich.com; Augustus Oils Ltd http://www.augustus-oils.ltd.uk;
Berje http://www.berjeinc.com; Creative Fragrances
http://www.creativefragrances.com
Eramex Aromatics http://www.eramex.de;
Indofine http://www.indofinechemical.com;
Int’l’l. Flavors & Fragrances US http://www.iff.com; Lluch Essence
http://www.lluch-essence.com
MelChem http://www.melchem.com; Penta

Amyl-Δ-valerolactone. See Δ-Decalactone
Amyl vinyl carbinol. See 1-Octen-3-ol
Amyl vinyl carbinol acetate; Amyl vinyl carbinyl acetate. See 1-Octen-3-yl acetate

Anadonis green. See Chromium oxide (ic)
Analgesine. See Antipyrine
Ananas sativus; Ananas sativus juice. See Pineapple (Ananas sativus) juice
Anchovyxanthin. See Zeaxanthin
Andropogo nardus; Andropogon nardus oil. See Lemongrass oil East Indian
Anesthesol. See Procaine hydrochloride
Anesthetic ether. See Ethyl ether
Anethol. See Anethole

Anethole
CAS 104-46-1; EINECS/ELINCS 203-205-5
FEMA 2086

Synonyms: Anethol; Anetol; Anise camphor;
Benzene, 1-methoxy-4-(1-propenyl)-;
Isoeugenol; p-Methoxy-β-methylstyrene;
1-(p-Methoxyphenyl) propene; 1-Methoxy-4-propenylbenzene; 4-
Methoxypropenylbenzene; p-
Methoxypropenylbenzene; 4-
Propenylanisole; p-Propenylanisole; p-1-
Propenylanisole; p-Propenylphenyl methyl

†=pharmaceutical grade

Classification: Substituted aromatic ether
Definition: Obtained from anise oil and other sources or prepared synthetically

Empirical: C10H12O
Formula: CH3CH:CHC6H4OCH3

Properties: Wh. cryst. or lt. yel. liq. above 23 C, anise odor, sweet taste; very sl. sol. in water;
misc. with abs. alcohol, ether, chloroform; m.w. 148.22; dens. 0.991 (20/20 C); m.p. 22.5 C;
b.p. 235.3 C; flash pt. 90 C; ref. index 1.557-1.561

Toxicology: LD50 (oral, rat) 2090 mg/kg;
poison by ing.; skin contact may cause hives, scaling, blisters; may cause human intolerance reaction; questionable carcinogen; experimental tumorigen; TSCA listed

Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

HMIS: Health 2, Flammability 1, Reactivity 0
Storage: Light-sensitive
Uses: Synthetic flavor, fragrance for pharmaceuticals, orals, mouthwash, toothpaste, denture creams, dentifrices

Regulatory: FDA 21CFR §182.60, GRAS;
27CFR §21.151; FEMA GRAS; USP/NF compliance; Canada DSL

Manuf./Distrib.: Acme-Hardesty†
http://www.acme-hardesty.com; Adrian Amer. http://www.adrianusa.com;
http://www.advancedsynthesis.com;
Andrea Aromatics
Arizona† http://www.arizonachemical.com;
Augustus Oils Ltd http://www.augustus-oils.ltd.uk; Axxence Aromatic GmbH
http://www.axxence.com;
http://www.axxence.de; B D Aromatics
http://www.bdaromatics.com; BDH†
BFA Labs http://www.bfa-lab.com; Berje
http://www.berjeinc.com; Chinessence
http://www.chinessence.com; Citrus and Allied Essences
http://www.citrusandallied.com; Creative Fragrances
http://www.creativefragrances.com
Eramex Aromatics http://www.eramex.de;
http://www.copelandoil.co.uk; Fleurchem
Chemical Component Cross-Reference

†=pharmaceutical grade

Anethole Extra USP 21/22, FCC
Anethum graveolens oil; Anethum graveolens seed oil. See Dill (Anethum graveolens) seed oil
Anetol. See Anethole
Aneurine. See Thiamine
Aneurine hydrochloride. See Thiamine HCl
Aneurine mononitrate. See Thiamine nitrate

Angelica (Angelica archangelica) extract
CAS 84775-41-7; 977032-49-7; 8015-66-3; EINECS/ELINCS 283-871-1
FEMA 2087
Synonyms: Angelica archangelica; Angelica archangelica extract; Angelica extract; Angelica root extract; Archangelica officinalis; European angelica extract; Garden angelica extract

Definition: Extract of roots of Angelica archangelica
Properties: Pale yel. to amber liq., pungent odor, bitter-sweet taste; sol. in fixed oils; sl. sol. in min. oil
Toxicology: May cause skin rash or swelling when exposed to light
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Natural flavor for toothpaste, mouthwashes; medicinally for gas, to increase sweating, and reduce body water; aromatic, stimulant, carminative, diuretic, diaphoretic
Use Level: 0.78% max. in skin cosmetics likely exposed to sunlight
Regulatory: FDA 21CFR §182.20, GRAS; FEMA GRAS

Angelica (Angelica archangelica) root oil
CAS 8015-64-3; 84775-41-7; 8015-66-3; EINECS/ELINCS 283-871-1
FEMA 2088; 2089; 2091
Synonyms: Angelica archangelica; Angelica archangelica oil; Angelica archangelica root oil; Angelica oil, root; Angelica root oil
Definition: Essential oil obtained from roots of Angelica archangelica, contg. mainly D-α-phellandrene and cyclopentadecalactone
Properties: Pale yel. to amber liq., pungent odor, bittersweet taste; sol. in alcohol, fixed oils; sl. sol. in min. oil; insol. in glycerin, propylene glycol, water; dens. 0.857-0.915 (15/15 C); acid no. 7 max.; ref. index 1.473-1.487
Toxicology: LD50 (oral, rat) 11,000 mg/kg, (oral, mouse) 2200 mg/kg; mod. toxic by ing.; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Storage: Keep well closed; protect from light
Uses: Natural flavor for pharmaceuticals
Use Level: 0.78% max. in skin cosmetics likely exposed to sunlight
Angelica (Angelica archangelica) seed oil
CAS 97705-08-0; 8015-64-3
FEMA 2090
Synonyms: Angelica archangelica; Angelica archangelica seed oil; Angelica seed oil
Definition: Extracted from seeds of Angelica archangelica
Properties: Lt. yel. liq., sweet taste; sol. in fixed oils; sl. sol. in min. oil; insol. in glycerin, propylene glycol
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Natural flavor for pharmaceuticals
Use Level: 0.78% max. in skin cosmetics likely exposed to sunlight
Regulatory: FDA 21CFR §182.20, GRAS; FEMA GRAS; Canada DSL

†=pharmaceutical grade

Angelica archangelica oil; Angelica archangelica root oil. See Angelica (Angelica archangelica) root oil
Angelica archangelica seed oil. See Angelica (Angelica archangelica) seed oil
Angelica extract. See Angelica (Angelica archangelica) extract
Angelica lactone. See Pentadecalactone
Angelica oil, root. See Angelica (Angelica archangelica) root oil
Angelica root extract. See Angelica (Angelica archangelica) extract
Angelica root oil. See Angelica (Angelica archangelica) root oil
Angelica seed oil. See Angelica (Angelica archangelica) seed oil
Angostura extract. See Angostura (Galipea officinalis) extract

Angostura (Galipea officinalis) extract
CAS 68916-12-1; EINECS/ELINCS 294-354-5
FEMA 2092
Synonyms: Angostura extract; Cusparia bark extract; Galipea officinalis; Galipea officinalis extract
Definition: Extract derived from tree Galipea officinalis
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §182.20, GRAS; FEMA GRAS; Canada DSL
Manuf./Distrib.: Chart http://www.chartcorp.com

Anhydrite (natural form). See Calcium sulfate
3,6-Anhydro-d-galactan. See Carrageenan (Chondrus crispus)
1,4-Anhydro-D-glucitol, 6-hexadecanoate. See Sorbitan palmitate
1,4-Anhydro-D-glucitol, 6-isoctadecanoate. See Sorbitan isostearate
Anhydro-d-glucitol monoocotadecanoate. See Sorbitan stearate
Anhydroxitol sesquioleate. See Sorbitan sesquioleate
Anhydrosorbitol distearate. See Sorbitan distearate
Anhydrosorbitol monoisostearate. See Sorbitan isostearate
Anhydrosorbitol monolaureate. See Sorbitan laurate
Anhydrosorbitol monoooleate. See Sorbitan oleate
Anhydrosorbitol monostearate. See Sorbitan stearate
<table>
<thead>
<tr>
<th>Chemical Component Cross-Reference</th>
<th></th>
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<tbody>
<tr>
<td>Anhydrosorbitol sesquioleate. See Sorbitan sesquioleate</td>
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<td>Anhydrosorbitol stearate. See Sorbitan stearate</td>
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<tr>
<td>Anhydrosorbitol trioleate. See Sorbitan trioleate</td>
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<tr>
<td>Anhydrosorbitol tristearate. See Sorbitan tristearate</td>
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<tr>
<td>Anhydro-o-sulfaminebenzoic acid. See Saccharin</td>
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<td>Anhydrous ammonia. See Ammonia</td>
<td></td>
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<tr>
<td>Anhydrous calcium sulfate. See Calcium sulfate</td>
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<tr>
<td>Anhydrous chlorobutanol. See Chlorobutanol</td>
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<tr>
<td>Anhydrous gypsum. See Calcium sulfate</td>
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<tr>
<td>Anhydrous hydroiodic acid. See Hydriodic acid</td>
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<tr>
<td>Anhydrous iron oxide. See Ferric oxide</td>
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<tr>
<td>Anhydrous lanolin. See Lanolin</td>
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<td>Aniba rosaeodora; Aniba rosaeodora oil. See Bois de rose (Aniba rosaeodora) oil</td>
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<td>p-Anilinesulfonamide. See Sulfanilamide</td>
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<td>Aniline-3-sulfonic acid; m-Anilinesulfonic acid. See Metanilic acid</td>
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<td>Aniline-p-sulfonic amide. See Sulfanilamide</td>
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<td>Aniline violet. See Basic violet 3</td>
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<tr>
<td>p-Anilinoaniline. See N-Phenyl-p-phenylenediamine</td>
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<tr>
<td>Animal keratin. See Keratin</td>
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<td>Animal oil, monoglycerides, diglycerides. See Lard glycerides</td>
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<tr>
<td>Animal starch. See Glycogen</td>
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<td>Anisaldehyde. See p-Anisosaldehyde</td>
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<td>2-Anisaldehyde. See o-Methoxybenzaldehyde</td>
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<tr>
<td>m-Anisaldehyde. See m-Methoxybenzaldehyde</td>
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<tr>
<td>o-Anisaldehyde. See o-Methoxybenzaldehyde</td>
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<tr>
<td>p-Anisaldehyde</td>
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<td>CAS 123-11-5; EINECS/ELINCS 204-602-6</td>
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<td>FEMA 2670</td>
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<tr>
<td>Synonyms: Anisaldehyde; Anisic aldehyde; p-Anisic aldehyde; Aubepine; 4-Methoxybenzaldehyde; p-Methoxybenzaldehyde</td>
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<tr>
<td>Empirical: C_{6}H_{4}O_{2}</td>
<td></td>
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<tr>
<td>Formula: C_{6}H_{4}(OCH_{3})CHO</td>
<td></td>
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<tr>
<td>Properties: Colorless oil, hawthorn odor; sol. in propylene glycol; misc. in alcohol, ether, fixed oils; insol. in glycerin, water; m.w. 136.15; dens. 1.123 (20/4 C); m.p. 2.5 C; b.p. 247-248 C; flash pt. 121 C; ref. index 1.571-1.574</td>
<td></td>
</tr>
</tbody>
</table>

†=pharmaceutical grade

**Toxicology:** LD_{50} (oral, rat) 1510 mg/kg; mod. toxic by ing.; skin irritant; mutagenic data; TSCA listed

**Precaution:** Combustible; volatile in steam

**Hazardous Decomp. Prods.:** Heated to decomps. emits acrid smoke and irritating fumes

**Storage:** Store at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air

**Uses:** Natural flavor and fragrance for pharmaceuticals; intermediate for antihistamines

**Features:** Sweetly floral, hawthorn-like fragrance and flavor

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Japan approved for flavoring; Canada DSL

**Manuf./Distrib.:** ADA Int'l.
- http://www.adaindex.htm
- Aceto http://www.aceto.com
- Alfa Aesar http://www.alfa.com
- Asiamerica Int'l.†
- Atul Ltd http://www.atul.co.in
- Augustus Oils Ltd http://www.augustus-oils.ltd.uk
- Axxence Aromatic GmbH http://www.axxence.com
- http://www.axxence.de
- BASF AG http://www.basf.com
- BASF http://www.basf.com
- BFA Labs http://www.bfa-lab.com
- Berje http://www.berjeinc.com
- Biddle Sawyer† http://www.biddlesawyer.com
- Chinessence http://www.chinessence.com
- CoKEM Assoc.†
- D&O http://www.dochem.com
- Elan http://www.elan-chemical.com
- Epochem http://www.epochem.com
- Eramex Aromatics http://www.eralex.de
- Fleurchem http://www.fleurchem.com
- Fluka http://www.sigma-aldrich.com
- George Uhe http://www.ueh.com
- http://www.honeywell-plastics.com
- Indofine† http://www.indofinechemical.com
- L C United http://www.lcunited.com
- Lluch Essence http://www.lluch-essence.com
- Makhteshim http://www.melchem.com
- MELCHEM†
- Asiamerica Int'l.†
- Fluka http://www.sigma-aldrich.com
- Hipol http://www.hipol.com
- Bois de rose (Aniba rosaeodora) oil ᵉ.ReadToEnd("Aniba rosaeodora; Aniba rosaeodora oil. See Bois de rose (Aniba rosaeodora) oil p-Anilinesulfonamide. See Sulfanilamide Aniline-3-sulfonic acid; m-Anilinesulfonic acid. See Metanilic acid Aniline-p-sulfonic amide. See Sulfanilamide Aniline violet. See Basic violet 3 p-Anilinoaniline. See N-Phenyl-p-phenylenediamine Animal keratin. See Keratin Animal oil, monoglycerides, diglycerides. See Lard glycerides Animal starch. See Glycogen Anisaldehyde. See p-Anisosaldehyde 2-Anisaldehyde. See o-Methoxybenzaldehyde m-Anisaldehyde. See m-Methoxybenzaldehyde o-Anisaldehyde. See o-Methoxybenzaldehyde p-Anisaldehyde CAS 123-11-5; EINECS/ELINCS 204-602-6 FEMA 2670 Synonyms: Anisaldehyde; Anisic aldehyde; p-Anisic aldehyde; Aubepine; 4-Methoxybenzaldehyde; p-Methoxybenzaldehyde Empirical: C_{6}H_{4}O_{2} Formula: C_{6}H_{4}(OCH_{3})CHO Properties: Colorless oil, hawthorn odor; sol. in propylene glycol; misc. in alcohol, ether, fixed oils; insol. in glycerin, water; m.w. 136.15; dens. 1.123 (20/4 C); m.p. 2.5 C; b.p. 247-248 C; flash pt. 121 C; ref. index 1.571-1.574 †=pharmaceutical grade
**Chemical Component Cross-Reference**

- **Midori Kagaku** [http://www.midori-kagaku.co.jp/m060713/e_start_fr.htm]
- **Moore Ingreds.** [http://www.moorelab.com]
- **Nippon Shokubai** [http://www.shokubai.co.jp/eng/]
- **Noveon** [http://www.noveon.com]
- **Ogawa & Co.** [http://www.ogawa.net]
- **Penta Mfg.** [http://www.pentamfg.com]
- **Polarome Int'l.** [http://www.polarome.com]
- **Prodasynth** [http://www.prodasynth.com]
- **R.C. Treatt & Co. Ltd** [http://www.rc-treatt.com]
- **R.C. Treatt & Co. Ltd** [http://www.pentamfg.com]
- **R.C. Treatt & Co. Ltd** [http://www.prodasynth.com]
- **R.C. Treatt & Co. Ltd** [http://www.rctreatt.com]
- **R.C. Treatt & Co. Ltd** [http://www.safcspecialties.com]
- **SAFC Specialties** [http://www.sigma-aldrich.com/belgium]
- **Spectrum Quality Prods.** [http://www.spectrumchemical.com]
- **Takasago Int'l.** [http://www.takasago.com]
- **Triple Crown Am.** [http://www.triplecrownamerica.com]
- **Triple Crown Am.** [http://www.triplecrownamerica.com]
- **Whole Herb** [http://www.wholeherbcompany.com]
- **Whole Herb** [http://www.wholeherbcompany.com]

**UN ID8027; FEMA 2094**

**Synonyms:** Aniseed oil; Anise oil; Hydroessential anissette; Oleum anisi; Pimpinella anisum; Pimpinella anisum oil

**Definition:** Volatile oil derived from the dried ripe fruit and seeds of *Pimpinella anisum*, contg. 80-90% anethole, methylchavicol, anisaldehyde

**Properties:** Colorless or pale yel. liq.; crushed fruit odor, sweet aromatic taste; freely sol. in chloroform, ether; sol. in DMSO, 95% ethanol, acetone; sol. in 3 vols. alcohol; sol. < 1 mg/ml in water; dens. 0.978-0.988 (25/25 C); m.p. 17 C; solid. pt. 15 C min.; b.p. 232 C; flash pt. 92.8 C; ref. index 1.553-1.560; tenacity 20 hrs. on blotter

**Toxicology:** LD50 (oral, rat) 2250 mg/kg, (skin, rabbit) > 5 g/kg; mod. toxic by ing.; may be harmful by inh., ing., skin absorp.; may cause eye/skin/respiratory tract irritation; may cause allergic skin reaction; weak sensitizer; may cause contact dermatitis due to anethole content; anethole is quite toxic in animals, but considered safe in humans @ 2.5 mg/kg dose; mutation data reported; TSCA listed

**Precaution:** Combustible; exposure to air causes polymerization, some oxidation; incomp. with strong oxidizing agents

**Hazardous Decomp. Prods.:** CO, CO2; heated to decomp., emits acrid smoke and irritating fumes; emits toxic fumes under fire conditions

**Storage:** Store @ ambient temps. in well-closed containers; keep under inert atmosphere; may be light-sensitive; protect from light; do not store in PVC bottles

**Uses:** Natural flavor for pharmaceuticals, orals, buccals, toothpaste; carminative; mild expectorant in cough preps.

**Regulatory:** FDA 21CFR §182.10, 182.20, 582.20, GRAS; 27CFR §21.65, 21.151; FEMA GRAS; BP, EP compliance; Australia; Canada DSL; Philippines PICCS


**Anise (Pimpinella anisum) oil**

CAS **8007-70-3**
Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Chemical Component</th>
<th>CAS</th>
<th>Manuf./Distrib.</th>
<th>Toxicology</th>
<th>Storage</th>
<th>Uses</th>
<th>Features</th>
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</thead>
<tbody>
<tr>
<td>3-Methoxyaniline</td>
<td>536-90-3; EINECS/ELINCS 208-651-4</td>
<td>Aceto†</td>
<td>LD50 (subcut., mouse) 400 mg/kg; toxic by subcut. route; irritating to eyes, skin, respiratory system; TSCA listed</td>
<td>Store @ ambient temps. and pressure</td>
<td>Fragrance and flavor for pharmaceuticals; drug; antimicrobial</td>
<td>Sweet flavor</td>
</tr>
<tr>
<td>Anisic acid ethyl ester</td>
<td>See Ethyl-p-anisate</td>
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<tr>
<td>p-Anisic acid methyl ester</td>
<td>See Methyl o-methoxybenzoate</td>
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<tr>
<td>Anisic alcohol</td>
<td>See p-Anisyl alcohol</td>
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<tr>
<td>Anisic aldehyde</td>
<td>See p-Anisaldehyde</td>
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<tr>
<td>o-Anisic aldehyde</td>
<td>See o-Methoxybenzaldehyde</td>
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<tr>
<td>p-Anisaldehyde</td>
<td>See p-Anisaldehyde</td>
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<tr>
<td>Anisic ketone</td>
<td>See 1-(p-Methoxyphenyl)-2-propanone</td>
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<td>2-Anisidine</td>
<td>See o-Anisidine</td>
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<tr>
<td>4-Anisidine</td>
<td>See p-Anisidine</td>
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<td></td>
</tr>
<tr>
<td>m-Anisidine</td>
<td>CAS 536-90-3; EINECS/ELINCS 208-651-4</td>
<td>Aceto†</td>
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</tr>
</tbody>
</table>

**Handbook of Pharmaceutical Additives, Third Edition**

903
Chemical Component Cross-Reference

**Classification:** Aromatic organic compd.

**Empirical:** C₇H₉NO

**Properties:** M.w. 123.16; dens. 1.102 (20/4 C); b.p. 251 C; flash pt. 126 C; ref. index 1.581 (20 C)

**Toxicology:** LD₅₀ (oral, quail) 562 mg/kg; mod. toxic by ing.; mutagen; anisidine and its hydrochloride may reasonably be expected to be carcinogens; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of NOₓ

**Storage:** Photosensitive

**Uses:** Pharmaceutical intermediate


**o-Anisidine**

CAS 90-04-0; EINECS/ELINCS 201-963-1

**UN 2431 (DOT)**

**Synonyms:** 2-Aminoanisole; o-Anisidine; 1-Amino-2-methoxybenzene; 2-Anisidine; o-Anisylamine; Benzenamine, 2-methoxy-; 2-Methoxy-1-aminobenzene; 2-Methoxyaniline; o-Methoxyaniline; 2-Methoxybenzenamine; o-Methoxybenzenamine

**Classification:** Aromatic organic compd.

**Empirical:** C₇H₉NO

**Properties:** Lt. yel. liq.; sol. in water, dil. acid, org. solvs.; insol. in water; m.w. 123.16; sp.gr. 1.098 (15/15 C); m.p. 5 C; b.p. 225 C; flash pt. 100 C; ref. index 1.575 (20 C)

**Toxicology:** ACGIH TLV/TWA 0.5 mg/m³ (skin); LD₅₀ (oral, rat) 1320 mg/kg, (dermal, rat) 3200 mg/kg, (IP, rat) 1400 mg/kg; mod. toxic; mild sensitizer; can cause contact dermatitis; may cause eye irritation; inh. of dust can irritate nose and throat, and cause methemoglobinemia, cyanosis, headache, shortness of breath, nausea, vomiting, dizziness, drowsiness, irregular heartbeat; tumorigen; mutagen; TSCA listed

**Hazardous Decomp. Prods.:** CO, CO₂; heated to decomp., evolves toxic fumes of NOₓ

**Storage:** Photosensitive

**Uses:** Pharmaceutical intermediate

**Regulatory:** Canada DSL


**p-Anisidine**

CAS 104-94-9; EINECS/ELINCS 203-254-2

UN 2431; UN 3143

**Synonyms:** 4-Aminoanisole; p-Aminoanisole; 1-Amino-4-methoxybenzene; 4-Anisidine; p-Anisylamine; 4-Methoxy-1-aminobenzene; 4-Methoxyaniline; p-Methoxyaniline; 4-Methoxybenzenamine; 4-Methoxybenzenamine

**Classification:** Aromatic organic compd.; Substituted aromatic amine

**Empirical:** C₇H₈NO

**Properties:** Wh. fused cryst. solid; may darken on exposure to light and air; char. amine odor; very sol. in ethanol, methanol, diethyl ether; sol. in hot water, acetone, benzene, ether, org. solvs.; m.w. 123.16; dens. 1.089 (55/55 C); m.p. 56-59 C; b.p. 246 C; flash pt. 122 C

**Toxicology:** ACGIH TLV/TWA 0.5 mg/m³ (skin); LD₅₀ (oral, rat) 1320 mg/kg, (dermal, rat) 3200 mg/kg, (IP, rat) 1400 mg/kg; mod. toxic; can cause contact dermatitis; may cause eye irritation; inh. of dust can irritate nose and throat, and cause methemoglobinemia, cyanosis, irregular heartbeat; tumorigen; mutagen; TSCA listed

**Hazardous Decomp. Prods.:** CO, CO₂; heated to decomp., evolves toxic fumes of NOₓ

**Storage:** Photosensitive

**Uses:** Pharmaceutical intermediate

**Regulatory:** Canada DSL

**Manuf./Distrib.:** Aceto† [http://www.aceto.com], Aldrich† [http://www.sigma-aldrich.com], Sigma [http://www.sigma-aldrich.com/belgium], Daiwa† [http://www.daiwa.com]
Chemical Component Cross-Reference


Anisketone. See 1-(p-Methoxyphenyl)-2-propanone
p-Anisol alcohol. See p-Anisyl alcohol

Anisole
CAS 100-66-3; EINECS/ELINCS 202-876-1; UN 2222 (DOT); FEMA 2097
Synonyms: Benzene, methoxy; Ether, methyl phenyl; Methoxybenzene; Methylphenyl ether; Phenol methyl ether; Phenyl methylether
Classification: Ether
Empirical: C7H8O
Formula: CH3OC6H5
Properties: Colorless or straw liq.; anise-like odor; sol. in alcohol, ether, oxygenated solvs.; insol. in water; m.w. 108.13; dens. 0.992; vapor pressure 10 mm (42.2 C); m.p. -37 C; b.p. 154 C; flash pt. 42 C; autoignition temp. 475 C; ref. index 1.515-1.518; surf. tens. 35 dynes/cm; dielec. const. 4.33
Toxicology: LD50 (oral, rat) 3700 mg/kg; LC50 (inh., mouse, 2 h) 3021 mg/m3; mod. toxic by ing. and inh.; skin irritant; target organs: CNS, respiratory system; TSCA listed
Environmental: VOC; ThOD 2.52
Precaution: Flamm. liq.; mod. flamm. exposed to heat, flame, or oxidizers
Hazardous Decomp. Prods.: Heated to decomp., emits acrid fumes
NFPA: Health 1, Flammability 2, Reactivity 0
Uses: Solvent, synthetic flavor for pharmaceuticals; pharmaceutical intermediate
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

†=pharmaceutical grade

Anisole, p-methoxy-. See p-Dimethoxybenzene
Anisole, o-methyl-. See o-Methylanisole
Anisyl acetate. See p-Anisyl acetate

p-Anisyl acetate
CAS 104-21-2; EINECS/ELINCS 203-185-8; FEMA 2098
Synonyms: Acetic acid 4-methoxybenzyl ester; Anisyl acetate; 4-Methoxybenzyl acetate; p-Methoxybenzyl acetate
Classification: Aromatic ester
Empirical: C10H12O3
Formula: CH3OC6H4CH2COCH3
Properties: Colorless to sl. yel. liq.; floral, fruit-like odor; sweet taste; sol. in org. solvs., alcohol, most oils; insol. in water, glycerin, propylene glycol; m.w. 180.21; dens. 1.104; b.p. 270 C; flash pt. 210 F; ref. index 1.511-1.516 (20 C)
Toxicology: TSCA listed
Precaution: Combustible liq.
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Synthetic flavor for pharmaceuticals
Features: Vanilla, plum-like flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
2-(p-Anisyl) acetic acid. See \( p\)-Methoxyphenylacetic acid

Anisyl acetone. See 4-p-Methoxyphenyl-2-butanoate

\textbf{p-Anisyl alcohol}

\begin{align*}
\text{CAS} & \ 105-13-5; \ EINECS/ELINCS \ 203-273-6 \\
\text{FEMA} & \ 2099 \\
\text{Synonyms:} & \ \text{Anise alcohol; } p\text{-Anise alcohol; } \\
& \ \text{Anisic alcohol; } p\text{-Anisol alcohol; } \\
& \ \text{Benzenemethanol, } 4\text{-methoxy-; } 4\text{-} \\
& \ \text{Methoxybenzenemethanol; } 4\text{-} \\
& \ \text{Methoxybenzyl alcohol; } p\text{-Methoxybenzyl alcohol} \\
\text{Empirical:} & \ C_8H_{10}O_2 \\
\text{Formula:} & \ CH_3OC_6H_4CH_2OH \\
\text{Properties:} & \ \text{Wh. to pale yel. cryst. or colorless to} \\
& \ \text{sl. yel. liq.; floral odor; fruity (peach) taste; sol.} \\
& \ \text{in most fixed oils, alcohol, ether; sl. sol. in} \\
& \ \text{glycerin; pract. insol. in water; m.w. 138.17;} \\
& \ \text{dens. 1.113 (15/15 C); m.p. 25 C; b.p. 259 C;} \\
& \ \text{flash pt. 146 C; ref. index 1.543-1.545} \\
\text{Toxicology:} & \ LD_50 \text{ (oral, rat) 1200 mg/kg; mod.} \\
& \ \text{toxic by ing.; skin irritant; allergen; TSCA} \\
& \ \text{listed} \\
\text{Precaution:} & \ \text{Combustible liq.} \\
\text{Hazardous Decomp. Prods.:} & \ \text{Heated to} \\
& \ \text{decomp., emits acrid smoke and irritating} \\
& \ \text{fumes} \\
\text{HMIS:} & \ \text{Health 1, Flammability 1, Reactivity 0} \\
\text{Uses:} & \ \text{Fragrance and flavor for} \\
& \ \text{pharmaceuticals; pharmaceutical} \\
& \ \text{intermediate} \\
\text{Features:} & \ \text{Caramel, chocolate, vanilla-like, fruity} \\
& \ \text{fragrance and flavor} \\
\text{Regulatory:} & \ \text{FDA 21CFR §172.515; FEMA} \\
& \ \text{GRAS; Canada DSL} \\
\text{Manuf./Distrib.:} & \ \text{ABCR } \ \text{http://www.abcr.de; } \\
& \ \text{Acros Org. } \ \text{http://www.acros.com; } \\
& \ \text{Advanced BioTech } \ \text{http://www.adv-} \\
& \ \text{bio.com; } \ \text{Alfa Aesar } \ \text{http://www.alfa.com; } \\
& \ \text{Augustus Oils Ltd } \ \text{http://www.augustus-}
\end{align*}
### p-Anisyl formate

**Chemical Component Cross-Reference**

- Chemical Name: p-Anisyl formate
- CAS Number: 102-17-0
- EINECS/ELINCS: 203-010-5
- FEMA: 3740
- Synonyms: p-Anisyl phenylacetate; Anisyl α-toluate; p-Methoxybenzyl phenyl acetate; Phenylacetic acid, p-methoxybenzyl ester

**Properties:**
- Colorless, oily liq.; honey-like odor; sol. in alcohol; m.w. 256.30; b.p. 370 °C

**Toxicology:**
- LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; skin irritant

**Hazardous Decomp. Prods.:**
- Heated to decomp., emits acrid smoke and irritating fumes

**Uses:**
- Synthetic flavor for pharmaceuticals

**Regulatory:**
- FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Manuf./Distrib.:**
- Penta Mfg. [http://www.pentamfg.com](http://www.pentamfg.com)
- SAFC Specialties [http://www.safcspecialties.com](http://www.safcspecialties.com)

### p-Anisyl phenylacetate

**Chemical Component Cross-Reference**

- Chemical Name: p-Anisyl phenylacetate
- CAS Number: 57-59-8
- EINECS/ELINCS: 203-010-5
- FEMA: 3740
- Synonyms: p-Anisyl propionate; 4-Methoxybenzyl propanoate; p-Methoxybenzyl propionate

**Properties:**
- Herbaceous odor; fruity taste; m.w.194.23; dens. 1.070; b.p. 277 °C; flash pt. >230 °F; ref. index 1.5490 (20 °C)

**Uses:**
- Synthetic flavor for pharmaceuticals

**Regulatory:**
- FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Manuf./Distrib.:**
- AB R Lundberg [http://www.norfoods.se/lundberg](http://www.norfoods.se/lundberg)
- ATZ Chem. [http://www.atznatural.com](http://www.atznatural.com)
- Adept Sol'n's†; Alfa Chem† [http://www.alfachem1.com](http://www.alfachem1.com)
- Amerol [http://www.amerolcorp.com](http://www.amerolcorp.com)
- Ashland† [http://www.ashchem.com](http://www.ashchem.com)
- Asiamerica Int'l†; Chart [http://www.chartcorp.com](http://www.chartcorp.com)
- Chr. Hansen Inc† [http://www.chr-hansen.com](http://www.chr-hansen.com)
- Frutarom [http://www.frutarom.com](http://www.frutarom.com)
- Functional Foods† [http://www.functionalfoods.com](http://www.functionalfoods.com)
- George Uhe [http://www.uhe.com](http://www.uhe.com)
Annatto (Bixa orellana) extract
CAS 1393-63-1; 8015-67-6
FEMA 2103; INS160b; E160b
Synonyms: Achiote; Annatto extract; Annatto tree extract; Annotta extract; Bixa orellana; Bixin; CI 75120; Natural orange 4
Definition: Carotenoid color contg. bixin (oil/fat extract) or norbixin (alkaline aq. extract), derived from Bixa orellana
Properties: Yel.-red sol'ns. or powd.
Toxicology: LD50 (IP, mouse) 700 mg/kg; mod. toxic by IP route; human systemic effects by skin contact; may cause asthma, rashes
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Colorant for pharmaceuticals, incl. those for eye area use
Regulatory: FDA 21CFR §73.30, 73.1030, 73.2030; permanently listed as a color in 1977; exempt from certification, permanently listed for drug use; FEMA GRAS; Japan restricted use
Manuf./Distrib.: Bio-Botanica http://www.biobotanica.com; Chr. Hansen Inc http://www.chr-hansen.com; Degussa AG/Health & Nutrition
See also Norbixin
Annatto extract. See Annatto (Bixa orellana) extract
Annatto seed. See Annatto (Bixa orellana)
Annatto tree extract. See Annatto (Bixa orellana) extract
Annotta. See Annatto (Bixa orellana)
†=pharmaceutical grade

Annatto extract. See Annatto (Bixa orellana) extract
Annatto seed. See Annatto (Bixa orellana)
Annulene. See Benzene
Anodynine. See Antipyrine
Anogeissus latifolia gum. See Gum ghatti
Anthemis nobilis: Anthemis nobilis extract. See Chamomile (Anthemis nobilis) extract
2-Anthracenecarboxylic acid, 7-α-D-glucopyranosyl-9,10-dihydro-3,5,6,8-tetrahydroxy-1-methyl-9,10-dioxo-; 2-Anthracenecarboxylic acid, 7-β-D-glucopyranosyl-9,10-dihydro-3,5,6,8-tetrahydroxy-1-methyl-9,10-dioxo.- See Carminic acid
9,10-Anthracenedione, 1,4-bis [(4-methylphenyl) amino]-. See CI 61565; D&C Green No. 6; Solvent green 3
Antranilic acid
CAS 118-92-3; EINECS/ELINCS 204-287-5
Synonyms: o-Amidobenzoic acid; 2-Aminobenzoic acid; o-Aminobenzoic acid; 1-Amino-2-carboxybenzene; Carboxyaniline; 2-Carboxyaniline; o-Carboxyaniline; Vitamin L
Classification: Aromatic organic compd.
Empirical: C7H7NO2
Formula: C9H4(NH2)(CO2H)
Properties: Wh. to ylsh. cryst. powd., sweetish taste; sol. in hot water, alcohol, ether, oxygenated solvs.; m.w. 137.14; m.p. 144-146 C (sublimes)
Toxicology: LD50 (oral, mouse) 1400 mg/kg, (IP, mouse) > 500 mg/kg; TDLo (oral, rat) 16 g/kg; mod. toxicity by ing. and IP route; irritant; experimental tumorigen and reproductive effects; possible carcinogen; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Thermal decomp. prods.: NOx
Uses: Intermediate for pharmaceuticals
Regulatory: BP, EP compliance; Canada DSL
Chemical Component Cross-Reference


Anthranilic acid cinnamyl ester. See Cinnamyl anthranilate
Anthranilic acid, 1,5-dimethyl-1-vinyl-4-hexenyl ester; Anthranilic acid linalyl ester. See Linalyl anthranilate
Anthranilic acid methyl ester. See Methyl anthranilate
Anthranilic acid 1-methyl-1-(4-methyl-3-cyclohexen-1-yl) ethyl ester. See Terpinyl anthranilate
Anthranilic acid, phenethyl ester. See Phenethyl anthranilate
Anthraquinone, 1-hydroxy-4-(p-toluidino). See D&C Violet No. 2
Anthriscus cerefolium. See Chervil (Anthriscus cerefolium)
Anticanitic vitamin; Antichromotrichia factor. See p-Aminobenzoic acid
Antihemorrhagic vitamin. See Vitamin K₁
Anti-infective vitamin. See Retinol
Antimonous chloride; Antimony butter; Antimony chloride; Antimony (III) chloride. See Antimony trichloride

Antimony trichloride
CAS 10025-91-9; EINECS/ELINCS 233-047-2 UN 1733 (DOT)
Synonyms: Antimonous chloride; Antimony butter; Antimony chloride; Antimony (III) chloride; ATC; Butter of antimony; Caustic antimony; CI 77056; Stibine, trichloro-; Trichlorostibine
Empirical: Cl₃Sb
Formula: SbCl₃
Properties: Wh. to lt. yel. orthorhombic cryst.; sol. in alcohol, benzene, ether, acetone, carbon disulfide, chloroform; sol. 99 g/l in water; insol. in pyridine, quinoline; fumes in air; m.w. 228.13; dens. 3.14; vapor pressure 1 mm Hg (49.2 C); m.p. 73 C; b.p. 223.5 C; ref. index 1.4600

†=pharmaceutical grade

Toxicology: ACGIH TLV/TWA 0.5 mg (Sb)/m³; LD₅₀ (oral, rat) 525 mg/kg; mod. toxic by ing.; human pulmonary effects by inh.; irritant; corrosive; experimental reproductive effects; mutation data reported; TSCA listed
Precaution: DOT: Corrosive material; reacts violently with aluminum, potassium, sodium

Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of chlorine and antimony

Storage: Hygroscopic, deliq.; moisture-sensitive
Uses: Chlorinating agent in pharmaceuticals
Regulatory: Canada DSL

Anti-pellagra vitamin. See Nicotinic acid

Antipyrine
CAS 60-80-0; EINECS/ELINCS 200-486-6
Synonyms: Analgesine; Anodynine; Dimethoxychinizin; Dimethoxyquinazine; 2,3-Dimethyl-1-phenyl-3-pyrazolin-5-one; 2,3-Dimethyl-1-phenyl-5-pyrazolone; Oxydimethylquinazine; Phenazone; 1-Phenyl-2,3-dimethylpyrazole-5-one; 1-Phenyl-2,3-dimethyl-5-pyrazolone
Empirical: C₁₁H₁₂N₂O
Formula: (CH₃)₂(C₆H₅)C₃HN₂O
Properties: Wh. powd., odorless, sl. bitter taste; sol. in water, chloroform, alcohol; sl. sol. in ether; m.w. 188.22; dens. 1.19; m.p. 111 C; b.p. 319 C
Toxicology: LD₅₀ (rat) 1.8 g/kg, (IP, mouse)
**Chemical Component Cross-Reference**

750 mg/kg, (subcut., mouse) 1000 mg/kg, (IV, mouse) 500 mg/kg; human poison; mod. toxic by ing., subcut., IV routes; irritant; possible carcinogen, tumorigen, mutagen; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx

Uses: In ophthalmic pharmacy; medicine (analgesic)

Regulatory: Canada DSL


**Antixerophthalmic vitamin. See Retinol**

**Apafurane**. See 1,1,1,2,3,3-Heptafluoropropane

**APDEA. See N-(3-Aminopropyl)diethanolamine**

**Apium graveolens oil; Apium graveolens seed oil. See Celery (Apium graveolens) seed oil**

**APM. See Aspartame**

**Apple acid. See N-Hydroxysuccinic acid**

**Apple essence. See Isoamyl isovalerate**

**Apple extract. See Apple (Pyrus malus) extract**

**Apple oil. See Isoamyl isovalerate**

**Apple pectin**

Properties: Lt. beige powd.; neutral odor; sol. in water (visc., colloidal sol'n.); insol. in org. solvs.; pH 2.8

Uses: Dietary fiber for pharmaceuticals


**Apple (Pyrus malus) extract**

CAS 85251-63-4; 89957-48-2; EINECS/ELINCS 286-475-7; 289-567-5

†=pharmaceutical grade

**Synonyms:** Apple extract; Pyrus malus; Pyrus malus extract

**Definition:** Extract of the fruit of the apple, Pyrus malus

**Uses:** Antioxidant; free radical scavenger; anti-inflammatory

**Trade Names Containing:** Micromerol™

**Apricot kernel oil. See Apricot (Prunus armeniaca) kernel oil**

**Apricot kernel oil PEG-6 esters**

CAS 97488-91-0

**Definition:** Complex mixture formed from the transesterification of apricot kernel oil and PEG-6

**Properties:** Nonionic

**Uses:** Solvent, solubilizer, emulsifier, vehicle, excipient for pharmaceuticals

**Features:** Hydrophilic

**Trade Names:** Labrafil® M 1944 CS

**Apricot ketone. See Pentyl 2-furyl ketone**

**Apricot nut oil. See Apricot (Prunus armeniaca) kernel oil**

**Apricot (Prunus armeniaca) kernel oil**

CAS 72869-69-3

**FEMA 2105**

**Synonyms:** Apricot kernel oil; Apricot nut oil; Persic oil; Prunus armeniaca; Prunus armeniaca oil

**Definition:** Fixed oil expressed from kernels of Prunus armeniaca

**Properties:** Colorless or pale straw clear oily liq., nearly odorless, bland taste; sl. sol. in alcohol; misc. with chloroform, ether, petrol. spirit; insol. in water; sp.gr. 0.910-0.923; acid no. 1 max.; iodine no. 90-115; sapon. no. 185-195; ref. index 1.4635-1.4655 (40 C)

**Toxicology:** No known toxicity

**Uses:** Oily vehicle, emollient, lubricant, softener, conditioner for pharmaceuticals

**Regulatory:** FDA 21CFR §182.40, GRAS; FEMA GRAS; Canada DSL


Handbook of Pharmaceutical Additives, Third Edition
Arabinogalactan
CAS 9036-66-2; EINECS/ELINCS 232-910-0
FEMA 3254; INS409
Synonyms: (+)-Arabinogalactan;
Arabinogalactoglycan; Larch gum; Larch turpentine; Polyarabinogalactan; Stractan; Venetian turpentine
Classification: Natural oleoresin
Definition: Polysaccharide extracted from Western larch wood, Larix occidentalis, having galactose and arabinine units in approx. ratio 6:1
Properties: Lt. yel. to amber very visc. liq.; balsam pine odor; sol. in water; m.p. > 200°C (dec.)
Toxicology: TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Storage: Hygroscopic; keep under argon
Uses: Flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.230, 172.610; FEMA GRAS; Japan approved

Arabinoascorbic acid; d-Araboscorbic acid. See Erythorbic acid

Arachidyl alcohol
CAS 629-96-9; EINECS/ELINCS 211-119-4
Synonyms: Alcohol C20; Eicosanol; 1-Eicosanol
Classification: Nonaromatic fatty alcohol
Empirical: C20H42O
Formula: CH3(CH2)18CH2OH
Properties: Wh. wax-like solid; insol. in water; sol. in alcohol, hot benzene; m.w. 298.56; m.p. 66.5°C; b.p. 369°C
Toxicology: TSCA listed
Precaution: **Combustible**

Uses: Raw material; emollient; lubricant, consistency agent for pharmaceutical topicals, creams, ointments, liniments, lotions, sticks

Regulatory: Canada DSL


Trade Names: Cachalot® AR-20; Nacol® 20-95; NafoL® 1822; Nafol® 1822 B; NafoL® 1822 C

Arachidyl-behenyl alcohol
EINECS/ELINCS 292-327-2
Uses: Emollient in pharmaceuticals
Trade Names Containing: Montanov® 202

Arachidyl glucoside
CAS 100231-68-3; EINECS/ELINCS 309-369-5
Synonyms: D-Glucoyparyanoside, C20 straight chain monoalkyl-; D-glucoside, eicosyl
Empirical: C26H52O6
Properties: White flakes; m.w. 460; m.p./f.p. 74-78°C; Density 859 kg/m3 at 20°C; water solubility >100 g/L at 20°C; flash point >100°C at 101.3 kPa
Toxicology: Nonirritating to eyes, skin at normal use concentrations; nonhaemolysing; slight evidence of reactions indicative of skin sensitisation; noncomedogenic

Environmental: Readily biodegradable; with alkyl polyglycosides of C8-16: LC50 (96 h, zebra fish) 7.8 mg/L, EC50 (daphnia magna, 48 h) >85 mg/L; with alkyl polyglycosides of C12-14: LC50 (96 h, zebra fish) 2.5-5.0 mg/L; EC50 (daphnia magna, 48 h) >7-12 mg/L
Uses: Used at levels of less than 1.5% as an emulsifier and to contribute to qualities of smoothness, thickness and creamy consistency in cosmetic cream and lotion products
Trade Names Containing: Montanov® 202

Arachidyl propionate
CAS 65591-14-2; EINECS/ELINCS 265-839-9
Synonyms: Eicosanyl propanoate; Eicosanyl propionate; Icosanyl propionate
Definition: Ester of arachidyl alcohol and behenic acid

Empirical: C23H46O2
Formula: CH3CH2COOCH2(CH2)18CH3
Toxicology: TSCA listed
Uses: Wax and emollient used to soothe the skin in pharmaceuticals
Regulatory: Canada DSL

Arachis hypogaea; Arachis oil. See Peanut (Arachis hypogaea) oil
Arbanol. See (exo)-2-Camphanyl-β-hydroxyethyl ether
Arborvitae; Arborvitae oil. See Cedar leaf (Thuja occidentalis) oil
Archangelica officinalis. See Angelica (Angelica archangelica) extract
Argan (Argania spinosa) kernel oil
CAS 91080-23-8
Synonyms: Argania spinosa kernel oil; Argan oil
Uses: Emollient, moisturizer, free radical scavenger, protectant in nutraceuticals
Trade Names Containing: Stimu-Tex® AS

Argania spinosa kernel oil; Argan oil. See Argan (Argania spinosa) kernel oil
Argentum. See Silver
Argeol. See Santalol
Arginine (INCI). See L-Arginine

L-Arginine
CAS 74-79-3; EINECS/ELINCS 200-811-1
FEMA 3819
Synonyms: 1-1-Amino-4-guanidovaleric acid; L-Amino-4-guanidovaleric acid; Arginine (INCI)
Classification: Amino acid
Empirical: C6H14N4O2
Formula: H2NCNHNHCH2CH2CH2CHNH2COOH
Properties: Wh. cryst. powd.; sol. in water; sl. sol. in alcohol; insol. in ether; m.w. 174.20; m.p. 235°C (dec.); strongly alkaline
Toxicology: Mutagen; TSCA listed
Hazardous Decomp. Prods.: Heated to decompose, emits toxic fumes of NOx
Uses: Pharmaceuticals (injectables); medicine (raw material for peptide drugs); in treatment of liver disease; ammonia detoxicant (hepatic failure); diagnostic aid (pituitary function)
Regulatory: FDA 21CFR §172.320, limitation 6.6%; Japan approved; USP/NF, BP, EP compliance; Canada DSL
L-Arginine monohydrochloride

CAS 1119-34-2; EINECS/ELINCS 239-674-8
FEMA 3819

Synonyms: L-1-Amino-4-guanidovaleric acid monohydrochloride; Arginine HCl; Arginine hydrochloride; L-Arginine hydrochloride; Arginine monohydrochloride; 1-Hydrochloride arginine

Empirical: C_{6}H_{15}ClN_{4}O_{2}

Formula: C_{6}H_{14}N_{4}O_{2} • HCl

Properties: Wh. cryst. powd., odorless; sol. in water, sl. sol. in hot alcohol; insol. in ether; m.w. 210.66; dec. 235 C

Toxicology: LD_{50} (oral, rat) 12 g/kg, (IP, rat) 3793 mg/kg; mod. toxic by IP route; mildly toxic by ing.; experimental teratogen; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NO_{x} and HCl

Uses: Dietary supplement, nutrient in pharmaceuticals

Regulatory: Canada DSL

Manuf./Distrib.: AMRESCO†

http://www.amresco-inc.com; Aceto
http://www.aceto.com; Adept Sol'n's†; Advanced Synthesis Tech.
VWR Int'l.† http://www.vwrsp.com; Voigt Global Distrib.† http://www.vgdlc.com

Arginine HCl; Arginine hydrochloride; L-Arginine hydrochloride; Arginine monohydrochloride. See L-Arginine monohydrochloride
Aromatic elixir
UN 1170
Synonyms: Elixir aromaticum
Definition: A sol’n. of various chemicals (e.g., syrup, talc) in ethanol
Properties: Pale yel. liq.; sol. in water; sp.gr. 1.06; vapor pressure 5.7 kPa (20 C); m.p. may start to solidify @ -114.1 C; b.p. 778.5 C; flash pt. (CC) 12.78 C; pH 5.5-6.0
Toxicology: LD50 (oral, rat) 7060 mg/kg; skin/eye/respiratory irritant; sl. hazardous by ing., inh.; nonpermeator by skin; toxic to reproductive system (ethyl alcohol); mod. toxic and narcotic in high concs.; experimental tumorigen; TSCA listed
Precaution: DOT: Flamm. liq.; sl. reactive to reactive with oxidizing agents
Hazardous Decomp. Prods.: Combustion: CO, CO2
HMIS: Health 1, Flammability 2, Reactivity 0
Storage: Store in segregated approved area; keep container in cool, well-ventilated area; keep container closed; avoid ignition sources
Uses: Vehicle, flavor for pharmaceutical orals; carminative
Regulatory: NF compliance
Manuf./Distrib.: Spectrum Quality Prods.† http://www.spectrumchemical.com

Arrowroot starch. See Starch

Arsenic butter; Arsenic chloride; Arsenic (III) chloride. See Arsenic trichloride

Arsenic trichloride
CAS 7784-34-1; EINECS/ELINCS 232-059-5
UN 1560 (DOT)
Synonyms: Arsenic butter; Arsenic chloride; Arsenic (III) chloride; Arsenious chloride; Arsenous chloride; Arsenous trichloride; Butter of arsenic; Fuming liquid arsenic; Trichloroarsine
Classification: Inorg. compd.
Empirical: AsCl3
Properties: Colorless oily liq.; misc. with chloroform, CCl4, ether, iodine, P, S, alkali iodides, fats, oils; fumes in air; dec. in water and by UV light; m.w. 181.28; dens. 2.1497; vapor pressure 10 mm (23.5 C); m.p. -16 C; b.p. 130 C; ref. index 1.6006
Toxicology: ACGIH TLV/TWA 0.2 mg(As)/m3; LCLo (inh., mouse, 10 min 336 ppm; DOT: Poisonous material; poison by inh.; strong irritant to eyes and skin; mutation data; TSCA listed
Precaution: Dec. by UV rays; highly reactive;
Asafetida (Ferula asafoetida) gum

CAS 9000-04-8; EINECS/ELINCS 232-522-1
FEMA 2107

Synonyms: Asafetida; Asafoetida gum; Asafoetida; Asafoetida oil; Asant; Devil's dung; Ferula: Ferula asafoetida; Ferula asafoetida gum; Food of the gods; Stinking gum

Definition: Gum resin exudate from rhizome and roots of Ferula asafoetida

Properties: Strong garlic odor; sl. bitter acrid taste

Toxicology: Mutagen; TSCA listed

Uses: Natural flavor for pharmaceuticals; topicals; antispasmodic carminative in flatulent colic, laxatives; stimulant; aromatic; digestive; expectorant; sedative; anthelmintic; aphrodisiac; antiseptic; analgesic

Regulatory: FDA 21CFR §182.20, GRAS; FEMA GRAS; Japan approved; Canada DSL

Manuf./Distrib.: Buckton Page Ltd

http://www.bucktonpage.com

Asafetida fluid extract

CAS 90028-70-9; 9000-04-8; EINECS/ELINCS 297-382-6
FEMA 2106

Synonyms: Asafetida extract; Asafetida fluid extract; Ferula asafoetida; Ferula asafoetida gum extract; Ferula asafoetida gum extract; Ferula foetida; Ferula foetida extract

Definition: Brown, gum resin obtained from the roots of Ferula foetida

Uses: Natural flavor for pharmaceuticals

Regulatory: FDA 21CFR §182.20, GRAS; FEMA GRAS

Manuf./Distrib.: Chart

http://www.chartcorp.com

Asafetida gum

CAS 9000-04-8; EINECS/ELINCS 232-522-1
FEMA 2107

Synonyms: Asafetida; Asafoetida gum; Asafoetida; Asafoetida oil; Asant; Devil's dung; Ferula: Ferula asafoetida; Ferula asafoetida gum; Food of the gods; Stinking gum

Definition: Gum resin exudate from rhizome and roots of Ferula asafoetida

Properties: Strong garlic odor; sl. bitter acrid taste

Toxicology: Mutagen; TSCA listed

Uses: Natural flavor for pharmaceuticals; topicals; antispasmodic carminative in flatulent colic, laxatives; stimulant; aromatic; digestive; expectorant; sedative; anthelmintic; aphrodisiac; antiseptic; analgesic

Regulatory: FDA 21CFR §182.20, GRAS; FEMA GRAS; Japan approved; Canada DSL

Manuf./Distrib.: Buckton Page Ltd

http://www.bucktonpage.com

Asafetida fluid extract. See Asafetida (Ferula foetida) extract
**A**safetida gum.  See *Asafetida (Ferula asafoetida) gum*

**A**safetida oil.  See *Asafetida (Ferula asafoetida) oil*

Asafoetida; Asafoetida oil; Asant.  See *Asafetida (Ferula asafoetida) gum*

**Ascorbic acid (INCI); 1-Ascorbic acid.**  See *L-Ascorbic acid*

**L-Ascorbic acid**

CAS 50-81-7; EINECS/ELINCS 200-066-2

FEMA 2109; INS300; E300

Synonyms:  Ascorbic acid (INCI); 1-Ascorbic acid; Cetivamin; Civitamic acid; 3-Keto-L-gulofuranolactone; 1-3-Ketothreohexuronic acid lactone; L-Lyxoascorbic acid; 3-Oxo-1-gulofuranolactone; Vitamin C; 1-Xyloascorbic acid

Classification:  Organic compd.

Empirical:  C6H8O6

Properties:  Wh. or sl. yel. cryst. or powd.; sol. in water; sl. sol. in alcohol; insol. in ether, chloroform, benzene, petrol. ether, oils, fats; m.w. 176.14; m.p. 192 C; flash pt. 99 C

Toxicology:  LD50 (oral, rat) 11,900 mg/kg, (IV, mouse) 518 mg/kg; mod. toxic by ing., IV routes; human blood systemic effects by IV route; extremely high repeated doses may cause nausea, diarrhea, GI disturbances, flatus; acute renal failure and tubular necrosis; experimental teratogen, reproductive effects; mutagenic data; TSCA listed

Precaution:  Combustible liq.

Hazardous Decomp. Prods.:  Heated to decomp., emits acrid smoke and irritating fumes

HMIS:  Health 1, Flammability 0, Reactivity 0

Storage:  Light-sensitive, oxygen-sensitive; store @ R.T.

Uses:  Antioxidant in pharmaceuticals, injectables, inhalers, orals, ophthalmics; buffer

Regulatory:  FDA 21CFR §101.9, 101,14, 107.100, 137.105, 137.155, 137.160, 137.165, 137.170, 137.175, 137.180, 137.185, 137.200, 137.205, 145.110, 145.115, 145.116, 145.135, 145.136, 145.170, 145.171, 146.113, 146.185, 146.187, 150.141.; Canada DSL; 150.161, 155.200, 155.201, 156.145, 161.175, 172.280, 182.3013, 182.3041, 182.8013, 240.1044, GRAS; BATF 27CFR §240.1051; USDA 9CFR §318.7; FEMA GRAS; Japan approved; Europe listed; UK approved; USP/NF, BP, EP compliance

†=pharmaceutical grade

Manuf./Distrib.:  AAE Chemie NV†

http://www.aaechemie.com;  AB R Lundberg

http://www.norfoods.se/lundberg;  ADA Int’l.

http://www.joinme.net/ada/index.htm;  ADM

http://www.admworld.com;  AMC Chems.†

AMRESCO†  http://www.amresco-inc.com;

AXO Chem.†  http://www.axochemical.com;

Aceto†  http://www.aceto.com;  Aldrich†

http://www.sigma-aldrich.com;  Alfa Aesar

http://www.alfa.com

Alfa Chem†  http://www.alfachem1.com;

Allan  http://www.allanchem.com;  Allchem

Int’l. Ltd†  http://www.allchem.co.uk;  Am.

Ingrreds.†

http://www.amerol.com;

ChemTech Specialties†

Dastech Int’l.†  http://www.dastech.com;

Danisco  http://ingredients.danisco.com

CPI Chems.†

http://www.cpichem.com;

Brenntag

http://www.brenntag.co.uk;  Brenntag

China†  http://www.chemco-france.com/chemco/chemco.nsf/HTML/0E5A87A7C8BCC90C12570E00040301E;  Chemcolloids Ltd

http://www.chemcolloids.com;  Chemical

http://www.thechemco.com

CoKEM Assoc.†;  Cornelius Chem. Co. Ltd†

http://www.cornelius.co.uk;  DSM Food


Nutritional Prods. USA†

http://www.nutraaccess.com;  Danisco

Cultor†  http://ingredients.danisco.com

Dastech Int’l.†  http://www.dastech.com;

Delta Distributors†;  EMD Chems.†

http://www.emdchemicals.com;  Fluka
**Chemical Component Cross-Reference**

- Global Distrib.† [http://www.vgdlcc.com; Wako Chem. USA† [http://www.wakousa.com]
- Trade Names: Ascorbic Acid USP, FCC
- Trade Names Containing: C-90™ Ascorbic Acid 90% Granulation; C-97® Ascorbic Acid for DC; C-97®SF Ascorbic Acid for DC; CVC™ Type A Coated Ascorbic Acid; Coated Ascorbic Acid, Type EC
- Descote® Ascorbic Acid 60%; Oxynex® K; Oxynex® L; ReadyPress® C; ReadyPress® C w/RH
- Romax™; Stableact® C; TC-90™ Ascorbic Acid for DC

- Ascorbic acid calcium salt. [See Calcium ascorbate]
- L-Ascorbic acid, dihexadecanoate. [See Ascorbyl dipalmitate]
- L-Ascorbic acid, 6-hexadecanoate. [See Ascorbyl palmitate]
- Ascorbic acid, monoester with phosphoric acid, magnesium salt (2:3). [See Magnesium ascorbyl phosphate]
- L-Ascorbic acid monosodium salt. [See Sodium ascorbate]
- Ascorbic acid palmitate; L-Ascorbic acid palmitate; L-Ascorbic acid 6-palmitate. [See Ascorbyl palmitate]
- L(+) Ascorbic acid sodium salt. [See Sodium ascorbate]
- L-Ascorbic acid, sulfate monoester, disodium salt. [See Disodium ascorbyl sulfate]

**Ascorbyl dipalmitate**
- CAS 28474-90-0
- Synonyms: L-Ascorbic acid, dihexadecanoate
- Definition: Diester of ascorbic acid and palmitic acid
- Empirical: \( \text{C}_{38}\text{H}_{68}\text{O}_8 \)
- Uses: Antioxidant

**Ascorbyl palmitate**
- CAS 137-66-6; EINECS/ELINCS 205-305-4
- INS304; E304
- Synonyms: L-Ascorbic acid, 6-hexadecanoate; Ascorbic acid palmitate; L-Ascorbic acid palmitate; L-Ascorbic acid 6-palmitate; 6-O-Palmitoylascorbic acid; Palmitoyl L-ascorbic acid
### Chemical Component Cross-Reference

**Definition:** Ester of ascorbic acid and palmitic acid

**Empirical:** $C_{22}H_{38}O_7$

**Properties:** Wh. or yel.-wh. powd., citrus odor; sol. in alcohol, animal and veg. oils; sl. sol. in water; m.w. 414.54; m.p. 107-117 C

**Toxicology:** LD50 (oral, mouse) 25 g/kg; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Storage:** Preserve in tight containers in cool, dry place

**Uses:** Antioxidant, preservative in pharmaceutical creams and lotions to prevent rancidity; Vitamin C source; stabilizer; emulsifier; sequestrant

**Regulatory:** FDA 21CFR §166.110, 182.3149, 582.3149, GRAS; USDA 9CFR §318.7 (0.02% max. in margarine); Japan approved; Europe listed; UK approved; USP/NF, BP, EP compliance; Canada DSL


**Trade Names Containing:**
- Lutein DC
- LycoVit® 10% DC
- Oxynex® 2004; Oxynex® AP
- Oxynex® K
- Oxynex® L; Oxynex® LM
- Phosal® 50 PG; Phosal® 53 MCT; Vitamin A, C & E
- Liposomes

**Asparagic acid; L-Asparagic acid. See L-Aspartic acid**

### Aspartame

**CAS:** 22839-47-0; EINECS/ELINCS 245-261-3

**INS:** 991

**Synonyms:** 3-Amino-N-(α-carboxyphenethyl) succinamic acid N-methyl ester; APM; Aspartylphenylalanine methyl ester; N-l-α-Aspartyl-l-phenylalanine l-methyl ester; Methyl aspartylphenylalanate; 1-Methyl N-L-α-aspartyl-L-phenylalanine

**Classification:** Dipeptide

**Definition:** Consists of L-aspartic acid and the methyl ester of L-phenylalanine; artificial sweetener

**Empirical:** $C_{14}H_{18}N_2O_5$

**Formula:** HOOCCH$_2$CH(NH$_2$)CONHCH(CH$_2$C$_6$H$_5$)COOCH$_3$

**Properties:** Wh. cryst. powd. or colorless need., odorless, sweet taste, prolonged sweet aftertaste; sl. sol. in water, alcohol; m.w. 294.34; m.p. 246-248 C; 160 times sweeter than sucrose

**Toxicology:** Human systemic effects by ingestion (allergic dermatitis); possible link to neural problems; headaches; experimental reproductive effects; should not be used by individuals with PKU; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of NOx, CO, CO$_2$

**Storage:** Preserve in well-closed containers; 5 yr. min. shelf life

**Uses:** Artificial sweetener in OTC pharmaceuticals such as analgesics, antibiotics, anti-inflammatories

**Features:** Contain no carbohydrates

**Regulatory:** FDA 21CFR §172.804; Japan, Canada approved; USP/NF, BP, EP compliance; Canada DSL

**Manuf./Distrib.:** AAA Int’l. [http://www.aaainternational.com](http://www.aaainternational.com); AB R Lundberg
Aspartic acid (INCI). See L-Aspartic acid

**L-Aspartic acid**

**CAS 56-84-8; EINECS/ELINCS 200-291-6**

**FEMA 3656**

**Synonyms:** (S)-Aminobutanedioic acid; (+)-Aminosuccinic acid; L-Aminosuccinic acid; L-α-Aminosuccinic acid; Asparagic acid; L-Asparaginic acid; Aspartic acid (INCI); (S)-Aspartic acid

**Classification:** Amino acid

**Empirical:** C₄H₇NO₄

**Formula:** HOOCCH₂CHNH₂COOH

**Properties:** Colorless to wh. cryst., acid taste; sol. in acids, alkalis; sl. sol. in water; insol. in alcohol, ether; m.w. 133.11; dens. 1.661 (12.5 C); m.p. 270 C

**Toxicology:** LD₅₀ (IP, mouse) 6 g/kg; low toxicity by IP route; possible brain damage; mutagen; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of NOₓ

**Storage:** Store @ R.T.

**Uses:** Excipient in pharmaceuticals, injectables; raw material in peptide drugs

**Regulatory:** FDA 21CFR §172.320, 7% max. by wt.; FEMA GRAS; Japan approved; BP, EP
Chemical Component Cross-Reference

compliance; Canada DSL

Manuf./Distrib.: AMRESCO†
http://www.amresco-inc.com; Aceto†
http://www.aceto.com; Adept Sol'ns.; Advanced Synthesis Tech.
http://www.advancedsynthesis.com; Ajinomoto† http://www.ajinomoto.co.jp;
http://www.ajinomoto.com
Aldrich http://www.sigma-aldrich.com; Alfa-Aesar http://www.alfa.com; Alfa Chem†
http://www.alfachem1.com; Am. Int'l.†
http://www.aicma.com; Anmar Int'l.†
http://www.anmarinternational.com
Ashland† http://www.ashchem.com; Asiamec Int'l.†; Atomergic Chemetals†
http://www.atomergic.com; Bachem†
http://bachel.com; Boith China†
http://www.boith.com
CarboMer† http://www.carbomer.com;
Changzhou Changmao Biochem. Eng.†
http://www.ccbec.com; China Nat'l. Chem.
Construction http://www.cncc-shenzhen.com; DSM Fine Chems. Austria
http://www.dsfmfinechemicals.com;
Dastech Int'l.† http://www.dastech.com;
Degussa http://www.degussa.com; Fluka
http://www.sigma-aldrich.com; Fuerst Day
Lawson http://www.fdl.co.uk; Functional
Foods† http://www.functionalfoods.com
Gadot Biochem. Ind.
http://www.gadotbio.com; Hawkins Chem.†
http://www.hawkinschemical.com; Integra†
http://www.integrachem.com; Kyowa Hakko
Kogyo† http://www.kyowa.co.jp;
Mallinckrodt Baker†
http://www.mallbaker.com
Mitsubishi Chem. http://www.m-kagaku.co.jp/index_en.htm; Penta Mfg.†
http://www.pentamfg.com; RIA Int'l.†
http://www.riausa.com; Rochem Int'l.
http://www.rochemintl.com; Sigma
http://www.sigma-aldrich.com/belgium
Spectrum Quality Prods.†
http://www.spectrumchemical.com;
Synasial† http://www.synasia.com; Tanabe
Seiyaku http://www.tanabe.co.jp/english;
Triple Crown Am.†
http://www.triplecrownamerica.com;
Universal Preserv-A-Chem†
http://www.upichem.com
†=pharmaceutical grade
VWR Int'l.† http://www.vwrsp.com; Varsal Instruments http://www.varsal.com; Voigt
Westco Fine Ingreds.†
http://www.westcofine.com

(S)-Aspartic acid. See L-Aspartic acid
Aspartylphenylalanine methyl ester; N-l-α-Aspartyl-l-phenylalanine l-methyl ester.
See Aspartame
L-α-Aspartyl-N-(2,2,4,4-tetramethyl-3-thietanyl)-D-alaninamide, hydrated. See Alitame
Astragalus gummifer; Astragalus gummifer gum. See Tragacanth (Astragalus
gummi fer) gum
Atactic poly(acrylic acid). See Polyacrylic acid
Atactic polypropylene. See Polypropylene
Atactic polystyrene. See Polystyrene
Atactic poly (vinyl chloride). See Polyvinyl chloride
ATBC. See Acetyl tributyl citrate
ATC. See Antimony trichloride
ATEC. See Acetyl triethyl citrate
ATH. See Aluminum hydroxide
ATP. See Adenosine triphosphate

Attapulgite
CAS 1337-76-4; 12174-11-7

Synonyms: Activated attapulgite; Colloidal activated attapulgite; Dioctahedral smectite; Fuller's earth; Palygorskite; Palygorskite; Palygorskite, calcined

Definition: A hydrated aluminum-magnesium silicate, chief ingredient in Fuller's earth

Properties: Wh. or gray cryst.

Toxicology: Nuisance dust when < 1% cryst. silica is present (PEL 5.00 mg/m³, TLV/TWA 10 mg/m³ total dust, 5 mg/m³ respirable); tumorigenic; questionable carcinogen with experimental neoplastigenic and tumorigenic data by implant route; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Suspending agent, thickener, adsorbent in pharmaceuticals, orals, antidiarrheal prods.

Regulatory: FDA 21CFR §582.99, GRAS; USP/NF, BP compliance (activated)

Manuf./Distrib.: MPS† http://www.mpsolutionsinc.com

Trade Names: Pharmasorb® Colloidal;

Handbook of Pharmaceutical Additives, Third Edition 920
### Chemical Component Cross-Reference

**Pharmasorb® Regular**

**Attar of rose.** See Rose oil

**Aubepine.** See p-Anisaldehyde

**Aurum paradoxum.** See Tellurium

**Australian gum.** See Acacia

**Autarite.** See Calcium iodate

**Avena sativa; Avena sativa kernel extract.** See Oat (Avena sativa) kernel extract

**Avobenzone.** See Butyl methoxy dibenzoyl methane

**Avocado oil.** See Avocado (Persea gratissima) oil

**Avocado (Persea gratissima) extract**

CAS 84695-98-7

**Synonyms:** Persea americana extract; Persea gratissima

**Definition:** Extract of the fruit of the avocado, *Persea gratissima*

**Uses:** Emollient

**Manuf./Distrib.:** Grau Aromatics

**Trade Names Containing:** Extrapone Avocado Special

**Avocado (Persea gratissima) oil**

CAS 8024-32-6; EINECS/ELINCS 232-428-0

**Synonyms:** Alligator pear oil; Avocado oil; Oils, avocado

**Definition:** Oil obtained by pressing dehydrated avocado pear *Persea americana*; consists principally of glycerides of fatty acids

**Properties:** Ylsh.-green to brownish-green oil, faint char. odor; sol. in min. oil, isopropyl esters, ethanol; insol. in water; dens. 0.908-0.925; iodine no. 84-95; sapon. no. 177-198; ref. index 1.460-1.470

**Toxicology:** Primary irritant; severe skin and eye irritant; TSCA listed

**Hazardous Decomp. Prods.:** Combustion produces CO₂; heated to decomp., emits acrid smoke and irritating vapors

**Uses:** Emollient in pharmaceutical topicals

**Regulatory:** Canada DSL

**Manuf./Distrib.:** AXO Chem.

http://www.axochemical.com; Alban Muller

http://www.albanmuller.com; Aldivia

http://www.aldivia.com; Alfa Chem

http://www.alfachem1.com; Alzo

http://www.alzointernational.com

Amerol http://www.amerolcorp.com; Anglia

Oils† http://www.angliaoils.co.uk; Arista

Ind.† http://www.aristaindustries.com;

Berje http://www.berjeinc.com;

Centerchem http://www.centerchem.com

†=pharmaceutical grade

**Charkit** http://www.charkit.com; Chart

http://www.chartcorp.com; Cognis/Care Chems.; Cosmetic Supplies USA

http://www.cosmeticsuppliesusa.com;

**Croda Inc** http://www.croda.com;

http://www.crodausa.com

**Desert Whale Jojoba**

http://www.desertwhale.com; Fabrichem

http://www.fabricheminc.com; GR Davis


http://www.jeen.com; Lipo

http://www.lipochemicals.com

**Natural Oils Int'l.**


Ind. http://www.pokonobe.com; Provital


**Axerophthol.** See Retinol

**Axole.** See Furan

**Azabenzene.** See Pyridine

**Azacycloheptane; 1-Azacycloheptane.** See Hexamethylenimine

**Azacyclohexane.** See Piperidine

**1-Aza-2,4-cyclopentadiene.** See Pyrrole

**Azacyclotridecane-2-one, homopolymer; Azacyclotridecane-2-one polyamide.** See Nylon 12

**1-Aza-3,7-dioxabicyclo (3.3.0) octane.** See 7-Ethyl bicyclooctazolidine

**1-Azaindene.** See Indole

**1-Azanaphthalene.** See Quinoline

**2-Azanaphthalene.** See Isoquinoline

**Azelite.** See Olive (Olea europaea) oil

**1H-Azepine, hexahydro-.** See Hexamethylenimine

**AZG.** See Aluminum zirconium chlorohydrx glycine

**Azine.** See Pyridine

**Azo fuchsin.** See CI 17200

**Azo.** See Pyrrole

**Azorubin S.** See Amaranth

**Azotic acid.** See Nitric acid

**Bacillus subtilis Carlsberg.** See Protease

**Baking soda.** See Sodium bicarbonate

**Balm.** See Balm mint (Melissa officinalis)

**Balm leaves extract.** See Balm mint (Melissa officinalis) extract

**Balm mint.** See Balm mint (Melissa officinalis)
Balm mint extract; Balm mint leaf extract. 
See Balm mint (Melissa officinalis) extract

Balm mint (Melissa officinalis) extract
CAS 977051-08-3; 8014-71-9
FEMA 2111
Synonyms: Balm; Balm mint; Lemon balm; Melissa; Melissa officinalis
Definition: Leaves of balm mint, Melissa officinalis contg. chiefly citral
Properties: Citral odor, tonic-like flavor
Toxicology: May cause hypersensitivity reactions
Uses: Natural flavor for pharmaceuticals; carminative; in herbal remedies
Regulatory: FDA 21CFR §182.10, GRAS; FEMA GRAS
Manuf./Distrib.: Essential7 http://www.essential7.com

Balm mint (Melissa officinalis) oil
CAS 8014-71-9
FEMA 2113
Synonyms: Balm mint oil; Balm oil; Lemon balm; Melissa officinalis oil; Melissa oil
Definition: Volatile oil obtained from leaves and tops of Melissa officinalis
Properties: Yel. to ylsh.-grnsh. liq.; sol. in alcohol; pract. insol. in water; dens. 0.89-0.925 (15/15 C)
Storage: Keep well closed, cool; protect from light
Uses: Natural flavor for pharmaceuticals
Features: Sweet citurs citronella java herbal odor
Regulatory: FDA 21CFR §182.20, 582.20, GRAS; FEMA GRAS; Canada DSL
Manuf./Distrib.: Fleurchem http://www.fleurchem.com; Sigma http://www.sigma-aldrich.com/belgium

Balsam of fir; Balsam fir; Balsam fir oleoresin. 
See Balsam Canada (Abies balsamea)
Balsam Canada. See Balsam Canada (Abies balsamea)

Balsam Canada (Abies balsamea)
CAS 8007-47-4; 977017-81-4; EINECS/ELINCS 232-362-2
FEMA 2115
Synonyms: Abies balsamea; Abies balsamea balsam; Abies balsamea oleoresin; Balsam Canada; Balsam of fir; Balsam fir; Balsam fir oleoresin; Balsams, Abies balsamea; Balsams, Canada; Canada turpentine; Canadian balsam; Fir balsam absolute
Definition: Liq. oleoresin obtained from Abies balsamea
Properties: Ylsh.-grnsh. liq., pine-like odor, bitter taste; sol. in ether; misc. with benzene, chloroform; insol. in water; dens. 0.987-0.994; acid no. 80-95; ref. index 1.5190-1.5240 (20 C)
Toxicology: LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating vapors
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.510; FEMA GRAS; Japan approved; Canada DSL

Balsam Oregon (Pseudotsuga menziesi)
CAS 8050-89-3
Synonyms: Balsam fir Oregon; Balsam Oregon. See Balsam Oregon (Pseudotsuga menziesi)
Balsam Oregon (Pseudotsuga menziesi)

**Balsam Peru. See Balsam Peru (Myroxylon pereirae)**

**Balsam Peru (Myroxylon pereirae)**

**Definition:** Oleoresin obtained from *Pseudotsuga menziesi*

**Uses:** Pharmaceutical topicals

**Regulatory:** Approved for use in topicals; Canada DSL

**Synonyms:** Balsam Peru; Balsams, Myroxylon pereirae; Black balsam; China oil; Indian balsam; Meroxylon pereirae balsam; Myroxylon pereirae oleoresin; Peruvian balsam

**Properties:** Dark brown viscous liquid, pleasant vanilla odor; sol. in fixed oils; sl. sol. in propylene glycol; insol. in water, glycerin; dens. 1.150-1.170

**Toxicology:** LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 10 g/kg; low toxicity by ing. and skin contact; skin irritant; mild allergen; can cause contact dermatitis and stuffy nose; common sensitizer; may cross-react with benzoin, rosin, benzoic acid, benzyl alcohol, cinnamic acid, essential oils, storax, etc.; TSCA listed

**Precaution:** Combustible when heated

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Natural flavor for pharmaceuticals; mild antiseptic; scabicide; skin ulcer therapy

**Regulatory:** FDA 21CFR §182.20, GRAS; FEMA GRAS; Japan approved; BP, EP compliance; Canada DSL


**†=pharmaceutical grade**

**See Balsam Peru (Myroxylon pereirae)**

**Balsams, Abies balsamea; Balsams, Canada. See Balsam Canada (Abies balsamea)**

**Balsams, Myroxylon balsamum. See Balsam tolu (Myroxylon balsamum)**

**Balsams, Myroxylon pereirae. See Balsam Peru (Myroxylon pereirae)**

**Balsams, Pseudotsuga menziesi. See Balsams, Oregon (Pseudotsuga menziesi)**

**Balsams, tolu; Balsam tolu. See Balsam tolu (Myroxylon balsamum)**

**Balsam tolu (Myroxylon balsamum)**

**Definition:** Oleoresin obtained from *Myroxylon balsamum*; main constituents are benzyl esters of cinnamic and benzoic acids

**Properties:** Ylsh.-brn. solid, pleasant aromatic odor and taste; sol. in oxygenated, aromatic, and chlorinated solvs., alcohol, benzene, chloroform, ether; pract. insol. in water, hexane; acid no. 112-168; sapon. no. 154-220

**Toxicology:** Primary irritant; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic and irritating fumes and smoke

**Uses:** Natural flavor for pharmaceuticals; vehicle for expectorants

**Regulatory:** FDA 21CFR §172.510; FEMA GRAS; Japan approved


**Global Distrib.†** [http://www.vgdllc.com]
Chemical Component Cross-Reference

Banana oil. See Isoamyl acetate
BAPP. See Bis (aminopropyl) piperazine
Barbadensis leaf juice. See Aloe barbadensis leaf juice
Barbados aloe extract. See Aloe extract; Aloe barbadensis extract
Barite. See Barium sulfate
Barium dihydroxide. See Barium hydroxide lime
Barium distearate. See Barium stearate
Barium hydroxide. See Barium hydroxide lime

Barium hydroxide lime
CAS 17194-00-2 (anhyd.); 12230-71-6 (octahydrate); EINECS/ELINCS 241-234-5
Synonyms: Barium dihydroxide; Barium hydroxide; Caustic baryta
Definition: Mixt. of barium hydroxide octahydrate and calcium hydroxide
Empirical: BaH₂O₂
Formula: Ba(OH)₂
Properties: Wh. or grayish wh. gran.; sl. sol. in water; m.w. 171.36 (anhyd.), 315.48 (octahydrate); dens. 2.20; m.p. > 300°C
Toxicology: Highly toxic; corrosive; target organs: nerves, heart, kidneys, GI system; TSCA listed
Precaution: Incompat. with chlorinated rubber
Uses: Sorbent for carbon dioxide in pharmaceuticals; aesthetic apparatus
Regulatory: USP/NF compliance; Canada DSL
Synasia† http://www.synasia.com; VWR Int'l.† http://www.vwrsp.com

Barium stearate
CAS 6865-35-6; EINECS/ELINCS 229-966-3

UN 1564
Synonyms: Barium distearate; Octadecanaoic acid, barium salt; Stearic acid, barium salt
Empirical: C₃₆H₇₀BaO₄
Formula: Ba(C₁₈H₃₅O₂)₂
Properties: Wh. cryst. solid; insol. in water or alcohol; m.w. 704.3; dens. 1.145; m.p. 160°C
Toxicology: LD₅₀ (oral, rat) 2506 mg/kg, (IP, mouse) 319 mg/kg; moderately toxic by ing.; avoid prolonged/repeated contact; do not breathe dust; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
NFPA: Health 2, Flammability 1, Reactivity 0
Storage: Keep containers sealed
Uses: Lubricant and compactant in pharmaceutical prods.
Regulatory: Canada DSL
Trade Names: Kemilub EB

Barium sulfate
CAS 7727-43-7; EINECS/ELINCS 231-784-4
UN 1564 (DOT)
Synonyms: Artificial barite; Artificial heavy spar; Barite; Barium sulfate (1:1); Baryta white; Barytes; Blanc fixe; Blanc fixe (artificial, precipitated); CI 77120; Enamel white; Heavy spar; Permanent white; Pigment white 21; Precipitated barium sulfate; Process white; Sulfuric acid barium salt (1:1)
Classification: Inorganic salt
Empirical: BaO₄S
Formula: BaSO₄
Properties: Wh. or ylsh. fine powd. free from grittiness, odorless, tasteless; sol. in conc. sulfuric acid; pract. insol. in water, dilute acids,
Chemical Component Cross-Reference

alcohol; m.w. 233.40; dens. 4.25-4.5; bulking value 0.027 gal/lb; oil absorp. 7-14; GE brightness 80-95; m.p. 1580 C; ref. index 1.64; hardness (Mohs) 3.0-3.5

Toxicology: ACGIH TLV/TWA 10/mg3 (total dust); poisonous when ingested; frequently causes skin reactions when applied; possible carcinogen; experimental tumorigen; mutagenic data; TSCA listed

Precaution: Heating with aluminum can cause explosion; incompat. with Al, P

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of SOx

NFPA: Health 0, Flammability 0, Reactivity 0

Uses: X-ray contrast media; intrauterine pharmaceuticals

Regulatory: FDA 21CFR §175.105, 175.300, 176.170, 177.1460, 177.2600, 178.3297; FDA approved for use in intrauterine prods.; BP, EP compliance; Canada DSL


Mallinckrodt Baker† http://www.mallbaker.com; Mitsubishi

†=pharmaceutical grade


Barium sulfate (1:1). See Barium sulfate

Barley extract. See Barley (Hordeum distichon) extract

Barley (Hordeum distichon) extract

CAS 94349-67-4; EINECS/ELINCS 305-187-5

Synonyms: Barley extract; Hordeum distichon extract

Definition: Extract of the cereal grass Hordeum distichon

Uses: Flavor, colorant, and humectant in pharmaceuticals

Manuf./Distrib.: Kao Corp. http://www.kao.co.jp

Barm. See Yeast

Barosma betulina; Barosma betulina oil; Barosma crenulata; Barosma crenulata oil; Barosma serratifolia; Barosma serratifolia oil. See Buchu leaves oil

Baryta white; Barytes. See Barium sulfate

Basic aluminum acetate. See Aluminum diacetate

Basic aluminum chlorate; Basic aluminum chloride. See Aluminum chlorohydrate

Basic bismuth chloride. See Bismuth oxychloride

Basic bismuth gallate. See Bismuth subgallate

Basic bismuth salicylate. See Bismuth subsalicylate

Basic copper sulfate. See Cupric sulfate

Basic ferric sulfate sol’n. See Ferric subsulfate
### Basic violet 3

**CAS:** 548-62-9; EINECS/ELINCS 208-953-6  
**Synonyms:** Ammonium, (4-(bis (p-(dimethylamino) phenyl) methylene)-2,5-cyclohexadien-1-ylidene) dimethyl-, chloride; Aniline violet; N-[4-Bis [4-(dimethylamino) phenyl] methylene]-2,5-cyclohexadien-1-ylidene]-N-methylmethanaminium chloride; Bismuth violet; CI 42555; Crystal violet; Gentian violet; Hexamethylpararosaniline chloride; Hexamethyl p-rosaniline chloride; Hexamethyl p-rosaniline hydrochloride; Hexamethyl violet; Methylrosaniline chloride; Methyl violet; Pararosaniline, N,N,N’,N’’,N’’’,N’’’-hexamethyl-; chloride  
**Classification:** Triphenylmethane color  
**Empirical:** C25H30ClN3  
**Properties:** Dk. grn. solid; sol. 0.01-0.1 g/100 ml in water (15.5 C); sol. in chloroform; sol. 1 g/10 ml alcohol, 1 g/15 ml glycerin; pract. insol. in ether; m.w. 407.98; dens. 1.050; vapor pressure negligible; m.p. 215 C  
**Toxicology:** LD50 (oral, mouse) 420 mg/kg, (IP, rat) 8900 µg/kg; LDLo (IV, mouse) 20 mg/kg; toxic by inh., ing.; primary irritant; irritating to eyes, skin, respiratory system; cancer suspect agent; may cause heritable genetic damage; tumorigen; reproductive effector; mutagen; TSCA listed  
**Storage:** Light-sensitive; protect from light; store in cool, dry place in tightly closed container  
**Uses:** Topical antiseptic, anti-infective, antimicrobial; anthelmintic; biological stain  
**Regulatory:** Not permitted in food (EU); Canada DSL  

### Basic violet 10

**CAS:** 81-88-9; EINECS/ELINCS 201-383-9  
**Synonyms:** Ammonium, (9-(o-carboxyphenyl)-6-(diethylamino)-3H-xanthen-3-ylidene) diethyl-, chloride; 9-o-Carboxyphenyl-6-
Basil (Ocimum basilicum) oil

**CAS**: 8015-73-4
**FEMA**: 2119

**Synonyms**: Basil oil; Basil oil, European type; Basil oil, sweet; Ocimum basilicum oil; Ocimum basilicum

**Definition**: Volatile oil obtained from leaves of Ocimum basilicum, contg. methylchavicol, eucalyptol, linalool, estragol.

**Properties**: Pale yel. to greenish liq., floral spicy odor; sol. in fixed oils, propylene glycol; misc. with ether, chloroform; insol. in glycerin, water; dens. 0.905-0.930 (20/20 C); vapor pressure 2; b.p. 410 F; flash pt. 167 F.

**Toxicology**: LD50 (oral, rat) 1400 mg/kg; moderately toxic by ing.; skin, eye irritant; TSCA listed.

**Precaution**: Combustible liq.

**Hazardous Decomp. Prods.**: Heated to decomp., emits acrid smoke and irritating fumes.

**Storage**: Keep well closed; protect from light.

**Uses**: Natural flavor for pharmaceuticals.

**Regulatory**: FDA 21CFR §182.20, GRAS; FEMA GRAS; Canada DSL.

**Manuf./Distrib.**: Acme-Hardesty; Adept Sol'ns.; Advanced BioTech; Astral Extracts; BDH; Buckton Page Ltd; Chart; Chemtex International; Citrus and Allied Essences; Danisco Seillans; Eramex Aromatics; Essence Nat. Prods.; F.D. Copeland; Fleurchem; George Uhe; Hindustan Mint & Agro Products; Koster Keunen; Lebermuth; Penta Mfg.; Polarome Int'l.; R.W. Greff; SAFC Specialties; Spectrum Quality Prods.; V. Mane Fils SA; Voigt Global Distrib.; Zetapharm.

**Trade Names**: Batyl Alcohol 100, EX.

**Batyl alcohol**

**CAS**: 544-62-7; EINECS/ELINCS: 208-874-7

**Synonyms**: Batylol; Glycerol monooleate; Monooleate ether of glycerol; α-Octadecylether of glycerol; 1-Octadecylglycerol; 3-Octadecyloxy-1,2-propanediol; 1,2-Propanediol, 3-(octadecyloxy)-; Stearyl glyceryl ether.

**Definition**: Monooleate ether of glycerol.

**Empirical**: C21H44O3
**Formula**: HOCH2CHOHCH2OCH2(CH2)16CH3

**Properties**: Sol. in common fat solvs.; m.w. 344.58; m.p. 71-73 C; nonionic.

**Toxicology**: LD50 (IP, mouse) 750 mg/kg, (subcut., mouse) > 3032 mg/kg; mod. toxic by IP route; irritant; TSCA listed.

**Hazardous Decomp. Prods.**: Heated to decomp., emits acrid smoke and irritating vapors.

**Uses**: Emulsifier, emollient, hydrotrope, thickener for pharmaceuticals.

**Regulatory**: FDA 21CFR §182.20, GRAS; FEMA GRAS; Canada DSL.

**Manuf./Distrib.**: Aldrich; Fluka; Sigma Aldrich; Sigma Aldrich Belgium.

**Trade Names**: Batyl Alcohol 100, EX.
ester

Classification: Ester

Empirical: C_{39}H_{78}O_{4}

Formula: C_{17}H_{35}COOCH_{2}CHOHCH_{2}OCH_{2}(CH_{2})_{16}CH_{3}

Uses: Emollient, emulsion stabilizer, texturizer for medicated ointments; solubilizer for sl. sol. materials

Trade Names: GM-18IS

Batyl monoisostearate. See Batyl isostearate

Batyl monostearate. See Batyl stearate

CAS 13232-26-3

Synonyms: Batyl monostearate; Stearic acid, 2-(octadecyloxy)-3-hydroxypropyl ester

Definition: Ester of batyl alcohol and stearic acid

Empirical: C_{39}H_{78}O_{4}

Formula: CH_{3}(CH_{2})_{16}COOCH_{2}CHOHCH_{2}OCH_{2}(CH_{2})_{16}C

Uses: Emollient, emulsion stabilizer, texturizer for medicated ointments; solubilizer for sl. sol. materials

Trade Names: GM-18IS

Bay leaf oil; Bay leaves, West Indian, oil; Bay oil. See Bay (Pimenta acris) oil

Bay (Pimenta acris) oil

CAS 8006-78-8

FEMA 2122

Synonyms: Bay leaf oil; Bay leaves, West Indian, oil; Bay oil; Myrica oil; Pimenta acris oil; Pimenta racemosa oil; West Indian bay leaf oil

Definition: Volatile oil distilled from leaves of Pimenta acris, contg. 40-55% eugenol, myrcene, chavicol, etc.

Properties: Yel. to brnsh.-yel. liq., pleasant odor, sharp spicy taste; very sol. in alcohol, CS_{2}, gluc. acetic acid; insol. in water; dens. 0.962-0.990 (25/25 C); ref. index 1.500-1.520

Toxicology: LD_{50} (oral, rat) 1800 mg/kg; mod. toxic by ing.; may cause human skin irritation and intolerance reaction; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke

Storage: Light-sensitive

Uses: Natural flavor for pharmaceuticals; astringent; antiseptic

Regulatory: FDA 21CFR §182.20, GRAS; 27CFR §21.65, 21.75, 21.151; FEMA GRAS; Canada DSL

Beeswax

CAS 8006-40-4 (white); 8012-89-3 (yellow); EINECS/ELINCS 232-383-7

FEMA 2126 (wh.); INS901; E901

Synonyms: Cera alba; White beeswax; White wax; Yellow beeswax; Yellow wax

Definition: Purified wax from the honeycomb of the bee, Apis mellifera; commonly called white wax when bleached, yellow wax when not bleached

Properties: Brown or wh. (bleached) solid with faint odor; sl. balsamic taste; pract. insol. in water; sl. sol. in cold alcohol; sol. in hot alcohol, chloroform, benzene, ether, CS_{2}, and oils; dens. 0.95; m.p. 62-65 C; acid no. 17-24; sapon. no. 84

Toxicology: Essentially nontoxic; mild allergen; may cause contact dermatitis, human intolerance reaction; TSCA listed

Precaution: Combustible when heated

Storage: Store away from heat

Uses: Filler, binder, coating agent, stiffener, emulsifier in pharmaceuticals (orals, topicals, ointments, suppositories, vaginals, adhesive plasters, mouth and
Chemical Component Cross-Reference

**throat preps., troches, lozenges; tablet coating agent; pharmaceutical aid**

**Regulatory:** FDA 21 CFR §184.1973, GRAS; FEMA GRAS (white); Japan approved; Europe listed; UK approved; FDA approved for orals, topicals

Topicals listed; UK approved; FDA approved for orals, topicals

**Manuf./Distrib.:**
- A&E Connock†
  - http://www.connock.co.uk;
  - AB R Lundberg
- http://www.norfoods.se/lundberg;
  - Adept
- Sol'ns.†; Aldrich†
  - http://www.sigma-aldrich.com;
  - Alfa Chem
- http://www.alfachem1.com
- Ashland†
  - http://www.ashchem.com
- Avatar†
  - http://www.avatarchem.com
- Aventis Pharmaceuticals†
  - http://www.aventispharma-us.com
- Baerlocher France†; Biolandes
  - http://www.biolandes.com
- British Wax Refining†
  - http://www.british-wax.com;
  - Charkit†
  - http://www.charkit.com
- CoKEM Assoc.†; Cornelius Chem. Co. Ltd†
  - http://www.cornelius.co.uk;
  - Croda Inc†
  - http://www.croda.com
- Danisco Seillans
  - http://www.danisco.com
- Degussa AG/Health & Nutrition; EMD Chems.†
  - http://www.emdchemicals.com
- Eggar & Co.†
  - http://www.eggar.co.uk
- Fluka
  - http://www.sigma-aldrich.com
- Fortitech†
  - http://www.fortitech.com;
  - Frank B. Ross†
  - http://www.frankbross.com
- GMI Prods.†
  - http://www.gmi-originates.com
- Integra†
  - http://www.integrachem.com
- Kimpton Bros. Ltd†
  - http://www.kimpton.co.uk
- Koster Keunen†
  - http://www.kosterkeunen.com;
  - Kraft Chem.†
  - http://www.kraftchemical.com
- MPSI†
  - http://www.mp-solutionsinc.com
- Mantrose-Haeuser†
  - http://www.mbzgroup.com;
  - Marlin Chems. Ltd
  - http://www.marlinchemicals.co.uk
- Merck KGaA†
  - http://www.merck.de
- Mutchler†
  - http://www.mutchlerchem.com
- Pangea Sciences†
  - http://www.pangeaasciences.com
- Penta Mfg.†
  - http://www.pentamfg.com
- Phoenix Nat. Prods.
  - http://www.phoenixuk.com
- Purcell Jojoba Int'l.†
  - http://www.purcelljojoba.com;
  - RITA†
  - http://www.ritacorp.com
- Ruger†
  - http://www.rugerchemical.com
- Sasol Germany†
  - http://www.sasol.com
- http://www.sasololefinssurfactants.com

†=pharmaceutical grade

- Spectrum Quality Prods.†
  - http://www.spectrumchemical.com
- Strahl & Pitsch†
  - http://www.strahlpitsch.com
- Strohmeyer & Arpe†
  - http://www.strohmeyer.com
- Ther Arnott & Co. Ltd†
  - http://www.thewarnott.co.uk;
  - Triple Crown Am.†
  - http://www.triplecrownamerica.com
- U.S. Synthetics†
  - Universal Preserv-A-Chem†
  - http://www.upichem.com;
  - Voigt Global

**Trade Names:**
- Beeswax SP 6; Beeswax SP 11; Beeswax SP 44; Beeswax SP 45; Beeswax SP 139W
- Beeswax SP 139Y; Beeswax SP 154 ISO
- Beeswax®, Beeswax SP 420; Beeswax SP 422; Beeswax SP 424
- Beeswax SP 426; Koster Keunen Beeswax; Koster Keunen Beeswax 100; Ross Beeswax

**Trade Names Containing:**
- Dehymuls® E; Lite Natural Wax Jelly; Massa Estarinum® E; Montane® 481VG; Natural Wax Jelly SP-505
- Pionier® 38001; Pionier® KW 2020 AP; Pionier® KWH-AP; Pionier® L-15; Pionier® PIAH
- Pionier® SVE; Pionier® T-0145; Pionier® T-0150; Pionier® WWH-N; Pionier® WWH-Soft
- Sunflower Butter©; Witepsol® E75; Witepsol® H175; Witepsol® S55

See also Beeswax, white; Beeswax, yellow

**Beeswax, bleached. See Beeswax, white**

**Beeswax, oxidized. See Oxidized beeswax**

**Beeswax, synthetic**
- CAS 71243-51-1; 97026-94-0; 151661-95-9;
  - EINECS/ELINCS 275-286-5

**Synonyms:**
- Modified beeswax; Synthetic beeswax (INCI)

**Definition:** Synthetic wax with composition and properties generally indistinguishable from natural beeswax

**Uses:**
- W/o emulsifier, thickener, gellant, emollient, opacifier, emulsion stabilizer for sustained-release pharmaceuticals, creams, lotions, depilatories, ointments, salves; suspending agent for anhyd. systems

**Features:** Lipophilic; used where pure beeswax not required

**Regulatory:** Canada DSL

**Trade Names:**
- Beeswax SP 58; Beeswax SP 62; Beeswax SP 733; Beeswax SP 752;
Beeswax, yellow
CAS 8012-89-3; EINECS/ELINCS 232-383-7
FEMA 2126; INS901; E901
Synonyms: Beeswax; Yellow beeswax; Yellow wax
Definition: Purified wax from the honeycomb of the bee Apis mellifera
Properties: Ylsh. to grayish brn. solid, honey-like odor, faint char. taste; sol. in chloroform, ether, fixed oils; sl. sol. in alcohol; insol. in water; dens. 0.95; m.p. 62-65 C
Toxicology: Mild allergen
Precaution: Combustible when heated
Uses: Binder, coating agent, stiffener in pharmaceuticals, orals, topicals
Regulatory: FDA 21CFR §101.4, 184.1973, GRAS; FDA approved for orals, topicals; BP, EP compliance; Canada DSL
Trade Names: Cerabeil Yellow Selection

Beet powder
CAS 89957-89-1; EINECS/ELINCS 289-610-8
INS162; E162
Synonyms: Beetroot red (INCI); Beets, dehydrated; Dehydrated beets
Definition: Color additive from edible beets, contg. red pigments, betacyanins (principally betanine, CAS 7659-95-2) and yel. pigments, betaxanthins, collectively known as betalains
Properties: Dk. red powd.; readily dissolves in water
Chemical Component Cross-Reference

Precaution: Degrades readily at temps. as low as 50°C, esp. on air/light exposure
Uses: Colorant for pharmaceuticals
Regulatory: FDA 21CFR §73.40; Europe listed; UK approved; Japan restricted
Manuf./Distrib.: AB R Lundberg
http://www.norfoods.se/lundberg; Amerol
http://www.amerolcorp.com; Cham Foods
(Israel) Ltd http://www.cham.co.il; Chart
http://www.chartcorp.com; Degussa
AG/Health & Nutrition
Food Ingred. Tech. Ltd http://www.fit-ltd.com; Frutarom
http://www.frutarom.com; Fuerst Day
Lawson http://www.fdl.co.uk; Kingfood
Australia Pty. Ltd http://www.kingfood.com.au; Liberty
Natural Prods. http://www.libertynatural.com
Quest Int'l. http://www.questintl.com

Beetroot red (INCI); Beets, dehydrated. See Beet powder
Beet sugar. See Sucrose

Behenalkonium chloride
CAS 16841-14-8; EINECS/ELINCS 240-865-3
Synonyms: Ammonium, benzyldocosyldimethyl-, chloride; Behenyl dimethyl benzyl ammonium chloride; Benzyldocosyldimethylammonium chloride
Classification: Quaternary ammonium salt
Empirical: C_{31}H_{58}N • Cl
Properties: M.w. 480.26; cationic
Uses: Emulsifier, softener, emollient for topical pharmaceutical creams and emulsions
Regulatory: Canada DSL
Trade Names Containing: Incroquat B65C

Beheneth-5
CAS 26636-40-8 (generic); 136207-49-3
Synonyms: PEG-5 behenyl ether; 3,6,9,12,15-Pentaoxaheptatriacontan-1-ol; POE (5) behenyl ether
Definition: PEG ether of behenyl alcohol
Empirical: C_{32}H_{66}O_6
Formula: CH_3(CH_2)_{20}CH_2(OCH_2CH_2)_nOH, avg. n = 5
Properties: Nonionic
Uses: Emulsifier for medicated ointments
Trade Names: BB-5

Beheneth-10
CAS 26636-40-8 (generic)
Synonyms: 3,6,9,12,15,18,21,24,27,30-

References:
†=pharmaceutical grade

Decaoadopentacontan-1-ol; PEG-10 behenyl ether; PEG 500 behenyl ether; POE (10) behenyl ether
Definition: PEG ether of behenyl alcohol
Empirical: C_{42}H_{86}O_{11}
Formula: CH_3(CH_2){20}CH_2(OCH_2CH_2)_nOH, avg. n = 10
Properties: Nonionic
Uses: Emulsifier for medicated ointments
Trade Names: BB-10

Beheneth-20
CAS 26636-40-8 (generic)
Synonyms: PEG-20 behenyl ether; PEG 1000 behenyl ether; POE (20) behenyl ether
Definition: PEG ether of behenyl alcohol
Formula: CH_3(CH_2){20}CH_2(OCH_2CH_2)_nOH, avg. n = 20
Properties: Nonionic
Uses: Emulsifier for medicated ointments
Trade Names: BB-20

Beheneth-30
CAS 26636-40-8 (generic)
Synonyms: PEG-30 behenyl ether; POE (30) behenyl ether
Definition: PEG ether of behenyl alcohol
Formula: CH_3(CH_2){20}CH_2(OCH_2CH_2)_nOH, avg. n = 30
Properties: Nonionic
Uses: Emulsifier for medicated ointments
Trade Names: BB-30

Behenic acid
CAS 112-85-6; EINECS/ELINCS 204-010-8
Synonyms: Docosanoic acid
Classification: Fatty acid
Empirical: C_{22}H_{44}O_2
Formula: CH_3(CH_2){20}COOH
Properties: Colorless waxy solid; faint odor; water-sol.; m.w. 340.57; dens. 0.8221 (100/4 C); m.p. 80°C; b.p. 306°C (60 mm), 265°C (15 mm); ref. index 1.4270 (100 C)
Toxicology: No known toxicity; TSCA listed
Uses: Lubricant, emulsifier, plasticizer, opacifier in pharmaceuticals
Regulatory: Canada DSL
Manuf./Distrib.: Acme-Hardesty
http://www.acme-hardesty.com; Aldrich†
http://www.sigma-aldrich.com; Alfa Aesar
http://www.sigma-aldrich.com; Fluka
http://www.sigma-aldrich.com; Imperial-OEL-Import http://www.imperial-oel-import.de
Lutianhua; NetQem http://www.netqem.us;
**Chemical Component Cross-Reference**

- Penn Bio-Organsics
  - [http://www.pennbio.com](http://www.pennbio.com)
  - [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)

**Trade Names:**
- Edenor® C 22 85 R
- Hystrene® 7022
- Hystrene® 9022

**Behenic acid, dihydroabietyl ester.** See Dihydroabietyl behenate

**Behenic acid, isocetyl ester; Behenic acid, isohexadecyl ester.** See Isocetyl behenate

**Behenoxy dimethicone**
- **Classification:** Dimethyl siloxane polymer
- **Formula:** \( \text{CH}_3(\text{CH}_2)_{21}\text{O} \left[ \text{SiO(\text{CH}_3)_2}\right]_{x}(\text{CH}_2)_{21}\text{CH}_3 \)

**Uses:** Emollient, spreading agent for pharmaceuticals

**Trade Names:** Abil®-Wax 2440

**Behentrimonium methosulfate**
- **CAS:** 81646-13-1; EINECS/ELINCS 279-791-1
- **Synonyms:** Behenyl trimethyl ammonium methyl sulfate; 1-Docosanaminium, N,N,N-trimethyl-, methosulfate; Docosyltrimethylammonium methyl sulfate; N,N,N-Trimethyl-1-docosanaminium methosulfate
- **Classification:** Quaternary ammonium salt
- **Empirical:** \( \text{C}_{26}\text{H}_{57}\text{NO}_4\text{S} \)
- **Formula:** \( [\text{CH}_3(\text{CH}_2)_{20}\text{CH}_2\text{N}(\text{CH}_3)_3]^+ \text{CH}_3\text{OSO}_3^- \)

**Uses:** Surfactant in topical pharmaceutical creams and emulsions

**Trade Names Containing:** Incroquat Behenyl TMS

**Behenyl alcohol**
- **CAS:** 661-19-8; EINECS/ELINCS 211-546-5
- **Synonyms:** Alcohol C22; 1-Docosanol
- **Definition:** Mixture of fatty alcohols chiefly of n-docosanol
- **Empirical:** \( \text{C}_{22}\text{H}_{46}\text{O} \)
- **Formula:** \( \text{CH}_3(\text{CH}_2)_{20}\text{CH}_2\text{OH} \)
- **Properties:** Colorless waxy solid; sol. in oxygenated solvs., ethanol, chloroform; insol. in water, m.w. 326.61; m.p. 71 C; b.p. 180 C (0.22 mm)
- **Toxicology:** Low toxicity; TSCA listed
- **Uses:** Raw material, consistency agent, emollient for pharmaceuticals; as antihistamine

**Regulatory:** FDA 21CFR §178.3910; Canada DSL

**Manuf./Distrib.:**
- Aldrich† [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
- Ashland† [http://www.ashchem.com](http://www.ashchem.com)
- Brown [http://www.brownchem.com](http://www.brownchem.com)
- CarboMert† [http://www.carbomer.com](http://www.carbomer.com)
- CoKEM Assoc.†

**Behenyl dimethyl benzyl ammonium chloride.** See Behenalkonium chloride

**Behenyl trimethyl ammonium methyl sulfate.** See Behentrimonium methosulfate

**Bengal gelatin; Bengal isinglass.** See Agar

**Benne oil.** See Sesame (Sesamum indicum) oil

**Bentanol.** See Benzyl alcohol

**Bentone.** See Kaolin

**Bentonite**
- **CAS:** 1302-7-1; EINECS/ELINCS 241-646-5
- **Synonyms:** Docosanoic acid, docosyl ester; Docosyl docosanoate
- **Definition:** Ester of behenic acid and behenyl alcohol
- **Empirical:** \( \text{C}_{44}\text{H}_{48}\text{O}_2 \)
- **Formula:** \( \text{CH}_3(\text{CH}_2)_{20}\text{COOCH}_2(\text{CH}_2)_{20}\text{CH}_3 \)
- **Uses:** Emollient, moisturizer, visc. builder for topical pharmaceuticals

**Manuf./Distrib.:** Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)

**Trade Names:**
- Exceparl BB
- Pelemol® BB

**Fluka** [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)

**Jarchem Ind.** [http://www.jarchem.com](http://www.jarchem.com)

**M. Michel** [http://www.mmichel.com](http://www.mmichel.com)


**Sasol N. Am.** [http://www.sasolnorthamerica.com](http://www.sasolnorthamerica.com)

**Sea-Land** [http://www.sealandchem.com](http://www.sealandchem.com)

**Trade Names Containing:** Nafol® 1822; Nafol® 1822 B; Nafol® 1822 C; Prolipid® 141

**Behenyl behenate**
- **CAS:** 17671-27-1; EINECS/ELINCS 241-646-5
- **Synonyms:** Docosanoic acid, docosyl ester; Docosyl docosanoate

**Bengal gelatin; Bengal isinglass.** See Agar

**Benne oil.** See Sesame (Sesamum indicum) oil

**Bentanol.** See Benzyl alcohol

**Bentone.** See Kaolin

**Bentonite**
- **CAS:** 1302-7-1; EINECS/ELINCS 215-108-5
- **INS558**

**Synonyms:** Bentonite clay; Bentonite magma; CI 7704; Mineral soap; Soap clay; Southern bentonite; Wilkinite

**Definition:** Native hydrated colloidal aluminum silicate clay

**Formula:** \( \text{Al}_2\text{O}_3 \cdot 4\text{SiO}_2 \cdot \text{nH}_2\text{O} \)

**Properties:** Light to cream-colored impalpable powd., odorless, sl. earthy taste; forms colloidal suspension in water, thixotropic properties; insol. in water and org. solvs.; pH 9.5-10.5

**Toxicology:** LD50 (IV, rat) 35 mg/kg; poison by IV route causing blood clotting; inert and...
Chemical Component Cross-Reference

generally nontoxic; questionable carcinogen with experimental tumorigenic data; TSCA listed
HMIS: Health 1, Flammability 0, Reactivity 0
Storage: Hygroscopic
Uses: Protective colloid, emulsifier, suspending agent, visc. builder in pharmaceuticals, orals, topicals, medicated jellies and ointments, calamine lotion, o/w emulsions, suspending powds.
Regulatory: FDA 21CFR §175.105, 175.300, 176.170, 177.1460, 178.3297, 184.1155, GRAS; Japan restricted (0.5% max. residual); Europe listed; UK approved; USP/NF, BP, EP compliance; Canada DSL; FDA approved for orals, topicals
Manuf./Distrib.: A&E Connock†
  http://www.connock.co.uk; Akzo Nobel
  http://www.akzonobel.com; Aldrich†
  http://www.sigma-aldrich.com; Alfa Chem†
  http://www.alfachem1.com; Allchem Ind.
  http://www.allchem.com
  Am. Colloid† http://www.colloid.com;
  Asbury Carbons http://www.asbury.com;
  BDH†; Charles B. Chrystal†
  http://www.cbcrystal.com; Charles
  Bowman† http://www.charlesbowman.com
  Cornelius Chem. Co. Ltd†
  http://www.cornelius.co.uk; D.N. Lukens
  http://www.dnlukens.com; Degussa
  AG/Health & Nutrition; Fluka
  http://www.sigma-aldrich.com
  H.M. Royal http://www.hmroyal.com;
  Hammill & Gillespie
  http://www.hamgil.com; IMERYS
  http://www.imerys.com; Indofine
  http://www.indofinechemical.com; Integra†
  http://www.integrachem.com
  Kaopolite; Kraft Chem.†
  http://www.kraftchemical.com; L.V. Lomas
  http://www.lvlomas.com; Landers-Segal
  Color http://www.pigments.com
  MPSI† http://www.mp-solutionsinc.com;
  Magnesia GmbH† http://www.magnesia.de;
  Mutchler† http://www.mutchlerchem.com
  Norsk Hydro AS
  http://www.hydro.com/en/index.html; Penta
  Mfg.† http://www.pentamfg.com
  Phoenix Nat. Prods.
  http://www.phoenixuk.com; Punda
  Mercantile http://www.punda.com; R.E.
  Carroll http://www.recarroll.com; R.T.
  Vanderbilt† http://www.rtvanderbilt.com;
  Reade Advanced Materials
  http://www.reade.com
  Ruger http://www.rugerchemical.com; Sal
  Chem. http://www.salchem.com; Sigma
  http://www.sigma-aldrich.com/belgium;
  Southern Clay Prods.
  http://www.scprod.com; Spectrum Quality
  Prods.† http://www.spectrumchemical.com
  St. Lawrence
  http://www.stlawrencechem.com; Süd-
  Chemie AG http://www.sued-chemie.com;
  Tamms Ind. http://www.tamms.com; Thew
  Arnott & Co. Ltd†
  http://www.thewarnott.co.uk; U.S. Silica
  http://www.u-s-silica.com
  Ubichem plc† http://www.ubichem.com;
  Volclay Ltd† http://www.volclay.com.au;
  Wilfrid Smith† http://www.wilfrid-
  smith.co.uk/home.htm; Wyo-Ben
  http://www.wyoben.com; ZenPharm Int'l.†
  http://www.zenpharmac.com
  Zetapharm† http://www.zetapharmac.com
Trade Names: Albagel Premium USP 4444;
Bentonite® MB-Treated; Bentonite BC 342;
Bentonite BC 364; Bentonite BC 670
Bentonite BC 770; Bentonite BC 870;
Bentonite BC 4444; Bentonite BC 4446;
Bentonite BC 4448; Gelwhite® L-NF;
Polargel® HV; Polargel® NF; Polargel® T
Volclay® NF-BC
Trade Names Containing: Colloidal Kaolin BC 825
Bentonite clay. See Bentonite
Bentonite magma
Definition: A prep. of bentonite with purified water
Uses: Suspending agent, thickener for pharmaceutical topicals
Regulatory: FDA approved for topicals; NF compliance
Manuf./Distrib.: Spectrum Quality Prods.†
  http://www.spectrumchemical.com
See also Bentonite
Benylate. See Benzyl benzoate
Benzalacetone. See Benzylidene acetone
Benzai alcohol. See Benzyl alcohol
Benzaldehyde
CAS 100-52-7; EINECS/ELINCS 202-860-4
UN 1989 (DOT); UN 1990; UN NA 1993; FEMA 2127
Synonyms: Almond artificial essential oil;
Chemical Component Cross-Reference

**Artificial almond oil; Benzencarbaldehyde; Benzene carbonal; Benzene carboxaldehyde; Benzene methylal; Benzin aldehyde; Benzoic aldehyde; Phenylmethanal; Synthetic oil of bitter almond**

**Classification:** Aromatic aldehyde

**Empirical:** C₇H₆O

**Formula:** C₆H₅CHO

**Properties:** Colorless to yel. oily liq., bitter almond odor, burning taste; very sol. in alcohol, ether, benzene, acetone, petrol. ether, conc. sulfuric acid, liq. CO₂, liq. ammonia; sl. sol. in water; m.w. 106.13; sp.gr. 1.041; vapor pressure 1 mm Hg (26.2 C); m.p. -26 C; b.p 179 C; flash pt. (CC) 62 C; ref. index 1.544

**Toxicology:** LD₅₀ (oral, rat) 1300 mg/kg, (IP, mouse) 9 mg/kg, (subcut., rabbit) 5000 mg/kg; highly toxic; poison by ing. and IP routes; allergen; feeble local anesthetic; skin and eye irritant; vapors can irritate nose, throat, lungs; CNS depressant (nausea, vomiting, headache, dizziness, abdominal pain); 1 g/kg may be fatal in humans; mutagenic data; TSCA listed

**Precaution:** DOT: Combustible liq.; a strong reducing agent; acts violently with oxidizers; incompat. with strong bases, strong reducing agents, alkaline cyanide sol'n., heavy metal salts

**NFPA:** Health 2, Flammability 2, Reactivity 0

**Storage:** Light-sensitive; store in cool, dry, well-ventilated area, protected from light; store under nitrogen or other inert atm.; keep tightly closed when not in use

**Uses:** Synthetic flavor, odorant for pharmaceuticals; elixir as vehicle; pharmaceutical intermediate

**Regulatory:** FDA 21CFR §182.60, GRAS; 27CFR §21.65, 21.151, GRAS; FEMA GRAS; Japan approved as flavoring; USP/NF, BP compliance; Canada DSL; Australia AICS

**Manuf./Distrib.:** ADA Int'l.
- [http://www.joinme.net/ada/index.htm](http://www.joinme.net/ada/index.htm)
- Aceto† [http://www.aceto.com](http://www.aceto.com); Adrian Amer.
- [http://www.adrianusa.com](http://www.adrianusa.com)
- [http://www.allchem.com](http://www.allchem.com)
- [http://www.axxence.de](http://www.axxence.de); BFA Labs
- [http://www.bfa-lab.com](http://www.bfa-lab.com)
- Chemical [http://www.thechemco.com](http://www.thechemco.com); Chemisphere [http://www.chemispherecorp.com](http://www.chemispherecorp.com)
- Chinesence [http://www.chinesence.com](http://www.chinesence.com)
- Fleurchem [http://www.fleurchem.com](http://www.fleurchem.com)
- Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Foote & Jenks†; Frutarom (UK) Fine Ingreds.† [http://www.frutarom.com](http://www.frutarom.com); Fuerst Day Lawson [http://www.fdl.co.uk](http://www.fdl.co.uk)
- R.W. Greeff† [http://www.rugertreatt.com](http://www.rugertreatt.com); Rit-Chem† [http://www.ritchem.com](http://www.ritchem.com); R.W. Greeff† [http://www.rugertreatt.com](http://www.rugertreatt.com); Rit-Chem† [http://www.ritchem.com](http://www.ritchem.com); SAFC

†=pharmaceutical grade
Benzaldehyde dimethyl acetal
CAS 1125-88-8; EINECS/ELINCS 214-413-0
FEMA 2128
Synonyms: Dimethoxymethylbenzene; Dimethoxyphenylmethane; α,α-Dimethoxytoluene
Empirical: C₉H₁₂O₂
Formula: C₆H₅CH(OCH₃)₂
Properties: Liq.; floral odor; m.w. 152.19; dens. 1.014 (20/4 C); b.p. 198 C; flash pt. 55 C; ref. index 1.4950 (20 C)
Toxicology: LD₅₀ (oral, rat) 1220 mg/kg; mod. toxic by ing.; skin irritant; TSCA listed
Precaution: Flamm.
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Benzaldehyde glyceryl acetal
CAS 1319-88-6; 1708-39-0; EINECS/ELINCS 219-906-4
FEMA 2130
Synonyms: Benzaldehyde propylene acetal; 4-Methyl-2-phenyl-1,3-dioxolane; 4-Methyl-2-phenyl-m-dioxolane
Empirical: C₁₀H₁₂O₂
Formula: C₁₀H₁₀O₂(CH₃)ₓ
Properties: Colorless to pale yel. oily liq.; sol. in alcohol; insol. in water; m.w. 164.21; sp. gr. 1.06-1.066; b.p. 83-85 C @ 4.00 mm; flash pt. 98 C; ref. index 1.500-1.506
Toxicology: TSCA listed
Uses: Synthetic flavor for pharmaceuticals
Features: Bitter narcissus sweet naphthalic woody odor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Benzalkonium chloride
CAS 8001-54-5; 61789-71-7; 63449-41-2; 68391-01-5; 68424-85-1; 68989-00-4; 85409-22-9; EINECS/ELINCS 204-479-9; 263-080-8; 264-
Chemical Component Cross-Reference

151-6, 269-919-4; 270-325-2; 273-544-1; 287-089-1

UN 1760 (DOT)

Synonyms: Alkylbenzyldimethylammonium chloride; Alkyl dimethyl benzyl ammonium chloride; Alkyldimethyl (phenylmethyl) quaternary ammonium chlorides; Alkyl ((ethylphenyl) methyl) dimethyl quaternary ammonium chlorides; Ammonium, alkyldimethyl (phenylmethyl)-, chloride; Octyl-octadecyl dimethyl ethylbenzyl ammonium chlorides; Quaternary ammonium compds., benzyl-C8-18-alkyldimethyl, chlorides

Definition: Quaternary ammonium salt

Formula: C₆H₅CH₂N(CH₃)₂RCl, R = C₈H₁₇ to C₁₈H₃₇

Properties: Wh. or ylsh.-wh. amorphous powd. or gelatinous pieces; aromatic odor; bitter taste; very sol. in water, alcohol, acetone; sl. sol. in benzene; insol. in ether; m.p. 34-37 C; cationic

Toxicology: LD₅₀ (oral, rat) 240 mg/kg, (IP, rat) 14,500 µg/kg; highly toxic; poison by parenteral, ing., IP, IV routes; human poison by ing.; large systemic doses can cause nausea, vomiting, muscle paralysis, CNS depression, local tissue damage; human skin and severe eye irritant; experimental teratogen, reproductive effects; mutagenic data; TSCA listed

Precaution: DOT: Corrosive material; incompat. with anionic detergents

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of Cl⁻, NH₃, and NOₓ

HMIS: Health 2, Flammability 0, Reactivity 1

Uses: Surfactant, antimicrobial, preservative, disinfectant, wetting agent, solubilizer in pharmaceuticals, ophthalmics, injectables, otics, topicals; antiseptic enhancer; preservative in contact lens soaking sol'ns., nebulizer sol'ns.

Use Level: 0.1-0.3%

Regulatory: USA not restricted; FDA 21CFR §175.105, 176.300, 178.1010; FDA approved for ophthalmics, injectables, otics, topicals; Japan, Europe listed; USP/NF, BP, EP compliance; Canada DSL

Manuf./Distrib.: AMRESCO†

http://www.amresco-inc.com; Akzo Nobel

http://www.akzonobel.com; Aldrich†

†=pharmaceutical grade

http://www.sigma-aldrich.com; Alpha Chem†

http://www.alfachem1.com; Allchem Ind.

http://www.allchem.com

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http://www.amyl.com; Camida Ltd†

http://www.amyl.com; Chemron

http://www.chemron.com; DeForest Enterprises http://www.deforest.net

Dishman USA http://www.dishman-usa.com; EMD Chems.†

http://www.emdchemicals.com; FeF Chems. A/S† http://www.fef-chem.com; Fluka

http://www.sigma-aldrich.com; Functional Foods† http://www.functionalfoods.com

Gresco Mfg.; Haltermann GmbH†


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JFC Technologies
http://www.jfctechnologies.com; Lonza Ltd†

http://www.lanza.com; Mason

http://www.maquat.com;

http://www.masonsurfactants.com; Penta Mfg.† http://www.pentamfg.com;

Polysciences†

http://www.polysciences.com

RIA Int'l.† http://www.riusa.com; Rhodia

HPCII France† http://www.hpcii.rhodia.com; Ruger†

http://www.rugerchemical.com; Sigma

http://www.sigma-aldrich.com/belgium

Spectrum Quality Prods.†

http://www.spectrumchemical.com; Stepan

Europe†; Stepan† http://www.stepan.com;

Triple Crown Am.†

http://www.triplecrownamerica.com;

Ubichem plc† http://www.ubichem.com

Univar Ltd† http://www.univar.co.uk;

Universal Preserv-A-Chem†

http://www.upichem.com

Trade Names: Alkaquat® DMB-451-50;

Alkaquat® DMB-451-80; BTC® 50 USP/NF;

BTC® 65 USP/NF; BTC® 824

BTC® 835; BTC® 2565; BTC® 2568; BTC® 8248; BTC® 8249

BTC® 8358; Gardiquat 1450; Hyamine®

3500 80% NF; Linquad BLM 50; Pentonium

24-95USP

Pentonium 24 BP; Polyaquat 50; Protectol® KLC 50; Sanisol C

Trade Names Containing: BTC® 776; BTC® 885; BTC® 885 P40; BTC® 888; BTC® 2125
Chemical Component Cross-Reference

Benzalkonium saccharinate
CAS 68989-01-5; EINECS/ELINCS 273-545-7
Synonyms: Alkyl dimethyl benzalkonium saccharinate; Alkyl dimethyl benzyl ammonium saccharinate; Ammonium, alkylbenzylidimethyl-, saccharinate; Quaternary ammonium compds., benzyl-C12-18-alkylidimethyl, salts with 1,2-benzisothiazol-3-(2H)-one 1,1-dioxide (1:1)
Definition: Mixt. of alkylbenzylidimethylammonium saccharinates
Toxicology: LD50 (oral, rat) 990 mg/kg, (IP, rat) 37 mg/kg, (subcut., rat) 720 mg/kg, (IV, rat) 14,500 µg/kg; may cause somnolence, nausea, vomiting, ataxia, dyspnea, ulceration from sm. intestine, convulsions
Uses: Biocide, disinfectant in pharmaceuticals

Benzamide, 2-hydroxy-. See Salicylamide
Benzaminoacetic acid. See Hippuric acid

1-Benzazene. See Quinoline
2-Benzazene. See Isoquinoline
1-Benzazole. See Indole
Benzenacetic acid. See Phenylacetic acid
Benzenamine, 2-methoxy-. See o-Anisidine
Benzenamine, 3-methoxy-. See m-Anisidine

Benzene
CAS 71-43-2; EINECS/ELINCS 200-753-7
UN 1114 (DOT)
Synonyms: Annulene; Benzol; Benzole; Benzolene; Bicarburet of hydrogen; Carbon oil; Coal naphtha; Cyclohexatriene; Mineral naphtha; Motor benzol; Nitration benzene; Phene; Phenyl hydride; Pyrobenzol; Pyrobenzole
Classification: Aromatic hydrocarbon
Empirical: C6H6
Properties: Colorless to light-yel. mobile nonpolar liq., aromatic hydrocarbon odor; misc. with alcohol, ether, chloroform, CCl4, acetone, oils; sl. sol. in water; m.w. 78.11; sp.gr. 0.8790 (20/4 C); vapor pressure 100 mm Hg (26 C); f.p. 5.5 C; b.p. 80.1 C; flash pt. (CC) -11 C; ref. index 1.50110 (20 C)
Toxicology: ACGIH TLV/TWA 10 ppm; LD50 (oral, rat) 3.8 ml/kg, (skin, mouse) 48 mg/kg; very toxic; narcotic; poison by inh. causing CNS depression, dizziness, headache,

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Chemical Component Cross-Reference

Gantrez® AN-139; Gantrez® AN-149; Gantrez® AN-169

†=pharmaceutical grade

Benzenecarboxylic acid. See Benzoic acid
Benzenecarboxylic acid chloride. See Chlorobenzene
1,3-Benzenediamine; Benzenediamine-1,3; m-Benzenediamine. See m-Phenylene diamine
1,4-Benzenediamine, N-phenyl-. See N-Phenyl-p-phenylenediamine
1,2-Benzenedicarboxylic acid, dibutyl ester; o-Benzenedicarboxylic acid dibutyl ester; Benzene-o-dicarboxylic acid di-n-butyl ester. See Dibutyl phthalate
1,2-Benzenedicarboxylic acid diethyl ester. See Diethyl phthalate
1,2-Benzenedicarboxylic acid diocetyl ester; o-Benzenedicarboxylic acid diocetyl ester. See n-Dioctyl phthalate

Benzenecarboxaldehyde. See Phenylacetaldehyde
Benzeneacetaldehyde, cyclic acetal with glycerol. See Phenylacetaldehyde glyceryl cyclic acetals
Benzeneacetaldehyde, 4-methyl-. See p-Tolylacetaldehyde
Benzeneacetaldehyde, 4-(1-methylethyl). See p-Isopropylphenylacetaldehyde
Benzeneacetic acid. See Phenylacetic acid
Benzeneacetic acid, butyl ester. See Butyl phenylacetate
Benzeneacetic acid, 3,7-dimethyl-2,6-octadienylester, (E)-. See Geranyl phenylacetate
Benzeneacetic acid, 3,7-dimethyl-6-octenyl ester. See Citronellyl phenylacetate
Benzeneacetic acid, 3,7-dimethyl-7-octenyl ester, (S)-. See Rhodinyl phenylacetate
Benzeneacetic acid, ethyl ester. See Ethyl phenylacetate
Benzeneacetic acid, 3-hexenyl ester, (Z)-. See cis-3-Hexenyl phenylacetate
Benzeneacetic acid, 3-methylbutyl ester. See Isoamyl phenylacetate
Benzeneacetic acid, methyl ester. See Methyl phenylacetate
Benzene acetic acid 1-methyl ethyl ester. See Isopropyl phenylacetate
Benzene acetic acid 4-methyl phenyl ester. See p-Tolyl phenylacetate
Benzeneacetic acid, 2-methylpropyl ester. See Isobutyl phenylacetate
Benzeneacetic acid, octyl ester. See Octyl phenylacetate
Benzeneacetic acid, 2-phenylethyl ester. See Phenethyl phenylacetate
Benzeneacetic acid 2-propenyl ester. See Allyl phenylacetate
Benzeneacetic acid 2-propenyl ester. See Allyl phenylacetate
Benzeneazobenzeneazo-β-naphthol. See D&C Red No. 17; Solvent red 23
Benzene, 1-(benzyloxy)-2-methoxy-4-propenyl-.. See Isoeugenyl benzyl ether
Benzenebutanoic acid, methyl ester. See Methyl 4-phenylbutyrate
Benzene, (butoxymethyl)-. See Benzyl butyl ether
Benzeneacetaldehyde. See Benzaldehyde
Benzeneacetaldehyde. See Benzaldehyde
Benzeneacetaldehyde. See Benzaldehyde
Benzene carbonal; Benzene carboxaldehyde. See Benzaldehyde

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dimethylphenyl)[amino]-2-oxoethyl]-N,N-diethyl-, saccharide:
Benzenemethanaminium, N-[2-[(2,6-dimethylphenyl) amino]-2-oxoethyl]-N,N-diethyl-, salt with 1,2-benzisothiazol-3(2H)-one 1,1-dioxide. See Denatonium saccharide
Benzenemethanaminium, N,N-dimethyl-N-tetradecyl-, chloride. See Myristalkonium chloride
Benzenemethanaminium, N-ethyl-N-[4-[4-[ethyl [[(3-sulfophenyl) methyl] amino] phenyl] (2-sulfophenyl) methylene]-2,5-cyclohexadien-1-ylidene]-3-sulfo-, hydroxide, inner salt, aluminum salt. See FD&C Blue No. 1 Aluminum Lake
Benzenemethanaminium, N-hexadecyl-N,N-dimethyl-, chloride. See Cetalkonium chloride
Benzenemethanethiol. See Benzyl mercaptan
Benzenemethanol. See Benzyl alcohol
Benzenemethanol, α-ethyl-. See 1-Phenyl-1-propanol
Benzenemethanol, 4-methoxy-. See p-Anisyl alcohol
Benzenemethanol, α-methyl-. See α-Methylbenzyl alcohol
Benzenemethanol, α-methyl-, acetate. See α-Methylbenzyl acetate
Benzen, methoxy. See Anisole
Benzene, 1-methoxy-2-methyl-. See α-Methylalanisole
Benzen, 2-methoxy-1-(phenylmethoxy)-4-(1-propenyl)-. See Isoeugenyl benzyl ether
Benzen, 1-methoxy-4-(1-propenyl)-. See Anethole
Benzen methylal. See Benzaldehyde
Benzen, 1,2-(methylenedioxy)-4-propenyl. See Isosafrole
Benzen, 1,2-(methylenedioxy)-4-propyl-. See Dihydrosafrole
Benzen, 1-methyl-4-(1-methylethyl) -. See p-Cymene
Benzen monochloride. See Chlorobenzene
Benzenepropanol. See Hydrocinnamaldehyde
Benzenepropanol, α-methyl-4-(1-methylethyl) -. See Cyclamen aldehyde
Benzenepropanoic acid. See Hydrocinnamic acid
Benzenepropanoic acid, β-oxo-, ethyl ester. See Ethyl benzoylecetate
Benzenepropanol; 3-Benzene propanol. See

†=pharmaceutical grade

Hydrocinnamic alcohol
Benzenepropanol, propanoate. See 3-Phenylpropyl propionate
Benzenepropanoic acid. See Hydrocinnamic acid
Benzen, (2-(1-propoxyethoxy) ethyl) -. See Acetaldehyde phenethyl propyl acetal
Benzenesulfonic acid, 5-benzoyl-4-hydroxy-2-methoxy-. See Benzophenone-4
Benzenesulfonic acid, 5-chloro-2[(2-hydroxy-1-naphthalenyl) azo]-4-methyl, monosodium salt. See D&C Red No. 8
Benzenesulfonic acid, 4-[[3-[[2,4-dimethylphenyl] azo]-2,4-dihydroxyphenyl] azo]-, monosodium salt. See D&C Brown No. 1
Benzenesulfonic acid, dodecyl-, compd. with 2,2',2'-nitrotris (ethanol) (1:1). See TEA-dodecylbenzenesulfonate
Benzenesulfonic acid, dodecyl-, sodium salt. See Sodium dodecylbenzenesulfonate
Benzenesulfonic acid, hydroxy-. See Phenolsulfonic acid
Benzenesulfonic acid, hydroxy-, aluminum salt. See Aluminum phenolsulfonate
Benzenesulfonic acid, 4-((2-hydroxy-1-naphthalenyl) azo)-, monosodium salt. See D&C Orange No. 4; Acid orange 7
Benzenesulfonic acid, 4-hydroxy-, zinc salt (2:1). See Zinc phenolsulfonate
Benzenesulfonic acid, 4-methyl-, methyl ester. See Methyl tosylate
Benzenethiol. See Thiophenol
1,2,4-Benzenetricarboxylic acid, tris (2-ethylhexyl) ester. See Tri-2-ethylhexyl trimellitate
1,2,3-Benzenetriol. See Tri-2-ethylhexyl trimellitate
Benzen-1,3,5-triol; 1,3,5-Benzenetriol; Benzene-s-triol. See 1,3,5-Trihydroxybenzene
Benzenol. See Phenol
Benzenetrimethylethyl. See Phenol
Benzenethonium chloride
CAS 121-54-0; EINECS/ELINCS 204-479-9
Synonyms: Benzylidimethyl (2-(2-(p-(1,1,3,3-tetramethylbutyl) phenoxy) ethoxy) ethyl) ethyl) ammonium chloride; Diphenylhexoxyethoxyethyl dimethyl benzyl ammonium chloride; N,N-Dimethyl-N-[2-[4-(1,1,3,3-tetramethylbutyl) phenoxy] ethoxy] ethyl] benzenemethanaminium chloride; Phermerol chloride
Classification: Quaternary ammonium salt
Chemical Component Cross-Reference

Empirical: $\text{C}_{27}\text{H}_{42}\text{ClNO}_2$

Formula:

$$[(\text{CH}_3)_3\text{CCH}_2\text{C(CH}_3)_2\text{CH}_2\text{OCH}_2\text{CH}_2\text{CH}_2\text{N(CH}_3)_2\text{CH}_2\text{C}_6\text{H}_4\text{OCH}_2\text{CH}_2\text{OCH}_2\text{CH}_2\text{N(CH}_3)_2\text{CH}_2\text{C}_6\text{H}_5]^{+} \text{Cl}^-$$

Properties:

- Colorless, odorless plates, bitter; sol. in water, alcohol, acetone, chloroform; m.w. 448.15; m.p. 164-166 C; cationic
- Toxicology: LD50 (oral, rat) 368 mg/kg; poison by oral, subcut., IP, IV routes; severe eye irritant; questionable carcinogen with experimental neoplastigenic data; TSCA listed
- Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of Cl–, NH3, and NOx
- HMIS: Health 2, Flammability 0, Reactivity 1
- Storage: Light-sensitive
- Uses: Antimicrobial, preservative, germicide, wetting agent, solubilizer, disinfectant for pharmaceuticals, injectables, ophthalmics, otics, topicals, tinctures; germicide, disinfectant for veterinary, surgical topicals; topical anti-infective and antiseptic
- Use Level: 1000 ppm
- Regulatory: FDA 21CFR §175.105, EPA registered, Japan approved, Europe listed; approved for use in injectables, ophthalmics, otics; USP/NF, BP, EP compliance; Canada DSL


Trade Names: Hyamine® 1622 Crystals
Trade Names Containing: Hyamine® 1622 50%

Benzic aldehyde. See Benzaldehyde
Benzilidene acetone. See Benzyldiene

acetone

4-(2-Benzimidazolyl) thiazol. See Thiabendazole

Benzin. See VM&P naphtha

1-Benzine. See Quinoline

Benzine (light petroleum distillate). See VM&P naphtha

Benzinoform. See Carbon tetrachloride

1,2-Benzisothiazolin-3-one-1,1-dioxide. See Thiabendazole

Benzisothiazolinone-1,1-dioxide. See Saccharin

1,2-Benzisothiazolin-3-one 1,1-dioxide ammonium salt. See Ammonium saccharin

1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide, calcium salt; 1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide, calcium salt hydrate. See Calcium saccharin

1,2-Benzisothiazol-3(2H)-one 1,1-dioxide, sodium salt. See Saccharin sodium anhydrous

Benzate of soda; Benzoate sodium. See Sodium benzoate

Benzocaine. See Ethyl-p-aminobenzoate

Benzodihydropyrones: 1,2-Benzodihydropyreone. See Dihydrocoumarin

1,3-Benzodioxole. See 1,2-Methylene dioxybenzene

1,3-Benzodioxole-5-carboxaldehyde; 3,4-Benzodioxole-5-carboxaldehyde. See Heliotropine

1,3-Benzodioxole, 5-propyl-. See Dihydrosafrole

1,3-Benzodioxol-5-ol. See Sesamol

1,3-Benzodioxol-5-yl methyl isobutyrate. See Piperonyl isobutyrate

1-[5-(1,3-Benzo dioxol-5-yl)-1-oxo-2,4-pentadienyl] piperidine (E,E)-; 1,3-Benzodioxol-5-yl-oxo-2,4-pentadienyl piperine; 5-Benzo [1,3] dioxol-5-yl-1-piperidin-1-yl-penta-2,4-dien-1-one. See Piperine

Benzododecinium chloride. See Lauralkonium chloride

Benzoglycolic acid. See Mandelic acid

Benzohydroquinone. See Hydroquinone

Benzoic acid

CAS 65-85-0; EINECS/ELINCS 200-618-2

FEMA 2131; INS 2510; E210

Synonyms: Benzene carboxylic acid; Benzene formic acid; Carboxybenzene; Dracylic acid; Phenylcarboxylic acid; Phenylformic acid
Chemical Component Cross-Reference

Classification: Aromatic acid
Empirical: C₇H₆O₂
Formula: C₆H₅COOH

Properties:
- Wh. scales, needles, crystals, benzoin odor; sol. in alcohol, ether, chloroform, benzene, carbon disulfide; sl. sol. in water;
- m.w. 122.13; dens. 1.2659; m.p. 121.25 C; b.p. 249.2 C; subl. at 100 C; flash pt. 121.1 C

Toxicology:
- LD₅₀ (oral, rat) 2530 mg/kg, (IP, mouse) 1460 mg/kg; mod. toxic by ingestion, IP routes; poison by subcut. route; severe eye/skin irritant; may cause human intolerance reaction, asthma, hyperactivity in children; TSCA listed

Precaution:
- Combustible when exposed to heat or flame; reactive with oxidizing materials

Hazardous Decomp. Prods.:
- Heated to decomp., emits acrid smoke and irritating fumes

HMIS: Health 2, Flammability 1, Reactivity 0

Storage:
- Store @ R.T.

Uses:
- Antimicrobial, preservative, antiseptic, antifungal, flavor, buffer in pharmaceuticals, orals, parenterals, rectals, topicals

Use Level:
- 0.5% max. in finished cosmetics

Regulatory:
- FDA 21CFR §150.141, 150.161, 166.40, 166.110, 175.300, 177.1390, 184.1021, GRAS 0.1% max. in foods; USA EPA registered; Japan 0.2% max.; Europe listed 0.5% max.; FEMA GRAS; cleared by MID to retard flavor reversion in oleomargarine at 0.1%; Japan approved with limitations; Europe listed; UK approved; approved for orals, rectals, topicals; USP/NF, BP, EP compliance; Canada DSL

Manuf./Distrib.:
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- AMRESCO† http://www.amresco-inc.com
- Avatar† http://http://www.avatarcorp.com
- Baychem; Boith China
- http://www.boith.com; Brenntag
- Southeast†; Brown
- Buckton Page Ltd
- http://www.bucktonpage.com; Camida Ltd†
  †=pharmaceutical grade

‡=prescription grade

Specialties† http://http://www.chemtechspecialties.com

Handbook of Pharmaceutical Additives, Third Edition
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Chemical Component</th>
<th>Trade Names</th>
<th>Trade Names Containing</th>
<th>Notes</th>
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</thead>
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<tr>
<td>Dihydrogenated tallow phthalic acid amide</td>
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<tr>
<td>Benzoic acid calcium salt</td>
<td>See Calcium benzoate</td>
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<tr>
<td>Benzoic acid, C12-15 alkyl esters</td>
<td>See C12-15 alkyl benzoate</td>
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<tr>
<td>Benzoic acid, compd. with 8-quinolinol (1:1)</td>
<td>See 8-Hydroxyquinoline benzoate</td>
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<td>Benzoic acid, 2,5-dihydroxy-</td>
<td>See Gentisic acid</td>
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<td>Benzoic acid ethyl ester</td>
<td>See Ethyl benzoate</td>
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<td>Benzoic acid geraniol ester</td>
<td>See Geranyl benzoate</td>
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<td>Benzoic acid, 4-hydroxy-</td>
<td>See 4-Hydroxybenzoic acid</td>
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<td>Benzoic acid, 2-hydroxy-, 2-butyloctyl ester.</td>
<td>See Butyl octyl salicylate</td>
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<td>Benzoic acid, 2-hydroxy-, calcium salt</td>
<td>See Calcium salicylate</td>
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<tr>
<td>Benzoic acid, 2-hydroxy-, 2-ethylhexyl ester.</td>
<td>See 2-Ethylhexyl salicylate</td>
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<td>Benzoic acid, p-hydroxy-, isopropyl ester.</td>
<td>See Isopropylparaben</td>
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<td>Benzoic acid, 4-hydroxy-, monosodium salt.</td>
<td>See Sodium paraben</td>
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<td>Benzoic acid, 4-hydroxy-, phenylmethyl ester.</td>
<td>See Benzylicparaben</td>
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<td>Benzoic acid, 2-hydroxy-, potassium salt.</td>
<td>See Potassium salicylate</td>
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<td>Benzoic acid, 4-hydroxy-, sodium salt; Benzoic acid, p-hydroxy-, sodium salt.</td>
<td>See Sodium paraben</td>
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<td>Benzoic acid, 1-(3-methyl) butyl ester.</td>
<td>See Isoamyl benzoate</td>
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<td>Benzoic acid methyl ester</td>
<td>See Methyl benzoate</td>
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<td>Benzoic acid, 1-methylethyl ester.</td>
<td>See Isopropyl benzoate</td>
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<td>Benzoic acid, 2-methylpropyl ester.</td>
<td>See Isobutyl benzoate</td>
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<tr>
<td>Benzoic acid, 2-[bis (hydrogenated tallow alkyl)] aminocarbonyl-</td>
<td>See Phenethyl benzoate</td>
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<tr>
<td>Benzoic acid peroxide</td>
<td>See Benzoyl peroxide</td>
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<tr>
<td>Benzoic acid phenethyl ester</td>
<td>See Phenethyl benzoate</td>
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</tbody>
</table>

†=pharmaceutical grade
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Chemical Component</th>
<th>Empirical</th>
<th>Classification</th>
<th>Manuf./Distrib.</th>
<th>Regulatory</th>
<th>Features</th>
<th>Precaution</th>
<th>Uses</th>
<th>Hazardous Decomp. Prods.</th>
<th>Toxicology</th>
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</thead>
<tbody>
<tr>
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<td>Aceto†</td>
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Chemical Component Cross-Reference

intermediate for mfg. of antihistamines
Features: Apricot, peach-like flavor
Regulatory: FDA 21CFR §172.515, 177.2600; FEMA GRAS; Canada DSL
Manuf./Distrib.: 3V http://www.3v.com; Aceto http://www.aceto.com; Alfa Chem†
http://www.alfachem1.com; Allchem Ind. http://www.allchem.com; Arkema†
http://www.total.com;
BCH Brühl http://www.bch-bruehl.de; Berje http://www.berjeinc.com
Biddle Sawyer† http://www.biddlesawyer.com; CarboMer† http://www.carbomer.com; Charkit
http://www.charkit.com; ChemService
http://www.chemservice.com; Chemtall Chem. Prods.† http://www.chemetall.com
Chemisphere http://www.chemispherecorp.com; Clariant/Functional Chems.
http://www.emdchemicals.com; Fluka http://www.sigma-aldrich.com
GCA; Indofine
Mallinckrodt Baker† http://www.mallbaker.com
MelChem† http://www.melchem.com; Monomer-Polymer & Dajac Labs
http://www.monomerpolymer.com; Morre-Tec Ind.† http://www.morretec.com;
Nantong ChangChem
http://www.changchem.com; Penta Mfg.† http://www.pentamfg.com
R.C. Treatt & Co. Ltd
http://www.rctreatt.com; R.W. Greeff
http://www.pechiney-chemicals.com; Richman†
http://www.richmanchemical.com
SAFC Specialties
http://www.safcspecialties.com; Sigma
http://www.sigma-aldrich.com/belgium; Spectrum Quality Prods.†

†=pharmaceutical grade
VWR Int'l.† http://www.vwrsp.com; Velsicol http://www.velsic.com; Whyte Chems. Ltd
http://www.whytechchemicals.co.uk;
Xinchem† http://www.finechemnet.com
Trade Names: BP; Velsicure® BTF; Velsicure® Benzophenone

Benzophenone-1
CAS 131-56-6; EINECS/ELINCS 205-029-4
Synonyms: Benzoresorcinol; 4-Benzoyl resorcinol; BP1; DHBP; 2,4-
Dihydroxybenzophenone; (2,4-
Dihydroxyphenyl) phenylmethanone;
Methanone, (2,4-dihydroxphenyl) phenyl-
Classification: Organic benzophenone deriv.
Empirical: C_{13}H_{10}O_{3}
Formula: C_{6}H_{5}CO_{6}H_{3}(OH)_{2}
Properties: Off-wh. to lt. yel. cryst. solid; sol. in ethanol, methanol, MEK, ethyl acetate; insol. in water; m.w. 214.23; m.p. 142 C; b.p. 194 C (1
mm)
Toxicology: LD50 (oral, rat) 7220 mg/kg, (IP, mouse) 100 mg/kg, (IV, mouse) 85 mg/kg;
poison by IV and IP routes; mildly toxic by
ing.; eye irritant; TSCA listed
Hazardous Decomp. Prods.: Heated to
decom., emits acrid smoke and irritating
fumes
Uses: UV-A/B absorber for pharmaceuticals
Regulatory: Canada DSL
Manuf./Distrib.: Aceto http://www.aceto.com; Aldrich http://www.sigma-aldrich.com;
Biddle Sawyer http://www.biddlesawyer.com; Celanese http://www.celanesechemicals.com;
http://www.chemvip.com; ChemService
http://www.chemservice.com
Ferro/Polymer Addit. http://www.ferro.com;
Fluka http://www.sigma-aldrich.com; Quest
Int'l. http://www.questintl.com
R.W. Greeff http://www.pechiney-chemicals.com; Sartomer
http://www.sartomer.com; Sigma
http://www.sigma-aldrich.com/belgium
Trade Names: Protaphenone™ - 1

Benzophenone-2
CAS 131-55-5; EINECS/ELINCS 205-028-9
Synonyms: Bis (2,4-dihydroxyphenyl)
 methanone; 2,2',4,4'-
Tetrahydroxybenzophenone; THBP
Chemical Component Cross-Reference

**Classification:** Organic benzophenone deriv.

**Empirical:** C_{13}H_{10}O_{5}

**Properties:** Powd.; m.w. 246.23; m.p. 200-203 C

**Toxicology:** LD50 (oral, rat) 1220 mg/kg; mod. toxicity by ing.; eye irritant; mutagenic data; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of NOx

**Uses:** UV-A/B absorber for pharmaceuticals

**Regulatory:**

**Trade Names:** Protaphenone™ - 2

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**Benzophenone-3**

**CAS** 131-57-7; EINECS/ELINCS 205-031-5

**Synonyms:** 2-Hydroxy-4-methoxybenzophenone; (2-Hydroxy-4-methoxyphenyl) phenylmethanone; Methanone (2-hydroxy-4-methoxyphenyl) phenyl-; 4-Methoxy-2-hydroxybenzophenone; Oxybenzone

**Classification:** Organic benzophenone deriv.

**Empirical:** C_{14}H_{12}O_{3}

**Properties:** Ylsh. cryst., rose-like odor; sol. in most fixed oils and min. oil; m.w. 228.26; m.p. 62-63.5 C

**Toxicology:** LD50 (oral, rat) 7400 mg/kg, (IP, mouse) 300 mg/kg; poison by IP route; mild toxicity by ing.; experimental reproductive effector; mutagenic data; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** UV absorber/stabilizer in pharmaceuticals

**Features:** Prevents deterioration of ingreds. that could be affected by UV light

**Regulatory:**
- **Manuf./Distrib.:** Aceto† [http://www.aceto.com]; Aldrich† [http://www.sigma-aldrich.com]; BCH Brühl [http://www.bch-bruehl.de];

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**Benzophenone-4**

**CAS** 4065-45-6; 71776-12-0 (trihydrate); EINECS/ELINCS 223-772-2

**Synonyms:** Benzenesulfonic acid, 5-benzoyl-4-hydroxy-2-methoxy-; 5-Benzoyl-4-hydroxy-2-methoxybenzene sulfonic acid; 2-Hydroxy-4-methoxybenzophenone-5-sulfonic acid; 2-Hydroxy-4-methoxy-5-sulfo benzophenone; Sulisobenzone

**Classification:** Organic benzophenone deriv.

**Empirical:** C_{14}H_{12}O_{6}S

**Properties:** Wh. flaky solid, rose-like odor; sol. in most fixed oils and min. oil; m.w. 308.32; acid no. 190 max.; pH 1-2 (1%)

**Toxicology:** LD50 (oral, rat) 3530 mg/kg; mod. toxic by ing.; toxic when injected; may induce hives and contact sensitivity, photoallergic reaction; irritating to eyes; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic vapors of SOx

**Uses:** UV absorber in pharmaceuticals, sunscreens

**Features:** Prevents deterioration of ingreds. that might be affected by UV rays

**Regulatory:**

**Trade Names:** Escalol® 567

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†=pharmaceutical grade
1,3-Benzoxathiol-2-one, 6-hydroxy-4-(4,8,12-trimethyltridecyl)-
acetate. See dl-α-Tocopheryl acetate

1-Benzopyran-2-one; 2H-1-Benzopyran-2-one.
See Coumarin

2H-1-Benzopyran-2-one, 3,4-dihydro-. See Dihydrocoumarin

2H-1-Benzopyran-2-one, 6-methyl-. See 6-Methylcoumarin

2H-1-Benzopyran, 2-oxo-. See Coumarin

Benzo[b]pyridine. See Quinoline

Benzo[c]pyridine. See Isoquinoline

Benzopyrone; 1,2-Benzopyrone; Benzocpyrone. See Coumarin

Benzopyrrole; 1H-Benzo[b]pyrrole; 2,3-Benzopyrrole. See Indole

Benzquinone; p-Benzoquinone. See Hydroquinone

Benzoresorcinol. See Benzophenone-1

o-Benzosulfimide. See Saccharin

Benzo (b) thiophen-3(2H)-one, 6-chloro-2-(6-chloro-4-methyl-3-oxobenzo (b) thien-2(3H)-ylidene)-4-ethyl-. See Vat red 1

1,3-Benzoxathiol-2-one, 6-hydroxy-. See Tioxolone

1-Benzoxy-1-(2-methoxyethoxy)-ethane. See Benzyl methoxyethyl acetal

Benzoylacetic acid ethyl ester. See Ethyl benzoyleacetate

Benzoylacetyl. See 1-Phenyl-1,2-propanedione

Benzoyl alcohol. See Benzyl alcohol

Benzoylaminoacetic acid. See Hippuric acid

Benzoylbenzene. See Benzophenone

Benzoyl eugenol. See Eugenyl benzoate

Benzoylglycine; N-Benzoylglycine; Benzoylglycocol. See Hippuric acid

5-Benzoyl-4-hydroxy-2-methoxybenzene sulfonic acid. See Benzophenone-4

Benzoyl methide. See Acetophenone

Benzoyl methyl ketone. See 1-Phenyl-1,2-propanedione

Benzoyl peroxide

CAS 94-36-0; EINECS/ELINCS 202-327-6
Chemical Component Cross-Reference

http://www.mallbaker.com; Monomer-Polymer & Dajac Labs
http://www.monomerpolymer.com; Norac
http://www.norac.com
Ruger† http://www.rugerchemical.com;
Sanken Chem.† http://www.taoka-chem.co.jp; Sigma† http://www.sigma-aldrich.com/belgium; Spectrum Quality
Prods.† http://www.spectrumchemical.com;
VWR Int'l.† http://www.vwrsp.com; Varsal
Instruments http://www.varsal.com; Voigt
Global Distrib.† http://www.vgdllc.com;
Xinchem† http://www.finechemnet.com
Trade Names: Benox® A-70 USP; Luperox®
A75FP; Luperox® A98

Benzylphenylcarbinol. See Benzoin
4-Benzyl resorcinol. See Benzophenone-1
Benzyl superoxide. See Benzoyl peroxide
Benzylacetaldehyde. See
Hydrocinnamaldehyde

Benzyl acetate
CAS 140-11-4; EINECS/ELINCS 205-399-7
FEMA 2135
Synonyms: Acetic acid benzyl ester; Acetic acid phenylmethyl ester;
Acetoxymethylbenzene; α-Acetoxytoluene;
Benzyl ethanoate; Phenylmethyl acetate
Classification: Carboxylic acid ester
Definition: Ester of benzyl alcohol and acetic acid
Empirical: C9H10O2
Formula: CH3COOCH2C6H5
Properties: Colorless liq., sweet floral fruity odor;
sol. in alcohol, chloroform, benzene, most fixed oils, propylene glycol; pract. insol. in water, glycerin; m.w. 150.19; sp.gr. 1.06; m.p. -51.5°C; b.p. 213.5°C; flash pt. (CC) 90°C; ref. index 1.501
Toxicology: ACGIH TLV/TWA 10 ppm; LD50 (oral, rat) 2490 mg/kg; LCLo (inh., mouse, 22 h) 1300 mg/m3; mod. toxic by ingestion and subcutaneous routes; poison by inhalation; may be sl. absorbed through skin; mild eye irritant; antipsychotic; inh. of vapors can probably cause nose/throat irritation; high concs. can cause CNS depression, drowsiness, poor coordination, unconsciousness; TSCA listed
Precaution: Combustible liq.; incompat. with strong oxidizing agents (increases

†=pharmaceutical grade

Hazardous Decomp. Prods.: Benzyl alcohol, benzoic acid, acetic acid; heated to decomp., emits irritating fumes
NFPA: Health 1, Flammability 1, Reactivity 0
Storage: 24 mos. when stored at 40-70°F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air
Uses: Synthetic flavor for pharmaceuticals
Features: Apple, apricot, cherry, plum-like flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Japan approved as flavoring; Canada DSL
Manuf./Distrib.: Aceto† http://www.aceto.com;
Adrian Amer. http://www.adrianusa.com;
Advanced BioTech http://www.adv-bio.com; Akzo Nobel
http://www.akzonobel.com; Alfa Chem† http://www.alfachem1.com
Allan http://www.allanchem.com; Ashland† http://www.ashchem.com; Asiamerica
Int'l.†; Augustus Oils Ltd
http://www.axxence.de
BCH Brühl http://www.bch-truehl.de; Berje
http://www.berjeinc.com; Chemisphere
http://www.chemispherecorp.com;
Chinessence http://www.chinessence.com;
Chr. Hansen Inc† http://www.chrhansen.com
Creative Fragrances http://www.creativefragrances.com; Elan
http://www.elan-chemical.com; Epochen
http://www.epochem.com; Flurchem
http://www.fleurchem.com; Fluka
http://www.sigma-aldrich.com
Fuerst Day Lawson http://www.fdl.co.uk;
George Uhe http://www.uhe.com;
http://www.moorelab.com; Morflex† http://www.morflex.com; Noveon Kalama
Noveon http://www.noveoncoatings.com; Penta
Mfg.† http://www.pentamfg.com; Polarome
Int'l. http://www.polarome.com; Quest
### Benzylacetonic acid. See Hydrocinnamic acid

**Benzyl acetoacetate**

CAS 5396-89-4; EINECS/ELINCS 226-416-4

**Uses:** Synthetic flavor for pharmaceuticals; intermediate for drugs (anti-inflammatory)

**Regulatory:** Canada DSL

**Manuf./Distrib.:** Acros Org.

**Formula:** CH₃COCH₂COOCH₂C₆H₅

**Properties:** Ylsh. oily liq.; weak odor; sol. in alkali solutions at room temp.; m.w. 192.22; dens. 1.112; b.p. 156–159 °C (10 mm); flash pt. >230 F

**Toxicology:** Irritating to skin, eyes

**Features:** Fruity flavor

**Regulatory:** FDA 21 CFR §172.515; FEMA GRAS; Canada DSL

**Manuf./Distrib.:** Advanced Synthesis Tech.

**Formula:** C₁₁H₁₂O₃

**Properties:** Aromatic ketone

**Classification:** Aromatic alcohol

**Empirical:** C₇H₆O

**Formula:** C₆H₅CH₂CH₂COCH₃

**Properties:** Colorless liq.; faint aromatic odor; sharp burning taste; misc. with alcohol, chloroform, ether, water @ 206 °C (dec.); m.w. 108.15; sp.gr. 1.042; vapor pressure 1 mm Hg (58 °C); m.p. -15.3 C; b.p. 205.7 °C; flash pt. (CC) 93 C; ref. index 1.540

**Toxicology:** LD₅₀ (oral, rat) 1230 mg/kg, (IP, rat) 400 mg/kg, (skin, rabbit) 2000 mg/kg; poison by ing., IP, IV routes; mod. toxic by inh., skin contact; mod. skin and severe eye irritant; may cross-react with balsam Peru

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### Benzyl alcohol

**CAS 100-51-6; EINECS/ELINCS 202-859-9**

**FEMA 2137**

**Synonyms:** Bentanol; Benzal alcohol; Benzenecarbinol; Benzenemethanol; Benzoyl alcohol; (Hydroxymethyl) benzene; Hydroxytoluene; α-Hydroxytoluene; Phenolcarbinol; Phenylcarbinol; Phenylmethyl alcohol; Phenylmethyl alcohol; α-Toluolen

**Classification:** Aromatic alcohol

**Empirical:** C₇H₈O

**Formula:** C₆H₅CH₂OH

**Properties:** Water-wh. liq., faint aromatic odor, sharp burning taste; misc. with alcohol, chloroform, ether, water @ 206 °C (dec.); m.w. 108.15; sp.gr. 1.042; vapor pressure 1 mm Hg (58 °C); m.p. -15.3 C; b.p. 205.7 °C; flash pt. (CC) 93 C; ref. index 1.540

**Toxicology:** LD₅₀ (oral, rat) 1230 mg/kg, (IP, rat) 400 mg/kg, (skin, rabbit) 2000 mg/kg; poison by ing., IP, IV routes; mod. toxic by inh., skin contact; mod. skin and severe eye irritant; may cross-react with balsam Peru
Chemical Component Cross-Reference

sensitive persons; TSCA listed

Precaution: Combustible liq.; incompat. with oxidizers (increased fire and explosion risk), acids (exothermic polymerization), sulfuric acid

Hazardous Decomp. Prods.: Dec. explosively at 180 C with sulfuric acid; heated to decomp., emits acrid smoke and fumes

NFPA: Health 2, Flammability 1, Reactivity 0

Storage: Store in cool, dry, well-ventilated area, away from heat and ignition sources; light-sensitive

Uses: Antimicrobial, preservative, solubilizer, flavor for pharmaceuticals, multiple-use parenterals, orals, topical antiseptics, vaginals, mouth/throat preps.; disinfectant; local anesthetic; astringent in poison ivy preps.

Features: Citrus berry cherry-like flavor

Use Level: 10% (disinfectant, local anesthetic), 1% (additive to injectables), 1% max. (sols., perfumes, and flavorings in finished prods.)

Regulatory: FDA 21CFR §172.515, 175.105, 175.300, 177.1210; FEMA GRAS; USA EPA registered; Japan approved as flavoring; Europe listed; Canada DSL; FDA approved for use in injectables, parenterals, orals, topicals; USP/NF, BP, EP compliance

Manuf./Distrib.: ABCR http://www.abcr.de; AMC Chems.; AXO Chem.; Aceto; http://www.aceto.com; Adrian Amer.

Advanced BioTech http://www.adv-bio.com; Akzo Nobel; http://www.akzonobel.com; Allan

http://www.allianchem.com; Allchem Ind.

http://www.allchem.com; Arkema; http://www.total.com/

Ashland; http://www.ashchem.com; Astral Exacts http://www.astraleextracts.com;

Augustus Oils Ltd http://www.augustus-oils.ltd.uk; Axxence Aromatic GmbH

http://www.axxence.com;

http://www.axxence.de; BCH Brühl

http://www.bch-bruehl.de

Brown; http://www.brownchem.com;

Camida Ltd; http://www.camida.com;

Cargill Flavors & Fruit Systems USA

http://www.flavors-fruit-systems.com;

Charkit; http://www.charkit.com

ChemService

http://www.chemservice.com; China Nat’l.

Chem. Construction http://www.cnccc-

†=pharmaceutical grade

shenzhen.com; Chinessence

http://www.chinessence.com; DSM Fine Chems.;

http://www.dsmfinechemicals.com; EMD Chems.;

http://www.emdchemicals.com

Elan http://www.elan-chemical.com;

Fleurchem http://www.fleurchem.com;

Fluka http://www.sigma-aldrich.com;


George Uhe http://www.uhe.com; Givaudan

Iberica SA http://www.givaudan.com; Grau Aromatics http://www.grau-aromatics.de;

Indofile† http://www.indofinechemical.com; Integra† http://www.integrachem.com


Mallinckrodt Baker; http://www.mallbaker.com; MelChem† http://www.melchem.com

Merck KGaA† http://www.merck.de; Miljac http://www.miljac.com; Mutcher† http://www.mutchlerchem.com; Noveon

Kalama; Noveon http://www.carbopol.com;

http://www.noveoncoatings.com


http://www.prodasyth.com


R.W. Greeff† http://www.pechiney-chemicals.com; Richman† http://www.richmanchemical.com; Ruger† http://www.rugerchemical.com

SAFC Specialties

http://www.safcspecialties.com; Sarcom http://www.sarcominc.com; Sigma† http://www.sigma-aldrich.com/belgium;

Spectrum Quality Prods.† http://www.spectrumchemical.com;

Symrise Gbmh† http://www.symrise.com

Takasago Int’l. http://www.takasago.com;

Tennants Distrib. Ltd† http://www.tennantsdistribution.com;

Tessenderlo Chemie† http://www.tessenderlo.com; Tosoh† http://www.tosoh.co.jp; U.S. Chems.

http://www.uschemicals.com
Chemical Component Cross-Reference

Handbook of Pharmaceutical Additives, Third Edition  
†=pharmaceutical grade

Nipaguard® MPA

Trade Names Containing:

Ubichem plc† [http://www.ubichem.com];
Univar Ltd† [http://www.univar.co.uk];
Universal Preserv-A-Chem† [http://www.upicchem.com];
WWR Int’l.† [http://www.vwrsp.com];
Velsicol [http://www.velsicol.com];
VWR Int’l.† [http://www.vwrsp.com];
Vansal Instruments† [http://www.varsal.com];
Velsicol [http://www.velsicol.com];
Voigt Global Distrib.† [http://www.vgdllc.com];
Whyte Chems. Ltd [http://www.whytechemicals.co.uk];
ZenPharm Int’l.† [http://www.zenpharm.com];
Nipaguard® MPA

Benzyl benzene carboxylate. See Benzyl benzoate

Benzyl benzoate

CAS 120-51-4; EINECS/ELINCS 204-402-9
UN 2810; FEMA 2138
Synonyms: Benylate; Benzoic acid, benzyl ester; Benzoic acid phenylmethyl ester; Benzyl benzene carboxylate; Phenylmethyl benzoate
Classification: aromatic compd.
Definition: Ester of benzyl alcohol and benzoic acid
Empirical: C\(_{14}\)H\(_{12}\)O\(_2\)
Formula: C\(_6\)H\(_5\)COOCH\(_2\)C\(_6\)H\(_5\)
Properties: Colorless oily liq., sl. aromatic odor; sol. in oxygenated/chlorinated solvs.; misc. with alcohol, chloroform, ether; insol. in water, glycerin; m.w. 212.26; sp.gr. 1.116-1.120; m.p. 21 C; b.p. 324 C; flash pt. (CC) 298 F; ref. index 1.568
Toxicology: LD50 (oral, rat) 500 mg/kg, (skin, rabbit) 4000 mg/kg; mod. toxic by ingestion, skin contact; TSCA listed
Precaution: Combustible liq.; reactive with oxidizing materials
Hazardous Decomp. Prods.: Heated to decomp., emits CO, CO\(_2\), acrid and irritating fumes and smoke
NFPA: Health 1, Flammability 1, Reactivity 0
Storage: 6 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air
Uses: Solvent, preservative for pharmaceuticals, injectables, orals, topicals, external medicine; syn. flavor for pharmaceuticals; scabicide; pediculicide
Features: Sweet, cherry, pineapple, strawberry-like flavor
Use Level: 0.5% max. (finished cosmetics)
Regulatory: FDA 21CFR §172.515, 175.105; FEMA GRAS; FDA approved for injectables, orals; USP/NF, BP, EP compliance; Canada DSL; Australia AICS; Japan MITI

Benzyl alcohol cinnamic ester. See Benzyl cinnamate

Benzyl alcohol, ether with isoeugenol. See Isoeugenyl benzyl ether

Benzyl alcohol, α-ethyl-. See 1-Phenyl-1-propanol

Benzyl alcohol formate. See Benzyl formate

Benzyl alcohol, α-methyl-, acetate. See α-Methylbenzyl acetate

Benzyamine. See N-Benzyamine

N-Benzyamine

CAS 100-46-9; EINECS/ELINCS 202-854-1
Synonyms: Aminotoluene; α-Aminotoluene; Benzylamine; Monobenzylamine; (Phenylmethyl) amine
Classification: Aromatic amine
Empirical: C\(_7\)H\(_9\)N
Formula: C\(_6\)H\(_5\)CH\(_2\)NH\(_2\)
Properties: Lt. amber liq.; sol. in alcohol, ether, water; misc. with oxygenated solvs.; m.w. 107.17; dens. 0.9813; m.p. 10 C; b.p. 184.5 C; ref. index 1.540 (20 C)
Toxicology: LD50 (IP, mouse) 600 mg/kg, (oral, mammal) 700 mg/kg; irritant to skin, eyes, mucous membranes; lachrymator; TSCA listed
Precaution: Combustible; corrosive; avoid contact with acid; absorbs CO\(_2\) from air
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes
Storage: Store under nitrogen
Uses: Stabilizer in antibiotics; chemical intermediate for pharmaceuticals
Regulatory: Canada DSL
Chemical Component Cross-Reference

†=pharmaceutical grade

Universal Preserv-A-Chem†
http://www.upichem.com
Voigt Global Distrib.†
http://www.vgdllc.com; ZenPharm Int’l.†
http://www.zenpharm.com
Trade Names: Unichem BZBN

Benzyl butanoate; Benzyl n-butanoate. See Benzyl butyrate

Benzylbutyl alcohol. See α-Propylphenethyl alcohol

Benzyl butyl ether
CAS 588-67-0; EINECS/ELINCS 209-626-0
FEMA 2139
Synonyms: Benzene, (butoxymethyl)-; Benzyl n-butyl ether; Butyl benzyl ether; n-Butyl benzyl ether; Ether, benzyl butyl
Empirical: C_{11}H_{16}O
Properties: Colorless liq., misc. with alcohol, ether; insol. in water; m.w.164.25; sp.gr. 0.931 (10 C); b.p. 220-221 C (744 mm)
Uses: Synthetic flavor for pharmaceuticals
Features: Floral rose odor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Benzyl n-butyl ether. See Benzyl butyl ether

Benzyl butyrate
CAS 103-37-7; EINECS/ELINCS 203-105-1
FEMA 2140
Synonyms: Benzyl butanoate; Benzyl n-butanoate; Benzyl n-butyrate; Butyric acid, benzyl ester
Empirical: C_{11}H_{14}O_2
Properties: Colorless liq.; fruity odor; sol. in alcohol, fixed oils; insol. in glycerin, propylene glycol, water @ 239 C; m.w. 178.23; dens. 1.009; b.p. 240 C; flash pt. 225 F; ref. index 1.490-1.495
Toxicology: LD50 (oral, rat) 2330 mg/kg, (skin, rabbit) > 5 g/kg; mod. toxic by ing.; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Flavor for pharmaceuticals
Features: Apricot, berry, peach, pear, plum-like flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Advanced BioTech
http://www.adv-bio.com; Asiamec Int’l.;
Augustus Oils Ltd http://www.augustus-
Benzyl carbinyl tiglate. See Phenethyl tiglate
Benzylcarbinyl-α-toluate. See Phenethyl phenylacetate
Benzylchlorophenol; 2-Benzyl-4-chlorophenol; o-Benzyl-p-chlorophenol. See Chlorophene

Benzylicinnamate
CAS 103-41-3; EINECS/ELINCS 203-109-3
FEMA 2142
Synonyms: Benzyl alcohol cinnamic ester; Benzyl γ-phenylacrylate; Benzyl 3-phenylpropenoate; Benzyl 3-phenyl-2-propenoate; Cinnamyl; trans-Cinnamic acid benzyl ester; Phenylmethyl 3-phenyl-2-propenoate; 3-Phenyl-2-propenonic acid phenylmethyl ester
Definition: Ester of benzyl alcohol and cinnamic acid, found in balsams of Peru, Tolu, Styrax, Copaiba and others
Empirical: C16H14O2
Properties: Wh. cryst., aromatic balsam-like odor; sol. in alcohol, fixed oils; insol. in glycerin, propylene glycol, water; m.w. 238.30; vapor pressure 1 mm (173.8 C); m.p. 39 C; b.p. 350 C; flash pt. 100 C
Toxicology: LD50 (oral, guinea pig) 3760 mg/kg; mod. toxic by ing.; mild allergen and skin irritant; TSCA listed
Precaution: Combustible liq.
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Synthetic flavor, fragrance for pharmaceuticals
Features: Chocolate, apricot, cherry, peach, pineapple-like flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Quality Prods.†
http://www.spectrumchemical.com;
Symrise USA† http://www.symrise.com

Benzyldiethyl [(2,6-xylylcarbamoyl) methyl] ammonium saccharide. See Denatonium saccharide

Benzyldiethyl [(2,6-xylylcromboamoyl) methyl] ammonium benzoate. See Denatonium benzoate

Benzylic 2,3-dimethyl-2-butoenoate. See Benzyl 2,3-dimethylcrotonate

Benzylic dimethyl carbinol. See Dimethylbenzyl carbinol

Benzylic dimethyl carbinyl acetate. See Dimethylbenzyl carbinyl acetate

Benzylic dimethylcarbinyl butyrate. See α,α-Dimethylphenylethyl butyrate

Benzylic dimethylcarbinyl formate. See α,α-Dimethylphenylethyl formate

Benzylic 2,3-dimethylcrotonate
CAS 7492-69-5
FEMA 2143
Synonyms: Benzyl 2,3-dimethyl-2-butoenoate; Benzyl methyl tiglate; 2,3-Dimethyl-2-butenolic acid phenyl methyl ester; 2,3-Dimethyl-2-butenolic acid benzyl ester; Phenyl methyl 2,3-dimethyl-2-butoenoate
Empirical: \( \text{C}_{13}\text{H}_{16}\text{O}_2 \)
Properties: Colorless pale yel. liq.
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Benzyldimethyldodecylammonium chloride. See Lauralkonium chloride

Benzyldimethylhexadecylammonium chloride. See Cetalkonium chloride

Benzyldimethylstearyl ammonium chloride. See Stearalkonium chloride

Benzyldimethyl (2-[2-(p-1,1,3,3-tetramethylbutylcresoxy) ethoxy] ethyl) ammonium chloride. See Methylbenzethonium chloride

Benzyldimethyl (2-(2-(1,1,3,3-tetramethylbutyl) phenoxy) ethoxy) ethyl) ammonium chloride. See Benzethonium chloride

2-Benzyl-1,3-dioxolan-4-ylmethanol. See Phenylacetalddehyde glyceryl acetel

Benzylic dipropyl ketone
CAS 7492-37-7; EINECS/ELINCS 231-317-4
FEMA 2146
Synonyms: 1-Benzyl dipropyl ketone; 3-

†=pharmaceutical grade

Benzylic-4-heptanone; 4-Heptanone, 3-benzyl-; 4-Heptanone, 3-(phenylmethyl)-; Morellone

Classification: aromatic ketone
Empirical: \( \text{C}_{14}\text{H}_{20}\text{O} \)
Properties: Colorless pale liq.; m.w. 204.34
Toxicology: LD50 (oral, rat) 4400 mg/kg; low toxicity by ing.
Precaution: DOT: Flamm. liq.
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating vapors
Uses: Synthetic flavor for pharmaceuticals
Features: Fruity berry woody herbal mint plum odor; fruity, waxy, slight floral taste
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

1-Benzyl dipropyl ketone. See Benzylic dipropyl ketone

Benzylic disulfide
CAS 150-60-7; EINECS/ELINCS 205-764-0
FEMA 3617
Synonyms: α-(Benzyldithio)toluene; Bis(phenylmethyl) disulfide; Dibenzyl disulfide; Di (phenylmethyl) disulfide; Disulfide dibenzyl
Empirical: \( \text{C}_{14}\text{H}_{14}\text{S}_2 \)
Formula: \( \text{C}_6\text{H}_5\text{CH}_2\text{SSCH}_2\text{C}_6\text{H}_5 \)
Properties: Pale-yel. leaflets or pink flakes; burnt caramel odor; sol. in hot alcohol, ether, benzene, hydrocarbon solvs.; pract. insol. in water; m.w. 246.40; m.p. 71-72 C; b.p. > 270 C (with decomp.)
Toxicology: Irritating to respiratory system, skin, and eyes; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of SOx
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Dist.: Epochem
http://www.epochem.com; Fluka
http://www.sigma-aldrich.com; Penta Mfg.
http://www.pentamfg.com

α-(Benzyldithio)toluene. See Benzylic disulfide

Benzyldocosyldimethylammonium chloride. See Behenalkonium chloride

Benzylic ethanoate. See Benzylic acetate
Benzy1 ether
CAS 103-50-4; EINECS/ELINCS 203-118-2
FEMA 2371
Synonyms: Benzy1 oxide; Dibenzyl ether; Dibenzyl oxide; 1,1’-[Oxybis (methylene)] bis [benzene]
Empirical: C14H14O
Formula: (C6H5CH2)2O
Properties: Colorless to pale yel. unstable liq.; misc. with ethanol, ether, chloroform, acetone; pract. insol. in water; m.w. 198.28; dens. 1.043 (20/4 C); m.p. 5 C; b.p. 298 C (dec.); flash pt. (CC) 275 F; ref. index 1.557
Toxicology: LD50 (oral, rat) 2500 mg/kg; mod. toxic by ing.; vapors may be narcotic in high conc.; skin and eye irritant; TSCA listed
Precaution: Combustible exposed to heat or flame; reactive with oxidizing materials; mod. explosion hazard by spontaneous chemical reaction
NFPA: Health 0, Flammability 1, Reactivity 0
Uses: Synthetic flavor for pharmaceuticals
Features: Sweet chocolate-like, fruity flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Benzyl ethyl ether. See Hydrocinnamic alcohol

Benzy1 ethyl ether
CAS 539-30-0; EINECS/ELINCS 208-714-6
FEMA 2144
Synonyms: Benzy1 ethyl oxide; (Ethoxymethyl)benzene; Ethyl benzyl ether
Empirical: C9H12O
Formula: C6H5CH2OC2H5
Properties: Colorless oily liq.; pineapple odor; misc. with alcohols, ketones, oils; pract. insol. in water; m.w. 136.19; dens. 0.949; b.p. 186 C; flash pt. 83 C; ref. index 1.4955 (20 C); volatile with steam
Toxicology: Narcotic in high concs.; may be skin irritant
Precaution: Combustible
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

3-Benzy1-4-heptanone. See Benzy1 dipropyl ketone

Benzy1hexadecyldimethylammonium chloride. See Cetalkonium chloride

Benzy1 hydrosulfide. See Benzy1 mercaptan

Benzy1 2-hydroxybenzoate. See Benzy1salicylate

Benzy1 4-hydroxybenzoate. See Benzy1paraben

Benzy1 o-hydroxybenzoate. See Benzy1salicylate

Benzy1 p-hydroxybenzoate. See Benzy1paraben

2-Benzy1-4-hydroxymethyl-1,3-dioxane; 2-Benzy1-4-hydroxymethyl-1,3-dioxolane. See Phenylacetaldehyde glyceryl acetal

Benzy1dineaceteldehyde. See Cinnamal

Benzy1dine acetate
CAS 122-57-6; EINECS/ELINCS 204-555-1
FEMA 2881
### Benzalacetone

**Synonyms:** Benzalacetone; Benzilidene acetone; Benzylacetone; Cinnamyl methyl ketone; Methyl styryl ketone; 4-Phenylbutenone; 4-Phenyl-3-buten-2-one; trans-4-Phenyl-3-buten-2-one; Styryl methyl ketone

**Classification:** Aromatic compd.

**Empirical:** C₁₀H₁₀O

**Formula:** C₆H₅CH:CHCOCH₃

**Properties:** Colorless cryst., odor of coumarin, sweet pungent floral flavor; sol. in alcohol, ether, benzene, H₂SO₄, chloroform; insol. in water; m.w. 146.19; dens. 1.0097; m.p. 39-42 C; b.p. 260-262 C; flash pt. 150 F

**Toxicology:** LD₅₀ (oral, rat) 2031 mg/kg; mod. toxic by ing.; primary skin irritant; TSCA listed

**Precaution:** Flamm. liq.

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Sweet flavor

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL


**See also** Benzylacetone

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### 3-Benzylidene camphor

**CAS:** 15087-24-8; EINECS/ELINCS 239-139-9

**Synonyms:** 1,7,7-Trimethyl-3-(phenylmethylene) bicyclo [2.2.1] heptan-2-one

**Classification:** Polycyclic org. compd.

**Empirical:** C₁₇H₂₀O

**Toxicology:** TSCA listed

**Uses:** UV-B sunscreen for suntan prods., stabilization of light-sensitive prods.

**Regulatory:** Canada DSL

**Trade Names:** Unisol S-22

**Trade Names Containing:** Unifilter U-41 Benzylidene glycerol; 1,3-O-Benzylidene glyceryl acetate See Benzaldehyde glyceryl acetal

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### Benzylidene glycerol; 1,3-O-Benzylidene glycerol

**See** Benzaldehyde glyceryl acetal

### 2-Benzylideneheptanal

**See** α-Amylecinnamaldehyde

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### Benzylidene heptanal; 2-Benzylidene-1-heptanol

**See** α-Amylecinnamyl alcohol

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### Benzylidene hexanal

**See** α-Butylecinnamaldehyde

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### Benzylidene-octanal

**See** α-Hexylecinnamaldehyde

---

### Benzyl isomayl alcohol; Benzyl isobutyl carbinol

**See** α-Isobutylyphenethyl alcohol

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### Benzyl isobutyl ketone

**See** 4-Methyl-1-phenyl-2-pentanone

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### Benzyl isobutyrate

**CAS:** 103-28-6; EINECS/ELINCS 203-095-9

**FEMA:** 2141

**Synonyms:** Benzyl 2-methyl propanoate; Benzyl-2-methylpropionate; Isobutyric acid benzyl ester

**Empirical:** C₁₁H₁₄O₂

**Properties:** Colorless liq., fruity floral jasmine odor; sol. in alcohol, fixed oils; sl. sol. in propylene glycol; insol. in glycerin; m.w. 178.25; dens. 1.001-1.005; b.p. 105-108 C (4 mm); flash pt. 100 C; ref. index 1.489-1.4920 (20 C)

**Toxicology:** LD₅₀ (oral, rat) 2850 mg/kg; mod. toxic by ing.; TSCA listed

**Precaution:** Combustible liq.

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and fumes

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Fruity flavor

**Regulatory:** FDA 21CFR §172.515; FEMA
Benzyl isoeugenol: Benzylisoeugenol ether.  
See Isoeugenyl benzyl ether

Benzyl isovalerate
CAS 103-38-8; EINECS/ELINCS 203-106-7
FEMA 2152

**Synonyms:** Benzyl 3-methyl butanoate; Benzyl 3-methyl butyrate; Isopentanoic acid, phenylethyl ester; Isopropyl acetic acid, benzyl ester; Isovaleric acid, benzyl ester; 3-Methylbutanoic acid, phenylethyl ester

**Classification:** aromatic compd.

**Empirical:** C₁₂H₁₆O₂

**Properties:** Colorless liq.; apple, pineapple odor; sol. in alcohol, most fixed oils; sl. sol. in propylene glycol; insol. in water, glycerin; m.w. 192.26; dens. 0.988; b.p. 245 C; flash pt. >230 F; ref. index 1.486-1.490

**Toxicology:** LD₅₀ (oral, rat) 493 mg/kg, (IP, rat) 373 mg/kg; LC₅₀ (inh., mouse, 4 h) 178 ppm; poison by ing., inh., IP routes; eye irritant; mild mucous membrane irritant; lachrymator; questionable carcinogen; experimental tumorigen; TSCA listed

**Precaution:** Combustible liq.

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and fumes

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Apple, pineapple-like

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Manuf./Distrib.:** Advanced Synthesis Tech.  
http://www.advancedsynthesis.com; Bell Flavors & Fragrances  
http://www.bellff.com; Elan  
http://www.elan-chemical.com; Epochem  
http://www.epochem.com; Fleurechem  
http://www.fleurchem.com; Lluch Essence  
http://www.lluch-essence.com; Penta Mfg.  
http://www.pentamfg.com; R.C. Treatt & Co. Ltd  
http://www.rctreatt.com; SAFC Specialties  
http://www.safcspecialties.com

**SAFC Specialties**  
http://www.safcspecialties.com

**Benzyl β-ketobutyrate.** See Benzyl acetoacetate

**Benzyl ketone.** See 1,3-Diphenyl-2-propanone

**Benzyl mercaptan**
CAS 100-53-8; EINECS/ELINCS 202-862-5
UN 1228 (DOT); UN 3071 (DOT); FEMA 2147

**Synonyms:** Benzenemethanethiol; Benzyl hydrosulfide; Benzylthiol; (Mercaptomethyl) benzene; α-Mercaptotoluene; Methanethiol, phenyl-; Phenylmethanethiol; Phenylmethyl mercaptan; Thiobenzyl alcohol; α-Toluenethiol; α-Tolyl mercaptan

**Classification:** Aromatic mercaptan; aromatic thiol

**Empirical:** C₇H₈S

**Formula:** C₆H₅CH₂SH

**Properties:** Colorless liq.; strong leek-like odor; very sol. in ethanol, ether; sol. in CS₂; sol. in oxygenated solvs.; insol. in water; m.w. 124.19; dens. 1.058 (20 C); b.p. 194-195 C; flash pt. (CC) 70 C; ref. index 1.576 (20 C)

**Toxicology:** LD₅₀ (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; primary skin irritant; TSCA listed

**Precaution:** Flamm. exposed to heat or flame; oxidizes in air to dibenzyl disulfide; vigorous reaction with oxidizers; wear safety glasses or goggles, rubber gloves, apron

**Hazardous Decomp. Prods.:** CO, CO₂, SOₓ, hydrogen sulfide; heated to decom. or on contact with acid or acid fumes, emits highly toxic fumes of SOₓ

**NFPA:** Health 2, Flammability 2

**Storage:** 6 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air

**Uses:** Synthetic flavor for pharmaceuticals

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI

**Manuf./Distrib.:** ChevronPhillips  
http://www.cpchem.com; Epochem  
http://www.epochem.com; Fleurechem  
http://www.fleurchem.com; Fluka  
http://www.sigma-aldrich.com; Moore
Chemical Component Cross-Reference

†=pharmaceutical grade

Natural Advantage http://www.natural-advantage.net; Penta Mfg.
http://www.pentamfg.com; SAFC Specialties http://www.safcspecialties.com

Benzyl methanoate. See Benzyl formate
2-Benzyl-4-methanol-1,3-dioxane. See Phenylacetaldehyde glyceryl acetal

Benzyl methoxyethyl acetal
CAS 7492-39-9
FEMA 2148
Synonyms: Acetaldehyde benzyl β-methoxyethyl acetal; 1-Benzoxy-1-(2-methoxyethoxy)-ethane; 1-Benzoxyloxy-1-(β-methoxy)ethoxy ethane
Empirical: C_{12}H_{18}O_{3}
Properties: Colorless liq.; fruity odor; m.w. 210.27
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS

Benzyl 2-methoxy-4-propenyl phenyl ether. See Isoeugenyl benzyl ether
Benzyl 3-methyl butanoate; Benzyl 3-methyl butyrate. See Benzyl isovalerate
Benzyl 2-methyl propanoate; Benzyl 2-methylpropionate. See Benzyl isobutyr ate
Benzyl methyl tiglate. See Benzyl 2,3-dimethylcrotonate
Benzyl oxide. See Benzyl ether
Benzyl 3-oxobutanoate. See Benzyl acetoacetate
1-Benzoxyloxy-1-(β-methoxy)ethoxy ethane. See Benzyl methoxyethyl acetal
1-Benzoxy-2-methoxy-4-propenyl benzene. See Isoeugenyl benzyl ether

Benzylparaben
CAS 94-18-8; EINECS/ELINCS 202-311-9
Synonyms: Benzoic acid, 4-hydroxy-, phenylmethyl ester; Benzyl 4-hydroxybenzoate; Benzyl p-hydroxybenzoate; Phenylmethyl 4-hydroxybenzoate
Definition: Ester of benzyl alcohol and p-hydroxybenzoic acid
Empirical: C_{14}H_{12}O_{3}
Toxicology: TSCA listed
Uses: Preservative, bactericide, fungicide for pharmaceuticals
Regulatory: BP compliance; Canada DSL
Trade Names: Nipabenzyl

Benzyl phenylacetate
CAS 102-16-9; EINECS/ELINCS 203-008-4
FEMA 2149
Synonyms: Benzyl α-tolu late
Empirical: C_{15}H_{14}O_{2}
Properties: Colorless liq.; floral odor; honey-like taste; misc. with alcohol, chloroform, ether; m.w. 226.28; dens. 1.097-1.099; b.p. 320 C; flash pt. >100 C; ref. index 1.553-1.558
Precaution: Combustible liq.
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Benzyl γ-phenylacrylate. See Benzyl cinnamate

Benzyl phenylformate. See Benzyl benzoate
Benzyl 3-phenylpropenoate; Benzyl 3-phenyl-2-propenoate. See Benzyl cinnamate
Benzyl propanoate; Benzyl n-propanoate. See Benzyl propionate

Benzyl propionate
CAS 122-63-4; EINECS/ELINCS 204-559-3
Benzylpropanoate; Benzyl N-propanoate

Classification: aromatic compd.

Empirical: C_{10}H_{12}O_{2}

Properties: Cl., colorless liq.; floral-fruity odor; sol. in alcohol, most fixed oils; insol. in water; m.w. 164.20; dens. 1.036; b.p. 219-220 C; flash pt. 100 C; ref. index 1.496-1.500

Precaution: Combustible

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes

Uses: Synthetic flavor for pharmaceuticals

Features: Sweet, berry-like flavor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Japan approved as flavoring; Canada DSL


Benzylpropyl acetate. See Dimethylbenzyl carbaryl acetate

Benzylpropyl carbinol; Benzyl-n-propyl carbinol. See α-Propylphenethyl alcohol

2-Benzy1-2-propyl formate. See α,α-Dimethylphenethyl formate

Benzylsalicylate

CAS 118-58-1; EINECS/ELINCS 204-262-9

FEMA 2151

Synonyms: Benzyl 2-hydroxybenzoate; Benzyl o-hydroxybenzoate; Phenylmethyl 2-hydroxybenzoate

Definition: Ester of benzyl alcohol and salicylic acid

†=pharmaceutical grade

Empirical: C_{14}H_{12}O_{3}

Properties: Colorless visc. liq., pleasant balsam-like odor; sol. in fixed oils, oxygenated solvs. sl. sol. in water; insol. in glycerin, propylene glycol; m.w. 228.26; dens. 1.175; b.p. 208 C (26 mm); flash pt. 100 C; ref. index 1.579; acid value < 1

Toxicology: LD50 (oral, rat) 2227 mg/kg; mod. toxic by ingestion; TSCA listed

Precaution: Combustible when heated or exposed to flame; incompat. with oxidizing materials

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 1, Flammability 1, Reactivity 0

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL


Benzylstearyl dimethylammonium chloride. See Stearalkonium chloride

Benzylthiol. See Benzyl mercaptan

Benzyl α-toluate. See Benzyl phenylacetate
**Chemical Component Cross-Reference**

Benzyl violet; Benzyl violet 4B. See Acid violet 49

Benzytol. See Chloroxylenol

Bergamal. See 2,6-Dimethyl-5-heptenal

Bergamol; Bergamol. See Linalyl acetate

Bergamot (Citrus aurantium bergamia) oil CAS 8007-75-8; 85049-52-1; EINECS/ELINCS 289-612-9

UN 1197 (DOT); UN NA 1993 (DOT); FEMA 2153

Synonyms: Bergamot oil; Bergamot oil, Reggio

**Definition:** Psoralen-free volatile oil obtained from the fruit of *Citrus aurantium bergamia*, contg. 36-45% l-linalyl acetate, 6% l-linalool, and d-limonene, dipentene, bergaptene

**Properties:** Yel.-grn. liq., agreeable odor, bitter taste; sol. in fixed oils; misc. with alcohol, glac. acetic acid; insol. in glycerin, propylene glycol; dens. 0.875-0.880 (25/25 C); ref. index 1.464-1.467

**Toxicology:** LD50 (oral, rat) 11,520 mg/kg; mildly toxic by ing.; mild skin irritant and allergen; TSCA listed

**Precaution:** Combustible

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**HMIS:** Health 1, Flammability 2, Reactivity 0

**Storage:** Keep cool, well closed; protect from light

**Uses:** Natural flavoring agent; used in suntan preps.

**Regulatory:** FDA 21CFR §182.20, 582.20, GRAS; 27CFR §21.65, 21.151; FEMA GRAS; Japan approved; Council of Europe listed; Canada DSL

**Manuf./Distrib.:** Alfa Chem†


†=pharmaceutical grade

http://www.fleurchem.com; Frutarom (UK)

Fine Ingreds.† http://www.frutarom.com

George Uhe http://www.uhe.com


SAFC Specialties http://www.safcspecialties.com; Sigma http://www.sigma-aldrich.com/belgium


Bergamot oil; Bergamot oil, Reggio. See Bergamot (Citrus aurantium bergamia) oil

Bersera delpechiana; Bersera delpechiana wood oil. See Linaloe (Bersera delpechiana) wood oil

Betadex. See β-Cyclodextrin; Cyclodextrin

Betadine. See PVP-iodine

Betaglucan (INCI). See β-Glucan

**Betaine**

CAS 107-43-7; EINECS/ELINCS 203-490-6

**Synonyms:** (Carboxymethyl)-trimethylammonium hydroxide, inner salt; 1-Carboxy-N,N,N-trimethylmethanaminium hydroxide, inner salt; Glycine betaine; Glycocoll betaine; Glycyl betaine; Oxyneurine; Trimethylglycine; Trimethylglycocoll

**Classification:** Zwitterion

**Empirical:** (CH₃)₃N⁺CH₂COO⁻

**Formula:** C₅H₁₁NO₂

**Properties:** M.w. 117.17; m.p. 300 C (decomposes)

**Toxicology:** LD50 (IV, mouse) 830 mg/kg, (subcut., mouse) 10,800 mg/kg; mod. toxic by IV route; mildly toxic by subcut. route; skin or respiratory tract irritant; TSCA listed

**Precaution:** Incompatible with strong oxidizing agents.

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic vapors of NOₓ

**Uses:** Lipotrophic drug; osmotic pressure regulator, methyl donor for
Betaine hydrochloride

**Betaine hydrochloride**  
CAS 590-46-5; EINECS/ELINCS 209-683-1  
**Synonyms:**  
Ammonium, (carboxymethyl) trimethyl-, chloride; Betaine chloride; Betaine HCl; (Carboxymethyl) trimethylammonium chloride; 1-Carboxy-N,N,N-trimethylmethanaminium, chloride; Glycine betaine hydrochloride; Glycocoll betain hydrochloride; Methanaminium, 1-carboxy-N,N,N-trimethyl-, chloride  
**Empirical:** C₅H₁₂ClNO₂  
**Properties:** Wh. cryst. powd.; m.w. 153.61; m.p. 245-250 °C  
**Toxicology:** LD₅₀ (subcut., mouse) 8 g/kg; may be harmful by inh., ing., or skin absorp.; may cause eye/skin/mucous membrane/upper respiratory tract irritation; avoid contact and inh.  
**Precaution:** Incompat. with strong oxidizing agents; avoid raising dust  
**Hazardous Decomp. Prods.:** Toxic fumes of CO, CO₂, NOₓ, hydrogen chloride gas; emits toxic fumes under fire conditions  
**Storage:** Store in cool, dry place; keep tightly closed  
**Uses:** Gastric acidifier; digestive aid; bactericide  
**Regulatory:** Canada DSL  

Betaine HCl.  
See Betaine hydrochloride

Betaine chloride; Betaine HCl.  
See Betaine hydrochloride

Betaines, coco alkylidimethyl.  
See Coco-betaine

Betanaphthol orange.  
See D&C Orange No. 4; Acid orange 7

Betanin.  
See Betanine

Betanine  
CAS 7659-95-2  
INS162; E162  
**Synonyms:** Betatin; 4-[2-(2-Carboxy-5-β-D-glucopyranosyloxy)-2,3-dihydrohydroxy-1H-indol-1-yl]ethenyl)-2,3-dihydro-2,6-pyridinedicarboxylic acid  
**Definition:** Coloring principal in beets  
**Empirical:** C₂₄H₂₆N₂O₁₃  
**Properties:** M.w. 550.52  
**Toxicology:** Mutagen  
**Uses:** Colorant for pharmaceuticals  
**Features:** Limited stability to heat, light, oxygen, and SO₂  
**Manuf./Distrib.:** ABCR http://www.abcr.de  
**See also** Beet powder

Beta-sitosterol (INCI).  
See β-Sitosterol

Betula.  
See Methyl salicylate

Betula alba; Betula alba oil; Betula lenta; Betula lenta oil.  
See Birch (Betula alba) oil

Betula oil.  
See Methyl salicylate

BHA  
CAS 25013-16-5; EINECS/ELINCS 246-563-8  
FEMA 2183; INS320  
**Synonyms:** Butylated hydroxyanisole; Butylhydroxyanisole; 2(3)-t-Butyl-4-hydroxyanisole; t-Butylhydroxyanisole; t-Butyl-4-methoxyphenol; (1,1-Dimethylethyl)-4-methoxyphenol; Hydroxyanisole, butylated  
**Definition:** Mixture of isomers of tertiary butyl-substituted 4-methoxyphenols  
**Empirical:** C₁₁H₁₆O₂  
**Properties:** Wh. or sl. yel. cryst. or waxy solid, faint char. aromatic odor; sol. in ethanol, petrol. ether, 50% or higher alcohol, propylene glycol, chloroform, fats, oils; insol. in water; m.w. 180.27; m.p. 48-55 °C; b.p. 264-270 °C (733 mm)  
**Toxicology:** LD₅₀ (oral, mouse) 2000 mg/kg; mod. toxicity by ing., IP routes; may cause rashes, hyperactivity; confirmed carcinogen; experimental neoplastigen, tumorigen, reproductive effects; mutagenic data; TSCA listed
Precaution: **Combustible**

Hazardous Decomp. Prods.: Heated to decomp., emits acrid and irritating fumes

HMIS: Health 1, Flammability 1, Reactivity 0

Uses: Antioxidant, preservative for pharmaceuticals, orals, rectals, topicals

Use Level: 0.02% max. (preservation of fixed oils, fats, vitamin oil concs.)

Regulatory: FDA 21CFR §166.110, 172.110, 172.515, 172.615, 173.340, 175.105, 175.125, 175.300, 175.380, 175.390, 176.170, 176.210, 177.1010, 177.1210, 177.1350, 178.3120, 178.3570, 179.45; Canada DSL; 181.22, 181.24 (0.005% migrating from food pkg.), 182.3169 (0.02% max. of fat or oil), GRAS; FEMA GRAS; USDA 9CFR 318.7, 381.147; Japan approved 0.2-1 g/kg; Europe approved; FEMA GRAS; USDA 182.3169 (0.02% max. of fat or oil), GRAS; 181.24 (0.005% migrating from food pkg.), GRAS; 181.22, 181.24 (0.005% migrating from food pkg.), 182.3169 (0.02% max. of fat or oil), GRAS; USDA 9CFR 318.7, 381.147; Japan approved 0.2-1 g/kg; Europe approved; UK approved; approved for orals, rectals, topicals; USP/NF, BP, EP complianc

Manuf./Distrib.: AMRESCO†

http://www.amresco-inc.com; Aceto†
http://www.aceto.com; Allan
http://www.allanchem.com; Allchem Ind.
http://www.allchem.com; Amerol
http://www.amerolcorp.com

Aromeric Chemetals†

Aventis Pharmaceuticals†
http://www.aventispharma-us.com; Blagden Spec. Chems. Ltd†
http://www.blagdenspecchem.co.uk

Buckton Page Ltd
http://www.bucktonpage.com; Camida Ltd†
http://www.camida.com; Clariant/Functional Chems†
http://www.fun.clariant.com;


Kraft Chem.†
http://www.kraftchemical.com; Lluch
Essence http://www.lluch-essence.com;

Mutchler† http://www.mutchlerchem.com;
Penta Mfg.† http://www.pentamfg.com

R.C. Treatt & Co. Ltd
http://www.rctreatt.com; Ruger†
http://www.rugerchemical.com; SAFC Specialties
http://www.saftspec.com; Sigma
http://www.sigma-aldrich.com/belgium;

Sparkford Chems. Ltd†
http://www.sparkford.co.uk

‡=pharmaceutical grade

Spectrum Quality Prods.;†

Trade Names Containing: Amerol® 4 Liquid;
Amerol® 4A Liquid; Amerol® 4B Liquid;
Amerol® A Liquid; Crystal® Crown

BHT
CAS 128-37-0; EINECS/ELINCS 204-881-4
FEMA 2184; INS321

Synonyms: 2,6-Bis (1,1-dimethylethyl)-4-methylphenol; Butylated hydroxytoluene; 2,6-t-butyl-4-methylphenol; DBPC; 2,6-Di-t-butyl-p-cresol; Di-t-butyl-p-cresol; 2,6-Di-t-butyl-4-methylphenol; Hydroxytoluene, butylated; 4-Methyl-2,6-di-t-butylphenol; Methyl di-t-butylphenol

Classification: Substituted toluene

Empirical: C₁₅H₂₄O

Formula: [C(CH₃)₃]₂CH₃C₆H₂OH

Properties: Wh. cryst. solid, faint char. odor; sol. in toluene, alcohols, MEK, acetone, Cellosolve, petrol. ether, chloroform, benzene, most HC solvs.; insol. in water, propylene glycol; m.w. 220.39; sp.gr. 1.048 (20/4 C); m.p. 68 C; b.p. 265 C; flash pt. (TOC) 260 F

Toxicology: ACGIH TLV 10 mg/m³; LD50 (oral, rat) 890 mg/kg, (IP, mouse) 138 mg/kg, IV, mouse) 180 mg/kg; mod. toxic by ing.; poison by IP, IV routes; suspected carcinogen; human skin irritant; eye irritant; may cause rashes, hyperactivity; experimental teratogen, reproductive effects; TSCA listed

Precaution: Combustible exposed to heat or flame; reactive with oxidizing materials

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes

HMIS: Health 1, Flammability 0, Reactivity 0

Uses: Antioxidant, preservative for pharmaceuticals, orals, injectables, rectals, topicals

Use Level: 0.02% max. (preservation of fixed oils, fats, vitamin oil concs.)

Regulatory: FDA 21CFR §137.350, 166.110, 172.115, 172.615 (0.1% max.), 172.185, 173.340 (0.1% of defoamer), 175.105, 175.125, 175.300, 175.380, 175.390, 176.170, 176.210, 177.1010, 177.1210, 177.1350, 177.2260, 177.2600, 178.2010, 178.3120, 178.3570, 179.45, 181.22, 181.24 (0.1% max. of defoamer), 175.105, 175.125, 175.300, 175.380, 175.390, 176.170, 176.210, 177.1010, 177.1210, 177.1350, 177.2260, 177.2600, 178.2010, 178.3120, 178.3570, 179.45, 181.22, 181.24 (0.005%
Chemical Component Cross-Reference

migrating from food pkg.), 182.3173 (0.02% max. of fat/oil), GRAS; USDA 9CFR §318.7, 381.147; FEMA GRAS; Japan 0.2-1 g/kg; Europe, UK; USP/NF, BP, EP compliance; Canada DSL


†=pharmaceutical grade


Trade Names: Ionol CP; Lutrol® F micro 127; Lutrol® F micro 68; Nipanox® BHT

Trade Names Containing: Amerol® 4 Liquid; Amerol® 8 Liquid; Anhydrous Lanolin Grade 1; Anhydrous Lanolin Grade 2; Anhydrous Lanolin P95; Anhydrous Lanolin Superfine; Argobase 125T; BFP 74E; Cropure® Orange Roughy; Dry Vitamin D₃ Type 100 SD; Lutrol® F 127; Medilan™; Multiwax® 180-W; Multiwax® ML-445; Oxynex® 2004; Sebase; Vitamin A Acetate/D₂ 500/50; Vitamin A Acetate/D₃; Vitamin A Palmitate 500; Vitamin D₂ 850; Vitamin D₃ 100; Vitamin D₃ 100 HP; Vitamin D₃ 850

Biacetyl. See Diacetyl

Bibenzene. See Biphenyl

(6²,2²(3H,3’H)-Bibeno (b thiophene)-3,3’-dione, 6,6’-dichloro-4,4’-dimethyl-.- See Vat red 1

Bicalcium phosphate. See Calcium phosphate dibasic

Bicarbonate of soda. See Sodium bicarbonate

Bicarburet of hydrogen. See Benzene

1,2-Bichloroethane. See Ethylene dichloride

Bicyclo (2.2.1) heptane, 2,2-dimethyl-3-methylene-. See Camphene

Bicyclo [4.1.0] heptane, 7-oxa-. See Cyclohexene oxide

Bicyclo (2.2.1) heptan-2-ol, 1,7,7-trimethyl-, endo-. See DL-Borneol

Bicyclo (2.2.1) heptan-2-ol, 1,7,7-trimethyl-, acetate, endo-. See Bornyl acetate

Bicyclo [2.2.1] heptan-2-ol, 1,7,7-trimethyl-,
Biotin (INCI); (+)-Biotin. See d-Biotin

**d-Biotin**

**CAS** 58-85-5; EINECS/ELINCS 200-399-3

**Synonyms:** Biotin (INCI); (+)-Biotin; d-(+)-Biotin; Coenzyme R; [3aS-(3a-α,4b,6aα)]-Hexahydro-2-oxo-1H-thieno [3,4-d] imidazole-4-pentanoic acid; cis-Hexahydro-2-oxo-1H-thieno (3,4)-imidazole-4-valeric acid; 1H- Theino (3,4-d) imidazole-4-pentanoic acid, hexahydro-2-oxo-, (3aS-(3a-α-4-β,6a-α))-; Vitamin B7; Vitamin H

**Classification:** Organic compd.

**Empirical:** C₁₀H₁₆N₂O₃S

**Properties:** Wh. cryst. powd.; sol. in water, alcohol; insol. in common org. solvs.; m.w. 244.31; m.p. 231-233 C

**Toxicology:** No human toxic symptoms reported on heavy dosage; experimental teratogen, reproductive effects; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of NOₓ, SOₓ

**Uses:** Nutrient, dietary supplement for pharmaceuticals; in enzyme systems; microbial fermentation nutrient

**Regulatory:** FDA 21CFR §101.9, 107.100, 182.8159, GRAS; BP, EP compliance; Canada DSL


†=pharmaceutical grade


**Trade Names Containing:** Bitrit-1™ (1% Biotin Trituration)

**d-(+)-Biotin.** See d-Biotin

**Biphenyl**

**CAS** 92-52-4; EINECS/ELINCS 202-163-5

**FEMA** 3129; INS230; E230

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Handbook of Pharmaceutical Additives, Third Edition
### Chemical Component Cross-Reference

<table>
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<tr>
<th>Chemical Component Cross-Reference</th>
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<tbody>
<tr>
<td><strong>Synonyms:</strong></td>
<td><strong>Biphenylene; 1,1’-Biphenyl;</strong></td>
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<tr>
<td></td>
<td><strong>Diphenyl; Lemonene; Phenyl benzene;</strong></td>
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<td></td>
<td><strong>PHPH; Xenene</strong></td>
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<tr>
<td><strong>Empirical:</strong></td>
<td>C₁₂H₁₀</td>
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<tr>
<td><strong>Formula:</strong></td>
<td>C₆H₅C₆H₅</td>
</tr>
<tr>
<td><strong>Properties:</strong></td>
<td>Wh. scales or colorless leaflets, pleasant odor; sol. in oxygenated/chlorinated solvs., alcohols, ether; insol. in water; m.w. 154.08; dens. 1.041; m.p. 70 C; b.p. 256 C; flash pt. (CC) 112.7 C; ref. index 1.588</td>
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<tr>
<td><strong>Hazardous Decomp. Prods.:</strong></td>
<td>Heated to decomp., emits acrid smoke and irritating vapors</td>
</tr>
<tr>
<td><strong>NFPA:</strong></td>
<td>Health 2, Flammability 1, Reactivity 0</td>
</tr>
<tr>
<td><strong>Uses:</strong></td>
<td>Flavor for pharmaceuticals</td>
</tr>
<tr>
<td><strong>Regulatory:</strong></td>
<td>FDA 21CFR §178.2010; FEMA GRAS; SARA reportable; HAP; Europe listed; UK approved; Japan approved; Canada DSL</td>
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<tr>
<td><strong>Manuf./Distrib.:</strong></td>
<td>Coalite Chems.</td>
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<tr>
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<td>Fluka</td>
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<td><a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a></td>
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<td><a href="http://www.sigma-aldrich.com/belgium">http://www.sigma-aldrich.com/belgium</a></td>
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<td><a href="http://www.safcspecialties.com">http://www.safcspecialties.com</a></td>
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<td>Danisco Seillans</td>
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### Topical Data

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<th>Chemical Component Cross-Reference</th>
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<td><strong>Chemical Component Cross-Reference</strong></td>
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<td></td>
<td><strong>(1,1’-Biphenyl)-2-ol; 2-Biphenylool; α-Biphenylool.</strong> See o-Phenylphenol</td>
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<tr>
<td><strong>Biphenyl oxide.</strong> See Diphenyl oxide</td>
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<tr>
<td><strong>Birch (Betula alba) oil</strong></td>
<td><strong>NAS, N’-Bis (2-aminooethyl)-1,2-diaminoethane;</strong></td>
</tr>
<tr>
<td><strong>CAS</strong></td>
<td><strong>N, N’-Bis (2-aminoethy1)-1,2-diaminoethane;</strong></td>
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<tr>
<td></td>
<td><strong>N, N’-Bis (2-aminoethyl)-1,2-ethanediamine;</strong></td>
</tr>
<tr>
<td><strong>Synonyms:</strong></td>
<td><strong>N, N´-Bis (2-aminoethyl)-1,2-ethanediamine;</strong></td>
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<tr>
<td></td>
<td><strong>N, N’-Bis (2-aminoethyl) ethylenediamine;</strong></td>
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<td></td>
<td><strong>N, N´-Bis (2-aminoethyl)-1,2-ethanediamine;</strong></td>
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<td><strong>N, N´-Bis (2-aminoethyl)-1,2-ethanediamine;</strong></td>
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<tr>
<td><strong>Trade Names:</strong></td>
<td><strong>α-Bisabolol; (-α-Bisabolol; Dragosantol; Hydagen® B</strong></td>
</tr>
<tr>
<td><strong>Trade Names Containing:</strong></td>
<td><strong>Anti-Irritant Liposomes</strong></td>
</tr>
<tr>
<td><strong>(-)α-Bisabolol.</strong> See Levomenol</td>
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<td><strong>Bis (acetato-O) hydroxyaluminum.</strong> See Aluminum diacetate</td>
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<tr>
<td><strong>3,5-Bis (acetylamino)-1,4,6-triodobenzoic acid.</strong> See Diatrizoic acid</td>
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<tr>
<td><strong>Bis(acetyloxy) mercury.</strong> See Mercury acetate (ic)</td>
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<tr>
<td><strong>2,2-Bis ((acetyloxy) methyl)-1,3-propanediol diacetate.</strong> See Pentamerythrityl tetraacetate</td>
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<tr>
<td><strong>N,N´-Bis (2-aminooethyl)-1,2-diaminoethane;</strong></td>
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<td><strong>N, N´-Bis (2-aminoethyl) ethylenediamine;</strong></td>
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</tr>
<tr>
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</tr>
</tbody>
</table>

### Toxicology

- **NFPA:** Health 2, Flammability 1, Reactivity 0
- **Uses:** Flavor for pharmaceuticals
- **Regulatory:** FDA 21CFR §178.2010; FEMA GRAS; SARA reportable; HAP; Europe listed; UK approved; Japan approved; Canada DSL

### References

- http://www.sigma-aldrich.com/belgium
- http://www.coalitechemicals.com
- http://www.pangaeasciences.com
- http://www.sigma-aldrich.com
- http://www.basf.com
- http://www.avatarcorp.com

### Trade Names

- α-Bisabolol; (-α-Bisabolol; Dragosantol; Hydagen® B
- Anti-Irritant Liposomes

### Toxicity

- **LD50 (oral, rat):** 14,850 mg/kg
- **LD50 (IV, mouse):** 56 mg/kg
- **LD50 (Aristolochia clematitis) extract**
- **Serpentaria**
- **Bisabolol**
- **CAS:** 515-69-5; EINECS/ELINCS 208-205-9
- **Synonyms:** α-4-Dimethyl-α-(4-methyl-3-pentenyl)-3-cyclohexene-1-methanol; 5-Hepten-2-ol, 6-methyl-2-(4-methyl-3-cyclohexen-1-yl); 6-Methyl-2-(4-methyl-3-cyclohexen-1-yl)-5-hepten-2-ol
- **Classification:** Terpene
- **Empirical:** C₁₅H₂₆O₂
- **Properties:** M.w. 222.41
- **Toxicology:** LD50 (oral, rat) 14,850 mg/kg; mod. toxic by ing.; TSCA listed
- **Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating vapors
- **Uses:** Antiphlogistic (anti-inflammatory) active, bactericide, antymycotic for skin care, oral hygiene preps., wound care ointments
- **Regulatory:** Canada DSL
- **Manuf./Distrib.:** Avatar†
- **Trade Names:** α-Bisabolol; (-α-Bisabolol; Dragosantol; Hydagen® B
- **Trade Names Containing:** Anti-Irritant Liposomes
- **(-)α-Bisabolol.** See Levomenol
- **Bis (acetato-O) hydroxyaluminum.** See Aluminum diacetate
- **3,5-Bis (acetylamino)-1,4,6-triodobenzoic acid.** See Diatrizoic acid
- **Bis(acetyloxy) mercury.** See Mercury acetate (ic)
- **2,2-Bis ((acetyloxy) methyl)-1,3-propanediol diacetate.** See Pentamerythrityl tetraacetate
- **N,N´-Bis (2-aminooethyl)-1,2-diaminoethane;**
- **N, N´-Bis (2-aminoethy1)-1,2-diaminoethane;**
- **N, N´-Bis (2-aminoethyl)-1,2-ethanediamine;**
- **N, N´-Bis (2-aminoethyl) ethylenediamine;**
- **N, N´-Bis (2-aminoethyl)-1,2-ethanediamine;**
- **N, N´-Bis (2-aminoethyl)-1,2-ethanediamine;**
Chemical Component Cross-Reference

ethylenediamine. See Triethylenetetramine

Bis (aminopropyl) piperazine
CAS 7209-38-3
UN 1760 (DOT)
Synonyms: BAPP; 1,4-Bis (aminopropyl) piperazine; 1,4-Bis-(3-aminopropyl) piperazine
Classification: Heterocyclic organic compd.
Empirical: C10H24N4
Properties: Clear liq.; m.w. 200.38; sp.gr. 0.97; m.p. 15 C; b.p. 295 C; flash pt. (COC) 325 F; ref. index 1.5001
Toxicology: LD50 (IV, mouse) 3500 µg/kg; poison by IV route; corrosive; irritating to eyes, skin, mucous membranes; TSCA listed
Precaution: Corrosive
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx
Uses: Pharmaceutical intermediate; dietary supplement
Regulatory: Canada DSL
Manuf./Distrib.: Aceto http://www.aceto.com; Aldrich† http://www.sigma-aldrich.com; BASF AG http://www.basf.de

1,4-Bis (aminopropyl) piperazine; 1,4-Bis-(3-aminopropyl) piperazine. See Bis (aminopropyl) piperazine
N,N-Bis[2-[bis (carboxymethyl) amino] ethyl] glycine, pentasodium salt. See Pentasodium HEDTA

Bis (butoxyethyl) ether; Bis (2-butoxyethyl) ether. See Diethylene glycol dibutyl ether
Bis (n-butyl) sebacate. See Dibutyl sebacate
N-[2-[Bis(carboxymethyl) amino] ethyl]-N-(2-hydroxyethyl) glycine, trisodium salt. See Trisodium HEDTA

3,6-Bis (carboxymethyl)-3,5-diazooctanedioic acid. See Edetic acid
1,6-Bis (5-(p-chlorophenyl) biguanido) hexane diglucnate. See Chlorhexidine diglucnate
1,6-Bis (5-(p-chlorophenyl) biguanido) hexane diacetate. See Chlorhexidine diacetate
N,N´-Bis (4-chlorophenyl)-3,12-diimino-2,4,11,13-tetraazatetradecane-diimidamide compd. with D-gluconic acid. See Chlorhexidine diglucnate
N,N´-Bis (4-chlorophenyl)-3,12-diimino-2,4,11,13-tetraazatetradecanediimidamide, dihydrochloride. See Chlorhexidine dihydrochloride

†=pharmaceutical grade

Bis-(diethylthiocarbamyl) sulfide. See Tetaethylthiuram sulfide
Bis-diglyceryl caprylate/caprate/isostearate/hydroxystearate adipate. See Bis-diglyceryl polyaclyladiapate-1
Bis-diglyceryl caprylate/caprate/isostearate/stearate/hydroxystearate adipate. See Bis-diglyceryl polyaclyladiapate-2
Bis-diglyceryl polyaclyladiapate-1
CAS 222722-06-7; EINECS/ELINCS 406-144-4
Synonyms: Adipic acid, oxybispropanediol diester, esters with mixed caprylic, capric, isostearic, and hydroxystearic acids; Bis-diglyceryl caprylate/caprate/isostearate/hydroxystearate adipate; Caprylic/capric/isostearic adipic triglycerides; Hexanediol dicaclate, mixed diesters with decanoic acid, 12-hydroxyoctadecanoic acid, isostearic acid, octanoic acid and oxybis (propanediol)
Definition: Adipic acid diester of mixed diglyceryl ester of caprylic, capric, hydroxystearic and isostearic acids
Uses: Lanolin oil substitute; emollient
Trade Names: Softisan® 645
Trade Names Containing: Softisan® Gel

Bis-diglyceryl polyaclyladiapate-2
CAS 82249-33-0; EINECS/ELINCS 406-144-4
Synonyms: Bis-diglyceryl caprylate/caprate/isostearate/stearate/hydroxystearate adipate
Definition: Adipic acid diester of a mixed diglyceryl ester of caprylic, capric, stearic, isostearic and hydroxystearic acids
Uses: Emollient, ointment base, stabilizer for pharmaceuticals, creams
Features: Lanolin substitute
Trade Names: Softisan® 649

1,4-Bis (3,4-dihydroxyphenyl)-2,3-dimethylbutane. See Nordihydroguaiaretic acid
Bis (2,4-dihydroxyphenyl) methanone. See Benzophenone-2
Bis ((dimethylamino) carbonothioyl) disulfide. See Tetramethylthiuram disulfide
3,7-Bis (dimethylamino) phenazathionium chloride trihydrate; 3,7-Bis (dimethylamino) phenothiazin-5-ium, chloride, trihydrate. See Methylene blue trihydrate
N-[4-Bis [4-(dimethylamino) phenyl]
**Chemical Component Cross-Reference**

methylen-[2,5-cyclohexadien-1-ylidene]-N-methylmethanaminium chloride. See Basic violet 3
2,6-Bis (1,1-dimethylethyl)-4-methylphenol. See BHT
Bis (dimethylthiocarbamoyl) disulfide; Bis (dimethylthiocarbamyl) disulfide. See Tetramethyliuram disulfide
Bis (dodecyloxycarbonylhexyl) sulfide. See Dilauryl thiopropionate
Bis (2-ethoxyethyl) ether. See Diethylene glycol diethyl ether
Bis (2-ethylhexyl) adipate. See Dioctyl adipate
Bis (2-ethylhexyl) butanedioate. See Dioctyl succinate
1,3-Bis (2-ethylhexyl) cyclohexane. See Dicyclopentyl cyclohexane
1,3-Bis (2-ethylhexyl) hexahydro-5-methyl-5-pyrimidiamine. See Hexetidine
Bis (2-ethylhexyl) hexanedioate. See Dioctyl adipate
Bis (2-ethylhexyl) malate. See Diethyl malate
Bis (2-ethylhexyl) sodium sulfosuccinate; 1,4-Bis (2-ethylhexyl) sulfobutanedioic acid sodium salt. See Diocetyl sodium sulfosuccinate
Bis (D-gluconoato) copper. See Copper gluconate (ic)
Bis (D-gluconoato-O\(^{1}\),O\(^{2}\))-iron. See Ferrous gluconate
Bis (D-gluconoato-O\(^{1}\),O\(^{2}\))-iron dihydrate. See Ferrous gluconate dihydrate
Bis (D-gluconoato-O\(^{1}\),O\(^{2}\)) manganese. See Manganese gluconate
Bis (2-hydroxy-3,5-dichlorophenyl) sulfide. See 2,2'-Thiobis (4,6-dichlorophenol)
1,2-Bis (2-hydroxyethoxy) ethane. See Triethylene glycol
Bis [2-(2-hydroxyethoxy) ethyl] ether. See PEG-4
Bis (2-hydroxyethyl) amine; N,N-Bis (2-hydroxyethyl) amine. See Diethanolamine
Bis (hydroxyethyl) aminopropyl-N-hydroxyethyl-octadecylaminiumhydrofluoride. See Olafur
Bis (2-hydroxyethyl) ammonium decyl sulfate. See DEA-lauryl sulfate
Bis (2-hydroxyethyl)-ammonium hexadecylphosphate. See DEA-cetyl phosphate
N,N-Bis (2-hydroxyethyl) coco amides; N,N-Bis (2-hydroxyethyl) coco fatty acid amide.

†=pharmaceutical grade

See Cocamide DEA
N,N-Bis (2-hydroxyethyl) dodecanamide. See Lauramide DEA
Bis (2-hydroxyethyl) ether. See Diethylene glycol
1,6-Bis (2-hydroxyethyl) hexane. See 1,10-Decanediol
N,N-Bis (2-hydroxyethyl) isoctadecanamide. See Isostearamide DEA
Bis (2-hydroxyethyl) lauramide; N,N-Bis (2-hydroxyethyl) lauramide; N,N-Bis (β-hydroxyethyl) lauramide. See Lauramide DEA
N,N-Bis (2-hydroxyethyl) myristamide. See Myristamide DEA
(9Z,12Z)-N,N-Bis (2-hydroxyethyl) octadec-9,12-dien-1-amine; N,N-Bis (2-hydroxyethyl)-9,12-octadecadienamide. See Linoleamide DEA
N,N-Bis (2-hydroxyethyl) octadecanamide. See Stearamide DEA
N,N-Bis (2-hydroxyethyl)-9-octadecenamide; N,N-Bis (2-hydroxyethyl) oleamide. See Oleamide DEA
N,N-Bis (2-hydroxyethyl) palm kernel oil acid amide. See Palm kernelamide DEA
N,N-Bis (hydroxyethyl) soya amides. See Soyamide DEA
N,N-Bis (2-hydroxyethyl) stearamide. See Stearamide DEA
N,N-Bis (2-hydroxyethyl) tetradecanamide. See Myristamide DEA
N,N-Bis (2-hydroxyethyl) undecenamide. See Undecylamide DEA
1,7-Bis (4-hydroxy-3-methoxyphenyl)-1,6-heptadiene-3,5-dione. See Turmeric (Curcuma longa)
Bis (hydroxymethyl)-5,5-dimethylhydantoin; 1,3-Bis (hydroxymethyl)-5,5-dimethylimidazolidinedione; 1,3-Bis (hydroxymethyl)-5,5-dimethylimidazolidine-2,4-dione; Bis (hydroxymethyl)-5,5-dimethyl-2,4-imidazolidinedione. See DMDM hydantoin
N-[1,3-Bis (hydroxymethyl)-2,5-dioxo-4-imidazolidinyl]- N,N´-bis (hydroxymethyl) urea. See Diazolidinyl urea
4,5-Bis-hydroxymethyl-2-methylpyridin-3-ol. See Pyridoxine
2,2-Bis (hydroxymethyl) propionic acid; α,α-Bis (hydroxymethyl) propionic acid. See Dimethylolpropionic acid
Bis (2-hydroxypropyl) amine. See
Diisopropanolamine
Bis [1-hydroxy-2(1H)-pyridinethionato-O,S]- (T-4) zinc. See Zinc pyrithione
Bis (8-hydroxyquinolinium) sulfate. See 8-Hydroxyquinoline sulfate
Bis (2-hydroxy-3,5,6-trichlorophenyl) methane. See Hexachlorophene
Bis (isobutyl) hydroaluminum. See Diisobutylaluminum hydride
2,2-Bis [(1-isooctadecyl) ox] methyl]-1,3-propanediyl isooctadecanoate. See Pentacyrthrytilyl tetraisostearate
Bis (lactato) magnesium. See Magnesium lactate
Bis (2-methoxyethyl) ether. See Diethylene glycol dimethyl ether
Bis (1-methylethyl) decanedioate. See Diisopropyl sebacate
Bis (1-methylethyl) hexanedioate. See Diisopropyl adipate
Bismuth carbonate basic; Bismuth (III) carbonate basic. See Bismuth subcarbonate
Bismuth chloride oxide. See CI 77163; Bismuth oxychloride
Bismuth citrate
CAS 813-93-4; EINECS/ELINCS 212-390-1
Synonyms: 1,2,3-Propanetricarboxylic acid, 2-hydroxy-, bismuth (3+) salt (1:1)
Definition: Bismuth salt of citric acid
Empirical: C₆H₅BiO₇
Formula: BiC₆H₅O₇
Properties: Wh. powd.; sol. in ammonia or alkali citrates; sl. sol. in alcohol; insol. in water; m.w. 398.09; dens. 3.458; m.p. dec.
Uses: Buffer, chelating agent in pharmaceuticals; medicine
Regulatory: FDA 21CFR §73.2110
St. Lawrence http://www.stlawrencechem.com
Bismuth gallate basic; Bismuth (III) gallate, basic. See Bismuth subgallate
Chemical Component Cross-Reference

Bismuth hydroxide nitrate oxide; Bismuth nitrate, basic. See Bismuth subnitrate
Bismuth oxycarbonate. See Bismuth subcarbonate

Bismuth oxychloride
CAS 7787-59-9; EINECS/ELINCS 232-122-7
Synonyms: Basic bismuth chloride; Bismuth chloride oxide; Bismuth subchloride; Chlorooxobismuthine; CI 77163; Pearl white; Pigment white 14; Synthetic pearl
Classification: Inorganic pigment
Empirical: BiClO
Formula: BiOCl
Properties: Wh. cryst. powd.; sol. in acids; insol. in water; m.w. 260.48; dens. 7.717; high m.p.
Toxicology: Irritant; toxic if ingested; TSCA listed
HMIS: Health 1, Flammability 0, Reactivity 0
Uses: Colorant for external pharmaceuticals incl. those for eye area use; skin protectant
Regulatory: FDA 21CFR §73.1162, 73.2162; exempt from certification, permanently listed for drug use

†=pharmaceutical grade
See also CI 77163
Bismuth oxynitrate. See Bismuth subnitrate
Bismuth salicylate basic; Bismuth (III) salicylate basic. See Bismuth subsalicylate

Bismuth subcarbonate
CAS 5892-10-4; EINECS/ELINCS 227-567-9
Synonyms: Bismuth carbonate basic; Bismuth (III) carbonate basic; Bismuth oxycarbonate
Empirical: Bi₂CO₅
Formula: (BiO)₂CO₃
Properties: Wh. or pale yel. powd., odorless; tasteless; sol. in nitric acid, conc. ethanol, conc. acetic acid; insol. in water, alcohol; m.w. 510.01; dens. 6.860; stable in air but affected slowly by light
HMIS: Health 1, Flammability 0, Reactivity 0
Storage: Light-sensitive
Uses: Pharmaceutical health care prods.; orals; adsorbent in anti-diarrheal prods.
Regulatory: BP, EP compliance; FDA approved for orals; Canada DSL

Bismuth subchloride. See Bismuth oxychloride

Bismuth subgallate
CAS 99-26-3; 12263-40-0
Synonyms: Basic bismuth gallate; Bismuth gallate basic; Bismuth (III) gallate, basic; Bismuth 3,4,5-trihydroxybenzoate, basic;
**Gallic acid, bismuth basic salt**

Empirical: C₇H₅BiO₆

Formula: C₆H₂(OH)₃COOBi(OH)₂

Properties: Hydrate, bright yel. powd., odorless, tasteless; dissolves readily with decomp. in warm, mod. dil. hydrochloric, nitric, or sulfuric acids; pract. insol. in water, alcohol, chloroform, ether; insol. in very dil. min. acids; m.w. 354.09; stable in air

HMIS: Health 2, Flammability 1, Reactivity 1

Storage: Light-sensitive

Uses: Protectant, antiseptic, astringent, antacid for pharmaceuticals, rectals, dusting powds.; gastrointestinal/antieczema drug; treatment of alimentary canal

Regulatory: BP, EP compliance; FDA approved for rectals; Canada DSL

Manuf./Distrib.: Alfa Chem†

http://www.alfachem1.com; Allan

http://www.allanchem.com; Am. Int'l.†

http://www.aicma.com; Atomergic

Chemetals† http://www.atomergic.com;

Barrington†

http://www.barringtonchem.com

Biddle Sawyer†

http://www.biddlesawyer.com; George Uhe†

http://www.uhe.com; Integra†

http://www.integrachem.com; MCP

Metalspecialties† http://www.mcp-group.com

Mallinckrodt Baker†

http://www.mallbaker.com; Noah

http://www.noahtech.com; Pechiney


http://www.pentamfg.com; ProSciTech

http://www.proscitech.com.au

R.W. Greeff† http://www.pechiney-chemicals.com; Ruger†

http://www.rugerchemical.com; Shepherd

http://www.shepchem.com; Sigma

http://www.sigma-aldrich.com/belgium;

Spectrum Quality Prods.†

http://www.spectrumchemical.com

St. Lawrence

http://www.stlawrencechem.com; Stason

Pharmaceuticals† http://www.stason.com;

Triple-S; Universal Preserv-A-Chem†

http://www.upichem.com; VWR Int'l.†

http://www.vwrsp.com

Voigt Global Distrib.† http://www.vgdllc.com

**Bismuth subnitrate**

CAS 1304-85-4; EINECS/ELINCS 215-136-8

Synonyms: Bismuth hydroxide nitrate oxide; Bismuth nitrate, basic; Bismuth oxyxinate

Classification: Inorganic salt

Empirical: Bi₅H₉N₄O₂₂

Formula: Bi₅(OH)₉(NO₃)₄O

Properties: Wh. cryst. powd.; sol. in acids; insol. in water and alcohol; m.w. 1461.99; dens.

HMIS: Health 2, Flammability 1, Reactivity 1

Storage: Hygroscopic

Uses: Adsorbent in antidiarrheal prods.; protectant for diaper rash and prickly heat

Regulatory: BP, EP compliance; Canada DSL

Manuf./Distrib.: Alfa Chem†

http://www.alfachem1.com; Allan

http://www.allanchem.com; Am. Int'l.†

http://www.aicma.com; Atomergic

Chemetals† http://www.atomergic.com;

Barrington†

http://www.barringtonchem.com

Biddle Sawyer†

http://www.biddlesawyer.com; George Uhe†

http://www.uhe.com; Integra†

http://www.integrachem.com; MCP

Metalspecialties† http://www.mcp-group.com

Mallinckrodt Baker†

http://www.mallbaker.com; Noah

http://www.noahtech.com; Pechiney


http://www.pentamfg.com; ProSciTech

http://www.proscitech.com.au

R.W. Greeff† http://www.pechiney-chemicals.com; Ruger†

http://www.rugerchemical.com; Shepherd

http://www.shepchem.com; Sigma

http://www.sigma-aldrich.com/belgium;

Spectrum Quality Prods.†

http://www.spectrumchemical.com

St. Lawrence

http://www.stlawrencechem.com; Stason

Pharmaceuticals† http://www.stason.com;

Triple-S; Universal Preserv-A-Chem†

http://www.upichem.com; VWR Int'l.†

http://www.vwrsp.com

Voigt Global Distrib.† http://www.vgdllc.com

**Bismuth subsalicylate**

CAS 14882-18-9; EINECS/ELINCS 238-953-1

Synonyms: Basic bismuth salicylate; Bismuth salicylate basic; Bismuth (III) salicylate basic; (2-Hydroxybenzoato-O¹)-oxobismuth; 2-Hydroxybenzoic acid bismuth (3+) salt basic; Oxy (salicylato) bismuth; Salicylic acid, basic bismuth salt; Salicylic acid, bismuth basic salt

4.928; m.p. 260 C (dec.)

Toxicology: TSCA listed

HMIS: Health 1, Flammability 0, Reactivity 1

Storage: Hygroscopic

Uses: Adsorbent in antidiarrheal prods.; protectant for diaper rash and prickly heat

Regulatory: BP, EP compliance; Canada DSL

Manuf./Distrib.: Alfa Chem†

http://www.alfachem1.com; Allan

http://www.allanchem.com; Am. Int'l.†

http://www.aicma.com; Atomergic

Chemetals† http://www.atomergic.com;

Barrington†

http://www.barringtonchem.com

Biddle Sawyer†

http://www.biddlesawyer.com; George Uhe†

http://www.uhe.com; Integra†

http://www.integrachem.com; MCP

Metalspecialties† http://www.mcp-group.com

Mallinckrodt Baker†

http://www.mallbaker.com; Noah

http://www.noahtech.com; Pechiney


http://www.pentamfg.com; ProSciTech

http://www.proscitech.com.au

R.W. Greeff† http://www.pechiney-chemicals.com; Ruger†

http://www.rugerchemical.com; Shepherd

http://www.shepchem.com; Sigma

http://www.sigma-aldrich.com/belgium;

Spectrum Quality Prods.†

http://www.spectrumchemical.com

St. Lawrence

http://www.stlawrencechem.com; Stason

Pharmaceuticals† http://www.stason.com;

Triple-S; Universal Preserv-A-Chem†

http://www.upichem.com; VWR Int'l.†

http://www.vwrsp.com

Voigt Global Distrib.† http://www.vgdllc.com

**Bismuth subsalicylate**

CAS 14882-18-9; EINECS/ELINCS 238-953-1

Synonyms: Basic bismuth salicylate; Bismuth salicylate basic; Bismuth (III) salicylate basic; (2-Hydroxybenzoato-O¹)-oxobismuth; 2-Hydroxybenzoic acid bismuth (3+) salt basic; Oxy (salicylato) bismuth; Salicylic acid, basic bismuth salt; Salicylic acid, bismuth basic salt
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Chemical Component</th>
<th>Empirical</th>
<th>Formula</th>
<th>Properties</th>
<th>HMIS</th>
<th>Uses</th>
<th>Regulatory</th>
<th>Manuf./Distrib.</th>
<th>Synonyms</th>
<th>Toxicology</th>
<th>TSCA listed</th>
<th>CAS</th>
<th>Synefys</th>
<th>Empirical</th>
<th>Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bis (2-propyl) ethane</td>
<td>CH3C(=NSi(CH3)3)OSi(CH3)3</td>
<td>CH3C(=NSi(CH3)3)OSi(CH3)3</td>
<td>Liq.; m.w. 203.43; dens. 0.832; b.p. 71-73 (35 mm); flash pt. 11 C; ref. index 1.418</td>
<td>Health 3, Flammability 3, Reactivity 1</td>
<td>Uses: Silylation agent in pharmaceuticals (prep. of antibiotics and penicillin); reagent for temporary protection of reactive sites in mfg. of betalactum antibiotics; solubilizer in polar/nonpolar solvs.</td>
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<td>Bismuth 3,4,5-trihydroxybenzoate, basic</td>
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<td>Uses:</td>
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<td>Bismuth violet</td>
<td>See Basic violet 3</td>
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<td>1,2-Bis (octadecanamido) ethane</td>
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<td>2,3-Bis [(9E)-9-octadecenoyloxy] propyl (9E)-9-octadecenoate</td>
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<td>Bis (1-octyl) maleate</td>
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<td>Bisodium carbonate</td>
<td>See Sodium carbonate</td>
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<td>Bisodium tartrate</td>
<td>See Sodium tartrate</td>
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<td>2,2-Bis [[(1-oxododecyl) oxy] methyl]-1,3-propanediyl dodecanoate</td>
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<tr>
<td>Chemical Component Cross-Reference</td>
<td>Bitter almond (Prunus amygdalus amara) oil</td>
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<td>CAS 8013-76-1; 8015-75-6; EINECS/ELINCS 291-060-9 (extract)</td>
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<td>UN 1990; FEMA 2046</td>
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<tr>
<td>Synonyms:</td>
<td>Almond, bitter, oil, Almond oil, bitter; Amygdalin; Bitter almond oil; Prunus amygdalus; Prunus amygdalus amara oil; Prunus amygdalus oil</td>
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<tr>
<td>Definition:</td>
<td>The volatile essential oil distilled from ground kernels of bitter almonds Prunus amygdalus var. amara</td>
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<td>Properties:</td>
<td>Colorless liq., strong almond odor; sol. in fixed oils, propylene glycol; sl. sol. in water; insol. in glycerin; dens. 1.045-1.070 (15 C); b.p. 179 C; flash pt. (TCC) 64 C; ref. index 1.5428-1.5439</td>
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<td>Toxicology:</td>
<td>May be harmful by inh., ing., or skin absorption; may cause irritation; TSCA listed</td>
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<td>Precaution:</td>
<td>Highly flamm.; readily hydrolyzed; incompat. with strong oxidizing agents; may dec. on exposure to moist air or water</td>
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<td>Hazardous Decomp. Prods.:</td>
<td>CO, CO₂, SiO₂, NOₓ; emits toxic fumes under fire conditions</td>
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<td>Storage:</td>
<td>6 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air</td>
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<td>Uses:</td>
<td>Natural flavor, nutritive, demulcent, emollient for pharmaceuticals; softener for ear wax</td>
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<td>Regulatory:</td>
<td>FDA 21CFR §182.20, GRAS; must be treated and redistilled to remove hydrocyanic acid; 27CFR §21.65, 21.151; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI</td>
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<td>Manuf./Distrib.:</td>
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<td>Advanced BioTech</td>
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</tbody>
</table>
Bitter ash. See Quassia
Bitter fennel oil. See Fennel (Foeniculum vulgare) oil

Bitter orange (Citrus aurantium amara) oil
CAS 68916-04-1
FEMA 2823
Synonyms: Bitter orange oil; Bitter orange peel oil; Citrus amara; Citrus aurantium; Citrus aurantium amara; Neroli bigarade oil; Orange, bitter, oil; Orange oil, bitter; Orange peel, bitter, oil

Definition: Volatile oil expressed from peel of Citrus aurantium, contg. about 90% d-limonene and citral, decyl aldehyde, methyl anthranilate, linalool, terpineol

Properties: Pale yel. to yel.-brn. liq., char. orange odor, bitter taste; sol. in fixed oils, min. oil; misc. with abs. alcohol, in 1 vol. gl. acetic acid; very sl. sol. in water; dens. 0.845-0.851; ref. index 1.470 (20 C)

Toxicology: Skin irritant; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Storage: Keep cool, well closed; protect from light

Uses: Natural flavor for pharmaceuticals

Regulatory: FDA 21CFR §182.20, GRAS; FEMA GRAS; Canada DSL

Manuf./Distrib.: Citrus and Allied Essences

Bitter orange oil; Bitter orange peel oil. See Bitter orange (Citrus aurantium amara) oil
Bitter root. See Gentian (Gentiana lutea)
Bitter salts. See Magnesium sulfate heptahydrate
Bitter wood. See Quassia
Bixa orellana. See Annatto (Bixa orellana) extract
Bixin. See Annatto (Bixa orellana); Annatto

†=pharmaceutical grade

Black balsam. See Balsam Peru (Myroxylon pereirae)

Blackberry extract. See Blackberry (Rubus fruticosus) extract; Blackberry (Rubus villosus) extract

Blackberry fruit extract. See Blackberry (Rubus fruticosus) extract

Blackberry (Rubus fruticosus) extract
CAS 84787-69-9; EINECS/ELINCS 287-110-6
FEMA 2155
Synonyms: Blackberry extract; Blackberry fruit extract; Dewberry extract; Rubus extract; Rubus fruticosus; Rubus fruticosus extract

Definition: Extract of fruit of Rubus fruticosus

Uses: Natural flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.510; FEMA GRAS

Manuf./Distrib.: Carrubba http://www.carrubba.com

Blackberry (Rubus villosus) extract
CAS 93165-71-0; EINECS/ELINCS 296-958-4
Synonyms: Blackberry extract; Rubus villosus extract

Definition: Extract of fruit of Rubus villosus

Uses: Natural flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.510; FEMA GRAS

Black birch oil. See Birch (Betula alba) oil

Black caraway (Nigella sativa)
CAS 977017-84-7; 8000-42-8
FEMA 2237
Synonyms: Black caraway; Black cumin; Caraway, black; Nigella sativa

Definition: Derived from Nigella sativa

Properties: Dark yel.; flash pt. 55C

Storage: Shelf life 6 mos.; store @16 C in dark glass, aluminum. plastic, or steel containers

Uses: Natural flavor for pharmaceuticals

Features: Characteristic odor of black cumin seeds

Regulatory: FDA 21CFR §182.10, GRAS; FEMA GRAS

Manuf./Distrib.: Ferlow Botanicals http://www.ferlowbotanicals.com

Black caraway; Black cumin. See Black caraway (Nigella sativa)

Black magnetic oxide; Black oxide, precipitated. See Iron oxide black

Black pepper oil. See Black pepper (Piper nigrum) oil
Black pepper oleoresin, Pepper oleoresin. See Oleoresin black pepper

Black pepper (Piper nigrum) oil
CAS 8006-82-4; 84929-41-9; EINECS/ELINCS 284-524-7
FEMA 2844; 2845
Synonyms: Black pepper oil; Pepper, black, oil; Pepper oil, black; Piper nigrum; Piper nigrum oil
Definition: Derived from Piper nigrum; main constituents incl. \( \alpha \) and \( \beta \)-pinene, \( \beta \)-caryophyllene, \( \beta \)-limonene, d-hydrocarveol, piperidine
Properties: Spicy, warm odor; sol. in alcohol; insol. in water
Toxicology: Primary irritant; mod. skin irritant; mutagenic data; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Storage: Store in lt.-resistant containers
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §182.10, 182.20, GRAS; FEMA GRAS; Canada DSL
Manuf./Distrib.: Biolandes
http://www.biolandes.com; Buckton Page Ltd http://www.bucktonpage.com; Chemtex International
http://www.chemtexinternational.com; Citrus and Allied Essences
http://www.citrusandalied.com; Danisco Seillans http://www.danisco.com
De Monchy Aromatics
http://www.demonchyaromatics.com; Eramex Aromatics http://www.aramex.de; F.D. Copeland
http://www.copelandoild.co.uk; Fleurchem http://www.fleurchem.com; Fuerst Day
Lawson http://www.fdll.co.uk
George Uhe http://www.uhe.com; SAFC Specialties
http://www.safrspecialties.com; Spectrum Quality Prods.
http://www.spectrumchemical.com; Treatt USA http://www.rctreatt.com; V. Mane Fils SA http://www.mane.com

Black rouge. See Iron oxide black
Blackthorn berries. See Blackthorn berries (Prunus spinosa)
Blackthorn berries (Prunus spinosa)
CAS 977052-03-1
FEMA 3020
Synonyms: Blackthorn berries; Prunus spinosa
†= pharmaceutical grade
Blanc fixe; Blanc fixe (artificial, precipitated).
See Barium sulfate
Bleached beeswax. See Beeswax, white
Bleached lard. See Lard
Bleached shellac. See Shellac
Bleached wax. See Beeswax, white
Bleaching sol’n. See Sodium hypochlorite
BLO. See Butyrolactone
Blood sugar. See Glucose
Blue algae (Haslea ostrearia) extract
Properties: Pale-yel. green, transparent liq.; sol. in deionized water, ethanol, butylene glycol, propylene glycol; insol. in mineral oil and silicone oil
Storage: 12 mos. shelf life; keep sealed in a dry place protected from light; store at R.T.
Uses: Vitamin E source, mineral source; anti-irritant
Manuf./Distrib.: Engelhard/Personal Care Materials
http://www.engelhard.com/pcm
Trade Names Containing: Blue Algae Extract
Blue copper. See Cupric sulfate anhydrous
Blue copperas. See Cupric sulfate pentahydrate
Blue no. 1; Blue no. 3. See FD&C Blue No. 1 Aluminum Lake
Bluestone. See Cupric sulfate pentahydrate; Cupric sulfate anhydrous
Blue vitriol. See Cupric sulfate pentahydrate; Cupric sulfate anhydrous
Blue X. See FD&C Blue No. 2; Acid blue 74
BMA. See Butyl methacrylate
BME. See 2-Mercaptoethanol
BNPD. See 2-Bromo-2-nitropropane-1,3-diol
Bois de rose (Aniba rosaeodora) oil
CAS 8015-77-8
FEMA 2156
Synonyms: Aniba rosaeodora; Aniba rosaeodora oil; Bois de rose oil; Bois de rose oil terpeneless; Rosewood oil
Definition: Oil derived from Aniba rosaeodora
Properties: Colorless to pale yel. oily liq.; flowery sweet woody linalool odor; sol. in alcohol; sl. sol. in glycerin; insol. in water; dens. 0.88 kg/l (20 C); flash pt. (TCC) 74 C
Toxicology: May be irritating to eyes, skin, if
Chemical Component Cross-Reference

Handbook of Pharmaceutical Additives, Third Edition
Boric acid disodium salt. See Sodium borate decahydrate

2-Bornanol; 2-Bornanol, endo-. See DL-Borneol

2-Bornanone; Bornan-2-one. See Camphor

Borneo camphor; Borneol. See DL-Borneol

DL-Borneol
CAS 507-70-0; EINECS/ELINCS 208-080-0
UN 1312 (DOT); FEMA 2157

Synonyms: Bicyclo (2.2.1) heptan-2-ol, 1,7,7-trimethyl-, endo-; 2-Bornanol; 2-Bornanol, endo-; Borneo camphor; Borneol; trans-Borneol; Bornyl alcohol; Camphane, 2-hydroxy-; 2-Camphanol; Camphol; 2-Hydroxy camphane; Mayalan camphor; Sumatra camphor; DL-1,7,7-Trimethylbicyclo [2.2.1] heptan-2-ol; endo-1,7,7-Trimethylbicyclo (2.2.1) heptan-2-ol

Empirical: \( \text{C}_{10} \text{H}_{18} \text{O} \)

Formula: \( \text{C}_{10} \text{H}_{17} \text{OH} \)

Properties: Colorless plates; pungent, peppery/camphor-like odor; burning taste; sol. in alcohol, oxygenated/aromatic solvs.; chloroform, ether; insol. in water; m.w. 196.29; sp.gr. 1.011 (20 C); m.p. 208 C; b.p. 225-226 C; flash pt. 90 C; ref. index 1.462-1.466; tenacity 4 hrs. on blotter

Toxicology: LD50 (oral, rat) 500 mg/kg; mod. toxic by ing.; mild irritant; may cause nausea, vomiting, mental confusion, dizziness, convulsions; mutagen; TSCA listed

Precaution: Flamm.; fire risk in presence of open flame; reactive with oxidizers

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Japan approved as flavoring; Canada DSL


trans-Borneol. See DL-Borneol

Borneol acetate. See Bornyl acetate

Borneol, formate. See Bornyl formate

Borneol isovalerate. See Bornyl isovalerate

Bornyl acetate
CAS 76-49-3; EINECS/ELINCS 200-964-4
FEMA 2159

Synonyms: Bicyclo (2.2.1) heptan-2-ol, 1,7,7-trimethyl-, acetate, endo-; Borneol acetate; levo-Bornyl acetate; Bornyl acetic ether; Bornyl ethanoate; 2-Camphanol acetate; endo-2-Camphanyl ethanoate; 2-Hydroxycamphane; Mayalan camphor; Sumatra camphor; DL-1,7,7-Trimethylbicyclo [2.2.1] heptan-2-ol; endo-1,7,7-Trimethylbicyclo [2.2.1] heptan-2-ol acetate

Empirical: \( \text{C}_{12} \text{H}_{20} \text{O}_2 \)

Properties: Colorless liq. or wh. cryst. solid; piney odor; fresh, burning taste; sol. in alcohol, most fixed oils; sl. sol. in water; insol. in propyl glycol; m.w. 196.29; dens. 0.981-0.985; m.p. 27.5 C; b.p. 225-226 C; flash pt. 89 C; ref. index 1.462-1.466; tenacity 4 hrs. on blotter

Toxicology: TSCA listed

Precaution: Combustible liq.

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes

HMIS: Health 1, Flammability 1, Reactivity 0
Chemical Component Cross-Reference

Storage: Store in cool, dry place in tightly sealed containers, protected from heat and light

Uses: Synthetic flavor, solvent for pharmaceuticals, in aromatic preps. for treatment of coughs, other respiratory-tract disorders, musculoskeletal and joint disorders

Use Level: < 10%

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia; Canada DSL; Japan ENCS (no. 4-1216); Philippines PICCS


levo-Bornyl acetate; Bornyl acetic ether. See Bornyl acetate
Bornyl alcohol. See DL-Borneol
Bornyl ethanoate. See Bornyl acetate

Bornyl formate
CAS 7492-41-3; EINECS/ELINCS 231-319-5; FEMA 2161
Synonyms: Bicyclo [2.2.1] heptan-2-ol, 1,7,7-trimethyl-, formate, endo-; Borneol, formate; Bornyl methanoate

Empirical: C₁₁H₁₈O₂
Formula: C₁₀H₁₇OOCH
Properties: Colorless, oily liq.; piney odor; m.w. 182.26; dens. 1.007-1.009; b.p. 106-108 C (21 mm); ref. index 1.4689
Precaution: Combustible
Uses: Synthetic flavor for pharmaceuticals
Features: Green earthy herbal balsam odor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Bornyl isovalerate
CAS 76-50-6 (D-); 53022-14-3; 59672-05-8; EINECS/ELINCS 200-966-5 (D-); 261-849-2; FEMA 2165
Synonyms: Bornyl isovalerate; d-Bornyl isovalerate; 2-Bornyl 3-methylbutyrate; Bornyval; Isovaleric acid, 2-bornyl ester; (1R-endo)-3-Methylbutanoic acid 1,7,7-trimethylbicyclo [2.2.1] hept-2-yl ester; (1R-endo)-1,7,7-Trimethylbicyclo [2.2.1] hept-2-
Empirical: C₁₅H₂₆O₂
Formula: (CH₃)₂CHCH₂COOC₁₀H₁₇
Properties: Liq.; odor and taste of valerian and camphor; sol. in alcohol, ether; pract. insol. in water; m.w. 238.36; dens. 0.955; b.p. 255-260 C
Uses: Synthetic flavor for pharmaceuticals; medicine
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

d-Bornyl isovalerate. See Bornyl isovalerate
exo-Bornyl isovalerate. See Isobornyl isovalerate
Bornyl methanoate. See Bornyl formate
Bornyl 3-methylbutanoate. See Bornyl valerate
exo-Bornyl 3-methylbutanoate isovalerate. See Isobornyl isovalerate
2-Bornyl 3-methylbutyrate. See Bornyl isovalerate
Bornyl N-pentanoate. See Bornyl valerate

Bornyl valerate
CAS 7549-41-9; EINECS/ELINCS 231-435-6; FEMA 2164
Synonyms: Bornyl 3-methylbutanoate; Bornyl N-pentanoate; Endo-2-bornyl valerate; Bornyl valerianate; Endo-2-camphanyl valerate; Endo-pentanoic acid 1,7,7-trimethyl bicyclo(2.2.1)hept-2-yl ester; Endo-1,7,7-trimethyl bicyclo(2.2.1)hept-2-yl valerate
Empirical: C₁₅H₂₆O₂
Properties: Colorless oil; sol. in alcohol, ether; insol. in water; m.w. 238.37; dens. 0.951 (20 C); b.p. 255-260 C; ref. index 1.4605 (18 C)
Precaution: Combustible
Uses: Synthetic flavor for pharmaceuticals
Features: Woody, sawdust-like, with dry tobacco and tea nuances taste; woody oak sawdust berry seedy spice camphor odor
Regulatory: FDA 21CFR §172.515; FEMA GRAS
Manuf./Distrib.: SAFC Specialties http://www.safcspecialties.com
Endo-2-bornyl valerate; Bornyl valerianate. See Bornyl valerate

Bornyval. See Bornyl isovalerate
### Boron

**CAS:** 7440-42-8; EINECS/ELINCS 231-151-2  
**Classification:** Nonmetallic element  
**Empirical:** B

**Properties:** Blk. hard solid, brn. amorphous powd., or cryst.; sol. in conc. nitric and sulfuric acids; insol. in water, alcohol, ether; amphoteric; a.w. 10.81; dens. 2.45; m.p. 2300 C; hardness (Mohs) 9.3

**Toxicology:** LD50 (oral, rat) 650 mg/kg, (IP, mouse) 11 g/kg; poison by ing.; TSCA listed

**Precaution:** Relatively inert except as powd. or when exposed to strong oxidizers; dust ignites spontaneously in air; severe fire and explosion hazard; reacts exothermically with metals above 900 C; explodes with hydrogen iodide; many incompatibilities

**Uses:** In pharmaceuticals, antiseptics; prod. of boron compds. for cancer therapy, anti-fungal treatment, management of epilepsy and the control of anemia

**Regulatory:** Canada DSL  
**Manuf./Distrib.:**  
- Aldrich† [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)  
- Alfa Aesar† [http://www.alfa.com](http://www.alfa.com)  
- Atomergic Chemetals† [http://www.atomergic.com](http://www.atomergic.com)  
- Chemetall Chem. Prods.† [http://www.chemetall.com](http://www.chemetall.com)  
- Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)  
- Fortitech† [http://www.fortitech.com](http://www.fortitech.com)  
- Noah [http://www.noahtech.com](http://www.noahtech.com)  
- Reade Advanced Materials [http://www.reade.com](http://www.reade.com)  
- SB Boron [http://www.sbboron.com](http://www.sbboron.com)  
- Seaforth Min. & Ore [http://www.seaforthinc.com](http://www.seaforthinc.com)  
- Sigma† [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)  
- Spectrum Quality Prods.† [http://www.spectrumchemical.com](http://www.spectrumchemical.com)  
- Thomas Scientific† [http://www.thomassci.com](http://www.thomassci.com)  
- U.S. Borax [http://www.borax.com](http://www.borax.com)  
- VWR Intl.† [http://www.vwrsp.com](http://www.vwrsp.com)  
- Wilshire [http://users.aol.com/wilshrchem/chmlist2.html](http://users.aol.com/wilshrchem/chmlist2.html)

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### Boron nitride

**CAS:** 10043-11-5; EINECS/ELINCS 233-136-6  
**Classification:** Inorganic compd.

**Empirical:** BN

**Properties:** Wh. hard cryst. powd.; m.w. 24.82; dens. 2.290; m.p. 3000 C (sublimes); high elec. and heat-shock resist.; compressed, becomes hard as diamond; noncombustible

**Toxicology:** TSCA listed

**Storage:** Hygroscopic

**Uses:** IR absorbent in pharmaceutical topicals

**Regulatory:** Canada DSL  
**Manuf./Distrib.:**  
- Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)  
- Alfa Aesar [http://www.alfa.com](http://www.alfa.com)  
- Atomergic Chemetals [http://www.atomergic.com](http://www.atomergic.com)  
- Charkit [http://www.charkit.com](http://www.charkit.com)  
- Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)  
- GE Advanced Ceramics [http://www.advceramics.com](http://www.advceramics.com)  
- Noah [http://www.noahtech.com](http://www.noahtech.com)  
- Reade Advanced Materials [http://www.reade.com](http://www.reade.com)  
- Tomen America [http://www.tomenamerica.com](http://www.tomenamerica.com)

**Trade Names Containing:** Lipomic 601 BN; Liponyl 10 BN 6058; Liponyl 10 BN 6069

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### Boronia flowers

**Synonyms:** Boronia absolute; Boronia flowers; Boronia megastigma; Boronia megastigma flowers

**Definition:** Derived from Boronia megastigma

**Properties:** Dk. grn., visc. liq.; sweet woody fruity odor; 0.95-1.02 @ 25 C, 7.905-8.487 lb/gal; insol in water and propylene glycol

**Uses:** Natural flavor for pharmaceuticals

**Regulatory:** FDA 21CFR §172.510; FEMA GRAS; Canada DSL  
**Manuf./Distrib.:** Citrus and Allied Essences [http://www.citrusandallied.com](http://www.citrusandallied.com)  
- Eramex Aromatics [http://www.eramex.de](http://www.eramex.de)

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### Boron trihydroxide

**Synonyms:** Boric acid

**Uses:** Olibanum (Boswellia carterii) oil

**Regulatory:** BP  
**Manuf./Distrib.:**  
- BP [http://www.bpor.com](http://www.bpor.com)
B1. See Benzophenone-1
BPO. See Benzoyl peroxide
Bran absolute. See Wheat (Triticum vulgare) germ oil
Brassica campestris oil; Brassica oleifera. See Rapeseed (Brassica campestris) oil
Brazil wax. See Carnauba (Copernica cerifera) wax
Bread sugar. See D-Glucose monohydrate
Brevoortia; Brevoortia tyrannus oil. See Menhaden oil
Bright red. See D&C Red No. 8; D&C Red No. 9
Brilliant blue FCF. See FD&C Blue No. 1; Acid blue 9
Brilliant green phthalocyanine. See Phthalocyanine green
Brilliant lake red R. See D&C Red No. 31
Brilliant red. See D&C Red No. 9
Brimstone. See Sulfur
British gum. See Dextrin
Bromeosin. See D&C Red No. 21
Brominated salt of potassium. See Potassium bromide
Brominated vegetable oil
CAS 8016-94-2
FEMA 2168; INS443
Properties: Pale yel. to dk. brn. visc. oily liq., bland or fruity odor, bland taste; sol. in alcohol, chloroform, ether, hexane, fixed oils; insol. in water
Toxicology: Experimental reproductive effects
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of Br-
Uses: Flavor, stabilizer for pharmaceuticals
Regulatory: FDA 21CFR §180.30; FEMA GRAS delisted; Canada DSL
2-Bromo-2-(bromomethyl) glutaronitrile; 2-Bromo-2-(bromomethyl) pentanediinitrile. See Methylidibromo glutaronitrile
Bromoethene; Bromoethylene. See Vinyl bromide
Bromofluoresceic acid. See D&C Red No. 21
Bromofluoresceic acid. See D&C Red No. 22; Acid red 87
2-Bromo-2-nitro-propan-1,3-diol; Bromonitropropanediol. See 2-Bromo-2-nitropropane-1,3-diol
†=pharmaceutical grade
2-Bromo-2-nitropropane-1,3-diol
CAS 52-51-7; EINECS/ELINCS 200-143-0
UN 3241
Synonyms: BNPD; 2-Bromo-2-nitro-propan-1,3-diol; Bromonitropropanediol; 2-Bromo-2-nitro-1,3-propanediol; β-Bromo-β-nitrotrimethylene glycol; Bronopol; 1,3-Propanediol, 2-bromo-2-nitro
Classification: Substituted aliphatic diol
Empirical: C₃H₆BrNO₄
Properties: Off-wh. cryst. powd.; odorless; sol. in water, alcohol; sl. sol. in chloroform, acetone, ether; insol. in aliphatic hydrocarbons; m.w. 200.01; bulk dens. 0.72 kg/l; m.p. 130-133 C
Toxicology: LD50 (oral, rat) 180 mg/kg, (IV, rat) 26 mg/kg; poison by ing., subcut., IV, IP routes; mod. toxic by skin contact; eye and skin irritant; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of NOₓ and Br-
Uses: Antimicrobial, preservative for pharmaceuticals, topicals, suppositories, water-sol. creams and lotions
Use Level: 0.01-0.1%
Regulatory: FDA 21CFR §175.105, 176.170, 176.300; USA CIR approved to 0.1%, EPA registered; SARA reportable; Europe listed; Canada DSL
Manuf./Distrib.: ANGUS† http://www.dow.com/angus/; Aldrich† http://www.sigma-aldrich.com; Alfa Aesar http://www.alfa.com; Allchem Int'l. Ltd† http://www.allchem.co.uk; Arch Personal Care Prods.† http://www.archchemicals.com
Knoll Ltd†; Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality Prods.† http://www.spectrumchemical.com
Trade Names: Bioban® BP Pharma; Bioban®
Chemical Component Cross-Reference

Handbook of Pharmaceutical Additives, Third Edition

Sweetener in pharmaceuticals

Uses:

Trade Names:

Synonyms:

Uses:

Storage:

Properties:

Definition:

Inorganic metal consisting of powdered bronze

Properties:

Colorant for external pharmaceuticals, incl. those for eye area use

Regulatory:

FDA 21CFR §73.1646, 73.2646; exempt from certification, permanently listed for drug use


See also CI 77400; Copper

Brown acetate. See Calcium acetate

Brown rice syrup

Uses: Sweetener in pharmaceuticals

Trade Names: CNP BRSHM; CNP BRSHMCL

Brown rice syrup solids

Synonyms: BRSS

Properties: Creamy color; sl. caramel flavor note

Storage: Store in cool, dry area, below 95 F, air conditioned preferred

Uses: Sweetener in pharmaceuticals


†=pharmaceutical grade

Trade Names: CNP BRSSHM; CNP BRSHMCL

Brown SK. See Vat brown 1

BRSS. See Brown rice syrup solids

Brucite. See Magnesium hydroxide

BSA. See Bis (trimethylsilyl) acetamide

BSU. See Bis (trimethylsilyl) urea

Buchu leaf oil. See Buchu leaves oil

Buchu leaves oil

CAS 68650-46-4; 84649-93-4; EINECS/ELINCS 283-474-3

FEMA 2169

Synonyms: Barosma betulina; Barosma betulina oil; Barosma crenulata; Barosma crenulata oil; Barosma serratifolia; Barosma serratifolia oil; Buchu leaf oil

Definition: Derived from Barosma betulina, B. crenulata, or B. serratifolia

Properties:

Yel. to brnsh. yel. visc. oily liq.; strong bitter sweet mint camphor woody fruity odor, fresh bitter flavor; sol. in ethanol, fixed oils; insol. in water, propylene glycol; sp.gr. 0.890-0.951; ref. index 1.467-1.480 (20 C)

Uses: Natural flavor for pharmaceuticals

Regulatory:

FDA 21CFR §172.510; FEMA GRAS; Canada DSL


De Monchy Aromatics http://www.demonchyaromatics.com;

Eramex Aromatics http://www.eramex.de;

F.D. Copeland

http://www.copelandoil.co.uk; Fleurchem http://www.fleurchem.com; Janousek Industriale Srl http://www.janousek.com


Bucrilate. See Bucrylate

Bucrylate

CAS 1069-55-2

Synonyms: Bucrilate; Isobutyl 2-cyanoacrylate

Classification: Liquid polymer

Definition: Cyanoacrylate tissue adhesive

Empirical: C₈H₁₃NO₂

Properties: M.w. 153.18

Uses: Tissue adhesive, embolizing agent,
Chemical Component Cross-Reference

surgical aid for medical use; also used to occlude blood vessels supplying neoplastic or other diseased tissues

Manuf./Distrib.: Sigma http://www.sigma-aldrich.com/belgium

Bulgarian rose oil. See Rose oil
Burnt ammonium alum. See Ammonium alum
Burnt lime. See Calcium oxide
Burnt sugar; Burnt sugar coloring. See Caramel

1,3-Butadiene, 2-methyl-, homopolymer. See Polyisoprene

Butadione. See Diacetyl
Butal; Butaldehyde; Butylyde; Butanal; n-Butanal. See n-Butyraldehyde
Butanal, 2-ethyl-. See 2-Ethylbutyraldehyde
Butanal, 3-methyl-. See Isovaleraldehyde
Butanal, 2-methyl-. See 2-Methylbutyraldehyde
1-Butanamine. See n-Butylamine

Butane

CAS 106-97-8; EINECS/ELINCS 203-448-7
UN 1011 (DOT); INS943a; E943a

Synonyms: Alkane C4; n-Butane; Butyl hydrde; Diethyl; Liquefied petroleum gas; Methylethylmethane

Classification: Alkane; hydrocarbon

Empirical: C4H10

Formula: CH3CH2CH2CH3

Properties: Colorless gas; faint disagreeable odor; easily liquefied under pressure @ R.T.; sol. in ethanol, ether, chloroform; sl. sol. in water; m.w. 58.12; sp.gr. 0.599; vapor pressure 1620 mm Hg (17 psig, 21 C); f.p. -138 C; b.p. -0.5 C; flash pt. (CC) -60 C

Toxicology: ACGIH TLV/TWA 800 ppm; LC50 (inh., rat, 4 h) 658 g/m³; mildly toxic by inh.; causes drowsiness; anesthetic and asphyxiant props.; narcotic in high concs.; liq. may cause burns or frostbite to skin and eyes; TSCA listed

Precaution: Flamm. gas; very dangerous fire hazard exposed to heat, flame, oxidizers; highly explosive; explosive limits 1.9-8.5%; incompat. with strong oxidizing agents (increases fire/explosion risk)

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes

NFPA: Health 1, Flammability 4, Reactivity 0

Storage: Store at or above ground level in a cool, dry, well-ventilated area, out of direct sunlight; cylinder temp. should not exceed 51 C; limit quantities

†=pharmaceutical grade

Uses: Aerosol propellant in pharmaceutical topicals

Regulatory: FDA 21CFR §173.350, 184.1165, GRAS; approved for topicals; USP/NF compliance; Canada DSL


n-Butane. See Butane

Butanecarboxylic acid; 1-Butanecarboxylic acid. See n-Valeric acid

1,4-Butanedicarboxylic acid; Butane-1,4-dicarboxylic acid. See Adipic acid

Butanedioic acid; 1,4-Butenedioic acid. See Succinic acid

Butanedioic acid, bis(2-ethylhexyl) ester. See Dioctyl succinate

Butanedioic acid diethyl ester. See Diethyl succinate

Butanedioic acid, 2,3-dihydroxy-. See L-Tartaric acid

Butanedioic acid, 2,3-dihydroxy-, monopotassium salt. See Potassium acid tartrate

Butanedioic acid, 3-(2,3-dihydroxypropoxy)-2-hydroxypropyl ester, mixed esters with octanoic acid and decanoic acid. See Caprylic/capric diglyceryl succinate

Butanedioic acid, dimethyl ester. See Dimethyl succinate

Butanedioic acid disodium salt. See Sodium succinate

Butanedioic acid, esters with isooctadecanol and glycerol dimer. See Isostearyl diglyceryl succinate

Butanedioic acid, hydroxy-. See N-Hydroxy succinic acid

Butanedioic acid, hydroxy-, bis(2-ethylhexyl) ester. See Dioctyl malate

Butanedioic acid, mono [3,4-dihydro-2,5,7,8-tetramethyl-2-(4,8,12-trimethyltridecyl)-2H-1-benzopyran-6-yl] ester, polymer with oxirane (1:2). See Tocophersolan

Butanedioic acid, sulfon-, 1-[2-[(12-hydroxy-1-oxo-9-octadecenyl) amino] ethyl] ester, disodium salt; Butanedioic acid, sulfon-, 4-[2-[(12-hydroxy-1-oxo-9-octadecenyl)
Chemical Component Cross-Reference

- **Handbook of Pharmaceutical Additives, Third Edition**

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<th>Cross-Reference</th>
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<td>2(r),3(s)-1,2,3,4-Butanetetrol</td>
<td>See Butanetriol</td>
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<td>Butanic acid; Butanoic acid; n-Butanoic acid.</td>
<td>See n-Butyric acid</td>
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<td>Butanoic acid-2-butoxy-1-methyl-2-oxoethyl ester</td>
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<td>Butanoic acid, cyclohexyl ester.</td>
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<td>See Linlal butyrate</td>
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<td>Butanoic acid, 2-ethyl-.</td>
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<td>Butanoic acid, ethyl ester.</td>
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<td>Butanoic acid, 2-furanylmethyl ester.</td>
<td>See Furfuryl butyrate</td>
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<td>Butanoic acid, heptyl ester.</td>
<td>See Heptyl butyrate</td>
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<td>Butanoic acid, 2-methyl-.</td>
<td>See 2-Methylbutyric acid</td>
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<td>Butanoic acid, 3-methylbutyl ester.</td>
<td>See Isoamyl butyrate</td>
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<td>Butanoic acid methyl ester.</td>
<td>See Methyl butyrate</td>
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<td>Butanoic acid 1-methyl ethyl ester.</td>
<td>See Isopropyl butyrate</td>
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<tr>
<td>Butanoic acid, 3-methyl-, hexyl ester.</td>
<td>See Hexyl isovalerate</td>
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<td>Butanoic acid 1-methyl-2-oxopropyl ester.</td>
<td>See Butan-3-one-2-yl butyrate</td>
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<td>Butanoic acid, 2-methyl-, 2-phenylethyl ester.</td>
<td>See Phenethyl-2-methylbutyrate</td>
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<td>Butanoic acid, 3-methyl-, 3-methyl-2-propenyl ester.</td>
<td>See Cinnamyl isovalerate</td>
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<td>Butanoic acid, 3-methyl-, 1,7,7-trimethylbicyclo [2.2.1] hept-2-yl ester, ex-.</td>
<td>See Isobornyl isovalerate</td>
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<td>Butanoic acid octyl ester.</td>
<td>See Octyl butyrate</td>
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<td>Butanoic acid pentyl ester.</td>
<td>See Amyl butyrate</td>
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<td>Butanoic acid 1-phenyl propyl ester.</td>
<td>See α-Ethylbenzyl butyrate</td>
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<td>Butanoic acid 1,2,3-propanetriyl ester.</td>
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<td>Butanoic acid propyl ester.</td>
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<tr>
<td>Butanoic acid (tetrahydro-2-furanyl) methyl ester.</td>
<td>See Tetrahydrofuranyl butyrate</td>
</tr>
</tbody>
</table>

†=pharmaceutical grade
**Chemical Component Cross-Reference**

**Butanol; 1-Butanol; Butan-1-ol. See Butyl alcohol**

**2-Butanol**

CAS 78-92-2; EINECS/ELINCS 201-158-5
UN 1120 (DOT)

**Synonyms:** Butan-2-ol; s-Butanol; 2-Butyl alcohol; s-Butyl alcohol; Butylene hydrate; Ethylmethyl carbinol; 2-Hydroxybutane; Methyl ethyl carbinol; 1-Methyl propanol; SBA; Secondary butyl alcohol

**Classification:** Sec. aliphatic alcohol

**Empirical:** C₄H₁₀O

**Formula:** CH₃CH₂CH(OH)CH₃

**Properties:** Colorless liq.; strong pleasant sweet odor; sol. in water, ethanol, ether, acetone, benzene; m.w. 74.12; sp.gr. 0.807 (20/4 C); vapor pressure 18.3 mm Hg; m.p. -89C; b.p. 99-100 C; flash pt. 23 C; autoignition temp. 405 C; ref. index 1.3972 (20 C); surf. tens. 23.37 dynes/cm; dielec. const. 16.56

**Toxicology:** ACGIH TLV/TWA 100 ppm; LD₅₀ (oral, rat) 6480 mg/kg, (IP, rabbit) 277 mg/kg; poison by IV and IP routes; mildly toxic by ing.; skin and eye irritant; excessive inh. may cause nose/throat irritation, headache, nausea, fatigue, dizziness; unconsciousness, coma in extreme cases; if aspirated into lungs, may cause severe lung damage, respiratory and cardiac arrest, possibly death; TSCA listed

**Environmental:** VOC; BOD₅ 1.76; COD 2.49; ThOD 2.59

**Precaution:** Flamm.; incompat. with alkali metals (increases fire/explosion risk, forms flamm. hydrogen gas), acids, acid chlorides, acid anhydrides (vigorouse reactions), chlorine, isocyanates, ethylene oxide

**Hazardous Decomp. Prods.:** Unstable peroxides may form after prolonged storage

**NFPA:** Health 1, Flammability 3, Reactivity 0

**Storage:** Store in cool, well-ventilated area out of direct sunlight

**Uses:** Solvent in pharmaceuticals

**Regulatory:** FDA 21CFR §172.515, 176.180; SARA §313 reportable; Canada DSL


†=pharmaceutical grade

**Butan-2-ol. See 2-Butanol**

**n-Butanol. See Butyl alcohol**

**s-Butanol. See 2-Butanol**

**t-Butanol. See t-Butyl alcohol**

Butan-2-amine; 1-Butanol-2-amino- See 2-Aminobutanol

1,2-Butanolid; 1,4-Butanolid. See Butyrolactone

1-Butanol, 3-methoxy-. See 3-Methoxybutanol

1-Butanol, 2-methyl-, acetate. See 2-Methylbutyl acetate

2,3-Butanone; 2-Butan-3-one. See Acetyl methyl carbinol

Butanone; 2-Butanone; 3-Butanone. See Methyl ethyl ketone

Butan-3-one-2-butyrate. See Butan-3-one-2-yl butyrate

2-Butanone, 1-(p-chlorophenoxy)-3,3-dimethyl-1-(1-imidazolyl)-; 2-Butanone, 1-(4-chlorophenoxy)-1-(1H-imidazol-1-yl)-3,3-dimethyl-. See Climbazole

2-Butanone, 4-(4-hydroxy-3-methoxyphenyl)-. See Zingerone

2-Butanone, 4-(4-hydroxyphenyl) -. See 4-(Hydroxyphenyl)-2-butanone

2-Butanone, 4-(p-methoxyphenyl) -. See 4-p-Methoxyphenyl-2-butanone

2-Butanone, 4-phenyl-. See Benzylacetone

2-Butanone, 4-(2,6,6-trimethyl-1-cyclohexen-1-yl) -. See Dihydro-β-ionone

**Butan-3-one-2-yl butyrate**

CAS 84642-61-5; EINECS/ELINCS 283-438-7
FEMA 3332

**Synonyms:** Acetoxy butyrate; Butanoic acid 1-methyl-2-oxypropyl ester; Butan-3-one-2-butyrate; sec-Butan-3-onyl butyrate; 1-Methyl-2-oxypropyl butyrate; 3-Oxobutan-2-yl butyrate

**Empirical:** C₈H₁₄O₃

**Formula:** CH₃CH₂CH₂CO₂CH(CH₃)COCH₃

**Properties:** Wh. to sl. yel. liq., red berry odor; sol. in alcohol, propylene glycol, most oils; insol. in water; m.w. 158.19; dens. 0.972-0.992; flash
### Chemical Component Cross-Reference

<table>
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<th>Chemical Component Cross-Reference</th>
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<td>Handbook of Pharmaceutical Additives, Third Edition</td>
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**pt. 179 F; ref. index 1.408-1.429**

**Toxicology:** May be **harmful by inh., ing., skin absorp.**; may cause irritation

**Precaution:** **Combustible liq.**; **incompat. with strong oxidizing agents, strong bases**

**Hazardous Decomp. Prods.:** Toxic fumes of CO, CO₂; **heated to decomp., emits acrid smoke and irritating fumes; emits toxic fumes under fire conditions**

**Storage:** Store in cool, dry place; keep tightly closed; keep away from heat and open flame

**Uses:** **Synthetic flavor for pharmaceuticals**

**Features:** Creamy mouthfeel with creamy and custard-like notes taste

**Regulatory:** FDA GRAS; FEMA GRAS; Canada DSL

**Manuf./Distrib.:** Advanced BioTech
- [http://www.adv-bio.com](http://www.adv-bio.com)
- Penta Mfg.
- [http://www.pentamfg.com](http://www.pentamfg.com)
- SAFC Specialties
- [http://www.saftspecialties.com](http://www.saftspecialties.com)

**sec-Butan-3-on butyrate.** See Butan-3-one-2-yl butyrate

**Butanoyl benzene.** See Butyrophenone

**Butcherbroom extract.** See Butcherbroom (Ruscus aculeatus) extract

**Butcherbroom (Ruscus aculeatus) extractCAS 84012-38-4; EINECS/ELINCS 281-682-9**

**Synonyms:** Butcherbroom extract; Rusco extract; Ruscus aculeatus extract

**Definition:** Extract of the rhizomes of Ruscus aculeatus

**Uses:** Anti-inflammatory in sun care and eye care prods.

**Manuf./Distrib.:** Carrubba
- [http://www.carrubba.com](http://www.carrubba.com)

**But-1-ene compd. with but-2-ene.** See Hydrogenated polybutene

**2-Butenedioic acid.** See Fumaric acid

**cis-Butenedioic acid.** See Maleic acid

**(E)-Butenedioic acid; trans-Butenedioic acid.** See Fumaric acid

**(Z)-Butenedioic acid.** See Maleic acid

**But-2-enedioic acid diallyl ester.** See Diallyl maleate

**(Z)-2-Butenedioic acid diethyl ester.** See Diethyl maleate

**2-Butenedioic acid, (Z)-, dioctyl ester.** See Dioctyl maleate

**2-Butenedioic acid ferrous salt.** See Ferrous fumarate

**2-Butenedioic acid (2Z)-, polymer with methoxyethene.** See Methyl vinyl

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†=pharmaceutical grade

- 2-Butenedioic acid, polymer with methoxyethene, butyl ester. See PVM/MA copolymer, butyl ester
- 2-Butenedioic acid (Z)-, polymer with methoxyethene, calcium, sodium salt. See Calcium/sodium PVM/MA copolymer
- 2-Butenedioic acid, polymer with methoxyethene, monobutyl ester. See PVM/MA copolymer, butyl ester
- cis-Butenedioic anhydride. See Maleic anhydride

**Butene, homopolymer; 1-Butene, homopolymer; Butene polymer; Butene, polymers.** See Polybutene

- 2-Butenoic acid; α-Butenoic acid. See Crotonic acid
- 2-Butenoic acid, ethyl ester; trans-2-Butenoic acid ethyl ester. See Ethyl crotonate
- 2-Butenoic acid, hexyl ester. See Hexyl 2-butenoate
- 2-Butenoic acid, 2-methyl-, ethyl ester, (E)-. See Ethyl tiglate
- 2-Butenoic acid, 2-methyl-, 1-isopropyl ester, (E)-. See Isopropyl tiglate
- 2-Butenoic acid, 2-methylpropyl ester. See Isobutyl-2-butenoate
- 2-Butenoic acid, polymer with ethenyl acetate. See Vinyl acetate/crotonic acid copolymer
- 3-Buten-2-one, 3-methyl-4-phenyl-. See 3-Methyl-4-phenyl-3-but-2-one
- 3-Buten-2-one, 3-methyl-4-(2,6,6-trimethyl-2-cyclohexen-1-yl)-. See α-Isomethylionone
- 3-Buten-2-one, 4-(2,4,6,6-tetramethyl-2-cyclohexen-1-yl)-. See α-Irone
- (2-Butenylidene) acetic acid. See Sorbic acid
- Butolether. See 3-Methoxybutanol
- 2-Butoxyethyl ether. See Diethylene glycol dibutyl ether

**Butter acids**

- CAS 85536-25-0; 91745-88-9
- FEMA 2171
- Empirical: C₈H₁₄O₃
- Properties: Waxy solid; sol. in oils; low melting, variable; m.w. 158.20
- Uses: Synthetic flavor for pharmaceuticals
- Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
- Manuf./Distrib.: Advanced BioTech
- [http://www.adv-bio.com](http://www.adv-bio.com); Advanced Synthesis Tech.
- [http://www.advancedsynthesis.com](http://www.advancedsynthesis.com); Bell

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Butter of antimony. See Antimony trichloride
Butter of arsenic. See Arsenic trichloride

Butter esters
CAS 977019-26-3; 97926-23-3
FEMA 2172
Properties: Waxy solid; fruity, fatty, oily, waxy odor and flavor; sol. in alcohol; insol. in water
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS
Manuf./Distrib.: Advanced BioTech
http://www.adv-bio.com; Advanced Synthesis Tech.
http://www.advancedsynthesis.com; Bell Flavors & Fragrances
http://www.bellff.com; Penta Mfg.
http://www.pentamfg.com

Butter of zinc. See Zinc chloride
Button lac. See Shellac
Butyl acetate (INCI); 1-Butyl acetate. See n-Butyl acetate

n-Butyl acetate
CAS 123-86-4; EINECS/ELINCS 204-658-1
UN 1123 (DOT); FEMA 2174
Synonyms: Acetic acid, butyl ester; Acetic acid n-butyl ester; Butyl acetate (INCI); 1-Butyl acetate; Butyl ethanoate
Classification: Carboxylic acid ester
Definition: Ester of butyl alcohol and acetic acid
Empirical: C6H12O2
Formula: CH3COOC4H9
Properties: Colorless liq., fruity odor; sol. in alcohol, ether, benzene, hydrocarbons; sl. sol. in water; m.w. 116.18; sp.gr. 0.8826 (20/20 C); vapor pressure 15 mm Hg; f.p. -75 C; b.p. 126.3 C; flash pt. (TOC) 36.6 C; ref. index 1.2951 (20 C)
Toxicology: ACGIH TLV/TWA 150 ppm; STEL 200 ppm; LD50 (oral, rat) 14.13 g/kg, (IP, mouse) 1230 mg/kg; mildly toxic by inh., ing.; mod. toxic by IP route; skin irritant; severe eye irritant; mild allergen; inh. or ing. can cause CNS depression, headache, nausea, unconsciousness; experimental teratogen; TSCA listed
Environmental: VOC; BOD5 0.52; COD 2.32; ThOD 2.21
Precaution: Flamm.; dangerous fire hazard

†=pharmaceutical grade
exposed to flame; mod. explosive when exposed to flame; incompat. with strong oxidizers (increases fire risk), strong acids or strong bases (decomp. can occur), potassium t-butyate (ignition can occur)
Hazardous Decomp. Prods.: Heated to decomp., emits acrid and irritating fumes
NFPA: Health 1, Flammability 3, Reactivity 0
Storage: Store in cool, dry, well-ventilated area, out of direct sunlight; ground drums and bond transfer containers
Uses: Solvent, synthetic flavor in pharmaceuticals; defoamer in acute pulmonary edema extractants
Regulatory: FDA 21CFR §172.515, 175.105, 175.320, 177.1200; FEMA GRAS; CERCLA hazardous substance; Japan approved as flavoring; Canada DSL
Manuf./Distrib.: AAE Chemie NV†
http://www.aaechemie.com; AMC Chems.†; AP Resources http://www.apr.co.kr;
Advanced BioTech http://www.adv-bio.com; Allchem Ind.
http://www.allchem.com
Ashland http://www.ashchem.com;
Axxence Aromatic GmbH http://www.axxence.com;
http://www.axxence.de
Baychem;
Brenntag AG† http://www.brenntag.de
Celaneese http://www.celaneeschemicals.com;
http://www.chemvip.com; Chemcentral http://www.chemcentral.com; Chisso Am.;
Clariant† http://www.clariant.com;
Clariant/Functional Chems.† http://www.fun.clariant.com;
http://www.clariant-northamerica.com;
Coyne http://www.coynechemical.com
Degussa AG http://www.degussa.com;
Dow† http://www.dow.com; Eastman† http://www.eastman.com; Fleurchem http://www.fleurchem.com; Fluka
http://www.sigma-aldrich.com
Fleurchem;
http://www.eastman.com
Fluka
http://www.sigma-aldrich.com
Gallard-Schlesinger Ind.† http://www.gallard-schlesinger.com
Houghton
Chemical Component Cross-Reference

Butylacetic acid. See Caproic acid

Butyl acetooacetate
CAS 591-60-6; EINECS/ELINCS 209-722-2
FEMA 2176
Synonyms: Acetoacetic acid, butyl ester; Butyl-β-ketobutyrate; Butyl-3-oxobutanooate; 3-Oxo-butanolic acid butyl ester
Empirical: C₉H₁₄O₃
Formula: CH₃COCH₂COOCH₂CH₂CH₂CH₃
Properties: Colorless liq.; sol. in alcohol, ether; insol. in water; m.w. 158.20; dens. 0.9694 (20/20 C); vapor pressure 5.5 mm Hg (20 C); b.p. 117.7 C; m.p. -90 C; flash pt. 85 C; ref. index 1.4245
Toxicology: LD₅₀ (oral, rat) 11,260 mg/kg; primary irritant; mildly toxic by ing.; eye irritant; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decom., emits acrid and irritating fumes
NFPA: Health 1, Flammability 3, Reactivity 0
Uses: Synthetic flavor for pharmaceuticals; pharmaceutical intermediate
Regulatory: FDA 21 CFR §172.515; FEMA GRAS; Canada DSL

†=pharmaceutical grade

Wacker-Chemie AG http://www.wacker.de
Butylacetone. See Methyl n-amyl ketone
Butyl adipate. See Dibutyl adipate

Butyl alcohol
CAS 71-36-3; EINECS/ELINCS 200-751-6
UN 1120 (DOT); FEMA 2178
Synonyms: Butanol; 1-Butanol; Butan-1-ol; n-Butanol; n-Butyl alcohol; Butyl hydroxide; Butyric alcohol; 1-Hydroxybutane; Methylolpropene; Propyl carbinol; Propylmethanol
Classification: Primary aliphatic alcohol
Empirical: C₄H₁₀O
Formula: CH₃(CH₂)₂CH₂OH
Properties: Colorless clear mobile liq., char. penetrating vinous odor; sol. in water; misc. with alcohol, ether, many org. solvs.; m.w. 74.14; sp.gr. 0.8109 (20/20 C); vapor pressure 5.5 mm Hg (20 C); m.p. -90 C; b.p. 117.7 C; flash pt. 35 C; ref. index 1.3993 (20 C)
Toxicology: ACGIH TLV/CL 50 ppm (skin); LD₅₀ (oral, rat) 790 mg/kg, (IV, mouse) 377 mg/kg, (skin, rabbit) 3400 mg/kg; poison by IV route; mod. toxic by skin contact, ing., subcut., IP routes; skin and severe eye irritant; CNS depressant; TSCA listed
Environmental: BOD₅ 1.66; COD 2.46; ThOD 2.59
Precaution: Flamm.; dangerous fire hazard exposed to heat, flame, oxidizers; mod. explosive exposed to flame; incompat. with oxidizing materials, aluminum, chromium trioxides; increased fire and explosion hazard; reacts at elevated temps. with Al
Hazardous Decomp. Prods.: Heated to decom., emits acrid smoke and fumes
NFPA: Health 1, Flammability 3, Reactivity 0
Storage: Store in cool, well-ventilated area, out of direct sunlight
Uses: Solvent in pharmaceuticals, orals; synthetic flavor for pharmaceuticals
Regulatory: FDA 21 CFR §73.1, 172.515, 172.560, 175.105, 175.320, 176.180, 176.200, 176.210, 177.1200, 177.1440, 177.1650, 177.2800, 27CFR §21.99; FEMA GRAS; FDA approved for orals; USP/NF compliance; Canada DSL; SARA §313 reportable; CERCLA hazardous substance; VOC
Chemical Component Cross-Reference

http://www.amyl.com
Ashland† http://www.ashchem.com;
Baychem; Brenntag AG† http://www.brenntag.de; Brenntag Southeast; Cargill Flavors & Fruit Systems USA http://www.flavors-fruit-systems.com;
J.C. Wilson http://www.integrachem.com;
Mercantile http://www.punda.com; Penta Mfg† http://www.punda.com;
R.E. Carroll http://www.recarroll.com;
http://www.shell-lubricants.com; Sigma http://www.sigma-aldrich.com/belgium;
Celanese http://www.celanesechemicals.com;
http://www.chemvip.com; ChemTech Specialties† http://www.chemtechspecialties.com;
Fluka http://www.sigma-aldrich.com
Mallinckrodt Baker† http://www.mallbaker.com
R.E. Carroll http://www.recarroll.com;
http://www.shell-lubricants.com; Sigma http://www.sigma-aldrich.com/belgium;
†=pharmaceutical grade

Spectrum Quality Prods.,† http://www.spectrumqualityprods.com
Synasia† http://www.synasia.com; VWR Int′l.† http://www.vwrsp.com
Trade Names: Nacol® 4-99

2-Butyl alcohol. See 2-Butanol
n-Butyl alcohol. See Butyl alcohol
s-Butyl alcohol. See 2-Butanol
t-Butyl alcohol
CAS 75-65-0; EINECS/ELINCS 200-889-7
UN 1120 (DOT)

Synonyms: t-Butanol; t-Butyl hydroxide; Dimethylethanol; 1,1-Dimethylethanol; Methyl-2-propanol; 2-Methyl-2-propanol; 2-Methylpropan-2-ol; 2-Propanol, 2-methyl-; TBA; Trimethyl carbinol; Trimethyl methanol
Classification: Tertiary aliphatic alcohol
Empirical: C₄H₁₀O
Formula: (CH₃)₂COH
Properties: Colorless liq. or rhombic prisms; unpleasant camphor-like odor; sol. in ethanol, ether, water; m.w. 74.12; sp.gr. 0.786 (20 C); vapor pressure 40 mm Hg (24.5 C); m.p. 25-26 C; b.p. 83 C; flash pt. (CC) 11 C; autoignition temp. 343 C; ref. index 1.3870 (20 C)

Toxicology: ACGIH TLV/TWA 100 ppm; STEL 150 ppm; LD50 (oral, rat) 3500 mg/kg; toxic; irritant to mucous membranes; inh. of 25 ppm causes pulmonary problems in man; CNS depressant; inh. of high concs. can cause headache, drowsiness, unconsciousness; ing. can cause headache, dizziness, drowsiness; may cause severe lung damage, respiratory/cardiac arrest, and death if aspirated into lungs; skin contact can cause contact dermatitis, possible allergic reactions; eye irritant; mutagenic data; TSCA listed

Precaution: Flamm.; dangerous fire hazard exposed to heat, flame; mod. explosive as vapor; incompat. with strong oxidizers, potassium-sodium alloy, hydrogen peroxide and sulfuric acid (fire/explosion risk), strong min. acids (can dec. to flamm. isobutylene gas)

NFPA: Health 1, Flammability 3, Reactivity 0

Storage: Store in cool, dry, well-ventilated area, out of direct sunlight

Uses: Solvent, coupling agent, processing aid, denaturant for pharmaceuticals

Regulatory: FDA 21CFR §176.200, 178.3910, 27CFR §21.100; Canada DSL
Chemical Component Cross-Reference

Manuf./Distrib.: AMC Chems.;† Aldrich†
  http://www.sigma-aldrich.com; Alfa Aesar†
  http://www.alfa.com; Allchem Ind.
  http://www.allchem.com; Ashland†
  http://www.ashchem.com
Augustus Oils Ltd  http://www.augustus-oils.ltd.uk; Bencorp Int'l.; Columbia Sales
Int'l.; Degussa† http://www.degussa.com;
Filo  http://www.filochromechemical.com
Fluka  http://www.sigma-aldrich.com; Honeywill & Stein†
  http://www.honeywill.co.uk; Integra†
  http://www.integrachem.com; J.H. Calo
  http://www.jhcalo.com; Lyondell†
  http://www.lyondell.com
Mallinckrodt Baker†
  http://www.mallbaker.com; Mitsui & Co.
USA  http://www.mitsui.com; Pechiney
  http://www.pentamfg.com; Quaker City
Romil Ltd  http://www.romil.com; Sigma
  http://www.sigma-aldrich.com/belgium;
Spectrum Quality Prods.
  http://www.spectrumchemical.com; VWR
Int'l.†  http://www.vwrsp.com
Trade Names: Teb® 99
n-Butyraldehyde. See n-Butyraldehyde
Butyramine. See n-Butylamine
n-Butylamine
CAS  109-73-9; EINECS/ELINCS  203-699-2
UN 1125 (DOT); FEMA  3130
Synonyms: Amine C4; 1-Aminobutane; 1-Butanamine; Butylamine; MNBA; Monobutylamine; Mono-n-butylamine
Classification: Saturated aliphatic amine
Empirical: C₄H₁₁N
Formula: CH₃(CH₂)₃NH₂
Properties: Colorless liq., amine odor; very sol. in acetone; sol. in benzene, ethanol, ether, water; misc. with oxygenated solvs.; m.w. 73.14; dens. 0.7327; m.p. -50 C; b.p. 78 C; flash pt. (OC) -1.1 C; ref. index 1.4010
Toxicology: ACGIH TLV/CL 5 ppm; LD₅₀ (oral, rat) 366 mg/kg, (IP, mouse) 629 mg/kg, (IV, mouse) 198 mg/kg, (skin, rabbit) 850 mg/kg; poison by ing., skin contact, IV routes; mod. toxic by inh., IP routes; potent irritant to eyes, mucous membranes; direct skin contact causes severe primary irritation and blistering; experimental tumorigen; mutagenic data; TSCA listed
Environmental: VOC; BOD₅ 2.24; ThOD 2.63
†=pharmaceutical grade
Precaution: DOT: Flamm. liq.; dangerous fire hazard exposed to heat, flame, or oxidizers; explodes on contact with perchloryl fluoride
Hazardous Decomp. Prods.: CO, CO₂; heated to decomp., emits toxic fumes of NOₓ
NFPA: Health 3, Flammability 3, Reactivity 0
Storage: Refrigerate; may be heat- and air-sensitive
Uses: Flavor for pharmaceuticals; pharmaceutical intermediate
Regulatory: FEMA GRAS; CERCLA hazardous substance; Canada DSL
Manuf./Distrib.: Air Prods.
  http://www.airproducts.com; Alfa Aesar
  http://www.alfa.com; Arkema
  http://www.total.com; Ashland
  http://www.ashchem.com; BASF
  http://www.basf.com
Celanese
  http://www.celanesechemicals.com;
  http://www.chemvip.com; Daicel Chem.
Ind.†  http://www.daicel.co.jp; Fluka
  http://www.sigma-aldrich.com; Honeywell
Spec. Chems.
  http://www.honeywell.com/sites/sm/index.jsp;
P; Mallinckrodt Baker†
  http://www.mallbaker.com
SAFC Specialties
  http://www.safcspecialties.com; Sigma
  http://www.sigma-aldrich.com/belgium;
Spectrum Quality Prods.†
  http://www.spectrumchemical.com; VWR
Int'l.†  http://www.vwrsp.com
t-Butylamine
CAS  75-64-9; EINECS/ELINCS  200-888-1
UN 1125 (DOT); 1993
Synonyms: 2-Aminoisobutane; 2-Amino-2-methylpropane; Dimethylethylamine; 1,1-Dimethylethylamine; 2-Methyl-2-aminopropane; 2-Methyl-2-propanamine; Trimethylaminomethane; Trimethylcarbinylamine
Classification: Sat. aliphatic amine
Empirical: C₄H₁₁N
Formula: (CH₃)₃CNH₂
Properties: Colorless clear liq.; ammonia-like odor; sol. in water, many org. solvs. incl. ethanol, methanol, diethyl ether, dimethyl sulfoxide; m.w. 73.14; dens. 0.700 (15 C); f.p. -72 C; b.p. 44-46 C; flash pt. ≈ 10 C; ref. index 1.3794 (18 C)
Toxicology: LD₅₀ (oral, rat) 78 mg/kg; highly

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Chemical Component Cross-Reference

toxic; poison by ing.; can cause burning of mouth, throat, and digestive tract, and CNS effects; inh. can cause nose/throat/lung irritation, coughing, chest pain, difficulty breathing; high concs. can cause potentially fatal pulmonary edema; skin and severe eye irritant; severe exposure can cause serious skin burns, eye burns, permanent eye injury; may cause 'halo vision'; TSCA listed

Precaution: Flamm.; dangerous fire risk; corrosive; very exothermic reaction with 2,2-dibromo-1,3-dimethylcyclopropanoic acid

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx, CO2, CO

NFPA: Health 2, Flammability 4, Reactivity 0

Storage: Handle and store under nitrogen

Uses: Pharmaceutical intermediate

Regulatory: Canada DSL


Butyl-2-aminobenzoate; Butyl-o-aminobenzoate. See Butyl anthranilate

Butyl anthranilate

CAS 7756-96-9; EINECS/ELINCS 231-816-7

FEMA 2181

Synonyms: 2-Aminobenzoic acid, butyl ester; Benzoic acid, 2-aminobenzoate; Butyl-2-aminobenzoate; Butyl-o-aminobenzoate; n-Butyl anthranilate

Empirical: C11H15NO2

Properties: Lt. yel. to dk. brn. liq.; pleasant grape odor, wh. flower note; sol. in alcohol, DMSO; insol. in water; m.w. 193.25; sp.gr. 1.060 (15.5 C); m.p. < 0 C; b.p. 182 C; flash pt. 110 C; ref. index 1.5420 (20 C)

Toxicology: LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; irritating to eyes, skin, respiratory system; TSCA listed

Environmental: Prevent contamination of soil, ground- and surf.-water

Precaution: Probably combustible; incompat. with strong oxidizing agents; will hydrolyze under high and low pH conditions

Hazardous Decomp. Prods.: CO, CO2, NOx

NFPA: Health 1, Flammability 1, Reactivity 0

Storage: Sensitive to air and light; store in cool, well-ventilated area in tightly closed container under an inert atmosphere; refrigerate

Uses: Synthetic flavor for pharmaceuticals

Features: Sweet plum-like flavor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL


n-Butyl anthranilate. See Butyl anthranilate

Butylated hydroxyanisole. See BHA

Butylated hydroxytoluene. See BHT

Butyl benzene acetate. See Butyl phenylacetate

Butyl benzyl ether; n-Butyl benzyl ether. See Benzylic butyl ether

n-Butyl n-butoanoate. See Butyl butyrate

Butyl O-butanoyl lactate. See Butyl butyryl lactate

Butyl butyrate

CAS 109-21-7; EINECS/ELINCS 203-656-8

UN 3272; FEMA 2186

Synonyms: n-Butyl n-butoanoate; n-Butyl butyrate; n-Butyl n-butyrate; Butyric acid, butyl ester

Classification: Ester

Empirical: C8H16O2

Formula: CH3CH2CH2COO(CH2)3CH3

Properties: Colorless liq., pineapple odor; misc. with alcohol, ether, veg. oils; sl. sol. in propylene glycol, water; m.w. 144.24; dens. 0.67-0.871; vapor pressure 1.81 mm Hg; vapor dens. 4.9; b.p. 166 C; flash pt. 53 C; ref. index 1.405

Toxicology: LD50 (oral, rabbit) 9520 mg/kg, (IP, rat) 2300 mg/kg; mod. toxic by IP; mildly toxic by ing.; mod. irritating to eyes, skin, mucous membranes; narcotic in high concs.; TSCA listed

Environmental: VOC; ThOD 2.44

Precaution: Combustible liq.; incompat. with oxidizers
### n-Buty1 butyrate; n-Buty1 n-butyrate

**See**

- Buty1 butyrate
- Buty1 butyrolactate. See Buty1 butyryl lactate
- Buty1 γ-butyrolactone. See Buty1 levulinate
- γ-n-Buty1-γ-butyrolactone. See γ-Octalactone
- Buty1 butyrolactate. See Buty1 butyryl lactate

**Buty1 butyryl lactate**

CAS 7492-70-8; EINECS/ELINCS 231-326-3

**FEMA 2190**

**Synonyms:**
- Butanoic acid-2-butoxy-1-methyl-2-oxoethyl ester; Buty1 O-butanoyl lactate
- Buty1 butyrolactate; Buty1 butyrolactate; n-Buty1 n-butyryl lactate; Butyric acid ester with buty1 lactate; Butyrylactic acid buty1 ester; Lactic acid, buty1 ester, butyrate

**Classification:** lactate ester

**Empirical:** C11H20O4

### Handbook of Pharmaceutical Additives, Third Edition

### Chemical Component Cross-Reference

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**NFPA:** Health 2, Flammability 2, Reactivity 0

**Storage:** 6 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Apple, banana, berry, peach, pear-like flavor

**Regulatory:**
- FDA 21CFR §172.515; FEMA GRAS; Japan approved as flavoring; Canada DSL; Australia AICS
- TSCA listed
- DSM; Australia AICS
- GRAS; Japan approved as flavoring; Canada DSL
- AICS
- GRAS; Canada DSL
- GRAS; Japan approved as flavoring; Canada DSL
- TSCA listed
- USA†
- SAFC Specialties
- Fluka http://www.sigma-aldrich.com; Grau Aromatics http://www.grau-aromatics.de;
- Hercules http://www.herc.com; Indofine†
- Lluch Essence http://www.lluch-essence.com; Moore Ingreds.
- SAFC Specialties http://www.safcspecialties.com; Symrise USA† http://www.symrise.com; Xinchem† http://www.finechemnet.com

**Precaution:**
- Combustible liq.; wear protective gloves, splash-proof eye goggles

**Hazardous Decomp. Prods.:** Heated to decomp., emits COx, acrid smoke and irritating fumes

**HMIS:** Health 1, Flammability 2, Reactivity 0

**Storage:** Keep in original, tightly closed container; keep away from heat, sparks, open flame

**Uses:** Synthetic flavor for pharmaceuticals

**Regulatory:**
- FDA 21CFR §172.515; FEMA GRAS; Canada DSL
- TSCA listed
- USA†
- SAFC Specialties
- Fluka http://www.sigma-aldrich.com; Grau Aromatics http://www.grau-aromatics.de;
- Hercules http://www.herc.com; Indofine†
- Lluch Essence http://www.lluch-essence.com; Moore Ingreds.
- SAFC Specialties http://www.safcspecialties.com

### n-Buty1 n-butyryl lactate

**See** Buty1 butyryl lactate

**Buty1 caproate; Buty1 capronate.** See Buty1 hexanoate
dl-s-Butylcarbinol. See 2-Methyl-1-butanol
n-Butyl carbinol. See n-Amyl alcohol
s-Butyl carbinol. See 2-Methyl-1-butanol

**α-Butylcinnamaldehyde**

CAS 7492-44-6; EINECS/ELINCS 231-320-0

**FEMA 2191**

**Synonyms:** 2-Benzylidene hexanal; Butyl cinnamic aldehyde; α-Butyl cinnamic aldehyde; α-Butyl-β-phenylacrolein; 2-
Chemical Component Cross-Reference

(Phenylmethylene) hexanal
Empirical: C\textsubscript{13}H\textsubscript{16}O
Formula: C\textsubscript{6}H\textsubscript{5}CH=C(C\textsubscript{4}H\textsubscript{9})CHO
Properties: Pale yel. liq., lily-like odor; m.w. 188.27; sp.gr. 0.825 (15.5 C); b.p. 265 C; flash pt. > 200 F; ref. index 1.563-1.569
Toxicology: LD\textsubscript{50} (oral, rat) 4400 mg/kg; mildly toxic by ing.; severe skin irritant
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
HMIS: Health 1, Flammability 1, Reactivity 0
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Buty l cinnamate
CAS 538-65-8; EINECS/ELINCS 208-699-6
FEMA 2192
Synonyms: n-Butyl cinnamate; Butyl \(\beta\)-phenyl acrylate; n-Butyl phenylacrylate; Butyl 3-phenyl propenoate; Butyl 3-phenyl-2-propenoate; Cinnamic acid-n-butyl ester
Empirical: C\textsubscript{13}H\textsubscript{16}O\textsubscript{2}
Properties: Colorless, mobile liq., cocoa-like odor; sol. in 95% alcohol, chloroform, benzene, ether; insol. in water; m.w. 204.27; sp.gr. 1.007-1.013; vapor dens. 7; b.p. 279-280 C (@ 1013 mBar); flash pt. (CC) > 99 C; ref. index 1.541-1.546
Toxicology: LD\textsubscript{50} (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; skin, eye irritant
Precaution: Incompat. with strong oxidizers, acids
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Storage: Keep away from heat, sparks, open flame; keep in original, tightly closed container
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

n-Butyl cinnamate. See Butyl cinnamate
Butyl cinnamic aldehyde. See \(\alpha\)-Butylcinnamaldehyde
Butyl citrate. See Tributyl citrate
2-Butyl-1-decanol
CAS 21078-81-9
Uses: Ingred. in pharmaceuticals
Trade Names Containing: Jarcol™ I-14T

Butyl 2-decanoate
CAS 7492-45-7
FEMA 2194
Synonyms: n-Butyl decylenate; 2-Decenoic acid butyl ester
Empirical: C\textsubscript{14}H\textsubscript{26}O\textsubscript{2}
Properties: Colorless liq., peach/apricot odor, fruity green taste; sol. in alcohol; insol. in water; m.w. 226.36
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

n-Butyl decylenate. See Butyl 2-decanoate
Butyl diglyme. See Diethylene glycol dibutyl ether
5-Butyl-dihydro-furan-2-one. See \(\gamma\)-Octalactone
Butyl dodecanoate; Butyl dodecylate. See Butyl laurate
Butylene glycol
CAS 107-88-0; EINECS/ELINCS 203-529-7
Synonyms: 1,3-Butanediol; Butane-1,3-diol; 1,3-Butylene glycol; \(\beta\)-Butylene glycol; 1,3-Dihydroxybutane; Methyltrimethylene glycol
Classification: Aliphatic diol; polyhydric alcohol
Empirical: C\textsubscript{4}H\textsubscript{10}O\textsubscript{2}
Formula: HOCH\textsubscript{2}CH\textsubscript{2}CHOHCH\textsubscript{3}
Properties: Pract. colorless visc. liq., sweet flavor with bitter aftertaste; sol. in water, alcohol, oxygenated solvs.; m.w. 90.12; dens. 1.004-1.006 (20/20 C); vapor pressure 0.06 mm Hg (20 C); f.p. < -50 C; b.p. 207.5 C; flash pt. 121 C; ref. index 1.4401 (20 C)
Toxicology: LD\textsubscript{50} (oral, rat) 23 g/kg, (subcut., rat) 20 g/kg, (IP, mouse) 10,276 mg/kg, (skin, rabbit) > 20 g/kg; mildly toxic by ing. and subcut. routes; primary eye irritant; temp. nervous system stimulation, depression; may cause gastric upset,
Chemical Component Cross-Reference

1,3-Butylene glycol; β-Butylene glycol.  See Butylene glycol

Butylene glycol dicaprylate/dicaprate
Synonyms: 1,2-Butanediol, diesters with octanoic and decanoic acids
Definition: Mixt. of the butylene glycol diesters of caprylic and capric acids

†=pharmaceutical grade

Uses: Emollient, dispersant, lubricant, suspending agent, solubilizer, carrier, vehicle, penetrant, spreading agent
Trade Names: Miglyol® 8810

1,3-Butylene glycol dimethacrylate.  See 1,3-Butanediol dimethacrylate
1,3-Butylene glycol monomethyl ether.  See 3-Methoxybutanol

Butylene hydrate.  See 2-Butanol
Butylene oxide.  See Tetrahydrofuran
Butyl ester of PVM/MA copolymer (INCI).  See PVM/MA copolymer, butyl ester
ButyIethanoate.  See n-Butyl acetate
Butyl ethyl carbinol.  See 3-Heptanol
Butyl ethyl ketone; n-Butyl ethyl ketone.  See 3-Heptanone

Butyl ethyl malonate
CAS 17373-84-1
FEMA 2195
Synonyms: Butyl ethyl propionate; Ethyl butyl malonate; Malonic acid butyl ethyl ester; Propylene dioic acid butyl ethyl ester
Empirical: C₉H₁₈O₄
Formula: (CH₃)₂CO₂CH₂CO₂C₂H₅
Properties: Colorless cl. liq.; sol. in alcohol; insol. in water; m.w. 188.22; dens. 0.994; b.p. 222 C; acid no. 1 max.; flash pt. 189 F
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Butyl ethyl maleate
CAS 32864-38-3
Synonyms: Ethyl t-butyl malonate; Malonic acid, t-butyl ethyl ester
Empirical: C₉H₁₆O₄
Formula: C₉H₁₆O₄
Properties: M.w. 188.22
Uses: Synthetic flavor for pharmaceuticals
Manuf./Distrib.: ABCR http://www.abcr.de; Fluka http://www.sigma-aldrich.com

Butyl ethyl propionate.  See Butyl ethyl malonate
Butyl formal.  See n-Valeraldehyde

Butyl formate
CAS 592-84-7; EINECS/ELINCS 209-772-5
UN 1128 (DOT); FEMA 2196
Synonyms: n-Butyl formate; Formic acid butyl
ester
Classification: Nonaromatic ester
Empirical: C₅H₁₀O₂
Formula: HCOO(CH₂)₃CH₃

Properties: Colorless liq., plum-like odor; sl. sol. in water; misc. with alcohol, ether; m.w. 102.14; dens. 0.892; m.p. -90°C; b.p. 106.8°C; flash pt. (CC) 64°C; ref. index 1.3890-1.3891

Toxicology: LD₅₀ (oral, rabbit) 2656 mg/kg; mod. toxic by ing.; mildly toxic by inh.; human systemic effects by inh.; irritant; narcotic in high concs.; TSCA listed

Precaution: Flamm. liq.; dangerous fire risk; incompat. with oxidizing materials

Hazardous Decomp. Prods.: Heated to decomp., emits acrid and irritating fumes

NFPA: Health 2, Flammability 3, Reactivity 0

Uses: Synthetic flavor for pharmaceuticals

Features: Plum-like flavor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL


n-Butyl formate. See Butyl formate

Butyl glycol ether. See Diethylene glycol dibutyl ether

Butyl 10-hendecenoate. See Butyl 10-undecenoate

Butyl heptanoate
CAS 5454-28-4; EINECS/ELINCS 226-707-6
FEMA 2199

Synonyms: Butyl heptanoate; Butyl heptylate

Empirical: C₁₁H₂₂O₂

Properties: Colorless liq., sl. fruity odor; sol. in most org. solvs.; m.w. 186.30; sp.gr. 0.8623; m.p. -63 to -64°C; b.p. 208°C; flash pt. 76°C; ref. index 1.4153

Toxicology: LD₅₀ (oral, rat) > 5 g/kg; low toxicity by ing. and skin contact; primary skin irritant; TSCA listed

Precaution: Combustible liq.

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes, COₓ

Storage: Keep away from heat, sparks, open flame; keep in original, tightly sealed container

Uses: Synthetic flavor for pharmaceuticals

Features: Fruity flavor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL


n-Butyl hexanoate
Butyl hexylate. See Butyl hexanoate

Butyl hydride. See Butane

t-Butyl hydroquinone
CAS 1948-33-0; EINECS/ELINCS 217-752-2
INS319

Synonyms: 2-(1,1-Dimethylethyl)-1,4-benzenediol; Mono-t-butyl hydroquinone; Mono-tertiarybutylhydroquinone; MTBHQ; TBHQ
Chemical Component Cross-Reference

**Classification:** Aromatic organic compd.; phenol; hydroquinone

**Empirical:** \( \text{C}_{10}\text{H}_{14}\text{O}_2 \)

**Properties:** Wh. to lt. tan cryst. solid; sol. in ethyl alcohol, ethyl acetate, acetone, ether; sl. sol. in water; m.w. 166.24; m.p. 126.5-128.5 C; flash pt. (COC) 171 C

**Toxicology:** LD50 (oral, rat) 700 mg/kg, (IP, rat) 300 mg/kg; poison by IP route; mod. toxic by ing.; irritant; tumorigen and mutagen; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Antioxidant, preservative, stabilizer for pharmaceuticals

**Regulatory:** FDA 21CFR §172.185 (limitation 0.02% of oil), 177.2420; USDA 9CFR §318.7 (limitation 0.003% in dry sausage, 0.006% with BHA/BHT, 0.02% of oil), 177.147; USDA 9CFR §318.7 (limitation 0.003% in dry sausage, 0.006% with BHA/BHT, 0.01% in rendered animal fat, 0.02% with BHA and/or BHT, 0.02% in margarine), 381.147 (limitation 0.01% on fat in poultry; Canada DSL


**Trade Names:** Tenox® TBHQ

**Trade Names Containing:** Phyto™ SOY

**Butyl hydroxide.** See Butyl alcohol

**t-Butyl hydroxide.** See t-Butyl alcohol

**Butylhydroxyanisole; 2(3)-t-Butyl-4-hydroxyanisole; t-Butylhydroxyanisole; t-Butyl-4-hydroxyanisole.** See BHA

**Butyl 4-hydroxybenzoate; n-Butyl 4-hydroxybenzoate; n-Butyl p-hydroxybenzoate; Butyl p-hydroxybenzoate.** See Butylparaben

**n-Butyl-4-hydroxybenzoate potassium salt.** See Potassium butyl paraben

**4-Butyl-4-hydroxyoctanoic acid, γ-lactone.** See 4,4-Dibutyl-γ-butylrolactone

**Butyl 2-hydroxypropanoate; Butyl α-hydroxypropionate; n-Butyl-S(-)-2-hydroxypropionate.** See Butyl lactate

**Butyl-(S)-(−)-2-hydroxy propionate; Butyl-(S)-2-hydroxy propionate.** See Butyl-(S)-lactate

**Butylhydroxytin oxide.** See Hydroxybutyltin oxide

**Butyl-3-iodo-2-propynylcarbamate.** See Iodopropynyl butylcarbamate

**Butyl isobutyrate**

CAS 97-87-0; EINECS/ELINCS 202-614-6

UN 3272; FEMA 2188

**Synonyms:** Butyl 2-methylpropanoate; n-Butyl 2-methyl propanoate; Butyl 2-methylpropionate

**Empirical:** \( \text{C}_8\text{H}_{16}\text{O}_2 \)

**Properties:** Colorless liq., fruity odor, pineapple taste; misc. with alcohol, ether, fixed oils; insol. in water, glycerin, propylene glycol; m.w. 144.21; dens. 0.862; vapor dens. 4.9; b.p. 155-156 C; flash pt. 110 F; ref. index 1.4025

**Toxicology:** Eye, skin, respiratory system irritant; TSCA listed

**Precaution:** Flamm. liq.

**Hazardous Decomp. Prods.:** heated to decomp., emits acrid smoke and fumes

**Storage:** Keep away from heat, sparks, open flame; keep in original, tightly closed container

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Apple, banana-like

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL

### Buty Isophenylacetate

**Synonyms:** Buty Isophenylacetate; Buty Isophenylacetate; Buty Isophenylacetate; Buty Isophenylacetate; Buty Isophenylacetate; Buty Isophenylacetate

**CAS:** 138-19-3; EINECS/ELINCS 203-654-7

**UN:** 3272; FEMA 2218

**Synonyms:** n-Butyl isophenylacetate; Buty Isophenylacetate; Buty Isophenylacetate; Buty Isophenylacetate; Buty Isophenylacetate; Buty Isophenylacetate

**NFPA:** Health 1, Flammability 2, Reactivity 0

**Properties:** Water-wh. liq., mild odor; misc. with many lacquer solvs., diluents, oils, alcohol, ether; sl. sol. in water; hydrolyzed in acids and alkalis; m.w. 146.19; dens. 0.974-0.984 (20/20 C); vapor pressure 0.4 mm Hg (20 C); m.p. -43 C; b.p. 188 C; flash pt. 75.5 C; ref. index 1.407

**Toxicology:** LD50 (oral, rat) 8200 mg/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; skin, eye, respiratory system irritant; TSCA listed

**Precaution:** Wear protective gloves, splash-proof goggles; flamm. when exposed to heat, flames, sparks, oxidizers; incompatible with strong oxidizers

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and fumes

**NFPA:** Health 0

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Apple, peach-like flavor

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Lambda:** Advanced BioTech

**Mfg.†** [http://www.adv-bio.com](http://www.adv-bio.com); Advanced Synthesis Tech.

**http://www.advancedsynthesis.com**; Augustus Oils Ltd [http://www.augustus-oils.ltd.uk](http://www.augustus-oils.ltd.uk); Axxence Aromatic GmbH

**http://www.axxence.com**; [http://www.axxence.de](http://www.axxence.de); Elan

**http://www.elan-chemical.com**

**Fleurchem** [http://www.fleurchem.com](http://www.fleurchem.com)

**Grau Aromatics** [http://www.grau-aromatics.de](http://www.grau-aromatics.de); J.H. Calo

### Buty Isovalerate

**Synonyms:** Buty Isovalerate; Buty Isovalerate; Buty Isovalerate; Buty Isovalerate; Buty Isovalerate; Buty Isovalerate

**CAS:** 109-19-3; EINECS/ELINCS 203-654-7

**UN:** 3272; FEMA 2218

**Synonyms:** n-Butyl isovalerate; Buty Isovalerate; Buty Isovalerate; Buty Isovalerate; Buty Isovalerate; Buty Isovalerate

**NFPA:** Health 1, Flammability 2, Reactivity 0

**Properties:** Colorless to pale yel. liq., fruity odor; misc. with alcohol, fixed oils; sl. sol. in propylene glycol; insol. in water; m.w. 158.27; dens. 0.851-0.857; vapor dens. 5.4; b.p. 150 C; flash pt. 58 C; ref. index 1.407

**Toxicology:** LD50 (oral, rat) 200 mg/kg; toxic conc. 4 ppm in air (humans); TSCA listed

**Precaution:** Flamm. exposed to heat or flame; can react with oxidizing materials

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**NFPA:** Health 1, Flammability 2, Reactivity 0

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Non-ozone depleting; sweet flavor

**Regulatory:** FDA 21CFR §172.515, 175.105; FEMA GRAS; Canada DSL

**Lambda:** A&E Connock


**Ciba Spec. Chems./Water & Paper**

**Fleurchem** [http://www.fleurchem.com](http://www.fleurchem.com)

**Grau Aromatics** [http://www.grau-aromatics.de](http://www.grau-aromatics.de); Haltermann Prods. UK
Butylic L-lactate. See Butyl-(S)-lactate
n-Butyl lactate. See Butyl lactate
n-Butyl-(S)-lactate. See Butyl-(S)-lactate

**Butyl-(S)-lactate**

CAS 34451-19-9; EINECS/ELINCS 252-036-3

**Synonyms:** Butyl-(S)-(→)-2-hydroxy propionate; Butyl-(S)-2-hydroxy propionate; Butyl L-lactate; n-Butyl-(S)-lactate; Butyl-(S)-(→)-lactate; Lactic acid butyl ester

**Classification:** Lactate ester

**Empirical:** C7H14O3

**Properties:** Colorless liq.; sweet fruity fermented odor; sol. in alcohol; insol. in water; m.w. 146.19; sp.gr. 0.97800-0.99200; dens. 8.138-8.254 lb/gal; m.p. -28 C; b.p. 185-187 C; flash pt. 157 F; ref. index 1.4190-1.429 (20 C)

**Toxicology:** LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg, irritating to eyes, skin, respiratory system; may be harmful by ing., inh., skin absorb.; vapor/mist irritating to eyes, mucous membranes, upper respiratory tract; TSCA listed

**Precaution:** Combustible; incompat. with strong oxidizing agents, strong bases

**Hazardous Decomp. Prods.:** CO, CO2; emits toxic fumes under fire conditions

**Storage:** Store in cool, dry place away from heat, open flame; keep tightly closed

**Uses:** Solvent


**Butyl levulinate**

CAS 2052-15-5; EINECS/ELINCS 218-143-4

**Synonyms:** Butyl γ-butyrolactone; Butyl laevulinate; n-Butyl laevulinate; n-Butyl levulinate; Butyl 4-oxopentanoate; 4-Ketopentanoic acid butyl ester; Levulinic acid, butyl ester; Pentanoic acid, 4-oxo-, butyl ester

**Empirical:** C9H16O3

**Properties:** Liq., bitter taste; sol. in ether, alcohol, chloroform; sl. sol. in water; m.w. 172.23; dens. 0.974; b.p. 197 F; flash pt. 197 F; ref. index 1.4283 (20 C)

**Toxicology:** LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; primary skin irritant; TSCA listed

**Precaution:** Combustible liq.

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating vapors

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Waxy, soapy fruity peanut odor

**Regulatory:** FDA 21CFR §172.515, 177.2600; FEMA GRAS; Canada DSL

**Manuf./Distrib.:** Aldrich http://www.sigma-aldrich.com; Lluch Essence http://www.lluch-essence.com

**Trade Names:** Purasolv® BL
n-Butyl levulinate. See Butyl levulinate

Butyl methacrylate
CAS 97-88-1; EINECS/ELINCS 202-615-1
UN 2227 (DOT)
Synonyms: BMA; Butyl-2-methacrylate; N-Butyl methacrylate; Butyl 2-methyl-2-propenoate; Methacrylic acid butyl ester; 2-Methyl butylacrylate

Definition: Ester of n-butyl alcohol and methacrylic acid

Empirical: C8H14O2
Formula: CH2:C(CH3)COO(CH2)3CH3

Properties: Colorless liq., ester odor; insol. in water; m.w. 142.22; dens. 0.895 (20/4 C); vapor pressure 4.9 mm (20 C); b.p. 163 C; flash pt. (TOC) 126 F

Toxicology: LD50 (oral, rat) 22,600 mg/kg, (IP, rat) 2304 mg/kg; (skin, rabbit) 11,300 mg/kg; mod. toxic by IP route; mildly toxic by ing., inh., skin contact; skin irritant; experimental teratogen, reproductive effector; TSCA listed

Precaution: Combustible; mod. fire risk; violent polymerizations can be caused by heat, moisture, oxidizers; explosive as vapor exposed to heat or flame

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 2, Flammability 2, Reactivity 0
Uses: Ingredient in drug solubilizers
Regulatory: FDA 21CFR §175.300, 177.2420; Canada DSL

2-Butyloctanol; 2-Butyl-1-octanol; 2-Butyl-1-octanol-1-ol; 2-Butyloctyl alcohol. See Butyloctanol

Butyl octadecanoate; n-Butyl octadecanoate. See Butyl stearate

Butyl 9-octadecenoate. See Butyl oleate

2-Butyloctyl alcohol

CAS 3913-02-8; EINECS/ELINCS 223-470-0
Synonyms: Butyl 9-octadecenoate; n-Butyl oleate; 9-Octadecenoic acid, butyl ester
Definition: Ester of butyl alcohol and oleic acid
Empirical: C_{32}H_{64}O_2
Formula: CH_{3}(CH_{2})_{7}CH(CH(CH_{2})_{7}COOC_{4}H_{9}
Properties: Pale yel. oleaginous liq.; mild odor; misc. with alcohol, ether, veg. and min. oils; insol. in water; m.w. 546.88; dens. 0.874; f.p. opaque @ 12 C; solid @ -26.4 C; b.p. 173-227 C (2 mm); iodine no. 76.8; flash pt. 204 C;

†=pharmaceutical grade

Toxicology: LD50 (oral) > 500 mg/kg; not expected to cause skin/eye irritation; may be harmful if swallowed; may irritate mouth, throat, and stomach by ing.; inh. may cause dizziness

Environmental: May cause long-term adverse effects in the aquatic environment; avoid release to environment

Precaution: Incompat with oxidizing materials
HMIS: Health 1, Flammability 1, Reactivity 0
Storage: Store in tightly closed container in well-ventilated area
Uses: Emollient, moisturizer, sunscreen actives stabilizer, solvent
Regulatory: SARA §311/312/313 nonreportable
Trade Names: HallBrite® BHB

Butyloctanol

CAS 142-77-8; EINECS/ELINCS 205-559-6
Synonyms: Butyl 9-octadecenoate; n-Butyl oleate; 9-Octadecenoic acid, butyl ester
Definition: Ester of butyl alcohol and oleic acid
Empirical: C_{22}H_{44}O_2
Formula: CH_{3}(CH_{2})_{7}CH(CH(CH_{2})_{7}COOC_{4}H_{9}
Properties: Pale yel. oleaginous liq.; mild odor; misc. with alcohol, ether, veg. and min. oils; insol. in water; m.w. 338.58; dens. 0.873; f.p. opaque @ 12 C; solid @ -26.4 C; b.p. 173-227 C (2 mm); iodine no. 76.8; flash pt. 204 C;

†=pharmaceutical grade

Toxicology: LD50 (oral, rat) > 500 mg/kg; not expected to cause skin/eye irritation; may be harmful if swallowed; may irritate mouth, throat, and stomach by ing.; inh. may cause dizziness

Environmental: May cause long-term adverse effects in the aquatic environment; avoid release to environment

Precaution: Incompat with oxidizing materials
HMIS: Health 1, Flammability 1, Reactivity 0
Storage: Store in tightly closed container in well-ventilated area
Uses: Emollient, moisturizer, sunscreen actives stabilizer, solvent
Regulatory: SARA §311/312/313 nonreportable
Trade Names: HallBrite® BHB
Chemical Component Cross-Reference

n-Butyl oleate. See Butyl oleate
Butyl-3-oxobutanoate. See Butyl acetoacetate
Butyl 4-oxopentanoate. See Butyl levulinate

Butylparaben
CAS 94-26-8; EINECS/ELINCS 202-318-7
FEMA 2203
Synonyms: Butyl 4-hydroxybenzoate; n-Butyl 4-hydroxybenzoate; n-Butyl p-hydroxybenzoate; Butyl p-hydroxybenzoate; Butyl parasept; 4-Hydroxybenzoic acid butyl ester; p-Hydroxybenzoic acid butyl ester; Parasept
Definition: Ester of butyl alcohol and p-hydroxybenzoic acid
Empirical: C11H14O3
Properties: Colorless or wh. cryst. powd.; freely sol. in acetone, alcohols, ether, chloroform, propylene glycol; very sl. sol. in water, glycerin; m.w. 194.22; m.p. 68-72 C
Toxicology: LD50 (oral, mouse) 13,200 mg/kg, (IP, mouse) 230 mg/kg; poison by IP route; skin irritant; TSCA listed
Precaution: Preserve in well-closed containers
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Antimicrobial, preservative, antifungal, flavor for pharmaceuticals, injectables, orals, rectals, topicals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; EPA registered; Japan approved (0.012-1 g/kg as p-hydroxybenzoic acid); Europe listed; approved for injectables, orals, rectals, topicals; NF compliance; Canada DSL
Chemical Component Cross-Reference

Spectrum Quality Prods.†
http://www.spectrumchemical.com;
Thornley
http://www.thornleycompany.com;
Universal Preserv-A-Chem†
http://www.upichem.com; Vevy†
http://www.vevy.com
Trade Names: Butylparaben NF; Nipabutyl
Trade Names Containing: Cephalipin;
LiquaPar® Oil; LiquaPar® PE; Nipastat®;
Phenonip®
Prnonalen® Sensitive Skin; Uniphen P-23

Butylparaben, potassium salt. See Potassium butyl paraben
Butylparaben, sodium salt. See Sodium butylparaben
Butyl parasept. See Butylparaben
n-Butyl pentanoate. See Butyl valerate

Butyl phenylacetate
CAS 122-43-0; EINECS/ELINCS 204-543-6
FEMA 2209
Synonyms: Acetic acid, phenyl-, butyl ester;
Benzeneacetic acid, butyl ester; Butyl benzene acetate; n-Butyl phenyl acetate;
Butyl α-toluate; Phenylethanoic acid butyl ester
Empirical: C_{12}H_{16}O_2
Formula: C_4H_9OOCCH_2C_6H_5
Properties: Colorless liq., honey-like odor; sol. in 2 vols. 80% alcohol; m.w. 192.26; dens. 0.991-
0.994 (25/25 C); b.p. 260 C; flash pt. 74 C; ref. index 1.488-1.490 (20 C)
Toxicology: LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing.;
primary skin irritant; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Synthetic flavor for pharmaceuticals
Features: Honey-like flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Chr. Hansen Inc
http://www.chr-hansen.com; Grau Aromatics
http://www.grau-aromatics.de; Lluch Essence http://www.lluch-essence.com; SAFC Specialties
http://www.safcspecialties.com
See also Benzaldehyde glyceral acetal
n-Butyl phenyl acetate. See Butyl phenylacetate
4-t-Butylphenylacetic acid, methyl ester. See

†=pharmaceutical grade

Methyl p-t-butylphenylacetate
α-Butyl-β-phenylacrolein. See α-Butylcinnamaldehyde
Butyl β-phenyl acrylate; n-Butyl phenylacrylate; Butyl 3-phenyl propenoate;
Butyl 3-phenyl-2-propenoate. See Butyl cinnamate
Butyl phthalate; n-Butyl phthalate. See Dibutyl phthalate
Butyl propanoate; Butyl propionate. See n-Butyl propionate
n-Butyl propionate
CAS 590-01-2; EINECS/ELINCS 209-669-5
UN 1914 (DOT); FEMA 2211
Synonyms: Butyl propanoate; Butyl propionate; Propanoic acid butyl ester
Empirical: C_7H_{14}O_2
Formula: CH_3CH_2COOC_4H_9
Properties: Colorless liq., earthy faintly sweet
odor, apricot-like taste; very sol. in alcohol, ether; sol. in oxygenated solvs.; very sl. in water; m.w. 130.19; dens. 0.8754 (20/4 C); f.p. 32 C; m.p. -89 C; b.p. 145-146 C; flash pt. 90
F; ref. index 1.401 (20 C)
Toxicology: LD50 (oral, rat) 5000 mg/kg; mildly toxic by ing.; skin and eye irritant; TSCA listed
Precaution: Flamm.; dangerously flamm.
exposed to heat or flame; incompat. with oxidizers, reducers; wear safety glasses or
goggles, rubber gloves, apron
Hazardous Decomp. Prods.: CO, CO_2, acrid fumes
NFPA: Health 2, Flammability 3, Reactivity 0
Storage: 6 mos. when stored at 40-70 F in tightly
sealed original containers with minimum head space; avoid prolonged exposure to light, heat,
air
Uses: Synthetic flavor for pharmaceuticals
Features: Banana-like flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI
Manuf./Distrib.: Advanced BioTech
http://www.adv-bio.com; Advanced Synthesis Tech.
http://www.advancedsynthesis.com; Ashland http://www.ashchem.com; Dow
http://www.dow.com; Grau Aromatics
http://www.grau-aromatics.de
Haltermann Prods. UK
http://www.haltermann.com; Moore Ingreds.
http://www.moorelab.com; Penta Mfg.†
Butylnanoic acid. See Hydroxybutyltin oxide

Butyl stearate
CAS 123-95-5; EINECS/ELINCS 204-666-5
FEMA 2214
Synonyms: Butyl octadecanoate; n-Butyl octadecanoate; n-Butyl stearate; Octadecanoic acid butyl ester
Definition: Ester of butyl alcohol and stearic acid
Empirical: C_{22}H_{44}O_{2}
Formula: CH_{3}(CH_{2})_{16}COO(CH_{2})_{3}CH_{3}
Properties: Colorless liq., solidifying @ 19 C; pract. odorless; sol. in alcohol, ether, hydrocarbon oils; sl. sol. in water; m.w. 340.60; dens. 0.86 (20/4 C); m.p. 17-22 C; b.p. 1343 C; flash pt. (CC) 160 C; ref. index 1.4430 (20 C)
Toxicology: LD_{50} (oral, rat) 32 g/kg; low toxicity by ing.; skin irritant; experimental reproductive data; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
NFPA: Health 1, Flammability 1, Reactivity 0
Uses: Syn. flavor for pharmaceuticals; emollient for pharmaceutical topicals
Regulatory: FDA 21CFR §172.515, 173.340, 175.105, 175.300, 176.200, 176.210, 177.1200, 177.2260, 177.2600, 177.2800, 178.3910, 181.22, 181.27; FDA approved for topicals; FEMA GRAS; Canada DSL

†=pharmaceutical grade

Butyl stearate
CAS 123-95-5; EINECS/ELINCS 204-666-5
FEMA 2214
Synonyms: Butyl octadecanoate; n-Butyl octadecanoate; n-Butyl stearate; Octadecanoic acid butyl ester
Definition: Ester of butyl alcohol and stearic acid
Empirical: C_{22}H_{44}O_{2}
Formula: CH_{3}(CH_{2})_{16}COO(CH_{2})_{3}CH_{3}
Properties: Colorless liq., solidifying @ 19 C; pract. odorless; sol. in alcohol, ether, hydrocarbon oils; sl. sol. in water; m.w. 340.60; dens. 0.86 (20/4 C); m.p. 17-22 C; b.p. 1343 C; flash pt. (CC) 160 C; ref. index 1.4430 (20 C)
Toxicology: LD_{50} (oral, rat) 32 g/kg; low toxicity by ing.; skin irritant; experimental reproductive data; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
NFPA: Health 1, Flammability 1, Reactivity 0
Uses: Syn. flavor for pharmaceuticals; emollient for pharmaceutical topicals
Regulatory: FDA 21CFR §172.515, 173.340, 175.105, 175.300, 176.200, 176.210, 177.1200, 177.2260, 177.2600, 177.2800, 178.3910, 181.22, 181.27; FDA approved for topicals; FEMA GRAS; Canada DSL

†=pharmaceutical grade

Butyl sulfide
CAS 544-40-1; EINECS/ELINCS 208-870-5
FEMA 2215
Synonyms: Butyl monosulfide; n-Butyl sulfide; Butylthiobutane; Dibutyl sulfide; n-Dibutyl sulfide; Dibutyl thioether; 5-Thianonane; 1,1’-Thiobisbutane
Classification: Nonaromatic mercaptan
Empirical: C_{8}H_{18}S
Formula: CH_{3}(CH_{2})_{3}S(CH_{2})_{3}CH_{3}
Properties: Liq.; very sol. in alcohol, ether; sol. in most org. solvs.; insol. in water; m.w. 146.30; dens. 0.839 (16/0 C); vapor dens. 5; m.p. -80 C; b.p. 182 C; flash pt. (CC) 76 C; ref. index
†=pharmaceutical grade

Butyltris ((2-ethyl-1-oxohexyl) oxy) stannane.

See Butyltin tris (2-ethylhexoate)

Butyl undecenoate. See Butyl 10-undecenoate

Butyl 10-undecenoate
CAS 109-42-2; EINECS/ELINCS 203-670-4
FEMA 2216

Synonyms: Butyl 10-hendecenoate; Butyl undecenoate; Butyl undecylenoate; 10-Undecenoic acid, butyl ester

Empirical: C_{15}H_{28}O_2

Properties: Colorless liq.; sol. in alcohol; insol. in water; m.w. 240.39; sp.gr. 0.8751 (20 C); b.p. 125-128 C (3 mm); ref. index 1.4426 (20 C)

Toxicology: LD50 (oral, rat) 5 g/kg; mildly toxic by ing.; skin irritant; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals

Features: Fatty butter wine floral fruity odor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: SAFC Specialties
http://www.safcspecialties.com

Butyl undecylenoate. See Butyl 10-undecenoate

Butyl valerate
CAS 591-68-4; EINECS/ELINCS 209-728-5
FEMA 2217

Synonyms: n-Butyl pentanoate; n-Butyl valerate; n-Butyl-n-valerianate

Empirical: C_{9}H_{18}O_2

Properties: Colorless liq.; fruity odor; sol. in propylene glycol, most org. solvs.; sl. sol. in water; m.w. 158.24; dens. 0.868 (20 C); vapor dens. 5.4; b.p. 186-187 C; flash pt. 152 F; ref. index 1.408-1.416

Toxicology: Eye, skin, respiratory system irritant; TSCA listed

Environmental: Keep run-off water out of sewers, water sources

Storage: Keep away from heat, sparks, open flame; keep in original, tightly closed container

Uses: Synthetic flavor for pharmaceuticals

Features: Apple, raspberry-like flavor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: Grau Aromatics
http://www.grau-aromatics.de; Oxford Chems. Ltd
SAFC Specialties
http://www.safcspecialties.com

n-Butyl valerate; n-Butyl-n-valerianate. See Butyl valerate

Butynoic acid, 3-phenyl-2-propenyl ester.
See Cinnamyl butyrate
1-Butyn-3-ol, 3-methyl-. See Methyl butynol
Butyral; Butyraldehyde. See n-Butyraldehyde

n-Butyraldehyde
CAS 123-72-8; EINECS/ELINCS 204-646-6
UN 1129 (DOT); FEMA 2219
Synonyms: Butal; Butylaldehyde; Butyraldehyde; Butanal; n-Butanal; n-Butylaldehyde; Butyl; Butyraldehyde; Butyric aldehyde
Classification: Aldehyde
Empirical: C₄H₈O
Formula: CH₃CH₂CH₂CHO

Properties: Colorless liq.; sol. in water; misc. with ether @ 75 C, org. solvs.; m.w. 72.10; sp.gr. 0.800; m.p. -99 C; f.p. 12 F; b.p. 75-76 C; flash pt. (CC) 20 F; ref. index 1.3843

Toxicology: LD₅₀ (oral, rat) 2490 mg/kg, (IP, rat) 800 mg/kg, (skin, rabbit) 3560 mg/kg; LC₅₀ (inh., rat, 4 h) 8000 ppm; mod. toxic by ing., inh., skin contact, IP, and subcut. routes; severe skin and eye irritant; delayed hypersensitivity; suspected carcinogen; TSCA listed

Precaution: DOT: Flamm. liq.; dangerous fire hazard when exposed to heat and flame; incompat. with oxidizing materials; reacts vigorously with chlorosulfonic acid, HNO₃, H₂SO₄

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
NFPA: Health 3, Flammability 3, Reactivity 2
Uses: Synthetic flavor for pharmaceuticals
Features: Fruity flavor
Regulatory: FDA 21CFR §172.515, 175.105, 176.170; FEMA GRAS; Canada DSL

Manuf./Distrib.: Advanced BioTech
http://www.adv-bio.com; Alfa Aesar
http://www.alfa.com; Axxence Aromatic
GmbH http://www.axxence.com;
http://www.axxence.de; BASF AG
http://www.basf.de; Cargill Flavors & Fruit Systems USA http://www.flavors-fruit-systems.com
Celanese
http://www.celanesechemicals.com;
http://www.chemvip.com; Chisso Am.;
Dow† http://www.dow.com; Eastman

†=pharmaceutical grade

http://www.dow.com; Fleurchem
http://www.fleurchem.com
Fluka http://www.sigma-aldrich.com;
Honeywell Perf. Polymers
http://www.honeywellppc.com;
http://www.honeywell-plastics.com; Oxford
Chems. Ltd
http://www.oxfordchemicals.com; Penta
Mfg.† http://www.pentamfg.com; SAFC
Specialties http://www.safcspecialties.com
Spectrum Quality Prods.†
http://www.spectrumchemical.com;
Xinchem† http://www.finechemnet.com

Trade Names: Eastman® Butyraldehyde, Dry
Butyraldehyde, 2-ethyl-. See 2-Ethylbutyraldehyde
Butyraldehyde, 2-methyl-. See 2-Methylbutyraldehyde
Butyric acid. See n-Butyric acid

n-Butyric acid
CAS 107-92-6; EINECS/ELINCS 203-532-3
UN 2820 (DOT); FEMA 2221
Synonyms: Butyric acid; Butanoic acid; n-Butanoic acid; Butyric acid; Carboxylic acid C4; Ethylacetic acid; 1-Propanecarboxylic acid; Propyformic acid
Classification: Aliphatic carboxylic acid
Empirical: C₄H₈O₂
Formula: CH₃CH₂CH₂COOH

Properties: Colorless liq., strong rancid butter odor; sol. in water, alcohol, ether; misc. with oxygenated solvs.; m.w. 88.12; dens. 0.9590 (20/20 C); vapor pressure 0.84 mm Hg (20 C); f.p. -5.5 C; m.p. -7.9 C; b.p. 163.5 C; flash pt. 72 C; ref. index 1.397

Toxicology: LD₅₀ (oral, rat) 2940 mg/kg, (IP, mouse) 3180 mg/kg, (skin, rabbit) 3180 mg/kg, (subcut., mouse) 3180 mg/kg, (IV, mouse) 800 mg/kg, (skin, rabbit) 530 mg/kg; mod. toxic by ing., inh., skin contact, subcut., IP, and IV routes; severe skin and eye irritant; human mutagenic data; TSCA listed

Environmental: Do not discharge into lakes, streams, ponds, public waters
Precaution: Corrosive material; combustible liq.; may react with oxidizers; incandescent reaction with chromium trioxide above 100°C

Hazardous Decomp. Prods.: Combustion
prod.: CO, CO₂; heated to decomp., emits acrid smoke and irritating fumes
NFPA: Health 3, Flammability 2, Reactivity 0
Storage: 12 mos. when stored at 40-70 F in
Chemical Component Cross-Reference

tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21 CFR §172.545, 178.2010, 184.1784, 182.60, 582.60, GRAS; FEMA GRAS; Japan approved as flavoring; Canada DSL; Australia AICS

Manuf./Distrib.: AMRESCO†
Advanced Synthesis Tech.
Astral Extracts
Axxence Aromatic GmbH http://www.axxence.com;
Celanese http://www.celanesechemicals.com;
http://www.chemvip.com; Citrus and Allied Essences http://www.citrusandallied.com;
De Monchy Aromatics http://www.demonchyaromatics.com;
Eastman http://www.eastman.com; Elan http://www.elan-chemical.com
Integra† http://www.integrachem.com;
Lluch Essence http://www.lluch-essence.com
Mallinckrodt Baker† http://www.mallbaker.com; Moore Ingreds.
Penta Mfg.† http://www.pentamfg.com;
Prodasynth http://www.prodasynth.com
R.C. Treatt & Co. Ltd http://www.rctreatt.com; SAFC Specialties
http://www.saftcspecialties.com; Sigma http://www.sigma-aldrich.com/belgium;
Spectrum Quality Prosds.† http://www.spectrumchemical.com;
V. Mane Fils SA http://www.mane.com;
VWR Int'l.† http://www.vwrsp.com; Whyte Chems. Ltd

†=pharmaceutical grade

http://www.whytechemicals.co.uk;
Xinchem† http://www.finechemnet.com

Butyric acid, allyl ester. See Allyn butyrate
Butyric acid alpha-ethyl benzyl ester. See α-Ethylbenzyl butyrate
Butyric acid, benzyl ester. See Benzy butyrate
Butyric acid, butyl ester. See Butyl butyrate
Butyric acid, cinnamyl ester. See Cinnamyl butyrate
Butyric acid, cyclohexyl ester. See Cyclohexyl butyrate
Butyric acid decyl ester. See Decyl butyrate
Butyric acid, 3,7-dimethyl-2,6-octadienyl ester. See Geranyl butyrate
Butyric acid, 3,7-dimethyl-6-octenyl ester. See Rhodinyl butyrate
Butyric acid ester with butyl lactate. See Butyl butyryl lactate
Butyric acid, ethyl ester. See Ethyl butyrate
Butyric acid, heptyl ester. See Heptyl butyrate
Butyric acid, hexyl ester. See Hexyl butyrate
Butyric acid isoamyl ester. See Isoamyl butyrate
Butyric acid isopropyl ester. See Isopropyl butyrate
Butyric acid lactone. See Butyrolactone
Butyric acid linalyl ester. See Linalyl butyrate
Butyric acid, 2-methyl. See 2-Methylbutyric acid
Butyric acid, methyl ester. See Methyl butyrate
Butyric acid, 2-methyl-, phenethyl ester. See Phenethyl-2-methylbutyrate
Butyric acid, 1-pentylallyl ester. See 1-Octen-3-yl butyrate
Butyric acid phenethyl ester. See Phenethyl butyrate
Butyric acid, 4-phenyl-, methyl ester. See Methyl 4-phenylbutyrate
Butyric acid, propyl ester. See Propyl butyrate
Butyric acid tetrahydrofurfuryl ester. See Tetrahydrofurfuryl butyrate
Butyric acid triester with glycerin. See Tributyrin
Butyric acid, 1-vinylhexyl ester. See 1-Octen-3-yl butyrate
Butyric alcohol. See Butyl alcohol
Butyric aldehyde. See n-Butyraldehyde
Butyric ether. See Ethyl butyrate
Butyrin. See Tributyrin
Chemical Component Cross-Reference

Butyrolin. See 5-Hydroxy-4-octanone
Butyrolactam; γ-Butyrolactam. See 2-Pyrrolidone

Butyrolactone
CAS 96-48-0; EINECS/ELINCS 202-509-5
FEMA 3291
Synonyms: BLO; 1,2-Butanoldiol; 1,4-Butanoldiol; Butyric acid lactone; 4-Butyrolactone; α-Butyrolactone; γ-Butyrolactone; Butyl lactone; 4-Deoxytetronic acid; Dihydro-2(3H)-furanone; GBL; 4-Hydroxybutanoic acid lactone; γ-Hydroxybutyric acid cyclic ester; 4-Hydroxybutyric acid γ-lactone; γ-Butyrolactone; Butyrolactone; Tetrahydro-2-furanone
Classification: Lactone
Empirical: C₄H₆O₂
Properties: Colorless oily liq., mild caramel odor; sol. in methanol, ethanol, acetone, ether, benzene. misc. with water; insol. in aliphatic hydrocarbons; m.w. 86.09; dens. 1.120; m.p. -45 C; b.p. 204-205 C; flash pt. (OC) 98 C; ref. index 1.4348; volatile with steam; hydrolyzed by hot alcohol sol'n.s.
Toxicology: LD₅₀ (oral, rat) 1800 mg/kg, (IP, rat) 1000 mg/kg; mod. toxic by ingestion, IV, IP routes; suspected carcinogen, tumorigen; experimental reproductive effects; mutagenic data; TSCA listed
Environmental: VOC; ThOD 1.67
Precaution: Combustible when exposed to heat or flame; reactive with oxidizing materials
Hazardous Decomp. Prods.: Heated to decomp., emits acrid and irritating fumes
NFPA: Health 0, Flammability 1, Reactivity 0
Storage: Hygroscopic
Uses: Solvent, stabilizer for pharmaceuticals; pharmaceutical intermediate
Regulatory: FEMA GRAS; Canada DSL
Manuf./Distrib.: ADA Int'l.
http://www.joinme.net/ada/index.htm;
Advanced Synthesis Tech.
http://www.advancesynthesis.com; Alfa Aesar† http://www.alfa.com; Allchem Ind.
http://www.allchem.com; Ashland
http://www.ashchem.com; BASF http://www.basf.com; Chemical
http://www.thechemco.com; Fabrichem
http://www.fabricheminc.com; Fluka
†=pharmaceutical grade

Butoxyphenone
CAS 495-40-9; EINECS/ELINCS 207-799-7
Synonyms: Butanoyl benzene; 1-Phenyl butan-1-one; Phenyl propyl ketone
Empirical: C₁₀H₁₂O
Formula: C₆H₅COCH₂CH₂CH₃
Properties: Colorless cl. liq.; sol. in alcohol; insol. in water; m.w. 148.21; dens. 1.021; b.p. 204-205 C; flash pt. (OC) 98 C; ref. index 1.4348; volatile with steam; hydrolyzed by hot alcohol sol'n.s.
Toxicology: LD₅₀ (oral, rat) 1800 mg/kg, (IP, rat) 1000 mg/kg; mod. toxic by ingestion, IV, IP routes; suspected carcinogen, tumorigen; experimental reproductive effects; mutagenic data; TSCA listed
Environmental: VOC; ThOD 1.67
Precaution: Combustible when exposed to heat or flame; reactive with oxidizing materials
Hazardous Decomp. Prods.: Heated to decomp., emits acrid and irritating fumes
NFPA: Health 0, Flammability 1, Reactivity 0
Storage: Hygroscopic
Uses: Solvent, stabilizer for pharmaceuticals; pharmaceutical intermediate
Regulatory: FEMA GRAS; Canada DSL
Manuf./Distrib.: Advanced Synthesis Tech.
http://www.advancedsynthesis.com;
Aldrich http://www.sigma-aldrich.com;
Fluka http://www.sigma-aldrich.com;
Sigma http://www.sigma-aldrich.com/belgium

Butyrospermum parkii. See Shea butter (Butyrospermum parkii) unsaponifiables; Shea butter (Butyrospermum parkii); Shea butter (Butyrospermum parkii) extract
Butyrospermum parkii butter; Butyrospermum parkii fruit. See Shea
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Chemical Component</th>
<th>Synonym(s)</th>
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<tbody>
<tr>
<td>Butter (Butyrospermum parkii)</td>
<td>See Shea butter (Butyrospermum parkii) unsaponifiables</td>
</tr>
<tr>
<td>Butyrospermum parkii unsaponifiables</td>
<td>See Butyrylactic acid butyl ester, Butyl butyryl lactate, Butyryl lactone, Butyryl triglyceride, Buxus chinensis, Jojoba (Buxus chinensis) oil</td>
</tr>
<tr>
<td>Butyrylactic acid butyl ester</td>
<td>SeeButyl butyryl lactate, Butyryl lactone, Butyryl triglyceride, Buxus chinensis, Jojoba (Buxus chinensis) oil</td>
</tr>
<tr>
<td>Butyl butyryl lactate</td>
<td>SeeButyrylactic acid butyl ester, Butyl butyryl lactate, Butyryl lactone, Butyryl triglyceride, Buxus chinensis, Jojoba (Buxus chinensis) oil</td>
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<tr>
<td>Butyryl lactone</td>
<td>See Butyrolactone, Butyryl triglyceride, Buxus chinensis, Jojoba (Buxus chinensis) oil</td>
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<td>Butyryl triglyceride</td>
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<tr>
<td>Buxus chinensis</td>
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<td>CA</td>
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<td>C8 acid</td>
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<td>C18-36 acid glycol ester</td>
<td>CAS 94944-95-3; EINECS/ELINCS 305-673-7</td>
</tr>
<tr>
<td>Synonyms: Fatty acids, C18-36, esters with ethylene glycol</td>
<td></td>
</tr>
<tr>
<td>Definition: Ester of ethylene glycol and C18-36 acid</td>
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</tr>
<tr>
<td>Formula: ( \text{CH}_3(\text{CH}_2)_x\text{COOCH}_2\text{CH}_2\text{OH}, \text{avg. } x = 16-34 )</td>
<td></td>
</tr>
<tr>
<td>Uses: Emollient, conditioner, emulsifier, lubricant, stabilizer, suspending agent, opacifier in pharmaceuticals</td>
<td></td>
</tr>
<tr>
<td>Regulatory: Canada DSL</td>
<td></td>
</tr>
<tr>
<td>Trade Names: Syncrowax ERLC</td>
<td></td>
</tr>
<tr>
<td>C18 acid triglyceride</td>
<td>CAS 91052-08-3; EINECS/ELINCS 293-165-5</td>
</tr>
<tr>
<td>Synonyms: Glycerides, C18-36</td>
<td></td>
</tr>
<tr>
<td>Definition: Triester of glycerin and C18-36 acid</td>
<td></td>
</tr>
<tr>
<td>Formula: ( (\text{CH}_2\text{OCO}(\text{CH}_2)_x\text{CH}_3)_2\text{HCOCO}(\text{CH}_2)_x\text{CH}_3, \text{avg. } x = 16-34 )</td>
<td></td>
</tr>
<tr>
<td>Uses: Emollient, conditioner, thickener, emulsifier, opacifier, lubricant, suspending agent, stabilizer, gloss aid in pharmaceuticals</td>
<td></td>
</tr>
<tr>
<td>Regulatory: Canada DSL</td>
<td></td>
</tr>
<tr>
<td>Trade Names: Softenol® 3118</td>
<td></td>
</tr>
<tr>
<td>C18-36 acid triglyceride</td>
<td>CAS 58-08-2; EINECS/ELINCS 200-362-1</td>
</tr>
<tr>
<td>Synonyms: Chloroacetophenone</td>
<td></td>
</tr>
<tr>
<td>Definition: Tristyrylphenol</td>
<td></td>
</tr>
<tr>
<td>Formula: ( \text{C}<em>8\text{H}</em>{15}\text{OH} )</td>
<td></td>
</tr>
<tr>
<td>Uses: Emollient, conditioner, thickener, emulsifier, opacifier, lubricant, suspending agent, stabilizer, gloss aid in pharmaceuticals</td>
<td></td>
</tr>
<tr>
<td>Regulatory: Canada DSL</td>
<td></td>
</tr>
<tr>
<td>Trade Names: Florence Green Seal-8</td>
<td></td>
</tr>
</tbody>
</table>

### Trade Names

- **Syncrowax HGLC**
- **Cocamidopropyl betaine**
- **Cadmium**
- **Cellulose acetate**
- **Cellulose acetate butyrate**
- **Chloracetyl chloride**
- **Cacao butter; Cacao resinoin**
- **Cocoa (Theobroma cacao) butter**
- **Caprylic acid**
- **C18-36 acid glycol ester**
- **C18 acid triglyceride**
- **Butyrospermum parkii unsaponifiables**
- **Butyrylactic acid butyl ester**
- **Butyl butyryl lactate**
- **Butyryl lactone**
- **Butyryl triglyceride**
- **Buxus chinensis**
- **Ethylene glycol**
- **C8 acid triglyceride**
- **C18-36 acid triglyceride**
- **Caffeine**
- **Florence Green Seal-8**
- **Calamata oil**

### Additional Information

- **Cadmium**
  - CAS 7440-43-9
  - EINECS/ELINCS 231-152-8
  - UN 3089
  - Synonyms: CI 77180; Colloidal cadmium
  - Classification: Metallic element
  - Empirical: \( \text{Cd} \)
  - Properties: Blue-wh., soft hexagonal crystals, malleable metal or grayish-white powd.; sol. in acids; a.w. 112.41; dens. 8.642; m.p. 320.9 C; b.p. 767 C; ref. index 1.13; hardness (Mohs) 2.0
  - Toxicology: TLV 0.05 mg/m³ in air; TLV/TWA 0.01 mg (Cd)/m³ (dust); LD50 (oral, rat) 225 mg/kg, (IP, mouse) 5700 µg/kg; LC50 (inh., rat, 30 min) 25 mg/m³; highly toxic; human poison by inh.; probable poison by ing., inh., IP, IV, subcut. routes; probable human carcinogen; can cause blood, kidney, calcium disorders, bone problems; experimental teratogen, reproductive effects; mutagenic data; TSCA listed
  - Precaution: Flamm. in powd. form; dust ignites spontaneously in air; explosive exposed to heat, flame, oxidizers, metals; violent reactions possible
  - Hazardous Decomp. Prods.: Heated to high temps., emits toxic fumes of Cd
  - Uses: Colorant for topical pharmaceuticals in trace amounts
  - Regulatory: SARA reportable; Canada DSL
- **Caffeine**
  - CAS 58-08-2; EINECS/ELINCS 200-362-1
  - FEMA 2224

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**Handbook of Pharmaceutical Additives, Third Edition 1005**
Chemical Component Cross-Reference

**Synonyms:** Coffeine; 3,7-Dihydro-1,3,7-trimethyl-1H-purine-2,6-dione; Guaramine; Methyltheobromide; Methyltheobromine; 1-Methyltheobromine; 7-Methyltheophylline; 1H-Purine-2,6-dione, 3,7-dihydro-1,3,7-trimethyl-; Theine; 1,3,7-Trimethyl-2,6-dioxopurine; 1,3,7-Trimethylxanthine

**Classification:** Heterocyclic organic compd.

**Empirical:** C_{8}H_{10}N_{4}O_{2}

**Properties:** Wh. fleecy mass, powd. or need., odorless, bitter taste; freely sol. in chloroform; sl. sol. in water, alcohol, ether; m.w. 194.22; dens. 1.23; m.p. 238 C; sublimes @ 178 C; pH neutral; hydrate is efflorescent in air

**Toxicology:** LD_{50} (oral, rat) 192 mg/kg, (IP, rat) 260 mg/kg, (subcut., rat) 170 mg/kg, (IV, rat) 105 mg/kg; poison by ing., subcut., IV, IP, intramuscular, rectal routes; human poison by ing.; human systemic effects; diuretic effect; can cause blood pressure/heart rate changes, heartburn, upset stomach, diarrhea; 200-500 mg can cause headache, tremors, nervousness, and irritability; human teratogen; mutagenic data; questionable carcinogen; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of NO_{x}

**HMIS:** Health 2, Flammability 1, Reactivity 0

**Uses:** Flavor, synergist for pharmaceuticals; medicine (CNS stimulant, diuretic/analeptic drug)

**Regulatory:** FDA 21CFR §182.1180 (limitation 0.02%), GRAS; FEMA GRAS; BP, EP compliance; Canada DSL

**Manuf./Distrib.:** AMC Chems.†; AMRESCO†

http://www.amresco-inc.com; AXO Chem.†

http://www.axochemical.com; Aarti Ind. Ltd†

http://www.aartigroup.com; Aceto†

http://www.aceto.com

Adept Sol'ns.†; Alfa Aesar†

http://www.alfa.com; Alfa Chem†

http://www.alfachem1.com; Allan

http://www.allanchem.com; Am. Int'l.†

http://www.aicma.com

Amerol http://www.amerolcorp.com;

Anmar Int'l.†

http://www.anmarinternational.com;

Ashland† http://www.ashchem.com;

Asiamerica Int'l.†; BASF†

http://www.basf.com

Barrington†

http://www.barringtonchem.com; Bell

Flavors & Fragrances†

http://www.bellff.com; Boehringer

†=pharmaceutical grade

Ingelheim http://www.boehringer-ingelheim.com; Boith China

http://www.boith.com; Brenntag Southeast†

Buckton Page Ltd†

http://www.bucktonpage.com; CPI Chems.†

http://www.cpichem.com; CarboMert†

http://www.carbomer.com; Charles

Bowman† http://www.charlesbowman.com;

ChemTech Specialties†

http://www.chemtechspecialties.com

Chemacon GmbH†

http://www.chemacon.de; CoKEM Assoc.†;

Danisco Cultor

http://ingredients.danisco.com; Dastech

Int'l.† http://www.dastech.com; Degussa

AG/Health & Nutrition

Delta Distributors†; Fluka

http://www.sigma-aldrich.com; Food Ingred.

Tech. Ltd http://www.fit-ltd.com; Fuerst

Day Lawson http://www.fdl.co.uk;

Functional Foods†

http://www.functionalfoods.com

GMI Prods.† http://www.gmi-originates.com; H&A (Canada) Ind.†

http://www.hacanada.com; Hawkins Chem.†

http://www.hawkinschemical.com; Helm

NY† http://www.helmnewyork.com; Integra†

http://www.integrachem.com

Jungbunzlauwer

http://www.jungbunzlauer.com; M.W. Int'l.†;

MLG Enterprises†; MPSI† http://www.mp-solutionsinc.com; Mallinckrodt Baker†

http://www.mallbaker.com

Materia Medicat; Miljac

http://www.miljac.com; Mutchler†

http://www.mutchlerchem.com; Natra US†

http://www.natraus.com; Penta Mfg.†

http://www.pentamfg.com

Pfizer Int'l. http://www.pfizer.com;

Pharmrite N. Am.† http://pharmrite.com/;

Premium Ingreds.

http://www.premiumingredients.com;

Quimdis; R.W. Greeff†

http://www.pechiney-chemicals.com;

R.W. Greeff† http://www.rugerchemical.com

H&A (Canada) Ind.†

http://www.safcspecialties.com

Silberkette; Spectrum Specialties

http://www.spectrumchemicals.com;

Stason

Pharmaceuticals† http://www.stason.com;
Cajeput (Melaleuca leucadendron) oil

CAS 8008-98-8
UN NA 1993; FEMA 2225

Synonyms: Cajeput oil; Cajeput oil; Melaleuca leucadendron; Melaleuca leucadendron oil; Tea tree; White tea tree

Definition: Volatile oil from fresh leaves and twigs of Melaleuca leucadendron, contg. 50-60% eucalyptol and l-pinene, terpineol, and aldehydes

Properties: Colorless of ylsh. liq., agreeable camphor odor, bitter aromatic taste; misc. with alcohol, chloroform, ether, CS₂; very sl. sol. in water; sol. in 1 vol. 80% alcohol; dens. 0.912-0.925; ref. index 1.4660-1.4710 (20 C)

Toxicology: LD50 (oral, rat) 3870 mg/kg

Precaution: DOT: Flamm. liq.

HMIS: Health 2, Flammability 2, Reactivity 0

Storage: Keep well closed, cool, protected from light

Uses: Natural flavor for pharmaceuticals; expectorant; counterirritant; scabicide; rubefacient; topical antmycotic; to treat fungus infections such as athlete's foot; liniment; antiseptic for cuts; stimulant; antispasmodic; diaphoretic

Regulatory: FDA 21CFR §172.510; FEMA GRAS; Japan approved; Canada DSL

Manuf./Distrib.: Chemacon GmbH†
http://www.chemacon.de; Dastech Int'l.†
http://www.dastech.com; Gallard-Schlesinger Ind.†
http://www.gallardschlesinger.com; George Uhe
http://www.uhe.com; Mallinckrodt Baker†
http://www.mallbaker.com

Mutchler† http://www.mutchlerchem.com
Penta Mfg.† http://www.pentamfg.com
Ruger† http://www.rugerchemical.com
Spectrum Quality Prods.†
http://www.spectrumchemical.com; Voigt Global Distrib.†
http://www.vgdlc.com

Cajeput oil. See Cajeput (Melaleuca leucadendron) oil
Cajeputol. See Eucalyptol
Cake alum. See Aluminum sulfate
**Chemical Component Cross-Reference**

*calamus* contg. eugenol, asarone, stearopten

**Properties:** Yel. to ylsh.-brn. visc. liq., aromatic odor, bitter taste; misc. with alcohol; very sl. sol. in water; dens. 0.960-0.970 (20/20 C); acid no. 4.0 max.; sapon. no. 16-20; flash pt. 200 F; ref. index 1.507-1.515

**Toxicology:** LD50 (oral, rat) 777 mg/kg, (IP, rat) 221 mg/kg; poison by IP route; mod. toxic by ing.; questionable carcinogen; experimental tumorigen; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Storage:** Keep cool, well closed; protect from light

**Uses:** Natural flavor for pharmaceuticals

**Features:** Fresh sweet citrus herbal odor

**Regulatory:** FDA 21CFR §189.110, prohibited from use in food; FEMA GRAS delisted; Japan approved (calamus); Canada DSL

**Manuf./Distrib.:** Acme-Hardesty
- [http://www.acme-hardesty.com](http://www.acme-hardesty.com)
- Buckton Page Ltd [http://www.bucktonpage.com](http://www.bucktonpage.com)
- Chemtex International [http://www.chemtexinternational.com](http://www.chemtexinternational.com)

**Calcarea absorbens.** See Soda lime

**Calcia.** See Calcium oxide

**Calcite (2-), ((ethylenedinitrilo) tetraacetato)-, disodium.** See Calcium disodium EDTA

**Calciferol.** See Ergocalciferol

**Calcedal alumina.** See Alumina

**Calcined magnesia; Calcined magnesite.** See Magnesium oxide

**Calcined soda.** See Sodium carbonate

**Calciofon.** See Calcium gluconate

**Calciiol.** See Cholecalciferol

**Calcite.** See Calcium carbonate

**Calcium acetate**

CAS 62-54-4 (anhyd.); 5743-26-0 (monohydrate); EINECS/ELINCS 200-540-9

**FEMA** 2228; INS263; E263

**Synonyms:** Acetate of lime; Brown acetate; Calcium diacetate; Gray acetate; Lime acetate; Lime pyrolignite; Vinegar salts

**Definition:** Calcium salt of acetic acid

**Empirical:** C4H6CaO4; C4H6CaO4 • H2O

**Formula:** (CH3COO)2Ca (anhyd.) or (CH3COO)2Ca • H2O (monohydrate)

**Properties:** Wh. powd., odorless or almost odorless, sl. bitter taste; sol. in water; sl. sol. in alcohol; pract. insol. in acetone, dehydrated

**Preservative for pharmaceuticals, orals, topicals**

**Regulatory:** FDA 21CFR §175.300, 181.22, 181.29, 182.6197, 184.1185, GRAS; FEMA GRAS; Europe listed; UK approved; approved for orals, topicals; BP, EP compliance; Canada DSL

**Manuf./Distrib.:** AMRESCO†
- [http://www.amresco-inc.com](http://www.amresco-inc.com)
- [Aerchem](http://www.aerchem.com)
- [http://www.aerchem.com](http://www.aerchem.com)
- [Aldrich†](http://www.sigma-aldrich.com)
- [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
- [Allan†](http://www.allanchem.com)
- [Alfa Aesar†](http://www.alfa.com)
- [http://www.allanchem.com](http://www.allanchem.com)
- [http://www.alfa.com](http://www.alfa.com)
- [Barium & Chems.](http://www.bariumchemicals.com)
- [Boith China](http://www.boith.com)
- [Charkit](http://www.charkit.com)
- [http://www.charkit.com](http://www.charkit.com)
- [Chemacon GmbH†](http://www.chemacon.de)
- [Degussa AG/Health & Nutrition; EMD Chems.†](http://www.emdchemicals.com)
- [http://www.emdchemicals.com](http://www.emdchemicals.com)
- [Fluka](http://www.sigma-aldrich.com)
- [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
- [Gallard-Schlesinger Ind.†](http://www.gallard-schlesinger.com)
- [http://www.gallard-schlesinger.com](http://www.gallard-schlesinger.com)
- [Independent Chem.](http://www.independentchemical.com)
- [Integra†](http://www.integrachem.com)
- [Jarchem Ind.](http://www.jarchem.com)
- [Kemira ChemSolutions BV](http://www.kemira.com)
- [Lohmann](http://www.lohmann-chemikalien.de)
- [Mallinckrodt Baker†](http://www.mallbaker.com)
- [http://www.mallbaker.com](http://www.mallbaker.com)
- [Niacet](http://www.niacet.com)
- [Noah](http://www.noahtech.com)
- [Penta Mfg.†](http://www.pentamfg.com)
- [http://www.pentamfg.com](http://www.pentamfg.com)
- [Richman†](http://www.richmanchemical.com)
- [http://www.richmanchemical.com](http://www.richmanchemical.com)
- [Ruger†](http://www.rugerchemical.com)
- [http://www.rugerchemical.com](http://www.rugerchemical.com)
- [Sigma](http://www.sigma-aldrich.com/belgium)
Chemical Component Cross-Reference

Spectrum Quality Prods.†
http://www.spectrumchemical.com; St. Lawrence http://www.stlawrencechem.com
Universal Preserv-A-Chem†
http://www.upichem.com; VWR Int'l.†
http://www.vwrsp.com; Voigt Global Distrib.† http://www.vgdllc.com

Calcium alginate
CAS 9005-35-0
FEMA 2015; INS404; E404
Synonyms: Alginic acid, calcium salt
Classification: Aliphatic organic compd.
Definition: Calcium salt of alginic acid
Empirical: (C_{12}H_{14}CaO_{12})_n
Formula: [(C_6H_7O_6)_{2}Ca]_n
Properties: Wh. or cream-colored powd. or filaments, sl. odor and taste; sol. in alkaline sol'n.; insol. in water, acid, org. solvs.; m.w. 195.16
Toxicology: LD50 (IP, rat) 1407 mg/kg, (IV, rat) 64 mg/kg; poison by IV route; mod. toxic by IP route; TSCA listed
Precaution: Flamm.

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Antioxidant, color fixative, preservative in pharmaceuticals, orals; vitamin C source; antiscorbutic vitamin
Regulatory: FDA 21CFR §182.3189, GRAS; approved for orals; Europe listed; UK approved; BP, EP compliance; Canada DSL

Trade Names Containing: KELTOSE®

Calcium ascorbate
CAS 5743-27-1; 5743-28-2 (dihydrate); EINECS/ELINCS 227-261-5
INS302; E302
Synonyms: Ascorbic acid calcium salt
Empirical: C_{12}H_{14}CaO_{12} (anhyd.); C_{12}H_{14}CaO_{12} • 2H_2O (dihydrate)
Formula: Ca(C_6H_7O_6)_2 • 2H_2O (dihydrate)
Properties: Wh. to sl. yel. cryst. powd., pract. odorless; freely sol. in water; sl. sol. in alcohol; insol. in ether, methanol, ethanol; m.w. 390.31 (anhyd.), 426.35 (dihydrate); m.p. 16 C (dec.) (dihydrate); pH 6.8-7.4 (10% sol'n.)

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Antioxidant, color fixative, preservative in pharmaceuticals, orals; vitamin C source; antiscorbutic vitamin
Regulatory: FDA 21CFR §182.3189, GRAS; approved for orals; Europe listed; UK approved; BP, EP compliance; Canada DSL

Trade Names: Calcium Ascorbate USP FCC

Trade Names Containing: C.Cal-97™ Calcium Ascorbate for DC

Calcium bentonite
Synonyms: Calcium montmorillonite
Classification: Nonswelling bentonite
Properties: Tan to yelsh. fine powd.; pH 7-9
Uses: Carrier in pharmaceutical topicals
Features: Nonswelling
Manuf./Distrib.: Cimbar Perf. Mins.
Chemical Component Cross-Reference

http://www.cimbar.com

Trade Names Containing: Cal-Ben™

Calcium benzoate
CAS 2090-05-3; EINECS/ELINCS 218-235-4
INS213; E213
Synonyms: Benzoic acid calcium salt; Calcium dibenzoate
Definition: Calcium salt of benzoic acid
Empirical: C₁₄H₁₀CaO₄ (anhyd.); C₁₄H₁₀CaO₄ • 3H₂O (trihydrate)
Properties: Avail. as the trihydrate; wh. orthorhombic cryst. or powd.; sl. sol. in water; m.w. 282.31 (anhyd.), 374.26 (trihydrate); dens. 1.44 kg/l
Toxicology: May cause an intolerance reaction in some people
Precaution: Combustible exposed to heat or flame
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Preservative for pharmaceuticals
Regulatory: FDA 21CFR §166.110, 178.2010; USDA 9CFR §318.7; Europe listed; Canada DSL
Trade Names: Gluconal® CAMB
Calcium carbonate
CAS 471-34-1; 1317-65-3; EINECS/ELINCS 207-439-9
INS170i; E170i
Synonyms: Agricultural limestone; Allied whiting; Calcite; Calcium carbonate (INCI); Calcium carbonate (1:1); Calcium carbonate, precipitated; Calcium monobasic carbonate; Carbonic acid calcium salt; Carbonic acid calcium salt (1:1); Chalk; CI 77220; Dolomite; Drop chalk; English white; Franklin; Limestone; Lithographic stone; Marble; Monocalcium carbonate; Natural calcium carbonate; Paris white; Pigment white 18; Portland stone; Precipitated calcium carbonate; Precipitated chalk; Prepared chalk; Vaterite; Vienna white; White powder; Whiting
Classification: Inorganic salt
Definition: Found in nature as the minerals limestone, marble, aragonite, calcite, and vaterite
Empirical: C₇C₆O₃
Formula: CO₃ • Ca
Properties: Wh. powd. or colorless crystals; odorless; tasteless; sol. in dil. acids; very sl. sol. in water; insol. in alcohol; m.w. 100.09; dens. 2.7-2.95; bulking value 0.045 gal/lb; oil absorb. 63; m.p. 825 C (dec.); stable in air; noncombustible
Toxicology: ACGIH TLV/TWA 10 mg/m³ of air (nuisance particulate); LD₅₀ (oral, rat) 6450 mg/kg; mildly toxic by ing.; severe eye and mod. skin irritant; irritating to respiratory system; common air contaminant; may cause kidney damage, CNS effects; TSCA listed
Precaution: Ignites on contact with F₂; Incompat. with acids, alum, ammonium salts
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating vapors
HMIS: Health 1, Flammability 0, Reactivity 0
Storage: Hygroscopic; store in a cool, dry, well-ventilated area away from incompatible
Chemical Component Cross-Reference

substances

Uses: Alkali, neutralizer, colorant, opacifier in pharmaceuticals, implants, orals, otics; tablet/capsule diluent; tooth polish in dentifrices; filler in deodorants; gastric antacid; anti diarrheal medicine

Regulatory: FDA 21CFR §73.1070, 137.105, 137.155, 137.160, 137.165, 137.170, 137.175, 137.180, 137.185, 169.115, 175.300, 176.170, 177.1460, 177.1600, 177.1680, 177.2260, 178.3297, 181.22, 181.29, 184.1191, 184.1409, GRAS; BATF 27CFR §240.1051, limitation 30 lb/1000 gal of wine; Japan approved (1-2%); Europe listed; UK approved; FDA approved for implants, orals, otics, permanently listed; USP/NF, BP, EP compliance

Manuf./Distrib.: AAE Chemie NV†

Aldrich† http://www.sigma-aldrich.com;
Alfa Aesar† http://www.sigma-aldrich.com;
Alfa Chem† http://www.sigma-aldrich.com;
AluChem http://www.aluchem.com; Am. Ingreds.†
http://www.americaningredients.com

Amerol http://www.amerolcorp.com;
Archway Sales http://www.archwaysales.com; Ashland† http://www.ashchem.com; Asiamerica Int'l.†; Atomergic Chemetals†
http://www.atomergic.com

Austin† http://www.austinchemical.com;
Aventis Pharmaceuticals† http://www.aventispharma-us.com; BASF http://www.basf.com; Barringtonon† http://www.barringtonchem.com; Brenntag Southeast†

C.P. Hall http://www.cphall.com; Camida Ltd† http://www.camida.com; Cerac http://www.cerac.com; Charkit† http://www.charkit.com; Charles B. Chrystal† http://www.cbchrystal.com

ChemTech Specialties† http://www.chemtechspecialties.com;

†=pharmaceutical grade


Fortitech† http://www.fortitech.com;
Functional Foods† http://www.functionalfoods.com; GFS† http://www.gfscemicals.com

Gallard-Schlesinger Ind.† http://www.gallard-schlesinger.com;
Generichem† http://www.generichem.com;
H.M. Royal http://www.hmroyal.com;


Luzenac Am.† http://www.luzenac.com
MPS† http://www.mp-solutionsinc.com;
Mallinckrodt Baker† http://www.mallbaker.com; Melchimie bv http://www.melchimie.com; Merck KGaA† http://www.merck.de

Miljac http://www.miljac.com; Mississippi Lime http://www.mississippilime.com;
Mutcher† http://www.mutchlerchem.com;
Noah† http://www.noahtech.com

Punda Mercantile http://www.punda.com
Sigma http://www.sigma-aldrich.com/belgium

Solvay SA† http://www.solvay.com;
Specially Mins.† http://www.mineralstech.com; Spectrum Quality Prods.† http://www.spectrumchemical.com; St. Lawrence
Chemical Component Cross-Reference

Handbook of Pharmaceutical Additives, Third Edition

†=pharmaceutical grade

carboxymethyl ether calcium salt

Definition: Calcium salt of a polycarboxymethyl ether of cellulose

Properties: Wh. to lt. yel. powd., odorless

Toxicology: LD50 (oral, rat) 4400 mg/kg, (oral, mouse) 6800 mg/kg; TSCA listed

Storage: Preserve in tight containers

Uses: Thickener, stabilizer, gellant, suspending agent for pharmaceuticals, orals; tablet disintegrant

Regulatory: USP/NF compliance; Japan approved; restricted; 2% max. in foods; FDA approved for orals


Trade Names Containing: Descote® Thiamine Mononitrate 33½%; Thiamine Mononitrate 98 DC

Calcium carrageenan

CAS 9049-05-2

Synonyms: Algin gum; Calcium carrageenin; Calcium carragheenan; Carrageenan, calcium salt; Carrageenan, calcium (II) salt

Definition: Calcium salt of carrageenan; mixt. of highly sulfated polygalactosides, extracted from seaweed

Toxicology: LD50 (oral, rat) 5140 mg/kg, (oral, mouse) 8710 mg/kg; mod. toxic by ing.; experimental reproductive effects; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of SOx

Uses: Emulsifier, stabilizer, thickener for pharmaceuticals, orals


Calcium carbonate (INCI); Calcium carbonate (1:1); Calcium carbonate, precipitated. See Calcium carbonate

Calcium carboxymethyl cellulose

CAS 9050-04-8

Synonyms: Calcium cellulose glycolate; Carboxymethylcellulose calcium; Carmellose calcium; Cellulose
Calcium carrageenin; Calcium carragheenate.  
See Calcium carrageenan

Calcium caseinate  
CAS 9005-43-0  
Synonyms: Casein, calcium salt; Casseins, calcium complexes  
Definition: Calcium salt of casein  
Properties: Wh. or sl. yel. powd., nearly odorless; insol. in cold water  
Uses: Dietary supplement for pharmaceuticals  
Features: Milky appearance, smooth feel in the mouth  
Regulatory: FDA 21CFR §135.110, 135.140, 172.840, GRAS; Canada DSL  
Manuf./Distrib.: Alfa Chem  
http://www.alfachem1.com; Am. Casein  
http://www.americancasein.com; Blossom Farm Prods.; DMV USA  
http://www.dmv-international.com; Excelpro  
Pangaea Sciences  
http://www.pangaeasciences.com; Premium Ingreds.  
http://www.premiumingredients.com  
Trade Names: CC-901; CC-902I

Calcium cellulose glycolate.  See Calcium carboxymethyl cellulose

Calcium chloride  
CAS 10043-52-4 (anhyd.); 10035-04-8 (dihydrate); 7774-34-7 (hexahydrate); EINECS/ELINCS 233-140-8  
INS509; E509  
Synonyms: Calcium chloride anhydrous  
Classification: Inorganic salt  
Empirical: CaCl2 (anhyd.); CaCl2 • 2H2O (dihydrate)  
Properties: Grayish-wh. cryst., granules, lumps, or flakes; odorless; freely sol. in water and alcohol; m.w. 110.99 (anhyd.), 147.01 (dihydrate); dens. 2.16 (anhyd.), 1.83 (dihydrate); m.p. 772 C (anhyd.), 176 C (dihydrate); b.p. > 1600 C; pH 4.5-9.2 (5%)  
Toxicology: LD50 (oral rat) 1000 mg/kg, (IP, rat) 264 mg/kg; poison by IV, intramuscular, IP, subcut. routes; mod. toxic by ing. causing stomach and heart disturbances; severe eye irritant; human systemic effects; tumorigen; mutagen; questionable carcinogen; TSCA listed  
Precaution: Reacts violently with BrF3, (B2O3 + CaO); reaction with zinc releases  
†=pharmaceutical grade  
explosive hydrogen gas; exothermic reaction with water  
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of Cl⁻  
HMIS: Health 1, Flammability 0, Reactivity 0  
Storage: Hygroscopic; deliq.; store @ R.T.; keep well closed  
Uses: Firming agent, antimicrobial, desiccant in pharmaceuticals, injectables, ophthalmics, orals; antiseptic in eye lotions; diuretic; urinary acidifier  
Regulatory: FDA 21 CFR §133.102, 133.108, 133.111, 133.113, 133.118, 133.127, 133.136, 133.138, 133.141, 145.145, 150.141, 150.161, 172.560, 178.1010, 184.1193, GRAS; USDA 9CFR §318.7, 381.147, 3% max.; Canada DSL; Japan approved (1% max.); Europe listed (ADI not specified); UK approved; WHO limitation: 350-800 mg/kg (canned fruits/veg.), 200 mg/kg (preserves, processed cheese); approved for injectables, ophthalmics, orals; USP/NF, BP, EP compliance  
Manuf./Distrib.: AAE Chemie NV†  
http://www.aaecemie.com; AB R Lundberg  
http://www.norfoods.se/lundberg; AMRESCO†  
http://www.amresco-inc.com; Akzo Nobel Salt  
http://www.akzonobelsalt.com; Aldrich†  
http://www.sigma-aldrich.com; Alfa Aesar†  
http://www.alfa.com; Allan  
http://www.allanchem.com; Am. Int'l.†  
http://www.aicma.com; Arkema  
http://www.total.com; Ashland†  
http://www.ashchem.com  
BCH Brühl  
http://www.bch-bruehl.de; Boith China†  
http://www.boith.com; Brenntag AG†  
http://www.brenntag.de; Brenntag South-east†; Charkit  
http://www.charkit.com; ChemTech Specialties†  
http://www.chemtechspecialties.com; Chemacon GmbH†  
http://www.chemacon.de; DC Chem.  
http://www.dsm.com; Degussa AG/Health & Nutrition  
Delta Distributors†; Dow†  
http://www.dow.com; EMD Chems.†  
http://www.emdchemicals.com; FBC Ind.  
http://www.fbcindustries.com; Fluka  
http://www.sigma-aldrich.com; Fortitech†  
http://www.fortitech.com; GFS†  
http://www.gfschemicals.com; Gallard-Schlesinger Ind.†  
http://www.gallard-schlesinger.com; Great Lakes  
http://www.chemacon.de; DC Chem.  
http://www.dsm.com; Degussa AG/Health & Nutrition  
Delta Distributors†; Dow†  
http://www.dow.com; EMD Chems.†  
http://www.emdchemicals.com; FBC Ind.  
http://www.fbcindustries.com; Fluka  
http://www.sigma-aldrich.com; Fortitech†  
http://www.fortitech.com; GFS†  
http://www.gfschemicals.com; Gallard-Schlesinger Ind.†  
http://www.gallard-schlesinger.com; Great Lakes
Calcium chloride anhydrous. See Calcium chloride

Calcium citrate
CAS 813-94-5 (anhydrous); 5785-44-4 (tetrahydrate); EINECS/ELINCS 212-391-7

INS 333; E333
Synonyms: Calcium citrate tertiary; Dicalcium citrate; Lime citrate; Tricalcium citrate; Tricalcium dicitrate
Empirical: C_{12}H_{10}Ca_{3}O_{14} • 4H_{2}O
Formula: Ca_{3}(C_{6}H_{5}O_{7})_{2} • 4H_{2}O (tetrahydrate)
Properties: Wh. fine powd., odorless; sl. sol. in water; pract. insol. in alcohol; sol. in dil. HCl and nitric acid; m.w. 570.50 (tetrahydrate);

‡=pharmaceutical grade
loses water of cryst. @ 100 C, dec. @ 230 C

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

HMIS: Health 1, Flammability 0, Reactivity 0
Uses: Dietary supplement, nutrient, calcium source, sequestrant, antioxidant, buffer, pH control agent, stabilizer in pharmaceuticals, orals, supplements, tablets; cleaning agent in dentificries

Regulatory: FDA 21CFR §133.169, 133.173, 133.179, 150.141, 150.161, 182.6195, 184.1195, GRAS; Japan approved (1% max. as calcium); Europe listed; UK approved; approved for orals; Canada DSL

Manuf./Distrib.: AAA Int'l.
http://www.aaainternational.com; ADA Int'l.

## Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Chemical Component Cross-Reference</th>
<th>Canada DSL Manuf./Distrib.: AB R Lundberg</th>
</tr>
</thead>
</table>
| Calcium cyclohexanesulfamate       | Sigma-Aldrich† http://www.sigma-
aldrich.com; Sigma http://www.sigma-
| Calcium diacetate                  | See Calcium acetate                       |
| Calcium dibenzoate                 | See Calcium benzoate                      |
| Calcium diborogluconate            | See Calcium borogluconate                 |
| Calcium diethylene triamine       | See Calcium trisodium pentetate           |
| Calcium diphosphate                | See Calcium fluoride                      |
| Calcium di-D-gluconate             | See Calcium gluconate                     |
| Calcium dihydrogen phosphate      | See Calcium phosphate monobasic anhydrous |
| Calcium dihydroxide               | See Calcium hydroxide                     |
| Calcium d-(+)-N-(α,γ-dihydroxy-β,β- | dimethylbutyryl)-β-alanine; Calcium N- | (2,4-dihydroxy-3,3-dimethyl-1-oxobutyl-β- | alanine. See Calcium D-pantothenate |
| Calcium diiodide                   | See Calcium iodide                        |
| Calcium dlactate                   | See Calcium lactate                       |
| Calcium diocyl sulfosuccinate      | See Diocyl calcium sulfosuccinate         |
| Calcium diphosphate                | See Calcium pyrophosphate                 |
| Calcium dipropionate               | See Calcium propionate                    |
| Calcium disalicylate               | See Calcium salicylate                    |
| Calcium disodium edathamil         | Calcium disodium edetate. See Calcium disodium EDTA |
| Calcium disodium EDTA              | CAS 62-33-9 (anhyd.); 23411-34-9; EINECS/ELINCS 200-529-9 |
| Calcium dihydrogen phosphate       | Sigma-Aldrich† http://www.sigma-
aldrich.com; Sigma http://www.sigma-
| Calcium diacetate                  | See Calcium acetate                       |
| Calcium dibenzoate                 | See Calcium benzoate                      |
| Calcium diborogluconate            | See Calcium borogluconate                 |
| Calcium diethylene triamine       | See Calcium hydroxide                     |
| Calcium d-(+)-N-(α,γ-dihydroxy-β,β- | dimethylbutyryl)-β-alanine; Calcium N- | (2,4-dihydroxy-3,3-dimethyl-1-oxobutyl-β- | alanine. See Calcium D-pantothenate |
| Calcium diiodide                   | See Calcium iodide                        |
| Calcium dlactate                   | See Calcium lactate                       |
| Calcium diocyl sulfosuccinate      | See Diocyl calcium sulfosuccinate         |
| Calcium diphosphate                | See Calcium pyrophosphate                 |
| Calcium dipropionate               | See Calcium propionate                    |
| Calcium disalicylate               | See Calcium salicylate                    |
| Calcium disodium edathamil         | Calcium disodium edetate. See Calcium disodium EDTA |
| Calcium disodium EDTA              | CAS 62-33-9 (anhyd.); 23411-34-9; EINECS/ELINCS 200-529-9 |

## Calcium citrate tertiary

### See Calcium citrate

#### Calcium cycamate

- **CAS**: 139-06-0
- **INS952**

#### Synonyms:

- Calcium cyclohexanesulfamate
- Calcium cyclohexyl sulfamate
- Cyclamate calcium
- Cyclamate, calcium salt
- Cyclamic acid calcium salt
- Cyclamic acid hemicalcium salt
- Cyclohexanesulfamic acid calcium salt
- Sucaryl calcium

#### Empirical:

- C₆H₁₂NO₃S • ½Ca

#### Formula:

- \((C₆H₁1NH₂SO₃)₂Ca • 2H₂O\)

#### Properties:

- Wh. cryst. powd.; odorless; sweet taste; freely sol. in water; pract. insol. in alcohol, benzene, chloroform; m.w. 198.3

#### Toxicology:

- LD₅₀ (oral, rat) 10 mg/kg; poison by ing. and IV routes; questionable carcinogen; experimental tumorigen and neoplastigen; experimental reproductive effects; human mutagenic data; TSCA listed

#### Hazardous Decomp. Prods.:

- Heated to decomp., emits very toxic fumes of SOₓ and NOₓ

#### Uses:

- Nonnutritive sweetener in pharmaceuticals

#### Regulatory:

- FDA 21CFR §189.135; prohibited from direct addition or use in human food;
Calcium disodium edathamil; Calcium disodium edetate; Calcium disodium ethylenediamine tetraacetic acid; Calcium EDTA; Disodium calcium ethylenediaminetetraacetate; Edetate calcium disodium; Edetic acid calcium disodium salt; EDTA calcium disodium salt; Ethylenediaminetetraacetic acid, calcium disodium salt; Sodium calcium edetate

Classification: Substituted diamine

Definition: Mixt. of calcium disodium ethylenediaminetetraacetate dihydrate (predominantly) and trihydrate

Empirical: $\text{C}_{10}\text{H}_{12}\text{CaN}_{2}\text{Na}_2\text{O}_8$

Formula: $\text{CaNa}_2\text{C}_{10}\text{H}_{12}\text{N}_2\text{O}_8$

Properties: Wh. cryst. powd. or gran., odorless, faint salt taste; sol. in water; insol. in org. solvs.; m.w. 374.27 (anhyd.), 410.30 (dihydrate); bulk dens. 0.67; pH 6.5-8.0; stable in air

Toxicology: LD50 (oral, rat) 10 g/kg, (IP, rat) 3850 mg/kg; mod. toxic by IP route; mildly toxic by ing. and IV routes; possible link to liver damage in test animals; TSCA listed

Hazardous Decomp. Prods.: Heated to decom., emits toxic vapors of NOx

Storage: Sl. hygroscopic

Uses: Sequestrant, chelating agent for control of trace metal contamination in pharmaceuticals, injectables (IM, IV), intravenous, orals; preservative; medicine (treating lead poisoning)

Regulatory: FDA 21CFR §73.1, 155.200, 155.201, 161.173, 166.110, 169.115, 169.140, 169.150, 172.120, 172.135, 175.105, 176.170; USDA 9CFR §318.7; Canada DSL; Japan approved (0.035 g/kg max.); m.p. 1360 C; b.p. $\approx 2500$ C

Toxicology: LD50 (oral, rat) 4250 mg/kg, (IP, mouse) 2638 mg/kg; mildly toxic by ing.; mod. toxic by IP route; irritant; mutagen; experimental teratogen; TSCA listed

Hazardous Decomp. Prods.: Heated to decom., emits toxic fumes of F–

NFPA: Health 1, Flammability 0, Reactivity 0

Storage: Hygroscopic; store in a tightly closed container in a cool, dry place

Uses: Oral care agent; used in the mfg. of a wide range of pharmaceuticals

Regulatory: Canada DSL


†=pharmaceutical grade


Trade Names: Dissolvine® E-CA-10; Versene CA

Calcium disodium ethylenediamine tetraacetic acid. See Calcium disodium EDTA

Calcium distearate. See Calcium stearate

Calcium diundec-10-enoate. See Calcium undecylenate

Calcium DTPA. See Calcium trisodium pentetate

Calcium EDTA. See Calcium disodium EDTA

Calcium fluoride

CAS 7789-75-5; EINECS/ELINCS 232-188-7

Synonyms: Acid-spar; Calcium difluoride; Fluoritel; Fluorspar

Empirical: CaF$_2$

Properties: Color or wh. cryst. powd.; luminous when heated; insol. in water; sol. in ammonium salts, acids; pract. insol. in water; m.w. 78.08; dens. 3.180; m.p. 1360 C; b.p. $\approx 2500$ C

Toxicology: LD50 (oral, rat) 4250 mg/kg, (IP, mouse) 2638 mg/kg; mildly toxic by ing.; mod. toxic by IP route; irritant; mutagen; experimental teratogen; TSCA listed

Hazardous Decomp. Prods.: Heated to decom., emits toxic fumes of F–

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Toxicology: LD50 (oral, rat) 4250 mg/kg, (IP, mouse) 2638 mg/kg; mildly toxic by ing.; mod. toxic by IP route; irritant; mutagen; experimental teratogen; TSCA listed

Hazardous Decomp. Prods.: Heated to decom., emits toxic fumes of F–

NFPA: Health 1, Flammability 0, Reactivity 0

Storage: Hygroscopic; store in a tightly closed container in a cool, dry place

Uses: Oral care agent; used in the mfg. of a wide range of pharmaceuticals

Regulatory: Canada DSL


†=pharmaceutical grade
Chemical Component Cross-Reference

†=pharmaceutical grade

Solvay GmbH  [http://www.solvay.com/de];
Spectrum Quality Prods.†
[http://www.spectrumchemical.com]; VWR Int'l.†
[http://www.vwrsp.com]

Calcium fumarate
CAS 3416-22-6; 19855-56-2; EINECS/ELINCS 243-376-3

INS367
Synonyms:  Fumarate, calcium
Empirical:  CaH2CaO4
Properties:  Wh. powd.; pract. odorless; sol. 1%
in water; m.w. 154.14; pH 5.5-7.5
Uses:  Dietary supplement; calcium source in
        tablets for mineral enrichment
Regulatory:  FDA 21CFR §172.350
Manuf./Distrib.:  ABCR [http://www.abcr.de];
                Gadot Biochem. Ind.
                Research Prods.  [http://www.mpbio.com];
                Lohmann  [http://www.lohmann-chemikalien.de];
                Parchem Trading  [http://www.par-chem.com]

Calcium 4-((β-d-galactosido)-d-gluconate.  See
Calcium lactobionate

Calcium glubionate
CAS 12569-38-9
Synonyms:  Calcium D-gluconate lactobionate monohydrate; Calcium glucono galacto
         gluconate
Classification:  Calcium salt
Empirical:  C18H32O19Ca • H2O
Properties:  Wh. cryst. or gran. powd.; m.w. 610.53; freely sol. in boiling water; pH ± 1
           (above 5% w/v sol'n.)
Toxicology:  Absorption inhibited by high phosphate intake; high osmotic load of syrup
         may cause diarrhea
Storage:  Store in well-closed container in dry place @ ambient temps.
Uses:  Calcium source, dietary supplement for pharmaceuticals, orals, injections, syrups,
         low-birth-wt. infants, treatment of hypocalcemia, calcium deficiency, hypoparathyroidism,
         osteoporosis, rickets
Regulatory:  USP compliance
Manuf./Distrib.:  Shan Par Ind.†
                [http://www.shanpar.com]

Calcium D-gluarate (1:1) tetrahydrate.  See
Calcium saccharate

Calcium gluceptate
CAS 17140-60-2; 29039-00-7 (dihydrate);
EINECS/ELINCS 241-203-6

†=pharmaceutical grade

Synonyms:  Calcium glucoheptonate (1:2);
Calcium α-D-heptagluconate;
Glucoheptonic acid, calcium salt (2:1); α-D-
Glucoheptonic acid, calcium salt
Definition:  Calcium salt of the alpha epimer of
         glucoheptonic acid
Empirical:  C14H26CaO16 (anhyd.); C14H26CaO16 •
2H2O (dihydrate)
Properties:  Wh. to very lt. yel. amorphous powd.;
           sol. in water; insol. in alcohol, many org. solvs.;
           m.w. 490.43 (anhyd.), 526.46 (dihydrate); pH
           6-8 (10%)
Toxicology:  LD50 (IV, mouse) 1170 mg/kg;
            TSCA listed
Precaution:  Stable in air, but hydrous forms may
            lose part of their water of hydration on standing
Uses:  Nutritional supplement, mineral,
        calcium source in pharmaceuticals,
        injectables
Regulatory:  Approved for injectables; Canada
            DSL
Manuf./Distrib.:  Ferro Pfanstiehl Europe†;
                Fluka [http://www.sigma-aldrich.com];
                Sigma [http://www.sigma-aldrich.com/belgium];
                Spectrum Quality Prods.†
                [http://www.spectrumchemical.com]; Voigt
                Global Distrib.† [http://www.vgdllc.com]

Calcium glucoheptonate (1:2).  See Calcium
         gluceptate

Calcium gluconate
CAS 299-28-5 (anhyd.); 18016-24-5
       (monohydrate); EINECS/ELINCS 206-075-8
INS578; E578
Synonyms:  Calciiofon; Calcium di-D-
         gluconate; Calcium d-gluconate; Calcium
         hexagluconate, Calgluco; Calglucoon;
         Gluca; Gluconic acid calcium salt; D-
         Gluconic acid calcium salt; d-Gluconic
         acid, calcium salt (2:1)
Definition:  Calcium salt of D-gluconic acid
Empirical:  C12H22O14 • Ca
Formula:  Ca[HOCH2(CHOH)4COO]2
Properties:  Wh. fluffy powd. or gran., odorless,
         pract. tasteless; sol. in hot water; insol. in
         alcohol, acetic acid, other org. solvs.; sparingly
         and slowly sol. in water; stable in air; m.w.
         430.4 (anhyd.), 448.39 (monohydrate); m.p.
         loses water @ 120 C; pH neutral
Toxicology:  LD50 (IV, rat) 950 mg/kg, (subcut.,
            mouse) 2890 mg/kg; mod. toxic by subcut.,
            IP, IV routes; human systemic effects in
            infants by intramuscular route (dermatitis,
Chemical Component Cross-Reference

Calcium d-gluconate. See Calcium gluconate
Calcium D-gluconate lactobionate monohydrate; Calcium glucono galacto gluconate. See Calcium glucionate
Calcium α-D-heptagluconate. See Calcium gluceptate
Calcium 2,4-hexadienoate. See Calcium sorbate
Calcium hexagluconate. See Calcium gluconate
Calcium hydrate. See Calcium hydroxide
Calcium hydrogen orthophosphate; Calcium hydrogen phosphate; Calcium hydrogen phosphate anhydrous. See Calcium phosphate dibasic
Calcium hydrogen phosphate dihydrate. See Calcium phosphate dibasic dihydrate
Calcium hydrosilicate. See Calcium silicate
Calcium hydroxide
CAS 1305-62-0; EINECS/ELINCS 215-137-3
INS526; E526
Synonyms: Agricultural lime; Calcium

†=pharmaceutical grade

Shan Par Ind.† http://www.shanpar.com; Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality
Prods.† http://www.spectrumchemical.com; Stason Pharmaceuticals† http://www.stason.com; Synasia† http://www.synasia.com
Tomita Pharmaceutical† http://www.tomitaph.co.jp; Universal
Distrib.† http://www.vgdllc.com

Trade Names: Gluconal® CAA-P-IN
Trade Names Containing: Seanamin BD LS 8460
Chemical Component Cross-Reference

dihydroxide; Calcium hydrate; Carboide;
Caustic lime; Hydrated lime; Lime,
hydrated; Lime milk; Lime, slaked; Lime
water; Milk of lime; Slaked lime
Classification: Inorganic base
Empirical: $\text{H}_2\text{CaO}_2$
Formula: $\text{Ca(OH)}_2$

Properties: Wh. soft cryst. powd., alkaline sl.
bitter taste; sl. sol. in water; sol. in glycerol,
syrup, acid; insol. in alcohol; m.w. 74.10; dens.
2.34; m.p. loses water at 580 C; pH 12.4 (sat.
sol'n. @ 25 C)

Toxicology: ACGIH TLV/TWA 5 mg/m³; LD50
(oral, rat) 7.34 g/kg; mildly toxic by ing.;
severe eye irritant; irritating to skin,
mucous membrane, respiratory tract; dust
is industrial hazard; causes dermatitis;
mutation data reported; common air
contaminant; TSCA listed

Precaution: Corrosive material; violent
reaction with maleic anhydride,
nitroethane, nitromethane, nitroparaffins,
etc.; reaction with polychlorinated phenols
+ potassium nitrate forms extremely toxic
prods.

HMIS: Health 2, Flammability 0, Reactivity 1

Uses: Filler, neutralizer, buffer in
pharmaceuticals, topical medicinal salves,
gastric preps, injectables, orals; depilatory

Regulatory: FDA 21CFR §73.85, 135.110,
176.180, 176.210, 184.1205, GRAS; USDA
9CFR §318.7; Japan restricted (1% max. as
calcium); Europe listed; UK approved; FDA
approved for injectables, orals, topicalcs; BP,
EP compliance; Canada DSL

Manuf./Distrib.: AMRESCO†
http://www.amresco-inc.com; Aldrich†
http://www.sigma-aldrich.com; Alfa Chem†
http://www.alfachem1.com; Am. Biorganics;
Ashland http://www.aschhem.com
Asiameica Int'l.; Boith China
http://www.boith.com; Brenntag
Southeast; Charkit
http://www.charkit.com; ChemTech
Specialties†
http://www.chemtechspecialties.com
Degussa AG/Health & Nutrition; Delta
Distributorst; EMD Chems.†
http://www.emdchemicals.com; Fluka
http://www.sigma-aldrich.com; Fortitech†
http://www.fortitech.com
GDL Int'l.†
http://www.gdlinternational.com; Integra†
http://www.integrachem.com; Kraft Chem.†

†=pharmaceutical grade
http://www.kraftchemical.com; Lohmann
http://www.lohmann-chemikalien.de; MPSI†
http://www.mp-solutionsinc.com
Mallinckrodt Baker†
http://www.mallbaker.com; Mississippi
Lime http://www.mississippilime.com
Noah http://www.noahtech.com; Noveon†
http://www.carbopol.com;
http://www.noveoncoatings.com; O.C. Lugo
http://www.oclugo.com
Parchem Trading† http://www.par-
chem.com; Penta Mfg.†
http://www.pentamfg.com; Pfizer Int'l.
http://www.pfizer.com; RIA Int'l.†
http://www.riausa.com; Ruger†
http://www.rugerchemical.com
Sigma http://www.sigma-
aldrich.com/belgium; Specialty Mins.
http://www.mineralstech.com; Spectrum
Quality Prods.†
http://www.spectrumchemical.com; U.S.
Gypsum http://www.usg.com; Universal
VWR Int'l.† http://www.vwrsp.com; Varsal
Instruments http://www.varsal.com; Voigt
Global Distrib.† http://www.vgdllc.com

Trade Names: Calcium Hydroxide 3002;
Calcium Hydroxide BC 802

Calcium hydroxide phosphate
CAS 12167-74-7
FEMA 3081; E341c

Synonyms: Calcium phosphate tribasic;
Precipitated calcium phosphate; Tricalcium
phosphate

Classification: Inorganic salt
Definition: Variable mixt. of calcium phosphates
Formula: (1) $\text{Ca}_5(\text{OH})(\text{PO}_4)_3$ or (2) $10\text{CaO}\cdot$
$3\text{P}_2\text{O}_5\cdot\text{H}_2\text{O}$

Properties: Wh. powd. or cryst.; sol. in dil. HCl;
pract. insol. in water, alcohol; m.w. (1) 502.31,
(2) 1004.64

Toxicology: Skin and eye irritant; nuisance
dust

Uses: Tablet and/or capsule diluent in
pharmaceuticals

Regulatory: FDA 21CFR §137.105, 137.155,
137.160, 137.165, 137.170, 137.175, 137.180,
137.185, 169.179, 169.182, 175.300, 181.29,
182.1217, 182.8217, GRAS; USDA 9CFR
§318.7; FEMA GRAS; Canada DSL; Japan
approved (1% max. as calcium), restricted;
Europe listed; UK approved; FDA approved for
orals
Calcium hydroxyapatite. See Hydroxyapatite

Calcium 2-hydroxybenzoate. See Calcium salicylate

Calcium 2-hydroxypropanoate; Calcium-L-2-hydroxypropionate. See Calcium lactate

Calcium iodide
CAS 10102-68-8; 10031-31-9 (hexahydrate); EINECS/ELINCS 233-276-8

Synonyms: Calcium diiodide; Calcium iodide anhydrous; Calcium iodide hexahydrate; Calcium iodide hydrate; Calcium iodide tetrahydrate

Formula: CaI₂ (anhyd.), CaI₂ • 6H₂O (hexahydrate)

Properties: Ylsh.-wh. cryst.; very sol. in water, methanol, ethanol, acetone; sol. in pentanol; pract. insol. in ether, dioxane; m.w. 293.89 (anhyd.), 402.00 (hexahydrate); dens. 2.55 (anhyd.); m.p. 740 C; b.p. 1100 C

Toxicology: Mutagen; TSCA listed

Storage: Very hygroscopic; deliquescent; keep tightly closed and protected from light

Uses: Pharmaceutical raw material; iodine dietary supplement; medicine

Manuf./Distrib.: AICMA; Alfa Aesar; Alfa Int'l; Asiamerica Int'l; Calgon Carbon; Helm NY; Int'l. Mfg.; Mutchler; Penta Mfg.; RIA Int'l; Robeco; Universal Preserv-A-Chem; Varal Int'l;

Calcium iodide anhydrous; Calcium iodide hexahydrate; Calcium iodide hydrate; Calcium iodide tetrahydrate. See Calcium iodide
Calcium lactate

CAS 814-80-2 (anhyd.); 5743-47-5; 41372-22-9 (monohydrate, trihydrate); 63690-56-2 (pentahydrate); 28305-25-1 (calcium S-lactate); EINECS/ELINCS 212-406-7; 248-953-3

INS327; E327

Synonyms: Calcium dilactate; Calcium 2-hydroxypropionate; Calcium-L-2-hydroxypropionate; 2-Hydroxypropanoic acid, calcium salt; 2-Hydroxypropanoic acid, calcium salt (2:1); Propanoic acid, 2-hydroxy-, calcium salt

Empirical: CaH10CaOs • xH2O

Formula: [CH3CH(OH)COO]2Ca • xH2O, x < 5

Properties: Wh. to cream-colored cryst. powd. or granules containing up to 5 moles of water of crystallization, almost odorless; pentahydrate is somewhat efflorescent, is sol. in water, pract. insol. in alcohol; becomes anhyd. at 120 C; m.w. 218.22 (anhyd.); 236.24 (monohydrate), 272.27 (trihydrate), 308.30 (pentahydrate)

Toxicology: LDLo (IV mouse) 140 mg/kg; poison by IV route; may cause GI and cardiac disturbances; TSCA listed

Hazardous Decomp. Prods.: Heated to decomps., emits acrid smoke and irritating fumes

HMIS: Health 1, Flammability 0, Reactivity 0

Uses: Nutrient supplement, calcium source in pharmaceuticals, dentifrices; medicine (blood coagulation, metabolism, water-electrolyte and calcium-phosphoric balance disorders)

Regulatory: FDA 21CFR §145.145, 150.141, 150.161, 184.1207, GRAS except for infant foods/formulas; USDA 9CFR §318.7 (0.6% max.); Japan approved (1% max. as calcium); Europe listed; UK approved; Canada DSL; BP, EP compliance (pentahydrate, trihydrate)


Trade Names: Galaxium; Galaxium Pentahydrate Powder; Puracal® DC; Puracal® PP/FCC; Puracal® PP/USP

Calcium lactate gluconate. See Calcium lactoglobulonate

Calcium lactobionate

CAS 5001-51-4; EINECS/ELINCS 225-668-2

INS399

Synonyms: Calcium 4-(β-d-galactosido)-d-gluconate
Definition: Calcium salt of lactobionic acid
Empirical: C_{24}H_{42}CaO_{24}
Properties: Wh. gran. powd.; sol. in water; insol. in alcohol, ether; m.w. 754.66; m.p. 120 C (dec.)
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Storage: Store in well-closed container in a dry place at ambient temperatures around 20 C; retest after storage for three yrs.
Uses: Therapeutic or a nutritional supplement for diseases where calcium deficiency conditions may occur, such as rickets, post menopausal and senile osteoporosis or to prevent calcium deficiencies; suspending agent in pharmaceuticals
Regulatory: FDA 21CFR §172.720
Manuf./Distrib.: Fluka http://www.sigma-aldrich.com; Reliable Biopharmaceutical† http://www.reliablebiopharm.com; Sigma http://www.sigma-aldrich.com/belgium

Calcium lactogluconate
CAS 52080-72-5
Synonyms: Calcium lactate gluconate
Empirical: C_{27}H_{74}Ca_{5}O_{46} • 2H_{2}O
Properties: Wh. cryst. or gran. powd.; sl. char. odor; sol. in water; freely sol. in boiling water; m.w. 1551.44; pH 8 ± 1 (above 5% w/v sol'n.)
Storage: Store in well-closed container in dry place @ ambient temps.
Uses: Calcium source for pharmaceuticals, tablets, syrups, treatment of calcium deficiency
Regulatory: USP compliance
Manuf./Distrib.: Shan Par Ind.† http://www.shanpar.com

Calcium mononitride

Calcium monostronaphosphate

Calcium monohydrogen phosphate dihydrate.
See Calcium phosphate dibasic dihydrate
Calcium monosilicate.
See Calcium silicate
Calcium montmorillonite.
See Calcium bentonite
Calcium octadecanoate.
See Calcium stearate
Calcium orthophosphate.
See Calcium phosphate tribasic
Calcium oxide
CAS 1305-78-8; EINECS/ELINCS 215-138-9
UN 1910 (DOT); INS529; E529
### Chemical Component Cross-Reference

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<th>Component</th>
<th>Source</th>
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<tbody>
<tr>
<td>Calcium pantothenate</td>
<td>See Calcium D-pantothenate</td>
</tr>
<tr>
<td>Calcium D-pantothenate</td>
<td>CAS 137-08-6; EINECS/ELINCS 205-278-9</td>
</tr>
<tr>
<td>Synonyms:</td>
<td>Calcium d(+)-N-(α,γ-dihydroxy-β,β-dimethylbutyryl)-β-alanine; Calcium N-(2,4-dihydroxy-3,3-dimethyl-1-oxobutyl-β-alanine; Calcium pantothenate; d-Calcium pantothenate; N-(2,4-Dihydroxy-3,3-dimethylbutyryl-β-alanine calcium; D-N-(2,4-Dihydroxy-3,3-dimethyl-1-oxobutyl-β-alanine, calcium salt; Extrato calcium pantothenate; Pantothenate calcium; Pantothenic acid; calcium salt; Vitamin B5; Vitamin B5; calcium salt</td>
</tr>
</tbody>
</table>
**Definition:** Calcium salt of pantothenic acid

**Empirical:** C₁₉H₃₄N₂O₁₀ • Ca

**Properties:** Wh. powd., odorless, sweetish taste with sl. bitter aftertaste; stable in air; sol. in water, glycerol; insol. in alcohol, chloroform, ether; m.w. 490.63; m.p. 170-172 C; dec. 195-196 C

**Toxicology:** LD₅₀ (oral, mouse) 10 g/kg, (IP, rat) 820 mg/kg, (IV, rat) 830 mg/kg; toxic by IP, subcut., and IV routes; mildly toxic by ing.; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of NOₓ

**Trade Names:** Calcium Pantothenate USP, FCC

d-Calcium pantothenate; Calcium d-pantothenate. See Calcium D-pantothenate

Calcium phosphate (INCI). See Calcium phosphate monobasic anhydrous

Calcium phosphate dibasic | CAS 7757-93-9; EINECS/ELINCS 231-826-1 |
| INS341(ii) |
| Synonyms: | Bicalcium phosphate; Calcium hydrogen orthophosphate; Calcium hydrogen phosphate; Calcium hydrogen phosphate anhydrous; Calcium monohydrogen phosphate; DCP-0; Dicalcium orthophosphate; Dicalcium orthophosphate anhydrous; Dicalcium phosphate; Phosphoric acid calcium salt (1:1); Secondary calcium phosphate |
**Classification:** Inorganic salt

**Empirical:** H₃CaO₄P

**Formula:** CaHPO₄

**Properties:** Wh. cryst. powd., odorless, tasteless; sol. in dilute HCl, nitric, and acetic acids; insol. in alcohol; sl. sol. in water; m.w. 136.07; dens. 2.306; loses water at 109 C; stable in air

**Toxicology:** No known toxicity; skin and eye irritant; nuisance dust

**HMIS:** Health 1, Flammability 0, Reactivity 0
Chemical Component Cross-Reference

Storage: Deliq.; store @ R.T.

Uses:
- Binder, diluent, dispersant for pharmaceutical tablets and capsules;
- mineral supplement, nutrient source in pharmaceuticals, multivitamins; abrasive in dentifrices; in dentals, orals

Regulatory:
- FDA 21CFR §137.105, 175.300, 181.29, 182.1217, 182.8217, GRAS; Japan approved (1% max. as calcium); Europe listed; UK approved; FDA approved for dentals, orals; USP/NF compliance; Canada DSL

Manuf./Distrib.: AB R Lundberg
- http://www.norfoods.se/lundberg
- AMRESCO http://www.amresco-inc.com
- Aceto† http://www.aceto.com; Aldrich† http://www.sigma-aldrich.com
- Am. Int'l.† http://www.aicma.com
- Anmar Int'l.† http://www.anmarinternational.com
- CPI Chems.† http://www.cpichem.com
- Charkit† http://www.charkit.com
- Delta Distributors†; EMCO Chem.
- Distributors http://www.emcochem.com
- Fluka http://www.sigma-aldrich.com
- Fortitech† http://www.fortitech.com; Fuji Chem. Ind.† http://www.fujichemical.co.jp
- Gallard-Schlesinger Ind.† http://www.gallard-schlesinger.com
- Garuda Int'l.† http://www.garudaint.com
- MPSI† http://www.mp-solutionsinc.com
- http://www.pechiney-chemicals.com

Trade Names:
- Albrite® Dicalcium Phosphate; Anhydrous Emcompress®; Anhydrous Emcompress®, Fujicalin

Trade Names Containing:
- A-TAB®; Bitrit-1™ (1% Biotin Trituration); Folic Acid 10% Trituration; Vitamin B12 1% Trituration

Calcium phosphate dibasic dihydrate
- CAS 7789-77-7; EINECS/ELINCS 231-826-1

Synonyms:
- Calcium hydrogen phosphate dihydrate; Calcium monohydrogen phosphate dihydrate; DCP-2; Dicalcium orthophosphate dihydrate; Dicalcium phosphate dibasic dihydrate

Empirical: CaH04P • 2H2O

Properties:
- Monoclinic cryst.; sol. in dil. HCl or HNO3; sl. sol. in dil. acetic acid; pract. insol. in water, alcohol; m.w. 172.09; dens. 2.31

Toxicology:
- Skin and eye irritant; nuisance dust

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

HMIS:
- Health 1, Flammability 0, Reactivity 0

Storage: Deliq.; loses water of cryst. slowly below 100 C

Uses:
- Excipient, filler in pharmaceuticals, orals; diluent, excipient, filler in tablets and capsules; abrasive in dentifrices; phosphorus source in multivitamins

Regulatory:
- FDA 21CFR §181.29; FDA approved for orals; USP/NF compliance

Manuf./Distrib.: AMRESCO† http://www.amresco-inc.com; Aldrich† http://www.sigma-aldrich.com; Am. Int'l.†
Chemical Component Cross-Reference

†=pharmaceutical grade

<table>
<thead>
<tr>
<th>Chemical Component</th>
<th>Trade Name(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium phosphate hydroxide</td>
<td>Calstar™, DI-TAB, Emcompress®</td>
</tr>
<tr>
<td>Calcium phosphate monobasic</td>
<td>Dry Vitamin D₃ Type 100 SD</td>
</tr>
</tbody>
</table>

†=pharmaceutical grade

See Hydroxyapatite
See Calcium phosphate monobasic anhydrous

Calcium phosphate monobasic anhydrous
CAS 7758-23-8; EINECS/ELINCS 231-837-1
INS341(i)

Synonyms: Acid calcium phosphate; Calcium biphosphate; Calcium dihydrogen phosphate; Calcium phosphate (INCI); Calcium phosphate monobasic; Calcium tetrahydrogen diorthophosphate; MCP/A; Monocalcium orthophosphate; Monocalcium phosphate; Monocalcium phosphate anhydrous; Phosphoric acid calcium salt (2:1)

Empirical: H₄CaO₈P₂
Formula: Ca(H₂PO₄)₂

Properties: Wh. powd.; sl. sol. in water; insol. in alcohol; m.w. 234.05; dens. 2.22 kg/l (16 C); releases water of cryst. above 100 C; dec. @ 200 C

Toxicology: LD₅₀ (oral, rat) 17,500 mg/kg; low toxicity by ing.; a nuisance dust; TSCA listed

Uses: Mineral supplement, buffer, visc. control agent in pharmaceuticals; oral care agent

Regulatory: FDA 21CFR §136.110, 136.115, 136.130, 136.160, 136.165, 136.180, 137.80, 137.165, 137.175, 137.180, 137.270, 150.141, 150.161, 155.200, 175.300, 181.29, 182.1217, 182.6215, 182.8217; Europe listed; Canada DSL


Trade Names: Calstar™, DI-TAB, Emcompress®

Trade Names Containing: Dry Vitamin D₃ Type 100 SD
Calcium phosphate tertiary. See Calcium phosphate tribasic

Calcium phosphate tribasic

CAS 7758-87-4; EINECS/ELINCS 231-840-8

Synonyms: Calcium orthophosphate; Calcium phosphate tertiary; Phosphoric acid, calcium salt (2:3); Precipitated calcium phosphate; TCP; Tertiary calcium phosphate; Tribasic calcium phosphate; Tricalcium bis (orthophosphate); Tricalcium orthophosphate; Tricalcium phosphate

Classification: Inorganic salt

Definition: Variable mixt. of calcium phosphates; occurs in nature as minerals oxydapatit, voelicherite, whitlockite; tech. prod. is bone ash

Empirical: Ca₃O₈P₂

Formula: Ca₃(PO₄)₂

Properties: Wh. cryst. powd., odorless, tasteless; sol. in dil. HCl or HNO₃; pract. insol. in water, alcohol, acetic acid; m.w. 310.18; dens. 3.18; m.p. 1670 °C; flash pt. (CC) 230 °C; ref. index 1.63; stable in air; nonflamm.

Toxicology: May cause irritation by ing., inh., eye/skin contact; inh. may cause flu-like illness; may cause eye redness, tearing, blurred vision, skin reddening, itching, inflamm.; overexposure may cause bone damage, nausea, vomiting, headache; may aggravate ulcers; target organs: stomach, kidneys, liver; TSCA listed

Precaution: Incompat. with strong oxidizing agents

Hazardous Decomp. Prods.: Phosphine, POx, calcium oxide; may emit toxic fumes under fire conditions

HMIS: Health 1, Flammability 0, Reactivity 0

Storage: Store @ R.T. in cool, dry place; avoid excessive heat; keep tightly closed when not in use

Uses: Nutrient source in pharmaceuticals, orals; diluent for tablets and capsules; abrasive in dentificies; medicine

Regulatory: FDA 21 CFR §137.105, 137.155, 137.160, 137.165, 137.170, 137.175, 137.180, 137.185, 169.179, 169.182, 175.300, 181.29, 182.1217, 182.8217, GRAS; USDA 9CFR §318.7; FEMA GRAS; DOT nonregulated; Canada DSL; SARA §302/304/313 nonreportable; Japan approved (1% max. as calcium), restricted; Europe listed; UK approved; FDA approved for orals; USP/NF, BP, EP compliance

Manuf./Distrib.: AB R Lundberg

http://www.norfoods.se/lundberg; ADA Int'l.
http://www.joinme.net/ada/index.htm;
AMRESCO† http://www.amresco-inc.com;
Aldrich† http://www.sigma-aldrich.com;
Alfa Chem† http://www.alfaehem1.com;
Am. Int'l.† http://www.aicma.com;
Ashland† http://www.ashchem.com;
Aventis Pharmaceuticals† http://www.aventispharma-us.com;
Brown† http://www.brownchem.com;
Camida Ltd† http://www.camida.com;
Charkit† http://www.charkit.com;
Chem One http://www.chemone.com;
Chemacon GmbH† http://www.chemacon.de;
Coyne http://www.coynechemical.com

EMD Chems.† http://www.emdchemicals.com;
FMC http://www.fmccompany.com;
Fluka http://www.sigma-aldrich.com;
Functional Foods http://www.functionalfoods.com;
GFS† http://www.gfschemicals.com

Gadot Biochem. Ind.† http://www.gadotbio.com;
Gallard-Schlesinger Ind.† http://www.gallarschlesinger.com;
Harcros http://www.harcroschem.com;
ICL Performance Prods.†
Chemical Component Cross-Reference

†=pharmaceutical grade

http://www.independentchemical.com
Integra† http://www.integrachem.com; J.F. Henry; Kaltron/Pettibone
http://www.kaltron.com; Kraft Chem.†
http://www.kraftchemical.com; Lohmann†
http://www.lohmann-chemikalien.de
Magnesia GmbH† http://www.magnesia.de;
Mallinckrodt Baker†
http://www.mallbaker.com; Merck KGaA†
http://www.merck.de; Mutchler†
http://www.mutchlerchem.com
Penta Mfg.†
http://www.pentamfg.com; Peter Whiting Ltd†
http://www.pentamfg.com; PhytoTech. Labs
http://www.phytotechlab.com;
Rhodia/Phosphorus Perf. Derivs.†
http://www.rhodia-ppd.com; Rhodia
http://www.rhodia.com
Ruger† http://www.rugerchemical.com; Sal Chem.
http://www.salchem.com; Sigma
http://www.sigma-aldrich.com/belgium;
Spectrum Quality Prods.†
http://www.spectrumchemical.com; Stauber
Surfachem Ltd†
http://www.surfachem.com; Univar Ltd†
http://www.univar.co.uk; Universal Preserv-
A-Chem† http://www.upichem.com; Voigt
Westco http://www.westcochemicals.com
Trade Names: TRI-CAL WG; TRI-TAB
Trade Names Containing: Lecigran™ C;
Lecigran™ T; Lucarotin® 10 CWD O;
Lucarotin® 20 CWD/R; Lutein DC
LycoVit® 10% DC; Purity® FC
See also Calcium hydroxy phosphate

Calcium phyrate
CAS 7776-28-5
Synonyms: Hexacalcium phyrate;
Phytocalcium
Empirical: C₆H₆Ca₆O₂₄P₆
Formula: Ca₆H₆(CaPO₄)₆
Properties: Wh. free-flowing powd.; sl. sol. in water; m.w. 888.42; pH neutral (sat. sol'n.)
Uses: Calcium source in pharmaceuticals and nutrition; in colloidgs for diagnostic pharmaceuticals (liver/spleen imaging)
Manuf./Distrib.: Fabrichem
http://www.fabricheminc.com; Maypro Ind.
http://www.maypro.com

Calcium polycarbophil
CAS 9003-97-8; 25987-55-7

Synonyms: Carbofil
Definition: Calcium salt of polyacrylic acid crosslinked with divinyl glycol
Empirical: (C₂₀H₁₈Ca₄O₁₆)n
Properties: Wh. to creamy wh. powd.; insol. in water, dil. acids, dil. alkalis, common org. solvs.
Toxicology: LD₅₀ (oral, rat) 20 g/kg
Uses: Bulking agent for pharmaceutical laxatives
Manuf./Distrib.: Adept Sol'ns.†; Boehringer
Ingelheim† http://www.boehringer- ingelheim.com; Functional Foods†
http://www.functionalfoods.com; Noveon†
http://www.carbopol.com;
http://www.noveoncoatings.com; R.W.
Greeff† http://www.pechiney-
chemicals.com
RIA Int'l.† http://www.riausa.com;
Richman†
http://www.richmanchemical.com

Calcium polysilicate. See Calcium silicate

Calcium propionate
CAS 4075-81-4 (anhyd.); EINECS/ELINCS 223-
795-8
INS282; E282
Synonyms: Calcium dipropionate; Propanoic acid, calcium salt; Propionic acid, calcium salt
Definition: Calcium salt of propionic acid
Empirical: C₆H₁₀CaO₄
Formula: Ca(OOCCH₂CH₃)₂
Properties: Wh. cryst. or cryst. powd., faint odor of propionic acid; sol. in water; sl. sol. in alcohol; m.w. 186.23; m.p. > 300 C
Toxicology: LD₅₀ (oral, rat) 3920 mg/kg, (oral, mouse) 2350 mg/kg; mod. toxic by ing.; irritant; TSCA listed
Precaution: Hygroscopic
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
HMIS: Health 1, Flammability 0, Reactivity 0
Storage: Store in cool, dry location; keep container closed when not in use
Uses: Antimicrobial, preservative in antifungal skin medications; mold inhibitor in pharmaceuticals
### Calcium pyrophosphate

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<th>CAS</th>
<th>EINECS/ELINCS</th>
<th>Synonyms</th>
<th>Definition</th>
<th>Empirical:</th>
<th>Properties</th>
<th>Uses</th>
<th>Regulatory</th>
<th>Manuf./Distrib.</th>
<th>Trade Names</th>
</tr>
</thead>
<tbody>
<tr>
<td>7790-76-3</td>
<td>232-221-5</td>
<td>Calcium diphosphate; Dicalcium pyrophosphate; Diphosphoric acid, calcium salt (1:2)</td>
<td>Calcium salt of D-saccharic acid</td>
<td>Ca$_2$O$_7$P$_2$</td>
<td>Wh. fine powd., tasteless; sol. in dilute HCl; insol. in water; m.w. 254.10; dens. 3.09; m.p. 1230°C</td>
<td>Stabilizer in pharmaceuticals (solns. of calcium gluconate for injection)</td>
<td>USP/NF compliance (tetrahydrate); Canada DSL</td>
<td>Aceto†; Adept Sol′ns.; Alfa Chem†; Gallard-Schlesinger Ind.†; Glucona Am.†; Lohmann <a href="http://www.lohmann-chemikalien.de">http://www.lohmann-chemikalien.de</a>; Marcor Development†; <a href="http://www.riaua.com">http://www.riaua.com</a>; Spectrum Quality Prods.†; Universal Preserv-A-Chem†; Voigt Global Distrib. <a href="http://www.vgdllc.com">http://www.vgdllc.com</a></td>
<td>Gluconal® CADS</td>
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</table>

#### Calcium saccharate

<table>
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<tr>
<th>CAS</th>
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<th>Properties</th>
<th>Uses</th>
<th>Regulatory</th>
<th>Manuf./Distrib.</th>
<th>Trade Names</th>
</tr>
</thead>
<tbody>
<tr>
<td>5793-88-4</td>
<td>8002-17-3; 227-334-1</td>
<td>Calcium D-glucarate (1:1) tetrahydrate; Calcium D-saccharate; D-Glucaric acid, calcium salt (1:1) tetrahydrate; Saccharated lime (INCI)</td>
<td>Calcium salt of D-saccharic acid</td>
<td>C$_6$H$_8$CaO$_8$ • 4H$_2$O</td>
<td>Wh. cryst. powd., odorless; very sl. sol. alcohol, cold water; pract. insol. in chloroform and ether; sol. in dil. min. acids, calcium gluconate sol′ns.; m.w. 320.27 (tetrahydrate)</td>
<td>Stabilizer in pharmaceuticals (sol′ns. of calcium gluconate for injection)</td>
<td>USP/NF compliance (tetrahydrate); Canada DSL</td>
<td>Aceto†; Adept Sol′ns.; Alfa Chem†; Gallard-Schlesinger Ind.†; Glucona Am.†; Lohmann <a href="http://www.lohmann-chemikalien.de">http://www.lohmann-chemikalien.de</a>; Marcor Development†; <a href="http://www.riaua.com">http://www.riaua.com</a>; Spectrum Quality Prods.†; Universal Preserv-A-Chem†; Voigt Global Distrib. <a href="http://www.vgdllc.com">http://www.vgdllc.com</a></td>
<td>Gluconal® CADS</td>
</tr>
</tbody>
</table>
Calcium D-saccharate.  See Calcium saccharate

Calcium saccharin
CAS 6485-34-3 (anhyd.); 6381-91-5 (hydrate);
EINECS/ELINCS 229-349-9

Synonyms: 1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide, calcium salt; 1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide, calcium salt hydrate; Calcium 2-benzosulfimide; Calcium o-benzosulfimide; Calcium saccharinate; Saccharin calcium; Sulfobenzoic imide calcium salt
Classification: Organic compd.
Empirical: C_{14}H_{10}CaN_{2}O_{6}S_{2}
Properties: Wh. cryst. powd., faint aromatic odor, intensely sweet taste; sol. in water; sl. sol. in alcohol; m.w. 406.46 (anhyd.), 467.48 (hydrate)
Toxicology: Confirmed carcinogen; tumorigen; mutagenic data; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx and SOx
HMIS: Health 1, Flammability 0, Reactivity 0
Storage: Preserve in well-closed containers
Uses: Nonnutritive sweetener for pharmaceuticals, orals; oral care agent
Regulatory: FDA 21CFR §150.141, 150.161, 180.37; USDA 9CFR §318.7 (limitation 0.01% in bacon); FDA approved for orals

Calcium salicylate
CAS 824-35-1; EINECS/ELINCS 212-525-4
Synonyms: Benzoic acid, 2-hydroxy-, calcium salt; Calcium disalicylate; Calcium 2-hydroxybenzoate; Salicylic acid, calcium salt
Definition: Calcium salt of salicylic acid
Empirical: C_{7}H_{6}O_{3} • ½Ca
Uses: Preservative in pharmaceuticals, orals
Regulatory: Approved for orals
Manuf./Distrib.: Camida Ltd http://www.camida.com

Calcium silicate
CAS 1344-95-2; EINECS/ELINCS 215-710-8

Synonyms: Calcium hydrosilicate; Calcium monosilicate; Calcium polysilicate; Okenite; Silicic acid, calcium salt
Classification: Carbonates
Definition: Hydrous or anhydrous silicate with varying proportions of calcium oxide and silica
Empirical: (1) CaO_{3}Si; (2) Ca_{2}O_{4}Si; (3) Ca_{3}O_{5}Si
Properties: Wh. or cream-colored powd.; odorless; sol. in nitritriatic acid; pract. insol. in water; forms a gel with min. acids; m.w. 116.16 (1); dens. 2.10; bulk dens. 15-16 lb/ft³; absorp. power 600% (water); surf. area 95-175 m²/g; m.p. 1540 C; pH 8.4-10.2 (5% aq. susp.); nonflamm.
Toxicology: ACGIH TLV/TWA 10 mg/m³ (total dust); nuisance particulate; pract. nontoxic orally, but inh. may cause respiratory tract irritation; TSCA listed
Precaution: Avoid prolonged contact with water (sol'n. reverts to sol. calcium salts and amorphous silica)
Uses: Filler, glidant, anticaking agent, filter aid for pharmaceuticals, orals; antacid (pharmacology)
Regulatory: FDA 21CFR §169.179, 172.410, 175.300, 176.170, 177.1460, 177.1680, 177.2260, 177.2355, 182.2227, 182.2906, 573.260, GRAS (limitation 2% in table salt, 5% in baking powd.); Canada DSL; Europe listed; UK approved; approved for orals; USP/NF compliance
Manuf./Distrib.: Aldrich† http://www.sigma-aldrich.com; Cary http://www.thecarycompany.com; Celite http://www.worldminerals.com; Chem-
### Chemical Component Cross-Reference

| Trade Names: | Hubersorb®; Micro-Cel® C TV; Micro-Cel® E TV; RxCIPIENTS® FM1000 | Trade Names Containing: | Dry Vitamin E 75™ HP; Lecigran™ Super A |
| Calcium sodium caseinate | Properties: Wh. to lt. cream powd.; clean, bland odor; highly soluble | Uses: Solubilizer in pharmaceuticals and nutritional apps. | Trade Names: CS-922 |
| Calcium/sodium PVM/MA copolymer | CAS 62386-95-2 | Synonyms: 2-Butenedioic acid (Z)-, polymer with methoxyethene, calcium, sodium salt | Definition: Mixed calcium and sodium salt of PVM/MA copolymer | Formula: \((\text{C}_4\text{H}_4\text{O}_4 \cdot \text{C}_3\text{H}_6\text{O})n \cdot \text{Ca}_x\text{Na}_y\) | Uses: Film-former in spray bandages; bioadhesives; visc. modifier/stabilizer; enteric sustained-release tablet coating; dentifrices | Regulatory: Canada DSL | Trade Names: Gantrez® MS-955 |
| Calcium sorbate | CAS 7492-55-9; EINECS/ELINCS 231-321-6 | INS203; E203 | Synonyms: Calcium 2,4-hexadienoate; 2,4-Hexadienoic acid, calcium salt | Definition: Calcium salt of sorbic acid | Empirical: \(\text{C}_{12}\text{H}_{14}\text{CaO}_4\) | Formula: \(\text{Ca}((\text{OOC})_5\text{H}_7)_2\) | Properties: Solid; sl. sol. in water | Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes | Uses: Preservative in pharmaceuticals | Regulatory: FDA 21CFR §166.110, 182.3225, GRAS; USDA 9CFR §318.7 (not allowed in cooked sausage); Europe listed |

†=pharmaceutical grade


**Calcium stearate**

CAS 1592-23-0; EINECS/ELINCS 216-472-8

INS470; E470a

Synonyms: Calcium distearate; Calcium octadecanoate; Octadecanoic acid calcium salt; Stearic acid, calcium salt

Classification: Aliphatic organic compd.

Definition: Calcium salt of stearic acid

Empirical: \(\text{C}_{36}\text{H}_{70}\text{CaO}_4\)

Formula: \(\text{Ca}(\text{C}_{18}\text{H}_{35}\text{O}_2)_2\)

Properties: Wh. impalpable powd., sl. char. odor; insol. in water, alcohol, ether; sl. sol. in hot alcohol, hot veg. and min. oils; m.w. 607.04; bulk dens. 20 lb/ft³; m.p. 149 C

Toxicology: ACGIH TLV/TWA 10 mg/m³ (total dust); nuisance dust; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

HMIS: Health 1, Flammability 0, Reactivity 0

Uses: Conditioner in pharmaceuticals; tablet/capsule lubricant for implants, orals, rectals, topicals


Chemical Component Cross-Reference

†=pharmaceutical grade

http://www.cpichem.com; CarboMer†
http://www.carbomer.com; ChemService
http://www.chemservice.com
Chemacon GmbH†
http://www.chemacon.de; Chemisphere
http://www.chemaspherecorp.com;
Cognis/Chems. Group http://www.cognis-us.com; Cometals; Croda Inc†
http://www.croda.com;
http://www.crodausa.com
Degussa AG/Health & Nutrition; Degussa AG† http://www.degussa.com; EMD Chems.† http://www.emdchemicals.com;
Eka Chems. Ltd; Fallek
http://www.iccchem.com/fallchem.htm
Functional Foods†
http://www.functionalfoods.com; Gallard-Schlesinger Ind.† http://www.gallard-schlesinger.com; In-Cide Tech.
http://www.incidentech.net; Integra†
http://www.integrachem.com; James M. Brown Ltd†
http://www.jamesmbrown.co.uk
KIC Chems.† http://www.kicchemicals.com; http://www.kicgroup.com; Kraft Chem.†
http://www.kraftchemical.com; Lohmann†
http://www.lohmann-chemikalien.de; MPS†
http://www.mp-solutionsinc.com; Magnesia GmbH† http://www.magnesia.de
Mallinckrodt Baker†
http://www.mallbaker.com; Merck KGaA†
http://www.merck.de; Miljac
http://www.miljac.com; Mosselman NV†
http://www.mosselman.be; Mutchler†
http://www.mutchlerchem.com
NOF http://www.nof.co.jp; Norac
http://www.norac.com; PPG Ind.
http://www.ppg.com;
R.T. Vanderbilt
http://www.rtvanderbilt.com; RIA Int'l.†
http://www.riausa.com; Ruger†
http://www.rugercemical.com; Sankyo Org. Chems.† http://www.sankyo.co.jp;
Sea-Land http://www.sealandchem.com
Shandong Haihua Tianhe
http://www.tianhe-chemical.com; Sigma-Aldrich† http://www.sigma-aldrich.com;
Sparkford Chems. Ltd†
http://www.sparkford.co.uk; Spectrum Quality Prods.†
http://www.spectrumchemical.com; Thew Arnott & Co. Ltd†
http://www.thewarnott.co.uk
Total Petrochemicals Bruxelles†
http://www.totalpetrochemicals.biz; Triple Crown Am.†
http://www.triplecrownamerica.com; Univar Ltd† http://www.univar.co.uk; Universal Preserv-A-Chem†
http://www.upichem.com; Viva
http://www.sodiumstearate.com
Voigt Global Distrib.
http://www.vgdllc.com; ZenPharm Intl.'†
http://www.zenpharm.com; Zetapharm†
http://www.zetapharm.com

Trade Names: Calcium Stearate 2307-G;
Calcium Stearate 920-T; Ceasit 1; Ceasit PC; Kemistab EC-F
Synpro® Calcium Stearate NF; Synpro® Calcium Stearate NF Vegetable Grade

Calcium stearoyl lactylate
CAS 5793-94-2; EINECS/ELINCS 227-335-7
INS482(i); E482

Synonyms: Calcium stearyl-2-lactylate;
Calcium stearoyl-2-lactylate; Calcium stelate;
Octadecanoic acid, 2-(1-carboxyethoxy)-1-methyl-2-oxoethyl ester, calcium salt;
Stearic acid ester with lactate of lactic acid calcium salt

Definition: Calcium salt of stearic acid ester of lactyl lactate

Empirical: C₄₈H₇₆CaO₁₂

Properties: Cream-colored nonhygroscopic powd., caramel odor; sparingly sol. in water;
m.w. 895.30; m.p. 45-60 C; HLB 5.1; acid no. 50-86; pH 4.7 (2% aq. susp.); anionic

Toxicology: No known toxicity; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Emulsifier for pharmaceuticals

Regulatory: FDA 21CFR §172.844, 176.170, 177.1200; must conform to FDA specs for fats or fatty acids derived from edible oils; Japan approved with restrictions; Canada DSL; Europe listed; UK approved

Manuf./Distrib.: ABITEC†
http://www.abiteccorp.com; Aceto
http://www.aceto.com; Am. Ingreds./Patco
http://www.patco-additives.com; Ashland†
http://www.ashchem.com; RITA†
http://www.ritacorp.com
Universal Preserv-A-Chem†
http://www.upichem.com; Wilshire
Calcium stearoyl-2-lactylate; Calcium stearyl-2-lactylate; Calcium stelate.  
See Calcium stearoyl lactylate

Calcium sulfate
CAS 7778-18-9; EINECS/ELINCS 231-900-3
INS516; E516
Synonyms:  
Anhydrite (natural form); 
Anhydrous calcium sulfate; Anhydrous gypsum; Calcium sulfate (1:1); Calcium sulfonate; Gypsum; Plaster of Paris; 
Sulfuric acid, calcium salt; Sulfuric acid, calcium salt (1:1)
Classification: Inorganic salt
Empirical: CaO4S
Formula: Ca • H2O4S
Properties:  
Wh. to sl. yel.-wh. powd. or crystals; odorless, tasteless; sl. sol. in water; sol. in 3 N HCl; m.w. 136.14; dens. 2.964; bulking value 0.052 gal/lb; oil absorp. 10; m.p. 145 C; anionic
Toxicology:  
ACGIH TLV/TWA 10 mg/m³ (total dust); nuisance dust; ingestion may result in intestinal obstruction because it absorbs water and hardens; no known toxicity on the skin; irritant; TSCA listed
Precaution: Reacts violently with aluminum; when heated; mixts. with phosphorus ignite at high temps.
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of SOx
HMIS: Health 1, Flammability 0, Reactivity 0
Storage: Hygroscopic; store in cool, dry location; keep containers well closed when not in use
Uses: Excipient, tablet/capsule diluent, desiccant for direct compression of pharmaceutical tablets, oral.; abrasive and firming agent in dentifrices; tooth powds.; surgical casts
Regulatory: FDA 21CFR §133, 133.102, 133.106, 133.111, 133.141, 133.165, 133.181, 133.183, 133.195, 137.105, 137.155, 137.160, 137.165, 137.170, 137.175, 137.180, 137.185, 150.141, 150.161, 155.200, 175.300, 176.170, 177.1460, 178.3297, 184.1230.; Canada DSL; GRAS; BATF 27CFR §240.1051, limitation 16.69 lb/1000 gal; Japan approved with restrictions (1% max.); Europe listed; UK approved; FDA approved for orals; USP/NF, BP, EP compliance; not permitted in food (EU)
Manuf./Distrib.:  
ADM Arkady http://www.admworld.com; AMRESCO†
†=pharmaceutical grade
http://www.amresco-inc.com; Acros Org.  
Aldrich† http://www.sigma-aldrich.com  
Alfa Aesar† http://www.alfa.com; Alfa  
Chem† http://www.alfachem1.com; Allied  
Custom Gypsum† http://www.alliedcustomgypsum.com; Am. Ingredds.†  
http://www.americangredients.com;  
Amerol http://www.amerolcorp.com  
Ashland† http://www.ashchem.com;  
Asiamega Int’l.; Biologos†  
Chemacon GmbH† http://www.chemacon.de  
Degussa AG/Health & Nutrition; EMD Chems.† http://www.emdchemicals.com;  
Fluka http://www.sigma-aldrich.com;  
Fortitech† http://www.fortitech.com; Forum Bioscience† http://www.forum.co.uk  
GFS† http://www.gfschemicals.com; H.M. Royal http://www.hmroyal.com; Honeywill & Stein† http://www.honeywill.co.uk  
Imperial-OEL-Import http://www.imperial-oel-import.de; Integra†  
Lancaster Synthesis http://www.alfa.com;  
Lohmann† http://www.lohmann-chemikalien.de; Lubrizol http://www.lubrizol.com; MPSI†  
http://www.mp-solutionsinc.com; Magnesia GmbH† http://www.magnesia.de  
Mallinckrodt Baker† http://www.mailbaker.com; Merck KGaA†  
http://www.merck.de; Mutchler† http://www.mutchlerchem.com; Particle Dynamics†  
http://www.particledynamics.com; Penta Mfg.† http://www.pentamfg.com  
Pfaltz & Bauer  
http://www.pfaltzandbauer.com; R.E. Carroll http://www.recarroll.com; Ruger http://www.rugerchemical.com; Shell†  
http://www.shellchemicals.com;  
http://www.shell-lubricants.com; Spectrum
Chemical Component Cross-Reference

Quality Prods.†
http://www.spectrumchemical.com
St. Lawrence
http://www.stlawrencechem.com; Stepan
http://www.stepan.com; Tew Arnott & Co. Ltd† http://www.thewarnott.co.uk; U.S.
Zetapharm† http://www.zetapharmac.com

Trade Names: Calcium Sulfate Anhydrous NF 164; Calcium Sulfate BC 164; Snow White® F&P
Trade Names Containing: Terra Alba

Calcium sulfate (1:1). See Calcium sulfate
dihydrate

Calcium sulfate dihydrate
CAS 10101-41-4; 13397-24-5; EINECS/ELINCS 231-900-3
Synonyms: Alabaster; Calcium (II) sulfate dihydrate (1:1:2); CI 77231; Cl pigment white 25; Gypsum; Gypsum stone; Land plaster; Light spar; Magnesia white; Mineral white; Native calcium sulfate; Pigment white 25; Precipitated calcium sulfate; Terra alba
Classification: Calcium compd.; sulfate salt
Empirical: CaO4S • 2H2O
Formula: CaSO4 • 2H2O
Properties: Wh. lumps or powd.; odorless; sol. in water; very slowly sol. in glycerol; pract. insol. in most org. solvs.; m.w. 172.10; dens. 2.32; m.p. 128 C (loses 1.5 H2O); b.p. 163 C (loses ½ water to form anhyd. material); nonflamm.

Uses: Excipient, filler, desiccant, tablet/capsule diluent for pharmaceuticals, orals; white pigment, filler, extender, glaze in pharmaceuticals; in plaster casts
Regulatory: FDA approved for orals; NF, BP, EP, JP compliance
Manuf./Distrib.: ABCR http://www.abcr.de; ADM Arkady http://www.admworld.com;

†=pharmaceutical grade

Asiamea Int'l.†; CPI Chems.† http://www.cpichem.com; Charles B. Chrystal† http://www.cbchryrstal.com;
Dudley http://www.dudley-chem.com; EMD Chems.† http://www.emdchemicals.com
Fluka http://www.sigma-aldrich.com;
Integra† http://www.integrachem.com;
Lancaster Synthesis http://www.alfa.com;
MPSI† http://www.mp-solutionsinc.com;
Mallinckrodt Baker† http://www.mailbaker.com; Mutchler† http://www.mutchlerchem.com
Sigma http://www.sigma-aldrich.com/belgium;
Spectrum Quality Prods.† http://www.spectrumchemical.com

Trade Names: Calcium Sulfate BC 166; Compactrol®; USG Terra Alba F&P
Trade Names Containing: Terra Alba
calcium sulfate dihydrate (1:1:2). See Calcium sulfate dihydrate
calcium sulfate hemihydrate
CAS 10034-76-1; 26499-65-0; EINECS/ELINCS 231-900-3
Synonyms: Dried calcium sulfate; Dried gypsum; Gypsum hemihydrate; Plaster of Paris
Formula: CaO4S • ½H2O
Properties: Wh. or almost wh. fine powd., odorless, tasteless; sl. sol. in water; sol. in dil. min. acids; pract. insol. in alcohol; m.w. 145.15; m.p. 163 C (loses ½ water to form anhyd. material); nonflamm.

Toxicology: ACGIH TLV/TWA 10 mg/m3 (calcium sulfate); ing. of large amts. may cause blockage of upper intestinal tract;
**Calcium undecylenate**

CAS 1322-14-1; EINECS/ELINCS 215-331-8

Synonyms: Calcium diundec-10-enoate; Calcium 10-undecenoate; 10-Undecenoic acid, calcium salt; 10-Undecenoic acid, calcium (2+) salt

**Empirical:** C_{22}H_{38}CaO_{4}

**Formula:** [CH_{2}CH(CH_{2})_{6}COO]_{2}Ca

**Properties:** Wh. fine powd.; limited sol.; m.w. 406.62; m.p. 155 C

**Uses:** Preservative, bacteriostat, and fungistat in pharmaceuticals; antimicrobial in diaper rash and prickly heat medicines

**Precaution:** Nonhazardous reaction with water to produce gypsum

**Storage:** Hygroscopic

**Uses:** Prep. of plaster of Paris bandages for orthopedic and dental casts, immobilization of limbs and fractures; in orals

**Regulatory:** FDA approved for orals; JP compliance

**Manuf./Distrib.:** Aldrich† [http://www.sigma-aldrich.com]; Fluka [http://www.sigma-aldrich.com]

**Calcium sulfonate.** See Calcium sulfate

**Calcium tetrahydrogen dithophosphate.** See Calcium phosphate monobasic anhydrous

**Calcium trisodium diethylene triamine pentacetate.** See Calcium trisodium pentetate

**Calcium trisodium pentetate**

CAS 12111-24-9

Synonyms: Calcium diethylene triamine pentaacetate; Calcium DTPA; Calcium pentetate; Calcium trisodium diethylene triamine pentacetate; Diethylenetriamine pentacetate acid, calcium trisodium salt; Pentetate calcium trisodium; Pentetate trisodium calcium; Trisodium [[carboxymethyl] imino] bis (ethylenenitrilo) tetraacetate

**Empirical:** C_{14}H_{18}CaN_{3}Na_{3}O_{10}

**Formula:** CaNa_{3}C_{14}H_{18}N_{3}O_{10}

**Properties:** Solid; sol. in water; insol. in alcohol; m.w. 497.36

**Toxicology:** LD_{50} (IV, rat) 2512 mg/kg, (IP, mouse) 7269 mg/kg; mod. toxic by IV and IP routes; mutagen; experimental teratogen; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of Na_{2}O and NO_{x}

**Uses:** Chelating agent in pharmaceutical injectables; antidote for lead poisoning

**Regulatory:** FDA approved for injectables; Canada DSL

**C10 alcohol.** See Decyl alcohol

**C12-15 alcohol benzoate.** See C12-15 alkyl benzoate

**C8 alcohols.** See Caprylic alcohol

**C8-10 alcohols**

CAS 85566-12-7

Synonyms: Alcohols, C8-10

**Uses:** Intermediate

**Trade Names:** Nafol® 810 D

**C10-14 alcohols**

EINECS/ELINCS 283-066-5

Synonyms: Alcohols, C10-14

**Uses:** Emollient

**Trade Names:** Nafol® 1012

**C12-18 alcohols**

CAS 67762-25-8; EINECS/ELINCS 267-006-5

Synonyms: Alcohols, C12-18

**Uses:** Emollient

**Regulatory:** Canada DSL

**Trade Names:** Nafol® 1218

**C16-18 alcohols.** See Cetearyl alcohol

**C20-24 alcohols**

EINECS/ELINCS 307-145-1

Synonyms: Alcohols, C20-24

**Uses:** Intermediate

**Trade Names:** Nafol® 20+

**C12-15 alcohols benzoate.** See C12-15 alkyl benzoate

**C12-15 alcohols lactate.** See C12-15 alkyl lactate

**C-8 aldehyde.** See n-Octanal

**C-9 aldehyde.** See Nonanal

**C10 aldehyde.** See Decanal

**C-16 aldehyde.** See Ethyl methylphenylglycidate

**C-12 aldehyde, lauric.** See Lauric aldehyde

**C-14 aldehyde, myristic.** See Myristaldehyde
Chemical Component Cross-Reference

Calendula. See Calendula officinalis
Calendula extract. See Calendula officinalis extract

Calendula officinalis
CAS 977001-93-6
FEMA 2658
Synonyms: Calendula; Marigold, pot; Pot marigold
Definition: Derived from flowers of Calendula officinalis

Properties: Volatile oil
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §182.10, GRAS; FEMA GRAS; BP, EP compliance

See also Calendula officinalis extract

Calendula officinalis extract
CAS 84776-23-8; EINECS/ELINCS 283-949-5
Synonyms: Calendula extract; Calendula officinalis; Marigold extract; Marigold flower extract
Definition: Extract of flowers of Calendula officinalis

Toxicology: LD50 (IP, mouse) 300 mg/kg
Uses: Anti-inflammatory and colorant in sun care and eye care products.
Regulatory: FDA GRAS; not listed as approved colorant for cosmetics under FDA 21CFR §73 and 74

†=pharmaceutical grade

Trade Names Containing: Crodamol Calendula O
See also Calendula officinalis

Calgluconol; Calglucon. See Calcium gluconate
California buckthorn. See Cascara (Rhamnus purshiana) extract
C14-16-alkanediolsulfonic and C14-16-alkene derivs., sodium salts. See Sodium C14-16 olefin sulfonate
C12-15 alkyl benzoate
CAS 68411-27-8; EINECS/ELINCS 270-112-4
Synonyms: Alkyl (C12-15) benzoate; Benzoic acid, C12-15 alkyl esters; C12-15 alcohol benzoate; C12-15 alcohols benzoate
Definition: Ester of benzoic acid and C12-15 alcohols
Empirical: C20H32O2
Properties: M.w. 304; sp.gr. 0.915-0.935; acid no. ≤ 0.5; ref. index 1.483-1.487
Storage: Preserve in tight, light-resistant containers
Uses: Emollient in pharmaceuticals; vehicle in pharmaceutical topical products
Regulatory: NF listed; Canada DSL
Trade Names: Crodamol AB; Saboderm AB; Tegosoft® TN

(C6-12) Alkyl carboxylic acid, trimethylolpropane triester. See Trimethylolpropane tricaprylyl/tricaprate
C12-15 alkyl 2-hydroxypropanoate. See C12-15 alkyl lactate
C12-15 alkyl lactate
CAS 93925-36-1; EINECS/ELINCS 300-338-1
Synonyms: C12-15 alcohols lactate; C12-15 alkyl 2-hydroxypropanoate; Propanoic acid, 2-hydroxy-, C12-15 alkyl esters
Definition: Ester of lactic acid and C12-15 alcohols
Formula: CH3CHOHCOOR, R rep. C12-15 alkyl group
Properties: Liq.; sol. in oil, ethanol, propylene glycol, IPM, oleyl alcohol; partly sol. in water, glycerin; sp.gr. 0.900-0.920; ref. index 1.4430-1.4450
Toxicology: LD50 (oral, rat) 21 ± 9.2 ml/kg; moderately irritating to eyes and skin
Uses: Emollient for topical pharmaceuticals; detackifier in antiperspirants
Trade Names: Ceraphyl® 41

Calluna vulgaris; Calluna vulgaris extract. See Heather (Calluna vulgaris) extract
C12 alpha olefin. See Dodecene-1
Chemical Component Cross-Reference

Chemical Component: 2-Camphanol

Empirical: C_{12}H_{22}O_2

Properties: Pale yel. liq.; woody, cedar, pine, balsamic odor; sol. in 60% alcohol; m.w. 198.31; sp.gr. 0.9880-0.9950; b.p. 121 C; ref. index 1.4730-1.4800; tenacity 1 wk. on blotter

Storage: Store in cool, dry place in tightly sealed containers, protected from heat and light

Uses: Synthetic flavor for pharmaceuticals


†=pharmaceutical grade

Chemical Component: Camphene

CAS 7070-15-7; EINECS/ELINCS 230-364-8

Synonyms: Arbanol; Cedanol; Ethanol; 2-[1,7,7-trimethylbicyclo[2.2.1]hept-2-yl]oxy, exo-β-hydroxyethyl isobornyl ether; 2-isobornyl-oxy; ethanoate; exo-2-((1,7,7-trimethylbicyclo[2.2.1]hept-2-yl)oxy)ethanol

Empirical: C_{10}H_{16}

Properties: Colorless cubic cryst., oily odor, terpene camphoraceous taste; sol. in alcohol,
Chemical Component Cross-Reference

camphora; Formosa camphor; Gum camphor; Japan camphor; 2-Keto-1,7,7-trimethylbicyclo[2.2.1]-2-heptanone; Laurel camphor; Matricaria camphor; 2-Oxoborne: 1,7,7-Trimethylbicyclo [2.2.1]-2-heptanone; 1,7,7-Trimethylbicyclo [2.2.1] heptan-2-one; 1,7,7-Trimethylnorcamphor

Classification: Aliphatic cyclohexyl compd.

Definition: Ketone derived from wood of the camphor tree, Cinnamomum camphora or prepared synthetically

Empirical: \( \text{C}_{10}\text{H}_{16}\text{O} \)

Properties: Colorless or wh. translucent cryst. mass, char. fragrant penetrating odor, sl. bitter cooling taste; sol. in alcohol, chloroform, ether, fixed/volatile oils; sl. sol. in water; m.w. 152.24; dens. 0.992 (25/4 C); m.p. 179.7 C; b.p. 204 C; subl. @ ambient temp./pressure; flash pt. 150 F

Toxicology: LD50 (oral, mouse) 1310 mg/kg, (IP, mouse) 3000 mg/kg; LCLo (inh., mouse, 3 h) 400 mg/m\(^3\); human poison by ing.; experimental poison by inh., subcut., IP routes; local irritant; ingestion by humans may cause nausea, vomiting, vertigo, mental confusion, delirium, convulsions, coma, respiratory failure, death; chronic exposure may cause transient hepatic and renal damage; mutagenic data; TSCA listed

Precaution: Combustible; incompat. with potassium permanganate; can react with oxidizers; vapor is explosive exposed to heat, flame, or CrO\(_3\)

HMIS: Health 2, Flammability 2, Reactivity 0

Storage: Keep tightly closed away from heat

Uses: Medicinal-type flavor; active OTC drug prod. ingred.; topical anti-infective, anti-itching agent, cooling agent in liniments and for inhalation; medicine (sedative, anodyne, antispasmodic, diaphoretic, anthelmintic); anesthetic, analgesic in cold sore prods.

Features: Medicinal-type flavor


http://www.barnetproducts.com; Berje

†=pharmaceutical grade


Charkit http://www.charkit.com; Chart http://www.chartcorp.com; ChemService http://www.chemservice.com

Chemacon GmbH† http://www.chemacon.de; China Nat'l.


Degussa AG/Health & Nutrition; Dujodwala Resins & Terpenes http://www.dujodwala.com; Fanning http://www.fanncorp.com; Fluka

http://www.sigma-aldrich.com; Frutarom (UK) Fine Ingrds.† http://www.frutarom.com

Fuerst Day Lawson http://www.fdl.co.uk

George Uhe† http://www.uhe.com; Hawkins Chem.† http://www.hawkinschemical.com

Hunan Xinyu http://www.hunanxinyu.com; Integra† http://www.integrachem.com

Lonza http://www.lonza.com; Mallinckrodt Baker† http://www.mallbaker.com


R.W. Greeff† http://www.pechiney-chemicals.com; Robeco† http://www.robecoinc.com; Ruger† http://www.rugerchemical.com; Safco Specialties

http://www.safcspecialties.com; SAFC Synthetics

http://www.safcspecialties.com; San Yuan Sarcom http://www.sarcominc.com; Sigma

http://www.sigma-aldrich.com/beijing; Spectrum Quality Prods.† http://www.spectrumchemical.com; U.S. Synthetics

Camphor

Chemical Component Cross-Reference

Wego Chem. & Min.
http://www.wegochem.com; ZenPharm Int'l.† http://www.zenpharm.com
(-)-Camphor; (1S,4S)-(-)-Camphor. See L-Camphor

L-Camphor
CAS 464-48-2
UN 2717
Synonyms: (-)-Alcanfor; (-)-Camphor; (1S,4S)-(-)-Camphor; L-(-)-Camphor; (1S)-1,7,7-T trimethylbicyclo [2.2.1] heptan-2-one
Empirical: C_{10}H_{16}O
Properties: Colorless or wh. cryst.; fragrant penetrating odor; sl. bitter and cooling taste; sol. in aniline, nitrobenzene, CS_{2}, tetralin, decalin, petrol. ether, higher alcohols, fixed and volatile oils; sol. 1 g/0.4 ml in acetone and benzene, 1 g/0.5 ml in chloroform, 1 g/1 ml in alcohol, 1 g/800 ml in water; m.w. 152.24; sp.gr. 0.992 (25/4 C); vapor pressure 1 mm Hg (41.5 C); m.p. 178.6 C; b.p. 204 C (subl.); flash sp.gr. 0.992 (25/4 C); vapor pressure 1 mm Hg (41.5 C); m.p. 178.6 C; b.p. 204 C (subl.); flash pt. 66 C; very volatile in steam
Toxicology: ACGIH TLV/TWA 2 ppm; STEL 3 ppm; LD50 (IV, mouse) 320 mg/kg; LDLo (oral, rat) 800 µg/kg; deadly poison by ing.; poison by IV route; harmful by inh., skin absorp.; can be absorbed through mucous membranes; may cause nausea, burning sensation, coughing, wheezing, laryngitis, headache, vomiting, vertigo, mental confusion, convulsions, GI/kidney/brain effects, CNS depression, coma, respiratory failure, death, etc.; severe irritant to eyes, skin, respiratory system
Precaution: Flamm.; uel 3.5%, lel 0.6%; incompat. with strong oxidizing agents, strong reducing agents, chlorinated solvs., potassium permanganate; reacts violently with chromic anhydride; should not be mixed with any salts in water
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of CO, CO_{2}
NFPA: Health 0, Flammability 2, Reactivity 0
Storage: May be sensitive to heat and direct sunlight; store under ambient temps.; protect from light
Uses: Preservative in pharmaceuticals; topical anti-infective and antipruritic; mild analgesic and rubefacient; in liniments; counter-irritant in treatment of fibrosis and neuralgia; mild expectorant; mild local anesthetic; veterinary medicine (internally as stimulant and carminative, externally as antiseptic)
†=pharmaceutical grade
Manuf./Distrib.: Doingcom
http://www.doingcom.com
L-(-)-Camphor. See L-Camphor
Camphora. See Camphor

Camphor (Cinnamomum camphora) oil
CAS 8008-51-3; EINECS/ELINCS 295-980-1
UN 1130 (DOT); FEMA 2231
Synonyms: Camphor, Japanese, white oil; Camphor oil; Camphor oil brown; Camphor oil light; Camphor oil, rectified; Camphor oil white; Camphor oil white Japanese; Camphor oil yellow; Camphor white oil; Cinnamomum camphora oil; Formosa camphor oil; Formose oil of campor; Japanese camphor oil; Light camphor oil; Liquid camphor; White camphor oil
Definition: Oil extracted from the wood of the camphor tree, Cinnamomum camphora
Properties: Colorless to yel.-brn. liq.; camphor or safrole odor; sol. in paraffin oil; insol. in water; dens. 0.87 kg/l (white), 0.97 kg/l (yel.), 1.07 kg/l (brown); b.p. > 200 C (yel.); flash pt. (TCC) ref. index 1.46700-1.47200 (20 C)
Toxicology: LD50 (oral, rat) 3730 mg/kg; TDLo (oral, human) 29 mg/kg; primary irritant; mild skin irritant; may be harmful if swallowed; may be irritating if inhaled; may cause tremors, convulsions in humans; TSCA listed
Precaution: DOT: Flamm. liq.; avoid contact or contamination with strong acids, alkalis, or oxidizing agents
Hazardous Decomp. Prods.: CO and unidentified org. compds. may be formed during combustion
Uses: Cough medicine ingred.; topical analgesic drug
Regulatory: FDA 21CFR §172.510; FEMA GRAS; Canada DSL
Manuf./Distrib.: Alfa Chem†
Camphor, Japanese, white oil; Camphor oil; Camphor oil brown; Camphor oil light; Camphor oil, rectified; Camphor oil white; Camphor oil yellow; Camphor white oil. See Camphor (Cinnamomum camphora) oil

Canada turpentine; Canadian balsam. See Balsam Canada (Abies balsamea)

Cananga; Cananga odorata; Cananga odorata oil; Cananga oil. See Ylang ylang (Cananga odorata) oil

Candelilla; Candelilla cera. See Candelilla (Euphorbia cerifera) wax

Candelilla (Euphorbia cerifera) wax
CAS 8006-44-8; EINECS/ELINCS 232-347-0
FEMA 3479; INS 902; E 902
Synonyms: Candelilla; Candelilla cera; Candelilla wax; Euphorbia cerifera wax

Definition: Purified wax obtained from leaves of the candelilla plant, Euphorbia cerifera

Properties: Yel.-brown to translucent solid; sol. in acetone, benzene, carbon disulfide, chloroform, hot petrol. ether, gasoline, oils, toluene, turpentine, CCl₄; sparingly sol. in alcohol; pract. insol. in water; dens. 0.983; m.p. 67-68 °C; acid no. 10-20; sapon. no. 50-65; ref. index 1.4555

Toxicology: No known toxicity

Precaution: Combustible

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Moisturizer, emollient, film-former, gellant in pharmaceuticals, orals, topicals

Regulatory: FDA 21CFR §175.105, 175.320, 176.180, 184.1976; GRAS; FEMA GRAS; Japan approved; approved for orals, topicals; Canada DSL

Manuf./Distrib.: AB R Lundberg
http://www.norfoods.se/lundberg; Aldrich

†=pharmaceutical grade

http://www.sigma-aldrich.com; Charkit
http://www.charit.com; Charlotte Chem.
http://www.charlotte.com.mx; Darwin
http://www.darwinchemical.com
Degussa AG/Health & Nutrition; Eggar & Co. http://www.eggar.co.uk; Frank B. Ross
http://www.frankboss.com; Koster Keunen
Marlin Chems. Ltd http://www.marlinchemicals.co.uk;
Mosselman NV http://www.mosselman.be;
Mutchler http://www.mutchlerchem.com;
RITA http://www.ritacorp.com; Ruger† http://www.rugerchemical.com; Spectrum Quality Prods.
http://www.spectrumchemical.com;
Stevenson Cooper http://www.stevensoncooper.com; Strahl & Pitsch http://www.strahlpitsch.com

Trade Names: Candelilla Wax SP 50; Candelilla Wax SP 75; Candelilla Wax SP 76; Candelilla Wax SP 97; Candelilla Wax SP 78 Prime Quality Crude; Candelilla Wax SP 99; Candelilla Wax SP 350; Candelilla Wax Fine

Trade Names Containing: Ross Beeswax Substitute No. 628/5

Candelilla synthetic
CAS 136097-95-5

Synonyms: Synthetic candelilla; Synthetic candelilla wax (INCI)

Definition: Synthetic wax intended to be generally indistinguishable from natural candelilla wax

Uses: Wax, gellant, thickener, stabilizer, moisturizer for pharmaceuticals

Trade Names: Candelilla Wax SP 24A; Candelilla Wax SP 803

Candelilla wax. See Candelilla (Euphorbia cerifera) wax

Candlenut oil. See Kukui (Aleurites moluccana) nut oil

Cane sugar. See Sucrose

Canola. See Canola oil

Canola oil
CAS 8002-13-9; 120962-03-0

Synonyms: Canola; Colza oil; Rapeseed; Rapeseed oil
Low-erucic rapeseed oil

Properties: Yel.-brn. oily liq., odorless, bland flavor; insol. in water; dens. 0.913-0.917; m.p. 17-22 C; iodine no. 110-120; sapon. no. 180-193; flash pt. (CC) 600 F

Toxicology: Can cause acne-like skin eruptions

Uses: Emollient, lubricant for pharmaceuticals

Features: Natural oil

Regulatory: Canada DSL

Manuf./Distrib.: ABITEC
http://www.abiteccorp.com; Aarhus Karlshamn A/S† http://www.aak.com/
Alnor Oil http://www.alnoroil.com; Alzo http://www.alzointernational.com; Anar Anglia Oils† http://www.angliaoils.co.uk
Chesham Chems. Ltd† http://www.cheshamchemicals.co.uk;
KIC Chems.† http://www.kicchemicals.com;
http://www.kicgroup.com; Lambent Tech.
Protameen http://www.protameen.com;
Sea-Land http://www.sealandchem.com;
Spectrum Naturals http://www.spectrumnaturals.com; St. Lawrence http://www.stlawrencechem.com

Trade Names: Pureco® Canola
See also Rapeseed (Brassica campestris) oil

Canola oil glyceride

Definition: Monoglyceride derived from canola oil

Uses: Emulsifier for w/o phases in pharmaceutical sustained-release formulations and microspheres, topical permeation enhancement, solubilization

Trade Names: Eastman® 18-99

Canola oil (low erucic acid rapeseed oil). See Rapeseed (Brassica campestris) oil

Cantha. See Canthaxanthine

Canthaxanthin. See Cl 40850;
Chemical Component Cross-Reference

Formula: \( \text{CH}_3(\text{CH}_2)_8\text{COOH} \)

Properties: Wh. to pale yel. crystals, unpleasant odor; sol. in org. solvs. incl. ethanol, alkanes; insol. in water; m.w. 172.27; dens. 0.8858 (40 C); vapor dens. 5.9; m.p. 31.5 C; b.p. 270 C;

flash pt (TCC) > 230 F; acid no. 320-330; ref. index 1.4288 (40 C)

Hazardous Decomp. Prods.: Heated to decomp., emits COx, acrid smoke and irritating fumes

Incompat. with strong oxidizers, reducers

Storage: Keep away from heat, sparks, open flame; keep in original, tightly closed container

Uses: Flavor for pharmaceuticals

Features: Citrus-like flavor


†=pharmaceutical grade


Trade Names: Caprico 80%; NAA-102

Trade Names Containing: Synative FA V 85

n-Capric acid. See Capric acid

Capric acid ethyl ester. See Ethyl decanoate

Capric alcohol. See Decyl alcohol

Capric aldehyde. Caprinaldehyde. See Decanal

Caprinic acid. See Capric acid

Caprinic alcohol. See Decyl alcohol

Caproaldehyde. See Hexanal

Caproamide polymer. See Nylon 6

Capric acid

CAS 142-62-1; EINECS/ELINCS 205-550-7

UN 1760; UN 2829 (DOT); FEMA 2559

Synonyms: Butyric acid; n-Butyric acid; Butyric acid; Carboxylic acid C6; Hexanoic acid; 1-Hexanoic acid; n-Hexanoic acid; Hexol acid; Pentitformic acid

Empirical: C6H12O2

Formula: \( \text{CH}_3(\text{CH}_2)_4\text{COOH} \)

Properties: Colorless oily liq., odor of Limburger cheese; very sol. in ether, fixed oils; sl. sol. in water; m.w. 116.18; dens. 0.9295 (20/20 C);
Chemical Component Cross-Reference

f.p. -3.4 C; b.p. 205 C; flash pt. (COC) 215 F; ref. index 1.415-1.418

Toxicology: LD50 (oral, rat) 3000 mg/kg, (IP, mouse) 3180 mg/kg, (subcut., mouse) 3180 mg/kg, (skin, rabbit) 630 mg/kg; mod. toxic by ing., skin contact, IP, and subcut. routes; corrosive; skin and severe eye irritant; mutagenic data; TSCA listed

Precaution: DOT: Corrosive material; combustible exposed to heat or flame; can react with oxidizers

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes

NFPA: Health 2, Flammability 1, Reactivity 0

Storage: 6 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air

Uses: Synthetic flavor for pharmaceuticals; mfg. of pharmaceuticals

Regulatory: FDA 21CFR §172.515, 173.315, 184.1025; FEMA GRAS; Japan approved as flavoring; Canada DSL; Australia AICS


†=pharmaceutical grade


Trade Names: Edener® C 6 98-100; NAA-60

n-Caproic acid. See Caproic acid

Caproic acid allyl ester. See Allyl caprate

N-Caproic acid isopropyl ester. See Isopropyl hexanoate

Caproic aldehyde. See Hexanal

γ-Caprolactone. See γ-Hexalactone

Capronaldehyde. See Hexanal

Capronic acid. See Caproic acid

Caproyl alcohol. See Hexyl alcohol

n-Caproylaldehyde. See Hexanal

Caproyl ethanol. See 3-Octanone-1-ol

Capryl acetate. See Decyl acetate

Capryl alcohol. See 2-Octanol

Caprylaldehyde. See n-Octanal

Caprylic acid

CAS 124-07-2; EINECS/ELINCS 204-677-5

UN 3265; FEMA 2799; INS570; E570

Synonyms: C8 acid; n-Caprylic acid; 1-Heptane carboxylic acid; Octanoic acid; n-Octanoic acid; Octic acid; Octoic acid; n-Octyl acid

Classification: Fatty acid

Empirical: C8H16O2

Formula: CH3(CH2)6COOH

Properties: Colorless leaf or oily liq.; unpleasant odor; burning rancid taste; sol. in alkalis, ethanol, chloroform, ether, carbon disulfide, petrol. ether, glaci. acetic acid; sl. sol. in water; m.w. 144.21; dens. 0.91 (20/4 C); vapor dens.
Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>CAS</th>
<th>m.p. 16 C; b.p. 237.5 C; flash pt. (TCC) 110 C; ref. index 1.4280</th>
</tr>
</thead>
</table>

**Toxicology:**
- LD50 (oral, rat) 10,080 mg/kg, (IV, mouse) 600 mg/kg; mod. toxic by IV route;
- mildly toxic by ing.; skin irritant; yields irritating vapors which can cause coughing;
- mutagenic data; TSCA listed

**Precaution:**
- Wear safety glasses or goggles, rubber gloves, apron;
- incompat. with strong oxidizers, alkalies

**Hazardous Decomp. Prods.:**
- Heated to decomp., emits CO, CO2, acrid smoke and irritating fumes

**Storage:**
- 6 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air

**Uses:**
- Flavor for pharmaceuticals; mfg. of drugs; component of pharmaceutical-grade additives

**Regulatory:**
- FDA 21CFR §172.210, 172.860, 173.315, 173.340, 175.105, 175.320, 176.170, 176.200, 176.210, 177.1010, 177.1200, 177.2600, 178.1010, 178.3570, 178.3910, 184.1025, 186.1025, GRAS; GRAS as indirect additive; FEMA GRAS; BP, EP compliance; Australia AICS; Canada DSL; Japan MITI

**Manuf./Distrib.:**
- ADA Int'l. http://www.joinme.net/ada/index.htm;
- AMRESCO† http://www.amresco-inc.com;
- Advanced BioTech http://www.adv-bio.com;
- Akzo Nobel http://www.akzonobel.com;
- Axxence Aromatic GmbH http://www.axxence.com;
- http://www.axxence.de; Berje http://www.berjeinc.com; Chempria;
- Imperial-OEL-Import http://www.imperial-oel-import.de;

†=pharmaceutical grade

<table>
<thead>
<tr>
<th>Trade Names:</th>
<th>Caprilico 98-100%; NAA-82; Synative FA C 8/98-100</th>
</tr>
</thead>
</table>

**Trade Names Containing:** Synative FA V 85

- n-Caprylic acid. See Caprylic acid
- Caprylic acid, methyl ester. See Methyl caprylate
- Caprylic acid, monoester with 1,2-propanediol. See Propylene glycol caprylate
- Caprylic acid monoglyceride. See Glyceryl caprylate
- Caprylic acid, 1,2,3-propanetriyl ester. See Tricaprylin
- Caprylic acid sodium salt. See Sodium caprylate
- Caprylic acid triglyceride. See Tricaprylin
- Caprylic alcohol CAS 111-87-5; EINECS/ELINCS 203-917-6
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>FEMA 2800</th>
<th>†=pharmaceutical grade</th>
</tr>
</thead>
</table>

### Properties

- **Empirical:** C8H18O
- **Classification:** Primary aliphatic alcohol
- **Health 1, Flammability 2, Reactivity 0**
- **NFPA:** Manuf./Distrib.:
  - Synthetic flavor for pharmaceuticals
  - Store in cool, dry area away from heat

### Toxicology

- **Toxicology:** LD50 (oral, mouse) 1790 mg/kg, (IV, mouse) 69 mg/kg; poisoning by IV route; mod. toxic by ing.; skin and eye irritant; does not readily form a vapor; vapors may cause CNS depression; can probably cause 'alcohol' intoxication effects; may cause severe lung damage, respiratory and/or cardiac arrest and death if aspirated into lungs; mutagenic data; TSCA listed
- **Environmental:** VOC; BOD5 1.58; ThOD 2.95

### Precaution:

- Flamm. exposed to heat or flame; can react with oxidizers

### Hazardous Decomp. Prods.: Thermal decomp. prod.: CO, CO2

### NFPA:

- Health 1, Flammability 2, Reactivity 0
- Storage: Store in cool, dry area away from heat and ignition sources

### Uses:

- Synthetic flavor for pharmaceuticals
- Features: Citrus flavor
- Regulatory: FDA 21 CFR §172.230, 172.515 (only for encapsulating lemon, dist. lime, orange, peppermint, and spearmint oils), 172.864, 173.280, 175.105, 175.300, 177.1010, 177.1200, 177.1390, 177.2800, 178.3480; FEMA GRAS; Canada DSL

triglycerides of caprylic and capric acids

**Properties:** Nonionic

**Uses:** Solvent for lipophilic ingreds.; solvent, coemulsifier, solubilizer, carrier for lipophilic drugs

**Regulatory:** Canada DSL

**Trade Names:** Akoline HH; Akoline LL; Akoline MCM; Akoline R; Imwitor® 742; Witafrol® 7420

**Trade Names Containing:** Pionier® MCT

Caprylic/capric/isostearic adipic triglycerides. See Bis-diglyceryl polyacadiipenate-1

**Caprylic/capric/lauric triglyceride**

- **CAS:** 68991-68-4
- **Synonyms:** Dodecanoic acid, mixed triesters with octanoic acid, decanoic acid, and 1,2,3-propanetriol
- **Definition:** Mixed triester of glycerin with caprylic, capric and lauric acids
- **Uses:** Emollient, solvent, carrier, fixing agent, and extender for pharmaceuticals, nutritional apps.
- **Trade Names:** Captex® 350

**Caprylic/capric/linoic triglyceride**

- **Synonyms:** 9,12-Octadecadienoic acid, mixed triesters with octanoic acid, decanoic acid, and 1,2,3-propanetriol
- **Definition:** Mixed triester of glycerin with caprylic, capric, and linoic acids
- **Uses:** Emollient, solvent, carrier, fixing agent, and extender for pharmaceuticals, nutritional apps.
- **Trade Names:** Captex® 810D; Miglyol® 818

**Caprylic/capric/oleic triglyceride**

- **Uses:** Emollient, solvent, and extender in pharmaceuticals, nutritional apps.; carrier for flavors and fragrances
- **Trade Names:** Captex® 300; Captex® 300 EP/NF; Captex® 355 EP/NF; Captex® 355

**Caprylic/capric/stearic triglyceride**

- **Synonyms:** Octadecanoic acid, mixed triesters with octanoic acid, decanoic acid, and 1,2,3-propanetriol
- **Definition:** Mixed triester of glycerin with caprylic, capric and stearic acids
- **Uses:** Ointment base, emollient, moisturizer, stabilizer, solvent for pharmaceuticals, esp. nonaq. ointments and creams; filler, carrier for gelatin capsules
- **Features:** Good skin compatibility and resorption chars.
- **Trade Names:** Softisan® 378

**Caprylic/capric triglyceride**

- **CAS:** 526220-27-2; 65381-09-1; 73398-61-5;

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†=pharmaceutical grade

**EINECS/ELINCS** 265-724-3, 277-452-2

**Synonyms:** Glycerides, mixed decanoyl and octanoyl; Glycerol caprylate/caprate; Glycerol tricaprylate/caprate; Medium chain triglycerides; Mixed decanoic and octanoic acid, monoester with 1,2,3-propanetriol; Mono decanoyl octanoyl glyceride; Octanoic/decanoic acid triglyceride; ODO-L; Triglycerides, mixed decanoate and octanoate

**Definition:** Mixed triester of glycerin with caprylic and capric acids

**Properties:** Transparent or ylsh. cl. liq.; HLB 4 - 6; acid no. 0.5 max.; iodine no. 1.0 max.; sapon. no. 260 - 290; nonionic

**Toxicology:** LD50 (oral, rat) >2 g/kg; eye irritant

**Environmental:** Biodeg.

**Precaution:** Keep away from heat, sparks or open flames.

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Emollient, solvent, moisturizer, dispersant, solubilizer, suspending agent in pharmaceutical topicals; lubricity vehicle; solvent carrier for flavors and fragrances; lipophilic emulsifier and softener used in vitamin and mineral preps.

**Regulatory:** Approved for topicals

**Manuf./Distrib.:** Avatar
- [http://www.avatarcorp.com](http://www.avatarcorp.com)
- [http://www.croda.com](http://www.croda.com)
- [http://www.crodausa.com](http://www.crodausa.com)
- [http://www.inolex.com](http://www.inolex.com)
- [http://www.lambentcorp.com](http://www.lambentcorp.com)
- [http://www.lonz.com](http://www.lonz.com)
- [http://www.mosselman.be](http://www.mosselman.be)
- [http://www.phoenixuk.com](http://www.phoenixuk.com)
- [http://www.sealandchem.com](http://www.sealandchem.com)
- [http://www.stepan.com](http://www.stepan.com)

**Trade Names:** Akomed E; Akomed R; Aldo® MCT; Aldo® MCT KFG; BGL™ 855
- Captex® 300; Captex® 300 EP/NF; Captex® 355 EP/NF; Captex® 35 5EP/NF; Captex® 355
- Crodamol GTCC; Crodamol GTCC-PN; Estasen™ GT 8-40 3578; Estasen™ GT 8-60 3575; Estasen™ GT 8-60 3580 MCT Oil
- Estasen™ GT 8-65 3577; Estasen™ GT 8-65 3581; Estasen™ GT 8-70 3579; Labrafac® CC; Labrafac® Lipophile
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Component</th>
<th>Synonym</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lexol® GT-855; Lexol® GT-865; Miglyol® 810; Miglyol® 812; Miglyol® 812 N</td>
<td>Pharmaceutical grade</td>
</tr>
<tr>
<td>Miglyol® 8108; Myritol® 312; Myritol® 318; NEOBEE® 1053; NEOBEE® M-5</td>
<td></td>
</tr>
<tr>
<td>Pelemol® CCT; Protachem™ CTG; Saboderm TCC; Tegosoft® CT</td>
<td></td>
</tr>
</tbody>
</table>

### Trade Names Containing:

- Captex® CA
- Crodarom Chamomile O; Crodarom Rosemary Oil forte; DREWMULSE® GMC-810; Miglyol® Gel B
- Miglyol® Gel T; Phosal® 53 MCT; Triol 91
- Labrafac® Hydro WL 1219; Labrafac® Hydrophile
- Lipacide™ C8CO
- Lipacide™ C8G
- Sepicontrol A5
- Sepecoll® Hydro WL 1219

### Caprylic/capric triglyceride PEG-4 esters

**Definition:** Complex mixture formed from transesterification of caprylic/capric triglyceride and PEG-4

**Properties:** Oil; nonionic

**Uses:** Bioavailability enhancer, emulsifier, solvent, solubilizer for pharmaceutical creams, lotions, ointments

**Features:** Hydrophilic

**Trade Names:** Labrafac® Hydro WL 1219; Labrafac® Hydrophile

### Caprylic ether

See Diocetyl ether

### Capryloamphocarboxypropionate

See Disodium capryloamphodipropionate

### Capryloyl animal collagen amino acids

See Capryloyl collagen amino acids

### Capryloyl collagen amino acids

CAS 68989-52-6

**Synonyms:** Capryloyl animal collagen amino acids

**Definition:** Condensation prod. of caprylic acid chloride and collagen amino acids

**Uses:** Antimicrobial, antiseborrheic, antiacneic, antiseptic for dermal preps.

**Trade Names:** Lipacide™ C8CO

### Capryloyl glycine

CAS 14246-53-8; EINECS/ELINCS 238-122-3

**Synonyms:** N-(1-Oxooctyl) glycine

**Definition:** Acylation prod. of glycine with caprylic acid chloride

**Empirical:** C<sub>10</sub>H<sub>19</sub>N<sub>2</sub>O<sub>3</sub>

**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>6</sub>NHCH<sub>2</sub>COOH

**Uses:** Biological additive

**Trade Names:** Lipacide™ C8G

### Capryl propionate

See Decyl propionate

### Capryl acetate

See Octyl acetate

### Caprylyl/capryl glucoside

Synonyms: D-Glucoside, mixed octyl and decyl

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†=pharmaceutical grade

### Classifications:

- **Alkyl glucoside**
- **3-(Cyclohexylamino)-propanesulfonic acid**
- **Disodium capryloamphodipropionate**
- **Capryloyl animal collagen amino acids**
- **Capryloyl collagen amino acids**
- **Caprylic/capric triglyceride PEG-4 esters**

### Toxicology:

- Low irritation

### Uses:

- Surfactant, foaming agent, wetting agent, hydro trope, solubilizer for dermopharmaceuticals

### Features:

- High-foaming

### Trade Names:

- Oramix® CG 110
- Lipacide™ C8CO

### Other Synonyms:

- Paprika (Capsicum annum)
- Oleoresin paprika
- Oleoresin capsicum
- Capsaicin

### Regulatory:

- BP, EP compliance; FDA 21 CFR §73.340, 101.22, 182.10, GRAS; FEMA GRAS; Japan approved

### Manufacturer/Distributor:

- Allchem Ind.
- Bio-Botanica†
- Frutarom†
- Ruger†
- Steve Weiss http://www.steveweiss.com

### Cas Numbers:

- Capsicum annum: 97700-72-9; 977071-33-2; 8023-77-6
- Capsicum frutescens extract: 84625-29-6; 85940-30-3; 8023-77-6
- Capsicum frutescens extract: 283-403-6; 288-920-0

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Handbook of Pharmaceutical Additives, Third Edition 1046
Chemical Component Cross-Reference

**Definition:** Extract of the dried fruit of the capiscum, Capsicum frutescens

**Toxicology:** Mutagen

**Uses:** Natural flavor for pharmaceuticals; herbal extract used as tonic, antiseptic, rubefacient, vasodilatory, counterirritant, stimulant

**Regulatory:** FDA 21CFR §182.20, 582.20, GRAS; FEMA GRAS

**Manuf./Distrib.:** F.D. Copeland [http://www.copelandoil.co.uk]; Kalsec [http://www.kalsec.com]

**Capsicum frutescens oleoresin (INCI); Capsicum frutescens resin; Capsicum oleoresin.** See Oleoresin capsicum

**Captan**

CAS 133-06-2; EINECS/ELINCS 205-087-0

**Synonyms:** 1H-Isoindole-1,3(2H)-dione, 3a,4,7a-tetrahydro-2-((trichloromethyl)thio)-1,2,3,6-Tetrahydro-N-(trichloromethylthio) phthalimide; N-Trichloromethylmercapto-4-cyclohexene-1,2-dicarboximide; N-Trichloromethylthio-4-cyclohexene-1,2-dicarboximide; N-Trichloromethylthiotosretahydrophthalimide

**Classification:** Organic compd.

**Empirical:** C9H8Cl3NO2S

**Properties:** Crystal, odorless; pract. insol. in water; partly sol. in benzene, chloroform, tetrachloroethane; m.w. 300.59; dens. 1.74; m.p. 178 C

**Toxicology:** ACGIH TLV/TWA 5 mg/m³; LD50 (oral, rat) 9000 mg/kg; LC50 (inh., mouse, 2 h) 5000 mg/m³; LDLo (IP, rat) 25 mg/kg; poison by IP route; mod. toxic to humans by ing.; mod. toxic by inh.; irritant; tumorigen; experimental teratogen; questionable carcinogen; human mutation data; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Synthetic flavor, sweetener, and colorant for pharmaceuticals, orals, rectals, topicals, cough syrups, placebo sol'ns.; emollient in skin lotions

**Regulatory:** FDA 21CFR §73.85, 73.1085, 73.2085, 182.1235, 582.1235, GRAS; FEMA GRAS; Japan restricted; Europe listed; UK approved; FDA approved for orals, rectals, topicals, permanently listed; USP/NF compliance; Canada DSL


**Caramel**

CAS 8028-89-5; EINECS/ELINCS 232-435-9

†=pharmaceutical grade

**FEMA 2235; INS150a; E150a**

**Synonyms:** Burnt sugar; Burnt sugar coloring; Caramel color; Natural brown 10; Plain caramel

**Definition:** Conc. sol'n. obtained from heating sucrose or glucose sol'ns.

**Properties:** Dk. brn. to black liq. or solid, char. burnt sugar odor, pleasant bitter taste; sol. in water (colloidal); sol. in dil. alcohol up to 55% (v/v); insol. in most org. solvs.; sp.gr. 1.25-1.38

**Toxicology:** Mutagenic data; may reduce wh. blood cells and destroy vitamin B₆; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Synthetic flavor, sweetener, and colorant for pharmaceuticals, orals, rectals, topicals, cough syrups, placebo sol'ns.; emollient in skin lotions

**Regulatory:** FDA 21CFR §73.85, 73.1085, 73.2085, 182.1235, 582.1235, GRAS; FEMA GRAS; Japan restricted; Europe listed; UK approved; FDA approved for orals, rectals, topicals, permanently listed; USP/NF compliance; Canada DSL

Caraway (Carum carvi) oil
CAS 8000-42-8; 85940-31-4; EINECS/ELINCS 288-921-6
FEMA 2238
Synonyms: Caraway oil; Carum carvi; Carum carvi fruit oil; Carum carvi oil
Definition: Volatile oil distilled from the dried ripe fruit of Carum carvi, contg. carvone, d-limonene
Properties: Colorless to pale yel. clear oily liq., caraway odor and taste; darkens and thickens with age; sol. in 8 vols. 80% alcohol; pract. insol. in water; dens. 0.900-0.910 (25/25 C); ref. index 1.485-1.497 (20 C)
Toxicology: LD50 (oral, rat) 3500 mg/kg, (skin, rabbit) 1780 mg/kg, (skin contact; skin irritant; mutagenic data; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
HMIS: Health 1, Flammability 2, Reactivity 0
Storage: Keep cool, well closed; protect from light
Uses: Natural flavor for pharmaceuticals; carminative expelling gas from alimentary canal; relieves colic, flatulence; stimulant
Regulatory: FDA 21CFR §182.10, 182.20, 582.20GRAS; FEMA GRAS; Japan approved; BP compliance; Canada DSL
Manuf./Distrib.: Advanced BioTech
http://www.adv-bio.com; Astral Extracts
http://www.astralextracts.com; Buckton Page Ltd http://www.bucktonpage.com;
Chart http://www.chartcorp.com; Citrus and Allied Essences
http://www.citrusandallied.com
Eramex Aromatics http://www.eramex.de;
F.D. Copeland
http://www.copelandoil.co.uk; Fleurchem
http://www.fleurchem.com; Frutarom (UK)

†=pharmaceutical grade

Fine Ingrds.† http://www.futarom.com;
George Uhe † http://www.uehe.com
Integra† http://www.integrachem.com;
Janousek Industriale Srl http://www.janousek.com; Liberty Natural
Penta Mfg.† http://www.pentamfg.com;
Ruger † http://www.rugerchemical.com
SAFC Specialties
http://www.safcspecialties.com; Spectrum Quality Prods.†
http://www.spectrumchemical.com; Treatt USA http://www.rctreatt.com; Virginia Dare Extract† http://www.virginiadare.com; Voigt

Caraway oil. See Caraway (Carum carvi) oil
Carbamaldehyde. See Formamide
Carbamic acid, butyl-3-iodo-2-propynyl ester. See Iodopropynyl butylcarbamate
Carbamide. See Urea
Carbamide peroxide. See Urea peroxide
Carbamide resin; Carbamidic acid. See Urea
Carbamidine hydrochloride. See Guanidine hydrochloride
Carbamimedic acid. See Urea
Carbanthrene blue. See D&C Blue No. 9;
Indanthrene blue
Carbethoxyacetylester. See Diethyl malonate
4-Carboxyoxanilide. See Ethyl-p-aminobenzoate
Carbethoxymethyl diethyl phosphonate. See Triethyl phosphonooacetate
p-Carbethoxyphenol. See Ethylparaben
Carbinol. See Methyl alcohol
'Carbitol'. See Ethoxydiglycol
Carbofil. See Calcium polycarbophil
Carbohydrate gum. See Hydroxypropyl methylcellulose
'Carbolic acid'. See Phenol

Carbomer
CAS 9003-01-4 (generic); 9007-16-3 (generic);
9007-17-4 (generic); 9007-20-9; 9062-04-8;
54182-57-9; 76050-42-5
Synonyms: Acrylic acid, polymer with
sucrose-polyallyl ether;
Carboxypolymethylene
Definition: Homopolymer of acrylic acid
crosslinked with an allyl ether of pentaerythritol
or an allyl ether of sucrose
Properties: Wh. fluffy powd., odorless; dens.
1.41; anionic
Toxicology: LD50 (oral, rat) 4100 mg/kg; mod.
toxic by ingestion; TSCA listed
Carbomer 934P
CAS 9003-01-4 (generic)
Synonyms: Carpolene
Definition: Polymer of acrylic acid crosslinked with allyl ether of succrose
Properties: Wh. fluffy powd., sl. char. odor; when neutralized with alkali hydroxides or with amines, dissolves in water, alcohol, and glycerin; m.w. nominally 3,000,000; vis. 29,400-39,400 cps (0.5% aq. disp.); pH 3 (1% disp.); anionic
Toxicology: TSCA listed
Storage: Hygroscopic
Uses: Emulsifier, suspending agent, thickener for pharmaceuticals
Regulatory: USP/NF compliance
Trade Names: Carbopol® 934P NF Polymer
Trade Names Containing: Carbopol® 934P

Carbomer 940
CAS 9003-01-4 (generic); 9007-17-4 (generic)
Definition: Polymer of acrylic acid crosslinked with allyl ether of pentaerythritol
Chemical Component Cross-Reference

†=pharmaceutical grade

Properties: Wh. fluffy powd., sl. char. odor; when neutralized with alkali hydroxides or with amines, dissolves in water, alcohol, and glycerin; m.w. nominally 4,000,000; visc. 40,000-60,000 cps (0.5% aq. disp.); pH 3 (1% disp.); anionic

Toxicology: No known toxicity; TSCA listed

Storage: Hygroscopic; preserve in tight containers

Uses: Suspending agent, thickener for pharmaceuticals

Regulatory: USP/NF compliance

Manuf./Distrib.: Spectrum Quality Prods.† http://www.spectrumchemical.com

Trade Names: Acritamer® 940; Carbopol® 940 NF; Carbopol® 980 NF Polymer

Carbomer 941

CAS 9003-01-4 (generic)

Definition: Polymer of acrylic acid crosslinked with allyl ether of pentaerythritol

Properties: Wh. fluffy powd., sl. char. odor; when neutralized with alkali hydroxides or with amines, dissolves in water, alcohol, and glycerin; m.w. nominally 1,250,000; visc. 4000-11,000 cps (0.5% aq. disp.); pH 3 (1% disp.); anionic

Toxicology: No known toxicity; TSCA listed

Storage: Hygroscopic; preserve in tight containers

Uses: Thickener, suspending agent, dispersant, emulsifier in pharmaceuticals, ophthalmics, topicals

Features: Reacts with fat particles to form thick stable emulsions of oils in water

Regulatory: FDA approved for ophthalmics, topicals; USP/NF compliance


Trade Names: Acritamer® 941; Carbopol® 941 NF; Carbopol® 981 NF; Carbopol® 71G NF Polymer

Trade Names Containing: Carbopol® 971P NF

Carbomer 1342

CAS 96827-24-6

Definition: Polymer of acrylic acid crosslinked with allyl ether of pentaerythritol

Properties: Wh. fluffy powd., sl. char. odor; when neutralized with alkali hydroxides or with amines, dissolves in water, alcohol, and glycerin; visc. 9500-26,500 cps (1% aq. disp.); pH 3 (1% disp.)

Storage: Hygroscopic; preserve in tight containers

Uses: Thickener, suspending agent for pharmaceuticals

Regulatory: USP/NF compliance

Manuf./Distrib.: Spectrum Quality Prods.† http://www.spectrumchemical.com

Trade Names: Acritamer® 940; Carbopol® 940 NF; Carbopol® 980 NF Polymer

Carbona. See Carbon tetrachloride

Carbon, activated

CAS 7440-44-0; 64365-11-3; EINECS/ELINCS 231-153-3

UN NA 1361 (DOT); UN 1362 (DOT)

Synonyms: Activated carbon; Active carbon; CI 77265; Decolorizing carbon; Graphite; Pigment black 10

Empirical: C

Properties: Black porous solid, coarse gran., or powd.; odorless; tasteless; insol. in water, org. solvs.; m.w. 12.01; dens. 0.08-0.5

Toxicology: Toxic by inh. of dust; dust irritant, esp. to eyes and mucous membranes; TSCA listed

Precaution: Flamm. solid; DOT: spontaneously combustible; dust is flamm. and explosive when exposed to heat, flame, or oxides

HMIS: Health 0, Flammability 1, Reactivity 0

Uses: Refining of pharmaceutical chemicals

Regulatory: FDA 21CFR §177.1210, 240.361, 240.365, 240.401, 240.405, 240.527, 240.527a, GRAS; BATF 27CFR §240.1051; USDA 9CFR §318.7


Handbook of Pharmaceutical Additives, Third Edition 1050
Carbonic acid, ammonium salt. See Ammonium carbonate
Carbonic acid anhydride. See Carbon dioxide
Carbonic acid calcium salt; Carbonic acid calcium salt (1:1). See Calcium carbonate
Carbonic acid, cyclic ethylene ester. See
Chemical Component Cross-Reference

Ethylene carbonate
Carbonic acid, cyclic propylene ester. See Propylene carbonate
Carbonic acid, diammonium salt. See Ammonium carbonate
Carbonic acid dipotassium salt. See Potassium carbonate
Carbonic acid disodium salt. See Sodium carbonate
Carbonic acid gas. See Carbon dioxide
Carbonic acid magnesium salt; Carbonic acid magnesium salt (1:1); Carbonic acid magnesium salt (2:1). See Magnesium carbonate
Carbonic acid monoammonium salt. See Ammonium carbonate
Carbonic acid monopotassium salt. See Potassium carbonate
Carbonic acid monosodium salt. See Sodium bicarbonate
Carbonic acid, 1,2-propylene glycol ester. See Propylene carbonate
Carbonic acid, zinc salt (1:1). See Zinc carbonate
Carbonic anhydride. See Carbon dioxide
Carbon oil. See Benzene
Carbon tet. See Carbon tetrachloride
Carbon tetrachloride
CAS 56-23-5; EINECS/ELINCS 200-262-8
UN 1846 (DOT)
Synonyms: Benzinoform; Carbona; Carbon chloride; Carbon tet; CTC; Methane tetrachloride; Perchloromethane; Tetrachlorocarbon; Tetrachloromethane
Classification: Chlorinated hydrocarbon
Empirical: CCl₄
Properties: Colorless liq., sweetish distinct ether-like odor; misc. with alcohol, ether, chloroform, benzene, solv. naphtha; insol. in water; m.w. 153.84; dens. 1.585 (25/4 C); vapor pressure 115 mm Hg; m.p. -23 C; b.p. 76.74 C; flash pt. none; ref. index 1.457; surf. tens. 26.92 dynes/cm; KB value 104; dielec. const. 2.29
Toxicology: ACGIH TLV/TWA 5 ppm; STEL 30 (skin); LD50 (oral, rat) 2800-2920 mg/kg, (IP, rat) 1500 mg/kg, (skin, rat) 5070 mg/kg; toxic by ing., inh., IV, and skin absorption; human systemic effects (nausea, vomiting, coma, tremors, anorexia, GI effects; narcotic; eye and skin irritant; can cause contact dermatitis; damages liver, kidneys, lungs; confirmed teratogen; experimental carcinogen; experimental mutagen; data; TSCA listed

Environmental: VOC; BOD5 0; ThOD 0
Precaution: Forms impact-sensitive explosive mixts. with many metal particulates; other explosive mixts. possible
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of Cl– and phosgene
NFPA: Health 3, Flammability 0, Reactivity 0
Uses: Solvent in pharmaceuticals
Use Level: 4 ppm (pharmaceuticals)
Regulatory: SARA §313 reportable; HAP; CERCLA hazardous substance; FDA banned from household use; Canada DSL
Carbon trifluoride. See Trifluoromethane
Carbonyl diamide; Carboxyldiamine. See Urea
1,3-Carboxydioxyethane. See Ethylene carbonate
1,3-Carboxyl dioxypropane. See Propylene carbonate
Carbonyl iron. See Iron
Carboide. See Calcium hydroxide
Carboxyacetic acid. See Malonic acid
Carboxyaniline; 2-Carboxyaniline. See Anthranilic acid
4-Carboxyaniline. See p-Aminobenzoic acid
o-Carboxyaniline. See Anthranilic acid
p-Carboxyaniline. See p-Aminobenzoic acid
Carboxybenzene. See Benzoic acid
Carboxyethane. See Propionic acid
Cocobetainamido amphopropionate
3-Carboxy-1-ethyl-7-methyl-1,8-naphthidin-4-one. See Nalidixic acid
4-[2-(2-Carboxy-5-(β-D-glucopyranosyloxy)-2,3-dihydroxy-1H-indol-1-yl)ethenyl]-2,3-dihydro-2,6-pyridinedicarboxylic acid. See Betanine
3-Carboxy-4-hydroxybenzenesulfonic acid. See 5-Sulfosalicylic acid
3-Carboxy-4-hydroxybenzenesulfonic acid, dihydrate. See 5-Sulfosalicylic acid dihydrate
3-Carboxy-3-hydroxypentanedioic acid sodium salt. See Sodium citrate
3-Carboxy-5-hydroxy-1-p-sulfophenyl-4-p-sulfophenylazopyrazole trisodium salt. See FD&C Yellow No. 5; Tartrazine
Carboxylic acid C4. See n-Butyric acid
Carboxylic acid C5. See 2-Methylbutyric acid
Carboxylic acid C5. See n-Valeric acid
Carboxylic acid C-6. See Diethylacetic acid
Carboxylic acid C6. See Caproic acid
Carboxylic acid C7. See Heptanoic acid
Carboxylic acid C9. See Nonanoic acid
Carboxylic acid C10. See Capric acid
Carboxylic acid C18. See Stearic acid
Carboxymethylcellulose
CAS 9004-32-4; EINECS/ELINCS 265-995-8
INS466; E466
Synonyms: Carboxymethylcellulose, calcium. See Calcium carboxymethyl cellulose
Carboxymethylcellulose sodium
CAS 9000-11-7
FEMA 2239
Synonyms: Cellulose carboxymethyl ether
Classification: Synthetic gum
Toxicology: LD (oral, rat) > 5 g/kg; LD50 (IV, mouse) 47 mg/kg; shown to cause cancer in animals when ingested; toxicity on skin not known; may cause immune responses; TSCA listed
Uses: Flavor for pharmaceuticals, orals, dentifrices. May be used as a suspending agent, excipient, thickener in pharmaceuticals, dentals, injectables. Migrates to food from pkg. materials; TSCA listed
†=pharmaceutical grade

See also Carboxymethylcellulose sodium

Carboxymethylcellulose calcium. See Calcium carboxymethyl cellulose

Carboxymethylcellulose sodium
CAS 9000-11-7
FEMA 2239
Synonyms: Carboxymethylcellulose, calcium salt; Carboxymethyl ether cellulose sodium salt; Carmellose sodium; Cellulose carboxymethyl ether; Cellulose carboxymethyl ether sodium salt; Cellulose glycolic acid sodium salt; Cellulose gum (INCI); Cellulose, polyanionic; Cellulose sodium glycolate; CMC; CMC sodium salt; NaCMC; SCMC; Sodium carboxymethylcellulose; Sodium cellulose glycolate; Sodium CMC; Sodium CM-cellulose
Classification: Synthetic cellulose gum
Definition: Sodium salt of the polycarboxymethyl ether of cellulose
Formula: R₂OCH₂COONa
Properties: Colorless or wh. powd. or gran., odorless; water sol. depends on degree of substitution; insol. in org. liqs.; m.w. 21,000-500,000; visc. various; m.p. > 300 C; pH 6.5-8.5 (1%); anionic
Toxicology: LD50 (oral, rat) 27,000 mg/kg; LC50 (inh., 4 h, rat) > 5800 mg/m³; mildly toxic by ing.; questionable carcinogen; experimental reproductive effects, neoplastigenic data; tumorigen; migrates to food from pkg. materials; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of Na₂O
HMIS: Health 1, Flammability 1, Reactivity 0
Storage: Hygroscopic
Uses: Pharamaceutic aid; coating agent, suspending agent, excipient, thickener in pharmaceuticals, dentals, injectables,
Chemical Component Cross-Reference

orals, topicals, vaginals, mouth and throat preps. such as troches, saliva substitutes, lozenges; tablet binder, excipient, coating agent

Regulatory: FDA 21CFR §133.134, 133.178, 133.179, 150.141, 150.161, 173.310, 175.105, 175.300, 182.70, 182.1745, 582.1745, GRAS; USDA 9CFR 318.7, limitation 1.5%, must be added dry; 9CFR 381.147; Canada DSL; Japan restricted (2% max.); Europe listed; UK added dry; 9CFR 318.7, limitation 1.5%, must be 175.300, 182.70, 182.1745, 582.1745, GRAS; 133.179, 150.141, 150.161, 173.310, 175.105, agent; lozenges orals, topicals, vaginals, mouth and throat

†=pharmaceutical grade


Trade Names: Aqualon® 7H3SF; Aqualon® 7H3SXF; Aqualon® 7L2P; Aqualon® 12M8P; Aqualon® 12M31P; Aqualon® Cellulose Gum; Blanose® Cellulose Gum; Blanose® 7L2P; Blanose® 12M8P; Blanose® 12M31P; Cekol® 30; Cekol® 10000; Cekol® 300; Cekol® 500 T; Cekol® 700; Cekol® 2000; Cekol® 2000S; Cekol® 4000; Cekol® 10000; Cekol® 30000; Cellogen HP-5HS; Cellogen HP-6HS; Cellogen HP-6HS.9; Cellogen HP-8A; Cellogen HP-12HS; Cellogen HP-SB; CMC Daicel; TIC Pretested® CMC 2500 S; TIC Pretested® Pre-Hydrated® Ticalose® CMC PH-2500 Powd.; TIC Pretested® Ticalose® CMC 15 Fine Powd.; TIC Pretested® Ticalose® CMC 2500 Std. Powd.; Tylopur® C 300 P2; Tylopur® C 600 G1; Tylopur® C 1000 P2; Tylopur® C 6000 G1; Tylopur® C 10000 P2; Tylopur® CB 30000 G1; Tylopur® CB 30000 P2; Walocel® C 30 A; Walocel® C 100 A; Walocel® C 1000 A; Walocel® C 2000 A; Walocel® C 10000 A; Walocel® CRT 30 A; Walocel® CRT 70 A; Walocel® CRT 100 A; Walocel® CRT 1000 A; Walocel® CRT 2000 A; Walocel® CRT 10000 A; Walocel® CRT 15000 A; Walocel® CRT 20000 A; Walocel® CRT 30000 A
Chemical Component Cross-Reference

†=pharmaceutical grade

Trade Names Containing: Aquasorb® A380; Avicel® CL-611; Avicel® RC-581; Avicel® RC-591; Ceolus® RC-A591NF
Tabulose® SC-200; Tabulose® SC-580; Tabulose® SC-601; Tabulose® SC-611; Tabulose® SC-612
Tabulose® SC-613; Tabulose® SC-681; Viscocel® SC-580F; Viscocel® SC-601; Viscocel® SC-611
Viscocel® SC-612; Viscocel® SC-613; Viscocel® SC-681; Xylitab® 200

See also Carboxymethylcellulose

Carboxymethylcellulose, sodium salt. See Carboxymethylcellulose sodium

N-(Carboxymethyl)-N,N-dimethyl-1-hexadecanaminium hydroxide, inner salt. See Cetyl betaine

N-(Carboxymethyl)-N,N-dimethyl-3-[1-oxododecyl] amino]-1-propanaminium hydroxide, inner salt; (Carboxymethyl) dimethyl-3-[1-oxododecyl] amino] propylammonium hydroxide. See Lauramidopropyl betaine

N-(Carboxymethyl)-N,N-dimethyl-3 [[1-oxorcinolinoyle] amino]-1-propanaminium hydroxide, inner salt. See Ricinoleamidopropyl betaine


N-(Carboxymethyl)-N-((2-(2,6-dimethylphenyl) amino)-2-oxoethyl)-glycine. See Lidofenin

Carboxymethyl ether cellulose sodium salt. See Carboxymethylcellulose sodium

(Carboxymethyl) hexadecyldimethylammonium hydroxide, inner salt. See Cetyl betaine

Carboxymethyl hydroxyethyl cellulose

CAS 9004-30-2; 9088-04-4

Synonyms: Cellulose, carboxymethyl-2-hydroxyethyl ether, sodium salt; NaCMHEC; Sodium carboxymethyl hydroxyethyl cellulose

Definition: Sodium salt of an ethylene glycol ether of cellulose gum

Uses: Binder, emulsion stabilizer, film-former, visc. control agent in pharmaceuticals

Regulatory: FDA 21CFR §177.1200

Manuf./Distrib.: CarboMer

http://www.carbomer.com;

Hercules/Aqualon†

http://www.aqualon.com

N-(Carboxymethyl)-N′-(2-hydroxyethyl)-N,N′-ethylenedi-, trisodium salt. See Trisodium HEDTA

Carboxymethyl hydroxypropyl guar

CAS 68130-15-4

Synonyms: Guar gum, carboxymethyl 2-hydroxypropyl ether, sodium salt

Definition: Sodium salt of a propylene glycol ether of carboxymethyl guar

Uses: Emulsion stabilizer, visc. control agent, thickener, suspending agent in pharmaceuticals

Regulatory: Canada DSL


Trade Names: Galactasol® 650

Carboxymethylmethylcellulose

Synonyms: CMMC

Classification: Water-sol. resin

Uses: Thickener, stabilizer, rheology control agent, film-former, suspending agent, water-retention aid, binder for pharmaceuticals

Carboxymethyl starch sodium salt. See Sodium starch glycolate

(Carboxymethyl) trimethylammonium chloride. See Betaine hydrochloride

(Carboxymethyl) trimethylammonium hydroxide, inner salt. See Betaine

Carboxyphenol. See Ethylparaben

4-Carboxyphenol. See 4-Hydroxybenzoic acid

p-Carboxyphenylamine. See p-Aminobenzoic acid

9-o-Carboxyphenyl-6-diethylamino-3-ethylimino-3-isoxanthene 3-ethochloride. See Basic violet 10; D&C Red No. 19

9-(o-Carboxyphenyl)-6-(diethylamino)-3H-xanthen-3-ylidene diethylammonium chloride. See Basic violet 10; D&C Red No. 19

N-[9-Carboxyphenyl]-6-(diethylamino)-3H-xanthen-3-ylidene]-N-ethylthanalaminium chloride. See Basic violet 10; D&C Red No. 19

9-(o-Carboxyphenyl)-3,6-dihydroxy-4,5-diiodoxanthlyium disodium salt. See Acid red 95

9-(o-Carboxyphenyl)-6-hydroxy-3-
Chemical Component Cross-Reference

- isoxanthenone. See Fluorescein
- 9-o-Carboxyphenyl-6-hydroxy-3-isoxanthenone, disodium salt. See D&C Yellow No. 8; Fluorescein sodium
- 9-(o-Carboxyphenyl)-6-hydroxy-2,4,5,7-tetraiodo-3-isoxanthane. See FD&C Red No. 3; Acid red 51
- 9-(o-Carboxyphenyl)-6-hydroxy-3H-xanthene-3-one. See Fluorescein
- ((o-Carboxyphenyl) thio) ethylmercury sodium salt. See Thimerosal
- Carboxypolyethylene. See Carbomer
- 2-Carboxypyridine. See Picolinic acid
- 3-Carboxypyridine. See Nicotinic acid
- 1-Carboxy-N,N,N-trimethylmethanaminium, chloride. See Betaine hydrochloride
- 1-Carboxy-N,N,N-trimethylmethanaminium hydroxide, inner salt. See Betaine

Cardam fruit; Cardamom. See Cardamom (Elettaria cardamomum)

Cardamom (Elettaria cardamomum)
CAS 977005-95-0; 8000-66-6
FEMA 2240
Synonyms: Cardamom oil; Cardamom seed oil; Cardamon oil; Elettaria cardamomum; Grains of paradise
Definition: Dried ripe seeds of Elettaria cardamomum
Toxicology: No known toxicity
Uses: Aromatic and flavor in pharmaceuticals, orals; carminative; breaks up intestinal gas; stomachic
Regulatory: FDA 21CFR §101.22, 182.20, 582.10, GRAS; FDA approved for orals; FEMA GRAS; BP, JP compliance; Canada DSL
Manuf./Distrib.: Bio-Botanica† http://www.biobotanica.com

Cardamom (Elettaria cardamomum) oil
CAS 8000-66-6; 85940-32-5; EINECS/ELINCS 288-922-1
FEMA 2241
Synonyms: Cardamom oil; Cardamom seed oil; Cardamon oil; Elettaria cardamomum oil
Definition: Volatile oil obtained from the dried ripe seeds of Elettaria cardamomum, contg. eucalyptol, sabinene, etc.
Properties: Colorless to pale yel. oily liq., aromatic penetrating odor of cardamom, pungent taste; sol. in ether; misc. with alcohol; insol. in water; dens. 0.917-0.947 (25/4 C); ref. index 1.4630-1.4660 (20 C)

†=pharmaceutical grade

Toxicology: LD50 (oral, rat) 5 g/kg, (skin, rabbit) > 5 g/kg; mildly toxic by ing.; mutagenic data; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Uses: Natural flavor for pharmaceuticals; carminative
Regulatory: FDA 21CFR §182.20, 582.20, GRAS; FEMA GRAS; Japan approved; BP compliance; Canada DSL

Cardamom fruit. See Cardamom (Elettaria cardamomum)

Cardamom oil. See Cardamom (Elettaria cardamomum) oil
Cardamom seed. See Cardamom (Elettaria cardamomum)
Cardamom seed oil. See Cardamom (Elettaria cardamomum) oil
Cardamon. See Cardamom (Elettaria cardamomum)
Cardamom oil. See Cardamom (Elettaria cardamomum) oil
Cardis. See Isosorbide dinitrate
Carmellose calcium. See Calcium carboxymethyl cellulose
Carmellose sodium. See
Carmine (Coccus cacti)

CAS 1390-65-4; EINECS/ELINCS 215-724-4

Synonyms: Alum carmine; Aluminum calcium lake; Alum lake; Alum lake of carminic acid; Carmine; Carmine alum lake; Carmine, certified; Carmine extract; Carmine, high purity biological stain; B Rose Liq.

Definition: Aluminum lake of the coloring agent, cochenial; cochenial is a natural pigment derived from the dried female insect Coccus cacti

Empirical: C_{22}H_{20}O_{13}

Properties: Bright red cryst., easily powdered; sol. in alkali, borax; sl. sol. in hot water; pract. insol. in cold water, dilute acids; m.w. 492.39; decomp. @ 250 C

Toxicology: May be harmful by inh., ing., or skin absorption; may cause eye/skin irritation; suspected of causing food intolerance; may cause allergic cheilitis, occupational asthma in sensitive patients

Precaution: Incompat. with strong oxidizing agents

Hazardous Decomp. Prods.: Toxic fumes of CO, CO_{2}, aluminum oxide; emits toxic fumes under fire conditions

Storage: Store in cool, dry place; keep tightly closed

Uses: Colorant for pharmaceuticals, orals, medicine (pill coatings); as marker to measure gastrointestinal transit time (up to 500 mg dose); nuclear stain in animal tissue sections

Regulatory: FDA 21CFR §73.100, must be pasteurized to destroy Salmonella, 73.1100, 73.2087; FEMA GRAS; Europe listed; UK approved; FDA approved for orals, exempt from certification, permanently listed; JEFCA compliance; Canada DSL from certification, permanently listed; JEFCA approved; FDA approved for orals, exempt 73.2087; FEMA GRAS; Europe listed; UK


See also Carminic acid

Carmine extract; Carmine, high purity biological stain. See Carmine (Coccus cacti)

Carmines. See Carminic acid

Carmine solution

CAS 8001-80-7

Properties: Forms cloudy mixture in water

Uses: Colorant for ointments, tooth powders,
Carminic acid
CAS 1260-17-9; EINECS/ELINCS 215-023-3; FEMA 2330; INS120; E120

Synonyms: 2-Anthracenecarboxylic acid, 7-α-D-glucopyranosyl-9,10-dihydro-5,6,8-tetrahydroxy-1-methyl-9,10-dioxo-; 2-Anthracenecarboxylic acid, 7-β-D-glucopyranosyl-9,10-dihydro-5,6,8-tetrahydroxy-1-methyl-9,10-dioxo-2-anthracenecarboxylic acid; 7-Glucopyranosyl 3,4,5,8-tetrahydroxy-1-methylanthraquinone-2-carboxy acid; Natural red 4

Classification: Anthraquinone

Definition: Naturally derived color from the insect, Coccus cacti, the essential constituent of carmine

Empirical: C_{22}H_{20}O_{13}

Properties: Dk. purplish-brn. mass or red prisms; darkens at 120 C; sol. in alcohol, conc. H_{2}SO_{4}, DMSO; sl. sol. in ether; pract. insol. in petrol. ether, benzene, chloroform; sol. < 1 mg/ml in water; m.w. 492.39; m.p. 136 C (dec.)

Toxicology: May be harmful by inh., ing., or skin absorption; may cause eye/skin irritation; TSCA listed

Precaution: Probably combustible; incompat. with strong oxidizing agents

Hazardous Decomp. Prods.: Toxic fumes of CO, CO_{2}; emits toxic fumes under fire conditions

Storage: Store in cool, dry place; keep tightly closed

Uses: Colorant for pharmaceuticals; bacteriological stain

Regulatory: FDA approved for orals

Manuf./Distrib.: AB R Lundberg
http://www.norfoods.se/lundberg; Aceto†
http://www.aceto.com; Aldrich†
http://www.sigma-aldrich.com; Buckton Page Ltd http://www.bucktonpage.com;
Dudley http://www.dudley-chem.com
Fluka http://www.sigma-aldrich.com;
Indofine http://www.indofinechemical.com;
MP Biomedicals http://www.mpbio.com;
Mallinckrodt Baker

†=pharmaceutical grade

http://www.mallbaker.com; Pfaltz & Bauer
http://www.pfaltzandbauer.com
Sigma http://www.sigma-aldrich.com/belgium; TCI Am.
http://www.tciamerica.com

See also Carmine (Coccus cacti)

Carnauba. See Carnauba (Copernica cerifera) wax

Carnauba (Copernica cerifera) wax
CAS 8015-86-9; EINECS/ELINCS 232-399-4

Synonyms: Brazil wax; Carnauba; Carnauba wax; Cera carnauba; Copernica cerefera wax; Copernicia cerifera wax; Waxes, carnauba

Definition: Wax obtained from leaves and leaf buds of the carnauba palm, Copernica cerifera

Properties: Yel. greenish brown lumps, solid, char. odor; sol. in ether, alkalis, warm benzene, warm chloroform, toluene; sl. sol. in boiling alcohol; insol. in water; dens. 0.995 (15/15 C); m.p. 82-85.5 C; acid no. 2-7; sapon. no. 78-89; ref. index 1.4500

Toxicology: Essentially nontoxic; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 0, Flammability 1, Reactivity 0

Storage: Protect from light

Uses: Pharmaceutical aid; coating agent for pharmaceuticals, orals, topicals; plasticizer for dental compds.

Regulatory: FDA 21CFR §175.320, 184.1978, GRAS; Japan approved; Europe listed (permitted only in chocolate prods.); UK approved; approved for orals, topicals; USP/NF, BP, EP, JP compliance; Canada DSL

Manuf./Distrib.: AB R Lundberg
http://www.norfoods.se/lundberg; Aceto†
http://www.aceto.com; Aldrich†
http://www.sigma-aldrich.com; Alland & Robert† http://www.allandetrobert.fr;
Ashland† http://www.ashland.com; BASF†
http://www.basf.com; British Wax Refining†
http://www.british-wax.com; Charkit†
http://www.charkit.com; Chemcor
CoKEM Assoc.;† Cornelius Chem. Co. Ltd†
http://www.cornelius.co.uk; Degussa
AG/Health & Nutrition; Egg & Co.†
http://www.eggar.co.uk; Frank B. Ross†
http://www.frankbross.com

http://www.sigma-aldrich.com
Chemical Component Cross-Reference


Trade Names: Carnauba Wax SP 8; Carnauba Wax SP 59-2; Carnauba Wax SP 63; Carnauba Wax SP 63 NF; Carnauba Wax SP 64 (Extra Light) Carnauba Wax SP 135; Carnauba Wax SP 142; Carnauba Wax SP 200; Carnauba Wax Coarse; Carnauba Wax Fine Carnauba Wax Hard; Carnauba Wax Soft; Carnauba Wax Superfine; Koster Keuen Carnauba; Koster Keuen Carnauba, Powd. Ross Carnauba Wax

Trade Names Containing: Lite Natural Wax Jelly; Natural Wax Jelly SP-505

Carnauba wax. See Carnauba (Copernica cerifera) wax

†=pharmaceutical grade

Carob bean extract. See Carob (Ceratonia siliqua) extract

Carob bean gum. See Locust bean (Ceratonia siliqua) gum

Carob (Ceratonia siliqua) extract
CAS 84961-45-5; EINECS/ELINCS 284-634-5
FEMA 2243
Synonyms: Carob bean extract; Carob extract; Ceratonia siliqua; Ceratonia siliqua extract; Locust tree extract; St. John’s bread extract
Definition: Extract of the fruit of the carob, Ceratonia siliqua
Properties: Sweet taste
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §182.20, GRAS; FEMA GRAS; Japan approved

Carob extract. See Carob (Ceratonia siliqua) extract

Carob flour; Carob gum. See Locust bean (Ceratonia siliqua) gum

C8 aromatics. See Xylene

Caro’s acid, potassium salt. See Potassium caroate

Carotene
CAS 7235-40-7; EINECS/ELINCS 230-636-6
INS160a; E160a(ii)
Synonyms: β-Carotene; Beta-carotene (INCI); CI 40800; CI 75130; Food orange 5; Natural yellow 26; Provitamin A
Classification: Carotenoid pigment
Definition: A precursor of Vitamin A occurring naturally in plants
Empirical: C40H56
Properties: Purple hexagonal prisms, red leaflets; sol. in carbon disulfide, benzene, chloroform, veg. oils; mod. sol. in ether, petrol. ether, oils; pract. insol. in water; m.w. 536.89; m.p. 178-179 C
Toxicology: Nontoxic on skin; massive doses may cause yellowing of the skin; mutagen; TSCA listed
Precaution: Sensitive to alkali, air, and light
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Storage: Refrigerate
Uses: Colorant for pharmaceuticals, eye use;
Carotene
all trans-β-carotene-3,3´-diol; β,β-Carotene-3,3´-diol. See Zeaxanthin
β,ε-Carotene-3,3´-diol. See Xanthophyll
β-Carotene-4,4´-dione. See Canthaxanthine
β,β-Carotene-4,4´-dione. See CI 40850
Carpolene. See Carbomer 934P
Carrageen; Carrageenan. See Carrageenan (Chondrus crispus)
Carrageenan, calcium salt; Carrageenan, calcium (II) salt. See Calcium carrageenan

Carrageenan (Chondrus crispus)
CAS 9000-07-1; EINECS/ELINCS 232-524-2
FEMA 2596; INS407
Synonyms: 3,6-Anhydro-d-galactan;
Carrageen; Carrageenan; Carrageenan gum; Carrageenin; Carragheenan;
Carraghennan; Chondrus; Gum carrageenan; Irish gum; Irish moss
Classification: Sulfated polysaccharide
Definition: Hydrocolloid obtained from various members of the Gigartinaceae or Solieriae families of the red seaweed, Rhodophyceae; consists of sulfite esters of galactose and 3,6-anhydrogalactose copolymers
Properties: Yel. wh. powd., odorless, tasteless; sol. in hot water, hot conc. NaCl sol'n.; insol. in oils and org. solvs.
Toxicology: LDLo (IV, rabbit) 5 mg/kg; poison by IV route; experimental tumorigen; suspected carcinogen; linked to ulcers in colon, fetal damage in test animals; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Uses: Emulsifier, binder, extender, stabilizer, thickener, gellant, suspending agent in pharmaceuticals, orals, topicals, toothpaste; bulk laxative; emollient in skin care
Use Level: 1-5%
Regulatory: FDA 21CFR §133.133, 133.134, 133.162, 133.178.133.179, 136.110, 136.115, 136.130, 136.160, 136.180, 139.121, 139.122, 150.141, 150.161, 172.620, 172.623, 172.625, 172.626, 176.170, 182.7255, GRAS; Canada DSL; USDA 9CFR §318.7, 381.147; Japan approved; JSCI, European listed; UK approved; FDA approved for orals, topicals; USP/NF compliance

Manufacturers/Distributors: A&E Connock†
http://www.connock.co.uk; AAA Int'l.
http://www.aaainternational.com; AEP Colloids http://www.aepcolloids.com;

β-Carotene; Beta-carotene (INCI). See

Chemical Component Cross-Reference
nutrient; dietary supplement; vitamin A precursor
Regulatory: FDA 21CFR §73.95, 73.1095, 73.2095, 101.9, 166.110, 184.1245, GRAS; FDA exempt from certification, permanently listed for drug use; Japan restricted; Europe listed; UK approved
Manufacturers/Distributors: AB R Lundberg
http://www.norfoods.se/lundberg; Aldrich†
http://www.sigma-aldrich.com; Alfa Chem
http://www.alfachem1.com; Allchem Int'l. Ltd
http://www.allchem.co.uk; Amerol
http://www.amerolcorp.com
Atomergic Chemetals
http://www.atomergic.com; BASF†
http://www.basf.com; Biosil Tech.
http://www.biosiltech.com; Bronson & Jacobs Pty. Ltd
Cornelius Chem. Co. Ltd
http://www.cornelius.co.uk; Degussa
AG/Health & Nutrition; Fabrichem
http://www.fabricheminc.com; Fluka
http://www.sigma-aldrich.com; Hoffmann-LaRoche http://www.rocheusa.com
Indofine http://www.indofinechemical.com;
Kingfood Australia Pty. Ltd
http://www.kingfood.com.au; Noveon
http://www.carbopol.com;
http://www.noveoncoatings.com; O.C. Lugo
http://www.oclugo.com; Penta Mfg.
http://www.pentamfg.com
Quest Int'l. http://www.questintl.com;
Quimidis; Sensitive Flavors
http://www.sensient-tech.com; Sigma
http://www.sigma-aldrich.com/belgium;
Spectrum Quality Prods.
http://www.spectrumchemical.com
Spice King; Universal Preserv-A-Chem
http://www.upichem.com; Wego Chem. & Min.
http://www.wegochem.com
Trade Names: Beta-Carotene 10% DC/GFP;
Lucarotin® 1 CWD; Lucarotin® 1 CWD/K;
Lucarotin® 10 CWD S/Y
Trade Names Containing: Beta Carotene 30% FS; Beta Carotene 1% CWS; Beta-Carotene Dry Powd. 10% DC/GFP; CaroCare® Nat. β-Carotene 30% S; Carrot Oil CLR
Lucarotin® 10 CWD O; Lucarotin® 20 CWD/R; Lucarotin® 30 C; Lucarotin® 30 M
See also CI 40800; CI 75130
β-Carotene; Beta-carotene (INCI). See
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Active Organics</th>
<th>†=pharmaceutical grade</th>
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<tbody>
<tr>
<td>Sol'ns.†</td>
<td>Sarcom <a href="http://www.sarcominc.com">http://www.sarcominc.com</a>; Seppic</td>
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<td>Aldrich <a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a>; Alfa</td>
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<td>Chem†</td>
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<td>Branwell† <a href="http://www.branwell.com">http://www.branwell.com</a>;</td>
<td><a href="http://www.shell-lubricants.com">http://www.shell-lubricants.com</a>; Sigma</td>
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<td>Brenland† <a href="http://www.brenland.com">http://www.brenland.com</a>;</td>
<td><a href="http://www.sigma-aldrich.com/belgium">http://www.sigma-aldrich.com/belgium</a></td>
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<td>CEAMSA <a href="http://www.ceamsa.com">http://www.ceamsa.com</a>; CP</td>
<td>Spectrum Quality Prods.†</td>
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<td>Kelco† <a href="http://www.cpkelco.com">http://www.cpkelco.com</a>; CarboMer†</td>
<td><a href="http://www.spectrumchemical.com">http://www.spectrumchemical.com</a>; Spice</td>
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<td>Naturels†</td>
<td>King; TIC Gums† <a href="http://www.ticgums.com">http://www.ticgums.com</a>;</td>
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<td>Sol'ns.†</td>
<td>Thew Arnott &amp; Co. Ltd†</td>
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<td>Bromspar Southeast†</td>
<td><a href="http://www.tomenamerica.com">http://www.tomenamerica.com</a></td>
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<td>Toyota Tsusho Am. <a href="http://www.taiamerica.com">http://www.taiamerica.com</a>; Universal</td>
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<td>Chemcolloids Ltd <a href="http://www.chemcolloids.com">http://www.chemcolloids.com</a>; Colloides Naturels†</td>
<td><a href="http://www.viclark.com">http://www.viclark.com</a></td>
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<td>Chemics Ltd <a href="http://www.chemtechspecialties.com">http://www.chemtechspecialties.com</a>; ChemTech Specialties†</td>
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<td>Food Ingd. Tech. Ltd <a href="http://www.fit-ltd.com">http://www.fit-ltd.com</a>; Frutarom†</td>
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<td>†=pharmaceutical grade</td>
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<td>functionals <a href="http://www.frutarom.com">http://www.frutarom.com</a>; Functional Foods† <a href="http://www.functionalfoods.com">http://www.functionalfoods.com</a>;</td>
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<td>Gumix Int'l.; Healan Ingd. Ltd <a href="http://www.healan.com">http://www.healan.com</a></td>
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<tr>
<td>Carrageenan (Chondrus crispus) extract FEMA 2596; INS407</td>
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<tr>
<td>Synonyms: Carrageenan extract; Chondrus crispus; Chondrus crispus extract; Chondrus extract; Irish moss extract</td>
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<tr>
<td>Definition: Extract of carrageenan, Chondrus crispus</td>
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<tr>
<td>Properties: Ylsh. or tan to wh. powd., odorless, mucilaginous taste; sol. in water</td>
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<tr>
<td>Toxicology: LD50 (oral, rat) 5650 mg/kg, (oral, mouse) 8730 mg/kg; possible carcinogen; TSCA listed</td>
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<tr>
<td>Uses: Emulsifier in pharmaceuticals, nasals, topicals</td>
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<tr>
<td>Regulatory: FDA 21 CFR §182.7255, GRAS; FEMA GRAS; FDA approved for nasals, topicals</td>
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</table>
Carrot (Daucus carota) extract
CAS 84929-61-3; EINECS/ELINCS 284-545-1
Synonyms: Carrot extract; Daucus carota; Daucus carota sativa extract
Definition: Extract of roots of Daucus carota
Uses: Natural flavoring agent
Regulatory: FDA 21CFR §182.20, GRAS
Manuf./Dist: Biolandes
http://www.biolandes.com; Chart
http://www.chartcorp.com; Eramex Aromatics
http://www.aramex.de; Grau Aromatics
http://www.grau-aromatics.de
Trade Names Containing: Carrot Oil CLR; Carrot Oil Extra

Carrot (Daucus carota sativa) oil
CAS 8015-88-1; EINECS/ELINCS 284-545-1
FEMA 2244
Synonyms: Carrot seed oil; Carrot seed oil terpeneless; Daucus carota; Daucus oil
Definition: Oil obtained from the seeds of the carot, Daucus carota sativa
Properties: Lt. yel. to amber liq., aromatic odor, sweet piquant flavor; sol. in fixed oils, min. oil; insol. in glycerin, propylene glycol; sp.gr. 0.866-0.940 (20 C); b.p. 284 F; flash pt. 142 F; ref. index 1.4820-1.4910
Toxicology: Skin irritant; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §182.20, GRAS; FEMA GRAS; Canada DSL
Manuf./Dist: Advanced BioTech

†=pharmaceutical grade
Carrot seed oil; Carrot seed oil terpeneless.
See Carrot (Daucus carota sativa) oil

Carthamus tinctorius oil. See Safflower (Carthamus tinctorius) oil

Carthamus tinctorius. See Hybrid safflower (Carthamus tinctorius) oil; Safflower (Carthamus tinctorius) oil

Carthamus tinctorius hybrid oil; Carthamus tinctorius oil. See Hybrid safflower (Carthamus tinctorius) oil

Carum carvi; Carum carvi fruit oil; Carum carvi oil. See Caraway (Carum carvi) oil

Carum petroselinum. See Parsley (Carum petroselinum) seed oil

Carvacrol
CAS 499-75-2; EINECS/ELINCS 207-889-6
FEMA 2245
Synonyms: 2-p-Cymenol; Cymophenol; 2-Hydroxy-p-cymene; Isopropyl-o-cresol; 5-Isopropyl-2-methylphenol; Isothymol; 2-Methyl-5-isopropylphenol; 2-Methyl-5-(1-methylethyl) phenol; o-Thymol
Empirical: C10H14O
Properties: Colorless to pale yel. thick oily liq.; spicy thymol odor; freely sol. in oxygenated solvs., alcohol, ether; pract. insol. in water; m.w. 150.22; dens. 0.976 (20/4 C); m.p. 0-2 C; b.p. 234-236 C; ref. index 1.523 (20 C)
Toxicology: LD50 (oral, rat) 810 mg/kg; (subcut., mouse) 680 mg/kg; (IV, mouse) 80 mg/kg; LDLo (skin, rabbit) 2700 mg/kg; poison by ing. and subcut. route; mod. toxic by skin contact; severe skin irritant; TSCA listed
Precaution: Combustible liq.; volatile with steam
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Uses: Synthetic flavor for pharmaceuticals; antiseptic
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Chemical Component Cross-Reference

Manuf./Distrib.: Augustus Oils Ltd
http://www.augustus-oils-ltd.uk; Degussa AG/Health & Nutrition; Fluka
http://www.sigma-aldrich.com; Frutarom Ltd http://www.frutarom.com;
Millennium/F&F http://www.aromachem.com

†=pharmaceutical grade

Nutrition; Fleurchem
http://www.fleurchem.com; Frutarom Ltd

Carvovol. See Carvone; l-Carvone

4-Carvomenthol
CAS 562-74-3; EINECS/ELINCS 209-235-5
FEMA 2248

Synonyms: (S)-1-Isopropyl-4-methyl-3-cyclohexen-1-ol; 1-p-Menthen-4-ol; (S)-p-Menth-1-en-4-ol; 1-Methyl-4-isopropyl-1-cyclohexene-4-ol; 4-Methyl-1-(1-methylethyl)-3-cyclohexen-1-ol; Origanol; Terpinene-4-ol; (+)-Terpinen-4-ol; 4-Terpinenol; Terpinenol-4; Terpinen-4-ol; 4-Terpineol

Classification: cyclic terpene

Empirical: \(C_{10}H_{18}O\)

Properties: Colorless liq.; herbal, pepper, earthy, woody odor; very sl. sol. in water; sol. in PG, oils, 60% alcohol; m.w. 154.25; dens. 0.933 (20/4 C); b.p. 211-213 C; flash pt. 79 C; ref. index 1.479 (20 C)

Toxicology: LD50 (oral, rat) 1300 mg/kg; mod. toxic by ing.; skin irritant; harmful; TSCA listed

Precaution: Combustible

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Storage: Store in cool, dry place in tightly sealed containers, protected from heat, light

Uses: Synthetic flavor for pharmaceuticals

Use Level: 1-5%

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia; Canada DSL; Japan ENCS (no. 3-3260); Philippines PICCS

Lluch Essence http://www.luch-essence.com; R.C. Treatt & Co. Ltd
3-Carvomenthylene. See d-Piperitone

Carvone
CAS 99-49-0; EINECS/ELINCS 202-759-5
FEMA 2249

Synonyms: Carvyl; 2-Cyclohexen-1-one, 2-methyl-5-(1-methylethenyl); 6,8(9)-p-Menthadien-2-one; Δ-1-Methyl-4-isopropenyl-6-cyclohexen-2-one; 2-Methyl-5-(1-methylethenyl)-2-cyclohexen-1-one

Classification: terpene ketone

Empirical: C_{10}H_{14}O

Properties: Pale yel. clear mobile liq.; sol. in ethanol, org. esters, aldehydes, ketones, min. oil, chlorinated solvs.; insol. in water; m.w. 150; sp.gr. 0.965 (20 C); b.p. 230 C; flash pt. (TCC) 83 C; ref. index 1.4989 (20 C)

Toxicology: LD50 (oral, rat) 1640 mg/kg, (subcut., mouse) 2675 mg/kg; mod. toxic by ing. and subcut. routes; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acid smoke and irritating fumes

HMIS: Health 1, Flammability 1, Reactivity 0

Uses: Synthetic flavor and adjuvant for pharmaceuticals

Regulatory: FDA 21CFR §182.60, GRAS; FEMA GRAS; Canada DSL

Manuf./Distrib.: Advanced BioTech

http://www.adv-bio.com; Axxence Aromatic

http://www.axxence.de; Citrus and Allied Essences

http://www.citrusandallied.com;

Fleurchem http://www.fleurchem.com;

Fluka http://www.sigma-aldrich.com

Frutarom Ltd http://www.frutarom.com;

R.C. Treatt & Co. Ltd

http://www.rctreatt.com; SAFC Specialties

http://www.safcspecialties.com; Treatt USA

http://www.rctreatt.com

d(+)-Carvone. See d-Carvone

l-Carvone
CAS 6485-40-1; EINECS/ELINCS 229-352-5
FEMA 2249

Synonyms: Carvyl; (-)-Carvone; 1-6,8(9)-p-Menthadien-2-one; (-)-1,8-p-Menthadien-6-one; L,p-Mentha-1(6),8-dien-2-one; 1-1-Methyl-4-isopropenyl-6-cyclohexen-2-one; (R)-2-Methyl-5-(1-methylethenyl)-2-cyclohexen-1-one

Empirical: C_{10}H_{14}O

Properties: Colorless to pale yel. liq., spearmint odor; sol. in paraffin oil, propylene glycol, fixed oils; misc. in alcohol; insol. in water, glycerin; m.w. 150.22; dens. 0.956-0.960; b.p. 227-230 C; flash pt. 192 F; ref. index 1.495-1.499

Toxicology: LD50 (oral, rat) 3170 µg/kg, (skin, rabbit) 4 mg/kg; poison by ingestion and skin contact; skin irritant; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acid smoke and irritating fumes

HMIS: Health 1, Flammability 1, Reactivity 0

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §182.60, GRAS; FEMA GRAS; Canada DSL

Manuf./Distrib.: Advanced BioTech

http://www.adv-bio.com; Axxence Aromatic

http://www.axxence.de; Citrus and Allied Essences

http://www.citrusandallied.com;

Fleurchem http://www.fleurchem.com;

Fluka http://www.sigma-aldrich.com

Frutarom Ltd http://www.frutarom.com;

R.C. Treatt & Co. Ltd

http://www.rctreatt.com; SAFC Specialties

http://www.safcspecialties.com; Treatt USA

http://www.rctreatt.com; SAFC Specialties

http://www.safcspecialties.com; Treatt USA

http://www.rctreatt.com

(-)-Carvone. See l-Carvone

(+) -Carvone. See d-Carvone

d-Carvone
CAS 2244-16-8; EINECS/ELINCS 218-827-2
FEMA 2249

Synonyms: (+)-Carvone; d(+)-Carvone; (S)-Carvone; d-p-Mentha-6,8,(9)-dien-2-one; d-1-Methyl-4-isopropenyl-6-cyclohexen-2-one; (S)-2-Methyl-5-(1-methylethenyl)-2-cyclohexen-1-one

Empirical: C_{10}H_{14}O

Properties: Colorless liq., caraway odor; sol. in propylene glycol, fixed oils; misc. in alcohol; insol. in glycerin; m.w. 150.24; dens. 0.956-0.960; ref. index 1.496-1.499
(S)-Carvone. See d-Carvone

Carvyl acetate
CAS 97-42-7; EINECS/ELINCS 202-580-2
FEMA 2250
Synonyms: p-Mentha-6,8-dien-2-ol, acetate; 1-p-Mentha-6(8,9)-dien-2-yl acetate; 2-Methyl-5-(1-methylethenyl)-2-cyclohexen-1-ol acetate
Empirical: C₁₂H₁₈O₂
Properties: Colorless liq., spearmint-like odor; m.w. 194.27; dens. 0.976; b.p. 115-116°C; flash pt. 208°F; ref. index 1.4750
Toxicology: Primary skin irritant; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Synthetic flavor for pharmaceuticals
Features: Minty flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

L-Carvyl propionate. See Carvyl propionate

Caryophyllene. See β-Caryophyllene

β-Caryophyllene
CAS 87-44-5; EINECS/ELINCS 201-746-1
FEMA 2252
Synonyms: Caryophyllene; (-)-trans-Caryophyllene; 8-Methylene-4,11,11-(trimethyl) bicyclo (7.2.0) undec-4-ene; trans-(1R,9S)-8-Methylene-4,11,11-trimethylbicyclo[7.2.0] undec-4-ene; 4,11,11-Trimethyl-8-methylene, bicyclo[7.2.0] undec-4-ene
Definition: A mix of sesquiterpenes occurring in many essential oils (clove oil, lavender oil, cinnamon leaves, copaiba balsam)
Empirical: C₁₅H₂₄
Properties: Colorless oil, terpene odor; sol. in alcohol, ether; insol. in water; m.w. 204.36; dens. 0.902 (20/4°C); b.p. 262-264°C; flash pt. (CC) 116°C; ref. index 1.429 (20°C); tenacity 72 hrs. on blotter
Toxicology: Skin irritant; TSCA listed
Precaution: Combustible liq.
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Storage: Store in cool, dry place in tightly sealed containers, protected from heat and light
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia; Canada DSL; Japan ENCS (no. 4-592); Philippines PICCS
Manuf./Distrib.: Augustus Oils Ltd http://www.augustus-oils.ltd.uk; Axxence
Chemical Component Cross-Reference


†=pharmaceutical grade

Cascara (Rhamnus purshiana) extract
CAS 8015-89-2; 84650-55-5; 8007-06-5; EINECS/ELINCS 232-400-8; 283-515-5
UN 1197 (DOT); FEMA 2253
Synonyms: California buckthorn; Cascara bark extract; Cascara, bitterless, extract; Cascara extract; Cascara sagrada bark extract; Cascara sagrada extract; Chittembark; Rhamnus purshiana; Rhamnus purshiana bark extract; Rhamnus purshiana extract
Definition: Extract of dried bark of Rhamnus purshiana
HMIS: Health 2, Flammability 2, Reactivity 0
Uses: Natural flavor for pharmaceuticals; stimulant in laxative prods.
Regulatory: FDA 21CFR §172.510; FEMA GRAS; Japan approved

Cascara sagrada. See Cascara sagraga
Cascara sagrada bark extract. See Cascara (Rhamnus purshiana) extract
Cascara sagrada extract. See Casanthranol; Cascara (Rhamnus purshiana) extract

Cascara sagraga
Synonyms: Cascara sagrada
Definition: Derived from Rhamnus purshiana
Properties: Bitter tonic flavor
Uses: Natural flavor in pharmaceuticals
Regulatory: FDA 21CFR §172.510

Cascarilla bark oil. See Cascarilla oil

Cascarilla oil
CAS 8007-06-5; EINECS/ELINCS 284-284-3
FEMA 2255
Synonyms: Cascarilla bark oil; Croton bark
Chemical Component Cross-Reference

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<tr>
<td>Croton cascarilla oil; Croton eluteria oil; Croton extract; Sweetwood</td>
<td>Volatile oil from bark of <em>Croton eluteria</em> or <em>C. cascarilla</em></td>
<td>Yel. to greenish liq.; pleasant spicy odor; very sol. in alcohol, ether; sol. in most fixed oils, min. oil; pract. insol. in glycerol, propylene glycol</td>
<td>Heated to decomp., emits acrid smoke and fumes</td>
<td>Keep cool, well closed; protect from light</td>
<td>Natural flavor for pharmaceuticals</td>
<td>FDA 21CFR §182.20, GRAS; FEMA GRAS; Japan approved; Canada DSL</td>
<td>Buckton Page Ltd; Fleurchem; Treatt USA; Voigt Global Distr.</td>
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**Casein**

CAS 9000-71-9; EINECS/ELINCS 232-555-1

Synonyms: Milk protein, casein; Proteins, milk

Definition: Mixt. of phosphoproteins obtained from cow's milk

Properties: Wh. powd.; sol. in alkaline sol'ns.

Toxicology: Mild sensitive reactions in persons allergic to cow's milk; TSCA listed

Storage: Hygroscopic

Uses: Nutrient, flavor in pharmaceuticals; in slow-release and microencapsulation prods.; dietary base for evaluation of vitamins

Features: Low in fat and cholesterol

Regulatory: FDA 21CFR §101.4, 135.110, 135.140, 166.110, 182.90, GRAS; Japan restricted; Canada DSL

Manuf./Distrib.: AMRESCO†

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Website</th>
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<tbody>
<tr>
<td>Allchem Ind.</td>
<td><a href="http://www.allchem.com">http://www.allchem.com</a>; Am. Biorganics; Am. Casein</td>
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<td><a href="http://www.americancasein.com">http://www.americancasein.com</a>; Amerol</td>
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<td><a href="http://www.amerolcorp.com">http://www.amerolcorp.com</a>; Ashland†</td>
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<td><a href="http://www.ashchem.com">http://www.ashchem.com</a></td>
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<td>Blossom Farm Prods.; Chemical</td>
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<td><a href="http://www.thechemco.com">http://www.thechemco.com</a>; DMV Int‘l. Pharmacy†</td>
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<td><a href="http://www.dmvinternational.com">http://www.dmvinternational.com</a>; Dastech Int‘l.†</td>
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**Casein, calcium salt**. See Calcium caseinate

**Casein hydrolysate**. See Hydrolyzed caseinate

**Casein-sodium**; Casein-sodium complex; Casein sodium salt; Caseins, sodium complexes. See Sodium caseinate

**Cassava starch**. See Tapioca starch

**Casseins, calcium complexes**. See Calcium caseinate

**Cassia**. See Cinnamon (Cinnamomum cassia)

**Cassia aldehyde**. See Cinnamal

**Cassia bark oil**. See Cinnamon (Cinnamomum cassia) oil

**Cassia gum** E499

Synonyms: Gum cassia

Classification: Galactomannan

Definition: Purified flour from the endosperm of the seeds of Cassia tora/obtusifolia and is comprised of at least 75% polysaccharide consisting primarily of a linear chain of 1,4-α-D-mannopyranose units with 1,6-linked α-D-galactopyranose units.

Properties: Swells in water and forms high-viscosity aqueous colloids after it is boiled

Uses: Natural thickener, stabilizer for pharmaceuticals; medicine (tonic, stomachic, carminative)

Regulatory: Japan approved; FDA approved for buccals
Cassie (Acacia farnesiana) flowers
CAS 977017-58-5; 89958-31-6
FEMA 2260
Synonyms: Acacia farnesiana; Acacia farnesiana flowers; Cassie absolute; Cassie flowers
Definition: Flowers from Acacia farnesiana
Properties: Warm floral intense odor with a balsamic undertone
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.510; FEMA GRAS; Japan approved

Cassie flowers. See Cassie (Acacia farnesiana) flowers
Castor; Castorem oil. See Castoreum
Castoreum
CAS 8023-83-4; EINECS/ELINCS 232-427-5
Synonyms: Castor; Castorem oil; Castoreum absolute; Castoreum oil; Castoreum resinoid; Castoreum tincture; Hyperabsolute castoreum
Definition: Dried preputial or vaginal follicles of the beaver, Castor fiber L. and C. canadensis
Properties: Char. odor
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §182.50, GRAS; Japan approved
Manuf./Distrib.: Augustus Oils Ltd http://www.augustus-oils.ltd.uk

Castoreum absolute. See Castoreum extract; Castoreum
Castoreum extract
CAS 8023-83-4; EINECS/ELINCS 232-427-5
FEMA 2261
Synonyms: Castoreum absolute; Castorium extract
Definition: Derived from Castor fiber L. and C. canadensis
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §182.50, GRAS; FEMA GRAS; Japan approved; Canada DSL
Manuf./Distrib.: V. Mane Fils SA http://www.mane.com

†=pharmaceutical grade

Castoreum oil; Castoreum resinoid; Castoreum tincture. See Castoreum
Castor oil. See Castor (Ricinus communis) oil
Castor oil, acetylated. See Glyceryl triacetyl ricinoleate
Castor oil acid. See Ricinoleic acid
Castor oil aromatic. See Castor (Ricinus communis) oil
Castor oil ethoxylate. See PEG castor oil
Castor oil, hydrogenated. See Hydrogenated castor oil
Castor oil sulfated; Castor oil, sulfonated. See Sulfated castor oil
Castor (Ricinus communis) oil
CAS 1323-38-2; 8001-79-4; EINECS/ELINCS 232-293-8
FEMA 2263; INS1503
Synonyms: Aceite de ricino; Aromatic castor oil; Castor oil; Castor oil aromatic; Huile de ricini; Oil of Palma Christi; Oleum ricini; Ricini oleum; Ricinus communis oil; Ricin oil; Tangantangan oil
Classification: Vegetable oil
Definition: Fixed oil obtained from seeds of Ricinus communis
Properties: Colorless to pale yel. viscous oily liq., char. odor; sol. in alcohol; misc. with glacial acetic acid, chloroform, ether; negligible sol. in water; dens. 0.961; m.p. -12 C; b.p. 313 C; acid no. < 4; iodine no. 83-88; sapon. no. 176-187; hyd. no. 160-168; flash pt. 230 C; ref. index 1.478; surf. tens. 39 dynes/cm (20 C)
Toxicology: Moderately toxic by ing.; allergen; eye irritant; mild skin irritant; mist may cause sl. irritation of nose and throat; purgative, laxative in large doses; TSCA listed
Precaution: Combustible when exposed to heat; spontaneous heating may occur; incompat. with acids and bases (hydrolysis can occur), strong oxidizing agents (increased fire hazard)
Hazardous Decomp. Prods.: @ 340-400 C, pyrolysis occurs yielding heptaldehyde and undecylenic acids; further decomp. yields CO, CO2, possibly acrolein
NFPA: Health 0, Flammability 1, Reactivity 0
Storage: Store in cool, dry, well-ventilated area, out of direct sunlight; avoid generating mist
Uses: Vehicle, emollient, lubricant, plasticizer, solvent, cosolvent in
Chemical Component Cross-Reference

pharmaceuticals, intramuscular injectables, solid oral dosage forms, topicals, capsules, emulsions; soothing to eyes; cathartic; purgative; laxative; embalming fluids; stimulant

Features: Oleaginous

Use Level: 0.08-23 mg (solid oral dosage forms); 5-12.5% (topicals)


Manuf./Distrib.: Acme-Hardesty†
http://www.acme-hardesty.com; Air Prods.
http://www.airproducts.com; Alfa Chem†
http://www.alfachem1.com; Alzo
http://www.alzointernational.com; Am. Oil & Supply http://www.aosco.com
Amber Syn. http://www.amsyn.com; Arista Ind.†
http://www.aristaindustries.com;
Ashland† http://www.ashchem.com;
Asiamerica Int'l.†, Avatar†
http://www.avatarcorp.com
Buckton Page Ltd†
http://www.bucktonpage.com; CasChem†
http://www.caschemicals.com/caschem.html; ChemService
http://www.chemservice.com; Dastech Int'l.
http://www.dastech.com; Degen
http://www.degenoil.com/contact.htm
Fanning http://www.fanncorp.com; Ferro Pfanstiehl Labs†
http://www.pfanstiehl.com; Fluka
http://www.sigma-aldrich.com; Fuerst Day Lawson http://www.fdl.co.uk; Geo. Pfau's Sons†
http://www.pfauoil.com
George Uhe http://www.uhe.com; Georgia-Pacific/Actrachem
http://www.gp.com/chemical; Harcros
http://www.harcroschem.com; Indofine
http://www.indofinechemical.com; Integra†
http://www.integrachem.com
Mallinckrodt Baker†
http://www.mallbaker.com; Marlin Chems.
Ltd† http://www.marlinchemicals.co.uk;
Mosselman NV http://www.mosselman.be;
†=pharmaceutical grade

Mutchler† http://www.mutchlerchem.com;
Norman, Fox http://www.normfoxx.com
Penta Mfg.† http://www.pentamfg.com;
R.W. Greeff† http://www.pechinee-chemicals.com; RTD Hallstar http://www.rtdhallstar.com; Rhodia HPCII
http://www.rhodia-hpcii.com; Ruger†
http://www.rugerchemical.com
SAFC Specialties http://www.safc specialties.com; Sea-Land
http://www.sealandchem.com; Sigma
http://www.sigma-aldrich.com/belgium;
Spectrum Quality Prods.†
http://www.spectrumchemical.com; St. Lawrence†
http://www.stlawrencechem.com
Stevenson Cooper
http://www.stevensoncooper.com; Süd-Chemie AG† http://www.sud-chemie.com;
VWR Int'l.† http://www.vwrsp.com;
http://www.zeochem.com

Trade Names: AA USP; Crystal® O; Crystal® Crown; EmCon™ CO; Krystal Kleer Castor Oil
Lanaetex CO

Trade Names Containing: Lite Natural Wax Jelly; Natural Wax Jelly SP-505

Castorwax. See Hydrogenated castor oil

Catalase

CAS 9001-05-2; EINECS/ELINCS 232-577-1

Classification: Oxidizing enzyme

Definition: Enzyme found in animals, plants, bacteria, and fungi

Properties: M.w. ≈ 240,000; dens. 1.00

Toxicology: Mutagen; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Enzyme in treatment of wounds, skin ulcers, eczema

Regulatory: FDA 21 CFR §173.135; Canada, UK, Japan approved; Canada DSL

Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Degussa AG/Health &
Chemical Component Cross-Reference

Catechol. See Pyrocatechol
Caustic antimony. See Antimony trichloride
Caustic baryta. See Barium hydroxide lime
Caustic lime. See Calcium hydroxide
Caustic potash. See Potassium hydroxide
Caustic soda. See Sodium hydroxide
Cayenne; Cayenne pepper. See Capsicum
CCC. See Chlorophyllin-copper complex
CCHO. See Cyclohexene oxide
C10-30 cholesterol/lanosterol esters
Synonyms: Alkanoic acids, C10-30, prod. with cholesterol and lanosta-8,24-dien-3-ol, (3-β)-
Definition: Mixture of esters derived from reaction of C10-30 acids with a blend of cholesterol and lanosterol
Uses: Emollient, lubricant, plasticizer, moisturizer for pharmaceuticals

MβCD. See Methyl-β-cyclodextrin
CDA. See Cetethylidimonium bromide
CDAC. See Cetalkonium chloride
C-8 dimethylacetal. See Octanal dimethyl acetal
C13-15 dimethyl tert. amine. See Dimethyl C13-15 alkyl amine
Cedanol. See (exo)-2-Camphanyl-β-hydroxyethyl ether
Cedar leaf oil. See Cedar leaf (Thuja occidentalis) oil

Cedar leaf (Thuja occidentalis) oil
CAS 8007-20-3
FEMA 2267
Synonyms: Arborvitaes; Arborvitae oil; Cedar leaf oil; Cedar, white, leaf oil; Thuja oil; White cedarleaf oil; White cedar oil
Definition: Volatile oil obtained by steam distillation from fresh leaves of Thuja occidentalis, not a true cedar; mainly contg. d-α-thujone
Properties: Ylsh. oil, strong camphoraceous odor reminiscent of sage; sol. in fixed oils, min. oil, propylene glycol; insol. in glycerin; dens. 0.910-0.920; ref. index 1.4560-1.4590

Toxicology: LD50 (oral, rat) 830 mg/kg, (skin, rabbit) 4100 mg/kg; mod. toxic by ing. and skin contact; skin irritant; ing. of large quantities causes hypertension, bradycardia, tachypnea, convulsions, death; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
HMIS: Health 1, Flammability 1, Reactivity 0
Storage: Light-sensitive
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.510; FEMA GRAS; Canada DSL

Cedar, white, leaf oil. See Cedar leaf (Thuja occidentalis) oil

Cedro oil. See Lemon (Citrus medica limonum) oil

Cedar oil. See Lemon (Citrus medica limonum) oil

Cedar, white, leaf oil. See Lemon (Citrus medica limonum) oil
Chemical Component Cross-Reference

**Uses:** Natural flavor for pharmaceuticals
**Features:** Nondiscoloring in most media; fresh herbal woody odor
**Regulatory:** FDA 21CFR §182.20, GRAS; FEMA GRAS; Canada DSL

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**Cellulose**

**CAS:** 9004-34-6; 65996-61-4; EINECS/ELINCS 232-674-9
**INS460(ii); E460**
**Synonyms:** α-Amylose; α-Cellulose; Cellulose crystalline; Cellulose powder; Cellulose, powdered; Cellulose pulp; Cotton fiber; Crystalline cellulose; Hydroxyccellulose; Powdered cellulose; Pyrocellulose; Wood pulp, bleached

**Definition:** Natural polysaccharide derived from plant fibers
**Properties:** Colorless to wh. solid, odorless; sl. sol. in sodium hydroxide sol'n.; insol. in water, dil. acids, and org. solvs.; m.w. 160,000-560,000; dens. = 1.5
**Toxicology:** ACGIH TLV/TWA 10 mg/m³ (total dust); nuisance dust; cannot be digested by humans; TSCA listed
**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Suspending agent, visc. builder, filter aid for pharmaceuticals, buccals, dentals, orals; tablet and capsule diluent; tablet binder, disintegrant; sorbent for powds.; bulk laxative
**Use Level:** 5-20% (tablet binders, disintegrants), 30% (capsule diluent)

**Regulatory:** FDA 21CFR §177.2260; GRAS; Europe listed; use in baby foods not permitted in UK; FDA approved for buccals, dentals, orals; USP/NF compliance (powdered); BP, EP, JP compliance

**Manuf./Distrib.:** AB R Lundberg
http://www.norfoods.se/lundberg; Adept Sol'ns.; Akzo Nobel UK
http://www.akzonobel.uk.com; Aldrich†
http://www.sigma-aldrich.com; Alfa Chem
http://www.alfachem1.com
Alichem Int'l. Ltd http://www.alchem.co.uk;
Am. Fillers & Abrasives; Am. Ingreds.;†
http://www.americaningredients.com;
Amerol http://www.amerolcorp.com;
Barrington†
http://www.barringtonchem.com

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**Celluloid.** See Nitrocellulose

**Natural flavor for pharmaceuticals**

**Uses:** Suspending agent, visc. builder, filter aid for pharmaceuticals, buccals, dentals, orals; tablet and capsule diluent; tablet binder, disintegrant; sorbent for powds.; bulk laxative

**Use Level:** 5-20% (tablet binders, disintegrants), 30% (capsule diluent)

**Regulatory:** FDA 21CFR §173.120, GRAS; EP, JP compliance in UK; FDA approved for buccals, dentals, orals; tablet and capsule diluent; tablet binder, disintegrant; sorbent for powds.; bulk laxative

**Use Level:** 5-20% (tablet binders, disintegrants), 30% (capsule diluent)

**Regulatory:** FDA 21CFR §177.2260; GRAS; Europe listed; use in baby foods not permitted in UK; FDA approved for buccals, dentals, orals; USP/NF compliance (powdered); BP, EP, JP compliance

**Manuf./Distrib.:** Acme-Hardesty

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**Celery oil; Celery seed oil.** See Celery (Apium graveolens) seed oil

**Cellaburate.** See Cellulose acetate butyrate

**Cellacephate.** See Cellulose acetate phthalate

**Celloidin.** See Nitrocellulose

**'Cellosolve'; 'Cellosolve' solvent.** See Ethoxyethanol

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**Cellulase**

**CAS:** 9012-54-8; EINECS/ELINCS 232-734-4
**Classification:** Enzyme complex
**Definition:** Derived from Aspergillus niger
**Properties:** Off-wh. powd.; m.w. ≈ 31,000
**Toxicology:** May cause respiratory allergy in susceptible individuals, mild skin or irritation on prolonged or direct contact
**Storage:** Refrigerate; hygroscopic; keep under argon

**Uses:** Enzyme; digestive aid in medicine; aids bacteria in the hydrolysis of cellulose

**Regulatory:** FDA 21CFR §173.120, GRAS; UK, Japan approved

**Manuf./Distrib.:** Enzyme Development http://www.enzymedevelopment.com; Fluka http://www.sigma-aldrich.com; Pangaea Sciences†
http://www.pangaeasciences.com; Sigma http://www.sigma-aldrich.com/belgium;
### Chemical Component Cross-Reference

**Handbook of Pharmaceutical Additives, Third Edition**


**α-Cellulose.** See Cellulose

### Cellulose acetate

**CAS 9004-35-7**

**Synonyms:** Acetate cotton; Acetate ester of cellulose; Acetic acid, cellulose ester; Acetose; Acetylcellulose; CA; Cellulose, acetate; Cellulose 2,5-acetate; Cellulose acetate ester; Cellulose, 2,5-diacetate; Cellulose monoacetate; Monoacetylcellulose; Secondary cellulose acetate

**Classification:** Cellulosics; thermoplastic resin

**Properties:** Triacetate insol. in water, alcohol, ether, sol. in glacial acetic acid; tetraacetate insol. in water, alcohol, ether, glacial acetic acid, methanol; pentaacetate insol. in water, sol. in alcohol; m.w. ≈ 37,000; dens. 1.300

**Storage:** Preserve in tight containers

**Uses:** Polymer membrane, coating agent for pharmaceuticals

**Regulatory:** FDA 21CFR §175.300, 182.90, GRAS; USP/NF, BP, EP compliance; Canada DSL


**Trade Names:** CA-320S; CA-398-10NF; CA-398-30NF; Eastman® CA

**Cellulose, acetate; Cellulose 2,5-acetate.** See Cellulose acetate

**Cellulose, acetate, 1,2-benzene dicarboxylate.** See Cellulose acetate phthalate

**Cellulose acetate butanoate.** See Cellulose acetate butyrate

**Cellulose acetate butyrate**

**CAS 9004-36-8**

**Synonyms:** CAB; Cellaburate; Cellulose, acetate butanoate; Cellulose acetates, butanoates; Cellulose acetobutyrate

**Classification:** Thermoplastic resin

**Definition:** Butyric acid ester of a partially acetylated cellulose

**Properties:** Wh. pellets or gran.; sol. in ketones, org. acetates, lactates, methylene, ethylene, and propylene chlorides, high-boiling solvs.; dens. 1.250; exc. weathering props.; high dielec. str.; high resist. to oil and grease; high transparency
Chemical Component Cross-Reference

Precaution: **Combustible**

Uses: **Excipient for formulation of drug-loaded microparticles**

Regulatory: FDA 21CFR §175.105, 175.230, 175.300, 177.1200; BP, EP compliance; Canada DSL

**Handbook of Pharmaceutical Additives, Third Edition**

Precaution: **Combustible**

Uses: **Excipient for formulation of drug-loaded microparticles**

Regulatory: FDA 21CFR §175.105, 175.230, 175.300, 177.1200; BP, EP compliance; Canada DSL

**Manuf./Distrib.:** Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Allchem Ind. [http://www.allchem.com](http://www.allchem.com); Bencorp Int’l.; CarboMer† [http://www.carbomer.com](http://www.carbomer.com); Eastman† [http://www.eastman.com](http://www.eastman.com); Eggar & Co. [http://www.eggar.co.uk](http://www.eggar.co.uk); FMC [http://www.fmccompany.com](http://www.fmccompany.com); KIC Chems. [http://www.kicgroup.com](http://www.kicgroup.com); Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium);

Trade Names: **CAB-171-15 Pharm Grade**; **Eastman® CAB**

**Cellulose acetate ester.** See Cellulose acetate

**Cellulose acetate hydrogen 1,2-benzenedicarboxylate.** Cellulose acetate hydrogen phthalate; Cellulose acetate monophthalate. See Hydroxypropyl methylcellulose phthalate

**Cellulose acetate phthalate**

CAS 9004-38-0

Synonyms: **CAP; Cellulose, acetate, 1,2-benzenedicarboxylate**

Classification: **Polymer**

Definition: Reaction prod. of phthalic anhydride and a partial acetate ester of cellulose

Properties: Wh. free-flowing powd., sl. odor of acetic acid; sol. in acetone, dioxane; insol. in water, alcohol

Toxicology: **Harmful solid; irritant; TSCA listed**

Uses: **Enteric film-former, coating agent, excipient for coating of pharmaceutical tablets and capsules, in orals**

Regulatory: FDA approved for orals; USP/NF, BP, EP, JP compliance; Canada DSL

**Manuf./Distrib.:** Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Allchem Int’l. Ltd† [http://www.allchem.com](http://www.allchem.com); CarboMer† [http://www.carbomer.com](http://www.carbomer.com); Eastman† [http://www.eastman.com](http://www.eastman.com); FMC Biopolymer† [http://www.fmbiopolymer.com](http://www.fmbiopolymer.com); FeF Chems. A/S† [http://www.fef-chem.com](http://www.fef-chem.com); Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Forum Bioscience† [http://www.forum.co.uk](http://www.forum.co.uk); Honeywill & Stein† [http://www.honeywill.co.uk](http://www.honeywill.co.uk); Lehmann & Voss† [http://www.lehvoss.de](http://www.lehvoss.de)

Trade Names: **Aquacoat® CPD; C-A-P Enteric Coating Polymer**

**Cellulose, acetate propanoate.** See Cellulose acetate propionate

**Cellulose acetate propionate**

CAS 9004-39-1

Synonyms: **CAP; Cellulose, acetate propanoate; Cellulose acetate propionate ester; Cellulose acetopropionate; Cellulose propionate; CP**

Classification: **Thermoplastic**

Definition: Propionic acid ester of a partially acetylated cellulose

Properties: Wh. powd.; m.w. (avg.) 75,000; dens. 1.18-1.23 kg/l; high transparency; scratch resist.; tough; m.p. 200-210 C

Toxicology: **TSCA listed**

Precaution: Wear chemical goggles, protective clothing to avoid skin contact, and impervious gloves; avoid strong oxidizing agents

Hazardous Decomp. Prods.: **Irritating and toxic fumes and gases**

Storage: Store a tightly closed container in a cool, dry place

Uses: **Excipient for pharmaceuticals**

Regulatory: FDA 21CFR §175.105, 175.230, 175.300, 177.1200; Canada DSL

**Manuf./Distrib.:** Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Allchem Ind. [http://www.allchem.com](http://www.allchem.com); CarboMer† [http://www.carbomer.com](http://www.carbomer.com); Eastman† [http://www.eastman.com](http://www.eastman.com); Eggar & Co. [http://www.eggar.co.uk](http://www.eggar.co.uk); SAF Bulk Chems.

**Cellulose acetate propionate ester.** See Cellulose acetate propionate

**Cellulose acetates, butanoates.** See Cellulose acetate butyrate

**Cellulose acetate trimellitate**

CAS 52907-01-4

Properties: Sol. in water inc. with inc. pH; m.p. 240-249 C

Precaution: **pH-sensitive**
Cellulose acetobutyrate. See Cellulose acetate butyrate

Cellulose acetoxypropionate. See Cellulose acetate propionate

Cellulose acetylphthalate. See Hydroxypropyl methylcellulose phthalate

Cellulose carboxymethyl ether. See Carboxymethylcellulose; Carboxymethylcellulose sodium

Cellulose carboxymethyl ether calcium salt. See Calcium carboxymethyl cellulose

Cellulose carboxymethyl ether sodium salt. See Carboxymethylcellulose sodium

Cellulose, carboxymethyl-2-hydroxyethyl ether, sodium salt. See Carboxymethyl hydroxyethyl cellulose

Cellulose crystalline. See Cellulose

Cellulose, 2,5-diacetate. See Cellulose acetate

Cellulose, diethylaminoethyl. See Diethylaminoethyl cellulose

Cellulose ethyl; Cellulose ethylate; Cellulose ethyl ether. See Ethylcellulose

Cellulose gel. See Microcrystalline cellulose

Cellulose glycolic acid sodium salt; Cellulose gum (INCI). See Carboxymethylcellulose sodium

Cellulose hydroxyethylate; Cellulose hydroxyethyl ether; Cellulose, 2-hydroxyethyl ether. See Hydroxyethylcellulose

Cellulose, 2-hydroxyethyl methyl ether. See Methyl hydroxyethylcellulose

Cellulose, 2-hydroxypropyl ether. See Hydroxypropylcellulose

Cellulose hydroxypropyl methyl ether; Cellulose 2-hydroxypropyl methyl ether. See Hydroxypropyl methylcellulose

Cellulose, 2-hydroxypropyl methyl ether, acetate hydrogen butanedioate. See Hydroxypropyl methylcellulose acetate succinate

Cellulose methyl; Cellulose methylether; Cellulose methyl ether. See

†=pharmaceutical grade

Methylcellulose

Cellulose monoacetate. See Cellulose acetate

Cellulose nitrate. See Nitrocellulose

Cellulose, oxidized. See Oxidized cellulose

Cellulose, oxidized, regenerated

Synonyms: ORC

Uses: Absorbable adhesion barrier in surgical procedures, as wound dressing

Cellulose, polyanionic. See Carboxymethylcellulose sodium

Cellulose powder; Cellulose, powdered. See Cellulose

Cellulose propionate. See Cellulose acetate propionate

Cellulose pulp. See Cellulose

Cellulose sodium glycolate. See Carboxymethylcellulose sodium

Cellulose tetranitrate. See Nitrocellulose

Cellulosic acid. See Oxidized cellulose

Centella asiatica; Centella asiatica extract. See Hydrocotyl (Centella asiatica) extract

Cephrol. See ß-Citronellol

Cera alba. See Beeswax

Cera carnauba. See Carnauba (Copernica cerifera) wax

Cera microcristallina. See Microcrystalline wax

Ceratonia. See Locust bean (Ceratonia siliqua) gum

Ceratonia siliqua. See Carob (Ceratonia siliqua) extract; Locust bean (Ceratonia siliqua) gum

Ceratonia siliqua extract. See Carob (Ceratonia siliqua) extract

Ceratonia siliqua gum. See Locust bean (Ceratonia siliqua) gum

Ceresin

CAS 8001-75-0; EINECS/ELINCS 232-290-1

Synonyms: Ceresine; Ceresine wax; Ceresin wax; Cerin, Earth wax; Mineral wax; White ceresin wax; White ozokerite wax

Definition: Waxy mixture of hydrocarbons obtained by purification of ozokerite

Properties: Wh. or yel. waxy cake; tasteless; odorless (wh.), sl. odor (yel.); sol. in benzene, chloroform, naphtha, hot oils, petrol. ether, 30 parts abs. alcohol, most org. solvs.; insol. in water; dens. 0.92-0.94; m.p. 68-72 C

Toxicology: May cause allergic reactions;

TSCA listed

Precaution: Combustible

Uses: Thickener in pharmaceutical protective
**Chemical Component Cross-Reference**

**creams:** dental wax compds.

*Regulatory:* FDA 21 CFR §175.105; Canada DSL  
*Manuf./Distrib.:* Eggar & Co.  
http://www.eggar.co.uk; Frank B. Ross  
http://www.frankbross.com; Koster Keunen  
http://www.kosterkeunen.com; Lambert Tech.  
http://www.lambentcorp.com; Ruger  
http://www.rugerchemical.com  
Scheel  
http://www.scheelcorp.com;  
Eggar & Co.  
http://www.eggar.co.uk; Frank B. Ross  
http://www.frankbross.com; Koster Keunen  
http://www.kosterkeunen.com; Lambert Tech.  
http://www.lambentcorp.com; Ruger  
http://www.rugerchemical.com  
Scheel  
http://www.scheelcorp.com;  
Universal Preserv-A-Chem  
http://www.upichem.com;  
Trade Names:  
Ceresine C; Ceresine K;  
Ceresine Wax SP 248; Ceresine Wax SP 251; Ceresine Wax SP 252; Ceresine Wax SP 254; Ceresine Wax SP 272; Ceresine Wax SP 301; Ceresine Wax SP 319; Ceresine Wax SP 845; Ceresine Wax 931; Ceresine Wax SP 1022; Ceresine Wax Cosmetic Stralpitz; Koster Keunen Ceresine; Ross Ceresine Wax

*See also* Ozokerite

Ceresine; Ceresine wax; Ceresin wax; Cerin.  
*See Ceresin*

**Ceruleinum.**  
*See FD&C Blue No. 2; Acid blue 74*

Ceryl alcohol.  
*See 1-Hexacosanol*

CETAB.  
*See Cetrimonium bromide*

**Cetalkonium chloride**

CAS 122-18-9; EINECS/ELINCS 204-526-3  
*Synonyms:* Ammonium, benzylhexadecyldimethyl-, chloride; Benzenemethanaminium, N-hexadecyl-N,N-dimethyl-, chloride; Benzylhexadecyldimethylammonium chloride; Benzylhexadecyldimethylammonium chloride; CDAC; Cetyl dimethyl benzyl ammonium chloride; Dimethylhexadecylbenzylammonium chloride; N-Hexadecyl-N,N-dimethylbenzenemethanaminium chloride; Hexadecyl dimethylbenzyl ammonium chloride  
*Classification:* Quaternary ammonium salt  
*Empirical:* C\textsubscript{25}H\textsubscript{46}ClN  
*Formula:* C\textsubscript{6}H\textsubscript{5}CH\textsubscript{2}N(CH\textsubscript{3}H\textsubscript{33})Cl  
*Properties:* Colorless crystalline powd. or

<table>
<thead>
<tr>
<th>Chemical Component</th>
<th>Cross-Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cetamine oxide</td>
<td><em>See Palmitamine oxide</em></td>
</tr>
</tbody>
</table>
| Ceteareth-2         | CAS 68439-49-6 (generic)  
*Synonyms:* PEG-2 cetyl/stearyl ether; PEG 100 cetyl/stearyl ether; POE (2) cetyl/stearyl ether  
*Definition:* PEG ether of cetearyl alcohol  
*Formula:* R(OCH\textsubscript{2}CH\textsubscript{2})\textsubscript{n}OH, R = blend of cetyl and stearyl radicals, avg. n = 2  
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Detergent, emollient, wetting agent, emulsifier, dispersant, solubilizer  
*Trade Names:* Volpo CS2 |
| Ceteareth-3         | CAS 68439-49-6 (generic)  
*Synonyms:* PEG-3 cetyl/stearyl ether; POE (3) cetyl/stearyl ether  
*Definition:* PEG ether of cetearyl alcohol  
*Formula:* R(OCH\textsubscript{2}CH\textsubscript{2})\textsubscript{n}OH, R = blend of cetyl and stearyl radicals, avg. n = 3  
*Properties:* HLB 7.3; nonionic  
*Toxicology:* TSCA listed  
*Uses:* Emulsifier, superfatting agent, gellant, base for ointments  
*Trade Names:* Hostacerin® T-3  
*Trade Names Containing:* Fattylan
<table>
<thead>
<tr>
<th>Chemical Component Cross-Reference</th>
<th>†=pharmaceutical grade</th>
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</thead>
<tbody>
<tr>
<td><strong>Ceteareth-4</strong></td>
<td></td>
</tr>
<tr>
<td>CAS 68439-49-6 (generic)</td>
<td></td>
</tr>
<tr>
<td>Synonyms: <strong>PEG-4 cetlyl/stearly ether; POE (4) cetlyl/stearly ether</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Definition:</strong> PEG ether of cetearyl alcohol</td>
<td></td>
</tr>
<tr>
<td><strong>Formula:</strong> R(OCH2CH2)nOH, R = blend of cetlyl and stearyl radicals, avg. n = 4</td>
<td></td>
</tr>
<tr>
<td><strong>Properties:</strong> Nonionic</td>
<td></td>
</tr>
<tr>
<td><strong>Toxicology:</strong> TSCA listed</td>
<td></td>
</tr>
<tr>
<td><strong>Uses:</strong> Emulsifier, lubricant, and conditioner</td>
<td></td>
</tr>
<tr>
<td><strong>Trade Names:</strong> Lipocol SC-4</td>
<td></td>
</tr>
</tbody>
</table>

| **Ceteareth-6**                   |                        |
| CAS 68439-49-6 (generic)          |                        |
| Synonyms: **PEG-6 cetlyl/stearly ether; POE (6) cetlyl/stearly ether** |                        |
| **Definition:** PEG ether of cetearyl alcohol |                        |
| **Formula:** R(OCH2CH2)nOH, R = blend of cetlyl and stearyl radicals, avg. n = 6 |                        |
| **Properties:** Nonionic |                        |
| **Toxicology:** TSCA listed |                        |
| **Uses:** Emulsifier, lubricant, and conditioner for pharmaceuticals |                        |
| **Trade Names Containing:** Cremophor® A 6 |                        |

| **Ceteareth-7**                   |                        |
| CAS 68439-49-6 (generic)          |                        |
| Synonyms: **PEG-7 cetlyl/stearly ether; POE (7) cetlyl/stearly ether** |                        |
| **Definition:** PEG ether of cetearyl alcohol |                        |
| **Formula:** R(OCH2CH2)nOH, R = blend of cetlyl and stearyl radicals, avg. n = 7 |                        |
| **Properties:** Nonionic |                        |
| **Toxicology:** TSCA listed |                        |
| **Uses:** Emulsifier in pharmaceutical creams and lotions |                        |
| **Trade Names Containing:** Cromul EM 0685 |                        |

| **Ceteareth-9**                   |                        |
| CAS 68439-49-6 (generic)          |                        |
| Synonyms: **PEG-9 cetlyl/stearly ether; POE (9) cetlyl/stearly ether** |                        |
| **Definition:** PEG ether of cetearyl alcohol |                        |
| **Formula:** R(OCH2CH2)nOH, R = blend of cetlyl and stearyl radicals, avg. n = 9 |                        |
| **Properties:** Nonionic |                        |
| **Toxicology:** TSCA listed |                        |
| **Uses:** Emulsifier for pharmaceuticals |                        |
| **Trade Names Containing:** |                        |

| **Ceteareth-10**                  |                        |
| CAS 68439-49-6 (generic)          |                        |
| Synonyms: **PEG-10 cetlyl/stearly ether; POE (10) cetlyl/stearly ether** |                        |
| **Definition:** PEG ether of cetearyl alcohol |                        |
| **Formula:** R(OCH2CH2)nOH, R = blend of cetlyl and stearyl radicals, avg. n = 10 |                        |
| **Properties:** Nonionic |                        |
| **Toxicology:** TSCA listed |                        |
| **Uses:** Conditioner and emollient for pharmaceuticals |                        |

| **Ceteareth-11**                  |                        |
| CAS 68439-49-6 (generic)          |                        |
| Synonyms: **PEG-11 cetlyl/stearly ether; POE (11) cetlyl/stearly ether** |                        |
| **Definition:** PEG ether of cetearyl alcohol |                        |
| **Formula:** R(OCH2CH2)nOH, R = blend of cetlyl and stearyl radicals, avg. n = 11 |                        |
| **Properties:** Nonionic |                        |
| **Toxicology:** TSCA listed |                        |
| **Uses:** Emulsifier, lubricant, dispersant for pharmaceuticals |                        |
| **Regulatory:** FDA 21CFR §177.2800 |                        |
| **Trade Names Containing:** Cremophor® A 11 |                        |

| **Ceteareth-12**                  |                        |
| CAS 68439-49-6 (generic)          |                        |
| Synonyms: **PEG-12 cetlyl/stearly ether; POE (12) cetlyl/stearly ether** |                        |
| **Definition:** PEG ether of cetearyl alcohol |                        |
| **Formula:** R(OCH2CH2)nOH, R = blend of cetlyl and stearyl radicals, avg. n = 12 |                        |
| **Properties:** Nonionic |                        |
| **Toxicology:** TSCA listed |                        |
| **Uses:** Emulsifier, emollient, and conditioner for pharmaceuticals |                        |
| **Regulatory:** FDA 21CFR §177.2800 |                        |
| **Trade Names:** Eumulgin® B1; Volpo CS12 |                        |
| **Trade Names Containing:** Emulgade® SE; Emulgade® SE-PF |                        |

| **Ceteareth-14**                  |                        |
| CAS 68439-49-6 (generic)          |                        |
| Synonyms: **PEG-14 cetlyl/stearly ether; POE (14) cetlyl/stearly ether** |                        |
| **Definition:** PEG ether of cetearyl alcohol |                        |
| **Formula:** R(OCH2CH2)nOH, R = blend of cetlyl and stearyl radicals, avg. n = 14 |                        |
| **Properties:** Nonionic |                        |
| **Uses:** Emulsifier, conditioner and emollient for pharmaceuticals |                        |

| **Ceteareth-15**                  |                        |
| CAS 68439-49-6 (generic)          |                        |
| Synonyms: **PEG-15 cetlyl/stearly ether; POE (15) cetlyl/stearly ether** |                        |
| **Definition:** PEG ether of cetearyl alcohol |                        |
| **Formula:** R(OCH2CH2)nOH, R = blend of cetlyl and stearyl radicals, avg. n = 15 |                        |
| **Properties:** Nonionic |                        |
| **Toxicology:** TSCA listed |                        |

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### Ceteareth-16

**CAS:** 68439-49-6 (generic)
**Synonyms:** PEG-16 cetyl/stearyl ether; POE (16) cetyl/stearyl ether
**Definition:** PEG ether of cetearyl alcohol
**Formula:** \(R(OCH_2CH_2)_nOH, R = \text{blend of cetyl and stearyl radicals, avg. } n = 16\)
**Properties:** Nonionic
**Toxicology:** TSCA listed
**Uses:** Emollient in pharmaceuticals, topicals

### Ceteareth-18

**CAS:** 68439-49-6 (generic)
**Synonyms:** PEG-18 cetyl/stearyl ether; POE (18) cetyl/stearyl ether
**Definition:** PEG ether of cetearyl alcohol
**Formula:** \(R(OCH_2CH_2)_nOH, R = \text{blend of cetyl and stearyl radicals, avg. } n = 18\)
**Properties:** Nonionic
**Toxicology:** TSCA listed
**Uses:** Emulsifier and solubilizer for pharmaceuticals

### Ceteareth-20

**CAS:** 68439-49-6 (generic)
**Synonyms:** PEG-20 cetyl/stearyl ether; POE (20) cetyl/stearyl ether; Polyoxyl 20 cetostearyl ether
**Definition:** PEG ether of cetearyl alcohol
**Formula:** \(R(OCH_2CH_2)_nOH, R = \text{blend of cetyl and stearyl radicals, avg. } n = 20\)
**Properties:** Cream-colored waxy unctuous mass, melting to brnsh. yel. clear liq.; sol. in water, alcohol, acetone; insol. in hexane; HLb 15.6; acid no. 0.5 max.; sapon. no. 2 max.; hyd. no. 42-60; pH 4.5-7.5 (10%); nonionic
**Toxicology:** TSCA listed
**Uses:** Surfactant, emulsifier, dispersant, solubilizer, wetting agent, detergent, visc. control agent for pharmaceuticals, topicals
**Regulatory:** FDA 21CFR §177.2800; FDA approved for topicals; USP/NF compliance

### Ceteareth-25

**CAS:** 68439-49-6 (generic)
**Synonyms:** PEG-25 Cetostearyl ether; PEG-25 cetyl/stearyl ether; POE (25) cetyl/stearyl ether
**Definition:** PEG ether of cetearyl alcohol
**Formula:** \(R(OCH_2CH_2)_nOH, R = \text{blend of cetyl and stearyl radicals, avg. } n = 25\)
**Properties:** Nonionic
**Toxicology:** TSCA listed
**Uses:** Surfactant, emulsifier, stabilizer for pharmaceuticals
**Regulatory:** FDA 21CFR §177.2800
**Trade Names Containing:** Cremporph® A 25; Lipocol SC-25; Sabopal TA 25; Teginacid® C; Volpo CS25

### Ceteareth-30

**CAS:** 68439-49-6 (generic)
**Synonyms:** PEG-30 cetyl/stearyl ether; POE (30) cetyl/stearyl ether
**Definition:** PEG ether of cetearyl alcohol
**Formula:** \(R(OCH_2CH_2)_nOH, R = \text{blend of cetyl and stearyl radicals, avg. } n = 30\)
**Properties:** Nonionic
**Toxicology:** TSCA listed
**Uses:** Emulsifier and emollient in pharmaceuticals, topicals
**Regulatory:** FDA 21CFR §177.2800; approved for topicals
**Trade Names Containing:** Eumulgin® B3; Lipocol SC-30

### Ceteareth-33

**CAS:** 68439-49-6 (generic)
**Synonyms:** PEG-33 cetyl/stearyl ether; PEG (33) cetyl/stearyl ether; POE (33) cetyl/stearyl ether

†=pharmaceutical grade

**Trade Names:** Acconon W230; Cetomacrogol 1000 BP; Eumulgin® B2; Incropol CS-20; Lipocol SC-20; Macol® CSA-20; Volpo CS20

**Trade Names Containing:** Cosmowax BP; Cosmowax J; Cosmowax K; Emulgade® 1000 NI; Emulgade® SE; Emulgade® SE-PF; Galenol® 1618 AE; Lipowax D; Lipowax D-AT Pastilles; Lipowax ES; Lipowax ES-C; Lipowax G; Promulgen® D; Promulgen® G; Teginacid®

**Manuf./Distrib.:** ABITEC†
http://www.abiteccorp.com; Aldrich
http://www.sigma-aldrich.com; Fluka
http://www.sigma-aldrich.com; Sigma
http://www.sigma-aldrich.com/belgium; Spectrum Quality Prods.†
http://www.spectrumchemical.com

Manuf./Distrib.: ABITEC†
http://www.abiteccorp.com; Aldrich
http://www.sigma-aldrich.com; Fluka
http://www.sigma-aldrich.com; Sigma
http://www.sigma-aldrich.com/belgium; Spectrum Quality Prods.†
http://www.spectrumchemical.com
**Chemical Component Cross-Reference**

**Definition:** PEG ether of cetearyl alcohol

**Formula:** \( R(\text{OCH}_2\text{CH}_2)_n\text{OH}, R = \text{blend of cetyl and stearyl radicals, avg. } n = 33 \)

**Properties:** Nonionic

**Toxicology:** TSCA listed

**Uses:** Emulsifier, gelant, stabilizer, wetting agent, detergent, dispersant, solubilizer for pharmaceuticals

**Regulatory:** FDA 21 CFR §177.2800

**Trade Names:** Simulsol® CS

**Trade Names Containing:** Cire Lanol® CTO

### Cetearyl alcohol

**CAS Number:** 8005-44-5, 67762-27-0; EINECS/ELINCS 267-008-6, 267-009-1

**Synonyms:** Alcohols, C16-18; n-Alkanol (C16-C18); C16-18 alcohols: Cetostearyl alcohol; Cetyl-stearyl alcohol; Stearyl-cetyl alcohol

**Definition:** Mixture of fatty alcohols, predominantly cetyl and stearyl alcohols

**Empirical:** \( C_{18}H_{35}O \)

**Formula:** \( \text{CH}_3(\text{CH}_2)_n\text{OH}, n = 15-17 \)

**Properties:** Wh. unctuous flakes or gran., faint char. odor, bland mild taste; sol. in alcohol, ether; insol. in water; m.w. 270.50; m.p. 48-55 C; acid no. ≤ 2; iodine no. ≤ 4; hyd. no. 208-228; nonionic

**Toxicology:** TSCA listed

**Storage:** Preserve in well-closed containers

**Uses:** Emulsifying wax, cosolvent, emollient, stiffener, consistency agent for pharmaceuticals, creams, orals, otics, topicals; antiseptic in topical anti-infective prods.

**Regulatory:** FDA 21 CFR §175.105; FDA approved for orals, otics, topicals; USP/NF, BP, EP compliance

**Manuf./Distrib.:** A&E Connock†


†=pharmaceutical grade

**Quality Prods.,†** [http://www.spectrumchemical.com](http://www.spectrumchemical.com)


**Trade Names:** Crodacol 1618; Crodacol CS90 EP; Lanette® O; Lipocol CS-50; Lipocol SC NAA-48; Nafo® 1618 H; Philcol 1618; TEGO® Alkanol 1618

**Trade Names Containing:** Aquabase NF; Argobase EST; Argobase EUC 2; Cire Lanol® CTO; Cosmowax BP; Cosmowax J; Crodacos CES; Crodacos CS20A; Crodex A; Crodex C; Crodex N; Dragowax SE; Emulgade® 1000 Nl; Emulgade® F; Emulgade® PL 68/50; Emulgade® SE; Emulgade® SE-PF; Fancor® Uni-enbase; Fattylan; Galenol® 1618 AE; Galenol® 1618 CS; Galenol® 1618 DSN; Galenol® 1618 KS; Incroquat Behenyl TMS; Koster Keunen Emulsifying Wax; Lanette® NPH; Lanette® SX; Lanette® W; Lanette® Wax AO; Lipowax AO; Lipowax D; Lipowax D-AT Pastilles; Lipowax ES; Lipowax ES-C; Lipowax NI; Lipowax PA; Lipowax PA Pastilles; Lipowax R2; Mazawax® 163R Flake; Montanov® 068; Montanov® 082; Pionier® MAA; Pionier® MAA Weich; Promulgen® D; Ritachol® 1000; Ritachol® 2000; Sabowax AO; Sabowax GF; Sebase

**Ceteryl ethylhexanoate.** See Ceteryl octanoate

**Ceteryl glucoside**

**CAS Number:** 246159-33-1

**Synonyms:** Ceteryl polyglucose; D-Glucopyranose, C16-C18 alkyl glycosides; D-Glucoside, C16-C18 alkyl

**Definition:** Prod. obtained by condensation of ceteryl alcohol with glucose

**Properties:** Nonionic

**Uses:** Surfactant, o/w emulsifier for dermopharmaceutical prods.

**Trade Names Containing:** Emulgade® PL 68/50; Montanov® 068

**Ceteryl isononanoate**

**CAS Number:** 84878-33-1; EINECS/ELINCS 284-424-3

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Chemical Component Cross-Reference †=pharmaceutical grade

Synonyms: Isononanoic acid, cetearyl ester; Isononanoic acid, cetyl/stearyl ester
Definition: Ester of cetearyl alcohol and a branched chain of nanoic acid
Uses: Emollient for pharmaceuticals, skin care and sun protection prod.; solvent for lipophilic ingreds.
Trade Names: Cetiol® SN; Saboderm CSN; Tegosoft® CI

Cetearyl octanoate
CAS 59130-70-7; EINECS/ELINCS 261-620-7
Synonyms: Cetearyl ethylhexanoate; Cetyl-stearyl 2-ethyl hexanoate; Cetyl/stearyl octanoate; 2-Ethylhexanoic acid, cetyl-stearyl ester; Hexanoic acid, 2-ethyl-, C15-18-alkyl esters
Definition: Ester of cetearyl alcohol and octanoic acid
Uses: Emollient, waterproofing agent in pharmaceuticals, skin care preps.
Manuf./Distrib.: A&E Connock http://www.connock.co.uk
Trade Names: Luvitol® EHO; Saboderm CSO; Tegosoft® Liquid
Trade Names Containing: Crodamol CAP

Ceteth-2
CAS 9004-95-9 (generic); 5274-61-3
Synonyms: 2-[2-Hexadecyloxy] ethanol; PEG-2 cetyl ether; PEG 100 cetyl ether; POE (2) cetyl ether
Classification: Nonaromatic ether
Definition: PEG ether of cetyl alcohol
Empirical: C20H42O3
Formula: CH3(CH2)14CH2(OCH2CH2)nOH, avg. n = 2
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier for pharmaceuticals, topicals
Regulatory: Approved for topicals
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: BC-2; Brij® 52; Volpo C2
Chemical Component Cross-Reference

Ceteth-5
CAS 9004-95-9 (generic); 4478-97-1
Synonyms: PEG-5 cetyl ether; 3,6,9,12,15-Pentaoxahentriacontan-1-ol; POE (5) cetyl ether
Classification: Nonaromatic ether
Definition: PEG ether of cetyl alcohol
Empirical: C_{28}H_{54}O_{6}
Formula: CH_3(CH_2)_{14}CH_2(OCH_2CH_2)_nOH, avg. n = 5
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, dispersant for pharmaceutical creams and lotions
Regulatory: FDA 21CFR §176.200
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names Containing: Cromul EM 0685
†=pharmaceutical grade

Ceteth-10
CAS 9004-95-9 (generic); 14529-40-9
Synonyms: 3,6,9,12,15,18,21,24,27,30-Dexaoxahexatetracontan-1-ol; PEG-10 cetyl ether; PEG 500 cetyl ether; POE (10) cetyl alcohol; POE (10) cetyl ether
Classification: Nonaromatic ether
Definition: PEG ether of cetyl alcohol
Empirical: C_{36}H_{74}O_{11}
Formula: CH_3(CH_2)_{14}CH_2(OCH_2CH_2)_nOH, avg. n = 10
Properties: HLB 12.9; nonionic
Toxicology: TSCA listed
Uses: Emulsifier for pharmaceuticals, creams, lotions
Regulatory: FDA 21CFR §176.200, 177.2800
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: BC-10TX

Ceteth-15
CAS 9004-95-9 (generic)
Synonyms: PEG-15 cetyl ether; POE (15) cetyl ether
Classification: Nonaromatic ether
Definition: PEG ether of cetyl alcohol
Formula: CH_3(CH_2)_{14}CH_2(OCH_2CH_2)_nOH, avg. n = 15
Properties: Nonionic
Chemical Component Cross-Reference

**Toxicology:** TSCA listed

**Uses:** Surfactant, emulsifier, dispersant for pharmaceuticals, creams, lotions

**Regulatory:** FDA 21CFR §176.200, 177.2800

**Manuf./Distrib.:** Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)

**Trade Names:** BC-15TX

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**Ceteth-16**

**CAS:** 9004-95-9 (generic)

**Synonyms:** PEG-16 cetyl ether; POE (16) cetyl ether

**Classification:** Nonaromatic ether

**Definition:** PEG ether of cetyl alcohol

**Formula:** \( \text{CH}_3(\text{CH}_2)_{16}\text{CH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH} \), avg. \( n = 16 \)

**Properties:** Nonionic

**Toxicology:** TSCA listed

**Uses:** Surfactant, emulsifier, lubricant for pharmaceuticals

**Regulatory:** FDA 21CFR §176.200

**Manuf./Distrib.:** Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)

**Trade Names Containing:** Solulan® 16

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**Ceteth-20**

**CAS:** 9004-95-9 (generic)

**Synonyms:** Cetomacrogol 1000; PEG-20 cetyl ether; PEG 1000 cetyl ether; PEG 1000 monocetyl ether; POE (20) cetyl ether

**Classification:** Nonaromatic ether

**Definition:** PEG ether of cetyl alcohol

**Formula:** \( \text{CH}_3(\text{CH}_2)_{14}\text{CH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH} \), avg. \( n = 20 \)

**Properties:** Waxy solid; sol. in water; HLB 15.7; pour pt. ≈ 39 C; cloud pt. ≈ 45 C; nonionic

**Toxicology:** TSCA listed

**Uses:** Surfactant, emulsifier, wetting agent, solubilizer, defoamer, detergent, lubricant, emulsion stabilizer for pharmaceuticals, topicals

**Regulatory:** FDA 21CFR §176.200, 177.2800; FDA approved for topicalss

**Manuf./Distrib.:** Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)

**Trade Names Containing:** Forlan C-24

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**Ceteth-25**

**CAS:** 9004-95-9 (generic)

**Synonyms:** PEG-25 cetyl ether; POE (25) cetyl ether

**Classification:** Nonaromatic ether

**Definition:** PEG ether of cetyl alcohol

**Formula:** \( \text{CH}_3(\text{CH}_2)_{14}\text{CH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH} \), avg. \( n = 25 \)

**Properties:** Nonionic

**Toxicology:** TSCA listed

**Uses:** Surfactant, emulsifier for pharmaceuticals

**Regulatory:** FDA 21CFR §176.200, 177.2800

**Manuf./Distrib.:** Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
Ceteth-30
CAS 9004-95-9 (generic)
Synonyms: PEG-30 cetyl ether; POE (30) cetyl ether
Classification: Nonaromatic ether
Definition: PEG ether of cetyl alcohol
Formula: CH₃(CH₂)₁₄CH₂(OCH₂CH₂)nOH, avg. n = 30
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier for pharmaceuticals
Regulatory: FDA 21CFR §176.200, 177.2800
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: BC-30TX; Emalex 130

Ceteth-40
CAS 9004-95-9 (generic)
Synonyms: PEG-40 cetyl ether; POE (40) cetyl ether
Classification: Nonaromatic ether
Definition: PEG ether of cetyl alcohol
Formula: CH₃(CH₂)₁₄CH₂(OCH₂CH₂)nOH, avg. n = 40
Properties: Nonionic
Toxicology: LD₅₀ (oral, mouse) 2602 mg/kg; TSCA listed
Uses: Emulsifier for pharmaceuticals
Regulatory: FDA 21CFR §176.200
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: BC-40TX

Ceteth-10 phosphate
CAS 50643-20-4
Synonyms: PEG-10 cetyl ether phosphate; POE (10) cetyl ether phosphate
Definition: Complex mixture of esters of phosphoric acid and a PEG ether of cetyl alcohol
Uses: Surfactant
Trade Names Containing: Crodafos CES

Ceteth-20 phosphate
Trade Names Containing: Crodafos CS20A

Cetethylidonium bromide
CAS 124-03-8; EINECS/ELINCS 204-672-8
Synonyms: Ammonium,
†=pharmaceutical grade
ethylhexadecyldimethyl-, bromide; CDA; Cetyl dimethylethyl ammonium bromide; Cetyl ethyl dimethylammonium bromide; Dimethyl ethyl hexadecyl ammonium bromide; Ethyl cetab; N-Ethyl-N,N-dimethyl-1-hexadecanaminium bromide; Ethylhexadecyldimethylammonium bromide; Hexadecylethylidimethylammonium bromide; Quaternium-17
Classification: Quaternary ammonium salt
Empirical: C₂₀H₄₄N • Br
Formula: C₁₆H₃₃(CH₃)₂H₅NBr
Properties: Wh. cryst. powd. or paste; sol. in water, alcohol; sl. sol. in chloroform, benzene, ether; m.w. 378.49; cationic
Toxicology: LD₅₀ (oral, rat) 500 mg/kg; poison by ing.; irritant; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOₓ, NH₃, Br⁻
Storage: Store @ R.T.
Uses: Topical antiseptic; disinfectant for pharmaceuticals (germicidal cleansers, antiseptic shampoo and toothpaste, feminine hygiene prods.), veterinary and surgical instruments; veterinary disinfectant for treatment of cuts, wounds, skin infections
Regulatory: Canada DSL

Cetin. See Cetyl palmitate
Cetivamin. See L-Ascorbic acid
Cetolet-22
CAS 8065-81-4 (generic); 68920-66-1 (generic)
Synonyms: PEG-22 cetyl/oleyl ether; POE (22) cetyl/oleyl ether
Definition: PEG ether of cetyl alcohol and oleyl alcohol

Handbook of Pharmaceutical Additives, Third Edition
Chemical Component Cross-Reference

Formula: R(OCH2CH2)nOH, R rep. cetyl/oleyl radicals, avg. n = 22
Properties: Nonionic
Uses: Emulsifier for pharmaceuticals

Cetomacrogol. See Cetath
Cetomacrogol 1000. See Ceteth-20
Cetone V. See Allyl α-ionone
α-Cetone. See Methyl α-ionone; α-Iodomethylionone
β-Cetone. See Methyl β-ionone
Cetostearyl alcohol. See Cetearyl alcohol
Cetrimide. See Cetrimonium bromide

Cetrimonium bromide
CAS 57-09-0; EINECS/ELINCS 200-311-3
Synonyms: CETAB; Cetrime; Cetyltributylammonium bromide; CTAB; Hexadecyltrimethylammonium bromide; HTAB; Trimethylcetylmonium bromide; N,N,N-Trimethyl-1-hexadecanaminium bromide; Trimethylhexadecylammonium bromide
Classification: Quaternary ammonium salt
Empirical: C19H42BrN
Formula: CH3(CH2)15N(CH3)3Br
Properties: Wh. cryst. powd.; sol. in 10 parts water; sol. in oxygenated solvs., alcohol, chloroform; sparingly sol. in acetone; pract. insol. in ether, benzene; m.w. 364.46; m.p. > 230 C (dec.); cationic
Toxicology: LD50 (oral, rat) 410 mg/kg, (IV, rat) 44 mg/kg; poison by ing., IV, IP, and subcut. routes; harmful; skin and severe eye irritant; large systemic doses may cause nausea, vomiting, muscle paralysis, CNS depression, hypotension, local tissue damage; experimental teratogen, reproductive effects; TSCA listed
Precaution: Corrosive

Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of NH3, NOx, and Br-.
HMIS: Health 2, Flammability 0, Reactivity 0
Storage: Store @ R.T.
Uses: Surfactant for pharmaceuticals; topical antiseptic in higher concs., preservative in lower concs.
Regulatory: USP/NF compliance; USA EPA registered, Japan approved, Europe listed; Canada DSL
Manuf./Distrib.: AMRESCO†; Accord; Accurate Chemical & Scientific†

†=pharmaceutical grade

http://www.accuratechemical.com; Aceto†
http://www.aceto.com; Aldrich
http://www.sigma-aldrich.com
Alfa Chem† http://www.alfachem1.com
Allichem Int'l. Ltd†
http://www.allchem.co.uk; Amyl
http://www.amyl.com; Aventis
Pharmaceuticals†
http://www.aventispharma-us.com; Camida
Ltd† http://www.camida.com
Chevron http://www.chemron.com
Cornelius Chem. Co. Ltd†
http://www.cornelius.co.uk; Dishman USA
http://www.dishman-usa.com; Efka
Chems. Ltd†; FeF Chems. A/S†
http://www.fef-chem.com
Fluka http://www.sigma-aldrich.com
Functional Foods†
http://www.functionalfoods.com;
Haltermann GmbH†
Co Ltd http://www.hawks-chem.com
Magnesia GmbH† http://www.magnesia.de
Mallinckrodt Baker†
http://www.mallbaker.com; Merck KGaA
http://www.merck.de; Penta Mfg.†
http://www.pentamfg.com; RTD Hallstar†
http://www.rtdhallstar.com; Rona
http://www.emdchemicals.com/rona/1000.asp
Ruger http://www.rugerchemical.com
Sigma http://www.sigma-
aldrich.com/belgium; Spectrum Quality
Prods.†
http://www.spectrumchemical.com; Triple
Crown Am.†
http://www.triplecrownamerica.com
Univar Ltd† http://www.univar.co.uk
Universal Preserv-A-Chem†
http://www.upichem.com; VWR Int’l.†
http://www.vwrsp.com; Zeeland†
http://www.rutherfordchemicals.com

Trade Names Containing: Crodoc C; Pentasept M

Cetrimonium chloride
CAS 112-02-7; EINECS/ELINCS 203-928-6
Synonyms: Cetyl trimethyl ammonium chloride; Hexadecyl trimethyl ammonium chloride; Palmityl trimethyl ammonium chloride; N,N,N-Trimethyl-1-hexadecanaminium chloride
Classification: Quaternary ammonium salt
Empirical: C19H42ClN
Chemical Component Cross-Reference

†=pharmaceutical grade

Formula: \(C_{16}H_{33}(CH_3)_3NCI\)
Properties: M.w. 320.01; cationic
Toxicology: TSCA listed
Uses: Emulsifier, dispersant, emollient, surfactant, softener, conditioner, bactericide, fungicide, odor inhibitor in pharmaceuticals, topicals; coagulant in antibiotic prod.
Regulatory: FDA approved for topicals; Canada DSL
Manuf./Distrib.: Accord
http://www.accordchem.com; Aldrich
http://www.sigma-aldrich.com; Dishman
USA http://www.dishman-usa.com; Fluka
http://www.sigma-aldrich.com
Trade Names: AMMONYX® CETAC;
AMMONYX® CETAC-30; Barquat® CT-29;
Carsoquat® CT-29; Carsoquat® CT-429
Daistat CM 50P; Daistat CM 80
Trade Names Containing: Arquad® 16-50

Cetyl acetate
CAS 629-70-9; EINECS/ELINCS 211-103-7
Synonyms: 1-Acetoxyhexadecane; 1-Hexadecanol, acetate; Hexadecyl acetate; Palmityl acetate
Definition: Ester of cetyl alcohol and acetic acid
Empirical: \(C_{18}H_{36}O_2\)
Formula: \(CH_3COOCH_2(CH_2)_{14}CH_3\)
Properties: Wh. waxy solid; partially sol. in alcohol, chloroform, ether; pract. insol. in water; m.w. 284.54
Toxicology: LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; sl. toxic by ing. and skin contact; primary skin irritant; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating vapors
Uses: Emollient in pharmaceuticals, topicals
Regulatory: Canada DSL
Manuf./Distrib.: Sigma http://www.sigma-aldrich.com/belgium

Trade Names: Pelemol® CA
Trade Names Containing: Crodalan AWS;
Crodalan LA; Fancol™ ALA; Ritawax AEO;
Ritawax ALA
Solulan® 98

Cetyl alcohol
CAS 124-29-8; 36653-82-4; EINECS/ELINCS 253-149-0
FEMA 2554
Synonyms: Alcohol C16; C16 linear primary alcohol; Ethal; Ethal; 1-Hexadecanol;
Hexadecyl alcohol; Palmityl alcohol
Classification: Fatty alcohol
Empirical: \(C_{16}H_{34}O\)
### Chemical Component Cross-Reference

<table>
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<th>Chemical Component</th>
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<tr>
<td>Cetyl alcohol ethoxylate</td>
<td>Cachalot® C-50, CoChem CA; Crodacomol C-90; Crodacomol C-95 EP; Crodacomol C-95 NF; NAA-44; Phicolohol 1600; RITA CA NF; TEGO® Alkanol 16</td>
<td>Oral care agent for caries prophylaxis, toothpaste, mouthwashes</td>
<td>Hexadecanamine hydrofluoride; Hexadecylamine hydrofluoride; Hexadecylammonium fluoride</td>
<td>3151-59-5</td>
<td>EINECS/ELINCS 221-588-7</td>
<td>Organic salt</td>
<td>ACGIH TLV/TWA 2.5 mg(F)/m³; LD50 (IP, mouse) 45,246 µg/kg; poison by IP route; experimental teratogen, reproductive effects; TSCA listed</td>
<td>Rona</td>
<td>Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx and HF</td>
<td>Oral care agent for caries prophylaxis, toothpaste, mouthwashes</td>
<td>C16H35F</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Cetyl alcohol |  |  |  |  |  |  |  |  |  |  | C16H36FN |  |

| Cetyl arachidol | Jarcol™ I-34T, Jarcol™ I-36 |  |  |  |  |  |  |  |  |  |  |  |  |

| Cetyl betaine |  |  |  |  |  |  |  |  |  |  |  |  |  |
Chemical Component Cross-Reference

1-hexadecanaminium hydroxide, inner salt; (Carboxymethyl) hexadecylidimethylammonium hydroxide, inner salt; N,N-Dimethyl-N-hexadecylglycine; 1-Hexadecanaminium, N-(carboxymethyl)-N,N-dimethyl-, hydroxide, inner salt; Hexadecylbetaine

Classification: Zwitterion (inner salt)
Empirical: C20H41NO2
Properties: M.w. 327.62; amphoteric

Toxicology: LD50 (oral, rat) 1620 mg/kg, (IP, rat) 150 mg/kg; poison by IP route; mod. toxic by ing.; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits toxic vapors of NOx

Uses: Surfactant ingred. in microbiocide topicals

Regulatory: Canada DSL

Trade Names Containing: DeCONC HS-30

Cetyl DEA phosphate. See DEA-cetyl phosphate

Cetyl dimethicone

Classification: Dimethyl siloxane polymer
Formula: (CH3)3SiO-[CH2SiO(CH2)15CH3]x[CH2SiOCH3]y-Si(CH3)3
Properties: Nonionic
Uses: Emollient, spreading agent, pigment solubilizer/grinding aid/dispersant for antiperspirants

Trade Names: Abil®-Wax 9801; Abil®-Wax 9814

Cetyl dimethicone copolyol

Definition: Copolymer of cetyl dimethicone and dimethicone copolyol
Properties: Nonionic
Uses: Surfactant, emollient, emulsifier for pharmaceuticals, creams, lotions

Trade Names: Abil® EM 90
Trade Names Containing: Abil® WE 09

Cetyl dimethyl amine oxide. See Palmitamine oxide

Cetyl dimethyl benzyl ammonium chloride. See Cetalkonium chloride

Cetyl dimethylethyl ammonium bromide. See Cetethyldimonium bromide

Cetyl esters

CAS 8002-23-1; 136097-97-7
INS909

Synonyms: Cetyl esters wax; Spermaceti; Spermaceti synthetic; Spermaceti wax; Spermaceti wax, refined; Synthetic spermaceti; Synthetic spermaceti wax

Classification: Synthetic wax

†=pharmaceutical grade

Definition: A mixt. of sat. fatty alcohols (C14 to C18) and sat. fatty acids (C14 to C18)

Properties: Wh. to off. wh. translucent flakes, faint odor, bland mild taste; sol. in boiling alcohol, ether, chloroform; insol. in water; dens. 0.820; m.p. 43-47 C; acid no. 5 max.; iodine no. 1 max.; sapon. no. 109-120; nonionic

Toxicology: TSCA listed

Uses: Emollient, slip agent, stiffener, and visc. builder for pharmaceuticals, orals, topicals

Regulatory: FDA 21CFR §175.105, 175.300, 175.320, 177.1200; FDA approved for orals, topicals; USP/NF compliance; Canada DSL

Manuf./Distrib.: A&E Connock†
http://www.connock.co.uk; Alzo†
http://www.alzointernational.com; Ashland†
http://www.ashchem.com; Avatar†
http://www.avatarpcorp.com; Barnet Prods.
http://www.barnetproducts.com
Brenntag Southeast†; CasChem†
http://www.rutherfordchemicals.com/caschem.html; ChemTech Specialties†
http://www.chemtechspecialties.com; Chesham Chems. Ltd†
http://www.cheshamchemicals.co.uk; CoKEM Assoc.†
Cognis† http://www.cognis.de; Croda Inc†
http://www.croda.com; http://www.crodausa.com; Delta
Distributors†; Efkay Chems. Ltd†; Eggar & Co.† http://www.eggar.co.uk
Frank B. Ross†
http://www.frankbross.com; GMI Prods.†
http://www.gmi-originates.com; Gattefosse†
http://www.gattefossecorp.com; Integra†
http://www.integrachem.com; Koster Keunen† http://www.kosterkeunen.com
Kraft Chem.†
http://www.kraftchemical.com; Lipot†
http://www.lipochemicals.com; MPSI†
http://www.mp-solutionsinc.com; NOF Am.;
Pangaea Sciences†
http://www.pangaeasciences.com; Penta Mfg.†
http://www.pentamfg.com; Protameen† http://www.protameen.com;
Penta Mfg.† http://www.pentamfg.com; Protameen† http://www.protameen.com;
RITA† http://www.ritacorp.com; Robeco†
http://www.robecoinc.com; Ruger
http://www.rugerchemical.com
Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality

Prods.†
http://www.spectrumchemical.com; Strahl
Chemical Component Cross-Reference

†=pharmaceutical grade

Trade Names: Crodamol SS; Kester Wax® 48; Koster Keunen Synthetic Spermaceti; Ritaceti; Ross Spermaceti Wax Substitute #573

W.G.S. Synaceti 116
Trade Names Containing: Cetina
Cetyl esters wax. See Cetyl esters
Cetyl ethyl dimethylammonium bromide. See Cetethyldimonium bromide
Cetyl 2-ethylhexanoate. See Cetyl octanoate
Cetyl gallate
CAS 5026-65-3
Synonyms: Cetyl 3,4,5-trihydroxybenzoate; Hexadecyl 3,4,5-trihydroxybenzoate
Empirical: C19H26O5
Formula: (HO)3C6H2COO(CH2)15CH3
Properties: M.w. 394.55; m.p. 98-10°C
Uses: Antioxidant for pharmaceuticals
Manuf./Distrib.: Pfaltz & Bauer
http://www.pfaltzandbauer.com
Cetyl glyceryl ether
CAS 6145-69-3; EINECS/ELINCS 228-149-9
Synonyms: α-Hexadecylglycerol
Uses: Emulsifier, hydrotrope, emollient, thickener in pharmaceuticals
Manuf./Distrib.: Biosynth AG
http://www.biosynth.com
Cetyl hydroxyethyl cellulose
Definition: Ether of cetyl alcohol and hydroxyethylcellulose
Uses: Film-former, associative thickener, stabilizer, visc. stabilizer, binder, suspending agent, moisture barrier for pharmaceuticals; costabilizer for emulsions
Trade Names: Natrosol® Plus 330 CS
Cetyllic acid. See Palmitic acid
Cetyl lactate
CAS 59130-69-7; EINECS/ELINCS 261-619-1
Synonyms: Cetyl 2-ethylhexanoate; 2-Ethylhexanoic acid, hexadecyl ester; Hexadecyl 2-ethylhexanoate; n-Hexadecyl 2-ethylhexanoate; Hexanoic acid, 2-ethyl-, hexadecyl ester; Perceline oil
Definition: Ester of cetyl alcohol and 2-ethylhexanoic acid
Empirical: C30H60O2
Formula: CH3(CH2)3CH(CH2CH3)COOCH2(CH2)14CH3
Properties: Clear liq.; m.w. 368.72
Toxicology: Primary irritant; TSCA listed
Uses: Emollient, skin softener, and moisture retention aid in topical pharmaceuticals, creams and lotions
Regulatory: Canada DSL
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk; Sigma
http://www.sigma-aldrich.com/belgium; Yasho Ind.
http://www.yashoindustries.com
Trade Names: Exceparl HO; Hest CO; Tegosoft® CO
Trade Names Containing: Crodamol SCO; Super Refined® Crodamol SCO
## Cetyl palmitate

**CAS:** 540-10-3; EINECS/ELINCS: 208-736-6

**Synonyms:** Cetin; Hexadecanoic acid, hexadecyl ester; Hexadecyl hexadecanoate; n-Hexadecyl hexadecanoate; Hexadecyl palmitate; Palmitic acid, hexadecyl ester; Palmitic acid, n-hexadecyl ester; Palmitic acid palmityl ester; Palmityl palmitate

**Definition:** Ester of cetyl alcohol and palmitic acid

**Empirical:** C<sub>32</sub>H<sub>64</sub>O<sub>2</sub>

**Formula:** C<sub>15</sub>H<sub>31</sub>COOC<sub>16</sub>H<sub>33</sub>

**Properties:** Wh. cryst. waxy solid; sol. in abs. alcohol, ether, oxygenated solvs.; pract. insol. in water; m.w. 480.86; dens. 0.832; m.p. 50 C; b.p. 360 C; acid no. max.; iodine no. 5 max.; sapon. no. 110-130; ref. index 1.4398; nonionic

**Toxicology:** Skin irritant; may cause eye irritation; may be harmful by ing., inh., skin absorp.; TSCA listed

**Precaution:** Combustible; incompat. with strong oxidizing agents

**Hazardous Decomp. Prods.:** Toxic fumes of CO, CO<sub>2</sub>; heated to decomp., emits acrid smoke and irritating vapors; emits toxic fumes under fire conditions

**HMIS:** Health 1, Flammability 0, Reactivity 0

**Storage:** Store @ 2-8 C in cool, dry place; keep tightly closed

**Uses:** Excipient, emollient, thickener, visc. builder, consistency agent, ointment base for pharmaceuticals, topicals

**Regulatory:** USP/NF, BP, EP compliance; FDA approved for topicals; Canada DSL

**Manuf./Distrib.:**
- A&E Connock
  - [http://www.connock.co.uk](http://www.connock.co.uk)
  - [Aldrich](http://www.sigma-aldrich.com)
- Alzo
  - [http://www.alzointernational.com](http://www.alzointernational.com)
- Ashland
  - [http://www.ashchem.com](http://www.ashchem.com)
  - [Brenntag](http://www.brenntag.com)
- Southeast
- ChemTech Specialties
  - [http://www.chemtechspecialties.com](http://www.chemtechspecialties.com)
- Chempri
- CoKEM Assoc.
- Cognis/Care
- Croda Inc
  - [http://www.croda.com](http://www.croda.com)
- [http://www.crodausa.com](http://www.crodausa.com)
- Delta Distributors
  - [Fanning](http://www.fanningcorp.com)
- ICN Biomed.
- Research Prods.
- [Indofine](http://www.indofinechemical.com)
- Jarchem Ind.
  - [http://www.jarchem.com](http://www.jarchem.com)
- Koster Keunen
  - [http://www.kosterkeunen.com](http://www.kosterkeunen.com)
- Kraft
  - [Chem.†](http://www.kraftchemical.com)

**†=pharmaceutical grade**

**Trade Names:**
- Crodamol CP; Dynacerin® CP
- Kessco CP; Palmil C; Pelemol® CP
- Sabowax CP; STEPAN® 653

**Trade Names Containing:** Emulgade® SE; Emulgade® SE-PF; Sabowax BWS; Sabowax GF

## Cetyl phosphate

**CAS:** 3539-43-3; EINECS/ELINCS: 222-581-1

**Synonyms:** 1-Hexadecanol, dihydrogen phosphate; Hexadecyl dihydrogen phosphate; Hexadecyl phosphate

**Classification:** Organic phosphate ester

**Definition:** Mixt. of esters of phosphoric acid and cetyl alcohol

**Empirical:** C<sub>16</sub>H<sub>35</sub>O<sub>4</sub>P

**Properties:** Anionic

**Toxicology:** TSCA listed

**Uses:** Emulsifier

**Regulatory:** Canada DSL

**Trade Names:** Amphisol® A

**Trade Names Containing:** Crodacos CP-50

## Cetyl poly (oxyethylene) ether

See Ceteth

## Cetylpyridinium chloride

**CAS:** 123-03-5 (anhyd.); 6004-24-6 (monohydrate); EINECS/ELINCS: 204-593-9

**UN 2811 (DOT)**

**Synonyms:** 1-Cetylpyridinium chloride; N-Cetylpyridinium chloride; CPC; Hexadecylypyridinium chloride; 1-Hexadecylypyridinium chloride; n-Hexadecylypyridinium chloride

**Classification:** Quaternary ammonium salt

**Empirical:** C<sub>21</sub>H<sub>38</sub>CIN; C<sub>21</sub>H<sub>38</sub>CIN • H<sub>2</sub>O

**Formula:** C<sub>21</sub>H<sub>38</sub>CIN (anhyd.); C<sub>21</sub>H<sub>38</sub>CIN • H<sub>2</sub>O

Handbook of Pharmaceutical Additives, Third Edition
Chemical Component Cross-Reference

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<td>Hexadecyl stearate</td>
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</tbody>
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†=pharmaceutical grade

**Handbook of Pharmaceutical Additives, Third Edition**

**1089**

**Properties:**
- Wh. powd.; sol. in water, alcohol, chloroform, oxygenated and chlorinated solvs.; m.w. 339.99 (anhyd.), 358.01 (monohydrate); m.p. 77-83 C; cationic

**Toxicology:**
- LD50 (oral, rat) 200 mg/kg, (IV, rat) 20 mg/kg, (IP, rat) 6 mg/kg; poison by ing., IP, subcut., IV routes; mod. toxic by skin contact; skin and eye irritant; TSCA listed

**Hazardous Decomp. Prods.:**
- Heated to decomp., emits very toxic fumes of NOx and Cl-

**HMIS:**
- Health 2, Flammability 1, Reactivity 1

**Storage:**
- Store @ R.T.

**Uses:**
- Antimicrobial, preservative, wetting agent, solubilizer in pharmaceuticals, orals, inhalants, emulsions, cough syrups, lozenges, topical sol'n's.; topical antiseptic in oral rinse and hemorrhoidal prods.

**Use Level:**
- 0.1%

**Regulatory:**
- U.S. not restricted; Japan not approved, Europe listed; FDA approved for inhalants, orals; USP/NF, BP, EP compliance; Canada DSL

**Manuf./Distrib.:**
- AMRESCO†
  - http://www.amresco-inc.com
- Aceto†
  - http://www.aceto.com
- Aldrich
  - http://www.sigma-aldrich.com
- Alfa Chem†
  - http://www.alfaichem1.com
- Amyl
  - http://www.amyl.com
- B.I. Chems.; Biosil Tech.
  - http://www.biosiltech.com
- Dishman USA
  - http://www.dishman-usa.com
- EMD
  - http://www.emdchemicals.com
- Fluka
  - http://www.sigma-aldrich.com
- Hatco†
  - http://www.hatcocorporation.com
- Hawks Chem. Co Ltd
  - http://www.hawkschem.com
- Integra†
  - http://www.integrachem.com
- Merc KGaA
  - http://www.merck.de
- Penta Mfg.†
  - http://www.pentamfg.com
- Rona
- Rugert†
  - http://www.rugerchemical.com
- Sigma-Aldrich†
  - http://www.sigma-aldrich.com
- Sigma
  - http://www.sigma-aldrich.com/belgium
- Spectrum Quality Prods.†
  - http://www.spectrumchemical.com
- Universal Preserv-A-Chem†
  - http://www.upichem.com
- Voigt Global Distrib.†
  - http://www.vgdllc.com
- Wako Chem. USA†
  - http://www.wakochemicals.de
- Wako Pure Chem. Ind.
  - http://www.wako-chem.co.jp/english/
- Weiders Farmasaetytiske A/S
  - http://www.weifa.no
- Zeeland†
  - http://www.rutherfordchemicals.com

**Trade Names:**
- Uniquart CPC
- Hexadecyl 12-hydroxy-9-octadecenoic acid ester
- Hexadecyl (R)-12-hydroxyoleate
- 12-Hydroxy-9-octadecenoic acid ester
- Ester of cetyl alcohol and ricinoleic acid
- C34H66O3
- CH3(CH2)5CHOHCH2CH(CH2)7COOCH3(CH2)14CH2
- Emollient for pharmaceuticals, topicals
- Canada DSL
- A&E Connock
  - http://www.connock.co.uk
- Naturechem® CR
- Pelemol® CR
- Sabowax CR
- Emollient in pharmaceutical topicals
- FDA 21CFR §178.3450
- Canada DSL
- A&E Connock
  - http://www.connock.co.uk
- Chempri
- Koster Keunen
  - http://www.kosterkeunen.com
- Mosselman NV
  - http://www.mosselman.be
- Pechiney Chem. Div.
  - http://www.pechiney-chemicals.com
- Sigma
  - http://www.sigma-aldrich.com/belgium
- Yasho Ind.
  - http://www.yashoindustries.com

**Trade Names:**
- Monestriol C
Chemical Component Cross-Reference

Cetyl-stearyl alcohol. See Cetearyl alcohol
Cetyl-stearyl 2-ethyl hexanoate; Cetyl/stearyl octanoate. See Cetearyl octanoate
Cetyl 3,4,5-trihydroxybenzoate. See Cetyl gallate
Cetyltrimethylammonium bromide. See Cetrtrimonium bromide
Cetyl trimethyl ammonium chloride. See Cetrtrimonium chloride
Cevitamic acid. See L-Ascorbic acid
Ceylon cinnamon leaf oil. See Cinnamon (Cinnamomum zeylanicum) leaf oil
Ceylon isinglass. See Agar
C12 fatty alcohol ethoxylate. See Laureth
CFC 11. See Trichlorofluoromethane
CFC 12. See Dichlorodifluoromethane
CFC 13. See Chlorotrifluoromethane
CFC 113. See Chlorotrifluorothane
CFC 114. See 1,2-Dichlorotetrafluoroethane
CFC-116. See Hexafluorooethane
Chalcedony. See Quartz
Chalk. See Calcium carbonate
Chameleon. See Potassium permanganate

Chamomile (Anthemis nobilis) extract
CAS 84649-86-5; 8015-92-7; EINECS/ELINCS 283-467-5
FEMA 2274

Synonyms: Anthemis nobilis; Anthemis nobilis extract; Camomile extract; Chamomile, English, extract; Chamomile extract; Chamomile flower extract; Chamomile, Roman, extract; English chamomile extract; Roman chamomile extract

Definition: Extract of flowers of Anthemis nobilis
Properties: Cl. amber liq.; sol. in cold water
Toxicology: Irritating to eyes, skin, respiratory and GI tract
Precaution: Reactive with oxidizing agents; do not breathe gas, fumes, vapor, spray; wear splash goggles, lab coat, and vapor respirator

HMIS: Health 2, Flammability 1, Reactivity 0
Storage: Keep container tightly closed in a cool, well-ventilated area
Uses: Natural flavor for pharmaceuticals
Regulatory: BP, EP compliance; FDA 21 CFR §182.20, GRAS; FEMA GRAS; DSL listed
Manuf./Distrib.: Bell Flavors & Fragrances http://www.belfff.com; Bio-Botanica http://www.bio-botanica.com; Citrus and Allied Essences

†=pharmaceutical grade

http://www.citrusandallied.com; Frutarom http://www.frutarom.com

Chamomile, English, extract; Chamomile extract. See Chamomile (Anthemis nobilis) extract
Chamomile extract, German; Chamomile extract Hungarian. See Matricaria (Chamomilla recutita) extract
Chamomile flower extract; Chamomile, Roman, extract. See Chamomile (Anthemis nobilis) extract
Chamomilla recutita; Chamomilla recutita extract. See Matricaria (Chamomilla recutita) extract
Charcoal. See Charcoal, activated
Charcoal, activated
CAS 16291-96-6
UN 1362
Synonyms: Activated charcoal; Charcoal
Definition: The residue from the destructive distillation of various org. materials (wood and vegetables), treated to increase its adsorptive power
Empirical: C
Properties: Blk. fine powd. free from gritty matter; odorless; tasteless; at.wt. 12.01
Precaution: DOT: Spontaneously combustible material
Uses: Adsorbent, deodorizing agent for pharmaceuticals, antidiarrheal prods.; antidote for poison treatment; refining of pharmaceutical chems.
Regulatory: USP/NF, BP, EP compliance; Canada DSL

See also Carbon, activated

Chavicol methyl ether; Chavicyl methyl ether. See Estragole

Checkerberry extract. See Wintergreen (Gaultheria procumbens) extract
Checkerberry oil. See Wintergreen (Gaultheria procumbens) oil

Chemical mace. See Chloroacetophenone

Cherry butyrate. See Isoamyl-2-methylbutyrate

Cherry juice
CAS 8012-99-5
Cherry laurel oil. See Cherry laurel (Prunus laurocerasus) oil

Cherry laurel (Prunus laurocerasus) oil
CAS 8000-44-0
FEMA 2277
Synonyms: Cherry laurel oil; Prunus laurocerasus; Prunus laurocerasus oil
Definition: Volatile oil derived from leaves of Prunus laurocerasus, contg. HCN, benzaldehyde, etc.
Properties: Colorless to pale yel. liq., odor and taste similar to bitter almond oil; sol. in 2 vols 70% alcohol, in benzene, chloroform, ether; sl. sol. in water; dens. 1.054-1.066 (20/20 C)
Toxicology: Very poisonous; contains hydrogen cyanide (very toxic)
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of CN–
Storage: Keep cool, well closed; protect from light
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.510; FEMA GRAS; Japan approved; Canada DSL
Manuf./Distrib.: Carrubba
http://www.carrubba.com

Cherry pit extract
CAS 977038-54-2; 8000-44-0
FEMA 2278
Synonyms: Cherry pit oil extract; Cherry pits, extract; Prunus avium; Prunus cerasus
Definition: Extract derived from Prunus avium (sweet cherry) or P. cerasus (sour cherry)
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.510; FEMA GRAS

Cherry pit oil extract; Cherry pits, extract.
See Cherry pit extract

Chervil. See Chervil (Anthriscus cerefolium)

Chervil (Anthriscus cerefolium)
CAS 1338-80-3
FEMA 2279
Synonyms: Anthriscus cerefolium; Chervil
Definition: Derived from Anthriscus cerefolium
Properties: Sweet and aromatic
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §101.22, 182.10, GRAS; FEMA GRAS; Japan approved

Chicory (Cichorium intybus) extract
CAS 68650-43-1; EINECS/ELINCS 272-045-6
FEMA 2280
Synonyms: Cichorium intybus extract; Chicory extract; Cichorium intybus
Definition: Extract of roots of the chicory, Cichorium intybus
Properties: Bitter tonic flavor
Toxicology: TDLo (oral, rat) 600 mg/kg; TSCA listed
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §182.20, GRAS; FEMA GRAS; Japan restricted
Manuf./Distrib.: Bio-Botanica http://www.biobotanica.com; Frutarom http://www.frutarom.com

Chicory extract. See Chicory (Cichorium intybus) extract

Chile saltpeter. See Sodium nitrate

Chimyl alcohol
CAS 506-03-6; EINECS/ELINCS 208-026-6
Synonyms: 3-(Hexadecyloxy)-1,2-propanediol; Monocetyl glyceryl ether
Classification: Organic compd.
Empirical: C₁₉H₄₀O₃
Formula: CH₃(CH₂)₁₅OCH₂CHOHCH₂OH
Properties: Nonionic
Uses: Emulsifier, hydrotrope, emollient, emulsion thickener for pharmaceuticals
Trade Names: Chimyl Alcohol 100

China bark extract. See Quillaja (Quillaja saponaria)
China clay. See Kaolin
Chinaldine. See Quinaldine
China oil. See Balsam Peru (Myroxylon pereirae)

Chinese bean oil. See Soybean (Glycine soja) oil

Chinese blue. See Ferric ferrocyanide

Chinese cinnamon. See Cinnamon (Cinnamomum cassia)

Chinese cinnamon leaf oil. See Cinnamon (Cinnamomum zeylanicum) leaf oil

Chinese cinnamon oil. See Cinnamon (Cinnamomum cassia) oil

Chinese ginger. See Galanga
Chinese isinglass. See Agar
Chinese seasoning. See MSG
Chinese white. See Zinc oxide

Chinoleine; Chinolin; Chinoline. See Quinoline

Chinese w. See Zinc oxide

Chinoleine

Chinosol. See 8-Hydroxyquinoline sulfate
Chitin

CAS 1398-61-4; EINECS/ELINCS 215-744-3

**Synonyms:** N-[2-(5-Acetylamino-4,6-dihydroxy-2-hydroxymethyl-tetrahydropyran-3-xyloxy)-4,5-β-Chitin; Poly (N-acetyl-D-glucosamine)

**Classification:** Biopolymer

**Definition:** Glucosamine polysaccharide; consists chiefly of N-acetyl-D-glucosamine residues; found in yeasts, fungi, marine invertebrates and arthropods

**Empirical:** (C8H13NO5)n

**Properties:** Wh., amorphous, semitransparent mass; sol. in conc. HCl, H2SO4; insol. in the common solvs.; m.w. ≈ 400,000

**Toxicology:** LD50 (IV, rat) 50 mg/kg

**Storage:** Hygroscopic

**Uses:** Biological research; source of chitosan; biological additive

**Regulatory:** Japan approved

**Manuf./Distrib.:** Ajinomoto USA
http://www.ajinomoto-usa.com
http://www.ajichem.com; Aldrich
http://www.sigma-aldrich.com; Alfa Chem†
http://www.alfachem1.com; Alzo
http://www.alzointernational.com; Amerchol
http://www.dow.com/ucc/amerchol/index.htm
Anmar Int'l.†
http://www.anmarinternational.com
Atomergic Chemetals†
http://www.atomergic.com; Barrington†
http://www.barringtonchem.com;
CarboMer†
http://www.carbomer.com;
Donboo Amino Acid
http://www.donboo.com
Fluka http://www.sigma-aldrich.com;
Functional Foods†
http://www.functionalfoods.com; H&A (Canada) Ind.† http://www.hacanada.com;
Hawkins Chem.†
http://www.hawkinschemical.com;
Jedwards Int'l.†
http://www.codiveroil.com
Penta Mfg.†http://www.pentamfg.com; RIA Int'l.†
http://www.riausa.com; Shanghai
Rokem Int'l.
http://www.rokem.com; Sigma
http://www.sigma-aldrich.com.belgium;
Stason Pharmaceuticals†
http://www.stason.com
Synasia†http://www.synasia.com;
Universal Preserv-A-Chem†

†=pharmaceutical grade

http://www.upichem.com; ZenPharm Int'l.†
http://www.zenpharm.com

**Trade Names Containing:** Dermosaccharides®

**β-Chitin.** See Chitin

Chitin, deacetylated. See Chitosan

Chitosamine. See Glucosamine

Chitosan

CAS 9012-76-4; EINECS/ELINCS 222-311-2

**Synonyms:** 2-Amino-2-deoxy-(1-4)-β-D-glucopyranan; Chitin, deacylated; Poly (D-glucosamine)

**Definition:** Deacylated derivative of chitin

**Properties:** M.w. ≈ 70,000

**Toxicology:** TSCA listed

**Storage:** Hygroscopic

**Uses:** Dietary fiber; capsule used as colon specific drug delivery system; biomedical applics.; medical aids (artificial skin, plasters, bandages)

**Features:** Natural; lipophilic; may absorb fat-sol. vitamins

**Regulatory:** Japan approved

**Manuf./Distrib.:** Adept Sol'ns.†; Aldrich
http://www.sigma-aldrich.com; Alfa Chem†
http://www.alfachem1.com; Alzo†
http://www.alzointernational.com; Anmar Int'l.† http://www.anmarinternational.com
Ashland† http://www.ashchem.com;
Asiamerica Int'l.†; Atomergic Chemetals†
http://www.atomergic.com; CarboMer†
http://www.carbomer.com; Charles
Bowman† http://www.charlesbowman.com
Donboo Amino Acid
http://www.donboo.com; Ferro Pfanstiehl Europe†; Fluka http://www.sigma-aldrich.com; Functional Foods†
http://www.functionalfoods.com; H&A (Canada) Ind.† http://www.hacanada.com
Hawkins Chem.†
http://www.hawkinschemical.com;
Jedwards Int'l.†
http://www.codiveroil.com; M.W. Int'l.†; Marcor Development†
http://www.marcordev.com; Pangaea Sciences†
http://www.pangaeasciences.com
Penta Mfg.† http://www.pentamfg.com;
Pharmrite N. Am.† http://pharmrite.com/;
RIA Int'l.† http://www.riausa.com; Shanghai
Rokem Int'l. http://www.rokem.com; Sigma
http://www.sigma-aldrich.com.belgium
Chemical Component Cross-Reference


Chittembark. See Cascara (Rhamnus purshiana) extract

Chloracetamide. See Chloroacetamide

Chloracetic chlroide. See Chloracetyl chloride

Chloracetophenone. See Chloroacetophenone

Chloracetyl chloride
CAS 79-04-9
UN 1752
Synonyms: CAC; Chloracetic chlroide; Chloroacetic acid chloride; Chloroacetamide; Monochloroacetyl chloride
Empirical: C₂H₂Cl₂O
Formula: ClCH₂COCl
Properties: Colorless to sl. yel. liq.; strong pungent odor; insol. in water, dec.; m.w. 112.94; sp.gr. 1.41; dens. 11.7 lb/gal; vapor pressure 19 mm Hg (20 C); f.p. -22 C; b.p. 106 C; flash pt. none
Toxicology: NIOSH REL TWA 0.05 ppm; toxic; corrosive; may cause eye irritation/damage, severe skin burns; ing. of lg. amts. can be fatal; inh. may irritate respiratory tract, nasal passages, lungs; may cause coughing, wheezing, dyspnea; lachrymator
Environmental: Toxic to animals incl. fish; keep away from sewers and all water resources
Precaution: Dec. in water to form monochloracetic acid and hydrochloric acid; incompat. with water, alcohols, bases, metals (corrosive), amines
Storage: Moisture-sensitive
Uses: Solvent in synthesis of pharmaceuticals
Regulatory: Canada DSL

Chloracetophenone. See Chloroacetophenone

Chloral. See Quaternium-15

Chloralhydric acid. See Chloroacetic acid

Chloral hydrate. See Chloral

Chlorane. See Chloroform

Chloranthine. See Chloranthus chinensis

Chloranthrannine. See Chloranthus chinensis

Chloral hydrate

Chloral hydrate

Chloral hydrate

Chloral hydrate

Chlorane. See Chloroform

Chloranthine. See Chloranthus chinensis

Chloranthrannine. See Chloranthus chinensis

Chloral. See Quaternium-15

o-Chloraniline. See o-Chloroaniline

m-Chloraniline. See m-Chloroaniline

p-Chloraniline. See p-Chloroaniline

Chlorate of soda. See Sodium chlorate

Chlorobenzene; Chlorobenzol. See Chlorobenzene

Chlorbutanol; Chlorbutol. See Chlorobutanol

p-Chloro-m-cresol. See p-Chloro-m-cresol

Chlor-etha mine. See Ethylenediamine dihydrochloride

Chloretone; Chloretylene. See Vinyl chloride

Chlorethene; Chlorethylene. See Vinyl chloride

Chlorhexidine acetate. See Chlorhexidine diacetate

Chlorhexidine diacetate
CAS 56-95-1; EINECS/ELINCS 200-302-4
Synonyms: 1,6-Bis (5-(p-chlorophenyl) biguanidino) hexane diacetate; Chlorhexidine acetate; 1,6-Di (4'-chlorophenylbiguanidino) hexane diacetate; 1,1´-Hexamethylene bis [5-(4-chlorophenyl) biguanide] diacetate; 1,1´-Hexamethylenebis (5-(p-chlorophenyl) biguanide) diacetate
Definition: Salt of chlorhexidine and acetic acid
Formula: C₂₂H₂₆Cl₂N₁₀ • 2C₂H₄O₂
Properties: Crystals; sol. 1.5 g in 100 ml water; sol. in alcohols, glycerol, propylene glycol, polyethylene glycols; m.w. 643.56; m.p. 154-156 C (dec.)
Toxicology: LD₅₀ (oral, mouse) 2 g/kg, (IP, mouse) 38 mg/kg, (subcut., mouse) 325 mg/kg, (IV, mouse) 25 mg/kg; poison by subcut., IV, IP routes; mod. toxic by ing., skin irritant
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of Cl– and NOₓ
Regulatory: BP, EP compliance; Canada DSL
Manuf./Distrib.: Alfa Chem† http://www.alfachem1.com; Fluka
Chemical Component Cross-Reference


Chlorhexidine digluconate
CAS 18472-51-0; 14007-07-9; EINECS/ELINCS 242-354-0
Synonyms: Biguanide, 1,1´-hexamethyenebis (5-(p-chlorophenyl))-, digluconate; 1,6-Bis (5-(p-chlorophenyl)) biguanido) hexane digluconate; N,N´-Bis (4-chlorophenyl)-3,12-dimino-2,4,11,13-tetraazatetradecane-diimidamide compd. with D-gluconic acid; Chlorhexidine gluconate; D-Gluconic acid, compd. with N,N´´-bis (4-chlorophenyl)-3,12-diimino-2,4,11,13-tetraazatetradecanediimidamide (2:1); 1,1´-Hexamethyenebis (5-(p-chlorophenyl) biguanide) digluconate
Definition: Salt of chlorhexidine and gluconic acid
Formula: C\textsubscript{22}H\textsubscript{30}Cl\textsubscript{2}N\textsubscript{10} • 2C\textsubscript{6}H\textsubscript{12}O\textsubscript{7}
Properties: Sol. > 50% in water; m.w. 897.76
Toxicology: LD\textsubscript{50} (oral, rat) 2 g/kg, (subcut., rat) 3320 mg/kg, (IV, rat) 24,200 μg/kg; poison by IV route; mod. toxic by ing. and subcut. routes; may cause contact dermatitis; mutagenic data; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of NO\textsubscript{x} and Cl\textsuperscript{−}
HMIS: Health 2, Flammability 0, Reactivity 0
Storage: Light-sensitive
Uses: Preservative, bactericide, topical antiseptic, antimicrobial in pharmaceuticals, mouthwashes, feminine hygiene sprays, surgical scrubs/wipes/lubricants, antiplaque dental prods.; skin sterilizing agent
Use Level: 0.01-0.1%
Regulatory: Japan approved; Europe listed; BP, EP compliance; Canada DSL

Chlorhexidine digluconate
See Chlorhexidine digluconate

Chlorhexidine HCl; Chlorhexidine hydrochloride
See Chlorhexidine
Chemical Component Cross-Reference

†=pharmaceutical grade

Chemical Component Cross-Reference

dihydrochloride
Chlorhydric acid. See Hydrochloric acid
Chlorhydril. See Aluminum chlorohydrate
Chlorhydroxyaluminum allantoinate. See Alcloxa
Chloric acid sodium salt. See Sodium chlorite
Chloride dioctyl dimethylammonium. See Dioctyl dimonium chloride

Chloroacetamide
CAS 79-07-2; EINECS/ELINCS 201-174-2
Synonyms: Acetamide, 2-chloro-; Chloracetamide; 2-Chloroacetamide; α-Chloroacetamide; 2-Chloroethanamide
Classification: Chlorinated compd.
Empirical: C₂H₄ClNO
Formula: ClCH₂CONH₂
Properties: Colorless to pale yel. cryst.; sol. in water, alcohol; insol. in ether; m.w. 93.51; m.p. 116-118 C; b.p. 220 C (dec.)
Toxicology: LD₅₀ (oral, rat) 70 mg/kg, (IP, mouse) 100 mg/kg, (IV, mouse) 180 mg/kg; poison by ing., IV, IP routes; strong eye/tissue irritant; lachrymator; human systemic effects by inh. (lacrimation, conjunctiva irritation, cough, dyspnea); questionable carcinogen; tumorigen; mutagen; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits very toxic Cl⁻ and NOₓ
Uses: Antimicrobial, preservative for pharmaceuticals, topicals (in Europe)
Regulatory: FDA 21CFR §175.105, 176.170; U.S. EPA registered; Europe listed; not registered or approved for use in the U.S. (pharmaceuticals); Canada DSL

2-Chloroacetamide; α-Chloroacetamide. See Chloroacetamide

Chloroacetic acid chloride. See Chloracetyl chloride

Chloroacetophenone
CAS 532-27-4; EINECS/ELINCS 208-531-1
UN 1697 (DOT)
Synonyms: CAF; CAP; Chemical mace; Chloracetophenone; 2-Chloroacetophenone; α-Chloroacetophenone; Chloromethyl phenyl ketone; 2-Chloro-1-phenylethanone; Mace; Phenaclyl chloride; Phenylchloromethylketone
Empirical: C₈H₇ClO
Formula: C₆H₅COCH₂Cl
Properties: Wh. cryst., floral odor; sol. in oxygenated/aromatic solvs., acetone, benzene; insol. in water; m.w. 154.60; dens. 1.324; m.p. 54-56 C; b.p. 244-245 C
Toxicology: ACGIH TLV/TWA 0.05 ppm; LD₅₀ (oral, rat) 127 mg/kg, (IP, rat) 36 mg/kg, (IV, mouse) 81 mg/kg; human poison by inh.; experimental poison by ing., inh., IP, IV routes; strong eye/tissue irritant; lachrymator; human systemic effects by inh. (lacrimation, conjunctiva irritation, cough, dyspnea); questionable carcinogen; tumorigen; mutagen; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of Cl⁻
NFPA: Health 2, Flammability 1, Reactivity 0
Uses: Pharmaceutical intermediate
Regulatory: HAP

2-Chloroaniline. See o-Chloroaniline
3-Chloroaniline; Chloro-3-aniline. See m-Chloroaniline
4-Chloroaniline. See p-Chloroaniline
m-Chloroaniline

CAS 108-42-9; EINECS/ELINCS 203-581-0
UN 2018; UN 2019

Synonyms: 1-Amino-3-chlorobenzene; 3-Amino-1-chlorobenzene; m-Aminochlorobenzene; m-Chloraniline; 3-Chloroaniline; Chloro-3-aniline; 3-Chlorobenzenamine; 3-Chlorophenylamine; m-Chlorophenylamine

Classification: Halogenated aromatic amine
Empirical: C₆H₆ClN
Formula: CIC₆H₄NH₂

Properties: Colorless to lt. amber liq.; very sol. in ethanol, acetone, benzene, diethyl ether; sol. in CCl₄, most common org. solvs.; insol. in water; m.w. 127.57; dens. 1.206; m.p. -11 to -9 C; b.p. 95-96 C (11 mm); flash pt. (CC) 123 C; ref. index 1.5940

Toxicology: LD₅₀ (oral, rat) 256 mg/kg, (skin, rat) 250 mg/kg; LC₅₀ (inh., mouse, 4 h) 550 mg/m³; highly toxic; poison by ing., skin contact, subcut., and IV routes; eye irritant; readily absorbed through skin; sensitizer; target organ: blood; tumorigen; mutagen; TSCA listed

Hazardous Decomp. Prods.: CO, CO₂, hydrogen chloride gas, phosgene; heated to decomp., emits toxic fumes of Cl⁻ and NOₓ

Storage: Keep tightly closed; sensitive to light and air; tends to darken on storage

Uses: Pharmaceutical intermediate
Regulatory: Canada DSL


p-Chloroaniline

CAS 106-47-8; EINECS/ELINCS 203-401-0
UN 2018; UN 2019

Synonyms: 1-Amino-4-chlorobenzene; 4-Amino-1-chlorobenzene; p-Aminochlorobenzene; p-Chloraniline; 4-Chloroaniline; 4-Chlorobenzenamine; p-Chlorobenzenamine; 4-Chlorophenylamine

Classification: Substituted aniline
Empirical: C₆H₆ClN
Formula: CIC₆H₄NH₂

Properties: Wh. or pale yel. solid; sl. sweetish char. amine odor; freely sol. in ethanol, diethyl ether, acetone, CS₂; sol. in hot water, other org. solvs.; insol. in water; m.w. 127.57; m.p. 68-71 C; b.p. 232 C; flash pt. (CC) > 188 C

Toxicology: LD₅₀ (oral, rat) 300 mg/kg, (skin, rat) 3200 mg/kg, (IP, rat) 420 mg/kg; LDLo (subcut., cat) 125 mg/kg; poison by inh., ing., skin contact, subcut., IV routes; mod. toxic by inh., IP; skin and severe eye irritant; readily absorbed through skin; target organ: blood; confirmed carcinogen; tumorigen; mutagen; TSCA listed

Hazardous Decomp. Prods.: CO, CO₂, hydrogen chloride gas, phosgene; heated to decomp., emits toxic fumes of Cl⁻ and NOₓ

Storage: Keep tightly closed; sens. to light and air; tends to darken on storage

Uses: Pharmaceutical intermediate
Regulatory: Canada DSL

### Chlorobenzene

**CAS:** 108-90-7; EINECS/ELINCS 203-628-5  
**UN 1134 (DOT)**

**Synonyms:** Benzene chloride; Benzene monochloride; Chlorobenzene; Chlorobenzol; Chlorobenzol; MCB; Monochlorobenzene; Monochlorobenzene; Phenyl chloride  
**Classification:** Halogenated aromatic hydrocarbon  
**Empirical Formula:** C₇H₅Cl  
**Properties:** Clear volatile liq., faint almond-like not unpleasant odor; sol. in alcohol, benzene, chloroform, ether; misc. with most org. solvs.; insol. in water; m.w. 112.50; sp.gr. 1.105; vapor pressure 10 mm Hg (22.2°C); m.p. -45°C; b.p. 131.6°C; flash pt. (CC) 29.4°C; ref. vapor pressure 10 mm Hg (22.2°C); m.p. -45°C; b.p. 131.6°C; flash pt. (CC) 29.4°C; ref. index 1.5  
**Toxicology:** ACGIH TLV/TWA 10 ppm; LD50 (oral, rat) 2910 mg/kg; toxic; poison by ing., mod. toxic by IP route; strong narcotic; inh. causes CNS depression, headaches, nausea, dizziness, drowsiness, confusion, experimental teratogen, reproductive effects; mutagenic data; may cause kidney/liver damage; TSCA listed  
**Precaution:** Flamm.; moderate fire risk; explosive limits 1.8-9.6% in air; incompat. with oxidizers, nitric acid, sodium, dimethyl sulfoxide, silver perchlorate; fire/explosion risk; potential violent reactions  
**NFPA:** Health 2, Flammability 3, Reactivity 0  
**Storage:** Store in cool, dry, well-ventilated area, out of direct sunlight, away from heat/ignition sources, away from corrosives  
**Uses:** Solvent in pharmaceuticals  
**Regulatory:** FDA 21CFR §175.105, 177.1580, 177.1655; SARA reportable; HAP; Canada DSL  
**Manuf./Distrib.:** Aarti Ind. Ltd  
[http://www.aartigroup.com](http://www.aartigroup.com); Aldrich  
[http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Allchem Ind.  
[http://www.allchem.com](http://www.allchem.com); Arkema  
[http://www.total.com](http://www.total.com); Esprit  
[http://www.espritchem.com](http://www.espritchem.com); Fluka  
[http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); PPG Ind.  
[http://www.ppg.com](http://www.ppg.com);  

### Chlorobutanol

**CAS:** 57-15-8; EINECS/ELINCS 200-317-6  
**Synonyms:** Acetone chloroform; Anhydrous chlorobutanol; Chlorbutanol; Chlorbuto; Chlore; Chlorbut; t-Trichloro-t-buty alcohol; Trichloro-t-butyl alcohol; t-Trichlorobutyl alcohol; 1,1,1-Trichloro-2-methyl-2-propanol  
**Empirical Formula:** C₄H₇Cl₃O  
**Formula:** C₃Cl₃(CH₃)₂OH  
**Properties:** Colorless to wh. cryst., camphoraceous odor; sol. in chloroform, ether, volatile oils; sl. sol. in water; m.w. 177.46; m.p. 76 C; b.p. 167 C  
**Toxicology:** LDLo (oral, rabbit) 213 mg/kg; poison by ing.; narcotic; CNS depressant; hypersensitivity and toxic reactions have occurred; skin and eye irritant; mutagenic data; TSCA listed  
**Precaution:** Combustible exposed to heat or flame; unstable in alkali; can react with oxidizing materials  
**Hazardous Decomp. Prods.:** Heated to decom., emits toxic fumes of Cl⁻  
**HMIS:** Health 2, Flammability 1, Reactivity 1  
**Uses:** Antimicrobial, preservative, antiseptic for pharmaceuticals, biological fluids and sol'n's., parenterals, ophthalmics, topicals, otics, inhalants; anesthetic in dentistry; mild sedative; topical analgesic  
**Use Level:** 0.0001-0.5% (parenterals); 0.2-0.65% (ophthalmics)  
**Regulatory:** USA EPA registered; Europe listed; FDA approved for injectables, inhalants, nasals, ophthalmics, otics, topicals; USP/NF, BP, EP compliance; Canada DSL  
**Manuf./Distrib.:** AMRESCO†  
[http://www.amresco-inc.com](http://www.amresco-inc.com); Akzo Nobel†  
[http://www.akzonobel.com](http://www.akzonobel.com); Aldrich†  
[http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Alfa Chem†  
[http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Blagden Spec. Chems. Ltd†  
[http://www.blagdenspecchem.co.uk](http://www.blagdenspecchem.co.uk); EMD Chems.†  
[http://www.emdchemicals.com](http://www.emdchemicals.com); Fluka
Chemical Component Cross-Reference

http://www.sigma-aldrich.com; Global Chemsources†
http://www.globalchemsources.com; Integra† http://www.integrachem.com;
Merck KGaA† http://www.merck.de
Penta Mfg.† http://www.pentamfg.com;
R.W. Greeff http://www.pechiniychemicals.com; Ruger†
http://www.rugerchemical.com; Sigma†
http://www.sigma-aldrich.com/belgium Spectrum Quality Prods.†
http://www.spectrumchemical.com;
Synasia† http://www.synasia.com;
Universal Preserv-A-Chem†
http://www.upichem.com

Chlorobutanol hemihydrate
CAS 6001-64-5; EINECS/ELINCS 200-317-6
Synonyms: Acetone chloroform, β,β,β-Trichloro-t-butyl alcohol; 1,1,1-Trichloro-2-methyl-2-propanol hemihydrate
Empirical: C₆H₇ClO •½H₂O
Formula: Cl₃CC(CH₃)₂OH •½H₂O
Properties: M.w. 186.46
Uses: Antimicrobial, preservative for pharmaceuticals, intramuscular injectables
Regulatory: FDA approved for injectables; BP, EP, NF compliance

6-Chloro-2-(6-chloro-4-methyl-3-oxobenzo [b] thien-2(3H)-ylidene)-4-methylbenzo [b] thiophen-3(2H)-one. See D&C Red No. 30; CI 73360; Vat red 1

Chlorocresol; 4-Chloro-m-cresol; p-Chlorocresol. See p-Chloro-m-cresol
p-Chloro-m-cresol
CAS 59-50-7; EINECS/ELINCS 200-431-6
UN 2669 (DOT)
Synonyms: p-Chlor-m-cresol; Chlorocresol; 4-Chloro-m-cresol; p-Chlorocresol; 2-Chlorohydroxytoluene; 2-Chloro-5-hydroxytoluene; 4-Chloro-3-methylphenol; 3-Methyl-4-chlorophenol; Parachlorometacresol; PCMC
Classification: Substituted phenol
Empirical: C₇H₇ClO
Properties: Colorless dimorphous cryst., mild phenolic odor; very sol. in org. solvs., alcohol; sol. in ether, fixed oils, hot water; m.w. 142.59; m.p. 65-68 C; b.p. 235 C

Toxicology: LD₅₀ (oral, rat) 1830 mg/kg, (subcut., rat) 400 mg/kg, (subcut., mouse) 350 mg/kg, (IV, mouse) 70 mg/kg; poison by IV, subcut, IP routes; mod. toxic by ing.; weak irritant; allergen; may produce digestive disturbances, nervous disorders, fainting, dizziness, mental changes, skin eruptions; skin and eye irritant; mutagenic data; TSCA listed
Precaution: Incompat. with sodium hydroxide
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of Cl– and phosgene
HMIS: Health 3, Flammability 1, Reactivity 1
Uses: Antimicrobial, preservative for pharmaceuticals, injectables (intravenous heparin prods.), topical creams and lotions, eye lotions, dentifrices, mouthwashes; antiseptic
Use Level: 0.1-0.15% (injectables), 0.075-0.12% (topicals)
Regulatory: FDA 21CFR §175.105, 176.200, 176.210, 178.3120; FDA approved for topicals; USP/NF, BP, EP compliance; Canada DSL
Manuf./Distrib.: Alchemie USA; Aldrich† http://www.sigma-aldrich.com; Alfa Chem†
http://www.alfachem1.com; Atul Ltd http://www.atul.co.in; Charkit†
http://www.charkit.com Clariant/Functional Chems.†
http://www.fun.clariant.com; EMD Chems.† http://www.emdchemicals.com; Esprit
http://www.espritchem.com; Fabrichem http://www.fabricheminc.com; Fluka
http://www.sigma-aldrich.com; Goldlink Industries
http://www.goldlinkindustries.com
Merck KGaA† http://www.merck.de; Pechiney Chems. Div.
http://www.pechiniy-chemicals.com
Synasia† http://www.synasia.com; Triple Crown Am.
http://www.triplecrownamerica.com
Trade Names: Nipacide® PC
Trade Names Containing: Sebase
1-Chloro-2,2-dichloroethylene. See Trichloroethylene
Chemical Component Cross-Reference

5-Chloro-2-(2,4-dichlorophenoxy) phenol. See Triclosan
6-Chloro-3,4-dihydro-2H-1,2,4-benzothiadiazine-7-sulfonamide-1,1-dioxide. See Hydrochlorothiazide
1-Chloro-2-dimethylhydroxide. See Dimethylaminooctyl chloride hydrochloride
2-[Cloro-a-[2-(dimethylamino)ethyl]benzyl]pyridine maleate. See Chlorpheniramine maleate
2-Chloro-N,N-dimethylethylamine hydrochloride. See Dimethylaminooctyl chloride hydrochloride
4-Chloro-3,5-dimethylphenol. See Chloroxylenol
Chloro [(2,5-dioxo-4-imidazolidinyl) ureato] tetrahydroxydialuminum. See Alcloxa
2-Chloroethanamide. See Chloroacetamide
Chloroethene. See Vinyl chloride; 1,1,1-Trichloroethane
Chloroethene homopolymer. See Polyvinyl chloride
N-(2-Chloroethyl) dimethylamine hydrochloride; 2-Chloroethylidimethylammonium chloride. See Dimethylaminooctyl chloride hydrochloride
Chloroethylene. See Vinyl chloride
Chloroethylene polymer. See Polyvinyl chloride
Chlorofluorocarbon 113. See Trichlorotrifluoroethane
Chloroform
CAS 67-66-3; EINECS/ELINCS 200-663-8
UN 1888 (DOT)
Synonyms: Formyl trichloride; Methane trichloride; Methane, trichloro-; Methenyl chloride; Methenyl trichloride; Methyl trichloride; Trichloroform; Trichloromethane
Classification: Halogenated aliphatic hydrocarbon
Empirical: CHCl3
Properties: Colorless clear mobile liq., ethereal odor, sweet burning taste; misc. with alcohol, benzene, hexane, acetone, diethyl ether, naphtha, fixed and volatile oils; sl. sol. in water; m.w. 119.38; sp.gr. 1.474-1.478; vapor pressure 197 mm Hg; m.p. -63 C; b.p. 61 C; flash pt. none; ref. index 1.4460
Toxicology: ACGIH TLV/TWA 10 ppm; LDLo (oral, human) 2514 mg/kg; human poison by ing., inh.; experimental poison by IV; mod. toxic by IP, subcut. routes; prolonged skin contact may produce irritation, burning; may be absorbed through skin; vapor may cause stinging of eyes; respiratory and skin allergies; inh. affects CNS, heart, liver, kidneys; poisonous in large doses; very high doses can cause severe narcosis, respiratory or heart failure, liver/ kidney damage; suspected carcinogen; TSCA listed
Environmental: VOC; ThOD 0.13
Precaution: DOT: Poisonous material; incompat. with strong bases, reactive metals, alkali metals, strong oxidizers, nitromethane, potassium t-butoxide; vigorous reactions, ignition, explosions possible
Hazardous Decomp. Prods.: Slowly decomp. to produce hydrogen chloride; reacts with oxidizers to form highly toxic phosgene gas and chlorine
NFPA: Health 2, Flammability 0, Reactivity 0
Storage: Store in cool, dry, well-ventilated area out of direct sunlight, away from corrosives; light-sensitive
Uses: Preservative, solvent for pharmaceuticals; extraction solvent for pharmaceuticals; flavor in aq. ('chloroform water'), alcoholic ('spirits'), and emulsion formulations; systemic anesthetic; drug intermediate and ingred.
Features: Sweet pleasant flavor
Regulatory: FDA 21CFR §175.105, 177.1580, 177.1585; SARA §302a extremely hazardous substance, §311/312 acute health/chronic health hazard, §313 reportable; Calif. Prop. 65 reportable; HAP; BP compliance; Canada DSL
Manuf./Distrib.: AMRESCO†
Scientific
http://www.amresco-inc.com; Aldrich†
http://www.sigma-aldrich.com; Allchem Ind.
http://www.allchem.com; Arkema
http://www.total.com/; BCH Brühl
http://www.bch-bruehl.de
Burdick & Jackson http://www.bandj.com;
Degussa AG http://www.degussa.com;
Dow† http://www.dow.com; Fisher
http://www.dow.com; Fisher
Fluka http://www.sigma-aldrich.com
Houghton Chem.
http://www.houghtonchemical.com; ICC
Ind. http://www.iccchem.com; Integra†
http://www.integrachem.com; Mallinckrodt
Chemical Component Cross-Reference


Trade Names Containing: Punctilious® SDA 20 Anhydrous; Punctilious® SDA 20 190 Proof

Chloroform, methyl-. See 1,1,1-Trichloroethane
Chlorofyl. See Chlorophyll
Chlorohydroxyaluminum allantoinate. See Alcloxa
5-Chloro-2-hydroxydiphenylmethane. See Chlorophene
5-Chloro-2-((2-hydroxy-1-naphthalenyl) azo)-4-methylbenzene sulfonic acid, barium salt (2:1). See D&C Red No. 9
5-Chloro-2-((2-hydroxy-1-naphthalenyl) azo)-4-methylbenzenesulfonic acid sodium salt. See D&C Red No. 8
5-Chloro-2-((2-hydroxy-1-naphthyl) azo)-p-toluene sulfonic acid, barium salt. See D&C Red No. 9
3-Chloro-2-hydroxypropyltrimethyl ammonium chloride. See Chloro-2-hydroxypropyl trimonium chloride
Chloro-2-hydroxypropyl trimonium chloride CAS 3327-22-8; EINECS/ELINCS 222-048-3

Synonyms: 3-Chloro-2-hydroxypropyltrimethyl ammonium chloride
Classification: Nonaromatic amine
Empirical: C₉H₁₅Cl₂NO
Formula: CICH₂CHOHCH₂N(CH₃)₃⁺ Cl⁻
Properties: M.w. 188.10; dens. 1.154; m.p. 189-190 C; ref. index 1.4541
Toxicology: LDLo (subcut., mouse) 500 mg/kg; irritant; TSCA listed
Uses: Biocide, bactericide, emulsifier,
Chemical Component Cross-Reference

4: Tiger orange; Vulcan red R
Classification: Monoazo color
Empirical: C_{16}H_{10}ClN_{3}O_{3}
Properties: M.w. 327.73
Toxicology: TSCA listed
Uses: Colorant for pharmaceuticals, orals, topicals
Regulatory: D&C Red No. 36; FDA 21CFR §74.1333, 74.1336, 74.2333, 74.2336, 82.1336; FDA approved for orals, topicals
Manuf./Distrib.: Noveon
See also D&C Red No. 36
1-[(2-Chloro-4-nitrophenyl) azo]-2-naphthol. See 1-[(2-Chloro-4-nitrophenyl) azo]-2-naphthalenol
Chloroaxobismuthine. See Cl 77163; Bismuth oxychloride
Chloropentahydroxydialuminum. See Aluminum chlorohydrate

Chlorophene
CAS 120-32-1; EINECS/ELINCS 204-385-8
Synonyms: Benzylchlorophenol; 2-Benzyl-4-chlorophenol; o-Benzyl-p-chlorophenol; 4-Chloro-2-benzylphenol; 5-Chloro-2-hydroxydiphenylmethane; 4-Chloro-α-phenyl-o-cresol; 4-Chloro-(phenylmethyl)phenol; Clorophene; OBCP; Orthobenzyl-p-chlorophenol; Orthobenzylparachlorophenol; Phenol, 4-chloro-2-benzyl-; Septiphene
Classification: Halogenated phenolic compd.
Empirical: C_{13}H_{11}ClO
Formula: C_{6}H_{5}CH_{2}C_{6}H_{3}OCl
Properties: Wh. to light tan or pink flakes; sl. phenolic odor; sol. in oxygenated solvs., alcohols; insol. in water; m.w. 218.69; dens. 1.202-1.206 (55/55 C); m.p. 49 C; b.p. 175 C (5 mm)
Toxicology: LD50 (oral, rat) 1700 mg/kg, (subcut., mouse) 350 mg/kg; highly toxic; mod. toxic by ing.; irritant; questionable carcinogen; mutagen; tumorigen; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of Cl-
Uses: Biocide in pharmaceuticals; disinfectant
Regulatory: Canada DSL
Manuf./Distrib.: AB R Lundberg
http://www.barnetproducts.com; Barrington†
Chemical Component Cross-Reference

†=pharmaceutical grade

See also CI 75810

Chlorophyllin-copper complex. See Chlorophyllin-copper complex

Chloropotasuril. See Potassium chloride

2-Chloropyridine
CAS 109-09-1; EINECS/ELINCS 203-646-3
UN 2822 (DOT)
Synonyms: α-Chloropyridine; o-Chloropyridine; 2-CP
Empirical: CsH4ClN
Properties: Colorless oily liq. or cryst.; sol. in oxygenated solvs.; sol. 2.5 g/100 g water; m.w. 113.55; dens. 1.205 (15 C); vapor pressure 1 mm (13.3 C); m.p. 65 C; b.p. 168-170 C; ref. index 1.532
Toxicology: LD50 (oral, mouse) 110 mg/kg, (IP, mouse) 130 mg/kg, (skin, rabbit) 64 mg/kg; LCLo (inh., rat, 4 h) 100 ppm; poison by ing., inh., skin contact, IP routes; TSCA listed
Precaution: Combustible exposed to heat or flame; can react with oxidizers
Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of Cl–, NOx, and phosgene
Uses: Pharmaceutical intermediate; prod. of antihistamines

α-Chloropyridine; o-Chloropyridine. See 2-Chloropyridine

Chloropyriene. See Chlorothen

1-(4-Chloro-o-sulfo-5-tolylazo)-2-naphthol barium salt; 1-(4-Chloro-o-sulfo-5-tolylazo)-2-naphthol monobarium salt. See D&C Red No. 9
1-(4-Chloro-o-sulfo-5-tolylazo)-2-naphthol
Chemical Component Cross-Reference

monosodium salt. See D&C Red No. 8
Chlorosulthiadil. See Hydrochlorothiazide
Chlorotetrahydroxy ((2-hydroxy-5-oxo-2-imidazolin-4-yl) ureato) dialuminum. See Alcloxa

Chlorothen
CAS 148-65-2
Synonyms: Chloromethaprylene; Chloropyrilene; 2-((5-Chloro-2-thenyl) (2-dimethylaminoethyl) amino) pyridine; Chlorothenylpyramine; N,N-Dimethyl-N’-(2-pyridyl)-N’-(5-chloro-2-thenyl) ethylenediamine
Empirical: C14H18ClN3S
Properties: Sol. in water; insol. in ether, chloroform, benzene; m.w. 295.85; b.p. 155-156 C (10 mm)
Toxicology: LD50 (IP, mouse) 105 mg/kg; poison by IP route
Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of Cl–, NOx, SOx
Uses: Pharmaceutical orals
Regulatory: Approved for orals

Chlorothene
6-Chlorothymol. See Chlorothymol

Chlorotrifluoromethane
CAS 75-72-9; EINECS/ELINCS 200-894-4
UN 1022 (DOT)
Synonyms: CFC 13; Freon 13; Monochlorotrifluoromethane; R 13; Trifluorochloromethane; Trifluoromethyl chloride; Trifluoromonochlorocarbon
Empirical: CCIF3
Formula: CF3Cl
Properties: Colorless liquefied gas; ethereal odor; m.w. 104.5; sp.gr. 0.9224; vapor pressure 27,100 mm Hg; f.p. -181 C; b.p. -81.4 C; ref. index 1.199; surf. tens. 0.574 dynes/cm; dielec. const. 2.32; nonflamm.
Toxicology: Toxic by inhalation, sl. irritant; avoid contact and inh.; narcotic in high concs.; target organ: heart; TSCA listed
Environmental: VOC
Precaution: Violent reaction with Al
Hazardous Decomp. Prods.: Heated to decomp., emits highly toxic fumes of F– and Cl–
Uses: Pharmaceutical processing
Regulatory: Canada DSL

Chlorotriphenylsilane
CAS 76-86-8; EINECS/ELINCS 200-989-0
Synonyms: Triphenylchlorosilane; Triphenylsily chloride
Classification: Silane
Empirical: C15H15ClSi
Properties: Ylsh. cryst.; pungent odor; m.w. 294.86; m.p. 88-91 C; b.p. 378 C; flash pt. > 200 C
Toxicology: LD50 (IV, mouse) 56 mg/kg; corrosive; causes burns; skin and eye irritant; TSCA listed
Precaution: Flamm.; incompat. with strong
### Chloroxylenol

**CAS** 88-04-0; EINECS/ELINCS 201-793-8  
**Synonyms:** Benzytol; 4-Chloro-3,5-dimethylphenol; 2-Chloro-5-hydroxy-m-xylene; 4-Chloro-3,5-xyleneol; p-Chloro-m-xyleneol; Parachlorophenol; PCMX  
**Classification:** Organic compd.  
**Empirical:** C8H9ClO  
**Formula:** C8H9ClO \(\cdot\) (dimethylamino)ethyl\]benzyl\]pyridine  
**Synonyms:** 2-(p-Chloro-a-[2-((dimethylamino)ethyl]benzyl]pyridine maleate; 2-Pyridinepropanamine,γ-(4-chlorophenyl)-N,N-dimethyl-, (2)-2-butenedioate(1:1) (9CI)  
**Formula:** C16H19ClN2•C4H4O4  
**Properties:** Solid; m.w. 390.9; sol. in cold water; m.p. 132.5 C; noncorrosive  
**Toxicology:** Very hazardous by ing.; sl. hazardous by skin contact  
**Precaution:** Wear splash goggles, lab coat, dust respirator, gloves  
**HMIS:** Health 2, Flammability 1, Reactivity 0  
**Storage:** Store in a tightly closed container in a cool, well-ventilated place away from extreme heat and strong oxidizers  
**Uses:** Antihistamine  
**Manuf./Distrib.:** Sciencelab  
http://www.sciencelab.com  
**Trade Names Containing:** MicroMask™  
Chlorpheniramine Maleate 10%  

### Chlorothymol

**See Chlorothymol**  

### Cholecalciferol

**CAS** 67-97-0; EINECS/ELINCS 200-673-2  
**Synonyms:** Calcio; 5,7-Cholesten-3-β-ol; 7-Dehydrocholesterol; 9,10-Secocholestra-5,7,10(19)-trien-3-ol, (3β,5z,7E)-; 9,10-Seco(5Z,7E)-5,7,10(19)-cholestratrien-3-ol; Vitamin D \(\beta\)  
**Classification:** Organic compd.; sterol; vitamin  
**Empirical:** C27H44O  
**Properties:** Colorless to wh. cryst., odorless; unstable in light and air; sol. in acetone, alcohol, chloroform, fatty oils; insol. in water; m.w. 384.71; m.p. 84-88 C
### Chemical Component Cross-Reference

**Toxicology:** LD50 (oral, rat) 42 mg/kg; poison by ing.; experimental teratogen; TSCA listed

**Precaution:** Affected by air and light

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Nutrient; pharmaceutical ingred.; medicine (antirachitic vitamin); mfg. of human and veterinary specialties for oral and parenteral use

**Regulatory:** FDA 21CFR §107.10, 166.110, 184.1950, GRAS; Japan approved; BP, EP compliance; Canada DSL

**Manuf./Distrib.:**

**Trade Names Containing:**
- Dry Vitamin D3 Type 100 SD; Liquid Vitamin D3; Vitamin A Acetate/D3; Vitamin A and D-3 Blend

### Toxicology

**Vitamin D3 100**

**Vitamin D3 100 HP; Vitamin D3 850**

**5,7-Cholestadien-3-β-ol. See Cholecalciferol**

**Cholesten-5-en-3-β-ol; 5-Cholesten-3-β-ol:**
- Cholesteric esters; Cholesterin. **See Cholesterol**

### Cholesterol

**CAS 57-88-5; EINECS/ELINCS 200-353-2**

**Synonyms:** Cholesten-5-en-3-β-ol; 5-Cholesten-3-β-ol; Cholesteric esters; Cholesterin; Cholesterly alcohol; 3-β-Hydroxycholestr-5-ene

**Classification:** Steroid alcohol

**Definition:** Mono-unsaturated sec. alcohol of the cyclopentenophenanthrene system

**Empirical:** C27H46O

**Formula:** C27H46O

**Properties:** Wh. or faintly yel. pearly granules or crystals, almost odorless; yel. to tan color on prolonged exposure to light; sol. in ethers, acetone, chloroform, dioxane, ethyl acetate, hexane, benzene, petrol. ether, oils, fats; sl. sol. in water, alcohol; m.w. 386.67; dens. 1.067; m.p. 148.5 C; b.p. 360 C (dec.)

**Toxicology:** TDL0 (oral, rabbit) 2100 mg/kg, (IP, rat) 800 mg/kg; questionable carcinogen; mutagen; reproductive effector; TSCA listed

**HMIS:** Health 2, Flammability 1, Reactivity 0

**Storage:** Light-sensitive; refrigerate

**Uses:** Emulsifier, solubilizer, moisturizer, emollient, film-former in pharmaceuticals, ophthalmics, topicals; carrier for nutrients in skin care

**Regulatory:** Japan approved; approved for ophthalmics, topicals; USP/NF, BP, EP compliance; Canada DSL

Chemical Component Cross-Reference

†=pharmaceutical grade

http://www.sigma-aldrich.com/belgium
Trade Names: Nofable CO-90; Nofable CO-99

Choleth-24
CAS 27321-96-6 (generic)
Synonyms: PEG-24 cholesteryl ether; POE (24) cholesteryl ether
Definition: PEG ether of cholesterol with avg. ethoxylate value of 24
Properties: HLB 14.0; nonionic
Toxicology: TSCA listed
Uses: Emulsifier, solubilizer, dispersant, thickener for pharmaceuticals, topicalcs, creams and lotions
Regulatory: Approved for topicals
Trade Names Containing: Forlan C-24

Cholic acid, monosodium salt; Cholic acid sodium salt. See Ox bile extract

Choline alfloscerate. See Glycerophosphocholine

Choline bitartrate
CAS 87-67-2
INS1001(v)

Synonyms: Choline hydrogen tartrate; Choline tartrate; Choline, tartrate (1:1) salt;
Ethanaminium, 2-hydroxy-N,N,N-trimethyl-, salt with (R-(R+)-)-2,3-dihydroxybutanedioic acid (1:1);
Ethanaminium, 2-hydroxy-N,N,N-trimethyl-, salt with (R-(R,R))-2,3-dihydroxybutanedioic acid (1:1);
(2-Hydroxyethyl) trimethyl ammonium bitartrate
Empirical: C₉H₁₉NO₇
Formula: (C₅H₁₄NO) • C₄H₅O₆
Properties: Wh. cryst. powd.; odorless or lt. trimethylamine odor; sour acetic taste; sol. in water; sl. sol. in alcohol; insol. in ether, chloroform, benzene; m.w. 253.25; m.p. 151-153 C

Trade Names: Cholesterol HP; Fancol™ CH; Loralan-CH

Cholesteryl alcohol. See Cholesterol

Cholesteryl olate
CAS 303-43-5; EINECS/ELINCS 206-142-1
Classification: Steroid
Empirical: C₄₅H₇₆O₂
Properties: M.w. 651.12; m.p. 44-47 C
Toxicology: TSCA listed
Uses: Surfactant for pharmaceuticals
Regulatory: Canada DSL
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Nantong ChangChem http://www.changchem.com; Sigma

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Choline chlorhydrate. See Choline chloride

Choline chloride
CAS 67-48-1; EINECS/ELINCS 200-655-4
INS1001(iii)

Synonyms: Choline chlorhydrate; Choline hydrochloride; Cholinium chloride; Hepacholine; (2-Hydroxyethyl)trimethylammonium chloride

Empirical: C5H14NO • Cl
Formula: (CH3)3N(Cl)CH2CH2OH

Properties: Colorless to wh. cryst., sl. odor of trimethylamine; sol. in water and alcohol; m.w. 139.65

Toxicology: LD50 (oral, rat) 9 g/kg, (IP, rat) 400 mg/kg, (IV, mouse) 53 mg/kg; poison by IP and IV routes; moderately toxic by ing., subcut. routes; high dosages may cause adverse effects; suspected carcinogen; mutagenic data; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of Cl–, NOx, NH3

HMIS: Health 2, Flammability 1, Reactivity 0
Uses: Dietary source of choline


Choline dihydrogen citrate
CAS 77-91-8

Synonyms: Chothen; Citracholine; (2-Hydroxyethyl)trimethylammonium citrate

Empirical: C11H21NO8
Formula: C5H14NO • C6H7O7

Properties: Gran.; acrid taste; freely sol. in water; very sl. sol. in alcohol; pract. insol. in benzene, chloroform, ether; m.w. 295.29; m.p. 105-107.5 C

Toxicology: LD50 (oral, rat) > 4800 mg/kg; TSCA listed

HMIS: Health 0, Flammability 1, Reactivity 0
Uses: Dietary source of choline


Choline hydrochloride. See Choline chloride

Choline hydrogen tartrate. See Choline bitartrate

D-Choline hydroxide 2,3-dihydroxypropyl hydrogen phosphate inner salt. See Glycerophosphocholine

Choline tartrate; Choline, tartrate (1:1) salt. See Choline bitartrate

Cholinium chloride. See Choline chloride

Cholinphosphoric acid diglyceride ester. See Hydrogenated lecithin

Chondroitin polysulfate. See Chondroitin sulfate
### Chemical Component Cross-Reference

**Chondroitin sulfate**

<table>
<thead>
<tr>
<th>CAS</th>
<th>9007-28-7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synonyms</td>
<td>Chondroitin polysulfate; Chondroitin sulfuric acid; Chondroitin sulfuric acids; Chondrus crispus</td>
</tr>
<tr>
<td>Classification</td>
<td>Mucopolysaccharide</td>
</tr>
<tr>
<td>Definition</td>
<td>Major constituent of the cartilaginous tissue in the body</td>
</tr>
<tr>
<td>Properties</td>
<td>M.w. ≈ 50,000</td>
</tr>
<tr>
<td>Toxicology</td>
<td>LD50 (IV, mouse) 2340 mg/kg; TDLo (oral, rat, 26 wk intermittent) 455 g/kg, (IV, rat, 14 days intermittent) 1680 mg/kg; may cause wt. loss, change in liver wt.; TSCA listed</td>
</tr>
<tr>
<td>Uses</td>
<td>Nutritive additive; antihyperlipoproteinemic; to ease joint pain, inflam. and degenerative damage caused by wearing away of cartilage and connective tissues; to treat osteoarthritis, sports-related trauma; in dermatology, ophthalmology, veterinary applics.</td>
</tr>
</tbody>
</table>

**Trade Names Containing:** Soluble Trachea CS 16 Substance

**Chondroitin sulfuric acid**

**Chondrus. See Carrageenan (Chondrus crispus)**

**Chondrus crispus**

**Chondrus crispus extract; Chondrus extract. See Carrageenan (Chondrus crispus) extract**

**Chonsurid. See Chondroitin sulfate**

**Chothyn. See Choline dihydrogen citrate**

**6-Chromanol, 2,5,7,8-tetramethyl-2-(4,8,12-trimethyl tridecyl). See DL-α-Tocopherol**

**6-Chromanol, 2,5,7,8-tetramethyl-2-(4,8,12-trimethyltridecyl)-, acetate. See dl-α-Tocopheryl acetate**

**2-Chromanone. See Dihydrocoumarin**

**Chromia green. See Chromium oxide (ic)**

**Chromen-2-one. See Coumarin**

**Chromium oxide. See Chromium oxide pigment; Chromia. See Chromium oxide (ic)**

**Chromic acid**

<table>
<thead>
<tr>
<th>CAS</th>
<th>7738-94-5; EINECS/ELINCS 231-801-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synonyms</td>
<td>Chromic (VI) acid</td>
</tr>
<tr>
<td>Definition</td>
<td>Exists only in solution</td>
</tr>
<tr>
<td>Empirical:</td>
<td>H₂CrO₄</td>
</tr>
<tr>
<td>Formula:</td>
<td>CrH₂O₄</td>
</tr>
<tr>
<td>Properties</td>
<td>Dk. purplish-red cryst.; sol. in water, alcohol, min. acids; m.w. 118.02; dens. 1.67-2.82; m.p. 196 C; dec. above 250 C</td>
</tr>
<tr>
<td>Toxicology</td>
<td>ACGIH TLV/TWA 0.05 mg(Cr)/m³; LDLo (subcut., dog) 320 mg/kg; poison by subcut. route; corrosive to skin; skin, eye, and mucous membrane irritant; can cause dermatitis, bronchoasthma, eye damage; human carcinogen; mutagenic data; TSCA listed</td>
</tr>
<tr>
<td>Precaution</td>
<td>Powerful oxidizing agent; may explode on contact with reducing agents; may ignite in contact with org. materials;</td>
</tr>
</tbody>
</table>
Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Definition</th>
<th>Properties</th>
<th>Toxicology</th>
</tr>
</thead>
</table>

Chromium oxide; Chromium (III) oxide; Chromium (III) oxide (2:3); Chromium oxide green; Chromium oxide greens (INCI). See Chromium oxide (ic) Chromium oxide hydrate. See Chromium hydroxide green

Chromium oxide (ic) CAS 1308-38-9; EINECS/ELINCS 215-160-9 Synonyms: Anadonis green; Casalis green; Chrome green; Chrome ocher; Chrome oxide; Chrome oxide green; Chrome oxide pigment; Chromia; Chromic acid green; Chromic oxide; Chromic sesquioxide; Chromium oxide; Chromium (III) oxide; Chromium (III) oxide (2:3); Chromium oxide green; Chromium oxide greens (INCI); Chromium sesquioxide; Chromium (3+) trioxide; CI 77288; Dichromium trioxide; Green chrome oxide; Green chromic oxide;

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Chemical Component Cross-Reference

Green cinnabar; Green rouge; Leaf green; Oxide of chromium; Pigment green 17; Ultramarine green
Classification: Inorganic color
Empirical: \( \text{Cr}_2\text{O}_3 \)
Properties: Ylsh. grn. hard cryst. solid; turns brn. on heating, reverts to grn. on cooling; sl. sol. in acids, alkalis; pract. insol. in water, alcohol, acetone; m.w. 151.99; dens. 5.21; m.p. 2435 C; b.p. 4000 C
Toxicology: ACGIH TLV/TWA 0.5 mg(Cr)/m\(^3\); TDLo (IP, rat) 90 mg/kg; TCLo (inh., rat, 4 h, 6 wks intermittent) 150 mg/m\(^3\); harmful solid; toxic by ing. and inh.; probably severely irritating to eyes, skin, mucous membranes; sensitizer; avoid contact and inh.; confirmed carcinogen; tumorigen; mutagenic data
Precaution: Powerful oxidizer; violent reactions with ClF\(_3\)
Storage: Hygroscopic
Uses: Colorant for external pharmaceuticals, eye use, contact lenses
Regulatory: FDA 21CFR §72.2327, 73.1327, 178.3297; exempt from certification, permanently listed for drug use and medical devices; Canada DSL

†=pharmaceutical grade


Chromium picolate
CAS 14639-25-9
Synonyms: Chromium picolinate; Chromium 2-pyridine-carboxylate; Chromium tripicolinate; 2-Pyridinecarboxylic acid, chromium salt; Tris(picolinato)chromium
Definition: Chromium (III) salt of picolinic acid
Empirical: \( \text{C}_{18}\text{H}_{12}\text{N}_{3}\text{O}_{6}\text{Cr} \)
Formula: \( \text{Cr(C}_6\text{H}_4\text{NO}_2)_3 \)
Properties: Red solid; m.w. 418.33
Storage: Preserve in tightly sealed containers
Uses: Dietary supplement in pharmaceuticals
Features: Lipophilic
Regulatory: NF compliance
Manuf./Distrib.: Sciencelab http://www.scienclab.com

Chromium picolinate; Chromium 2-pyridine-carboxylate. See Chromium picolate
Chromium sesquioxide; Chromium (3+) trioxide. See Chromium oxide (ic)
Chromium tripicolinate. See Chromium picolate
Chromotricha factor. See p-Aminobenzoic acid
Chymosin. See Rennet

CI 10316
CAS 846-70-8; EINECS/ELINCS 212-690-2
Synonyms: Acid yellow 1; 2,4-Dinitro-1-naphthol-7-sulfonic acid disodium salt; Disodium 5,7-dinitro-8-oxidonaphthalene-2-sulfonate; DNNS; Flavican acid sodium salt; 8-Hydroxy-5,7-dinitro-2-naphthalenesulfonic acid disodium salt; Naphthol yellow S
Classification: Nitro color
Empirical: \( \text{C}_{10}\text{H}_4\text{N}_2\text{Na}_2\text{O}_8\text{S} \)
Formula: \( \text{C}_{10}\text{H}_4\text{N}_2\text{Na}_2\text{O}_8\text{S} \cdot 2\text{Na} \)
Properties: Orange-ylsh. powd.; m.w. 358.19; m.p. 0 C
Toxicology: TSCA listed
Precaution: Avoid strong oxidants; wear safety goggles, protective gloves, and full-face respirator
Hazardous Decomp. Prods.: NO\(_x\), CO\(_x\), SO\(_x\), N, irritating and toxic fumes and gases
Uses: Colorant for external pharmaceuticals
Manuf./Distrib.: Aldrich† http://www.sigma-aldrich.com; Fluka http://www.sigma-
Chemical Component Cross-Reference

See also Ext. D&C Yellow No. 7
CI 12075. See D&C Orange No. 17
CI 12085
Synonyms: Red 36
Uses: Colorant for pharmaceuticals
See also 1-[2-Chloro-4-nitrophenyl] azo]-2-naphthalenol; D&C Red No. 36
CI 13058. See D&C Red No. 39
CI 14700
CAS 4548-53-2; EINECS/ELINCS 224-909-9
Synonyms: 3-[2,4-Dimethyl-5-sulfophenyl] azo]-4-hydroxy-1-naphthalenesulfonic acid disodium salt; Disodium 3-[2,4-dimethyl-5-sulfonatophenyl] azo]-4-hydroxynaphthalene-1-sulfonate; Food red 1; Ponceau SX
Classification: Monoazo color
Empirical: C\(_{18}\)H\(_{16}\)N\(_2\)Na\(_2\)O\(_7\)S\(_2\)
Formula: C\(_{18}\)H\(_{16}\)N\(_2\)O\(_7\)S\(_2\) • 2Na
Properties: Solid; insol. in water; m.w. 480.14
Toxicology: Toxic to blood, kidneys, bladder, gastrointestinal tract, glands; repeated or prolonged exposure to the substance can produce target organs damage; TSCA listed
Precaution: May be combustible at high temps.; wear splash goggles, lab coat, and dust respirator
HMIS: Health 2, Flammability 1, Reactivity 0
Uses: Colorant for external pharmaceuticals
Regulatory: Canada DSL
Manuf./Distrib.: Sensient Tech. Colors http://www.triconcolors.com
See also FD&C Red No. 4
CI 15510
CAS 633-96-5; EINECS/ELINCS 211-199-0
Uses: Colorant for external pharmaceuticals
Regulatory: Canada DSL
Manuf./Distrib.: Aldrich† http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
See also Acid orange 7; D&C Orange No. 4
CI 15585. See D&C Red No. 8
CI 15585:1. See D&C Red No. 9
CI 15800:1. See D&C Red No. 31
CI 15850
CAS 5858-81-1; EINECS/ELINCS 227-497-9
Synonyms: Disodium 3-hydroxy-4-[4-methyl-2-sulfonatophenyl] azo]-2-naphthaloate; 3-
†=pharmaceutical grade

Hydroxy-4-[(4-methyl-2-sulfophenyl) azo]-2-naphthalene-carboxylic acid disodium salt; Lithol rubine Na; Pigment red 57
Classification: Monoazo color
Empirical: C\(_{18}\)H\(_{14}\)N\(_2\)Na\(_2\)O\(_6\)S
Formula: C\(_{18}\)H\(_{14}\)N\(_2\)O\(_6\)S • 2Na
Properties: Red powd.; odorless; sol. in water; m.w. 432.38; flash pt. (CC) > 93.3 C
Toxicology: LD\(_{50}\) (oral, rat) 10800 mg/kg; skin irritant; dust may cause eye and respiratory tract irritation; TSCA listed
Precaution: Wear safety glasses, syn. apron, impervious gloves
Hazardous Decomp. Prods.: CO\(_x\), NO\(_x\), SO\(_x\)
HMIS: Health 2, Flammability 1, Reactivity 0
Storage: Keep container tightly closed stored in a cool, well-ventilated area @ ≤ 24 C
Uses: Colorant for pharmaceuticals
Regulatory: Canada DSL
See also D&C Red No. 6
CI 15850:1. See D&C Red No. 7
CI 15880:1. See D&C Red No. 34
CI 15985
CAS 2783-94-0; EINECS/ELINCS 220-491-7
Synonyms: Disodium 6-hydroxy-5-[4-sulfonatophenyl] azo] naphthalene-2-sulfonate; Food yellow 3; 6-Hydroxy-5-[4-sulfophenyl] azo]-2-naphthalenesulfonic acid, disodium salt; Sunset yellow
Classification: Monoazo color
Definition: Disodium salt of 1-p-sulfophenylazo-2-naphthol-6-sulfonic acid
Empirical: C\(_{16}\)H\(_{10}\)N\(_2\)Na\(_2\)O\(_7\)S\(_2\)
Formula: C\(_{16}\)H\(_{10}\)N\(_2\)O\(_7\)S\(_2\) • 2Na
Properties: Reddish-yel. powd., gran.; sol. (oz/gal): 23 oz dist. water, 14 oz glycerin, 2 oz propylene glycol; sol. in conc. sulfuric acid; sl. sol. in abs. alcohol; m.w 452.36
Toxicology: LD\(_{50}\) (IP, rat) 4600 mg/kg; mod. toxic by IP route; may cause allergies, kidney tumors, chromosomal damage; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of NO\(_x\) and SO\(_x\)
HMIS: Health 2, Flammability 1, Reactivity 0
Uses: Colorant for pharmaceuticals
Regulatory: Banned in Norway, Sweden
See also FD&C Yellow No. 6
Chemical Component Cross-Reference

CI 16035
CAS 25956-17-6; EINECS/ELINCS 247-368-0
Synonyms: Curry red; Disodium 6-hydroxy-5-[(2-methoxy-4-sulfonato-m-tolyl) azo] naphthalene-2-sulfonate; FD&C Red No. 40 (INCI); Food red 17; 6-Hydroxy-5-[(2-methoxy-5-methyl-4-sulfophenyl) azo]-2-naphthalenesulfonic acid disodium salt
Classification: Monoazo color
Empirical: C_{18}H_{16}N_{2}O_{8}S_{2}
Formula: C_{18}H_{16}N_{2}O_{8}S_{2} • 2Na
Properties: Ylsh.-red powd., gran.; sol. (oz/gal): 26 oz dist. water, 4 oz glycerin, 2 oz propylene glycol; m.w. 498.46
Toxicology: Experimental reproductive effects; may cause lymph tumors; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of NOx and SOx
Uses: Colorant for pharmaceutical orals, topicals
Features: Exhibits orange-red hue in sol'n.
Regulatory: Banned in EU, Japan, Norway, Sweden, Finland, Austria; FD&C Red. No. 40: FDA 21CFR §74.340, 74.1340 74.2340; FDA approved for orals, topicals; Canada DSL
Manuf./Distrib.: Org. Dyestuffs
http://www.organicdye.com; Rainbow
http://www.rainbowchemicals.com;
Sensient Tech. Colors
http://www.triconcolors.com; Spectra
Colors http://www.spectracolors.com
See also FD&C Red No. 40

CI 16150. See Acid red 26
CI 16185. See Amaranth
CI 16230. See Acid orange 10
CI 16255. See Acid red 18

CI 17200
CAS 3567-66-6; EINECS/ELINCS 222-656-9
Synonyms: Acid red 33; 5-Amino-4-hydroxy-3-(phenylazo)-2,7-naphthalenedisulfonic acid disodium salt; Azo fuchsine; D&C Red No. 33; Disodium 5-amino-4-hydroxy-3-(phenylazo) naphthalene-2,7-disulfonate; Food red 12; 2,7-Naphthalenedisulfonic acid, 4-amino-5-hydroxy-6-phenylazo-, disodium salt; Red 33, disodium salt
Classification: Monoazo color
Empirical: C_{18}H_{16}N_{2}Na_{2}O_{8}S_{2}
Formula: C_{18}H_{16}N_{2}O_{8}S_{2} • 2Na
Properties: M.w. 469.42
Toxicology: Mutagenic data; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits toxic vapors of NOx and SOx
Uses: Colorant for ingested pharmaceuticals

†=pharmaceutical grade

†=pharmaceutical grade

Uses: Colorant for pharmaceuticals
See also D&C Red No. 33

CI 19140
Uses: Colorant for oral and topical pharmaceuticals
Manuf./Distrib.: Aldrich† http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
See also FD&C Yellow No. 5; Tartrazine

CI 20170. See D&C Brown No. 1

CI 26100
Uses: Colorant for external pharmaceuticals
Manuf./Distrib.: Aldrich† http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
See also D&C Red No. 17; Solvent red 23

CI 37240. See N-Phenyl-p-phenylenediamine
CI 37500. See β-Naphthol

CI 40800
CAS 7235-40-7; EINECS/ELINCS 230-636-6
Synonyms: β-Carotene; Food orange 5; Synthetic carotene
Classification: Carotenoid color
Empirical: C_{40}H_{56}
Toxicology: TSCA listed
Uses: Colorant for pharmaceuticals
Regulatory: FDA 21CFR §73.95, 73.1098, 73.2095; Canada DSL
Manuf./Distrib.: Aldrich† http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
NetQem http://www.netqem.us; Sigma http://www.sigma-aldrich.com/belgium
See also Carotene; CI 75130

CI 40850
CAS 514-78-3; EINECS/ELINCS 208-187-2
Synonyms: Canthaxanthin; Canthaxanthine; β,β-Carotene-4,4’-dione; Food orange 8
Classification: Carotenoid color
Empirical: C_{40}H_{52}O_{2}
Properties: Violet cryst.; sol. in chloroform, oils; m.w. 564.86; m.p. 213 C; dec. 217 C
Storage: Photosensitive; keep under argon; dec. easily
Uses: Colorant for ingested pharmaceuticals
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Regulatory: FDA 21 CFR § 73.75, 73.1075; Canada DSL</th>
<th>Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of Br⁻, Cl⁻, and Na₂O</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Manuf./Distrib.: Fluka <a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a></strong></td>
<td><strong>Uses:</strong> Colorant for pharmaceuticals</td>
</tr>
<tr>
<td><strong>See also</strong> Canthaxanthine</td>
<td><strong>Manuf./Distrib.: Aldrich† <a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a></strong></td>
</tr>
<tr>
<td><strong>CI 42053. See FD&amp;C Green No. 3; Fast green FCF</strong></td>
<td><strong>See also</strong> D&amp;C Yellow No. 11</td>
</tr>
<tr>
<td><strong>CI 42090. See FD&amp;C Blue No. 1; Acid blue 9</strong></td>
<td><strong>CI 47005</strong></td>
</tr>
<tr>
<td><strong>CI 42090:2. See FD&amp;C Blue No. 1 Aluminum Lake</strong></td>
<td><strong>CAS 8004-92-0; EINECS/ELINCS 305-897-5</strong></td>
</tr>
<tr>
<td><strong>CI 42555. See Basic violet 3</strong></td>
<td><strong>Synonyms:</strong> Acid yellow 3; 1H-Indene-1,3(2H)-dione, 2-(2-quinolinyl)-, sulfonated, sodium salts; Quinoline yellow</td>
</tr>
<tr>
<td><strong>CI 42640. See Acid violet 49</strong></td>
<td><strong>Definition:</strong> Mixt. of the disodium salt of the mono- and disulfonic acids of 2-(2-quinolinyl)-1H-indene-1,3(2H)-dione</td>
</tr>
<tr>
<td><strong>CI 45170. See Basic violet 10; D&amp;C Red No. 19</strong></td>
<td><strong>Toxicology:</strong> TSCA listed</td>
</tr>
<tr>
<td><strong>CI 45170:1. See D&amp;C Red No. 37</strong></td>
<td><strong>Uses:</strong> Colorant for pharmaceuticals</td>
</tr>
<tr>
<td><strong>CI 45350. See D&amp;C Yellow No. 8; Fluorescein sodium; Fluorescein</strong></td>
<td><strong>Regulatory:</strong> Canada DSL</td>
</tr>
<tr>
<td><strong>CI 45350:1. See D&amp;C Yellow No. 7</strong></td>
<td><strong>See also</strong> D&amp;C Yellow No. 10</td>
</tr>
<tr>
<td><strong>CI 45370:1. See D&amp;C Orange No. 5</strong></td>
<td><strong>CI 59040</strong></td>
</tr>
<tr>
<td><strong>CI 45380. See D&amp;C Red No. 22; Acid red 87</strong></td>
<td><strong>CAS 6358-69-6; EINECS/ELINCS 228-783-6</strong></td>
</tr>
<tr>
<td><strong>CI 45380:2. See D&amp;C Red No. 21</strong></td>
<td><strong>Synonyms:</strong> 8-Hydroxy-1,3,6-pyrenetrisulfonic acid trisodium salt; Pyranine; Solvent green 7; Trisodium 8-hydroxypyrene-1,3,6-trisulfonate</td>
</tr>
<tr>
<td><strong>CI 45410</strong></td>
<td><strong>Classification:</strong> Pyrene color</td>
</tr>
<tr>
<td><strong>CAS 18472-87-2; EINECS/ELINCS 242-355-6</strong></td>
<td><strong>Empirical:</strong> C₁₆H₁₁NO₂</td>
</tr>
<tr>
<td><strong>Synonyms:</strong> Acid red 92; Cynosin; Cynosine; D&amp;C Red No. 28; Eosin blue; Eosine blue; Eosine bluish; Food dye red 104; 2',4',5',7'-Tetrabromo-4,5,6,7-tetrachloro-3',6'-dihydroxyxspiro [isobenzofuran-1(3H),9´-[9H] xanthene]-3-one disodium salt</td>
<td><strong>Properties:</strong> Yel. solid; m.w. 273.29</td>
</tr>
<tr>
<td><strong>Classification:</strong> Xanthene color</td>
<td><strong>Toxicology:</strong> LD50 (dermal, rabbit) &gt;2000 mg/kg; low toxicity by ing.; can cause respiratory tract, skin, and eye irritation; experimental reproductive effects; mutagenic data; TSCA listed</td>
</tr>
<tr>
<td><strong>Empirical:</strong> C₂₀H₂Br₄Cl₄Na₂O₅</td>
<td><strong>Uses:</strong> Colorant for external pharmaceuticals</td>
</tr>
<tr>
<td><strong>Formula:</strong> C₂₀H₂Br₄Cl₄O₅ • 2Na</td>
<td><strong>Regulatory:</strong> Canada DSL</td>
</tr>
<tr>
<td><strong>Properties:</strong> Orange-red cryst. or powd.; sol. in water, ethanol; m.w. 829.64</td>
<td><strong>See also</strong> D&amp;C Yellow No. 7</td>
</tr>
<tr>
<td><strong>Toxicology:</strong> LD50 (IV, mouse) 310 mg/kg; poison by IV route; experimental teratogen, reproductive effects; TSCA listed</td>
<td><strong>See also</strong> Canthaxanthine</td>
</tr>
<tr>
<td><strong>Hazardous Decomp. Prods.:</strong> Heated to decomp., emits acrid smoke and irritating vapor</td>
<td><strong>CI 47005</strong></td>
</tr>
<tr>
<td><strong>HMIS:</strong> Health 2; Flammability 1; Reactivity 0</td>
<td><strong>CAS 8004-92-0; EINECS/ELINCS 305-897-5</strong></td>
</tr>
<tr>
<td><strong>Storage:</strong> Keep container tightly closed stored in a cool, well-ventilated area</td>
<td><strong>Synonyms:</strong> Acid yellow 3; 1H-Indene-1,3(2H)-dione, 2-(2-quinolinyl)-, sulfonated, sodium salts; Quinoline yellow</td>
</tr>
<tr>
<td><strong>Uses:</strong> Colorant for pharmaceuticals</td>
<td><strong>Definition:</strong> Mixt. of the disodium salt of the mono- and disulfonic acids of 2-(2-quinolinyl)-1H-indene-1,3(2H)-dione</td>
</tr>
<tr>
<td><strong>Regulatory:</strong> Canada DSL</td>
<td><strong>Toxicology:</strong> TSCA listed</td>
</tr>
<tr>
<td><strong>See also</strong> D&amp;C Yellow No. 11</td>
<td><strong>Uses:</strong> Colorant for pharmaceuticals</td>
</tr>
<tr>
<td><strong>CI 45440</strong></td>
<td><strong>Regulatory:</strong> Canada DSL</td>
</tr>
<tr>
<td><strong>CAS 8003-22-3; EINECS/ELINCS 232-318-2</strong></td>
<td><strong>See also</strong> D&amp;C Yellow No. 10</td>
</tr>
</tbody>
</table>
Chemical Component Cross-Reference

Uses: Colorant for external pharmaceuticals
Regulatory: Canada DSL
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

See also D&C Green No. 8
CI 59105. See CI vat orange 1

CI 60725
CAS 81-48-1; EINECS/ELINCS 201-353-5
Synonyms: D&C Violet No. 2; N-(4-Hydroxy-1-anthraquinonyl)-4-methylaniline; N-(4-Hydroxy-1-anthraquinonyl)p-toluidine; 1-Hydroxy-4-[4-(4-methylphenyl) amino]-9,10-anthracenedione; 1-Hydroxy-4-(p-toluidino)anthraquinone; Solvent violet 13; N-(p-Tolyl)-4-hydroxy-1-anthraquinonylamine
Classification: Anthraquinone color
Empirical: C_{21}H_{15}NO_{3}
Properties: Cryst.; sol. in conc. H_{2}O; m.w. 329.35
Toxicology: LD_{50} (intratracheal, rat) 250 mg/kg; poison by intratracheal route; mutagenic data; TSCA listed
Hazardous Decomp. Prods.: Heated to decompr., emits toxic fumes of NOx
Uses: Colorant for external pharmaceuticals
Manuf./Distrib.: Sigma http://www.sigma-aldrich.com/belgium

See also D&C Violet No. 2; Disperse blue 72

CI 61565
CAS 128-80-3; EINECS/ELINCS 204-909-5
Synonyms: 9,10-Anthracenedione, 1,4-bis [[4-methylphenyl] amino]-; 1,4-Bis [[4-methylphenyl] amino]-9,10-anthracenedione; 1,4-Bis (p-tolylamino)anthraquinone; Solvent green 3
Classification: Anthraquinone color
Empirical: C_{28}H_{22}N_{2}O_{2}
Properties: Blue to dk. purple solid; sol. in water (1g/100 ml of water); m.w. 466.35
Toxicology: LD_{50} (oral, rat) 2000 mg/kg; intravenous use may produce severe headache, acute pulmonary edema with cardiac arrest, hypertension; TSCA listed
Precaution: Incompatible with nitric acid, chlorates, and other strong oxidizing agents; wear protective gloves, lab coat, and dust respirator
HMIS: Health 2, Flammability 1, Reactivity 0
Storage: Store un tightly closed, light-resistance containers in a cool, well-ventilated area
Uses: Colorant for ingested pharmaceuticals and nylon sutures; diagnostic marker in urology
Chemical Component Cross-Reference

Regulatory: Canada DSL
Manuf./Distrib.: Aldrich† http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
See also Acid blue 74; FD&C Blue No. 2; FD&C Blue No. 2 Aluminum Lake

CI 73360
CAS 2379-74-0; EINECS/ELINCS 219-163-6
Synonyms: 6-Chloro-2-(6-chloro-4-methyl-3-oxobenzo [b] thien-2(3H)-ylidene)-4-methylbenzo [b] thiophen-3(2H)-one; Vat red 1
Classification: Thioindigoid color
Empirical: C18H10Cl2O2S2
Properties: M.w. 393.30
Toxicology: TSCA listed
Uses: Colorant for pharmaceuticals
See also D&C Red No. 30; Vat red 1
CI 74160. See Copper phthalocyanine blue
CI 74260. See Phthalocyanine green
CI 75120. See Annatto (Bixa orellana);
Annatto (Bixa orellana) extract
CI 75125. See Lycopene

CI 75130
CAS 7235-40-7; EINECS/ELINCS 230-636-6
Synonyms: β-Carotene; Natural brown 5; Natural carotenel; Natural yellow 26
Classification: Carotenoid color
Empirical: C40H56
Properties: Orange powd.; characteristic odor; sol. in diethyl ether, acetone, fat solvents, benzene, chloroform, carbon disulfide; very sl. sol. in methanol; insol. in water
Toxicology: Nonirritating to skin; TSCA listed
Precaution: Wear protective gloves, lab coat, and respirator
HMIS: Health 1, Flammability 1, Reactivity 0
Storage: Store in tightly closed containers in a cool, well-ventilated area @≤ 30 C; moisture, air, and light sensitive
Uses: Colorant for pharmaceuticals
See also Carotene; CI 40800
CI 75170. See Guanine
CI 75290. See Logwood (Haematoxylin campechianum) extract
CI 75300. See Turmeric (Curcuma longa)
CI 75480. See Lawsone

CI 75810
CAS 11006-34-1; EINECS/ELINCS 234-242-5
Synonyms: Chlorophyll; Chlorophyllin-copper complex; copper sodium complex; Natural green 3
Definition: Botanically derived color obtained from green plants
Properties: Green to black powd.; sol. in water
Toxicology: Eye and skin irritant; TSCA listed
Precaution: Wear safety glasses and impervious gloves
Hazardous Decomp. Prods.: COx, NOx, SOx, and metal oxide fumes
HMIS: Health 1, Flammability 1, Reactivity 1
Storage: Keep container tightly sealed and store in a cool, dry place away from ignition sources
Uses: Colorant for dentifrices
Use Level: 0.1% max. (dentifrices)
Regulatory: Canada DSL
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
See also Chlorophyll; Chlorophyllin-copper complex

CI 75815. See Chlorophyllin-copper complex
CI 76025. See m-Phenylene diamine
CI 76085. See N-Phenyl-p-phenylenediamine
CI 76500. See Pyrocatechol
CI 76505. See Resorcinol
CI 76515. See Pyrogallol

CI 77000
CAS 7429-90-5; EINECS/ELINCS 231-072-3
Synonyms: Aluminum powder; Pigment metal 1
Classification: Inorganic color
Definition: Consists of finely powdered aluminum
Empirical: Al
Properties: Flakes; sp.gr. 2.55; bulking value 0.047 gal/lb
Toxicology: TSCA listed
Uses: Colorant for external pharmaceuticals
Regulatory: FDA 21CFR §73.1645, 73.2645, 175.105, 175.300, 177.1460; Canada DSL
<table>
<thead>
<tr>
<th>Chemical Component Cross-Reference</th>
<th>†=pharmaceutical grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>†<a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a></td>
<td>CI 77480. See Gold</td>
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<tr>
<td>See also Aluminum</td>
<td>CI 77489 (INCI). See</td>
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<tr>
<td>Cl 77004. See Aluminum silicate;</td>
<td>Ferrous oxide</td>
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<tr>
<td>Kaolin; Bentonite</td>
<td>CI 77491. See</td>
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<tr>
<td>Cl 77019. See Mica; Talc</td>
<td>Iron oxides; Ferric</td>
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<tr>
<td>Cl 77056. See Antimony trichloride</td>
<td>oxide</td>
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<tr>
<td>Cl 77120. See Barium sulfate</td>
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<tr>
<td>Cl 77163</td>
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<td>CAS 7787-59-9; EINECS/ELINCS 232</td>
<td>Synonyms: Hydrated</td>
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<tr>
<td>122-7</td>
<td>ferric oxide; Iron</td>
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<tr>
<td>Synonyms: Bismuth chloride oxide;</td>
<td>hydroxide oxide; Iron</td>
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<tr>
<td>Bismuth oxchloride; Chloroocobismuthine; Pigment white 14</td>
<td>oxides; Pigment brown 6;</td>
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<tr>
<td>Classification: Inorganic color</td>
<td>Pigment brown 7; Pigment yellow 42; Pigment yellow 43</td>
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<td>Empirical: BiClO</td>
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<td>Formula: BiOCl</td>
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<td>Toxicology: TSCA listed</td>
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<td>Uses: Colorant for external</td>
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<tr>
<td>pharmaceuticals</td>
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<td>Regulatory: Canada DSL</td>
<td></td>
</tr>
<tr>
<td>Manuf./Distrib.: Aldrich</td>
<td></td>
</tr>
<tr>
<td>†<a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a></td>
<td></td>
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<tr>
<td>Trade Names Containing: Unicerin C-30</td>
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<td>See also Bismuth oxchloride</td>
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<tr>
<td>Cl 77180. See Cadmium</td>
<td></td>
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<tr>
<td>Cl 77220. See Calcium carbonate</td>
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<tr>
<td>Cl 77231. See Calcium sulfate</td>
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<tr>
<td>dihydrate</td>
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<tr>
<td>Cl 77265. See Carbon, activated</td>
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<tr>
<td>Cl 77288</td>
<td>Uses: Colorant for</td>
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<tr>
<td>Uses: Colorant for external</td>
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<td>pharmaceuticals</td>
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<tr>
<td>See also Chromium oxide (ic)</td>
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<td>Cl 77289</td>
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<td>CAS 12001-99-9</td>
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<td>Uses: Colorant for external</td>
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<td>Regulatory: Canada DSL</td>
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<tr>
<td>See also Chromium hydroxide green</td>
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<td>Cl 77343. See Chromium-cobalt-aluminum oxide</td>
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<tr>
<td>Cl 77400</td>
<td>Uses: Colorant for</td>
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<tr>
<td>CAS 7440-50-8; EINECS/ELINCS 231</td>
<td>external pharmaceuticals</td>
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<tr>
<td>159-6</td>
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<tr>
<td>Synonyms: Bronze powder; Copper</td>
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<td>powder</td>
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<td>Powder</td>
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<tr>
<td>Pigment brown 11</td>
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<tr>
<td>Pigment brown 6</td>
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<td>Pigment black 11</td>
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<tr>
<td>Pigment yellow 42</td>
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<tr>
<td>Pigment yellow 43</td>
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<tr>
<td>Classification: Inorganic color</td>
<td></td>
</tr>
<tr>
<td>Definition: Consists chiefly of</td>
<td></td>
</tr>
<tr>
<td>hydrated ferrous oxide</td>
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</tr>
<tr>
<td>Empirical: FeHO₂ • nH₂O</td>
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</tr>
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<td>Uses: Colorant for ingested</td>
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<td>Use Level: 5 mg/day as Fe (ingested</td>
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<tr>
<td>pharmaceuticals)</td>
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<tr>
<td>Manuf./Distrib.: Aldrich</td>
<td></td>
</tr>
<tr>
<td>†<a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a></td>
<td></td>
</tr>
<tr>
<td>See also Iron oxide black; Iron</td>
<td></td>
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<tr>
<td>oxides</td>
<td></td>
</tr>
<tr>
<td>Cl 77510</td>
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<tr>
<td>CAS 14038-43-8; EINECS/ELINCS 237</td>
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<td>875-5</td>
<td>Synonyms: Ferric</td>
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<tr>
<td>Synonyms: Ferric ferrocyanide;</td>
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<tr>
<td>Ferric hexacyanoferrate (II):</td>
<td></td>
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<tr>
<td>Ferrihexacyanoferrate; Ferrocin;</td>
<td></td>
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<tr>
<td>Iron blue; Iron cyanide; Iron (III) ferrocyanide; Iron (3+) ferrocyanide; Iron (III) hexacyanoferrate (4); Pigment blue 27; Prussian blue; Tetrairon tris (hexacyanoferrate)</td>
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<tr>
<td>Classification: Inorganic color</td>
<td></td>
</tr>
<tr>
<td>Empirical: C₁₈Fe₃N₁₆ • 4Fe</td>
<td></td>
</tr>
<tr>
<td>Formula: Fe₄[Fe(CN)₆]₃</td>
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<tr>
<td>Chemical Component Cross-Reference</td>
<td>†=pharmaceutical grade</td>
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<tr>
<td>----------------------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Properties:</strong> M.w. 859.31</td>
<td>aldrich.com; Fluka <a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a>; Sigma <a href="http://www.sigma-aldrich.com/belgium">http://www.sigma-aldrich.com/belgium</a></td>
</tr>
<tr>
<td><strong>Toxicology:</strong> ACGIH TLV/CL 5 mg(CN)/m³ (skin); LD50 (IP, rat) 2100 mg/kg; poison by intratracheal route; mod. toxic by IP route; TSCA listed</td>
<td>See also Zinc oxide</td>
</tr>
<tr>
<td><strong>Hazardous Decomp. Prods.:</strong> Heated to decomp., emits toxic fumes of NOₓ and CN⁻</td>
<td>CI 77950. See Zinc carbonate</td>
</tr>
<tr>
<td><strong>Uses:</strong> Colorant for external pharmaceuticals</td>
<td>CI 42090 (ammonium salt). See D&amp;C Blue No. 4</td>
</tr>
<tr>
<td><strong>Regulatory:</strong> Canada DSL</td>
<td>CI clazoic coupling component 1. See β-Naphthol</td>
</tr>
<tr>
<td><strong>Manuf./Distrib.:</strong> Aldrich [<a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a>]</td>
<td>CI basic blue 9, trihydrate. See Methylene blue trihydrate</td>
</tr>
<tr>
<td><strong>See also</strong> Ferric ferrocyanide</td>
<td>Cichorium intybus. See Chicory (Cichorium intybus) extract</td>
</tr>
<tr>
<td>CI 77520. See Ferric ammonium ferrocyanide; Ferric ferrocyanide</td>
<td>CI natural orange 4. See Annatto (Bixa orellana)</td>
</tr>
<tr>
<td>CI 77575. See Lead</td>
<td>CI Natural red 4. See Carminic acid</td>
</tr>
<tr>
<td>CI 77711. See Silica, fumed</td>
<td>Cincholepidine. See Lepidine</td>
</tr>
<tr>
<td>CI 77713. See Magnesium carbonate</td>
<td>Cinchona; Cinchona bark, red, extract; Cinchona extract. See Cinchona succirubra extract</td>
</tr>
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<td>CI 77718. See Talc</td>
<td>Cinchona succirubra extract</td>
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<tr>
<td>CI 77755. See Potassium permanganate</td>
<td>CAS 84776-28-3; 84929-25-9; 977038-61-1; EINECS/ELINCS 283-953-7</td>
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<td>CI 77760. See Mercury oxide (ic), red</td>
<td>FEMA 2282</td>
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<tr>
<td>CI 77820. See Silver</td>
<td><strong>Synonyms:</strong> Cinchona; Cinchona bark, red, extract; Cinchona extract; Peruvian bark extract; Red cinchona bark extract</td>
</tr>
<tr>
<td>CI 77864. See Stannous chloride anhydrous</td>
<td><strong>Definition:</strong> Extract of the bark of the cinchona, Cinchona succirubra</td>
</tr>
<tr>
<td>CI 77891. See Titanium dioxide</td>
<td><strong>Properties:</strong> Bitter tonic</td>
</tr>
<tr>
<td>CI 77945. See Zinc</td>
<td><strong>Uses:</strong> Natural flavor for pharmaceuticals</td>
</tr>
<tr>
<td>CI 77947</td>
<td><strong>Regulatory:</strong> FDA 21CFR §172.510; FEMA GRAS</td>
</tr>
<tr>
<td><strong>Synonyms:</strong> Pigment white 4; Zinc oxide</td>
<td>Cinene. See d-Limonene; dl-Limonene</td>
</tr>
<tr>
<td><strong>Classification:</strong> Inorganic color</td>
<td>Cineol; 1,8-Cineol; Cineole. See Eucalyptol</td>
</tr>
<tr>
<td><strong>Empirical:</strong> OZn</td>
<td>1,4-Cineole</td>
</tr>
<tr>
<td><strong>Formula:</strong> ZnO</td>
<td>CAS 470-67-7; EINECS/ELINCS 207-428-9</td>
</tr>
<tr>
<td><strong>Properties:</strong> Wh. to gray powd. or crystals, odorless, bitter taste; sol. in dilute acetic or min. acids, alkalis; insol. in water, alcohol; m.w. 81.38; dens. 5.67; m.p. 1975 C; ref. index 2.0041-2.0203; pH 6.95 (Amer. process), 7.37 (French process)</td>
<td>FEMA 3658</td>
</tr>
<tr>
<td><strong>Toxicology:</strong> TLV/TWA 5 mg/m³; LD50 (IP, rat) 240 mg/kg; poison by IP route; fumes may cause metal fume fever with chills, fever, tightness in chest, cough, leukocytes; experimental teratogen; mutagenic data; skin/eye irritant; TSCA listed</td>
<td><strong>Synonyms:</strong> 1,4-Epoxy-p-menthane; Isocineole; p-Menthane, 1,4-epoxy-; 1-Methyl-4-(1-methylethyl)-7-oxabicyclo [2.2.1] heptane: 7-Oxabicyclo (2.2.1) heptane, 1-methyl-4-(1-methylethyl)-</td>
</tr>
<tr>
<td><strong>Hazardous Decomp. Prods.:</strong> Heated to decomp., emits toxic fumes of ZnO</td>
<td><strong>Empirical:</strong> C₁₀H₁₈O</td>
</tr>
<tr>
<td><strong>Uses:</strong> Colorant for external pharmaceuticals</td>
<td><strong>Properties:</strong> Colorless liq., camphoraceous odor, spicy flavor; sol. in alcohol; insol. in water; m.w. 154.25; dens. 0.887; m.p. -46 C; b.p. 65</td>
</tr>
<tr>
<td><strong>Regulatory:</strong> Canada DSL</td>
<td><strong>See also</strong> Cinchona bark, red, extract; Peruvian bark extract; Red cinchona bark extract</td>
</tr>
<tr>
<td><strong>Manuf./Distrib.:</strong> Aldrich [<a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a>]</td>
<td><strong>Definition:</strong> Extract of the bark of the cinchona, Cinchona succirubra</td>
</tr>
</tbody>
</table>

**Handbook of Pharmaceutical Additives, Third Edition** 1117
Chemical Component Cross-Reference

Cinnamal

CAS 104-55-2; 14371-10-9; EINECS/ELINCS 203-213-9
FEMA 2286

Synonyms: Benzylideneacetaldehyde; Cassia aldehyde; Cinnamaldehyde; Cinnamic aldehyde; Cinnamyl alcohol; Phenylacrolein; 3-Phenylpropenal; 3-Phenyl-2-propenal; 2-Propenal, 3-phenyl-

Classification: Aromatic aldehyde

Definition: A syn. liq. with strong cinnamon odor isolated from a wood-rotting fungus; found in Ceylon and Chinese cinnamon oils

Empirical: C_{9}H_{8}O

Formula: C_{9}H_{8}O-CHO

Properties: Ylsh. oily liq., strong cinnamon odor, burning aromatic taste; misc. with oxygenated and chlorinated solvs., alcohol, ether, chloroform, fixed oils; very sl. sol. in water; m.w. 132.16; dens. 1.048-1.052; m.p. -7.5 C; b.p. 246 C; flash pt. 248 F; ref. index 1.619-1.623 (20 C); thickens on exposure to air

Toxicology: LD_{50} (oral, rat) 2220 mg/kg, (IP, mouse) 200 mg/kg, (IV, mouse) 75 mg/kg; poison by IV and parenteral routes; mod. toxic by ing. and IP routes; severe human skin irritant; one of the most common allergens; mutagenic data; TSCA listed

Precaution: Combustible liq.; may ignite after delay in contact with NaOH; volatile with steam; incompat. with strong oxidizers, reducers

Hazardous Decomp. Prods.: Heated to decomp., emits CO, CO_{2}, acrid smoke and fumes

HMIS: Health 1, Flammability 2, Reactivity 0

Storage: 6 mos. when stored at 40 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air

Uses: Synthetic flavor for pharmaceuticals, orals, mouthwashes, and toothpaste; topical sunscreens; ointments

Features: Cinnamon-, vanilla-like flavor

Regulatory: FDA 21 CFR §172.60; GRAS; Japan approved as flavoring; FDA approved for orals; Canada DSL; Australia AICS


†=pharmaceutical grade

Cinnaamaldehyde See Cinnamal

Cinnamaldehyde ethylene glycol acetal

CAS 5660-60-6; EINECS/ELINCS 227-110-3
FEMA 2287

Synonyms: Cinnamic aldehyde ethylene
Cinnamaldehyde ethylene glycol acetal  
Cinnamic acid-1,5-dimethyl-1-vinyl-4-hexenyl ester; Cinnamic acid-1,5-dimethyl-1-vinyl-4-hexen-1-yl ester. See Linalyl cinnamate

Cinnamic acid, cyclohexyl ester. See Cyclohexyl cinnamate

Cinnamic acid, 3-phenylpropyl ester. See 3-Phenylpropyl cinnamate

Cinnamic acid propyl ester. See Propyl cinnamate

Cinnamic acid propyl ester. See Propyl cinnamate

Cinnamic alcohol. See Cinnamyl alcohol

Cinnamic aldehyde. See Cinnamal

Cinnamic aldehyde ethylene glycol acetal. See Cinnamic acid ethylene glycol acetal

Cinnamomum camphora. See Camphor

Cinnamomum camphora oil. See Camphor (Cinnamomum camphora) oil

† = pharmaceutical grade
### Cinnamomum cassia; Cinnamomum cassia oil

See **Cinnamon (Cinnamomum cassia) oil**

### Cinnamomum zeylanicum; Cinnamomum zeylanicum extract

See **Cinnamon (Cinnamomum zeylanicum) extract**

### Cinnamon

See **Cinnamon (Cinnamomum cassia)**

### Cinnamon bark extract

See **Cinnamon (Cinnamomum zeylanicum) extract**

### Cinnamon bark oil

See **Cinnamon (Cinnamomum cassia) oil**

### Cinnamon, Chinese

See **Cinnamon (Cinnamomum cassia)**

### Cinnamon (Cinnamomum cassia)

FEMA 2256

**Synonyms:** Cassia; Chinese cinnamon; Cinnamomum cassia; Cinnamon; Cinnamon, Chinese

**Definition:** Plant material derived from dried bark of *Cinnamomum cassia*

**Uses:** Natural flavor for pharmaceuticals


### Cinnamon (Cinnamomum cassia) oil

CAS 8007-80-5

FEMA 2258

**Synonyms:** Artificial cinnamon oil; Cassia bark oil; Cassia oil; Chinese cinnamon oil; Cinnamomum cassia; Cinnamomum cassia oil; Cinnamon bark oil; Cinnamon oil; Saigon cinnamon

**Definition:** Volatile oil distilled from the leaves and twigs of *Cinnamomum cassia*, contg. 80-90% cinnamaldehyde, plus cinnamyl acetate, eugenol

**Properties:** Ylsh. to brnsh. liq., cinnamon odor, spicy burning taste; darkens and thickens on exposure to air; sol. in alcohol, fixed oils, propylene glycol; sl. sol. in water; insol. in glycerin, min. oil; dens. 1.045-1.063; ref. index 1.6020-1.6060 (20 C)

**Toxicology:** LD50 (oral, rat) 2800 mg/kg, (IP, mouse) 500 mg/kg, (skin, rabbit) 320 mg/kg; poison by skin contact; mod. toxic by ing., IP routes; primary irritant; human skin irritant; may cause respiratory stimulation; acute pulmonary edema; suspected weak carcinogen; mutagenic data; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**HMIS:** Health 1, Flammability 1, Reactivity 0

**Storage:** Keep cool, well closed; protect from light

**Uses:** Natural flavor for pharmaceuticals, orals, dentifrices, mouthwashes; mild anesthetic in dentistry; carminative; aromatic; astringent; stimulant

Cinnamon (Cinnamomum zeylanicum) extract
CAS 84649-98-9; 8015-91-6; EINECS/ELINCS 283-479-0
FEMA 2290
Synonyms: Cinnamomum zeylanicum; Cinnamomum zeylanicum extract; Cinnamon bark extract; Cinnamon, crude extract; Cinnamon extract
Definition: Extract of the dried bark of the cinnamon, Cinnamomum zeylanicum
Properties: Yel. liq.; char., sweet-spicy, burning, strong odor; essentially insol. in water; dens. 1.010-1.030; flash pt. ≈ 88 C; ref. index 1.534-1.591
Toxicology: LD50 (IP, mouse) 4980 mg/kg; may cause convulsions, ataxia, respiratory stimulation
Uses: Natural flavor for pharmaceuticals
Regulatory: FEMA 182.20, 582.20, GRAS
Trade Names Containing: Sepicontrol A5

Cinnamon (Cinnamomum zeylanicum) leaf oil
CAS 8015-91-6; EINECS/ELINCS 283-479-0
FEMA 2292
Synonyms: Ceylon cinnamon leaf oil; Chinese cinnamon leaf oil; Cinnamon leaf oil; Cinnamon leaf oil, Ceylon; Cinnamon leaf oil, Seychelles; Saigon cinnamon leaf oil; Seychelles cinnamon leaf oil
Definition: Oil obtained by steam distillation of leaves from Cinnamomum zeylanicum
Properties: Lt. to dk. brn. liq., spicy cinnamon, clove odor and taste; sol. in oxygenated solvs., fixed oils, propylene glycol, min. oil; insol. in glycerin, water; dens. 1.05 kg/l (20 C); flash pt. 194 F
Toxicology: May irritate eyes, skin
Precaution: wear oil/solv. resistant gloves, chemical splash goggles or face shield
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Storage: Store in full, sealed containers in cool, dry place away from sources of ignition, heat, direct sunlight
Uses: Natural flavor for pharmaceuticals
Use Level: 0.1% max. in finished cosmetics
Regulatory: FDA 21CFR §182.20, 582.20, GRAS; FEMA GRAS
Manuf./Distrib.: AMC Chems.; Buckton Page

Cinnamon, crude extract; Cinnamon extract.

See Cinnamon (Cinnamomum zeylanicum) extract

Cinnamon leaf oil; Cinnamon leaf oil, Ceylon; Cinnamon leaf oil, Seychelles. See Cinnamon (Cinnamomum zeylanicum) leaf oil

Cinnamon oil. See Cinnamon (Cinnamomum cassia) oil

Cinnamyl acetate
CAS 103-54-8; EINECS/ELINCS 203-121-9
FEMA 2293
Synonyms: Acetic acid, cinnamyl ester; Cinnamic acid; 3-Phenylallyl acetate; γ-Phenylallyl acetate; 2-Phenyl-2-propan-1-ol acetate; 3-Phenyl-2-propan-1-y1 acetate
Definition: Ester of cinnamyl alcohol and acetic acid
Empirical: C11H12O2
Properties: Colorless liq., sweet floral odor; misc. with chloroform, ether, fixed oils; insol. in glycerin, water @ 264 C; m.w. 176.23; dens. 1.047-1.051; b.p. 265 C; flash pt. 244 F; ref. index 1.539-1.543
Toxicology: LD50 (oral, rat) 3300 mg/kg, (IP, mouse) 1200 mg/kg; mod. toxic by ingestion and IP routes; skin irritant; TSCA listed
Precaution: Combustible liq.
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Japan approved as flavoring; Canada DSL
Cinnamyl alcohol

CAS 104-54-1; EINECS/ELINCS 203-212-3
FEMA 2294

Synonyms: Cinnamic alcohol; 3-Phenylallyl alcohol; γ-Phenylallyl alcohol; 3-Phenyl-2-propenol; 3-Phenyl-2-propen-1-ol; Styrene; Styrly alcohol; Styryl carbinol

Classification: Organic compd.

Empirical: C9H10O

Properties: Wh. to ylsh. needles or cryst. mass, hyacinth odor; sol. in water, glycerol, propylene glycol, alcohol, ether, other common org. solvs.; m.w. 134.19; dens. 1.0397 (35/35 C); vapor dens. 4.6; m.p. 33 C; b.p. 250 C; flash pt. > 100 C; ref. index 1.58190

Toxicology: LD50 (oral, rat) 2000 mg/kg; mod. toxic by ing.; skin irritant; can cause allergic reaction; mutagenic data; TSCA listed

Environmental: Do not discharge into lakes, streams, ponds, public waters

Precaution: Wear safety glasses or goggles, rubber gloves, apron, incomapt. with strong oxidizers, reducers

Hazardous Decomp. Prods.: CO, CO2; heated to decomp., emits acid smoke and fumes

Storage: 6 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air

Uses: Flavor and fragrance for pharmaceuticals, deodorants

Features: Balsamic, sweetly floral fragrance and flavor

Use Level: 0.8% max. in finished cosmetics

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Japan approved as flavoring; Canada DSL

Manuf./Distrib.: Advanced BioTech
http://www.adv-bio.com; Augustus Oils Ltd
http://www.basf.com; Degussa AG/Health & Nutrition

Cinnamyl alcohol anthranilate. See Cinnamyl anthranilate

Cinnamyl alcohol, cinnamate. See Cinnamyl cinnamate

Cinnamyl alcohol, formate. See Cinnamyl formate

Cinnamyl alcohol, α-pentyl, acetate. See α- Amyliccinnamyl acetate

Cinnamyl aldehyde. See Cinnamal

Cinnamyl-2-aminobenzoate; Cinnamyl-o-aminobenzoate. See Cinnamyl anthranilate

Cinnamyl anthranilate

CAS 87-29-6
FEMA 2295

Synonyms: 2-Aminobenzoic acid-3-phenyl-2-propenyl ester; Anthranilic acid cinnamyl ester; Cinnamyl alcohol anthranilate; Cinnamyl-2-aminobenzoate; Cinnamyl-o-aminobenzoate; 3-Phenyl-2-propenylanilinate; 3-Phenyl-2-propen-1-yl anthranilate

Empirical: C16H15NO2

Properties: Reddish yel. powd., balsamic odor; sol. in alcohol, chloroform, ether; insol. in water; m.w. 253.32; dens. 1.180 (15.5 C); m.p. 60 C; b.p. 332 C; flash pt. > 100 C

Toxicology: LD50 (oral, rat) 5000 mg/kg; (skin, rabbit) 5000 mg/kg; suspected carcinogen; experimental neoplastigen; mutation data; TSCA listed

Precaution: Combustible liq.

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx
Cinnamyl butyrate

CAS 103-61-7; EINECS/ELINCS 203-128-7
FEMA 2296

Synonyms: Butyanoic acid, 3-phenyl-2-propenyl ester; Butyric acid, cinnamyl ester; 3-Phenylallyl butanoate; 3-Phenyl-2-propenyl butanoate; Phenyl propenyl-n-butyrate

Empirical: C13H16O2

Properties: Colorless to ylsh. liq.; fruity sl. floral odor, honey-like taste; insol. in water; m.w. 204.27; dens. 1.010-1.015 (25/25 C); b.p. 300 C; flash pt. > 100 C

Toxicology: Primary skin irritant; TSCA listed

Uses: Synthetic flavor for pharmaceuticals
Features: Fruity flavor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL


Cinnamyl cinnamate

CAS 122-69-0; EINECS/ELINCS 204-566-1
FEMA 2298

Synonyms: Cinnamic acid cinnamyl ester; Cinnamyl alcohol, cinnamate; Cinnyl cinnamate; Phenylallyl cinnamate; 3-Phenyl-2-propenoic acid 3-phenyl-2-propenyl ester; 3-Phenyl-2-propen-1-yl cinnamate; 3-Phenyl-2-propenyl 3-phenyl-2-propenoate; 2-Propenoic acid, 3-phenyl-3-phenyl-2-propenyl ester; Styracin

Empirical: C18H16O2

Formula: C6H5CH=CHCOOCH2CH=CHC6H5

Properties: Cryst.; sweet resinous odor; sol. in alcohol, benzene; m.w. 264.31; dens. 1.1565 (4 C); trans-trans: needles; pract. insol. in water; sol. 1 g/3 ml ether; m.p. 44 C

Toxicology: LD50 (oral, rat) 2900 mg/kg; mod. toxic by ingestion; TSCA listed

Precaution: Combustible liq.

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: Degussa AG/Health & Nutrition; SAFC Specialties http://www.safcspecialties.com

Cinnamyl formate

CAS 104-65-4; EINECS/ELINCS 203-223-3
FEMA 2299

Synonyms: Cinnamyl alcohol, formate; Cinnamyl methanoate; Formic acid, cinnamyl ester; 3-Phenylallyl methanoate; 3-Phenyl-2-propen-1-yl formate

Empirical: C10H10O2

Properties: Colorless to ylsh. liq.; balsamic fruity-floral odor; sol. in most org. solvs.; insol. in water; m.w. 162.19; dens. 1.080; b.p. 250-254 C; flash pt. > 230 F; ref. index 1.5500-1.5560 (20 C)

Toxicology: LD50 (oral, rat) 2900 mg/kg; mod. toxic by ingestion; TSCA listed

Precaution: Combustible liq.

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: Degussa AG/Health & Nutrition; SAFC Specialties http://www.safcspecialties.com

Cinnamyl isobutyrate

CAS 103-59-3; EINECS/ELINCS 203-126-6
FEMA 2297

Synonyms: Isobutyric acid, cinnamyl ester; 2-Methylpropanoic acid, 3-phenyl-2-propenyl ester; 3-Phenylallyl 2-methylpropanoate; 3-Phenyl-2-propenyl 2-methylpropanoate

Classification: Aromatic ester

Empirical: C13H16O2
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS Number</th>
<th>Synonyms</th>
<th>Properties</th>
<th>Toxicology</th>
<th>Precaution</th>
<th>Uses</th>
<th>Regulatory</th>
<th>Manuf./Distrib.</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cinnamyl isovalerate</td>
<td>140-27-2</td>
<td>Butanoic acid, 3-methyl-, 3-phenyl-2-propenyl ester; Cinnamyl 3-methyl butyrate; Isovaleric acid, cinnamyl ester; 3-Methylbutanoic acid 3-phenyl-2-propenyl ester; 3-Phenylallyl isovalerate; 3-Phenylallyl 3-methylbutanoate; 3-Phenyl-2-propenyl 3-methylbutanoate</td>
<td>Colorless to ylsh. liq., sweet balsamic fruity odor; insol. in water; m.w. 204.27; dens. 1.01; vapor dens. 7; b.p. 254 C; flash pt. &gt; 230 F; ref. index 1.5230-1.5280 (20 C)</td>
<td>LD50 (oral, rat) &gt; 5 g/kg, (skin, rabbit) &gt; 5 g/kg; low toxicity by ing. and skin contact; skin irritant; TSCA listed</td>
<td>Incompat. with strong oxidizers</td>
<td>Synthetic flavor for pharmaceuticals</td>
<td>FDA 21CFR §172.515; FEMA GRAS; Canada DSL</td>
<td>Advanced Synthesis Tech. <a href="http://www.advancedsynthesis.com">http://www.advancedsynthesis.com</a>; Degussa AG/Health &amp; Nutrition <a href="http://www.degussa.com/healthnutrition">http://www.degussa.com/healthnutrition</a>; Eramex Aromatics <a href="http://www.eramex.de">http://www.eramex.de</a>; Fleurchem <a href="http://www.fleurchem.com">http://www.fleurchem.com</a>; Lluch Essence <a href="http://www.lluch-essence.com">http://www.lluch-essence.com</a>; Oxford Chems. Ltd <a href="http://www.oxfordchemicals.com">http://www.oxfordchemicals.com</a>; R.C. Treatt &amp; Co. Ltd <a href="http://www.rctreatt.com">http://www.rctreatt.com</a>; SAFC Specialties <a href="http://www.safcspecialties.com">http://www.safcspecialties.com</a></td>
<td>Sweet, fruity flavor</td>
</tr>
<tr>
<td>Cinnamyl methanoate</td>
<td>See Cinnamyl formate</td>
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<tr>
<td>Cinnamyl 3-methyl butyrate</td>
<td>See Cinnamyl isovalerate</td>
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<tr>
<td>Cinnamyl methyl ketone</td>
<td>See Benzylidene acetone</td>
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<tr>
<td>Cinnamyl phenylacetate</td>
<td>CAS 7492-65-1; EINECS/ELINCS 231-322-1</td>
<td>Cinnamyl α-toluate; 3-Phenylallyl phenylacetate; 3-Phenyl-2-propenyl benzeneacetate</td>
<td>Colorless liq., honey-like flavor; sol. in alcohol; insol. in water; m.w. 252.32; dens. 1.09; b.p. 333-335 C</td>
<td></td>
<td></td>
<td>Synthetic flavor for pharmaceuticals</td>
<td>FDA 21CFR §172.515; FEMA GRAS; Canada DSL</td>
<td>Advanced Synthesis Tech. <a href="http://www.advancedsynthesis.com">http://www.advancedsynthesis.com</a>; Degussa AG/Health &amp; Nutrition</td>
<td></td>
</tr>
<tr>
<td>Cinnamyl propionate</td>
<td>CAS 103-56-0; EINECS/ELINCS 203-124-5</td>
<td>3-Phenylallyl propionate; γ-Phenylallyl propionate; 3-Phenyl-2-propenyl propanoate; 3-Phenyl-2-propen-1-yl propionate; Propionic acid, cinnamyl ester</td>
<td>Colorless to ylsh. liq., spicy fruity odor; misc. with alcohol, ether, chloroform, most oils; insol. in water, glycerin, propylene glycol; m.w. 218.29; sp.gr. 0.992-0.996; vapor dens. 7.5; b.p. 313 C; flash pt. &gt; 100 C; ref. index 1.518-1.524</td>
<td>LD50 (oral, rat) 5 g/kg, (skin, rabbit) &gt; 5 g/kg; low toxicity by ing. and skin contact; TSCA listed</td>
<td>Combustible liq.; incompat. with strong oxidizers</td>
<td>Synthetic flavor for pharmaceuticals</td>
<td>FDA 21CFR §172.515; FEMA GRAS; Canada DSL</td>
<td>Advanced Synthesis Tech. <a href="http://www.advancedsynthesis.com">http://www.advancedsynthesis.com</a>; Degussa AG/Health &amp; Nutrition</td>
<td></td>
</tr>
</tbody>
</table>
Chemical Component Cross-Reference

†=pharmaceutical grade

Cistus absolute; Cistus absolute decol;
Cistus essential oil; Cistus labdaniferus.

See Labdanum (Cistus labdaniferus)

CIT. See Methylchloroisothiazolinone

Citral. See Choline dihydrogen citrate

Cinnamyl α-toluate. See Cinnamyl phenylacetate

Cinncloval. See Cinnamaldehyde ethylene glycol acetal

Cinnyl cinnamate. See Cinnamyl cinnamate

CI pigment white 25. See Calcium sulfate dihydrate

C13-14 isooalkanes. See C13-14 isoparaffin

Cl 45425 (sodium salt). See D&C Orange No. 11

C13-14 isoparaffin

CAS 64742-48-9 (generic)

Synonyms: Alkanes, C13-14-isoo-; Alkanes, iso-, C13-14; C13-14 isoalkanes; isoalkanes, C13-14

Definition: Mixt. of branched chain aliphatic hydrocarbons with 13-14 carbons in the alkyl chain

Environmental: Minimizes VOC

Uses: Solvent for antibiotic gels, antiperspirants

Regulatory: FDA 21CFR §172.882, 173.340; virtually HAPs-free

Trade Names Containing: Sepigel™ 305

odor; misc. with alcohol, chloroform, ether, most oils; insol. in water, glycerin, propylene glycol; m.w. 190.24; dens. 1.0370-1.0410 (15 C); b.p. 289 C; flash pt. > 100 C; ref. index 1.5180-1.5240 (20 C)

Toxicology: LD50 (oral, rat) 3400 mg/kg, (skin, rabbit) > 5 g/kg. mod. toxic by ing.; primary skin irritant; TSCA listed

Precaution: Combustible liq.

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals

Features: Fruity flavor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL


Cinnamyl phenylacetate

Cinncloval. See Cinnamaldehyde ethylene glycol acetal

Cinnyl cinnamate. See Cinnamyl cinnamate

C13-14 isoalkanes. See C13-14 isoparaffin

C13-14 isoparaffin

CAS 64742-48-9 (generic)

Synonyms: Alkanes, C13-14-isoo-; Alkanes, iso-, C13-14; C13-14 isoalkanes; isoalkanes, C13-14

Definition: Mixt. of branched chain aliphatic hydrocarbons with 13-14 carbons in the alkyl chain

Environmental: Minimizes VOC

Uses: Solvent for antibiotic gels, antiperspirants

Regulatory: FDA 21CFR §172.882, 173.340; virtually HAPs-free

Trade Names Containing: Sepigel™ 305
### Chemical Component Cross-Reference

| De Monchy Aromatics                      | http://www.demonchyaromatics.com; |
| Doingcom                                 | http://www.doingcom.com;           |
| Eramex Aromatics                         | http://www.eramex.de;              |
| F.D. Copeland                            | http://www.copelandoil.co.uk       |
| Fleurchem                                | http://www.fleurchem.com;          |
| Fluka                                    | http://www.sigma-aldrich.com;      |
| Fuerst Day Lawson                        | http://www.fdl.co.uk;              |
| George Uhe                               | http://www.uhe.com                 |
| Givaudan Fragrances                       | http://www.givaudan.com;           |
| Hunan Xinyu                              | http://www.hunanxinyu.com;         |
| J.H. Calo                                | http://www.jhcalo.com;             |
| Lluch Essence                            | http://www.lluch-essence.com;      |
| Lothar Streeck                           | http://www.lothar-streeck.de       |
| Lucta SA                                  | http://www.lucta.com;              |
| MelChem                                  | http://www.melchem.com;            |
| Millennium†                               | http://www.millenniumchem.com;     |
| NetQem                                    | http://www.netqem.us;              |
| Penta Mfg.†                              | http://www.pentamfg.com;           |
| Polarome Int'l.                           | http://www.polarome.com;           |
| SAFC Specialties                         | http://www.safcspecialties.com;    |
| Sigma                                    | http://www.sigma-aldrich.com/belgium; |
| Spectrum Quality Prods.†                  | http://www.spectrumchemical.com;   |
| Takasago Int'l.                          | http://www.takasago.com;           |
| Treatt USA                               | http://www.rctreatt.com;           |
| Mane Fils SA                             | http://www.mane.com                |

### Citral diethyl acetate

**CAS 7492-66-2; EINECS/ELINCS 231-323-7**

- **FEMA 2304**
- **Synonyms:** Citral diethyl acetate; 1,1-Diethoxy-3,7-dimethyl-2,6-octadiene; 3,7-Dimethyl-2,6-octadienal diethyl acetal; 2,6-Octadienal, 3,7-dimethyl-, diethyl acetal; 2,6-Octadiene, 1,1-diethoxy-3,7-dimethyl-
- **Classification:** Nonaromatic acetal
- **Empirical:** C\textsubscript{14}H\textsubscript{26}O\textsubscript{2}
- **Properties:** Colorless liq., mild green citrus odor; sol. in propylene glycol; insol. in water; m.w. 226.36; dens. 0.8745-0.8790 (15 °C); b.p. 230 C; flash pt. 79 C; ref. index 1.4520-1.4545

| Toxicology: | LD\textsubscript{50} (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; primary skin irritant; mutagen; TSCA listed |
| Precaution: | Combustible liq. |
| Hazardous Decomp. Prods.: | Heated to d

### Citral dimethyl acetal

**CAS 7549-37-3; EINECS/ELINCS 231-434-0**

- **FEMA 2305**
- **Synonyms:** 1,1-Dimethoxy-3,7-dimethyl-2,6-octadiene; 3,7-Dimethyl-2,6-octadienal dimethyl acetal; 3,7-Dimethyl-2,6-octadien-1-ol dimethyl acetal
- **Classification:** Nonaromatic acetal
- **Empirical:** C\textsubscript{12}H\textsubscript{22}O\textsubscript{2}
- **Properties:** Colorless to ylsh. liq., fresh lemon-like odor; m.w. 198.31; dens. 0.885; b.p. 198 C; flash pt. 180 F; ref. index 1.4560-1.4630 (20 C)

| Toxicology: | Primary skin irritant; TSCA listed |
| Precaution: | Combustible liq. |

### Citral natural

- **See Citral**
- **Citrem.** See Citric acid esters of mono- and diglycerides of fatty acids

### Citric acid

**CAS 77-92-9** (anhyd.); EINECS/ELINCS 201-
Chemical Component Cross-Reference

FEMA 2306; INS330; E330

Synonyms: 2-Hydroxy-1,2,3-propanetricarboxylic acid; 2-Hydroxypropane-1,2,3-tricarboxylic acid; β-Hydroxytricarballylic acid

Classification: Organic acid

Empirical: C₆H₈O₇

Formula: HOC(COOH)(CH₂COOH)₂

Properties: Colorless translucent crystals or powd., odorless, strongly acidic tart taste; very sol. in water, alcohol, and ether; very sl. sol. in ether; m.w. 192.43; dens. 1.542; m.p. 153°C; flash pt. 212°F

Toxicology: LD₅₀ (oral, rat) 6730 mg/kg; poison by IV; mod. toxic by subcut. and IP routes; poison by IV route; mildly toxic by ing.; primary irritant; severe eye, mod. skin irritant; some allergenic props.; erodes tooth enamel; TSCA listed

Precaution: Combustible; potentially explosive reaction with metal nitrates

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke, fumes

HMIS: Health 1, Flammability 0, Reactivity 0

Uses: Prep. of citrates; acidifier, buffer, pH adjuster, anticoagulant, flavor for pharmaceuticals, flavoring extracts, injectables, buccals, inhalants, nasals, ophthalmics, orals, otics, topicals, effervescent tablets; stabilizer for colors, flavors, vitamins; citrate soln. as blood anticoagulant; keratin softener

Regulatory: FDA 21CFR §131.111, 131.112, 131.136, 131.138, 131.144, 131.146, 133, 145.131, 145.145, 146.187, 150.141, 150.161, 155.130, 161.190, 166.40, 166.110, 169.115, 169.140, 169.150, 172.755, 173.160, 173.165, 173.280, 182.6033, GRAS; Canada DSL; USDA 9CFR §318.7, 381.147; BATF 27CFR §240.1051, limitation 5.8 lb/1000 gal; FEMA GRAS; Japan approved; Europe listed; UK approved; FDA approved injectables, buccals, inhalants, nasals, ophthalmics, topicals, orals, otics; USP/NF, BP, EP compliance

Chemical Component Cross-Reference

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</table>

†=pharmaceutical grade

**Citric acid, ammonium iron (3+) salt.** See [Iron ammonium citrate](#)

**Citric acid, 1,2-dodecyl ester, ester with bis (coco acyl) pentaerythritol.** See [Dicocoyl pentaerythritol diestearil citrate](#)

**Citric acid esters of mono- and diglycerides of fatty acids**

CAS 68990-05-6; 91744-38-6

INS472c; E472c

**Synonyms:** Citrem; Citroglycerides; Fatty acid mono- and diglycerides, citric acid esters; Mono- and diglycerides citrates; Mono- and diglycerides, citric acid esters

**Definition:** Mixt. of esters of citric acid and edible fatty acids with glycerol

**Properties:** Wh. to ivory oily to waxy material; sol. in edible oils and fats; disp. in hot water; insol. in cold water; HLB 10.0-12.0

**Uses:** Emulsifier, stabilizer for pharmaceuticals

**Regulatory:** FDA 21 CFR §172.832; Europe listed; UK approved

**Manuf./Distrib.:** AB R Lundberg

**Trade Names Containing:** Imwitor® 377; Imwitor® 380

**Citric acid hydrous.** See [Citric acid monohydrate](#)

**Citric acid monohydrate**

CAS 5949-29-1; EINECS/ELINCS 201-069-1

FEMA 2306

**Synonyms:** Citric acid hydrous; Hydrous citric acid; 2-Hydroxy-1,2,3-propanetricarboxylic acid monohydrate

**Empirical:** C₆H₈O₇ • H₂O

**Properties:** Wh. or colorless cryst. or powd., odorless; sol. in water, alcohol (1:1.5); sl. sol. in ether; m.w. 210.14; efflorescent in dry air

**Toxicology:** LD50 (IP, rat) 375 mg/kg; irritant; may cause dental erosion or local irritation if ingested frequently or in large anms.

**Precaution:** Airtight storage

**HMIS:** Health 1, Flammability 0, Reactivity 0

**Uses:** Acidifier, buffer, effervescent in pharmaceuticals, ophthalmics, orals, topicals; antioxidant, chelating agent for flavor and color stability; synergist for antioxidants; to dissolve renal calculi,
Chemical Component Cross-Reference

alkalize the urine; in anticoagulant sol'ns.;
treatment of GI disturbances

Regulatory:  FEMA GRAS; FDA approved for ophthalmics, orals, topicals; USP, BP, EP;
German Pharmacopoeia, JP compliance

Manuf./Distrib.:  AAE Chemie NV†
http://www.aeechemie.com;  ADA Int'l.
http://www.joinme.net/ada/index.htm;  AMC Chems.;  AMRESCO† http://www.amresco-inc.com;  AXO Chem.†
http://www.axochemical.com
Ashland† http://www.ashchem.com;  Boith China† http://www.boith.com;  Buckton Page Ltd† http://www.bucktonpage.com;
Camida Ltd† http://www.camida.com;
Cargill plc† http://www.cargill.com
Cerestar† http://www.cerestar.com
Charkit† http://www.charkit.com;
Chemacon GmbH†
http://www.chemacon.de;  Chemco France†
a87a7c8bc0c90c12570e000301e;
China Nat'l. Chem. Construction
Cornelius Chem. Co. Ltd†
http://www.cnccc-shenzhen.com
Cornellius GmbH†
http://www.cnccc-shenzhen.com
Cymbopogon nardus oil
Essential oil from citronella grass,
contg. citronellal, 
citronellol, geraniol;
citronella
Citronella (Cymbopogon nardus) oil
CAS 8000-29-1
FEMA 2308
Synonyms:  Citronella oil;  Cinnamon oil,
Ceylon;  Citronella oil, Java;  Cymbopogon nardus;  Cymbopogon nardus oil
Definition:  Essential oil from citronella grass,
Cymbopogon nardus, contg. citronellal,
geraniol, citronellol
Properties:  Lt. ylsh. to brn. oil; pungent citrus-like odor; sol. in 80% alcohol; insol. in water; dens.
0.887-0.906; vapor pressure 1 mm Hg; flash pt. 170 F; ref. index 1.468-1.483
Toxicology:  LD50 (oral, rat) 7200 mg/kg, (IP, rat) 713 mg/kg, (skin, rabbit) 4700 mg/kg;
mod. toxic by IP route; mildly toxic by ing., skin contact; primary irritant; skin and

†=pharmaceutical grade

http://www.sigma-aldrich.com/belgium;
Spectrum Quality Prods.;
http://www.spectrumchemical.com;
Takasago Int'l.† http://www.takasago.com;
Tennants Distrib. Ltd†
http://www.tennantsdistribution.com
Thew Arnott & Co. Ltd†
http://www.thewarnott.co.uk;  Ubichem plc†
http://www.ubichem.com;  Univar Ltd†
Whyte Chems. Ltd
http://www.whytechemicals.co.uk

Citric acid monosodium salt.  See Sodium citrate

Citric acid, octadecyl ester.  See Stearyl citrate

Citric acid sodium salt.  See Sodium citrate

Citric acid, tributyl ester.  See Tributyl citrate

Citric acid, tributyl ester, acetate.  See Acetyl tributyl citrate

Citric acid, triisostearyl ester.  See Trisostearoyl citrate

Citric acid, tripotassium salt.  See Potassium citrate

Citric acid, tris (2-octyldodecyl) ester.  See Trioctyldodecyl citrate

Citric acid trisodium salt.  See Trisodium citrate

Citric acid, zinc salt; Citric acid, zinc salt (2:3).  See Zinc citrate

Citric acid.  See Aconitic acid

Citroglycerides.  See Citric acid esters of mono- and diglycerides of fatty acids

(±)-Citronallal.  See Citronellal
Chemical Component Cross-Reference

3,7-Dimethyl-6-octen-1-al

†=pharmaceutical grade

Citronellal
CAS 106-23-0; EINECS/ELINCS 203-376-6
FEMA 2307

Synonyms: (±)-Citronallal; 3,7-Dimethyl-6-octenal; 3,7-Dimethyl-6-octen-1-ol; Rhodinal
Classification: Organic compd.; acrylic terpene aldehyde

Empirical: C_{10}H_{18}O

Properties: Colorless to sl. yel. liq., strong lemon-citronella-rose odor; sol. in alcohol, most oils; sl. sol. in propylene glycol; insol. in glycerin, water; m.w. 154.25; dens. 0.850-0.860; b.p. 83-85 C (11 mm); flash pt. 170 F; ref. index 1.446-1.456; tenacity 8 hrs. on blotter

Toxicology: TSCA listed
Environmental: Do not discharge lakes, streams, ponds, public waters

Precaution: Combustible liq.; wear safety glasses or goggles, rubber gloves, apron; incompat. with strong oxidizers, reducers

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Storage: Store in cool, dry place in tightly sealed containers, protected from heat and light

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia; Japan approved as flavoring (ENCS no. 2-514); Japan MITI; Canada DSL; Philippines PICCS

Manuf./Distrib.: Advanced BioTech
http://www.adv-bio.com; Augustus Oils Ltd
http://www.augustus-oils.ltd.uk; Axxence
Aromatic GmbH http://www.axxence.com;
http://www.axxence.de; BASF AG
http://www.basf.de; BASF
http://www.basf.com
Chemtex International
http://www.chemtexinternational.com;
Chinessence http://www.chinessence.com;
Citrus and Allied Essences
http://www.citrusandallied.com
Doingcom http://www.doingcom.com;
Eramex Aromatics http://www.eramex.de;
http://www.copelandoil.co.uk; Fleurchem
http://www.fleurchem.com
Frutarom (UK) Fine Ingreds.† http://www.frutarom.com; Fuerst Day
Lawson http://www.fdll.co.uk; GR Davis
http://www.grdavis.com.au/; George Uhe
http://www.uhe.com; H&A (Canada) Ind.†
http://www.hacanada.com
Hunan Xinyu http://www.hunanxinyu.com;
Integra† http://www.integrachem.com; KIC
Chems.† http://www.kicchemicals.com;
http://www.kicgroup.com; MelChem†
http://www.melchem.com
Penta Mfg.† http://www.pentamfg.com;
Ruger† http://www.rugerchemical.com;
SAFC Specialties
http://www.safcspecialties.com; Sarcom
http://www.sarcominc.com; Spectrum
Quality Prods.†
http://www.spectrumchemical.com
Treatt USA http://www.rctreatt.com;
Universal Preserv-A-Chem†
http://www.upichem.com; Voigt Global

severe eye irritant; may cause allergic reactions such as stuffy nose, hay fever, asthma, skin rash; mutagen; TSCA listed

Precaution: Combustible

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes

HMIS: Health 1, Flammability 1, Reactivity 0

Uses: Natural flavor for pharmaceuticals

Regulatory: BP, EP compliance; FDA 21CFR §182.20, 582.20, GRAS; FEMA GRAS; not permitted on food crops; Japan approved; Canada DSL
Citronellal hydrate; Citronellal, hydroxy- See Hydroxycitronellal

Citronella oil; Citronella oil, Ceylon; Citronella oil, Java. See Citronella (Cymbopogon nardus) oil

Citronellol (INCI). See β-Citronellol

α-Citronellol. See (-)-Rodinol

β-Citronellol
CAS 106-22-9; EINECS/ELINCS 203-375-0
FEMA 2309

Synonyms: Cephrol; Citronellol (INCI); dl-Citronellol; dl-Citronellol; (±)-β-Citronellol; 2,6-Dimethyl-2-octen-8-ol; 3,7-Dimethyl-6-octen-1-ol; 3,7-Dimethyl-oct-6-en-1-ol; 6-Octen-1-ol, 3,7-dimethyl-; Rhodinol; Rodinol

Classification: Nonaromatic alcohol

Empirical: C10H20O

Formula: (CH3)2C:CHCH2CH2CH(CH3)CH2CH2OH

Properties: Colorless oily liq., rose odor; sol. in fixed oils, propylene glycol; sl. sol. in water; insol. in glycerin @ 225 C; m.w. 156.30; dens. 0.850-0.860; b.p. 222 C; flash pt. 215 F; ref. index 1.454-1.462; tenacity 24 hrs. on blotter

Toxicology: LD50 (oral, rat) 3450 mg/kg, (subcut., mouse) 880 mg/kg, (LM, mouse) 4 g/kg, (skin, rabbit) 2650 mg/kg; LDLo (IV, mouse) 100 mg/kg; poison by IV route; mod. toxic by ing., skin contact, intramuscular routes; primary irritant; severe skin irritant; may cause spastic paralysis; TSCA listed

Precaution: Combustible liq.; wear safety glasses or goggles, rubber gloves, apron; incompat. with strong oxidizers, reducers

Hazardous Decomp. Prods.: Heated to decomp., emits CO, CO2, acrid smoke and irritating fumes

NFPA: Health 0, Flammability 1, Reactivity 0

Storage: Store in cool, dry place in tightly sealed containers, protected from heat and light

Uses: Fragrance and flavor for pharmaceuticals

Features: Fresh floral, rose-like fragrance and flavor
Chemical Component Cross-Reference

rose, aldehydic, ozone-like odor; m.w. 198.28; sp.gr. 0.921-1.020; b.p. 130 C (12 mm); flash pt. > 100 C; ref. index 1.450-1.490

Toxicology: LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; TSCA listed

Hazardous Decomp. Pros.: Heated to decomp., emits acrid smoke and irritating vapors

Uses: Synthetic flavor for pharmaceuticals

Use Level: Up to 10%

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL


Citronellyl acetate

CAS 150-84-5; 67650-82-2; EINECS/ELINCS 205-775-0

FEMA 2311

Synonyms: Acetic acid, citronellyl ester; Acetic acid-3,7-dimethyl-6-octen-1-yl ester; 2,6-Dimethyl-2-octen-8-ol acetate; 3,7-Dimethyl-6-octen-1-ol acetate; 3,7-Dimethyl-6-octen-1-yl acetate; 6-Octen-1-ol, 3,7-dimethyl-, acetate

Classification: floral ester

Definition: Ester of citronellol and acetic acid; found in oils of Citronella Ceylon, geranium, etc.

Empirical: C12H22O2

Properties: Colorless liq., fruity rose-like odor; sol. in alcohol, fixed oils; insol. in glycerin, propylene glycol, water @ 229 C; m.w. 198.34; dens. 0.883-0.893; b.p. 240 C; flash pt. > 212 F; ref. index 1.440-1.450

Toxicology: LD50 (oral, rat) 6800 mg/kg, (dermal, rabbit) > 5 g/kg; mildly toxic by ing.; human skin irritant; TSCA listed

Precaution: Combustible liq.; wear safety glasses or goggles, rubber gloves, apron; incompat. with strong oxidizers, reducers

Hazardous Decomp. Pros.: Heated to decomp., emits CO, CO2, acrid smoke and irritating fumes

Storage: 12 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Japan approved as flavoring; Canada DSL; China listed; Philippines PICCS

α-Citronellyl acetate. See Rhodinyl acetate

Citronellyl acetone. See Tetrahydro-pseudo-ionone

Citronellyl butyrate

CAS 141-16-2; EINECS/ELINCS 205-463-4

FEMA 2312

Synonyms: Butanoic acid, 3,7-dimethyl-6-octenyl ester; 3,7-Dimethyl-6-octen-1-yl butyrate

Classification: floral ester

Empirical: C14H26O2

Properties: Colorless liq., rose-like odor, sweet plum-like taste; misc. with alcohol, ether, chloroform, most oils; insol. in water @ 224 C; m.w. 226.36; dens. 0.880-0.886; vapor dens. 7.7; b.p. 134-135 C (12 mm); flash pt. (CC) 110 C; ref. index 1.444-1.448; tenacity 24 hrs. on blotter

Toxicology: LD50 (oral, rat) 8400 mg/kg, (dermal, rabbit) > 5 g/kg; primary irritant; may be irritating to eyes and skin; TSCA listed

Environmental: Prevent contamination of soil, ground- and surf.-water

Precaution: Combustible liq.; incompat. with strong oxidizing agents
Citronellyl formate

CAS 105-85-1; EINECS/ELINCS 203-338-9
FEMA 2314

Synonyms: l-Citronellyl formate; Citronellyl methanoate; 3,7-Dimethyl-6-octen-1-ol formate; 2,6-Dimethyl-2-octen-8-yl formate; 3,7-Dimethyl-6-octen-1-yl formate; Formic acid, citronellyl ester; Formic acid-3,7-dimethyl-6-octen-1-yl ester

Classification: floral ester; acyclic terpene ester

Properties: Colorless liq., sweet fruity rose-like odor, apricot-like taste; misc. with alcohol, chloroform, ether, most oils; insol. in water; m.w. 226.36; dens. 0.8760-0.8830; vapor dens. 7.7; b.p. 249 C; flash pt. 100 C; ref. index 1.4400-1.4480

Toxicology: Skin, eye irritant; TSCA listed

Environmental: Keep run-off water out of sewers, water sources

Precaution: Combustible liq.; incompat. with strong oxidizers, acids

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Storage: Keep away from heat, sparks, open flame; keep in original, tightly closed container
Chemical Component Cross-Reference

†=pharmaceutical grade

Oxford Chems. Ltd  
http://www.oxfordchemicals.com; Penta Mfg.  
http://www.pentamfg.com
Takasago Int'l.  
http://www.takasago.com

I-Citronellyl Phenylacetate. See Citronellyl phenylacetate

Citronellyl propionate
CAS 141-14-0; EINECS/ELINCS 205-461-3
FEMA 2316
Synonyms: 3,7-Dimethyl-6-octenyl propanoate; 3,7-Dimethyl-6-octen-1-yl propionate
Classification: Floral ester; acrylic terpene ester
Definition: Obtained by direct esterification of citronellol with propionic acid under azeotropic conditions or using propionic anhydride
Empirical: C_{13}H_{24}O_{2}
Properties: Colorless liq., rose-like odor, bittersweet plum-like taste; misc. with alcohol, most oils; insol. in water; m.w. 212.33; dens. 0.8810-0.8840; b.p. 242 C; flash pt. > 100 C; ref. index 1.4430-1.4490; tenacity 24 hrs. on blotter
Toxicology: TSCA listed
Precaution: Combustible liq.
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Storage: Store in cool, dry place in tightly sealed containers, protected from heat and light
Uses: Synthetic flavor for pharmaceuticals
Use Level: < 5%
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia; Canada DSL; Philippines PICCS
Manuf./Distrib.: Advanced Synthesis Tech.  
http://www.advancedsynthesis.com; Bell Flavors & Fragrances  
http://www.bellff.com; De Monchy Aromatics  
http://www.demonchyaromatics.com; Degussa AG/Health & Nutrition; Fleurchem  
http://www.fleurchem.com; Grau Aromatics  
http://www.grau-aromatics.de; Lluch Essence  
http://www.lluch-essence.com; R.C. Treatt & Co. Ltd  
http://www.rctreatt.com; SAFC Specialties  
http://www.safcspecialties.com; Takasago Int'l.  
http://www.takasago.com

Citronellyl methylate. See Citronellyl formate

Citronellyl 2-methylpropionate. See Citronellyl isobutyrate

Citronellyl phenylacetate
CAS 139-70-8; EINECS/ELINCS 205-373-5
FEMA 2315
Synonyms: Acetic acid, phenyl-, 3,7-dimethyl-6-octenyl ester; Benzenec acid, 3,7-dimethyl-6-octenyl ester; l-Citronellyl Phenylacetate; Citronellyl α-toluate; 3,7-Dimethyl-6-octen-1-yl phenylacetate
Classification: floral ester
Empirical: C_{18}H_{26}O_{2}
Properties: Color liq.; honey rose-like odor; insol. in water; sol. in alcohol, oils; m.w. 274.41; dens. 0.992 (15.5 C); b.p. 342 C; ref. index 1.5100; tenacity 24 hrs. on blotter
Toxicology: Skin irritant; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Storage: Store in cool, dry place in tightly sealed containers, protected from heat and light
Uses: Synthetic flavor for pharmaceuticals
Use Level: < 5%
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia; Canada DSL; Japan ENCS (no. 2-762); Philippines PICCS
Manuf./Distrib.: Advanced Synthesis Tech.  
http://www.advancedsynthesis.com; Degussa AG/Health & Nutrition; Lluch Essence  
http://www.lluch-essence.com; Oxford Chems. Ltd  
http://www.oxfordchemicals.com; Penta Mfg.  
http://www.pentamfg.com; R.C. Treatt & Co. Ltd  
http://www.rctreatt.com; SAFC Specialties  
http://www.safcspecialties.com; Takasago Int'l.  
http://www.takasago.com

l-Citronellyl Phenylacetate. See Citronellyl phenylacetate

Citronellyl propionate
CAS 141-14-0; EINECS/ELINCS 205-461-3
FEMA 2316
Synonyms: 3,7-Dimethyl-6-octenyl propanoate; 3,7-Dimethyl-6-octen-1-yl propionate
Classification: Floral ester; acrylic terpene ester
Definition: Obtained by direct esterification of citronellol with propionic acid under azeotropic conditions or using propionic anhydride
Empirical: C_{13}H_{24}O_{2}
Properties: Colorless liq., rose-like odor, bittersweet plum-like taste; misc. with alcohol, most oils; insol. in water; m.w. 212.33; dens. 0.8810-0.8840; b.p. 242 C; flash pt. > 100 C; ref. index 1.4430-1.4490; tenacity 24 hrs. on blotter
Toxicology: TSCA listed
Precaution: Combustible liq.
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Storage: Store in cool, dry place in tightly sealed containers, protected from heat and light
Uses: Synthetic flavor for pharmaceuticals
Use Level: < 5%
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia; Canada DSL; Philippines PICCS
Manuf./Distrib.: Advanced Synthesis Tech.  
http://www.advancedsynthesis.com; Bell Flavors & Fragrances  
http://www.bellff.com; De Monchy Aromatics  
http://www.demonchyaromatics.com; Degussa AG/Health & Nutrition; Fleurchem  
http://www.fleurchem.com; Grau Aromatics  
http://www.grau-aromatics.de; Lluch Essence  
http://www.lluch-essence.com; R.C. Treatt & Co. Ltd  
http://www.rctreatt.com; SAFC Specialties  
http://www.safcspecialties.com; Takasago Int'l.  
http://www.takasago.com

Citronellyl methanoate. See Citronellyl formate

Citronellyl 2-methylpropionate. See Citronellyl isobutyrate

Citronellyl phenylacetate
CAS 139-70-8; EINECS/ELINCS 205-373-5
FEMA 2315
Synonyms: Acetic acid, phenyl-, 3,7-dimethyl-6-octenyl ester; Benzenec acid, 3,7-dimethyl-6-octenyl ester; l-Citronellyl Phenylacetate; Citronellyl α-toluate; 3,7-Dimethyl-6-octen-1-yl phenylacetate
Classification: floral ester
Empirical: C_{18}H_{26}O_{2}
Properties: Color liq.; honey rose-like odor; insol. in water; sol. in alcohol, oils; m.w. 274.41; dens. 0.992 (15.5 C); b.p. 342 C; ref. index 1.5100; tenacity 24 hrs. on blotter
Toxicology: Skin irritant; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Storage: Store in cool, dry place in tightly sealed containers, protected from heat and light
Uses: Synthetic flavor for pharmaceuticals
Use Level: < 5%
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia; Canada DSL; Philippines PICCS
Manuf./Distrib.: Advanced Synthesis Tech.  
http://www.advancedsynthesis.com; Bell Flavors & Fragrances  
http://www.bellff.com; De Monchy Aromatics  
http://www.demonchyaromatics.com; Degussa AG/Health & Nutrition; Fleurchem  
http://www.fleurchem.com; Grau Aromatics  
http://www.grau-aromatics.de; Lluch Essence  
http://www.lluch-essence.com; R.C. Treatt & Co. Ltd  
http://www.rctreatt.com; SAFC Specialties  
http://www.safcspecialties.com; Takasago Int'l.  
http://www.takasago.com
Citronellyl valerate

CAS 7540-53-6
FEMA 2317

Synonyms: 3,7-Dimethyl-6-octen-1-yl valerate
Classification: floral ester

Empirical: C_{15}H_{28}O_2
Properties: Liq., rose herb honey-like odor; m.w. 240.39; dens. 0.890; b.p. 237 °C; flash pt. > 230 °F; ref. index 1.4435

Toxicology: TSCA listed

Uses: Synthetic flavor for pharmaceuticals

Definition: Extract derived from Citrus spp.
Uses: Natural flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL


Chemical Component Cross-Reference

See also Rhodinyl propionate
Citronellyl α-toluate. See Citronellyl phenylacetate
Citronellyl valerate

Citrus aurantium amara oil
Citrus aurantium amara peel oil
Citrus aurantium dulcis. See Orange (Citrus aurantium dulcis) oil
Citrus aurantium dulcis flower oil
Citrus aurantium dulcis fruit extract. See Orange (Citrus aurantium dulcis) flower oil
Citrus aurantium dulcis oil. See Orange (Citrus aurantium dulcis) flower oil
Citrus aurantium dulcis peel extract. See Orange (Citrus aurantium dulcis) peel extract
Citrus aurantium dulcis wax. See Orange (Citrus aurantium dulcis) peel wax
Citrus aurantium oil. See Petitgrain oil
Citrus dulcis. See Orange (Citrus aurantium dulcis) extract; Orange (Citrus aurantium dulcis) peel extract
Citrus extract

CAS 977038-62-2; 94266-47-4; EINECS/ELINCS

Regulatory: FDA 21CFR §182.20, 582.20, GRAS; FEMA GRAS

Manuf./Distrib.: Caminiti Foti

Citrus grandis oil. See Grapefruit (Citrus grandis) oil
Citrus limon extract. See Lemon (Citrus medica limonum) extract
Citrus limon oil. See Lemon (Citrus medica limonum) oil
Citrus limonum. See Lemon (Citrus medica limonum) extract; Lemon (Citrus medica limonum) oil; Lemon (Citrus medica limonum) juice
Citrus medica limonum. See Lemon (Citrus medica limonum) extract
Citrus medica limonum juice. See Lemon (Citrus medica limonum) juice
Citrus medica limonum oil. See Lemon (Citrus medica limonum) oil
Citrus nobilis; Citrus nobilis oil. See Mandarin orange oil
Citrus oil. See Orange (Citrus aurantium dulcis) oil
Citrus paradisi peel oil. See Grapefruit (Citrus grandis) oil
Citrus pectin. See Pectin
Citrus peels extract. See Citrus extract
Citrus reticulata. See Tangerine (Citrus reticulata) oil; Mandarin orange oil
Citrus reticulata oil. See Tangerine (Citrus reticulata) oil; Mandarin orange oil
Citrus sinensis. See Orange oil, distilled
Citrus sinensis extract. See Orange (Citrus aurantium dulcis) extract
Citrus sinensis oil. See Orange (Citrus aurantium dulcis) oil
Citrus sinensis oil, distilled. See Orange oil, distilled
Citrus sinensis peel oil. See Orange (Citrus aurantium dulcis) oil
Citrus vulgaris; Citrus vulgaris oil. See Petitgrain oil
Cl vat blue 6. See D&C Blue No. 9; Indanthrene blue
Cl vat brown 1. See Vat brown 1
Chemical Component Cross-Reference

Cl vat orange 1
CAS 1324-11-4
Synonyms: CI vat orange 1
Empirical: C24H10Br2O2
Uses: Colorant for contact lenses
Regulatory: FDA 21CFR §73.3112, exempt from certification, permanently listed for use in medical devices; Canada DSL

Civet
CAS 68916-26-7; EINECS/ELINCS 272-826-1
FEMA 2319
Synonyms: Civet absolute; Zibet; Zibeth; Zibetum
Definition: Derived from civet cats, Viverra civetta and V. zibetha
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §182.50, GRAS; FEMA GRAS; Japan approved; Canada DSL
Manuf./Distrib.: Payan & Bertrand http://www.payanbertrand.com/

Civet absolute. See Civet
Clarified honey. See Honey
Clary oil; Clary sage oil. See Clary (Salvia sclarea) oil

Clary (Salvia sclarea) oil
CAS 8016-63-5; 8022-56-8; EINECS/ELINCS 283-911-8
FEMA 2321
Synonyms: Clary oil; Clary sage oil; Muscatel oil; Muscatel sage oil; Sage oil clary; Salvia sclarea
Definition: Oil from steam distillation of flowering tops and leaves of Salvia sclarea
Properties: Pale yel. liq., herbaceous odor; sol. in fixed oils, min. oil; insol. in glycercin, propylene glycol; dens. ≈ 0.90 kg/l; vapor dens. > air; flash pt. > 174 F; ref. index 1.45-1.48
Toxicology: LD50 (oral, rat) 5600 mg/kg; low toxicity by ing.; primary skin irritant; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Storage: 24 mos. when stored in dk., fresh, dry place
Uses: Natural flavor for pharmaceuticals
Regulatory: BP, EP compliance; FDA 21CFR §182.20, GRAS; FEMA GRAS; Japan approved; Canada DSL
Manuf./Distrib.: Buckton Page Ltd

†=pharmaceutical grade

http://www.bucktonpage.com; Chinessence
http://www.chinessence.com; Danisco
Seillans http://www.danisco.com; F.D.
Copeland http://www.copelandoil.co.uk;
Fleurchem http://www.fleurchem.com
George Uhe http://www.uhe.com; Hunan
Xinyu http://www.hunanxinyu.com;
NetQem http://www.netqem.us; SAFC
Specialties http://www.safcspecialties.com; Treatt USA
Civet absolute. See Civet
Clary oil; Clary sage oil. See Clary (Salvia sclarea) oil
Clary absolute. See Civet
Clary (Salvia sclarea) oil
Clary absolute. See Civet
Clary (Salvia sclarea) oil
Clary absolute. See Civet
Clary (Salvia sclarea) oil
Clary absolute. See Civet
Civet absolute. See Civet
Clarity oil; Clary sage oil. See Clary (Salvia sclarea) oil

Clorophene. See Chlorophene

Cleland’s reagent. See Dithiothreitol
Climbazol. See Climbazole
Climbazole
CAS 38083-17-9; EINECS/ELINCS 253-775-4
Synonyms: 2-Butanone, 1-(p-chlorophenoxy)-3,3-dimethyl-1-(1-imidazolyl)-2-butanone; 2-Butanone, 1-(4-chlorophenoxy)-1-(1H-imidazol-1-yl)-3,3-dimethyl-1-(p-Chlorophenoxy)-3,3-dimethyl-1-(1-imidazolyl)-2-butanone; 1-(4-Chlorophenoxy)-1-(imidazol-1-yl)-3,3-dimethylbutanone; 1-(4-Chlorophenoxy)-1-(1H-imidazolyl)-3,3-dimethyl-2-butanone; Climbazol
Classification: Heterocyclic organic compd.
Empirical: C15H17ClN2O2
Properties: M.w. 292.79
Toxicology: LD50 (oral, rat) 400 mg/kg; harmful by ing.
Uses: Preservative
Manuf./Distrib.: Bayer AG http://www.bayer-ag.de; http://www.bayer.com; Riedel-deHaën
Trade Names: Crinipan® AD
C18 linear alcohol. See Stearyl alcohol
C14 linear alpha olefin. See Tetradecene-1
C12 linear primary alcohol. See Lauryl alcohol
C16 linear primary alcohol. See Cetyl alcohol
Clorophene. See Chlorophene
Clove
CAS 977007-79-6
FEMA 2327
Synonyms: Cloves
Definition: Eugenia spp.
Properties: Spicy, clove-like aroma; warm flavor
Uses: Natural flavor for pharmaceuticals; carminative
Regulatory: FDA 21CFR §101.22, 184.1257; GRAS; FEMA GRAS; Japan approved; BP, EP compliance
Manuf./Distrib.: Biolandes
Clove bud extract. See Clove (Eugenia caryophyllus) extract
Clove bud oil. See Clove (Eugenia caryophyllus) oil

Clove (Eugenia caryophyllus) extract
CAS 84961-50-2; EINECS/ELINCS 284-638-7
FEMA 2322
Synonyms: Clove bud extract; Clove extract; Eugenia caryophyllus; Eugenia caryophyllus extract

Definition: Extract derived from dried flower buds of the clove, Eugenia caryophyllus; the main constituents are eugenol, caryophyllene, eugenyl acetate and small quantities of furfural and traces of vanillin and methyl aryl ketone

Properties: Clear, pale yel. to yel. liq.; spicy odor; sp. gr. 1.045-1.057; ref. index 1.513-1.533
Uses: Natural flavor for pharmaceuticals; topical anesthetic, carminative

Regulatory: FDA 21CFR §184.1257, GRAS; FEMA GRAS; Japan approved

Clove (Eugenia caryophyllus) oil
CAS 8000-34-8; EINECS/ELINCS 215-185-5
FEMA 2323
Synonyms: Caryophyllus oil; Clove bud oil; Eugenia caryophyllus; Eugenia caryophyllus oil

Definition: Volatile oil distilled from the dried flower buds of Eugenia caryophyllus, contg. 82-87% eugenol, 10% acetyleugenol, caryophyllene, etc.

Properties: Colorless to pale yel. volatile liq.; char. odor and taste of clove; becomes darker and thicker with age; very sol. in strong alcohol, ether, glac. acetic acid; insol. in water; dens. 1.036-1.060; b.p. 250 C; ref. index 1.527-1.538 (20 C)
Toxicology: LD50 (oral, rat) 1370 mg/kg, (skin, rabbit) 1200 mg/kg; mod. toxic by ing. and skin contact; severe skin irritant; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
HMIS: Health 1, Flammability 0, Reactivity 0
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §184.1257, GRAS; FEMA GRAS
Chemical Component Cross-Reference

vapors

Storage: Keep cool, well closed; protect from light

Uses: Natural flavor and adjuvant for pharmaceuticals, buccals, orals; carminative in treatment of flatulence; local anesthetic (toothache); counterirritant

Regulatory: FDA 21CFR §184.1257, GRAS; 27CFR §21.65, 21.151; FEMA GRAS; Council of Europe listed; FDA approved for buccals, orals; BP, EP compliance; Canada DSL

Manuf./Distrib.: Clover (Trifolium pratense) extract; Clover blossom extract; Clove extract; Clove leaf oil; Cobaltous dichloride; Cobalt chloride; Cobalt muriate; Carboxymethylcellulose sodium; Carboxymethylcellulose anhydrous; Methylchloroisothiazolinone.†

†=pharmaceutical grade

Synonyms: Clover blossom extract; Clover extract; Clover tops extract; Clover tops, red, extract solid; Trifolium pratense; Trifolium pratense extract

Definition: Extract of the flowers of Trifolium pratense

Uses: Natural flavor for pharmaceuticals

Regulatory: FDA 21CFR §182.20, GRAS; FEMA GRAS

Manuf./Distrib.: Bio-Botanica http://www.biobotanica.com; Carrubba http://www.carrubba.com

Clove. See Clove

CMC: CMC sodium salt. See Carboxymethylcellulose sodium

CMI/MIT. See Methylchloroisothiazolinone

C18 mixed alcohols. See Isostearyl alcohol

CMMC. See Carboxymethylcellulose sodium

Coal naphtha. See Benzene

Cobalt chloride (INCI); Cobalt (II) chloride. See Cobalt chloride (ous)

Cobalt chloride (ous)

CAS 7646-79-9 (anhyd.); EINECS/ELINCS 231-589-4

Synonyms: Cobalt chloride (INCI); Cobalt (II) chloride; Cobalt dichloride; Cobalt muriate; Cobaltous chloride; Cobaltous dichloride

Classification: Inorganic salt

Empirical: Cl₂Co

Formula: CoCl₂

Properties: Blue powd. or cryst.; turns pink on exposure to moist air; sol. in water, alcohols, acetone, ether, glycerol, pyridine, polar org. solvs.; m.w. 129.83; dens. 3.367 (25/4 C); m.p. 724 C; b.p. 1049 C; dec. 400 C on long heating in air; sublimes @ 500 C in HCl gas

Toxicology: LD₅₀ (oral, rat) 80 mg/kg, (IV, rat) 20 mg/kg, (IP, mouse) 49 mg/kg; LDLo (subcut., mouse) 100 mg/kg; poison by ing., skin contact, IP, IV, subcut. routes; mod. toxic to humans by ing.; may cause death in children; human systemic effects by ing. (anorexia, goiter, wt. loss); experimental carcinogen, teratogen, reproductive effects; tumorigen; human mutagenic data; TSCA listed

Precaution: Incompat. with metals (e.g., sodium, potassium)

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of Cl⁻

Storage: Hygroscopic

Clove extract. See Clove (Eugenia caryophyllus) extract

Clove leaf oil; Clove leaf oil Madagascar. See Clove (Eugenia caryophyllus) leaf oil

Clove bud extract; Clove extract; Clove tops extract; Cobaltous chloride; Cobaltous dichloride; Carboxymethylcellulose sodium; Carboxymethylcellulose anhydrous; Methylchloroisothiazolinone.

Clove (Trifolium pratense) extract

CAS 85085-25-2; EINECS/ELINCS 285-356-7

FEMA 2326
Chemical Component Cross-Reference

†=pharmaceutical grade

Cobalt dichloride. See Cobalt chloride (ous)

Cobalt gluconate
CAS 71957-08-9; EINECS/ELINCS 276-206-1
Synonyms: Gluconic acid, cobalt salt
Definition: Cobalt salt of gluconic acid
Empirical: C_{12}H_{22}CoO_{14}
Properties: Powd.; sol. in cold water; m.w. 449.3
Toxicology: Irritant by skin contact, ing., or inh.

Precaution: Keep away from heat and sources of ignition; ground all equipment containing this material; do not breathe in dust; wear dust respirator, protective gloves, and lab coat
HMIS: Health 1, Flammability 1, Reactivity 0
Storage: Store in a tightly closed container in a cool, well-ventilated area
Uses: Mineral source for pharmaceuticals

Manuf./Distrib.: Adept Sol’ns.; Alfa Chem

Cobalt muriate; Cobaltous chloride; Cobaltous chloride anhydrous; Cobaltous dichloride. See Cobalt chloride (ous)

Cocamide DEA
CAS 8051-30-7; 61791-31-9; 68603-42-9; EINECS/ELINCS 263-163-9; 271-657-0
Synonyms: Amides, coco, N,N-bis (2-hydroxyethyl) coco amides; N,N-Bis (2-hydroxyethyl) coco fatty acid amide; Coco DEA; Coconut acid diethanolamide; Coconut acid polydiethanolamide (2:1 type); Coconut acid superamide (1:1 type); Coconut diethanolamide; Cocoyl diethanolamide; Diethanolamine coconut fatty acid condensate

Definition: Ethanolamides of coconut acid
Formula: RCO–N(CH₂CH₂OH)₂, RCO– represents the coconut acid radical

Properties: Amber liq.

TSCA listed
Uses: Detergent, thickener, emulsifier, foam booster/stabilizer, wetting agent, solubilizer for pharmaceuticals, topicals
Features: Mild

Regulatory: FDA 21CFR §172.710, 173.322 (0.2% max.), 175.105, 176.180, 176.210, 177.120, 177.2260, 177.2800; FDA approved for topicals; Canada DSL

Manuf./Distrib.: Cosmetic Supplies USA


Cocamide MEA
CAS 68140-00-1; 68606-27-3; EINECS/ELINCS 268-770-2
Synonyms: Coconut acid monoethanolamide; Coconut fatty acid monoethanolamide; Coconut monoethanolamide; N-(2-Hydroxyethyl) coco fatty acid amide

Definition: Mixture of ethanolamides of coconut acid

Formula: RCO–NHCH₂CH₂OH, RCO– represents the coconut acid radical

Properties: Cream flakes to ylsh. waxy solid; sol. in ethanol, propylene glycol, oleyl alcohol; disp. in min. oil, IPM; insol. in water; m.p. 70-74 C
Chemical Component Cross-Reference

TSCA listed

†=pharmaceutical grade

Uses: 
Surfactant, emulsifier for pharmaceuticals

Regulatory: 
Canada DSL

Trade Names: 
Aminoxid WS 35; Tegamine® Oxide WS-35

Trade Names Containing: 
Anti-Dandruff Usnate AO

Cocamidopropyl betaine

CAS 61789-40-0; 70851-07-9; 83138-08-3;
EINECS/ELINCS 263-058-8; 274-923-4

Synonyms: 
CADG; Cocamidopropyl dimethyl glycine; N-Cocamidopropyl-N,N-dimethylglycine, hydroxide, inner salt; 
Cocoamido betaine; Cocamidopropyl betaine; N-(Cocoamidopropyl)-N,N-dimethyl-N-carboxymethyl ammonium, betaine; N-(3-Cocoamidopropyl)-N,N-dimethyl-N-carboxymethylammonium hydroxide, inner salt; Coconut oil amidopropyl betaine; Cocoyl amide propyldimethyl glycine; 1-Propanaminium, 3-amino-N-(carboxymethyl)-N,N-dimethyl-N-coco acyl derivs., hydroxides, inner salts

Classification: 
Zwitterion (inner salt)

Uses: 
Ointment base, surfactant, emulsifier, foam booster/stabilizer for pharmaceuticals

Regulatory: 
Canada DSL

Manuf./Distrib.: 
Chemron 
http://www.chemron.com; Cognis/Chems. Group 
http://www.cognis-us.com; Cosmetic Supplies USA 
http://www.cosmeticsuppliesusa.com; Goldschmidt; Inolex 
http://www.inolex.com; McIntyre 
http://www.mcintyregroup.com; Rütgers Org. 
http://www.ruetgers-organics-corp.com; Uniqema 
http://www.uniqema.com

Trade Names: 
Agnique AMP 12C3B; Amonyl® 380 BA; AMPHOSOL® CA; AMPHOSOL® CG; Chembetaine® CGF 
Dehyton® PK 45; TEGO®-Betain CK; TEGO®-Betain CKD; TEGO®-Betain F; TEGO®-Betain F 50; TEGO®-Betain L-7; TEGO®-Betain ZF

Trade Names Containing: 
Anti® HS 60; CustoBlend® BAC; CustoBlend® BAT;
Chemical Component Cross-Reference

DeCONC HS-30; STEPANOL® ABHS-15C
STEPLAN® AEG; STEPLAN® PB;
TEGO®-Betain HS

†=pharmaceutical grade

Cocamidopropyl dimethylamine oxide. See Cocamidopropylamine oxide

Cocamidopropyl dimethyl glycine; N-Cocamidopropyl-N,N-dimethylglycine, hydroxide, inner salt. See Cocamidopropyl betaine

(3-Cocamidopropyl) (2-hydroxy-3-sulfopropyl)dimethyl quaternary ammonium compounds, hydroxides, inner salt. See Cocamidopropyl hydroxysultaine

Cocamidopropyl hydroxysultaine
CAS 68139-30-0; 70851-08-0; EINECS/ELINCS 268-761-3
Synonyms: (3-Cocamidopropyl) (2-hydroxy-3-sulfopropyl)dimethyl quaternary ammonium compounds, hydroxides, inner salt; Cocamidopropyl sulfobetaine; 1-Propanaminium, N-(3-aminopropyl)-2-hydroxy-N,N-dimethyl-3-sulfo-N-coco acyl derivs., hydroxides, inner salts
Classification: Zwitterion (inner salt)
Formula: RCHO–
NH(CH2)3N+(CH3)2CH2CHOHCH2SO3–, where RCHO– represents fatty acids derived from coconut oil
Properties: Amphoteric
Toxicology: TSCA listed
Uses: Surfactant in eczema baby wash preps.
Regulatory: Canada DSL

Cocamidopropyl PG-dimonium chloride
Synonyms: Cocamidopropyl phosphatidyl PG-dimonium chloride; Phosphoric acid, triester with N-(2,3-dihydroxypropyl)-N,N-dimethyl-3-[(1-oxococo-alkyl) amino-1-propanaminium chloride
Classification: Quaternary ammonium salt
Formula: [RCO–
NH(CH2)3N(CH3)2CH2CHOHCH2O]3PO • 3Cl–, where RCO– rep. fatty acids from coconut oil
Properties: Cationic
Uses: Substantivity agent, cleanser, foaming agent, hydrotopre, visc. builder, wetting agent, surf. tension reducer, bactericide, anti-irritant for ophthalmic preps.
Trade Names: Colalipid C

Cocoa butter. See Cocoa (Theobroma cacao) butter

Cocoa alkyl dimethyl benzyl ammonium chloride. See Cacaoalkonium chloride

Coco amides, N-[3-(dimethylamino) propyl], N-oxide. See Cocamidopropylamine oxide

Cocoamido betaine; Cocamidopropyl betaine. See Cocamidopropyl betaine

Cocoamidopropyldimethylamine oxide. See Cocamidopropylamine oxide

N-(Cocoamidopropyl)-N,N-dimethyl-N-carboxymethyl ammonium, betaine; N-(3-Cocamidopropyl)-N,N-dimethyl-N-carboxymethylammonium hydroxide, inner salt. See Cocamidopropyl betaine

Cocoamidopropyl sulfobetaine. See Cocamidopropyl hydroxysultaine

Cocoamino betaine. See Coco-betaine

Cocoamphocarboxyglycinate. See Disodium cocoamphodiacetate

Cocoamphocarboxypropionate. See Disodium cocoamphodipropionate

Cocoamphodiacetate. See Disodium cocoamphodiacetate

Cocoamphodipropionate. See Disodium cocoamphodipropionate

Cocoamphopropionate. See Sodium cocoamphopropionate
**Cocoa (Theobroma cacao) butter**

**CAS**: 8002-31-1; EINECS/ELINCS 310-127-6

**Synonyms**: Cacao butter; Cacao resinoin; Cocoa butter; Theobroma cacao; Theobroma cacao butter; Theobroma oil

**Definition**: Ylsh. wh. solid obtained from roasted seeds of *Theobroma cacao*; contains chiefly glycerides of stearic, palmitic, oleic, arachidic, and linoleic acids

**Properties**: Ylsh.-wh. solid, chocolate-like odor and taste; very sol. in ether, chloroform, benzene, petrol. ether; sol. in boiling abs. alcohol; sl. sol. in alcohol; insol. in water; dens. 0.858-0.864 (100/25 C); m.p. 30-35 C; iodine no. 33-42; sapon. no. 188-195; ref. index 1.4537-1.4585 (40 C)

**Toxicology**: May cause allergic skin reactions

**Precaution**: Combustible

**HMIS**: Health 0, Flammability 1, Reactivity 0

**Storage**: Preserve in well-closed containers

**Uses**: Emollient, carrier, filler, ointment and suppository base in pharmaceuticals, orals, rectals, topicals; lubricant in massage oils and suppositories because it melts at body temp.; protectant in hemorrhoidal prods.; skin conditioner, occlusive solvent, skin protectant for OTC drug prods., sun preps.

**Regulatory**: FDA 21CFR §182.20, GRAS; FDA approved for orals, rectals, topicals; NF, BP compliance; Canada DSL

**Manuf./Distrib.**: ABITEC

http://www.abiteccorp.com; Adept Sol'ns.;
Alban Muller http://www.albanmuller.com;
Alfa Chem http://www.alfachem1.com;
Alzo http://www.alzointernational.com
Ashland http://www.ashchem.com;
CoKEM Assoc.; Fanning
http://www.fanncorp.com; Integra;
http://www.integrachem.com; Jarchem Ind.
http://www.jarchem.com

http://www.kraftchemical.com; Mosselman
NV http://www.mosselman.be; Mutchler
http://www.mutchlerchem.com
Nat'l. Starch & Chem.
http://www.nationalstarch.com; Natra US
http://www.natraus.com; Paulaur
http://www.paulaur.com; Penta Mfg.
http://www.pentamfg.com; Phoenix Nat.

Protameen http://www.protameen.com;
R.W. Greeff http://www.pechinery-chemicals.com; Rugert

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**Cocobenzyl dimethylammonium chloride**. See Cacoalkonium chloride

**Cocobetainamido amphotropionate**

**CAS**: 100085-64-1; EINECS/ELINCS 309-206-8


**Classification**: Zwitterion (inner salt)

**Formula**: RN+(CH3)2CH2CONHCH2CH2NCH2CH2OHCH2COO– where R rep. alkyl groups derived from coconut oil

**Properties**: Amphoteric/cationic

**Uses**: Surfactant for pharmaceuticals, skin disinfectants

**Trade Names**: Rewoteric® QAM 50

**Coco-betaine**

**CAS**: 68424-94-2; 85409-25-2; EINECS/ELINCS 270-329-4

**Synonyms**: Alkyl dimethyl betaine; Betaines, coco alkylammonium; Cocoamino betaine; Cocodimethylammonium betaine; Coco dimethyl betaine; Coco dimethyl glycin; Coconut betaine; Dimethylcocoamino betaine; Quaternary ammonium compds., carboxymethyl (coco alkyl) dimethyl hydroxides, inner salts

**Classification**: Zwitterion (inner salt)

**Formula**: RN+(CH3)2CH2CONHCH2CH2NCH2CH2OHCH2COO– where R rep. alkyl groups derived from coconut oil

**Properties**: Amphoteric

**Toxicology**: TSCA listed

**Uses**: Surfactant, detergent, wetting agent,
Chemical Component Cross-Reference
emulsifier, foaming agent, solubilizer, biocide, bactericide, conditioner, visc. builder in pharmaceuticals, therapeutic shampoos

Regulatory: Canada DSL
Trade Names: Amonyl® 265 BA; Dehyton® AB-30; Paxogen COB

Cocobetaine. See Cocoyl sarcosine

Coco caprylate/caprate
Synonyms: Alcohols, coco, mixed esters with octanoic and decanoic acids
Definition: Mixture of esters of coconut alcohol with caprylic acid and capric acid
Uses: Emollient, carrier, superfatting agent in pharmaceuticals
Trade Names: Cetiol® LC

Coco DEA. See Cocamide DEA

Cocodimethylamino betaine. See Cocobetaine

Coco dimethyl benzyl ammonium chloride. See Cocoaalkonium chloride

Coco dimethyl betaine: Coco dimethyl glycine. See Coco-betaine

Coco dimonium chloride. See Cocobetaine

Coco fatty acid. See Coconut acid

Coco fatty acids, potassium salts. See Potassium cocoate

Coco glucoside
CAS 14146-42-8
Synonyms: Cocoyl glucoside
Definition: Prod. obtained from condensation of coconut alcohol with glucose
Properties: Nonionic
Uses: Emulsifier for dermopharmaceuticals
Trade Names Containing: Montanov® 082

Cocoglycerides
CAS 68606-18-8
Synonyms: Glycerides, coco; Glycerides, coconut, mono-, di-, and tri-
Definition: Mixture of mono-, di-, and triglycerides derived from coconut oil
Uses: Suppository bases; consistency agent for pharmaceuticals
Trade Names: Myritol® 331; Novata® 299 PH; Novata® AB PH; Novata® A PH; Novata® BCF PH
Novata® BC PH; Novata® BD PH; Novata® B PH

Coconut acid
CAS 8037-14-7; 61788-47-4; 67701-05-7; 68937-85-9; EINECS/ELINCS 262-978-7

†=pharmaceutical grade

Synonyms: Coco fatty acid; Coconut fatty acid; Coconut fatty acids; Coconut oil acids; Coconut oil fatty acids; Fatty acids, coco

Definition: Mixtures of fatty acids
Empirical: C₁₂H₂₄O₂
Formula: RCOOH, R = coco
Properties: Pale yel. solid; insol. in water; m.w. 200.32; m.p. 23-27 C; acid no. 260-270; sapon. no. 262-272
Toxicology: TSCA listed
Uses: Emulsifier in pharmaceuticals, topicals
Regulatory: FDA 21CFR §175.105, 175.320, 176.200, 176.210, 177.1010, 177.2260, 177.2600, 177.2800, 178.3570, 178.3910; approved for topicals
Manuf./Distrib.: ABITEC
http://www.abiteccorp.com; Acme-Hardesty
http://www.acme-hardesty.com; Akzo Nobel
http://www.akzonobel.com; Alfa Chem†
http://www.alfachem1.com; Alnor Oil
http://www.alnoroil.com
Arista Ind.†
http://www.aristaindustries.com; Ashland†
http://www.ashchem.com; ChemTech Specialties
http://www.chemtechspecialties.com; KIC Chems.† http://www.kicchemicals.com; Kraft Chem.†
http://www.kraftchemical.com
Magna-Kron http://www.magnakron.com; NOF Am.; Nat'l. Starch & Chem.†
http://www.nationalstarch.com; Norman, Fox http://www.normfoxx.com; Nottingham
http://www.ppiinc.com
Paulaur† http://www.paulaur.com; Penta
Mfg.† http://www.pentamfg.com; Procter & Gamble http://pgchemicals.com; Sea-Land
http://www.sealandchem.com; St. Lawrence
http://www.stlawrencechem.com
http://www.upichem.com

Coconut acid diethanolamide. See Cocamide DEA

Coconut acid, hydrogenated. See Hydrogenated coconut acid

Coconut acid methyl ester. See Methyl cocoate

Coconut acid monoethanolamide. See Cocamide MEA

Coconut acid polydiethanolamide (2:1 type). See Cocamide DEA
Coconut (Cocos nucifera) oil

CAS 8001-31-8; EINECS/ELINCS 232-282-8
UN 1363 (DOT)

Synonyms: Coconut butter; Coconut oil; Coconut palm oil; Cocos nucifera; Copra oil

Classification: Saturated fat

Definition: Fixed oil obtained from kernels of seeds of Cocos nucifera

Properties: Wh. fatty solid or liq., sweet nutty taste; sol. in oxygenated and chlorinated solvs.; very sol. in chloroform, ether, CS2; pract. insol. in water; dens. 0.903 (0/4 C); m.p. 21-27 C; acid no. < 6; iodine no. 8-9.5; sapon. no. 255-258; ref. index 1.4485-1.4495; flash pt. (CC) 550 F; surf. tens. 33.4 dynes/cm

Toxicology: May cause allergic skin reaction; TSCA listed

Precaution: Flamm. solid when exposed to heat or flame; may spontaneously heat and ignite if stored wet and hot

Hazardous Decomp. Prods.: CO2 from combustion

HMIS: Health 0, Flammability 1, Reactivity 0

Uses: Emollient, solvent, superfatting agent, clouding agent, detergent, wetting agent, emulsifier, excipient, ointment base, coating agent for pharmaceuticals, orals, topicals, massage creams; delivery/absorp. enhancement; diluent

Regulatory: FDA 21CFR §175.105, 175.300, 176.200, 176.210, 177.2800, 182.70; GRAS; FDA approved for orals, topicals; BP, EP compliance; Canada DSL

Manuf./Distrib.: ABITEC

Trade Names: Pureco® 76

Trade Names Containing: Aloe Vera Oil CG; Dry Vitamin D3 Type 100 SD

Coconut diethanolamide. See Cocamide DEA

Coconut fatty acid. See Coconut acid

Coconut fatty acid amidoethyl-N-2-hydroxyethylaminopropionate. See Sodium cocoamphopropionate

Coconut fatty acid monoethanolamide. See Cocamide MEA

Coconut fatty acids. See Coconut acid

Coconut fatty acid, sodium salt. See Sodium cocoate

Coconut monoethanolamide. See Cocamide MEA

Coconut monoisopropanolamide. See Cocamide MIPA

Coconut oil. See Coconut (Cocos nucifera) oil
Chemical Component Cross-Reference

Coconut oil acids. See Coconut acid
Coconut oil acids, potassium salts. See Potassium cocoate
Coconut oil amidopropyl betaine. See Cocamidopropyl betaine
Coconut oil fatty acids. See Coconut acid
Coconut oil fatty acids, hydrogenated. See Hydrogenated coconut acid
Coconut oil fatty acids, sodium salt. See Sodium cocoate
Coconut oil, hydrogenated. See Hydrogenated coconut oil
Coconut palm oil. See Coconut (Cocos nucifera) oil
Coconut trimethyl ammonium chloride. See Cocotrimonium chloride
Cocos nucifera. See Coconut (Cocos nucifera) oil

Cocosnucifera

Cocotrimonium chloride
CAS 61789-18-2; EINECS/ELINCS 263-038-9
Synonyms: Coconut trimethyl ammonium chloride; Cocoyl trimethyl ammonium chloride; Quaternary ammonium compds., coco alkyl trimethyl, chlorides
Classification: Quaternary ammonium salt
Formula: [RN(CH₃)₃]⁺Cl⁻, R rep. alkyl groups from coconut oil
Properties: Cationic
Toxicology: TSCA listed
Uses: Antiseptic and preservative
Regulatory: Canada DSL
Trade Names: Daistat LM 80

Cocoamidopropyl betaine
N₂Cocoyl-L-arginine ethyl ester DL-pyrrolidone carboxylic acid salt. See PCA ethyl cocoyl arginate
Cocoyl diethanolamide. See Cocamide DEA
Cocoyl glucoside. See Coco glucoside
N-Coco-N-methyl glycine. See Cocoyl sarcosine

Cocoyl sarcosine
CAS 68411-97-2; EINECS/ELINCS 270-156-4
Synonyms: Cocobetaine; N-Cocoyl-N-methyl glycine; N-Cocoyl sarcosine; N-Methyl-N-(1-coconut alkyl) glycine; N-Methyl-N-(1-oxococnut alkyl) glycine
Definition: N-cocoyl deriv. of sarcosine
Empirical: C₁₅H₂₉NO₃
Formula: C₁₅H₂₉CON(CH₃)CH₂COOH
Properties: Yel. liq.; dens. 0.970; m.p. 22-28 C; anionic
Toxicology: No known toxicity; TSCA listed
Uses: Foam booster/stabilizer, emulsifier, lubricant in pharmaceuticals; to make antienzyme agents for toothpaste to prevent decay
Regulatory: FDA 21CFR §178.3130; Canada DSL

Cod liver oil
CAS 8001-69-2; EINECS/ELINCS 232-289-6
Synonyms: Gadidae oil; Gadi lecur; Gadus morrhua; Gadus morrhua liver oil; Morrhua oil
Definition: Fixed oil expressed from fresh livers of Gadus morrhua and other species of codfish, contg. vitamins A and D, omega 3 fatty acid
Properties: Amber thin oily liq., sl. fishy odor and taste; sol. in ether, chloroform, ethyl acetate, carbon disulfide, petroleum ether; sl. sol. in alcohol; negligible sol. in water; dens. 0.918-0.927; iodine no. 145-180; sapon. no. 180-192; ref. index 1.4705-1.4745
Toxicology: No known toxicity
Precaution: Combustible
Hazardous Decomp. Prods.: CO₂ from combustion
HMIS: Health 1, Flammability 0, Reactivity 0
Uses: Medicine (vitamin A and D content); dietary supplement in pharmaceuticals; in skin ointments and special skin creams to promote healing; protectant in diaper rash ointment
Regulatory: BP, EP compliance; FDA 21CFR §175.105, 176.200, 176.210, 177.2800; GRAS for use in dietary supplements; Canada DSL

Manuf./Distrib.: Alfa Chem† http://www.alfachem1.com; Allan http://www.allanchem.com; Amerol http://www.amerolcorp.com; Arista Ind.†
Coenzyme R. See d-Biotin

Coenzyme Q10
CAS 303-98-0
Synonyms: CoQ10; Ubiquinone
Uses: Antioxidant and dietary supplement
Regulatory: USP
Trade Names: Coenzyme Q10 10% DC

Caffeine. See Caffeine

Cognac oil. See Ethyl heptanoate; Cognac oil, green or white

Cognac oil, green or white
CAS 8016-21-5; EINECS/ELINCS 232-403-4
FEMA 2331 (green), 2332 (white)
Synonyms: Cognac oil; 'Ethyl oenanthate'; Wine yeast oil
Properties: Yel. liq.; char. cognac aroma with a fruity note; sol. in alcohol; insol. in water; sp.gr. 0.87; ref. index 1.4275-1.4295 (20 C)
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §182.50, GRAS; FEMA GRAS; Canada DSL

Cola acuminata nut extract; Cola acuminata; Cola acuminata nut extract; Cola nut extract. See Kola (Cola acuminata) extract

Collagen
CAS 9007-34-5; EINECS/ELINCS 232-697-4
Synonyms: Collagen fiber; Ossein
Definition: Fibrous protein derived from connective tissues in animals; a polypeptide contg. three peptide chains; rich in proline and hydroxyproline
Properties: Clear to hazy, colorless; m.w. ≈ 130,000
Storage: Sensitive to humidity; keep under argon
Uses: Forms tissue-compat. sheets and fibers for medical and health-care prods., e.g., implants, skin substitutes; fiber in sutures
Regulatory: BP compliance (collagen suture, sterile reconstituted)
Collagen fiber. See Collagen
Collagen hydrolysates. See Hydrolyzed collagen

Collodion
UN 2059 (DOT)
Synonyms: Pyroxylin solution
Classification: Polymer
Definition: A solution of pyroxylin (chiefly nitrocellulose) (6%) in ether (70%) and alcohol (24%)
Properties: Colorless or pale yel. syrupy liq., ether odor; immiscible with water; sp.gr. 0.765-0.775; b.p. 83 C; flash pt. -45 C
Toxicology: May cause allergic skin reactions; TSCA listed
Precaution: DOT: Flamm. liq.; very dangerous fire hazard exposed to heat, flames, oxidizers
Hazardous Decomp. Prods.: Heated to decom., emits toxic fumes of NOx
NFPA: Health 1, Flammability 4, Reactivity 0
Storage: Store in a cool place, below 30 C
Uses: Solvent for drugs, corn removers; coating wounds and abrasions; embedding tissues for sectioning
Manuf./Distrib.: Acros Org.
http://www.acros.com; Aldrich
http://www.sigma-aldrich.com; Fisher Scientific
http://https://www1.fishersci.com/index.jsp; Fluka
http://www.sigma-aldrich.com; Integra
http://http://www.integrachem.com
Mallinckrodt Baker†
http://www.mallbaker.com; Penta Mfg.†
http://http://www.pentamfg.com; Ruger†
http://www.rugerchemical.com; Sigma
Spectrum Quality Prods.†
http://http://www.spectrumchemical.com; VWR

†=pharmaceutical grade

Int'l.† http://www.vwrsp.com; Voigt Global
Distrib.† http://http://www.vgdllc.com

See also Nitrocellulose

Collodion cotton; Collodion wool. See Nitrocellulose
Colloidal activated attapulgite. See Attapulgite
Colloidal cadmium. See Cadmium
Colloidal ferric oxide. See Ferric oxide
Colloidal gold. See Gold
Colloidal mercury. See Mercury
Colloidal silica. See Silica, colloidal; Silica, fumed
Colloidal silicon dioxide. See Silica, colloidal; Silica, fumed
Colloxylin. See Nitrocellulose
Cologel. See Methylcellulose
Colonial spirit. See Methyl alcohol
Colophane: Colophonion; Colophony. See Rosin
Coltsfoot extract; Coltsfoot flowers extract. See Coltsfoot (Tussilago farfara) extract

Coltsfoot (Tussilago farfara) extract
CAS 84625-50-3; EINECS/ELINCS 283-420-9
Synonyms: Coltsfoot extract; Coltsfoot flowers extract; Tussilago farfara; Tussilago farfara extract
Definition: Extract of the flowers of the coltsfoot, Tussilago farfara
Uses: Botanical
Manuf./Distrib.: Bio-Botanica http://http://www.biobotanica.com; Carrubba
http://http://www.carrubba.com; Grau Aromatics
Trade Names Containing: Hair Complex Aquosum

Columbian spirits. See Methyl alcohol
Colza oil. See Canola oil; Rapeseed (Brassica campestris) oil
Commiphora myrrha; Commiphora myrrha oil. See Myrrh (Commiphora myrrha) oil
Common salt. See Sodium chloride
Common thyme. See Thyme (Thymus vulgaris)
Concentrated acetic acid. See Acetic acid, glacial
Concrete rose Bulgarian; Concrete rose Morocco; Concrete rose Turkish. See Rose oil
Condensation prods., epoxy. See Epoxy resin
Condy's crystals. See Potassium permanganate
**Chemical Component Cross-Reference**

**Confectioner's sugar. See Sucrose**

**Coomassie violet. See Acid violet 49**

**Copernica cerefera wax; Copernicia cerifera wax. See Carnauba (Copernica cerifera) wax**

**Copolyvidon. See Copolyvidone**

**Copolyvidone**

**CAS 25086-89-9**

**Synonyms:** Copolyvidon; Copolyvidonum; Copovidon; Copovidone; Copovidonum; Vinylpyrrolidone-vinyl acetate copolymer; 1-vinyl-2-pyrrolidone and vinyl acetate copolymer (6:4 ratio by mass)

**Classification:** Polyvinylpyrrolidone-vinylacetate copolymer

**Definition:** Copolymer obtained by free-radical polymerization of 6 parts of vinylpyrrolidone and 4 parts vinyl acetate in IPA

**Formula:** \((\text{C}_6\text{H}_9\text{NO})_n(\text{C}_4\text{H}_6\text{O}_2)_m\)

**Properties:** Wh. powd.; water-sol.

**Uses:** Binder for pharmaceutical direct compression and compacting; binder for wet granulation in tablets, capsules, and granules; film-former for tablet coatings and topical sprays

**Regulatory:** JSPI, BP, EP, DAB compliance; Canada DSL

**Manuf./Distrib.:** BASF [http://www.bASF.com](http://www.bASF.com);
Blagden Spec. Chems. Ltd [http://www.blagdenspecchem.co.uk](http://www.blagdenspecchem.co.uk)

**Trade Names:** Kollidon® VA 64; Kollidon® VA 64 Fine

**Trade Names Containing:** Kollicoat® IR White

**Copolyvidonum. See Copolyvidone; PVP/VA copolymer**

**Copolyvidone; Copovidone; Copovidonum. See Copolyvidone**

**Copper**

**CAS 7440-50-8; EINECS/ELINCS 231-159-6**

**UN 3089 (DOT)**

**Synonyms:** Arwood copper; Bronze powder; CI 77400; Copper-airborne; Copper bronze; Copper-milled; Copper slag-airborne; Copper slag-milled; Gold bronze; Kafar copper; Pigment metal 2; Raney copper

**Classification:** Element

**Empirical:** Cu

**Properties:** Reddish lustrous metal; insol. in water, org. solvs.; sol. in nitric acid (reacts); very slowly sol. with HCl, sulfuric acid; a.w. 63.54; dens. 8.96; vapor pressure 1 mm Hg (1628 C); m.p. 1083 C; b.p. 2595 C; high elec. and thermal conductivity

**Toxicology:** ACGIH TLV/TWA 0.2 mg/m³

**Uses:** Ingd. in dental amalgam; dietary supplement

**Regulatory:** FDA 21CFR §193.90, herbicides residue tolerance 1 ppm in potable water; GRAS for use in dietary supplements; Japan restricted; Canada DSL

**Manuf./Distrib.:** Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com);
Am. Chemet [http://www.arec.com](http://www.arec.com);
Atotech USA [http://www.atotechusa.com](http://www.atotechusa.com);
Belmont Metals [http://www.belmontmetals.com](http://www.belmontmetals.com);
BASF [http://www.bASF.com](http://www.bASF.com);
BP [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com);
Coppertech [http://www.coppertech.com](http://www.coppertech.com);
DAB [http://www.dab.com](http://www.dab.com);
Engrs. [http://www.micronmetals.com](http://www.micronmetals.com);
Integra† [http://www.integrachem.com](http://www.integrachem.com);
Mallinckrodt Baker† [http://www.mallbaker.com](http://www.mallbaker.com);
Riedel-de-Haën [http://www.alfa.com](http://www.alfa.com);
Spectrum Quality Prods.† [http://www.spectrumchemical.com](http://www.spectrumchemical.com);
Thomas Scientific† [http://www.thomassci.com](http://www.thomassci.com);
VWR Int'l.† [http://www.vwrsp.com](http://www.vwrsp.com)

**See also** Copper powder

**Copper-airborne. See Copper**

**Copperas. See Ferrous sulfate anhydrous**

**Copper bichloride. See Copper chloride (ic)**

**Copper bronze. See Copper**

**Copper chloride; Copper (II) chloride; Copper (2+) chloride; Copper (II) chloride (1:2). See Copper chloride (ic)**

**Copper chloride (ic)**

**CAS 7447-39-4 (anhyd.); 10125-13-0 (dihydrate); EINECS/ELINCS 231-210-2**
**Chemical Component Cross-Reference**

**UN 2802 (DOT)**

**Synonyms:** Copper bichloride; Copper chloride; Copper (II) chloride; Copper (2+) chloride; Copper (II) chloride (1:2); Cupric chloride; Cupric dichloride

**Classification:** Halide

**Empirical:** $\text{Cl}_2\text{Cu}$

**Properties:** Yel. to brown powd. (anhyd.), grn. needles (dihydrate); sol. in water, alcohol, acetone; m.w. 134.45 (anhyd.), 170.48 (dihydrate); dens. 3.39 (anhyd., 25/4 C), 2.54 (dihydrate); partially dec. above 300 C; m.p. 498 C

**Toxicology:** LD50 (IP, mouse) 7400 µg/kg, (IV, mouse) 17,500 µg/kg; poison by IV and IP routes; irritating to eyes, skin, respiratory system; experimental reproductive effector; mutagenic data; TSCA listed

**Precaution:** Corrosive; can react violently with K and Na

**Hazardous Decomp. Prods.:** Heated to decom., emits toxic fumes of Cl–

**Storage:** Hygroscopic

**Uses:** Micronutrient in biosynthesis

**Regulatory:** Canada DSL


**Copper digluconate; Copper di-D-gluconate; Copper gluconate (INCI). See Copper gluconate (ic)**

**Copper gluconate (ic)**

**CAS 527-09-3; EINECS/ELINCS 208-408-2**

**Synonyms:** Bis (D-gluconato) copper; Copper digluconate; Copper di-D-gluconate; Copper gluconate (INCI); Cupric gluconate

**Definition:** Copper salt of gluconic acid; avail. as the monohydrate

**Empirical:** $\text{C}_12\text{H}_22\text{CuO}_{14}$

**Formula:** \([\text{HOOC–CHOHCHHOCH}_{2}\text{OH}]^2\text{Cu}^{++}\)

**Properties:** Lt. blue powd., odorless; sol. in water; sl. sol. in alcohol; insol. in acetone, ether; m.w. 453.85

**Toxicology:** TSCA listed

**Hazardous Decomp. Prods.:** Heated to decom., emits acrid smoke and irritating fumes

**Uses:** Mineral source, nutrient, dietary supplement for pharmaceuticals; synergist; mouth deodorant ingred.

**Regulatory:** FDA 21CFR §184.1260, GRAS; Japan approved (0.6 mg/L as copper in milk); Canada DSL


**Trade Names:** Gluconal® CU-P

**Trade Names Containing:** Descote® Copper Glucone 20%
Copper (I) iodide. See Copper iodide (ous)

Copper iodide (ous)
CAS 7681-65-4; EINECS/ELINCS 231-674-6
Synonyms: Copper (I) iodide; Cuprous iodide
Empirical: Cul
Properties: Wh. cryst. powd.; sol. in ammonia and KI sol’ns.; insol. in water; dens. 5.653; m.p. 606 C; b.p. 1290 C
Toxicology: TSCA listed

Copper metallic powder
CAS 7440-50-8; EINECS/ELINCS 231-159-6
UN 3089
Synonyms: CI 77400; Copper metallic powder
Definition: Color additive consisting of powdered metallic copper
Empirical: Cu
Properties: Powd.; a.w. 63.54
Toxicology: TLV 0.2 mg/m³ (fume), 1 mg/m³ (dusts and mists); poison to humans by ingestion; TSCA listed
Precaution: DOT: Flamm. solid
Uses: Colorant for external pharmaceuticals, eye use
Regulatory: FDA 21CFR §73.1647, 73.2647; exempt from certification, permanently listed for drug use

Copper phthalocyanine blue
CAS 147-14-8; EINECS/ELINCS 205-685-1
Synonyms: CI 74160; Copper phthalocyanine; Phthalo blue; Phthalocyanine blue; Pigment blue 15 (INCI)
Definition: Bright blue copper phthalocyanine pigment; avail. in the α or β crystal modification
Empirical: C_{32}H_{16}CuN_{8}
Chemical Component Cross-Reference

Materials  http://www.reade.com; SCM  Buckton Page Ltd
Sheffield Bronze Paint  http://www.sheffieldbronze.com; Spectrum  Citrus and Allied Essences
Bronze Powds.  See also  CI 77400; Copper  Seillans  http://www.danisco.com; De
See also  CI 77400; Copper
Copper slag-airborne; Copper slag-milled.  See Copper
Copper sodium chlorophyllin.  See Copper
Chlorophyllin-copper complex
copper sodium complex.  See CI 75810
Copper sulfate; Copper (II) sulfate.  See Cupric sulfate anhydrous
Copper sulfate (ic).  See Cupric sulfate pentahydrate; Cupric sulfate anhydrous
Copper sulfate pentahydrate; Copper (II) sulfate pentahydrate.  See Cupric sulfate pentahydrate
Copra oil.  See Coconut (Cocos nucifera) oil
CoQ10.  See Coenzyme Q10
Cordycepic acid.  See D-Mannitol
Coriander (Coriandrum sativum) oil  1151
CAS  8008-52-4; 84775-50-8; EINECS/ELINCS 446-229-6; 84775-50-8
FEMA 2334
Synonyms: Coriander oil; Coriandrum sativum; Coriandrum sativum oil
Definition: Volatile oil from steam distillation of ripe fruit of Coriandrum sativum, contg. d-linalool and its acetate
Properties: Colorless to pale yel. liq., char. odor and taste; very sol. in chloroform, ether, gluc. acetic acid; sol. in stronger alcohol; pract. insol. in water; dens. 0.863-0.875 (25/25 C); ref. index 1.4620-1.4720 (20 C)
Toxicology: LD50 (oral, rat) 4130 mg/kg; mod. toxic by ing.; skin irritant; can cause allergic reaction, esp. of the skin; mutagenic data; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Storage: Keep cool, well closed; protect from light
Uses: Natural flavor for pharmaceuticals, orals; aromatic; stimulant; carminative
Regulatory: FDA 21CFR §182.20, GRAS; FEMA GRAS; Japan approved; Council of Europe listed; FDA approved for orals; BP, EP compliance; Canada DSL
Manuf./Distrib.: AMC Chems.; Astral Extracts
†=pharmaceutical grade
Chemets†  http://www.atomergic.com; Spectrum Quality Prods.† http://www.spectrumchemical.com; Treett
Chemetal†  http://www.atomergic.com; Spectrum Quality Prods.† http://www.spectrumchemical.com; Treatt
http://www.integrachem.com; Penta Mfg.† http://www.pentamfg.com; USA http://www.rctreatt.com; Universal
Coriander oil; Coriandrum sativum; Coriandrum sativum oil.  See Coriander (Coriandrum sativum) oil
Corn bran.  See Corn (Zea mays) bran
Corn dextrin.  See Dextrin
Corn gluten amino acids
CAS 65072-01-7
Synonyms: Glutens, corn, hydrolyzed; Maize gluten amino acids
Definition: Mixt. of amino acids resulting from the complete hydrolysis of corn gluten protein
Uses: Botanical in pharmaceuticals
Regulatory: Canada DSL
Trade Names Containing: Aminogluten MG
Corn oil.  See Corn (Zea mays) oil
Corn oil, nonsaponifiable fraction.  See Corn (Zea mays) oil unsaponifiables
Corn oil PEG-6 complex.  See Corn oil PEG-6 esters
**Corn oil PEG-6 esters**

**CAS:** 61789-25-1  
**Synonyms:** Corn oil PEG-6 complex  
**Definition:** Complex mixture formed from the transesterification of corn oil and PEG-6  
**Properties:** Nonionic  
**Uses:** Emollient, emulsifier, solubilizer, cosurfactant in pharmaceuticals; amphiphilic agent improving drug delivery  
**Features:** Hydrophilic  
**Trade Names:** Labrafil® M 2125 CS

**Corn oil PEG-8 esters**

**CAS:** 61789-25-1  
**Definition:** Complex mixture formed from transesterification of corn oil and PEG-8  
**Properties:** Nonionic  
**Uses:** Bioavailability enhancer, solubilizer, excipient, emulsifier for pharmaceuticals  
**Features:** Hydrophilic  
**Trade Names:**

**Corn oil unsaponifiables.** See Corn (Zea mays) oil unsaponifiables

**Corn starch.** See Starch; Corn (Zea mays) starch

**Corn starch/acrylamide/sodium acrylate copolymer**  
**Definition:** Polymer of corn starch, acrylamide, and sodium acrylate monomers  
**Uses:** Excipient in pharmaceuticals

**Corn starch, pregelatinized**

**CAS:** 9005-25-8  
**Synonyms:** Maize starch, pregelatinized  
**Uses:** Tablet binder, tablet disintegrant, and tablet and/or capsule diluent in pharmaceuticals  
**Use Level:** 3-15% (tablet disintegrant)  
**Manuf./Distrib.:** Adept Sol’ns.; Alfa Chem†  
http://www.alfachem1.com; CarboMer†  
http://www.carbomer.com; Cerestar USA†  
http://www.cerestar.com; Chemacon GmbH†  
http://www.chemacon.de; Colorcon†  
http://www.colorcon.com; Corn Prods.†  
http://www.cornproducts.com; Grain Processing†  
http://www.grainprocessing.com; Integra†  
http://www.integrachem.com; Lipo†  
http://www.lipochemicals.com; Mutchler†  
http://www.mutchlerchem.com; Nat’l. Starch & Chem.†  
http://www.nationalstarch.com; Penta Mfg.†  
http://www.pentamfg.com; Roquette Am.†  
http://www.roquette.fr; Universal Preserv-A-Chem†  
http://www.upichem.com  
**Trade Names:** Lycatab® C; Lycatab® PGS

**Corn sugar.** See Glucose

**Corn sugar gum.** See Xanthan gum

**Corn sugar syrup.** See Corn syrup

**Corn syrup**

**CAS:** 8029-43-4; 977004-12-8; EINECS/ELINCS 232-436-4  
**Synonyms:** Corn sugar syrup; Glucose syrup; Syrups, hydrolyzed starch  
**Definition:** Mixture of D-glucose, maltose, and maltodextrins; obtained by partial hydrolysis of corn starch  
**Properties:** Aq. syrup  
**Toxicology:** May cause allergic reaction  
**Uses:** Sweetener in pharmaceuticals, orals; texturizer; carrier; in aspirin; dietary supplement  
**Regulatory:** FDA 21CFR §131.112, 133.124, 133.178, 133.179, 145.3, 145.134, 145.180, 146.3, 146.145, 146.146, 155.200, 169.175, 184.1865, GRAS; cleared by MID to flavor sausage, hamburger, meat loaf, luncheon meat, chopped or pressed ham; for use alone at 2% or in combination with corn syrup solids or glucose syrup, with combination totaling 2% on dry basis; approved for orals  
**Manuf./Distrib.:** ADM  
http://www.admworld.com; Ashland  
http://www.ashchem.com; Cerestar USA  
http://www.cerestar.com; DSM Food Spec.  
http://www.dsm.com; Degussa AG/Health & Nutrition  
Jungbunzlauer  
http://www.jungbunzlauer.com; Tate & Lyle UK  
http://www.tateandlyle.com; Varsal Instruments  
http://www.varsal.com  
**Trade Names:** ADM Clintose® Dextrose Greens; Clearsweet® 43/43; Clearsweet® 43/43 IX; Clearsweet® 95% Dextrose Corn Syrup; Clearsweet® Unrefined 95% Dextrose Corn Syrup  
42/43 Corn Syrup; Corn Syrup 36/43; IsoClear® 42 High Fructose Corn Syrup; IsoClear® 55 High Fructose Corn Syrup  
**Trade Names Containing:** ADM Invert Blend  
90% Invert/76.7% Solids; Lucarotin® 10 CWD O; N-Lok®; N-Lok® 1930  
**See also** Glucose, liquid

**Corn syrup, high fructose**

**CAS:** 977042-84-4  
**Synonyms:** HFCS; High fructose corn syrup

†=pharmaceutical grade

Merigel 100; National® 78-1551; Spress® B820  
Spress® B825
Chemical Component Cross-Reference

**Uses:** Moisturizer, crystallization control agent, sweetener for pharmaceuticals, orals

**Features:** High osmotic pressure

**Regulatory:** FDA 21CFR §131.111, 131.112, 131.170, 131.200, 131.203, 131.206, 131.209, GRAS; FDA approved for orals

**Manuf./Distrib.:** Degussa AG/Health & Nutrition; Glorybee Natural Sweeteners

**Trade Names:** Hi-Sweet® 42; Hi-Sweet® 55

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**Corn syrup, hydrogenated.** See Hydrogenated starch hydrolysate

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**Corn syrup solids**

CAS 68131-37-3

**Synonyms:** Glucose syrup solids

**Properties:** Clear visc. syrup

**Uses:** Coating agent, binder, bulking agent, flavor for pharmaceuticals

**Features:** Directly compressible

**Regulatory:** Canada DSL

**Manuf./Distrib.:** Adept Sol'ns.; Ashland; Alba

**Trade Names:** Maltrin® M200; Maltrin® M250; Maltrin® QD M600

**Trade Names Containing:** Lessstanol™ Natural Octacosanol GF

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**Corn (Zea mays) bran**

**Synonyms:** Corn bran; Zea mays

**Uses:** Dietary fiber in pharmaceuticals, high-fiber formulations

**Features:** Natural

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**Corn (Zea mays) oil**

CAS 8001-30-7; EINECS/ELINCS 232-281-2

**Synonyms:** Corn oil; Maize oil; Zea mays; Zea mays oil

**Definition:** Refined fixed oil obtained from wet milling of corn, Zea mays

**Properties:** Pale yel. oily liq., faint char. odor and taste; sol. in ether, chloroform, amyl acetate, benzene, CS₂, chlorinated and aromatic solvs.; sl. sol. in alcohol; insol. in water; dens. 0.914-0.921; m.p. -10 C; acid no. 2-6; iodine no. 109-133; sapon. no. 187-193; flash pt. 321 C; ref. index 1.470-1.474

**Toxicology:** Nontoxic; human skin irritant; experimental teratogen; may be an allergen; TSCA listed

**Precaution:** Combustible exposed to heat or flame; dangerous spontaneous heating may occur

**NFPA:** Health 0, Flammability 1, Reactivity 0

**Storage:** Light-sensitive

**Uses:** Solvent, vehicle for pharmaceuticals, injectables, orals, topicals; dietary supplement

**Features:** Oleaginous

**Regulatory:** FDA 21CFR §175.105, 175.300, 176.200, 176.210, GRAS; FDA approved for injectables, orals, topicals; USP/NF, BP, EP, JP compliance; Canada DSL

**Manuf./Distrib.:** A&E Connock; ADM; Aarhus Karlshamn A/S; Alba Int'l.; Alban Muller; Alga# Int'l.; Alban Muller; Alzo; Anglia Oils; Arista Ind.; Ashland; Avatar; Camida Ltd; Cargill PLC; Cerestar Int'l.; Cerestar USA; Charkit; ChemService; Corn Prods.; Croda Inc; Eggar & Co.; Fluka; Grain Processing; Lipochemicals; Mutchler; Penta Mfg.; Pokonobe Ind.; Roquette; Ruger

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Handbook of Pharmaceutical Additives, Third Edition 1153
Chemical Component Cross-Reference

Sea-Land  http://www.sealandchem.com;
Sigma  http://www.sigma-aldrich.com/belgium; Spectrum Naturals
http://www.spectrumnaturals.com;
Spectrum Quality Prods.†
http://www.spectrumchemical.com;
Vandemoortele Bakery Prods.
http://www.vandemoortelebakeryproducts.com/
Voigt Global Distrib.†
http://www.vgdllc.com; Welch, Holme &
Clark  http://www.welch-holme-clark.com

Trade Names:  Super Refined® Corn NF
Trade Names Containing:  Beta Carotene 30%
FS; Canthaxanthin 10% CWS/N; Docusate
Calcium USP in Corn Oil NF Sol’n.; Liquid
Vitamin D3; Lucarotin® 30
coredivivo™ (lycopene) 10% FS
redivivo™ (lycopene) 10% WS
Corn (Zea mays) oil unsaponifiables
CAS 66587-54-0; EINECS/ELINCS 266-416-1
Synonyms:  Corn oil, nonsaponifiable fraction;
Corn oil unsaponifiables; Zea mays; Zea
mays unsaponifiables
Definition:  Fraction of corn oil which is not
saponified in the refining recovery of corn oil
fatty acids
Uses:  Emollient
Trade Names Containing:  Vitamin A and D-3
Blend
Corn (Zea mays) silk
CAS 977000-79-5
FEMA 2335
Definition:  Fresh styles and stigmas of Zea mays
Properties:  Nearly odorless; faintly sweetish
taste
Hazardous Decomp. Prods.:  Heated to
decomp., emits acrid smoke and irritating
fumes
Uses:  Natural flavor for pharmaceuticals
Regulatory:  FDA 21CFR §184.1262, GRAS;
FEMA GRAS
Manuf./Distrib.:  Am. Ingreds.
http://www.americaningredients.com; Chart
http://www.chartcorp.com; Degussa
AG/Health & Nutrition; Whole Herb
http://www.wholeherbcompany.com

Corn (Zea mays) starch
CAS 9005-25-8; 53112-52-0; 75138-75-9;
977050-51-3; EINECS/ELINCS 232-679-6
Synonyms:  Corn starch; Maize starch; Starch,
corn; Starch, zea mays; Zea mays; Zea
mays starch
†=pharmaceutical grade

Definition:  Granules obtained from mature grains
of corn, Zea mays; carbohydrate polymer
consisting primarily of amyllose and
amylopectin
Formula:  (C6H10O5)n
Properties:  Wh. powd. or spheroidal gran.; pract.
insol. in cold water and in ethanol (95%)
Toxicology:  LD50 (IP, mouse) 6600 mg/kg;
primary irritant; no ill effects unless
massive doses are given; use of powd. in
rubber gloves may cause contact urticaria;
TSCA listed
HMIS:  Health 0, Flammability 1, Reactivity 0
Uses:  Excipient, filler, tablet-disintegrant in
pharmaceuticals, solid oral medicinals;
source of glucose; thickener; lubricant in
surgical and examination gloves; dietary
supplement
Regulatory:  FDA 21CFR §175.105, 178.3520,
182.70, 182.90; GRAS for use in dietary
supplements
Manuf./Distrib.:  ADM Corn Processing
Aldrich  http://www.sigma-aldrich.com;
Blagden Spec. Chems. Ltd†
http://www.blagdenspecchem.co.uk;
CarboMer†  http://www.carbomer.com
Cerestar UK†  http://www.cerestar.com;
Cerestar USA†  http://www.cerestar.com;
Chemacon GmbH†
http://www.chemacon.de; Chemstar Prods.
http://www.chemstar.com; Corn Prods.
http://www.cornproducts.com
Galactic†  http://www.lactic.com; Grain
Processing
http://www.grainprocessing.com; Houghton
NB Entrepreneurs  http://www.nbent.com;
Nalco  http://www.nalco.com
Nat'l. Starch & Chem.
http://www.nationalstarch.com; Penford
Prods.  http://www.penford.com; Roquette†
http://www.roquette.fr; Ruger†
http://www.rugercosmetics.com; Sigma
http://www.sigma-aldrich.com/belgium
Spectrum Quality Prods.†
http://www.spectrumchemical.com; Tate &
Lyle UK  http://www.tateandlyle.com; Varsal
Instruments  http://www.varsal.com;
Westco  http://www.westcochemicals.com
Trade Names:  Cargill Pharm 05521;
C*PharmGel 03302; C*PharmGel 03406;
C*PharmGel 03415; C*PharmGel 12012
Chemical Component Cross-Reference

Extra White Maize Starch; Maize Starch B; Meritena 100; Meritena 141; PCS® Powdered 10 NF; Powdered 7.5 NF; Powdered GP USP; Powdered NF; Pure-Dent® B700 NF Pure-Dent® B810 NF; Pure-Dent® B812 USP; Pure-Dent® B815 NF; Pure-Dent® B816 USP; Pure-Dent® B852 Pure-Dent® B880 NF; Pure-Dent® B890 NF; Purity® 21C; Purity® 825; Starch 400L NF Sta-Rx® NF; Uni-Pure F; Uni-Pure FL Trade Names Containing: Canthaxanthin 10% CWS/N; Lipothix™ 200-S; Lycatab® Mineral; Optisharp™ (Zeaxanthin) 5% CWS/S-TG; Pure-Dent® B851 redivivo™ (lycopene) 5% TG/P; redivivo™ (lycopene) 10% WS; Ropufa® Riboflavin 331/3; Ropufa® '10' n-3 INF Powder; StarCap® 1500 StarLac™; TC-90™ Ascorbic Acid for DC Corylone. See Methyl cyclopentenolone Corylus avellana; Corylus avellana nut oil. See Hazel (Corylus avellana) nut oil Cosbiol. See Squalane Cosmetic talc. See Talc Costus oil; Costus root oil. See Costus (Saussurea lappa) oil Costus (Saussurea lappa) oil CAS 8023-88-9 FEMA 2336 Synonyms: Costus oil; Costus root oil; Saussurea lappa Definition: Oil derived from Saussurea lappa Properties: Yel to brn. liq.; insol. in water; flash pt. 120 F Toxicology: LD50 (oral, rat) 3400 mg/kg, (skin, rabbit) > 5 g/kg; mod. toxic by ing.; low toxicity by skin contact; skin irritant; mutagenic data; TSCA listed Precaution: Combustible liq. Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes Uses: Natural flavor for pharmaceuticals Regulatory: FDA 21CFR §175.105, 175.300, 176.200, 176.210, 177.2800, GRAS; FDA approved for intramuscular injectables, orals; USP/NF compliance; Canada DSL Manuf./Distrib.: A&E Connock† http://www.connock.co.uk; ABITEC http://www.abiteccorp.com; AMRESCO† http://www.amresco-inc.com; Aldrich† http://www.sigma-alrich.com; Alnor Oil http://www.alnoroil.com Alzo http://www.alzointernational.com; Amber Syn. http://www.amsyn.com; Arista Ind.† http://www.aristaindustries.com; Avatar† http://www.avatargroup.com; Camida Ltd† http://www.camida.com Charkit† http://www.charkit.com; Croda Inc† http://www.croda.com; http://www.crodausa.com; Fisher Scientific† http://https://www1.fishersci.com/index.jsp;
Chemical Component Cross-Reference

Forum Bioscience†
http://www.forum.co.uk; Good Food
Jeen Int'l.† http://www.jeen.com; Lambent
Mutchler† http://www.mutchlerchem.com;
Natural Oils Int'l.
http://www.naturaloils.com; Oilseeds Int'l.
http://www.oilseedssf.com
Penta Mfg.† http://www.pentamfg.com;
Pokonobe Ind.† http://www.pokonobe.com;
Ruger† http://www.rugerchemical.com;
Sea-Land http://www.sealandchem.com;
Sigma http://www.sigma-aldrich.com/belgium
Spectrum Quality Prods.†
http://www.spectrumchemical.com;
Thornley
http://www.thornleycompany.com; Voigt
Global Distrib.† http://www.vgdlc.com;
Welch, Holme & Clark http://www.welch-holme-clark.com

Trade Names: Super Refined® Cottonseed NF
Trade Names Containing: Lucarotin® 30 C

Cottonseed oil; Cottonseed oil, winterized.
See Cottonseed (Gossypium) oil

Coumaric acid; cis-o-Coumaric acid lactone.
See Coumarin

Coumarin
CAS 91-64-5; EINECS/ELINCS 202-086-7
UN 2811 (DOT)
Synonyms: 1-Benzopyran-2-one; 2H-1-
Benzopyran-2-one; 2H-1-Benzopyran, 2-
oxo-; Benzopyrone; 1,2-Benzopyrone;
Benzo-α-pyrone; Chromen-2-one; Cinnamic
acid, o-hydroxy-, 8-lactone; Coumaric acid;
cis-o-Coumarinic acid lactone; cis-o-
Coumarinic acid lactone; Coumarinic
anhydride; Cumarin; o-Hydroxycinnamic
acid lactone; o-Hydroxycinnamic acid
8-lactone; o-Hydroxycinnamic lactone; 2-Oxo-
1,2-benzopyran; 2-Propenoic acid, 3-(2-
hydroxyphenyl)-8-lactone; Tonka bean
camphor

Classification: Aromatic lactone

Empirical: C9H6O2

Properties: Colorless to wh. cryst., flakes, or
powd.; pleasant, fragrant odor resembling
vanilla beans; burning taste; freely sol. in
alcohol, chloroform, ether, oils; sol. inaq.
alkali, oxygenated and chlorinated solvs.; sl.
sol. in hot water; m.w. 146.15; dens. 0.935;
m.p. 68-70 C; b.p. 298 C; flash pt. 162 C

Toxicology: LD50 (oral, rat) 293 mg/kg, (IP,
mouse) 220 mg/kg, (subcut., mouse) 242
mg/kg; TDLo (oral, man, 17 wks
intermittent) 87 mg/kg; toxic by inh., ing.,
skin contact; possible risk of irreversible
effects; skin/eye/respiratory/digestive tract
irritant; may cause somnolence, analgesia,
enzyme inhibition, wt. loss, change in
blood/tissue levels, CNS depression;
possible carcinogen; tumorigen;
reproductive effector; mutagen; target
organ: liver; TSCA listed

Precaution: Incompat. with strong oxidizing
agents, strong acids, strong bases; avoid
incompat. materials, light, excess heat

Hazardous Decomp. Prods.: COx
HMIS: Health 1, Flammability 1, Reactivity 0
Storage: Light-sensitive; store in cool, dry, well-
ventilated area, in tightly closed container,
protected from light, away from incompat.
substances

Uses: Fragrance, flavor in pharmaceuticals
Regulatory: FDA 21CFR §189.130; prohibited
from direct addition or use in human food;
Canada DSL
Manuf./Distrib.: ABCR http://www.abcr.de;
ADA Int'l.
http://www.joinme.net/ada/index.htm; AMC
Chems.†; Acros Org.
http://www.acros.com; Adrian Amer.
http://www.adrianusa.com
Aldrich† http://www.sigma-aldrich.com;
Alfa Aesar† http://www.sigma-aldrich.com;
Alfa Chem† http://www.alfa.com;
Asiamerica Int'l.†; Augustus Oils Ltd
http://www.augustus-oils.ltd.uk
Chinesessence http://www.chinesessence.com;
Citrus and Allied Essences
http://www.citrusandallied.com; Fluka
http://www.sigma-aldrich.com; Fuerst Day
Lawson http://www.fd.co.uk; Lluch
Essence http://www.lluch-essence.com
MelChem† http://www.melchem.com;
Morata Global Private
http://www.morayaglobal.com; Nantong
ChangChem http://www.changchem.com;
Penta Mfg.† http://www.pentamfg.com; R.C.
Treatt & Co. Ltd http://www.rcttreatt.com
Sigma http://www.sigma-
aldrich.com/belgium; Spectrum Quality
Prods.† http://www.spectrumchemical.com

cis-o-Coumarinic acid lactone; Coumarinic
anhydride. See Coumarin
CP. See Cellulose acetate propionate
Chemical Component Cross-Reference

2-CP. See 2-Chloropyridine

C10-12 pareth-3
CAS 66455-15-0 (generic)
Classification: Linear alcohol ethoxylate
Properties: Nonionic
Uses: Emulsifier
Trade Names: Alfonic® 1012-2.5; Alfonic® 1012-3

C12-13 pareth-4
CAS 66455-14-9 (generic)
Classification: Linear alcohol ethoxylate
Definition: PEG ether of a mixt. of syn. C12-13 fatty alcohols with avg. 4 moles EO
Properties: Nonionic
Uses: Emulsifier
Trade Names: Volpo L4

C12-13 pareth-23
CAS 66455-14-9 (generic)
Classification: Linear alcohol ethoxylate
Definition: PEG ether of a mixt. of syn. C12-13 fatty alcohols with avg. 23 moles EO
Properties: Nonionic
Toxicology: TSCA listed
Uses: O/w emulsifier, solubilizer for pharmaceuticals
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: Volpo L23

C12-15 pareth-12
CAS 68131-39-5 (generic)
Synonyms: Pareth-25-12; PEG-12 C12-15 alcohol
Classification: Linear alcohol ethoxylate
Definition: PEG ether of a mixt. of syn. C12-15 fatty alcohols with avg. 12 moles EO
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emollient in pharmaceuticals; coupling agent; solubilizer
Trade Names: Rhodasurf® LA-12

C12-16 pareth-1
CAS 68551-12-2 (generic)
Classification: Linear alcohol ethoxylate
Properties: Nonionic
Uses: Surfactant
Trade Names: Alfonic® 1216-1.5

C12-15 pareth-2 phosphate
CAS 149919-05-1
Synonyms: Pareth-25-2 phosphate; PEG-2-C12-15 alcohols phosphate

†=pharmaceutical grade

Definition: Complex mixt. of esters of phosphoric acid and C12-15 pareth-2
Properties: Anionic
Uses: Surfactant, emulsifier, solubilizer for pharmaceuticals
Trade Names: TDP-2

C12-15 pareth-8 phosphate
Definition: Mixt. of esters of phosphoric acid and a syn. C12-15 ethoxylated alcohol with avg. 8 moles EO
Properties: Anionic
Uses: Surfactant, emulsifier, solubilizer for pharmaceuticals
Trade Names: TDP-8

C12-15 pareth-10 phosphate
Definition: Mixt. of esters of phosphoric acid and a syn. C12-15 ethoxylated alcohol with avg. 10 moles EO
Properties: Anionic
Uses: Emulsifier and solubilizer for pharmaceuticals
Trade Names: TDP-10

CPC. See Cetylpyridinium chloride

C18 polycarbamyl polyglycolol ester
Uses: Thickener, stabilizer
Trade Names Containing: Aculyn® 46

C11 primary alcohol. See Undecyl alcohol

Cranberry (vaccinium macrocarpon) fruit extract
CAS 91770-88-6; EINECS/ELINCS 294-875-8
Uses: Botanical extract
Regulatory: Canada DSL
Manuf./Distrib.: Carrubba http://www.carrubba.com
Trade Names Containing: Origanox™ WS-CR

Crataegus extract; Crataegus monogina. See Crataegus monogina extract

Crataegus monogina extract
CAS 8057-51-0; 84603-61-2; 90045-52-6; EINECS/ELINCS 283-262-0; 289-914-0
Synonyms: Crataegus extract; Crataegus monogina; Crataegus monogyna extract; Crataegus oxyacantha extract; Esbericard; Hawthorne berries extract; Hawthorne extract
Definition: Extract of the berries of the crataegus, Crataegus monogina
Toxicology: LD50 (oral, rat) 33,800 mg/kg; LDLo (IV, rat) 1000 mg/kg; poison by IV route; mildly toxic by ing.
Uses: Botanical, tonic, astringent
Chemical Component Cross-Reference

Manuf./Distrib.: Bell Flavors & Fragrances
http://www.bellff.com; Bio-Botanica
http://www.bio-botanica.com; Carrubba
http://www.carrubba.com; Charles Bowman
http://www.charlesbowman.com; Grau
Aromatics http://www.grau-aromatics.de

Trade Names: NAB Hawthorn Extract

†=pharmaceutical grade

Crataegus monogyna extract; Crataegus oxyacantha extract. See Crataegus monogyna extract

Cream of tartar. See Potassium acid tartrate

Creatine (INCI). See Creatinine

Creatinine
CAS 60-27-5; EINECS/ELINCS 200-466-7

Synonyms: 2-Amino-1-methyl-4-imidazolidinone; Creatine (INCI); 2-Imino-1-methylimidazolidin-4-one

Definition: Anhydride of creatine

Empirical: C4H7N3O2

Properties: Colorless to yel. liq., odorless; sl. sol. in water, alcohol, benzene, chloroform, ether; m.w. 113.12; dens. 1.092; m.p. 255 C (dec.); flash pt. 290 C

Toxicology: May cause eye and skin irritation

Precaution: Wear safety glasses and impervious gloves; avoid oxidizing agents

Hazardous Decomp. Prods.: COx, NOx

HMIS: Health 1, Flammability 1, Reactivity 1

Storage: Store in a tightly closed container in a cool, dry place away from ignition sources

Uses: Bulking agent for pharmaceuticals, freeze-drying, injectables, ophthalmics, otics, topicals

Regulatory: FDA approved for injectables, ophthalmics, otics, topicals; NF compliance; Canada DSL

Manuf./Distrib.: Adept Sol’ns.†; Aldrich†
http://www.sigma-aldrich.com; Alfa Chem†
http://www.alfachem1.com; Am. Int’l.†
http://www.aicma.com; Ashland†
http://www.ashchem.com
Asiamerica Int’l.†; Austin†
http://www.austinchemical.com; Chattem†
http://www.chattemchemicals.com; DSM
Fine Chems. Austria
http://www.dsmfinechemicals.com; Dastech
Int’l.† http://www.dastechcom
Donboo Amino Acid
http://www.donboo.com; Ferro Pfansiehl
Europe†; Ferro Pfansiehl Labs†
http://www.pfansiehl.com; Fluka
http://www.sigma-aldrich.com; Functional
Foods† http://www.functionalfoods.com

Creosol; p-Cresol. See 2-Methoxy-4-methylphenol

2-Cresol. See o-Cresol

3-Cresol. See m-Cresol

4-Cresol. See p-Cresol

m-Cresol
CAS 108-39-4; EINECS/ELINCS 203-577-9

UN 2076 (DOT); FEMA 3530

Synonyms: 3-Cresol; m-Cresylic acid; 1-Hydroxy-3-methylbenzene; 3-Hydroxytoluene; m-Hydroxytoluene; 3-Methylphenol; m-Methylphenol; m-Oxytoluene; m-Toluol

Classification: Phenol

Empirical: C7H8O

Formula: CH3C6H4OH

Properties: Colorless to yel. liq., phenolic odor; sol. in water, ethanol, chloroform, diethyl ether, acetone, benzene, other common org. solvs.; misc. with glycerin; m.w. 108.14; dens. 1.034 (20/4 C); vapor pressure 1 mm (52 C); m.p. 12 C; b.p. 203 C; flash pt. (CC) 86 C; ref. index 1.5400

Toxicology: LD50 (oral, rat) 2.02 g/kg, (skin, rat) 1100 mg/kg, (IP, mouse) 168 mg/kg; poison by ing., IV, IP, subcut. routes; mod. toxic by skin contact; chronic poisoning may occur from oral ingestion or absorption through the skin; severe eye
and skin irritant; can produce digestive disturbances, skin eruptions, jaundice, uremia; human mutagenic data; TSCA listed
Precaution: Corrosive; combustible; mod. explosive in form of vapor when exposed to heat or flame
NFPA: Health 3, Flammability 2, Reactivity 0
Storage: Hygroscopic; sensitive to light and air
Uses: Antimicrobial, preservative in pharmaceuticals, injectables, eye lotions, antiseptic, insulin prods.; medicinal flavor
Properties: Wh. cryst. mass, phenolic odor; solvs.; sl. sol. in water; m.w. 108.14; dens. 1.048; vapor pressure 1 mm (38.2 C); m.p. 30-34 C; b.p. 191 C; flash pt. 178 F
Toxicology: ACGIH TLV/TWA 5 ppm; LD50 (oral, rat) 1.8 g/kg, (IP, mouse) 25 mg/kg, (skin, rabbit) 301 mg/kg; poison by ing., skin contact, subcut., IV, and IP routes; severe skin and eye irritant; questionable carcinogen; experimental neoplastigen; TSCA listed
Precaution: Combustible exposed to heat or flames; mod. explosive as vapor when exposed to heat or flame

Chemical Component Cross-Reference

ο-Cresol
CAS 95-48-7; EINECS/ELINCS 202-423-8
UN 2076 (DOT); FEMA 3480
Synonyms: 2-Cresol; o-Cresylic acid; 1-Hydroxy-2-methylbenzene; o-Hydroxytoluene; 2-Methylphenol; o-Methylphenol; Orthocresol; o-Oxytoluene; o-Tolual
Classification: Aromatic phenol
Empirical: C7H8O
Properties: Cryst. or liq.; darkens on exposure to air or light; m.w. 108.14; dens. 1.048; vapor pressure 1 mm (38.2 C); m.p. 30-34 C; b.p. 191 C; flash pt. 178 F
Toxicology: ACGIH TLV/TWA 5 ppm; LD50 (oral, rat) 121 mg/kg, (skin, rat) 620 mg/kg; highly toxic; poison by ing., inh., subcut., IV, IP routes; readily absorbed through skin; severe eye and skin irritant; experimental neoplastigen; questionable carcinogen; human mutagenic data; target organs:

ν=pharmaceutical grade
nerves, lungs, liver, kidneys; TSCA listed
Precaution: Corrosive; flamm. exposed to heat, flame, or oxidizers
NFPA: Health 3, Flammability 2, Reactivity 0
Storage: Air and light-sensitive
Uses: Flavor, antimicrobial, preservative in pharmaceuticals
Regulatory: FDA 21 CFR §175.300, 177.2410; FEMA GRAS; SARA reportable; HAP; USP/NF, BP compliance; Canada DSL
Manuf./Distrib.: Allchem Ind.
http://www.allchem.com; Atul Ltd
http://www.atul.co.in; Bayer†
http://www.bayerus.com; Crowley Tar
http://www.sigma-aldrich.com; Honeywell
http://www.sigma-aldrich.com/belgium
http://www.safcspecialties.com; Sigma
http://www.safcspecialties.com; Spec.
http://www.pentamfg.com
http://www.whytechemicals.co.uk

p-Cresol
CAS 106-44-5; EINECS/ELINCS 203-398-6
UN 2076 (DOT); FEMA 2337
Synonyms: 4-Cresol; p-Cresyl acid; 1-Hydroxy-4-methylbenzene; 4-Hydroxytoluene; p-Hydroxytoluene; 1-Methyl-4-hydroxybenzene; 4-Methylphenol; p-Methylphenol; p-Oxytoluene; Paramethyl phenol; p-Tolual; p-Tolyl alcohol
Classification: Aromatic alcohol
Empirical: C7H8O
Formula: CH3C6H4OH
Properties: Wh. cryst. mass, phenolic odor; sol. in alcohol, ether, chloroform, acetone, diethyl ether, benzene, CCl4, hot water, most org. solvs.; sl. sol. in water; m.w. 108.14; dens. 1.0341 (20/4 C); m.p. 32-35 C; b.p. 202 C; flash pt. (CC) 86 C; ref. index 1.5395
Toxicology: ACGIH TLV/TWA 5 ppm; LD50 (oral, rat) 1.8 g/kg, (IP, mouse) 25 mg/kg, (skin, rabbit) 301 mg/kg; poison by ing., skin contact, subcut., IV, and IP routes; severe skin and eye irritant; questionable carcinogen; experimental neoplastigen; TSCA listed
Precaution: Combustible exposed to heat or flames; mod. explosive as vapor when exposed to heat or flame

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Chemical Component Cross-Reference

Empirical: \( C_9H_{10}O_2 \)

NFPA: Health 3, Flammability 2, Reactivity 0
Uses: Synthetic flavor for pharmaceuticals
Regulatory: USP/NF, BP compliance; FDA 21CFR §172.515, 175.300, 177.2410; FEMA GRAS; HAP; Canada DSL
Manuf./Distrib.: Allchem Ind.

http://www.allchem.com; Am. Biorganics; Atul Ltd http://www.atul.co.in; Augustus Oils Ltd http://www.augustus-oils.ltd.uk; Degussa AG/Health & Nutrition
http://www.pmcsg.com; Penta Mfg.
http://www.pentamfg.com; SAFC Specialties
http://www.spectrumchemical.com; Whyte Chems. Ltd
http://www.whytechemicals.co.uk

Co-Cresol acetate. See o-Cresyl acetate
p-Cresol acetate. See p-Cresyl acetate
o-Cresol methyl ether. See o-Methylanisole
p-Cresol methyl ether. See p-Methylanisole

o-Cresyl acetate CAS 533-18-6; EINECS/ELINCS 208-556-8
Empirical: \( C_9H_{10}O_2 \)
Formula: \( CH_3COOC_6H_4CH_3 \)
Properties: Liq.; sol. in hot water, org. solvs., oils; nearly insol. in cold water; m.w. 150.18; dens. 1.05; b.p. 208 C; ref. index 1.4998
Precaution: Combustible
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Augustus Oils Ltd
http://www.safcspecialties.com

p-Cresol dodecanoate. See p-Tolyl laurate
o-Cresylactic acid. See o-Cresyl acetate
p-Cresylactic acid. See p-Cresyl acetate
m-Cresylactic acid. See m-Cresol
o-Cresylactic acid. See o-Cresol
p-Cresylactic acid. See p-Cresol
Cresyl-4-isobutyrate. See p-Tolyl isobutyrate
o-Cresyl isobutyrate. See o-Tolyl isobutyrate
p-Cresyl isobutyrate. See p-Tolyl isobutyrate
p-Cresyl laurate. See p-Tolyl laurate
o-Cresyl methyl ether. See o-Methylanisole
p-Cresyl methyl ether. See p-Methylanisole
p-Cresyl phenylacetate. See p-Tolyl phenylacetate
Cretan dittany. See Dittany of Crete
Crispmint oil. See Spearmint (Mentha viridis) oil
Crocus; Crocus sativus. See Saffron (Crocus sativus)
Croscarmellose (INCI). See Croscarmellose sodium

1160
### Croscarmellose sodium

**CAS:** 74811-65-7  
**INS:** E468

**Synonyms:** Croscarmellose (INCI); Crosslinked carboxymethyl cellulose; Crosslinked cellulose gum; Crosslinked CMC; Crosslinked NaCMC; Crosslinked sodium carboxymethylcellulose; Crosslinked sodium CMC; Sodium salt of crosslinked carboxymethyl ether cellulose

**Definition:** Sodium salt of thermally crosslinked carboxymethylated cellulose

**Properties:** Wh. to off-wh. free-flowing powd.; odorless; partly sol. in water; insol. in ether, alcohol, org. solvs.; pH 5-7 (1% disp.); hydrophilic

**Storage:** Hygroscopic; store in a well-closed container in a cool, dry, place

**Uses:** Disintegrant in pharmaceutical tablets, capsules, and granules; in intramuscular injectables, orals

**Use Level:** 2% w/w used in tablets prepared by direct compression; 3% w/w in tablets prepared by a wet-granulation process

**Regulatory:** FDA approved for intramuscular injectables, orals; USP/NF compliance

**Manuf./Distrib.:**  
Alfa Chem†  
http://www.alfachem1.com  
Allchem Int'l. Ltd†  
http://www.allchem.co.uk  
Am. Int'l.†  
http://www.aiicma.com  
Asiamerica Int'l.†  
http://www.avebe.com  
Avebe BV†  
http://www.avebe.com  
Barrington†  
http://www.barringtonchem.com  
CarboMer†  
http://www.carbomer.com  
Charkit†  
http://www.charkit.com  
Chemacon GmbH  
http://www.chemacon.de  
DMV Int'l. Pharma†  
http://www.dmv-international.com  
FMC Biopolymer†  
http://www.fmcbiopolymer.com  
Generichem†  
http://www.generichem.com  
George Uhe†  
http://www.uhe.com  
Honeywill & Stein†  
http://www.honeywill.co.uk  
J. Rettenmaier & Söhne†  
http://www.jrs.de  
Lehmann & Voss†  
http://www.lehvoss.de  
Ming Tai Chem†  
http://www.mingtai.com  
Mutchler†  
http://www.mutchlerchem.com  
Noveon†  
http://www.carbopol.com  
http://www.noveoncoatings.com  
Omya Peralta  
http://www.omega-peralta.de  
RIA Int'l.†  
http://www.riausa.com  
Spectrum Quality Prods.†  

**Trade Names:** Ac-Di-Sol®; Kiccolate® ND-2HS; Kiccolate® ND-200; Pharmacei® XL; Primellose®; Solutab®; Vivasol®

**Chemical Component Cross-Reference †=pharmaceutical grade**

- **CAS:** 74811-65-7  
- **Synonyms:** Crospovidone; Crospovidinum

**Definition:** Water-insol. synthetic crosslinked homopolymer of N-vinyl-2-pyrrolidinone

**Empirical:** (C₉H₇NO)ₖ

**Properties:** Wh. powd., faint odor; insol. in water but swells instantly on contact; insol. in most org. solvs.

**Toxicology:** TSCA listed

**Storage:** Hygroscopic

**Uses:** Excipient, suspension stabilizer in pharmaceuticals, implants, ophthalmics, orals, injectables (percutaneous), topicals; tablet binder, disintegrant

**Regulatory:** FDA approved for implants, ophthalmics, orals, injectables, topicals; USP/NF, BP, EP compliance

**Manuf./Distrib.:** Aldrich  
http://www.sigma-aldrich.com  
Allchem Int'l. Ltd†  
http://www.allchem.co.uk  
Asiamerica Int'l.†  
http://www.asiameri.com  
BASF†  
http://www.basf.com  
Blagden Spec. Chems. Ltd†  
http://www.blagdenspecchem.co.uk  
CarboMer†  
http://www.carbomer.com  
Fluka  
http://www.sigma-aldrich.com  
Galbraith Labs†  
http://www.galbraith.com  
ISP†  
http://www.ispcorp.com  
Mutchler†  
http://www.mutchlerchem.com  
Noveon†  
http://www.carbopol.com  
http://www.noveoncoatings.com  
Sigma  
http://www.sigma-aldrich.com/belgium  
Triple Crown Am.†  
http://www.triplecrownamerica.com  
Univar Ltd†  
http://www.univar.co.uk  
Zetapharm†  
http://www.zetapharm.com

**Trade Names:** Kollidon® CL; Kollidon® CL-F; Kollidon® CL-M; Kollidon® CL-SF;
Chemical Component Cross-Reference

Polyplasdone® INF-10
Polyplasdone® XL; Polyplasdone® XL-10
Trade Names Containing: Ludipress®

Crosslinked carboxymethyl cellulose; Crosslinked cellulose gum; Crosslinked CMC; Crosslinked NaCMC. See Croscarmellose sodium
Crosslinked PVP. See Crospovidone
Crosslinked sodium carboxymethylcellulose; Crosslinked sodium CMC. See Croscarmellose sodium
Croton bark oil; Croton cascarilla; Croton cascarilla oil; Croton eluteria; Croton eluteria oil; Croton extract. See Cascarilla oil

Crotonic acid
CAS 3724-65-0; EINECS/ELINCS 223-077-4
UN 2823 (DOT)

Synonyms: 2-Butenoic acid; α-Butenoic acid; α-Crotonic acid; β-Methacrylic acid; 3-Methylacrylic acid; β-Methylacrylic acid
Classification: Aliphatic organic compd.
Definition: The commercial prod. is a mixt. of the cis and trans isomers
Empirical: C₄H₆O₂
Formula: CH₃CH:CHCOOH
Properties: Colorless needle-like cryst.; sol. 555 g/l in water (20 C); m.w. 86.09; dens. 1.018 (15/4 C); vapor pressure 0.19 mm (20 C); m.p. 72 C; b.p. 185 C; flash pt. (COC) 190 F
Toxicology: LD₅₀ (oral, rat) 1000 mg/kg, (IP, rat) 100 mg/kg, (subcut., mouse) 3590 mg/kg, (skin, rabbit) 600 mg/kg; poison by IP route; mod. toxic by ing., skin contact, subcut. routes; powerful irritant to tissue; corrosive; TSCA listed
Precaution: DOT: Corrosive material; flamm. when exposed to heat and flames
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
NFPA: Health 3, Flammability 2, Reactivity 0
Uses: Synthesis of drugs
Regulatory: Canada DSL
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Allchem Ind.
Eastman http://www.eastman.com; Grau Aromatics http://www.grau-aromatics.de;

†=pharmaceutical grade

Merck KGaA http://www.merck.de;

α-Crotonic acid. See Crotonic acid
Crotonic acid, ethyl ester. See Ethyl crotonate
Crotonic acid, 2-methyl-, ethyl ester, (E)-. See Ethyl tiglate
Crotonic acid, polymer with vinyl acetate. See Vinyl acetate/crotonic acid copolymer
Crotlylendic acetic acid. See Sorbic acid
Cryfluorane. See Dichlorotetrafluoroethane
Cryofluorouan; Cryofluoruran. See 1,2-Dichlorotetrafluoroethane
Crystalline cellulose. See Cellulose
Crystalline silica. See Quartz
Crystal violet. See Basic violet 3
Crystol carbonate. See Sodium carbonate
CSP. See Cupric sulfate pentahydrate
CTAB. See Cetrimonium bromide
CTC. See Carbon tetrachloride
Cube alum. See Potassium alum
dodecahydrate
Cubeb oil. See Cubeb (Piper cubeba) oil
Cubeb (Piper cubeba) oil
CAS 8007-87-2; 90082-59-0; EINECS/ELINCS 290-148-4
FEMA 2339

Synonyms: Cubeb oil; Cubebs oil; Java pepper; Piper cubeba; Piper cubeba fruit oil; Piper cubeba oil; Tailed pepper
Definition: Volatile oil from unripe fruit of Piper cubeba, contg. dipentene, cadinene, cubeb camphor
Properties: Colorless, pale grn. or ylsh. liq.; spicy odor; sl. acrid taste; sol. in fixed oils, min. oil, 10 vols alcohol; misc. with abs. alcohol, chloroform; insol. in water, glycerin, propylene glycol; dens. 0.905-0.925; ref. index 1.492-1.502 (20 C)
Toxicology: Skin irritant
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Storage: Keep cool, well closed; protect from light
Uses: Natural flavor for pharmaceuticals; stimulant and diuretic for chronic bladder
### Chemical Component Cross-Reference

<table>
<thead>
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<th>Chemical Component</th>
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<td>Cumic aldehyde</td>
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</tr>
<tr>
<td>Cumin alcohol</td>
<td>See Cuminic alcohol</td>
</tr>
</tbody>
</table>

### Cucumber (Cucumis sativus) extract

**CAS**: 89998-01-6; EINECS/ELINCS 289-738-4  
**Synonyms**: Cucumber extract; Cucumis sativus; Cucumis sativus extract  
**Definition**: Extract of the fruit of the cucumber, Cucumis sativus  
**Properties**: Water wh.; cucumber odor; completely sol. in water; flash pt. 144 F  
**Uses**: Emollient  
**Trade Names Containing**: Uninontan U 34

### Cucumber (Cucumis sativus) extract

**Cumaldehyde**. See Cuminaldehyde  
**o-Cumaric aldehyde methyl ether**. See o-Methoxycaffemaldehyde  
**Cuminin**. See Cuminar

### Cumene

**CAS**: 98-82-8  
**UN**: 1918 (DOT)  
**Synonyms**: Benzene isopropyl; Isopropylbenzene; Isopropyl benzol; (1-Methylethyl) benzene; 2-Phenylpropane  
**Empirical**: C₈H₁₂  
**Formula**: C₈H₆(CH(CH₃)₂  
**Properties**: Colorless liq.; misc. with oxygenated and chlorinated solvs.; insol. in water; m.w. 120.21; dens. 0.864 (20/4 C); vapor pressure 10 mm Hg (38.3 C); m.p. -96 C; b.p. 152 C; flash pt. 111 F  
**Toxicology**: ACGIH TLV/TWA 50 ppm (skin); LD₅₀ (oral, rat) 1400 mg/kg, (skin, rabbit) 12,300 mg/kg; TCL₀ (inh., human) 200 ppm; mod. toxic by ing.; mildly toxic by inh., skin contact; primary eye and skin irritant; human systemic effects; may cause somnolence, antipsychotic effects, irritability; potential narcotic action; CNS depressant; human mutagen; TSCA listed  
**Precaution**: Flamm. exposed to heat or flame; can react with oxidizing materials; violent reaction with HNO₃, chlorosulfonic acid, oleum  
**NFPA**: Health 2, Flammability 3, Reactivity 1  
**Uses**: Solvent in pharmaceuticals  
**Regulatory**: HAP; Canada DSL  
**Cumene aldehyde**. See 2-Phenylpropanal  
**Cumene, monosulfo deriv., sodium salt**. See Sodium cumenesulfonate  
**o-Cumenol**. See o-Isopropylphenol  
**p-Cumenol**. See p-Isopropylphenol  
**3-p-Cumeryl-2-methylpropionaldehyde**. See Cyclamen aldehyde  
**3-(p-Cumeryl) propionaldehyde**. See 3-(p-Isopropylphenyl) propionaldehyde  
**Cumic alcohol**. See Cuminic alcohol  
**Cumic aldehyde**. p-Cumic aldehyde, Cuminal. See Cuminaldehyde  
**Cumin alcohol**. See Cuminic alcohol  
**Cuminaldehyde**  
**CAS**: 122-03-2; EINECS/ELINCS 204-516-9  
**FEMA**: 2341  
**Synonyms**: Cumaldehyde; Cuminic aldehyde; p-Cuminic aldehyde; Cuminic aldehyde; p-Cuminic aldehyde; 4-Isopropylbenzaldehyde; p-Isopropylbenzaldehyde; p-Isopropylbenzenecarboxaldehyde; 4-(1-Methylethyl) benzaldehyde  
**Definition**: Constituent of eucalyptus, myrrh, cassia, cumin, and other essential oils or prepared synthetically  
**Empirical**: C₁₀H₁₂O  
**Formula**: (CH₃)₂CH₆H₄CHO  
**Properties**: Colorless to ylsh. oily liq., strong
Chemical Component Cross-Reference

Persistent aromatic odor, acrid burning taste; sol. in alcohol, ether, toluene, oxygenated solvs.; pract. insol. in water; m.w. 148.21; dens. 0.978 (20 C); b.p. 235-236 C; flash pt. (COC) 104 C; ref. index 1.5301 (20 C)

Toxicology: LD50 (oral, rat) 1390 mg/kg, (skin, rabbit) 2800 mg/kg; mod. toxic by ing. and skin contact; skin and eye irritant; TSCA listed

Precaution: Combustible liq.

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals; pharmaceutical intermediate

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: Augustus Oils Ltd
http://www.augustus-oils.ltd.uk; Degussa AG/Health & Nutrition; Fluka
http://www.rctreatt.com; SAFC Specialties http://www.safcspecialties.com

Trade Names: Cumal

Cumin (Cuminum cyminum) oil
CAS 8014-13-9; 84775-51-9; EINECS/ELINCS 283-881-6
FEMA 2343

Synonyms: Cumin oil; Cumin seed oil; Cuminum cyminum; Cuminum cyminum fruit oil; Cuminum cyminum oil; Cummin

Definition: Volatile oil from fruit of Cuminum cyminum, contg. 30-40% cuminaldehyde, p-cymene, β-pinene, dipentene

Properties: Colorless to yel. liq.; strong odor; sol. in fixed oils, min. oil, 10 vols 80% alcohol; very sol. in chloroform, ether, glycerin, propylene glycol; pract. insol. in water; dens. 0.900-0.935 (25/25 C); ref. index 1.4950-1.5090 (20 C)

Toxicology: LD50 (oral, rat) 2500 mg/kg, (skin, rabbit) 3560 mg/kg; mod. toxic by ingestion and skin contact; skin irritant; mutagenic data; TSCA listed

Precaution: Combustible

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes

Storage: Keep cool, well closed; protect from light

Uses: Natural flavor for pharmaceuticals

Use Level: 0.4% max. as cumin oil in skin cosmetics exposed to sunlight

Cuminic acetaldehyde. See p-Isopropylphenylacetaldehyde

Cuminic alcohol
CAS 536-60-7; EINECS/ELINCS 208-640-4
FEMA 2933

Synonyms: Cuminic alcohol; Cumin alcohol; Cuminal; Cuminaly alcohol; Cumyl alcohol; p-Cymen-7-ol; 4-Isopropylbenzyl alcohol; p-Isopropylbenzyl alcohol

Classification: Aromatic alcohol

Empirical: C10H14O

Formula: CH2OH(C6H4)CH(CH3)2

Properties: Colorless liq.; caraway-like odor; aromatic taste; sol. in oxygenated solvs.; misc. with alcohol, ether; insol. in water; m.w. 150.22; dens. 0.982; b.p. 135-136 C (26 mm); flash pt. > 230 F; ref. index 1.522 (24 C)

Toxicology: LD50 (oral, rat) 1020 mg/kg, (skin, rabbit) 2500 mg/kg; harmful liq.; mod. toxic by ing. and skin contact; primary skin irritant; TSCA listed

Precaution: Combustible

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals

Features: Strong cumin caraway spicy herbal leather odor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: Lluch Essence http://www.lluch-essence.com; R.C. Treatt
Cupric chloride; Cupric dichloride. See Copper chloride (ic)

Cupric gluconate. See Copper gluconate (ic)

Cupric sulfate. See Cupric sulfate pentahydrate

Cupric sulfate anhydrous

Cupric sulfate anhydrous

CAS 7758-98-7; EINECS/ELINCS 231-847-6

UN NA 9109 (DOT); INS519

Synonyms: Basic copper sulfate; Blue copper; Bluestone; Blue vitriol; Copper monosulfate; Copper sulfate; Copper (II) sulfate; Copper sulfate (ic); Cupric sulfate (INCI); Sulfuric acid, copper salt

Classification: Inorganic copper salt

Definition: Copper salt of sulfuric acid; avail. commercially as the monohydrate or pentahydrate

Empirical: CuO₄S

Formula: CuSO₄

Properties: Blue cryst. or cryst. gran. or powd.; odorless; nauseous metallic taste; sol. in water; insol. in alcohol; m.w. 159.60; dens. 3.6; m.p. dec. @ 560 C

Toxicology: LD50 (oral, rat) 300 mg/kg; strong irritant; experimental tumorigen; human poison, systemic effects by ingestion: gastritis, diarrhea, nausea, vomiting, hemolysis; eye irritant; no known skin toxicity; mutagen; TSCA listed

Environmental: Hazardous to the environment

Precaution: Reacts violently with hydroxylamine, magnesium

†=pharmaceutical grade

Hazardous Decomp. Prods.: Heated to decomp. emits toxic fumes of SOx

HMIS: Health 2, Flammability 0, Reactivity 0

Storage: Hygroscopic

Uses: Fungicide in pharmaceuticals, orals; antidote to phosphorus

Regulatory: FDA 21CFR §184.1261, GRAS, 582.80; FDA approved for orals; SARA reportable; Japan approved (0.6 mg/L as copper in milk); BP, EP compliance; Canada DSL

Manuf./Distrib.: AMRESCO†

http://www.amresco-inc.com; Adheswara Chems. Pvt. Ltd.; Aldrich†

http://www.sigma-aldrich.com; Alfa Aesar†

http://www.alpha.com; Alfa Chem†

http://www.alfachem1.com

Allan http://www.allanchem.com; Allchem Ind. http://www.allchem.com; Am. Int'l.†

http://www.aicma.com; Asiameva Int'l.†;

Dastech Int'l.† http://www.dastech.com

Degussa AG/Health & Nutrition; EMD Chems.† http://www.emdchemicals.com;

Fluka http://www.sigma-aldrich.com;

Fortitech† http://www.fortitech.com; GFS†

http://www.gf chemicals.com

Generichem† http://www.generichem.com;

George Uhe† http://www.uhe.com; HelM NY† http://www.helmnewyork.com; Integra†

http://www.integrachem.com; Lipo†

http://www.lip ochemicals.com

Mallinckrodt Baker†

http://www.mailbaker.com; Mutchler†

http://www.mutchlerchem.com; Noah

http://www.noah tech.com; Old Bridge

http://www.oldbridgechem.com; Penta Mfg.† http://www.pentamfg.com

Phelps Dodge Refining

http://www.phelpsdodge.com; Robeco†

http://www.rob ecoinc.com; Ruger

http://www.rugerchemical.com; Sigma

http://www.sigma-aldrich.com/belgium;

Spectrum Quality Prods.† http://www.spectrumchemical.com

Thomas Scientific† http://www.thomassci.com; Universal Preserv-A-Chem†

http://www.upichem.com; VWR Int'l.†

http://www.vwrsp.com

Cupric sulfate pentahydrate

CAS 7758-99-8; EINECS/ELINCS 231-847-6

Synonyms: Blue copperas; Bluestone; Blue vitriol; Copper sulfate (ic); Copper sulfate
Chemical Component Cross-Reference

pentahydrate; Copper (II) sulfate
pentahydrate; Cupric sulfate

Classification: Inorganic copper salt
Empirical: CuO₄S • 5H₂O
Formula: CuSO₄ • 5H₂O

Properties: Blue cryst. or cryst. gran. or powd., odorless; nauseous metallic taste; very sol. in water; sol. in methanol, glycerin; sl. sol. in ethanol; m.w. 249.70; dens. 2.286 (15.6/4 C); converts to monohydrate @ 110 C and to anhyd. salt @ 250 C

Toxicology: LD₅₀ (oral, rat) 960 mg/kg;
TLV/TWA 1 mg (Cu)/m³; harmful; irritating;
human poison by unspecified routes;
moderately toxic by ing.; corrosive to eyes;
nontoxic dermally or by inh.; nonirritating
to skin; tumorigen, mutagen

Environmental: LC₅₀ (rainbow trout) ≥ 1 mg/l;
toxic to bees

Precaution: Absorbs moisture readily when exposed to air

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of SO₃

HMIS: Health 2, Flammability 0, Reactivity 0

Storage: Store @ R.T.

Uses: In pharmaceuticals

Regulatory: FDA 21CFR §184.1261, GRAS

Manuf./Distrib.: AMRESCO

http://www.amresco-inc.com; Agtrol Int'l.
http://www.agtrol.com; Aldrich
http://www.sigma-aldrich.com; Allchem Ind.
http://www.allchem.com; Chem One
http://www.chemone.com

Chemacon GmbH†
http://www.chemacon.de; China Nat'l.
Chem. Construction http://www.cnccc-shenzhen.com; EMD Chemists†
http://www.emdchemicals.com; Fluka
http://www.sigma-aldrich.com; Galbraith Labs
http://www.galbraith.com

Mallinckrodt Baker†
http://www.mallbaker.com; Old Bridge
http://www.oldbridgechem.com; Phelps
Dodge Refining
http://www.phelpsdodge.com; Phibro-Tech
http://www.phibro-tech.com

Ruger† http://www.rugerchemical.com;
Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality
Prods.†
http://www.spectrumchemical.com; Voigt
Global Distrib.† http://www.vgdlc.com;

†=pharmaceutical grade

Xiamen Topusing http://www.topusing.com

Cuprous iodide. See Copper iodide (ous)

Curcaco aloe extract. See Aloe extract; Aloe barbadensis extract

Curcuma domestica extract. See Turmeric (Curcuma longa) extract

Curcuma longa; Curcuma longa extract. See Turmeric (Curcuma longa) extract

Curcuma longa oleoresin. See Oleoresin turmeric

Curcuma longa powder; Curcumin. See Turmeric (Curcuma longa)

Curry red. See CI 16035; FD&C Red No. 40

Cusparia bark extract. See Angostura (Galipea officinalis) extract

Cyanine green toner. See Phthalocyanine green

Cyanocetic acid methyl ester. See Methyl cyanoacetate

Cyanocobalamin

CAS 68-19-9; EINECS/ELINCS 200-680-0

Synonyms: Cyanocobal(v) alamin; Dimethylbenzimidazolycobamide; 5,6-Dimethylbenzimidazolycobamide cyanide; α-(5,6-Dimethylbenzimidazolyl)cyanoocobamide; Vitamin B12; Vitamin B₁₂ complex

Classification: Organic compd.

Definition: Produced commercially from cultures of Streptomyces griseus

Empirical: C₆₃H₆₈CoN₁₄O₁₄P

Properties: Dark red cryst. or powd., odorless and tasteless; sol. in alcohol; sl. sol. in water; insol. in acetone, ether, chloroform; m.w. 1355.55

Toxicology: LDLo (subcut., mouse) 3 mg/kg,
(IP, mouse) 1364 mg/kg; poison by subcut.
route, mod. toxic by IP route; no hazard to
humans from excessive ing. in foods;
experimental teratogen, reproductive
effects; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of PO₃,
NOₓ

Storage: Very hygroscopic; light-sensitive

Uses: Vitamin B₁₂ source; dietary
supplement; nutrient; hematopoietic
vitamin; medicine (blood and nerve
treatment)

Regulatory: FDA 21CFR §101.9, 107.100,
172.775, 184.1945, GRAS; Japan approved;
<table>
<thead>
<tr>
<th>Chemical Component Cross-Reference</th>
<th>†=pharmaceutical grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP, EP compliance; Canada DSL</td>
<td>Greeff† [<a href="http://www.pechinery-chemicals.com">http://www.pechinery-chemicals.com</a>]; RIA Int'l.†</td>
</tr>
<tr>
<td>Manuf./Distrib.: ADA Int'l.</td>
<td>[<a href="http://www.riausa.com">http://www.riausa.com</a>]; Rochem Int'l.</td>
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<tr>
<td></td>
<td>[<a href="http://www.rochemintl.com">http://www.rochemintl.com</a>]</td>
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<td></td>
<td>Roussel Uclaf; Rugert†</td>
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<td></td>
<td>[<a href="http://www.rugerchemical.com">http://www.rugerchemical.com</a>]; Sigma</td>
</tr>
<tr>
<td></td>
<td>[<a href="http://www.sigma-aldrich.com/belgium">http://www.sigma-aldrich.com/belgium</a>]</td>
</tr>
<tr>
<td></td>
<td>Spectrum Quality Prods.†</td>
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<tr>
<td></td>
<td>[<a href="http://www.spectrumchemical.com">http://www.spectrumchemical.com</a>]; Stason</td>
</tr>
<tr>
<td></td>
<td>Pharmaceuticals† [<a href="http://www.stason.com">http://www.stason.com</a>]</td>
</tr>
<tr>
<td></td>
<td>Synasia† [<a href="http://www.synasia.com">http://www.synasia.com</a>]</td>
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<td></td>
<td>Universal Preserv-A-Chem†</td>
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<tr>
<td></td>
<td>[<a href="http://www.upichem.com">http://www.upichem.com</a>]; Varsal</td>
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<td></td>
<td>Instruments† [<a href="http://www.varsal.com">http://www.varsal.com</a>]; Voigt</td>
</tr>
<tr>
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<td>[<a href="http://www.vgdlc.com">http://www.vgdlc.com</a>]; Westco Fine Ingreds.†</td>
</tr>
<tr>
<td></td>
<td>[<a href="http://www.westcofine.com">http://www.westcofine.com</a>]</td>
</tr>
<tr>
<td></td>
<td>Zetapharm† [<a href="http://www.zetapharm.com">http://www.zetapharm.com</a>]</td>
</tr>
<tr>
<td></td>
<td>Trade Names: Vitamin B12 Cryst. USP, FCC</td>
</tr>
<tr>
<td></td>
<td>Trade Names Containing: Vitamin B12 0.1% SD; Vitamin B12 1% Trituration</td>
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<tr>
<td></td>
<td>Cyanococon (III) alamin. See Cyanocobalamin</td>
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<td></td>
<td>Cyanoguanidine; N-Cyanoguanidine. See Dicyandiamide</td>
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<td></td>
<td>Cyanomethane. See Acetonitrile</td>
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<tr>
<td></td>
<td>Cyanomethyl phosphonic acid diethyl ester. See Diethyl cyanomethylphosphonate</td>
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<td>Cyanopsis gum; Cyanopsis tetragonoloba; Cyanopsis tetragonoloba gum. See Guar (Cyanopsis tetragonoloba) gum</td>
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<td></td>
<td>3-Cyanopyridine. See Nicotinonitrile</td>
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<td></td>
<td>Cyanosin; Cyanosine. See CI 45410</td>
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<tr>
<td></td>
<td>Cyclamal. See Cyclamen aldehyde</td>
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<tr>
<td></td>
<td>Cyclamate. See Sodium cyclamate</td>
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<tr>
<td></td>
<td>Cyclamate calcium; Cyclamate, calcium salt.</td>
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<tr>
<td></td>
<td>See Calcium cyclamate</td>
</tr>
<tr>
<td></td>
<td>Cyclamate sodium. See Sodium cyclamate</td>
</tr>
<tr>
<td></td>
<td>Cyclamen aldehyde</td>
</tr>
<tr>
<td></td>
<td>CAS 103-95-7; EINECS/ELINCS 203-161-7</td>
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<tr>
<td></td>
<td>FEMA 2743</td>
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<tr>
<td></td>
<td>Synonyms: Benzenepropanal, α-methyl-4-(1-methylethyl)-; 3-p-Cumenyl-2-methylpropionaldehyde; Cyclamal; p-Isopropyl-α-methylhydrocinnamic aldehyde; p-Isopropyl-α-methylphenylpropyl aldehyde; α-Methyl-p-isopropylhydrocinnamaldehyde; 2-Methyl-3-(p-isopropylphenyl) propanal; 2-Methyl-3-(p-isopropylphenyl)-propionaldehyde; Methyl-p-isopropylphenylpropionaldehyde; α-Methyl-4-(1-methylethyl) benzenepropanal</td>
</tr>
<tr>
<td></td>
<td>Classification: aromatic aldehyde</td>
</tr>
</tbody>
</table>
Chemical Component Cross-Reference

**Empirical:** C_{13}H_{18}O
**Properties:** Colorless to pale yel. liq.; strong floral odor; sol. in fixed oils, 1 vol. of 80% alcohol; insol. in propylene glycol, glycerin, water; dens. 0.946-0.952; ref. index 1.503-1.508
**Toxicology:** LD_{50} (oral, rat) 3810 mg/kg; mod. toxic by ing.; human skin irritant; TSCA listed
**Hazardous Decomp. Prods.:** Heated to decomps., emits acrid smoke and irritating fumes
**NFPA:** Flammability 2, Reactivity 0
**Uses:** Synthetic flavor for pharmaceuticals
**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL

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**Empirical:** C_{10}H_{16}O
**Properties:** Colorless to pale cl. yel. liq.; sol. in alcohol; insol. in water; m.w. 152.24; dens. 0.943; b.p. 62–63 C (3 mm); flash pt. > 230 F
**Uses:** Flavor in medicines
**Features:** Minty fruity green odor
**Regulatory:** FEMA GRAS; Canada DSL

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**Cyclomaltoheptaose**
Cyclic polysaccharide comprised of six to eight glucopyranose units
**Empirical:** C_{42}H_{70}O_{35}
**Properties:** Bioavailability enhancer, solubilizer, taste/odor/color masking agent, stabilizer, antioxidant for pharmaceuticals
**Uses:** Antioxidant for pharmaceuticals
**Synonyms:** Cyclodextrin; Cyclomaltooctaose; Cyclomaltohexaose

---

**Cyclodextrin**
Cyclic volatile methyl siloxane
**Empirical:** C_{36}H_{60}O_{30}
**Properties:** Biodegradable, non-mutagenic, non-carcinogenic, good solubility, nontoxic, non-irritant
**Uses:** Bioavailability enhancer, solubilizer, taste/odor/color masking agent, stabilizer, antioxidant for pharmaceuticals
**Synonyms:** Alphadex; Betadex; Cycloamylose; α-Cyclodextrin; β-Cyclodextrin; γ-Cyclodextrin; Cyclohexamylose; Cyclohexaglucosan; Cyclomaltohexaose; Cyclomaltohexoase; Schardinger α-dextrin
**Definition:** Cyclic polysaccharide comprised of six to eight glucopyranose units

---

**Cyclohydroxyolefin (Cyclohexene-1-carboxaldehyde)**
**Empirical:** C_{13}H_{18}O
**Properties:** Colorless to pale yel. liq., strong floral odor; sol. in fixed oils, 1 vol. of 80% alcohol; insol. in propylene glycol, glycerin, water; dens. 0.946-0.952; ref. index 1.503-1.508
**Toxicology:** LD_{50} (oral, rat) 3810 mg/kg; mod. toxic by ing.; human skin irritant; TSCA listed
**Hazardous Decomp. Prods.:** Heated to decomps., emits acrid smoke and irritating fumes
**NFPA:** Flammability 2, Reactivity 0
**Uses:** Synthetic flavor for pharmaceuticals
**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL

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**β-Cyclocitral**
**CAS:** 432-25-7; EINECS/ELINCS 207-081-3
**FEMA:** 3639
**Synonyms:** 2,6,6-Trimethyl-1 and 2-cyclohexen-1-carboxaldehyde

---

**α-Cyclocitrylidene acetone**
**See:** α-Ionone
**β-Cyclocitrylideneacetone**
**See:** β-Ionone
**α-Cyclocitrylidenebutanone**
**See:** Methyl α-ionone
**α-Cyclocitrylidene butanone**
**See:** α-Isomethylionone
**β-Cyclocitrylidenebutanone**
**See:** Methyl β-ionone
**α-Cyclocitrylidenedemethyl ethyl ketone**
**See:** Methyl α-ionone

---

**Cyclodextrin**
**CAS:** 7585-39-9 (β); 10016-20-3 (α); 17465-86-0 (γ); EINECS/ELINCS 231-493-2 (β); 233-007-4 (α); 241-482-4 (γ)
**Synonyms:** Alphadex; Betadex; Cycloamylose; α-Cyclodextrin; β-Cyclodextrin; γ-Cyclodextrin; Cyclohexamylose; Cyclohexaglucosan; Cyclomaltohexaose; Cyclomaltohexoase; Schardinger α-dextrin
**Definition:** Cyclic polysaccharide comprised of six to eight glucopyranose units

---

**Cyclohydroxyolefin (Cyclohexene-1-carboxaldehyde)**
**Empirical:** C_{13}H_{18}O
**Properties:** Colorless to pale yel. liq., strong floral odor; sol. in fixed oils, 1 vol. of 80% alcohol; insol. in propylene glycol, glycerin, water; dens. 0.946-0.952; ref. index 1.503-1.508
**Toxicology:** LD_{50} (oral, rat) 3810 mg/kg; mod. toxic by ing.; human skin irritant; TSCA listed
**Hazardous Decomp. Prods.:** Heated to decomps., emits acrid smoke and irritating fumes
**NFPA:** Flammability 2, Reactivity 0
**Uses:** Synthetic flavor for pharmaceuticals
**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL

---

**β-Cyclocitral**
**CAS:** 432-25-7; EINECS/ELINCS 207-081-3
**FEMA:** 3639
**Synonyms:** 2,6,6-Trimethyl-1 and 2-cyclohexen-1-carboxaldehyde

---

**α-Cyclocitrylidene acetone**
**See:** α-Ionone
**β-Cyclocitrylideneacetone**
**See:** β-Ionone
**α-Cyclocitrylidenebutanone**
**See:** Methyl α-ionone
**α-Cyclocitrylidene butanone**
**See:** α-Isomethylionone
**β-Cyclocitrylidenebutanone**
**See:** Methyl β-ionone
**α-Cyclocitrylidenedemethyl ethyl ketone**
**See:** Methyl α-ionone

---

**Cyclodextrin**
**CAS:** 7585-39-9 (β); 10016-20-3 (α); 17465-86-0 (γ); EINECS/ELINCS 231-493-2 (β); 233-007-4 (α); 241-482-4 (γ)
**Synonyms:** Alphadex; Betadex; Cycloamylose; α-Cyclodextrin; β-Cyclodextrin; γ-Cyclodextrin; Cyclohexamylose; Cyclohexaglucosan; Cyclomaltohexaose; Cyclomaltohexoase; Schardinger α-dextrin
**Definition:** Cyclic polysaccharide comprised of six to eight glucopyranose units

---

**Cyclohydroxyolefin (Cyclohexene-1-carboxaldehyde)**
**Empirical:** C_{13}H_{18}O
**Properties:** Colorless to pale yel. liq., strong floral odor; sol. in fixed oils, 1 vol. of 80% alcohol; insol. in propylene glycol, glycerin, water; dens. 0.946-0.952; ref. index 1.503-1.508
**Toxicology:** LD_{50} (oral, rat) 3810 mg/kg; mod. toxic by ing.; human skin irritant; TSCA listed
**Hazardous Decomp. Prods.:** Heated to decomps., emits acrid smoke and irritating fumes
**NFPA:** Flammability 2, Reactivity 0
**Uses:** Synthetic flavor for pharmaceuticals
**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL

---

**β-Cyclocitral**
**CAS:** 432-25-7; EINECS/ELINCS 207-081-3
**FEMA:** 3639
**Synonyms:** 2,6,6-Trimethyl-1 and 2-cyclohexen-1-carboxaldehyde
Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>CAS</th>
<th>EINECS/ELINCS</th>
<th>Synonyms</th>
<th>Definition</th>
<th>Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>7585-39-9</td>
<td>231-493-2</td>
<td>Betadex; Cycloheptaamylose; Cycloheptaglucosan; Cyclomaltoheptaose; Schardinger β-dextrin</td>
<td>Cyclic polysaccharide comprised of 7 glucopyranosyl units, produced by action of the enzyme cycloglucosyltransferase on partially hydrolyzed starch</td>
<td>Colorless mobile liq., pungent gasolene-like odor; sol. in ether, chlorinated/aromatic solvs.; misc. with ethanol, acetone, benzene, ethyl ether, CCl4; insol. in water; m.w. 84.16; dens. 0.779 (20/4 C); f.p. 4.6 C; m.p. 6.5 C; b.p. 80.7 C; flash pt. (CC) - 18.3 C; ref. index 1.4264</td>
</tr>
</tbody>
</table>

Trade Names: Cavamax® W6; Cavamax® W6 Pharma; Cavamax® W7 Pharma; Kleptose® DC

Trade Names Containing: Epicutin-TT

α-Cyclodextrin. See Cyclodextrin

β-Cyclodextrin

CAS 7585-39-9; EINECS/ELINCS 231-493-2

Synonyms: Betadex; Cycloheptaamylose; Cycloheptaglucosan; Cyclomaltoheptaose; Schardinger β-dextrin

Definition: Cyclic polysaccharide comprised of 7 glucopyranosyl units, produced by action of the enzyme cycloglucosyltransferase on partially hydrolyzed starch

Empirical: C42H70O35

Uses: Sequestrant, bioavailability enhancer, solubilizer, taste/odor/color masking agent, stabilizer, antioxidant for pharmaceuticals

Regulatory: USP/NF compliance; Canada DSL

| Precaution: DOT: Flamm. liq.; dangerous fire hazard exposed to heat or flame; reactive with oxidizers; mod. explosion hazard as vapor exposed to flame; explosive mixed |

†=pharmaceutical grade

http://www.carbomer.com; Cerestar USA
http://www.cerestar.com; Ferro Pfanstiehl Europe†; Fluka http://www.sigma-aldrich.com/belgium; SAFC Specialties†
http://www.sigma-aldrich.com/belgium; Wacker Chems.

Trade Names Containing: Lipo CD™-Menthol; Lipo CD™-OMC

See also Cyclodextrin

γ-Cyclodextrin. See Cyclodextrin

Cyclo-1,13-ethylenedioxytridecane-1,13-dione; Cyclo-1,13-ethylenedioxytridecane-1,13-dione. See Ethylene brassylate

Cycloheptaamylose. See β-Cyclodextrin;

Cyclodextrin

Cycloheptaglucosan. See β-Cyclodextrin; Cyclodextrin

1,3-Cyclohexadiene, 1-methyl-4-isopropyl-.

See α-Terpinene

1,4-Cyclohexadiene, 1-methyl-4-(1-methylethyl)-. See γ-Terpinene

Cyclohexamethyleneimine; Cyclohexamethyleneimine. See Hexamethyleneimine

Cyclohexane

CAS 110-82-7; EINECS/ELINCS 203-806-2

UN 1145 (DOT)

Synonyms: Benzene hexahydride; Hexahydrobenzene; Hexamethylene; Hexanaphthene

Classification: Sat. aliphatic hydrocarbon

Empirical: C6H12

Properties: Colorless mobile liq., pungent gasoline-like odor; sol. in ether, chlorinated/aromatic solvs.; misc. with ethanol, acetone, benzene, ethyl ether, CCl4; insol. in water; m.w. 84.16; dens. 0.779 (20/4 C); f.p. 4.6 C; m.p. 6.5 C; b.p. 80.7 C; flash pt. (CC) - 18.3 C; ref. index 1.4264

Toxicology: ACGIH TLV/TWA 300 ppm; LD50 (oral, rat) 18,800 mg/kg; LDLo (IV, rabbit) 77 mg/kg; poison by IV; mod. toxic by ingestion, inhalation, skin contact; systemic and skin irritant; overexposure may cause eye and respiratory irritation, drowsiness, dermatitis, narcosis, coma; mutagenic data; TSCA listed

Precaution: DOT: Flamm. liq.; dangerous fire hazard exposed to heat or flame; reactive with oxidizers; mod. explosion hazard as vapor exposed to flame; explosive mixed
Chemical Component Cross-Reference

cyclohexane

hot with liq. dinitrogen tetraoxide
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke, irritating fumes
NFPA: Health 1, Flammability 3, Reactivity 0
Storage: Store in cool, dry, well-ventilated area out of direct sunlight
Uses: Solvent in pharmaceutical orals
Regulatory: FDA 21CFR §73.1, 175.105, 176.200, 178.3620; FDA approved for orals; Canada DSL
Manuf./Distrib.: AAE Chemie NV†
http://www.aaechemie.com; Aldrich†
http://www.sigma-aldrich.com; Ashland
http://www.ashchem.com; ChevronPhillips
http://www.cpchem.com; ExxonMobil
Europe
ExxonMobil
http://www.exxonmobilchemical.com; Fisher Scientific
http://https://www1.fishersci.com/index.jsp; Fluka
http://www.sigma-aldrich.com; General Chem.
http://www.genchemcorp.com; Hukill
http://www.hukill.com
Huntsman
http://www.huntsman.com;
Indofine
http://www.indofinechemical.com;
Romil Ltd
http://www.romil.com; Sigma
http://www.sigma-aldrich.com/belgium;
Spectrum Quality Prods.
http://www.spectrumchemical.com
Sunoco
http://www.sunocochem.com;
Triple Crown Am.
http://www.triplecrownamerica.com
Trade Names Containing: Shellsol® B HT

Cyclohexanecarboxamide, N-ethyl-5-methyl-2-(1-methylethyl)-. See N-Ethyl-p-menthane-3-carboxamide
Cyclohexane, 1,3-bis (2-ethylhexyl)-. See Dioctyl cyclohexane
Cyclohexanesulfamic acid calcium salt. See Calcium cyclamate
Cyclohexanesulfamic acid, monosodium salt. See Sodium cyclamate
Cyclohexanone, 5-methyl-2-(1-methylethyl)-. See Menthol
Cyclohexanone, 5-methyl-2-(1-methylethyl)-, [1S-(α,2α,5β)]. See d-Neomenthol
Cyclohexanone, 5-methyl-2-(1-methylethyl)-, (2S-trans). See l-Menthone
Cyclohexanone, 5-methyl-2-(1-methylethylidene), (R)-. See d-Pulegone
Cyclohexyl acetate. See Cyclohexyl acetate
Cyclohexyl formate. See Cyclohexyl formate
Cyclohexyl, 2-isopropyl-5-methyl-. See Menthol

†=pharmaceutical grade
caramallic, maple and c taste
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Advanced Synthesis Tech.
http://www.advancedsynthesis.com;
Degussa AG/Health & Nutrition; SAFC Specialties
http://www.safcspecialties.com
Cyclohexane, 1,2-epoxy-. See Cyclohexene oxide
Cyclohexane ethyl acetate. See Cyclohexylethyl acetate
Cyclohexane ethyl propionate. See Ethyl cyclohexanepropionate
cis-1,2,3,5-trans-4,6-Cyclohexanehexol. See Inositol
Cyclohexane, methyl-. See Methyl cyclohexane
Cyclohexane oxide. See Cyclohexene oxide
Cyclohexanesulfamic acid calcium salt. See Calcium cyclamate
Cyclohexanesulfamic acid, monosodium salt. See Sodium cyclamate
Cyclohexanol acetate. See Cyclohexyl acetate
Cyclohexanol formate. See Cyclohexyl formate
Cyclohexanol, 2-isopropyl-5-methyl-. See Menthol
Cyclohexanol, 1-methyl-4-(1-methylethenyl)-. See β-Terpineol
Cyclohexanol, 5-methyl-2-(1-methylethenyl)-, acetate, [1R-{1α,2β,5α}]-. See Isopulegyl acetate
Cyclohexanol, 5-methyl-2-(1-methylethyl)-. See Menthol
Cyclohexanol, 5-methyl-2-(1-methylethyl)-, [1S-(α,2α,5β)]. See d-Neomenthol
Cyclohexanol, 5-methyl-2-(1-methylethyl)-, acetate. See di-Menthyl acetate
Cyclohexanol, 5-methyl-2-(1-methylethyl)-, (2S-trans). See l-Menthone
Cyclohexanol, 5-methyl-2-(1-methylethyldiene), (R)-. See d-Pulegone
Cyclohexanoyl acetate. See Cyclohexyl acetate
Cyclohexanyl formate. See Cyclohexyl

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Handbook of Pharmaceutical Additives, Third Edition
Cyclohexasiloxane, dodecamethyl-. See Cyclomethicone; Dodecamethylcyclohexasiloxane
Cyclohexatriene. See Benzene
Cyclohexene epoxide. See Cyclohexene oxide
Cyclohex-1-ene-1-methanol, 4-(1-methylethenyl)-. See Perillyl alcohol
3-Cyclohexene-1-methanol, α,α, 4-trimethyl-. See α-Terpineol
Cyclohexene, 1-methyl-4-(1-methylethenyl)-. See dl-Limonene

Cyclohexene oxide
CAS 286-20-4; EINECS/ELINCS 206-007-7
Synonyms: Bicyclo [4.1.0] heptane, 7-oxa-; CCHO; Cyclohexane, 1,2-epoxy-; Cyclohexane oxide; Cyclohexene epoxide; Cyclohexene-1-oxide; 1,2-Cyclohexene oxide; Epoxycyclohexane; 1,2-Epoxycyclohexane; 7-Oxabicyclo [4.1.0] heptane; Tetramethyleneoxirane
Empirical: C₆H₁₀O
Properties: Colorless liq.; strong odor; sol. in alcohol, ether, acetone; insol. in water; m.w. 98.16; sp.gr. 0.97; m.p. -40 C; b.p. 129-130 C; flash pt. 27 C; ref. index 1.4503
Toxicology: LD50 (oral, rat) 1090 µl/kg, (IP, rat) 549 mg/kg, (IM, mouse) 1 g/kg, (skin, rabbit) 630 µl/kg; toxic; harmful by inh., ing., skin contact; may cause eye/skin irritation; readily absorbed through skin; may cause tremors; target organ: lungs; tumorigenic; mutagen; TSCA listed
Precaution: Flamm.; dangerous fire risk; vapor may travel considerable distance to source of ignition and flash back; container explosion may occur under fire conditions; explosion limits 1.15-12.36%; incompat. with acids, bases, oxidizing agents
Hazardous Decomp. Prods.: CO, CO₂; emits toxic fumes under fire conditions
Storage: Keep tightly closed; store in cool, dry place
Uses: Hydrogen halide or inorg. halide scavenger for pharmaceuticals
Regulatory: Canada DSL

†=pharmaceutical grade
TCI Am. http://www.tciamerica.com
Cyclohexene-1-oxide; 1,2-Cyclohexene oxide. See Cyclohexene oxide
2-Cyclohexen-1-one, 2-methyl-5-(1-methylethenyl)-. See Carvone

Cyclohexyl acetate
CAS 622-45-7; EINECS/ELINCS 210-736-6
UN 2243 (DOT); FEMA 2349
Synonyms: Acetic acid cyclohexyl ester; Adronol acetate; Cyclohexanol acetate; Cyclohexanyl acetate; Hexalin acetate; Hexaline acetate
Classification: Acetic acid ester
Empirical: C₆H₁₄O₂
Formula: CH₃COOC₆H₁₁
Properties: Colorless to pale yel. oily liq.; fruity odor; sol. in alcohol, ether; pract. insol. in water; m.w. 142.20; sp.gr. 0.966; b.p. 172-173 C; flash pt. (CC) 58 C; ref. index 1.4400-1.4410
Toxicology: LD50 (oral, rat) 6730 mg/kg, (skin, rabbit) 10 g/kg; mod. toxic by subcut. route; mildly toxic by ing., skin contact; human systemic effects by inh. (conjunctiva irritation, unspecified respiratory changes); systemic irritant to humans; TSCA listed
Precaution: Flamm. exposed to heat or flame; incompat. with strong oxidizing agents (increases risk of fire and explosion), strong bases (decomp. can occur)
Hazardous Decomp. Prods.: Cyclohexanol, acetic acid; heated to decomp., emits acrid smoke and irritating fumes
NFPA: Health 1, Flammability 2, Reactivity 0
Storage: Store in cool, dry, well-ventilated area out of direct sunlight; avoid generating mist; ground drums and bond transfer containers
Uses: Synthetic flavor and fragrance for pharmaceuticals
Features: Fruity flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Japan approved as flavoring; Canada DSL

Cyclohexylacetic acid. See Cyclohexanecetic acid

Cyclohexylacetic acid allyl ester. See Ally cyclohexanacetate

Cyclohexyl 2-aminobenzoate; Cyclohexyl o- aminobenzoate. See Cyclohexyl anthranilate

3-(Cyclohexylamino)-propanesulfonic acid

CAS 1135-40-6; EINECS/ELINCS 214-492-1

Synonyms: CAPS; 3-(Cyclohexylamino)-1-propanesulfonic acid; N-Cyclohexyl-3-aminopropanesulfonic acid; 1-Propanesulfonic acid, 3-(cyclohexylamino)-

Classification: Zwitterionic amino acid

Empirical: C₉H₁₉NO₃S

Properties: Wh. solid; m.w. 221.35; m.p. 324 C; flash pt. > 110 C

Toxicology: LD₅₀ (oral, quail) > 316 mg/kg; avoid contact with skin and eyes; TSCA listed

Storage: Store in cool, dry, well-ventilated area away from incompatible substances.

Uses: Biological buffer for cell cultures, biological productions, electrophoresis, diagnostics, tissue studies.


Trade Names: CAPS

3-(Cyclohexylamino)-1-propanesulfonic acid; N-Cyclohexyl-3-aminopropanesulfonic acid. See 3-(Cyclohexylamino)-propanesulfonic acid

Cyclohexyl anthranilate

CAS 7779-16-0; EINECS/ELINCS 231-920-2

FEMA 2350

Synonyms: Benzoic acid, 2-amino-, cyclohexyl ester; Cyclohexyl 2-aminobenzoate; Cyclohexyl o-aminobenzoate

Definition: Obtained from isatoic anhydride and cyclohexanol

Empirical: C₁₃H₁₇NO₂

Properties: Colorless to pale yel. visc. liq.; mild orange blossom odor, grape-like taste; sol. in alcohol, methanol, toluene; sol. 10-50 mg/ml in DMSO; insol. in water; m.w. 170.25; dens. 0.957; b.p. 212 C; flash pt. 173 F; ref. index 1.4490

Toxicology: LD₅₀ (skin, guinea pig) > 5 g/kg; LDLo (oral, rat) 5 g/kg; low toxicity by ing. and skin contact; TSCA listed

Precaution: Combustible liq.

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating vapors

Uses: Synthetic flavor for pharmaceuticals

Features: Apple-, pineapple-like flavor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Japan approved as flavoring; Canada DSL

Cy clohexyl cinnamate
CAS 7779-17-1; EINECS/ELINCS 231-921-8
FEMA 2352
Synonyms: Cinnamic acid, cyclohexyl ester;
Cyclohexyl β-phenylacrylate; Cyclohexyl 3-
phenylpropenoate; 2-Propenoic acid, 3-
phenyl-, cyclohexyl ester
Definition: Obtained from cyclohexanol and
 cinnamic acid
Empirical: C_{15}H_{18}O_2
Properties: Colorless visc. liq., solidifies when
cold; fruity peach cherry almond odor; sol. in
alcohol; insol. in water; m.w. 230.31; sp.gr.
1.054; m.p. 82.4 C; b.p. 195 C (12 mm)
Uses: Synthetic flavor for pharmaceuticals
Features: Fruity peach cherry almond odor
Regulatory: FDA 21CFR §172.515; FEMA
GRAS; Canada DSL
Manuf./Distrib.: Advanced Synthesis Tech.
http://www.advancedsynthesis.com
Degussa AG/Health & Nutrition

Cy clohexyl disulfide; (Cyclohexyl) disulfide.
See Dicyclohexyl disulfide

Cy clohexylethyl acetate
CAS 21722-83-8; EINECS/ELINCS 244-543-3
FEMA 2348
Synonyms: Acetic acid, cyclohexylethyl ester;
Cyclohexaneethanol, acetate; Cyclohexane
ethyl acetate; 2-Cyclohexylethyl acetate;
Hexahydrophenethyl acetate;
Hexahydrophenyl ethyl acetate
Classification: Nonaromatic ester
Definition: Obtained from the corresponding
alcohol by acetylation with sodium acetate in
acetic acid sol'n.
Empirical: C_{10}H_{18}O_2
Formula: CH_3CO_2CH_2CH_2C_6H_{11}
Properties: Colorless liq., sweet fruity odor; sol.
in alcohol; insol. in water; m.w. 170.25; dens.
0.950; b.p. 104 C (15 mm); acid no. 1.0 max.;
flash pt. 178 F; ref. index 1.4470
Toxicology: May be irritating to eyes and skin;
TSCA listed
Environmental: Prevent contamination of soil,
ground- and surf. water
Precaution: Flamm. liq.; incompat. with strong
oxidizing agents
Hazardous Decomp. Prods.: CO, CO_2, water
NFPA: Health 1, Flammability 2, Reactivity 1
Storage: Store in cool, well-ventilated area; keep
away from ignition sources and open flame
Uses: Synthetic flavor for pharmaceuticals
Features: Ether cooling sweet fruity banana
cherry jam odor; slightly cooling, green and
fruity banana taste
Regulatory: FDA 21CFR §172.515; FEMA
GRAS; DOT nonregulated; Canada DSL
Manuf./Distrib.: ABCR http://www.abcr.de
Advanced Synthesis Tech.
http://www.advancedsynthesis.com
Bedoukian Research http://www.bedoukian.com
Degussa AG/Health & Nutrition

Cy clohexyl formate
CAS 4351-54-6; EINECS/ELINCS 224-415-3
FEMA 2353
Synonyms: Cyclohexanol formate;
Cyclohexanyl formate; Formic acid
cyclohexyl ester
Empirical: C_{7}H_{12}O_2
Properties: Colorless liq.; fresh minty cherry-like
odor; sol. in alcohol; insol. in water; m.w.
128.17; sp.gr. 0.990-0.999; b.p. 162-163 C;
flash pt. (CC) 48 C; ref. index 1.4417 (24 C)
Toxicology: May be irritating to eyes and skin;
TSCA listed
Environmental: Prevent contamination of soil,
ground- and surf. water
Precaution: Flamm. liq.; incompat. with strong
oxidizing agents
Hazardous Decomp. Prods.: CO, CO_2, water
NFPA: Health 1, Flammability 2, Reactivity 1
Storage: Store in cool, well-ventilated area; keep
away from ignition sources and open flame
Uses: Synthetic flavor for pharmaceuticals
Features: Ether cooling sweet fruity banana
cherry jam odor; slightly cooling, green and
fruity banana taste
Regulatory: FDA 21CFR §172.515; FEMA
GRAS; DOT nonregulated; Canada DSL
Manuf./Distrib.: ABCR http://www.abcr.de
Advanced Synthesis Tech.
http://www.advancedsynthesis.com
Bedoukian Research http://www.bedoukian.com
Degussa AG/Health & Nutrition

Cy clohexyl isovalerate
CAS 7774-44-9; EINECS/ELINCS 231-874-3
FEMA 2355
Synonyms: Cyclohexyl 3-methylbutanoate
Definition: Synthesized from cyclohexane and
isovaleric acid in the presence of perchloric
acid
Empirical: C_{11}H_{20}O_2
Properties: Liq., apple-banana odor; m.w.
Chemical Component Cross-Reference

†=pharmaceutical grade

Cyclic dimethylsiloxane;
Cyclohexasiloxane, dodecamethyl-;
Cyclopentasiloxane; Cyclopentasiloxane, decamethyl-; Cyclopolydimethylsiloxane;
Cyclotrisiloxane, hexamethyl-;
Decamethylocyclopentasiloxane;
Dodecamethyloclohexasiloxane; Hexamethylocloctrisiloxane; Polydimethylsiloxy cyclics

Definition: Fully methylated cyclic dimethyl polysiloxane

Empirical: \((C_2H_6OSi)_n\)

Formula: \([-\text{CH}_3\text{SiO}—\]_n, avg. n = 3-6

Properties: Insol. in water; completely misc. in lower alcohols and other solvs.

Toxicology: LD50 (skin, rabbit) > 16 ml/kg;

Uses: Water repellent in pharmaceuticals, orals, injectables (percutaneous), topicals;
conditioner, emollient for antiperspirants

Regulatory: FDA approved for orals, injectables, topicals; USP/NF compliance

Manuf./Distrib.: Ashland†

http://www.ashchem.com; Avatar†

http://www.avatarcorp.com; Biosil Tech.

http://www.biosiltech.com; C.P. Hall

http://www.cphall.com; CoKEM Assoc.†

Dow Corning†

http://www.dowcorning.com; GE Silicones

http://www.gesilicones.com; RTD Hallstar†

http://www.rtdhallstar.com; Surfachem Ltd†

http://www.surfachem.com; Universal


Trade Names Containing: Actiprime® 100; Dow Corning® 5225C Formulation Aid; Fancorsil A; Fancorsil P; Lubrasil® DS

Stableact® C

See also Decamethylocyclopentasiloxane; Dodecamethyloclohexasiloxane

Cyclopentadecanolide. See Pentadecalactone

Cyclopentaneacetic acid, 3-oxo-2-pentyl-, methyl ester. See Methyl dihydrojasmonate

Cyclopentasiloxane; Cyclopentasiloxane, decamethyl- See Cyclomethicone

2-Cyclopenten-1-one, 3-methyl-2-(2-pentenyl-) , (Z)-. See cis-Jasmone

Cyclopentimine. See Piperidine

Cyclopolydimethylsiloxane. See Cyclomethicone

Cyclopetene. See Methyl cyclopentenolone

Cyclotetramethylene oxide. See
Cymbopogon nardus; Cymbopogon nardus oil. See Citronella (Cymbopogon nardus) oil

p-Cymene-7-carboxaldehyde. See p-Isopropylphenylacetaldehyde

Cymene. See p-Cymene

p-Cymene

CAS 99-87-6; EINECS/ELINCS 202-796-7

FEMA 2356

Synonyms: Benzene, 1-methyl-4-(1-methylethyl)-; Cymene; Cymol; Dolcymene; 1-Isopropyl-4-methylbenzene; 4-Isopropyl-1-methylbenzene; 4-Isopropyltoluolene; p-Isopropyltoluolene; p-Methylcumene; 1-Methyl-4-isopropylbenzene; p-Methylisopropyl benzene; 1-Methyl-4-(1-methylethyl) benzene; Paracymene; Paracymol

Classification: Aromatic hydrocarbon

Definition: Obtained chiefly from the wash water of sulfite paper

Empirical: C10H14

Formula: (CH3)2CHC6H4CH3

Properties: Colorless to pale yel. liq., odorless; sol. in alcohol, ether, acetone, benzene, oxygenated and aromatic solvs.; insol. in water; m.w. 134.24; dens. 0.853; m.p. -68 C; b.p. 176 C; flash pt. (CC) 117 F; ref. index 1.489

Toxicology: LD50 (oral, rat) 4750 mg/kg; mildly toxic by ing.; human CNS effects at low doses; skin irritant; mutagenic data; TSCA listed

Precaution: Flamm. or combustible liq.; sl. explosion hazard in vapor form

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes

Uses: Synthetic flavor for pharmaceuticals

Features: Citrus flavor

Regulatory: FDA 21CFR §172.515; FEMA

GRAS; Canada DSL


p-Cymene-7-carboxaldehyde. See p-Isopropylphenylacetaldehyde

2-p-Cymenol. See Carvacrol

3-p-Cymenol; p-Cymen-3-ol. See Thymol

p-Cymen-7-ol. See Cuminic alcohol

Cymol. See p-Cymene

Cymophenol. See Carvacrol

p-Cymyl propanol. See 3-(p-Isopropylphenyl)propionaldehyde

Cystein; Cysteine (INCI). See L-Cysteine

L-Cysteine

CAS 52-90-4; EINECS/ELINCS 200-158-2

FEMA 3263; INS920; E920

Synonyms: L-2-Amino-3-mercaptopropanoic acid; (+)-2-Amino-3-mercaptopropionic acid; α-Amino-β-thiopropionic acid; L-2-Amino-3-thiopropionic acid; Cystein; Cysteine (INCI); 3,3′-Dithiobis (2-amino propanoic acid); β-Mercaptotalanine; L-β-Mercaptotalanine; Tioserine

Classification: A nonessential amino acid

Empirical: C3H7NO2S

Formula: HSCH2CH(NH2)COOH

Properties: Colorless cryst.; sol. in water, ammonium hydroxide, acetic acid; insol. in ether, acetone, benzene, carbon disulfide, CCl4; m.w. 121.16; m.p. 220 C (dec.)

Toxicology: LD50 (oral, rat) 1870 mg/kg, (IP, rat) 1620 mg/kg, (subcut., rat) 1550 mg/kg; mod. toxic by ing., IP, subcut. routes; irritant; harmful solid; human mutagenic data; experimental reproductive effects; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of SOx and NOx

Storage: Refrigerate

Uses: Pharmaceutical injectables; biochemical and nutrition research
Chemical Component Cross-Reference

Regulatory: FDA 21CFR §172.320 (2.3% max. by wt.), 184.1271, GRAS; FEMA GRAS; FDA approved for injectables; Canada DSL

L-Cysteine, N-acetyl-. See Acetylcysteine Cysteine chlorhydrate. See Cysteine hydrochloride anhydrous

†=pharmaceutical grade

Cysteine chlorhydrate monohydrate. See Cysteine chlorhydrate monohydrate
Cysteine HCl (INCI). See Cysteine hydrochloride anhydrous Cysteine HCl monohydrate. See Cysteine hydrochloride monohydrate
Cysteine hydrochloride; L-Cysteine hydrochloride. See Cysteine hydrochloride anhydrous

Cysteine hydrochloride anhydrous
CAS 52-89-1; EINECS/ELINCS 200-157-7 INS920

Synonyms: L-2-Amino-3-mercaptopropanoic acid monohydrochloride; Cysteine chlorhydrate; Cysteine HCl (INCI); Cysteine hydrochloride; L-Cysteine hydrochloride anhydrous; L-Cysteine monohydrochloride

Classification: Hydrochloride of an amino acid

Empirical: C₃H₇NO₂S • HCl

Formula: HSCH₂CH(NH₂)COOH • HCl

Properties: Wh. cryst. powd., char. acetic taste; sol. in water, alcohol; m.w. 157.62; m.p. 175°C (dec.)

Toxicology: LD₅₀ (IP, mouse) 1250 mg/kg, (IV, mouse) 771 mg/kg; mod. toxic by IP, IV routes; mutagenic data; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of NO₅, SO₅, and Cl⁻

Uses: Antioxidant, reducing agent in pharmaceuticals, orals; dietary supplement; nutrient

Regulatory: FDA 21CFR §172.320, limitation 2.3%, 184.1272, GRAS; Japan approved; Europe listed; UK approved; FDA approved for orals; BP, EP compliance; Canada DSL
L-Cysteine hydrochloride anhydrous. See Cysteine hydrochloride anhydrous.

Cysteine hydrochloride monohydrate
CAS 7048-04-6; EINECS/ELINCS 200-157-7 INS920

Synonyms: L-2-Amino-3-mercaptopropanoic acid monohydrochloride monohydrate; Cysteine chlorhydrate monohydrate; Cysteine HCl monohydrate; L-Cysteine hydrochloride monohydrate; L-Cysteine monohydrochloride monohydrate

Empirical: C3H7NO2S • HCl • H2O
Formula: HSCH2CH(NH2)COOH • HCl • H2O
Properties: Colorless to wh. powd.; sol. in water, alcohol, acetone; insol. in ether; m.w. 175.64
HMIS: Health 1, Flammability 1, Reactivity 0
Storage: Store @ R.T.
Uses: Pharmaceutical injectables; nutrient; dietary supplement
Regulatory: BP, EP compliance; approved for injectables

Allan http://www.allanchem.com; Biddle Sawyer† http://www.biddlesawyer.com; Boith China† http://www.boith.com; Donboo Amino Acid
Chemical Component Cross-Reference

L-Cysteine hydrochloride monohydrate. See Cysteine hydrochloride monohydrate
L-Cysteine monohydrochloride. See Cysteine hydrochloride anhydrous
L-Cysteine monohydrochloride monohydrate. See Cysteine hydrochloride monohydrate

Cytochrome C
CAS 9007-43-6; EINECS/ELINCS 232-700-9
Definition: Hemoprotein found in animal cells in the mitochondrial protein-lipid complex
Uses: Natural catalyst for skin treatment
Manuf./Distrib.: George Uhe†
http://www.uhe.com; Pangaea Sciences†
http://www.pangaeasciences.com; Roche Diagnostics†
http://www.roche-applied-science.com; Spectrum Quality Prods.†
http://www.spectrumchemical.com

Dactin. See 1,3-Dichloro-5,5-dimethyl hydantoin
Dakins sol'n. See Sodium hypochlorite
Dalmatian sage oil. See Sage (Salvia officinalis) oil
DAM. See Diallyl maleate
Damiana; Damiana leaf; Damiana leaves. See Damiana (Turnera diffusa)

Damiana (Turnera diffusa)
CAS 977000-85-3
Synonyms: Damiana; Damiana leaf; Damiana leaves; Turnera diffusa; Turnera diffusa leaves
Definition: Leaves of Turnera diffusa
Properties: Bitter tonic, aromatic
Uses: Antiseptic, antispasmodic, cough suppressant, aperient (mild laxative), astringent, bitter digestive stimulant, diuretic, expectorant
Regulatory: FDA 21CFR §172.510
Manuf./Distrib.: Carrubba
http://www.carrubba.com; Chart
http://www.chartcorp.com; Frutarom
http://www.fruatarom.com

Dandelion extract; Dandelion fluid extract; Dandelion root extract, solid. See Dandelion (Taraxacum officinale) extract

Dandelion (Taraxacum officinale) extract
CAS 68990-74-9; 84775-55-3; 977038-71-3; EINECS/ELINCS 273-624-6
FEMA 2357, 2358
Synonyms: Dandelion extract; Dandelion fluid extract; Dandelion root extract, solid; Taraxacum extract; Taraxacum officinale; Taraxacum officinale extract

†=pharmaceutical grade

Definition: Extract of rhizomes and roots of Taraxacum officinale
Properties: Bitter tonic, aromatic
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §182.20, GRAS; FEMA GRAS

Danish agar. See Furcelleran
DAP. See Ammonium phosphate, dibasic
Dapsone. See Sulfone

Daucus carota. See Carrot (Daucus carota) extract; Carrot (Daucus carota sativa) oil
Daucus carota sativa extract. See Carrot (Daucus carota) extract
Daucus oil. See Carrot (Daucus carota sativa) oil

Davana (Artemisia pallens) oil
CAS 8016-03-3
FEMA 2359
Synonyms: Artemisia pallens oil; Artemisia pallens; Artemisia pallens oil; Davana oil
Definition: Oil derived from Artemisia pallens
Properties: Pale yel. to yel.-brown liq.; strong penetrating green odor; sp. gr. 0.94200-0.97030; ref. index 1.47900-1.49100
Toxicology: Mod. skin irritant; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Natural flavor for pharmaceuticals
Features: Fruity leafy berry black current balsam raisin odor
Regulatory: FDA 21CFR §172.510; FEMA GRAS (oil); Canada DSL
**Chemical Component Cross-Reference**

- **Fuerst Day Lawson** [http://www.fdl.co.uk](http://www.fdl.co.uk);
- **Penta Mfg.** [http://www.pentamfg.com](http://www.pentamfg.com);
- **Polarome Int'l.** [http://www.polarome.com](http://www.polarome.com);
- **Treatt USA** [http://www.rc treatt.com](http://www.rc treatt.com).

**Davana oil.** See Davana (Artemisia pallens) oil

**DBP.** See Dibutyl phthalate

**DBPC.** See BHT

**DBS.** See Dibutyl sebacate

**1,4-DCB.** See p-Dichlorobenzene

**D&C Blue No. 4**

- **CAS:** 2650-18-2; 37307-56-5; 6371-85-3
- **Synonyms:** Acid blue 9 ammonium salt; Alphazurine; Ammonium, ethyl(4-(p-ethyl-(m-sulfobenzyl) amino)-α-(o-sulfophenyl) benzylidene)-2,5-cyclohexadien-1-ylidene)(m-sulfobenzyl)-, hydroxide, inner salt, diammonium salt: CI 26501; CI 42090; (ammonium salt); Erioglaucine; Food blue 1
- **Classification:** Triphenylmethane color
- **Definition:** Ammonium salt of FD&C Blue No. 1
- **Empirical:** C$_{37}$H$_{42}$N$_4$O$_9$S$_3$ • 2H$_3$N
- **Formula:** C$_{37}$H$_{36}$N$_2$O$_9$S$_3$ • 2H$_3$N
- **Properties:** M.w. 783.01
- **Toxicology:** LD$_{50}$ (oral, mouse) > 32 g/kg, (IP, mouse) 2200 mg/kg; irritant; mutagen; TSCA listed
- **Uses:** Colorant for pharmaceuticals (FDA delisted); colorant for surgical sutures
- **Regulatory:** FDA 21CFR §74.3106, subject to certification, limits in regulation, permanently listed for use in medical devices; FDA delisted for cosmetics and pharmaceuticals; Canada DSL

**Manuf./Distrib.:** Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Ruger [http://www.rugerchemical.com](http://www.rugerchemical.com)

**See also Indigo**

**D&C Blue No. 9**

- **CAS:** 130-20-1; EINECS/ELINCS 240-980-2
- **Synonyms:** Carbanthrene blue; CI 69825; CI vat blue 6; 7,16-Dichloro-6,15-dihydro-5,9,14,18-anthrazinetrone; Dichloroindanthrone; 3,3’-Dichloroindanthrone; 7,16-Dichloroindanthrone; 7,16-Dichloro-6,15-indanthrone; Pigment blue 64; Vat blue 6
- **Classification:** Anthraquinone color
- **Empirical:** C$_{28}$H$_{12}$Cl$_2$N$_2$O$_4$
- **Formula:** C$_{28}$H$_{12}$Cl$_2$N$_2$O$_4$
- **Properties:** M.w. 511.32
- **Toxicology:** LD$_{50}$ (oral, rat) > 10 g/kg, (oral, mouse) 1800 mg/kg, (skin, mouse) 25 g/kg; mod. toxic by ing.; mildly toxic by skin contact; TSCA listed
- **Uses:** Colorant for surgical sutures
- **Use Level:** 2.5% max. (sutures)
- **Regulatory:** FDA 21CFR §74.1109, subject to certification, permanently listed for use in medical devices; Canada DSL

**Manuf./Distrib.:** Ruger [http://www.rugerchemical.com](http://www.rugerchemical.com)

**See also Indanthrene blue**

**D&C Brown No. 1**

- **CAS:** 1320-07-6; EINECS/ELINCS 215-296-9
- **Synonyms:** Acid orange 24; Benzenesulfonic acid, 4-[[3-[(2,4-dimethylphenyl) azo]-2,4-dihydroxyphenyl] azo]-, monosodium salt; CI 20170; 4-[[3-[(2,4-Dimethylphenyl) azo]-2,4-dihydroxyphenyl] azo] benzenesulfonic acid, monosodium salt; Resorcin brown
- **Classification:** Diazoo color
- **Uses:** Colorant for external pharmaceuticals
- **Regulatory:** FDA 21CFR §74.2151
Chemical Component Cross-Reference

DCC; DCCD. See Dicyclohexyl carbodiimide
DCD. See Dicyandiamide
DCDMH. See 1,3-Dichloro-5,5-dimethyl hydantoin
1,1-DCE. See Vinylidene chloride monomer
1,2-DCE. See Ethylene dichloride

D&C Green No. 5
CAS 4403-90-1; EINECS/ELINCS 224-546-6
Synonyms: Acid green 25; Alizarine cyanine green F; CI 61570; 2,2’-[(9,10-Dihydro-9,10-dioxo-1,4-anthracenediyl) diimino] bis (5-methyl) benznesulfonic acid disodium salt
Classification: Anthraquinone color
Empirical: C28H20N2O8S2 • 2Na
Formula: C28H22N2O2 • 2Na
Properties: Dullish blue-grn.; m.w. 622.57
Toxicology: Low skin toxicity; may cause skin irritation and sensitivity; TSCA listed
Uses: Colorant for pharmaceuticals and for nylon 6 and 6/6 nonabsorbable surgical sutures
Use Level: 0.6% max. (sutures)
Regulatory: FDA 21CFR §74.1205, 74.2205, 82.1205; subject to certification, permanently listed; Canada DSL
See also CI 61565

D&C Green No. 6
CAS 128-80-3; EINECS/ELINCS 204-909-5
Synonyms: 9,10-Anthracenedione, 1,4-bis [[4-methylphenyl) amino]--; 1,4-Bis [[4-methylphenyl)amino]-9,10-anthracenedione; 1,4-Bis (p-tolylamino) anthraquinone; CI 61565; 1,4-Di-p-toluidinoanthraquinone; Green no. 2; Quinizarin green SS
Classification: Anthraquinone color
Empirical: C28H22N2O2
Properties: Dk. green cryst. or powd.; sol. in C6H6 or acids; insol. in water, ethanol; m.w. 418.50
Toxicology: LD50 (oral, rat) 3660 mg/kg; mod. toxic by ing.; eye irritant; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx
Uses: Colorant for external pharmaceuticals, surgical sutures, haptics, contact lenses
Use Level: 0.01% max. (external pharmaceuticals/cosmetics)
Regulatory: FDA 21CFR §74.1206, 74.2206; FDA approved for external drugs/cosmetics, permanently listed; subject to certification, limits in regulation for use in medical devices
See also CI 59040

D&C Orange No. 3. See Acid orange 10

D&C Orange No. 4
CAS 633-96-5; EINECS/ELINCS 211-199-0
Synonyms: Acid leather orange extra; Acid orange 7 monosodium salt; Benzenesulfonic acid, 4-[(2-hydroxy-1-naphthalenyl) azo]-, monosodium salt; Betanaphthol orange; CI 15510; 4-[(2-Hydroxy-1-naphthalenyl) azo] benzenesulfonic acid monosodium salt; 4-(2-Hydroxy-1-naphthylazo) benzenesulfonic acid sodium salt, 4-[(2-Hydroxy-1-naphthylazo) benzenesulfonic acid sodium salt; Naphthalene Orange G; Naphthol orange; β-Naphthol orange; β-Naphthyl orange; Orange II; Persian orange; Sodium 4-[(2-hydroxy-1-naphthyl) azo] benzenesulfonate
Acid orange 7

Classification: Monoazo color
Empirical: C16H12N2NaO4S
Formula: C16H12N2O4S • Na
Properties: M.w. 351.35
Toxicology: TDLo (oral, male rat, 43 wks) 150 g/kg; irritating to eyes, skin, respiratory system; may cause liver and blood changes; experimental reproductive effects; mutagenic data; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits toxic vapors of NOx and SOx
Uses: Colorant for external pharmaceuticals; biological stain
Regulatory: FDA 21CFR §74.1254, 74.2254, 82.1254; subject to certification, permanently listed

See also Acid orange 7

D&C Orange No. 5
CAS 596-03-2; EINECS/ELINCS 209-876-0
Synonyms: Acid orange 11; Cl 45370:1; 4`,5`-Dibromo-3`,6`-dihydroxyxyspiro [isobenzofuran-1(3H),9`-[9H] xanthen]-3-one; Dibromofluorescein; Solvent red 72
Classification: Fluoran color
Empirical: C20H10Br2O5
Properties: Reddish-orange; m.w. 490.10
Toxicology: TSCA listed
Uses: Colorant for external pharmaceuticals and ingested mouthwashes and dentifrices
Use Level: ≤ 5 mg/day
Regulatory: FDA 21CFR §74.1255, 74.2255, 82.1254; subject to certification, permanently listed

D&C Orange No. 10
CAS 518-40-1; 38577-97-8
Synonyms: Cl 45370:1; 3`,6`-Dihydroxy-4`,5`-diiodospiro [isobenzofuran-1(3H),9`-[9H] xanthen]-3-one; Diiodofluorescein; Solvent red 73
Classification: Fluoran color
Empirical: C20H10I2O5
Properties: Orange-red powd.; m.w. 584.10
Toxicology: TSCA listed
Uses: Colorant for external pharmaceuticals
Regulatory: FDA 21CFR §74.1260, 74.2260, 82.1260; subject to certification, permanently listed
Manuf./Distrib.: Impex Colors & Addit. http://www.impexcolors.com; Rainbow

D&C Orange No. 11
CAS 33239-19-9; EINECS/ELINCS 251-419-2
Synonyms: Acid red 95; Cl 45425 (sodium salt); 3`,6`-Dihydroxy-4`,5`-diiodospiro [isobenzofuran-1(3H),9`-[9H] xanthen]-3-one, disodium salt; Erythrosine yellowish NA
Classification: Xanthene color
Definition: Sodium salt of D&C Orange No. 10
Empirical: C20H10I2O5 • 2Na
Properties: Clear red; m.w. 628.07
Uses: Colorant for external pharmaceuticals
Regulatory: FDA 21CFR §74.1261, 74.2261, 82.1261; subject to certification, permanently listed
See also Acid red 95
Chemical Component Cross-Reference

†=pharmaceutical grade

nonirritating to eyes, skin; TSCA listed
Precaution: Airborne dust may be an explosion hazard; avoid dust formation; take precautions against static discharge if dust formation occurs
Hazardous Decomp. Prods.: Hydrogen chloride can be formed in fire
Storage: Store in cool, dry, ventilated area; keep tightly closed
Uses: Colorant for pharmaceuticals; topical antiseptic
Use Level: 5 mg/day max. combined total with D&C Red No. 6 (drugs)
Regulatory: FDA 21CFR §74.1307, 74.2307, 82.1307, 178.3297; subject to certification, permanently listed; OSHA nonhazardous
Manuf./Distrib.: Impex Colors & Addit.
http://www.impexcolors.com; Noveon
http://www.carbopol.com; http://www.noveoncoatings.com; Rainbow
http://www.rainbowchemicals.com

D&C Red No. 8
CAS 2092-56-0
Synonyms: Benzenesulfonic acid, 5-chloro-2-(2-hydroxy-1-naphthalenyl) azo)-4-methyl, monosodium salt; Bright red; Bronze orange; 5-Chloro-2-(2-hydroxy-1-naphthalenyl) azo)-4-methylbenzenesulfonic acid sodium salt; 1-(4-Chloro-o-sulfo-5-tolylazo)-2-naphthol monosodium salt; CI 15585; Lake red C; Pigment red 53
Classification: Monoazo color
Empirical: C_{17}H_{12}ClN_{2}NaO_{4}S
Properties: M.w. 398.80
Toxicology: LD50 (oral, mouse) > 12 g/kg; low toxicity by ing.; mutagen; carcinogenic in animals; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits toxic vapors of NOx and SOx
Uses: Colorant for external pharmaceuticals
Regulatory: FDA delisted, no longer authorized for use in U.S.

See also CI 15850

D&C Red No. 7
CAS 5281-04-9; EINECS/ELINCS 226-109-5
Synonyms: CI 15850:1; 3-Hydrox-4-[4-methyl-2-sulphophenyl] azo)-2-naphthalencarboxylic acid calcium salt; Lithol rubin B Ca; Pigment red 57:1
Classification: Monoazo color; organic pigment
Definition: Calcium salt of D&C Red No. 6
Empirical: C_{18}H_{14}CaN_{2}O_{6}S
Formula: C_{18}H_{14}S_{2}O_{6}S • Ca
Properties: Bluish red powd.; odorless; insol in water, most solvs.; m.w. 426.45
Toxicology: LD50 (oral, rat) > 5 mg/kg;
D&C Red No. 7
CAS 5281-04-9; EINECS/ELINCS 226-109-5
Synonyms: CI 15850:1; 3-Hydrox-4-[4-methyl-2-sulphophenyl] azo)-2-naphthalencarboxylic acid calcium salt; Lithol rubin B Ca; Pigment red 57:1
Classification: Monoazo color; organic pigment
Definition: Calcium salt of D&C Red No. 6
Empirical: C_{18}H_{14}CaN_{2}O_{6}S
Formula: C_{18}H_{14}S_{2}O_{6}S • Ca
Properties: Bluish red powd.; odorless; insol in water, most solvs.; m.w. 426.45
Toxicology: LD50 (oral, rat) > 5 mg/kg;

See also CI 15850
2-naphthol monobarium salt; Cl 15585:1; Lake red C; Pigment red 53:1
Classification: Monoazo color; organic pigment
Definition: Barium salt of D&C Red No. 8
Empirical: C17H12ClN2O4S • ½Ba
Properties: Powd.; odorless; insol. in water, most solvs.; m.w. 444.46
Toxicology: TSCA listed
Precaution: Airborne dust may be an explosion hazard; avoid dust formation; take precautions against static discharge if dust formation occurs
Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of SOx, NOx, and Cl–; hydrogen chloride can be formed in fire
Uses: Colorant for pharmaceuticals, topicals (FDA delisted)
Regulatory: FDA delisted, no longer authorized for use in U.S.; OSHA nonhazardous; Canada DSL

D&C Red No. 19
CAS 81-88-9; EINECS/ELINCS 201-383-9
Synonyms: Ammonium, (9-(o-carboxyphenyl)-6-(diethylamino)-3H-xanthen-3-ylidene) diethyl-, chloride; 9-O-Carboxyphenyl-6-diaethylamino-3-ethylxanthen-3-ylidene chloride; (9-(O-Carboxyphenyl)-6-(diethylamino)-3H-xanthen-3-ylidene) diethylammonium chloride; N-[9-Carboxyphenyl]-6-(diethylamino)-3H-xanthen-3-ylidene]-N-ethylthamaminium chloride; CI 45170; Diethyl-m-aminophenolphthalein hydrochloride; 3-Ethochloride of 9-o-carboxyphenyl-6-diaethylamino-3-ethylxanthenine; FD&C Red No. 19; Food red 15; Rhodamine B; Rhodamine, tetraethyl-; Tetraethylidiamino-o-carboxyphenyl xanthenyl chloride; Tetraethylrhodamine
Classification: Xanthene color
Empirical: C28H31ClN2O3
Properties: Greenish cryst. or yel. powd.; turns violet in sol'n.; strong odor; sol. in water, ethanol, sl. sol. in HCl, NaOH; m.w. 479.02; vapor pressure negligible; m.p. 210-211 C
Toxicology: LD50 (oral, mouse) 887 mg/kg, (IP, rat) 112 mg/kg, (IV, rat) 89 mg/kg, (subcut., mouse) 180 mg/kg; harmful by ing., inh., skin contact; handle with gloves; possible risk of irreversible effects; may cause changes in liver/kidney wt., wt. loss; carcinogen; tumorigen; mutagen; experimental reproductive effects; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of NOx, NH3, and Cl–
Storage: Store in cool, dry place in tightly closed container
Uses: Colorant for external pharmaceuticals (FDA delisted); biological stain
Regulatory: FDA delisted; permanently listed in 1988; ruling reversed, no longer authorized for use in U.S.
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
See also Basic violet 10

D&C Red No. 21
CAS 15086-94-9; EINECS/ELINCS 239-138-3
Synonyms: Bromeosin; Bromofluoresceic acid; CI 45380:2; Eosin; Eosine; Solvent red
Chemical Component Cross-Reference

43; 2’,4’,5’,7’-Tetrabromo-3’,6’-dihydroxyspiro [isobenzofuran-1(3H),9’-[9H] xanthen]-3-one; 2,4,5,7-Tetrabromo-3,6-fluoradiol; Tetrabromofluorescein

Classification: Fluoran color
Empirical: C_{20}H_{8}Br_{4}O_{5}
Properties: Bluish-pink stain; sol. in alkalis; sl. sol. in ethanol; insol. in water; m.w. 647.90
Toxicology: LDLo (subcut, mouse) 450 mg/kg; mutagenic data; TSCA listed
Precaution: Incompat. with reducing agents
Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of Br–
Uses: Colorant for pharmaceuticals
Regulatory: FDA 21CFR §74.1321, 74.2321, 82.1321; subject to certification, permanently listed; Canada DSL

D&C Red No. 28
CAS 18472-87-2; EINECS/ELINCS 242-355-6
Synonyms: Acid red 92; CI 45410; Phloxine B; 2’,4’,5’,7’-Tetrabromo-4,5,6,7-tetrachloro-3’,6’-dihydroxyspiro [isobenzofuran-1(3H),9’-[9H] xanthen]-3-one disodium salt; Tetrabromotetrachlorofluorescein

Classification: Xanthene color
Definition: Sodium salt of D&C Red No. 27
Empirical: C_{20}H_{4}Br_{4}Cl_{4}Na_{2}O_{5}
Formula: C_{20}H_{4}Br_{4}Cl_{4}O_{5} • 2Na
Properties: M.w. 829.64
Toxicology: TSCA listed
Uses: Colorant for pharmaceuticals
Regulatory: FDA 21CFR §74.1327, 74.2327, 82.1328; subject to certification, permanently listed
See also CI 45410

D&C Red No. 27
CAS 13473-26-2; EINECS/ELINCS 236-747-6
Synonyms: CI 45410:1; Solvent red 48; 2’,4’,5’,7’-Tetrabromo-4,5,6,7-tetrachloro-3’,6’-dihydroxyspiro [isobenzofuran-1(3H),9’-[9H] xanthen]-3-one; Tetrabromotetrafluorobenzene; Tetrachlorotetrafluorobenzene
Classification: Indigoid color
Empirical: C_{18}H_{10}Cl_{2}O_{2}S_{2}
Properties: Bluish pink; m.w. 393.30
Toxicology: TSCA listed
Uses: Colorant for pharmaceuticals, orals
Regulatory: FDA 21CFR §74.1330, 74.2330; FDA approved for orals; subject to certification, permanently listed
See also CI 45410

D&C Red No. 30
CAS 2379-74-0; EINECS/ELINCS 219-163-6
Synonyms: 6-Chloro-2-(6-chloro-4-methyl-3-oxobenzo [b] thien-2(3H)-yldene)-4-methylbenzo [b] thiophen-3(2H)-one; CI 73360; Helindone pink CN; Val red 1
Classification: Indigoid color
Empirical: C_{18}H_{10}Cl_{2}O_{2}S_{2}
Properties: Bluish pink; m.w. 393.30
Toxicology: TSCA listed
Uses: Colorant for pharmaceuticals, orals
Regulatory: FDA 21CFR §74.1330, 74.2330; FDA approved for orals; subject to certification, permanently listed; Canada DSL
Manuf./Distrib.: Noveon† http://www.carbopol.com;
Chemical Component Cross-Reference

†=pharmaceutical grade

See also Vat red 1

D&C Red No. 30 aluminum lake
CAS 2379-74-0
Synonyms: Thioindigoid pink R
Classification: Thioindigoid color
Uses: Colorant for pharmaceuticals, orals
Regulatory: FDA approved for orals
Manuf./Distrib.: RTD Hallstar
http://www.rtdhallstar.com; TKB Trading
http://www.wholesalecolors.com

D&C Red No. 31
CAS 6371-76-2; EINECS/ELINCS 228-899-7
Synonyms: Brilliant lake red R; CI 15800:1; 3-Hydroxy-4-[1-sulfo-2-naphthalenecarboxylic acid calcium salt; Pigment red 64:1
Classification: Monoazo color
Empirical: C17H12N2O3 • ½Ca
Properties: M.w. 311.33
Toxicology: TSCA listed
Uses: Colorant for external pharmaceuticals
Regulatory: FDA 21CFR §74.1331, 74.2331, 82.1331; subject to certification, permanently listed

D&C Red No. 33
CAS 3567-66-6; EINECS/ELINCS 222-656-9
Synonyms: Acid fuchsine; Acid red 33; 5-Amino-4-hydroxy-3-(phenylazo)-2,7-naphthalenedisulfonic acid disodium salt; CI 17200
Classification: Monoazo color
Empirical: C16H13N3Na2O7S2
Formula: C16H13N3O7S2 • 2Na
Properties: Powd.; odorless; insol. in water, most solvs.; m.w. 469.42
Toxicology: TSCA listed
Uses: Colorant for pharmaceuticals, mouthwashes, dentifrices
Use Level: 3% max. (lipstick on wt. of finished prod.); 0.75 max. mg/day (ingested drugs other than mouthwashes and dentifrices)
Regulatory: FDA 21CFR §74.1331, 74.2333, 82.1333; subject to certification, permanently listed
Manuf./Distrib.: Noveon†
http://www.spectrumchemical.com; TKB Trading http://www.wholesalecolors.com

D&C Red No. 34
CAS 6417-83-0; EINECS/ELINCS 229-142-3
Synonyms: CI 15880:1; 3-Hydroxy-4-[1-sulfo-2-naphthalenecarboxylic acid calcium salt (1:1); Lake bordeaux B; Pigment red 63:1; Red no. 22 Japan
Classification: Monoazo color
Definition: Calcium salt of 3-hydroxy-4-[1-sulfo-2-naphthalenyl]azo-2-naphthalene-carboxylic acid
Empirical: C21H14CaN2O6S
Properties: M.w. 462.48
Toxicology: TSCA listed
Uses: Colorant for external pharmaceuticals
Regulatory: FDA 21CFR §74.1334, 74.2334, 82.1334; subject to certification, permanently listed; Canada DSL

D&C Red No. 36
CAS 2814-77-9; EINECS/ELINCS 220-562-2
Synonyms: 1-[2-Chloro-4-nitrophenyl] azo]-2-naphthalenol; CI 12085; Flaming red; Pigment red 4; Tiger orange; Vulcan red R
Classification: Monoazo color; organic pigment
Empirical: C16H10ClN3O3
Properties: Powd.; odorless; insol. in water, most solvs.; m.w. 327.73
Toxicology: LD50 (oral, rat) > 5 mg/kg; nonirritating to eyes, skin; TSCA listed
Precaution: Airborne dust may be an explosion hazard; avoid dust formation; take precautions against static discharge if dust formation occurs
Hazardous Decomp. Prods.: Hydrogen chloride can be formed in fire
Uses: Colorant for pharmaceuticals, orals, topicals, mouthwashes, dentifrices
Use Level: 1.7 max. mg/day (ingested drugs other than mouthwashes and dentifrices, if taken continuously for < 1 yr), ≤ 1.0 mg/day (if taken continuously for > 1 yr); ≤ 3% (lipsticks, on wt. of prod.)
Regulatory: FDA 21CFR §74.1336, 74.2336, 82.1336; FDA approved for orals, topicals; subject to certification, permanently listed; OSHA nonhazardous; Canada DSL
Manuf./Distrib.: Impex Colors & Addit.
http://www.impexcolors.com
See also 1-[2-Chloro-4-nitrophenyl] azo]-2-naphthalenol
**D&C Red No. 37**
CAS 6363-07-5

Synonyms: CI 45170:1; 3-Ethostearate of 9-o-carboxyphenyl-6-diethylamino-3-ethylimino-3-isoxanthene; Rhodamine B stearate

Classification: Xanthene color

Empirical: C_{46}H_{66}N_{2}O_{5}

Properties: M.w. 727.04

Uses: Colorant for external pharmaceuticals (FDA delisted)

Regulatory: FDA delisted, banned in 1988 in U.S.

**D&C Red No. 39**
CAS 6371-55-7

Synonyms: Alba red; CI 13058; o-[p-(β,β’-Dihydroxydiethylamino) phenylazo]benzoic acid; Pigment red 100

Classification: Monoazo color

Empirical: C_{17}H_{19}N_{3}O_{4}

Properties: M.w. 329.36

Uses: Colorant for externally applied quat. ammonium germicides

Use Level: 0.1% max. (quat. germicides)

Regulatory: FDA 21CFR §74.1339; subject to certification, permanently listed

**D&C Violet No. 1.** See Acid violet 49

**D&C Violet No. 2**
CAS 81-48-1; EINECS/ELINCS 201-353-5

Synonyms: Alizurol purple SS; Anthraquinone, 1-hydroxy-4-(p-toluidino); CI 60725; Disperse blue 72; N-(4-Hydroxy-1-anthraquinonyl)-4-methylaniline; N-(4-Hydroxy-1-anthraquinonyl)-p-toluidine; 1-Hydroxy-4-[(4-methylphenyl) amino]-9,10-anthracenedione; Solvent violet 13; N-(p-Tolyl)-4-hydroxy-1-anthraquinonylamine

Classification: Anthraquinone color

Empirical: C_{21}H_{15}NO_{3}

Properties: Dull bluish violet; m.w. 329.35

Toxicology: LD50 (oral, rat) 6721 mg/kg; TSCA listed

Uses: Colorant for external pharmaceuticals; colorant for absorbable sutures, polymethylmethacrylate intraocular lens haptics, absorbable meniscal tacks made from poly (L-lactic acid)

Use Level: 0.2% max. (intraocular lens haptics); 0.15% max. (meniscal tacks)

Regulatory: FDA 21CFR §74.1602, 74.2602, 74.3602, 82.1602; subject to certification, permanently listed for external drugs/cosmetics; permanently listed for use in medical devices

Manuf./Distrib.: Noveon†
http://www.carbopol.com;
http://www.noveoncoatings.com; RTD Hallstar http://www.rtdhallstar.com; Ruger†
http://www.rugerchemical.com; Sigma http://www.sigma-aldrich.com/belgium

See also CI 60725; Disperse blue 72

**D&C Yellow No. 5.** See FD&C Yellow No. 5; Tartrazine

**D&C Yellow No. 7**
CAS 2321-07-5; EINECS/ELINCS 219-031-8

Synonyms: Acid yellow 73; CI 45350:1; 3’,6’-Dihydroxydiisopyrro [isobenzofuran-1(3H),9’-[9H] xanthen]-3-one; Fluorescein; Solvent yellow 94

Classification: Fluoran color

Empirical: C_{20}H_{12}O_{5}

Properties: Ylsh.-red powd.; freely sol. in water; water-absorbing; fluorescence disappears when sol’n. is made acid and reappears when made neutral; m.w. 332.31

Toxicology: Believed to be nontoxic to humans; TSCA listed

Uses: Colorant for external pharmaceuticals

Regulatory: FDA 21CFR §74.1707, 74.2707, 82.1707; subject to certification, permanently listed; Canada DSL

Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Ruger†
http://www.rugerchemical.com; Sigma http://www.sigma-aldrich.com/belgium

See also Fluorescein

**D&C Yellow No. 8**
CAS 518-47-8; EINECS/ELINCS 208-253-0

Synonyms: Acid yellow 73 sodium salt (INCI); 9-o-Carboxyphenyl-6-hydroxy-3-isoxanthone, disodium salt; CI 45350: 3’,6’-Dihydroxydiisopyrro [isobenzofuran-1(3H),9’-[9H] xanthen]-3-one disodium salt; Disodium fluorescein; Disodium-6-hydroxy-3-oxo-9-xanthene-o-benzoate; Fluorescein sodium salt; Naphthol yellow S; Resorcinol phthalein sodium; Sodium fluorescein; Soluble fluorescein; Uranine

Classification: Xanthene color

Empirical: C_{20}H_{10}Na_{2}O_{5}

Formula: C_{20}H_{12}O_{5} • 2Na

Properties: Orange-red powd.; sol. in water; sl. sol. in alcohol; m.w. 376.28

Toxicology: LD50 (oral, rat) 6721 mg/kg, (IP,
**Chemical Component Cross-Reference**

<table>
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<tr>
<th>Chemical Component</th>
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<td>D&amp;C Yellow No. 10</td>
<td>8004-92-0</td>
<td>Acid yellow 3; CI 47005; Quinoline yellow; Quinoline yellow WS</td>
<td>Quinoline color</td>
<td>Mixt. of the disodium salt of the mono- and disulfonic acids of 2-(2-quinolyl)-1H-indene-1,3(2H)-dione</td>
<td>C18H9NNa2O8S2</td>
<td>Brn. greenish yel.; m.w. 454.21</td>
<td>TSCA listed</td>
<td>Colorant for pharmaceuticals, dentals, implants, orals, rectals, sublinguals, topicals</td>
<td>FDA 21CFR §74.1710, 74.2710; FDA approved for dentals, implants, orals, rectals, sublinguals, topicals; subject to certification, permanently listed</td>
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<tr>
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<td>Diethanolamine salt of cetyl sulfate</td>
<td>C16H34O4 • C4H11NO2</td>
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<td>Emulsifier, emulsion stabilizer for pharmaceuticals</td>
<td>Diethylaminoethanol, Diethanolamine, DEA-cetyl phosphate</td>
<td>Amphisol®</td>
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</tbody>
</table>

**Hazardous Decomp. Prods.** Heated to decomp., emits toxic fumes of Na2O

**Storage** Hygroscopic

**Uses** Colorant for external pharmaceuticals

**Regulatory** FDA 21CFR §74.1708, 74.2708, 82.1708; subject to certification, permanently listed; Canada DSL

**See also** CI 47000

**DDA.** See Dimethyl lauramine

**DDAO.** See Lauramine oxide

**DDH.** See 1,3-Dichloro-5,5-dimethyl hydantoin

**DEA.** See Diethylylaminoethanol

**DEA-cellulose.** See Diethylylaminoethanol cellulose

**DEA-lauryl sulfate**

**Synonyms** Bis (2-hydroxyethyl) ammonium decyl sulfate; Diethanolamine lauryl sulfate; Sulfuric acid, monododecyl ester, compd. with 2,2’-iminodiethanol (1:1)

**Definition** Diethanolamine salt of cetyl phosphate

**Empirical** C16H34O4 • C4H11NO2

**Formula** CH3(CH2)14CH2OPO3H2 • HN(CH2CH2OH)2

**Properties** Anionic

**Toxicology** TSCA listed

**Uses** Emulsifier, emulsion stabilizer for pharmaceuticals

**Trade Names** Amphisol®

**Deadburned magnesite** See Magnesium oxide

**DEAE.** See Diethylaminoethanol

**DEAE-cellulose.** See Diethylylaminoethyl cellulose

**DEA-lauryl sulfate**

**Synonyms** Bis (2-hydroxyethyl) ammonium decyl sulfate; Diethanolamine lauryl sulfate; Sulfuric acid, monododecyl ester, compd. with 2,2’-iminodiethanol (1:1)

**Definition** Diethanolamine salt of lauryl sulfate

**Formula** C12H26O4S • C4H11NO2

**Properties** Anionic

**Toxicology** TSCA listed
### Chemical Component Cross-Reference

**DEA methoxycinnamate**
- **CAS**: 56265-46-4; EINECS/ELINCS 260-082-0
- **Synonyms**: Diethanolamine methoxycinnamate; 3-(4-(Methoxyphenyl)-2-propenoic acid compd. with 2,2'-iminobis (ethanol); 2-Propenoic acid, 3-(4-methoxyphenyl)-, compd. with 2,2'-iminobis (ethanol)
- **Definition**: Diethanolamine salt of methoxycinnamic acid
- **Formula**: $C_{10}H_{10}O_3 \cdot C_4H_11NO_2$
- **Uses**: Preservative for pharmaceuticals; OTC drug active
- **Regulatory**: Canada DSL
- **Trade Names**: Nipasorb D, Deanol

**DEA-oleth-3 phosphate**
- **CAS**: 58855-63-3 (generic)
- **Synonyms**: Diethanolamine oleth-3 phosphate; Diethanolammonium POE (3) oleyl ether phosphate; PEG-3 oleyl ether phosphate, diethanolamine salt; POE (3) oleyl ether phosphate, diethanolamine salt
- **Definition**: Diethanolamine salt of a complex mixture of esters of oleth-3 phosphate
- **Properties**: Anionic
- **Uses**: Surfactant, conditioner, emulsifier, gellant for pharmaceuticals; corrosion inhibitor and antigellant in aerosol antiperspirants

**DEA-oleth-10 phosphate**
- **CAS**: 58855-63-3 (generic)
- **Synonyms**: Diethanolamine oleth-10 phosphate; Diethanolammonium POE (10) oleyl ether phosphate; PEG-10 oleyl ether phosphate, diethanolamine salt; PEG 500 oleyl ether phosphate, diethanolamine salt; POE (10) oleyl ether phosphate, diethanolamine salt
- **Definition**: Diethanolamine salt of a complex mixture of esters of phosphoric acid and oleth-10
- **Properties**: Anionic
- **Uses**: Surfactant, conditioner, emulsifier, gellant for pharmaceuticals; corrosion inhibitor and antigellant in aerosol antiperspirants

### Regulatory Information
- **Canada DSL**
- **Trade Names**: Nipasorb D, Deanol

### Trade Names
- **Nipasorb D**: See Dimethylethanolamine
- **Deanol**: See Dimethylethanolamine

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†=pharmaceutical grade

Decaethoxy oleyl ether. **See Oleth-10**
Decaglycerin dioleate. **See Polyglyceryl-10 dioleate**
Decaglycerin distearate. **See Polyglyceryl-10 distearate**
Decaglycerin monoisostearate. **See Polyglyceryl-10 isostearate**
Decaglycerin monolaurate. **See Polyglyceryl-10 laurate**
Decaglycerin monolinoleate. **See Polyglyceryl-10 linoleate**
Decaglycerin mono-myristate. **See Polyglyceryl-10 myristate**
Decaglycerin monooleate. **See Polyglyceryl-10 olate**
Decaglycerin monostearate. **See Polyglyceryl-10 stearate**
Decaglycerol decaoleate. **See Polyglyceryl-10 decaoleate**
Decaglycerol decastearate. **See Polyglyceryl-10 decastearate**
Decaglycerol dioleate. **See Polyglyceryl-10 dioleate**
Decaglycerol octaoleate. **See Polyglyceryl-10 octaoleate**
Decaglycerol stearate. **See Polyglyceryl-10 stearate**
Decaglycerol tetraoleate. **See Polyglyceryl-10 tetraoleate**
Decaglycerol decaoleate. **See Polyglyceryl-10 decaoleate**
Decaglycerol decastearate. **See Polyglyceryl-10 decastearate**
Decaglycerol dioleate. **See Polyglyceryl-10 dioleate**
Decaglycerol dipalmitate. **See Polyglyceryl-10 dipalmitate**
Decaglycerol distearate. **See Polyglyceryl-10 distearate**
Decaglycerol hexaoleate. **See Polyglyceryl-10 hexaoleate**
Decaglycerol mono-isostearate. **See Polyglyceryl-10 isostearate**
Decaglycerol monolaurate. **See Polyglyceryl-10 laurate**
Decaglycerol monooleate. **See Polyglyceryl-10 olate**
Decaglycerol monostearate. **See Polyglyceryl-10 stearate**
Decaglycerol octaoleate. **See Polyglyceryl-10 octaoleate**
Decaglycerol stearate. **See Polyglyceryl-10 stearate**
Chemical Component Cross-Reference

| Decaglyceryl tetraoleate | See Polyglyceryl-10 tetraoleate |

**γ-Decalactone**

CAS: 706-14-9; EINECS/ELINCS 211-892-8

**FEMA 2360**

**Synonyms:** γ-N-Decalactone; Decanolide-1.4; γ-N-Hexyl-γ-butyrolactone; 5-Hexylidihydro-2(3H)-furanone; 4-Hydroxydecanoic acid lactone; 4-Hydroxydecanoic acid, γ-lactone; Hydroxydecanoic acid-γ-lactone

**Classification:** Nonaromatic lactone

**Empirical:** C_{10}H_{18}O_{2}

**Properties:** Colorless liq., fruity peach odor; sl. sol. in water; m.w. 170.25 dens. 0.952; b.p. 281 C; flash pt. > 230 F; ref. index 1.4490

**Toxicology:** LD_{50} (IV, mouse) 56 mg/kg; poison by IV route; primary skin irritant; TSCA listed

**Environmental:** Do not discharge into lakes, streams, ponds, public waters

**Precaution:** Wear safety glasses or goggles, rubber gloves, apron

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and fumes

**Storage:** 6 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Peach-like flavor

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI

**Manuf./Distrib.:** Acme-Hardesty


http://www.axxence.de; Citrus and Allied Essences http://www.citrushandallied.com

De Monchy Aromatics http://www.demonchyaromatics.com;

Fleurchem http://www.fleurchem.com; GuiZhou Essence

http://www.eschemical.com; Moore Ingreds.


SAFC Specialties http://www.safcspecialties.com; V. Mane

Fils SA http://www.mane.com; Zeon

http://www.zeon.co.jp
γ-N-Decalactone. See γ-Decalactone

Decamethycyclodisiloxane
CAS 541-02-6; EINECS/ELINCS 208-764-9
Synonyms: Cyclic dimethylsiloxane pentamer; Cyclic pentamer-D5; Decamethylpentacyclolsiloxane; Dimethylsiloxane pentamer
Classification: Cyclic volatile methyl siloxane
Empirical: C10H30O5Si5
Properties: Oily liq.; m.w. 370.78; dens. 0.9593; vapor pressure 2 mm (50 C); m.p. -38 C; b.p. 210 C; flash pt. 55 C; ref. index 1.3982; dielec. const. 2.50
Toxicology: Skin and eye irritant; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Storage: 6 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air
Uses: Flavor for pharmaceuticals
Features: Citrus flavor
Regulatory: FDA 21CFR §182.60, GRAS; FEMA GRAS; Japan approved as flavoring; Canada DSL; Australia AICS
See also Undecanal

Decanal
CAS 112-31-2; EINECS/ELINCS 203-957-4
FEMA 2362
Synonyms: Aldehyde C10; C10 aldehyde; Capraldehyde; Capric aldehyde; Caprinaldehyde; n-Decanal; Decyl aldehyde; 1-Decyl aldehyde; n-Decyl aldehyde; Decylaldehyde
Empirical: C10H20O
Formula: CH3(CH2)8CH3
Properties: Colorless to lt. yel. liq., floral fatty odor; sol. in 80% alcohol, fixed oils, volatile oils, min. oils; insol. in water, glycerin; m.w. 156.30; dens. 0.830 (15/4 C); m.p. 17-18 C; b.p. 208 C; flash pt. 185 F; ref. index 1.4260-1.4300
Toxicology: LD50 (oral, rat) 3730 mg/kg, (skin, rabbit) 5040 mg/kg; mod. toxic by ing.; 
†=pharmaceutical grade
mildly toxic by skin contact; severe skin irritant; mutagenic data; risk of serious damage to eyes; TSCA listed
Precaution: Combustible liq.; wear safety glasses or goggles, rubber gloves, apron; incompat. with strong oxidizers, reducers
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Storage: 6 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air
Uses: Flavor for pharmaceuticals
Features: Citrus flavor
Regulatory: FDA 21CFR §182.60, GRAS; FEMA GRAS; Japan approved as flavoring; Canada DSL; Australia AICS
See also Undecanal
n-Decanal.  See Decanal

Decanal dimethyl acetal

CAS 7779-41-1; EINECS/ELINCS 231-928-6

Precaution: Incompat. with acid chlorides, acid anhydrides, oxidizing agents, chloroformates, reducing agents

Hazardous Decomp. Prods.: CO, CO₂

Storage: Store in cool, dry place; keep tightly closed

Uses: Pharmaceuticals

Regulatory: Canada DSL


Trade Names: Speziol C 10/2

α,ω-Decanediol.  See 1,10-Decanediol

Decanoic acid; n-Decanoic acid.  See Capric acid

Decanoic acid, diester with 1,2,3-propanetriol.

See Glyceryl dicaprate

Decanoic acid, 2,2-dimethyl-1,3-propanediol diester.  See Neopentyl glycol dicaprate

Decanoic acid ethyl ester.  See Ethyl decanoate

Decanoic acid, 1-methyl-1,2-ethanediyl ester.  See Propylene glycol dicaprate

Decanoic acid, 1-methyl-1,2-ethanediyl ester mixed with 1-methyl-1,2-ethanediyl diocctanoate; Decanoic acid, mixed diesters with octanoic acid and propylene glycol.  See Propylene glycol dicaprylate/dicaprate

Decanoic acid, mixed esters with hexanoic acid, octanoic acid, and trimethylolpropane.  See Trimethylolpropane triacrylate/tricaprate

Decanoic acid, mixed esters with octanoic acid and pentaerythritol.  See Pentaerythrityl tetraacrylate/tetracaprate

Decanoic acid, monoester with 1,2,3-propanetriol.  See Glyceryl caprate

n-Decanoic acid, 1,3-propanediyl ester.  See Propylene glycol dicaprate

Decanol; 1-Decanol; Decan-1-ol; n-Decanol.  See Decyl alcohol

Decanolide-1,4.  See γ-Decalactone
Decanolide-1,5; Decan-5-olide. See Δ-Decalactone
1-Decanol, 2-octyl. See 2-Octyl-1-decanol

3-Decanone
CAS 928-80-3
FEMA 3966
Synonyms: Decan-3-one; Ethyl heptyl ketone
Empirical: C₁₀H₂₀O
Properties: M.w. 156.27; dens. 0.825; m.p. -4 to -3 C; b.p. 204-205 C; flash pt. 80 F
Uses: Flavor for pharmaceuticals
Features: Citrus, orange flavor
Regulatory: FEMA GRAS; Canada DSL
Manuf./Distrib.: Fluka http://www.sigma-aldrich.com; SAFC Specialties http://www.safcspecialties.com; Sigma http://www.sigma-aldrich.com/belgium

Decan-3-one. See 3-Decanone
Decanyl acetate. See Decyl acetate
Decaoletic acid, decaester with decaglycerol. See Polyglyceryl-10 decaoleate
3,6,9,12,15,18,21,24,27,30-Decaoxadopentacontan-1-ol. See Beheneth-10
3,6,9,12,15,18,21,24,27,30-Decaoxaoctatetracontan-1-ol. See Steareth-10
3,6,9,12,15,18,21,24,27,30-Decaoxaoctacont-39-en-1-ol. See Oleth-10
4-Decenal; 4-cis-Decenal; cis-4-Decenal. See cis-4-Decen-1-al
cis-4-Decen-1-al
CAS 21662-09-9; EINECS/ELINCS 244-514-5
FEMA 3264
Synonyms: 4-Decenal; 4-cis-Decenal; cis-4-Decenal; (Z)-4-Decenal
Classification: Nonaromatic aldehyde
Empirical: C₁₀H₁₈O
Properties: Colorless to sl. yel. liq., orange-like fatty odor; sol. in alcohol; insol. in water; m.w. 154.28; dens. 0.847-0.848; b.p. 78-80 C (10 mm); ref. index 1.442-1.444
Toxicology: LD₅₀ (oral, mouse) > 10,000 mg/kg, (dermal) > 10,000 mg/kg; low acute inhalation toxicity; sl. toxic by ingestion
Precaution: Flamm. liq.; avoid contact with air or oxygen (explosion danger, adverse effect on subsequent reactions)
NFPA: Health 0, Flammability 2, Reactivity 0
Storage: Store under nitrogen
Uses: Intermediate for surfactants and specialty chemicals for the pharmaceutical industry
Regulatory: Canada DSL

1-Decene. See Decene-1
Decene, homopolymer. See Polydecene

1-Decene, homopolymer, hydrogenated
CAS 68037-01-4
Synonyms: Hydrogenated decene homopolymer; Hydrogenated poly-1-decen; Hydrogenated polydecene
Classification: Syn. hydrocarbon base oil
Properties: Colorless liq.; odorless; sol. < 0.1% in water; sp.gr. 0.83 (15.6 C); vapor pressure < 1 mm Hg (20 C); pour pt. -60 C max.; flash pt. (PMCC) 238 C
Toxicology: Inh. of oil mist or vapors at elevated
Chemical Component Cross-Reference

- Decylic alcohol
  - Synonyms: Decan-1-ol
  - CAS: 624-36-0
  - EINECS: 211-888-2
  - FEMA: 2365
  - Synonyms: C10 alcohol
  - Properties: Clear colorless liquid, sweet odor; sol. in alcohol, ether, acetone, benzene, chloroform, acetic acid; pract. insol. in water; m.w. 158.32; sp.gr. 0.8297 (20/4 C); m.p. 7 C; b.p. 232.9 C; flash pt. (OC) 82 C; ref. index 1.43587; surf. tens. 28.9 dynes/cm (20 C)
  - Toxicology: LD50 (oral, rat) 4720 mg/kg; mod. toxic by skin contact; mildly toxic by ing.; inh.; irritating to eyes, skin, respiratory system; inh. may cause nose/throat irritation; high concs. may cause CNS depression, headache, nausea, drowsiness; ing. may cause headache, dizziness, nausea, vomiting, and unconsciousness or coma in severe cases; if aspirated into lungs, may cause severe lung damage and possibly death; possible carcinogen, tumorigen; TSCA listed
  - Precaution: Combustible; flamm. when exposed to heat or flame; incompat. with oxidizing agents (increases fire/explosion risk)

- Decyl alcohol
  - CAS: 112-30-1; 68526-85-2
  - EINECS/ELINCS: 203-956-9
  - Synonyms: Alcohol C10; C10 alcohol; Caprylic alcohol; Caprinic alcohol; Decanal dimethyl acetal; Decan-1-ol; 1-Decanol; Decan-1-ol; n-Decanol; n-Decyl alcohol; Decyl alcohol; 1-Hydroxydecane; Noncarbinol; Nonylcarbinol; Primary decyl alcohol
  - Empirical: C10H22O
  - Formula: CH3(CH2)9CH2OH
  - Properties: Colorless to lt. yel. mod. visc. liq., sweet odor; sol. in alcohol, ether, acetone, benzene, chloroform, acetic acid; pract. insol. in water; m.w. 158.32; sp.gr. 0.8297 (20/4 C); m.p. 7 C; b.p. 232.9 C; flash pt. (OC) 82 C; ref. index 1.43587; surf. tens. 28.9 dynes/cm (20 C)
  - Toxicology: LD50 (oral, rat) 4720 mg/kg; mod. toxic by skin contact; mildly toxic by ing.; inh.; irritating to eyes, skin, respiratory system; inh. may cause nose/throat irritation; high concs. may cause CNS depression, headache, nausea, drowsiness; ing. may cause headache, dizziness, nausea, vomiting, and unconsciousness or coma in severe cases; if aspirated into lungs, may cause severe lung damage and possibly death; possible carcinogen, tumorigen; TSCA listed
  - Precaution: Combustible; flamm. when exposed to heat or flame; incompat. with oxidizing agents (increases fire/explosion risk)

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2-Decenoic acid butylo decenoate
- CAS: 10519-33-2
- EINECS/ELINCS: 234-059-0
- FEMA: 3532
- Synonyms: Heptylidene acetone; Oenanthylidene acetone
- Classification: Aliphatic ketone
- Empirical: C10H18O
- Properties: Needle-like odor; sol. in alcohol, perfume oils; insol. in water; m.w. 154.25; m.p. 16-17 C; b.p. 125-126 C (12 mm)
- Uses: Synthetic flavor for pharmaceuticals
- Features: Fruity
- Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
- Toxicity: TSCA listed
- Precaution: Combustible

3-Decenal
- CAS: 1193
- EINECS/ELINCS: 203-956-9
- FEMA: 2365
- Synonyms: Alcohol C10; C10 alcohol; Caprylic alcohol; Caprinic alcohol; Decanal dimethyl acetal; Decanal; 1-Decanol; Decan-1-ol; n-Decanol; n-Decyl alcohol; Decyl alcohol; 1-Hydroxydecane; Noncarbinol; Nonylcarbinol; Primary decyl alcohol
- Empirical: C10H22O
- Formula: CH3(CH2)9CH2OH
- Properties: Colorless to lt. yel. mod. visc. liq., sweet odor; sol. in alcohol, ether, acetone, benzene, chloroform, acetic acid; pract. insol. in water; m.w. 158.32; sp.gr. 0.8297 (20/4 C); m.p. 7 C; b.p. 232.9 C; flash pt. (OC) 82 C; ref. index 1.43587; surf. tens. 28.9 dynes/cm (20 C)
- Toxicology: LD50 (oral, rat) 4720 mg/kg; mod. toxic by skin contact; mildly toxic by ing.; inh.; irritating to eyes, skin, respiratory system; inh. may cause nose/throat irritation; high concs. may cause CNS depression, headache, nausea, drowsiness; ing. may cause headache, dizziness, nausea, vomiting, and unconsciousness or coma in severe cases; if aspirated into lungs, may cause severe lung damage and possibly death; possible carcinogen, tumorigen; TSCA listed
- Precaution: Combustible; flamm. when exposed to heat or flame; incompat. with oxidizing agents (increases fire/explosion risk)

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3-Decylacrolein. See 2-Tridecenal

Decylic acid; n-Decylic acid. See Capric acid

Decolorizing carbon. See Carbon, activated

Decyl acetate
- CAS: 112-17-4; EINECS/ELINCS: 203-942-2
- FEMA: 2367
- Synonyms: Acetate C-10; Capryl acetate; Decanoyl acetate; Decyl ethanoate
- Definition: Synthesized by direct acetylation of n-decanol with acetic acid
- Empirical: C12H24O2
- Formula: CH3(CH2)9OOCCH3
- Properties: Liq., floral orange-rose odor; sol. in 80% alcohol, ether, benzene; insol. in water; m.w. 200.32; dens. 0.862-0.866; b.p. 187-190

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3-Decan-2-one
- CAS: 10519-33-2
- EINECS/ELINCS: 234-059-0
- FEMA: 3532
- Synonyms: Heptylidene acetone; Oenanthylidene acetone
- Classification: Aliphatic ketone
- Empirical: C10H18O
- Properties: Needle-like odor; sol. in alcohol, perfume oils; insol. in water; m.w. 154.25; m.p. 16-17 C; b.p. 125-126 C (12 mm)
- Uses: Synthetic flavor for pharmaceuticals
- Features: Fruity
- Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
- Toxicity: TSCA listed
- Precaution: Combustible

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3-Decanol
- CAS: 112-30-1; 68526-85-2
- EINECS/ELINCS: 203-956-9
- FEMA: 2365
- Synonyms: Alcohol C10; C10 alcohol; Caprylic alcohol; Caprinic alcohol; Decanal dimethyl acetal; Decan-1-ol; 1-Decanol; Decan-1-ol; n-Decanol; n-Decyl alcohol; Decyl alcohol; 1-Hydroxydecane; Noncarbinol; Nonylcarbinol; Primary decyl alcohol
- Empirical: C10H22O
- Formula: CH3(CH2)9CH2OH
- Properties: Colorless to lt. yel. mod. visc. liq., sweet odor; sol. in alcohol, ether, acetone, benzene, chloroform, acetic acid; pract. insol. in water; m.w. 158.32; sp.gr. 0.8297 (20/4 C); m.p. 7 C; b.p. 232.9 C; flash pt. (OC) 82 C; ref. index 1.43587; surf. tens. 28.9 dynes/cm (20 C)
- Toxicology: LD50 (oral, rat) 4720 mg/kg; mod. toxic by skin contact; mildly toxic by ing.; inh.; irritating to eyes, skin, respiratory system; inh. may cause nose/throat irritation; high concs. may cause CNS depression, headache, nausea, drowsiness; ing. may cause headache, dizziness, nausea, vomiting, and unconsciousness or coma in severe cases; if aspirated into lungs, may cause severe lung damage and possibly death; possible carcinogen, tumorigen; TSCA listed
- Precaution: Combustible; flamm. when exposed to heat or flame; incompat. with oxidizing agents (increases fire/explosion risk)
<table>
<thead>
<tr>
<th>Chemical Component Cross-Reference</th>
</tr>
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<tbody>
<tr>
<td><strong>Hazardous Decomp. Prods.:</strong> Thermal decomp. prod.s: CO, CO₂; heated to decomp., emits acid smoke and irritating fumes. <strong>NFPA:</strong> Health 0, Flammability 2, Reactivity 0 <strong>Storage:</strong> Store in cool, dry area <strong>Uses:</strong> Synthetic flavor for pharmaceuticals; pharmaceutical raw material <strong>Features:</strong> Fruity flavor <strong>Regulatory:</strong> FDA 21 CFR §172.515, 172.864, 175.300, 176.170, 177.1390, 178.3480. <strong>Synonyms:</strong> Butanoic acid decyl ester; Butyric acid decyldimethyl ester; Decyl butanoate</td>
</tr>
</tbody>
</table>
Decyl octyl alcohol. See Stearyl alcohol

Decyl oleate
CAS 3687-46-5; EINECS/ELINCS 222-981-6
Synonyms: Decyl 9-octadecenoate; 9-Octadecenoic acid decyl ester
Definition: Ester of decyl alcohol and oleic acid
Empirical: C_{28}H_{54}O_{2}
Formula: \( \text{CH}_3(CH_2)_{17}\text{CH} = \text{CH}(CH_2)_7\text{COOCH}_2(CH_2)_{18}\text{CH}_3 \)
Properties: Wh. to straw liq.; sol. in min. oil, 95% ethanol, IPM, oleyl alcohol; insol. in water; m.w. 422.74; dens. 0.855-0.865; m.p. 3-6 C; ref. index 1.4530-1.4555

Toxicology: TSCA listed
Uses: Emollient, cosolvent, lubricant, superfatting agent for pharmaceuticals, creams, lotions
Regulatory: BP,EP compliance; Canada DSL
Manuf./Distrib.: A&E Connock http://www.connock.co.uk; Chempri; Mosselman NV http://www.mosselman.be
Trade Names: Ceraphyl® 140; Cerette V; Cetiol® V; Dynacerin® DO; Pelemol® DO; Saboderm DO; Tegosoft® DO

Decyl polyglucose. See Decyl glucoside
Decyl propanoate. See Decyl propionate

Decyl propionate
CAS 5454-19-3; EINECS/ELINCS 226-703-4
FEMA 2369
Synonyms: Capryl propionate; Decyl propanoate
Empirical: C_{13}H_{26}O_{2}
Properties: Liq., ethereal rum fruity odor; m.w. 214.35; dens. 0.864; b.p. 123-134 C (8 mm); flash pt. 225 F; ref. index 1.4291
Uses: Synthetic flavor for pharmaceuticals
Features: Fruity flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

2-Decyl tetradecanoic acid
CAS 93778-52-0
Uses: Pharmaceuticals
Trade Names: Jaric I-24

Decyltetradecanol (INCI); 2-Decyltetradecanol. See 2-Decyl-1-tetradecanol

2-Decyl-1-tetradecanol
CAS 58670-89-6; EINECS/ELINCS 216-385-0

†=pharmaceutical grade

Synonyms: Decyltetradecanol (INCI); 2-Decyltetradecanol; Isolignoceryl alcohol; Isotetracosanol; Isotetracosyl alcohol; 1-Tetradecanol, 2-decyl-
Classification: Aliphatic alcohol
Empirical: C_{24}H_{50}O
Properties: Liq.; insol. in water; m.w. 354.66; dens. 0.84 kg/l (17 C)
Uses: Solubilizer for lipid-sol. actives, pharmaceutical creams, ointments, emulsions, sticks
Trade Names: ISOFOL® 24; Jarcol™ I-24

DEG. See Diethylene glycol
DEGEE. See Ethoxydiglycol
Debras. See Lanolin
Dehydracetic acid. See Dehydroacetic acid
Dehydrated beets. See Beet powder

Dehydroacetic acid
CAS 520-45-6; 771-03-9; EINECS/ELINCS 208-293-9; 212-227-4
INS265
Synonyms: 3-Acetyl-5-hydroxy-3-oxo-4-hexenoic acid \( \Delta^1 \)-lactone; 3-Acetyl-6-methyl-1,2-pyran-2,4(3H)-dione; 3-Acetyl-6-methyl-2,4-pyridandione; 3-Acetyl-6-methylpyridandione-2,4; 3-Acetyl-6-methyl-2H-pyran-2,4(3H)-dione; Dehydracetic acid; DHA; DHS; Methylacetopyronone
Classification: Cyclic ketone
Empirical: C_{8}H_{8}O_{4}
Properties: Wh. cryst. or cryst. powd.; sol. in oxygenated and aromatic solvs.; insol. in water; m.w. 168.16; vapor pressure 1 mm (91.7 C); m.p. 109-111 C; b.p. 269 C
Toxicology: LD50 (oral, rat) 500 mg/kg, (IP, mouse) 922 mg/kg; poison by ing. and IV routes; mod. toxic by IP route; questionable carcinogen; experimental tumorigen; TSCA listed
Precaution: Combustible when exposed to heat or flame
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
NFPA: Health 1, Flammability 1, Reactivity 0
Uses: Antimicrobial, preservative for pharmaceuticals, medicated toothpaste
Regulatory: FDA 21CFR §172.130, 65 ppm max. residue in or on prepared squash, GRAS; 175.105; Canada DSL
Manuf./Distrib.: Aldrich† http://www.sigma-aldrich.com; Alfa Aesar† http://www.alfa.com; Alfa Chem†
### Dehydroacetic acid sodium salt

See Sodium dehydroacetate

### 7-Dehydrocholesterol

See Cholecalciferol

### Dehydroxymenthofuro lactone

See Mentholactone

### DEK

See Diethyl ketone

### DELA

See Diethanolamine

### Delphinic acid

See Isovaleric acid

### Deltathione

See Glutathione

### DEM

See Diethyl malonate

### DEN

See Diethylamine

### Denatonium benzoate

**CAS:** 3734-33-6 (anhyd.); 86398-53-0 (monohydrate); EINECS/ELINCS 223-095-2

**Synonyms:** Ammonium, benzylidethyl ((2,6-xylylcarbamoyl) methyl)-, benzoate; Benzenemethanaminium, N-[(2,6-dimethylphenyl) amino]-2-oxoethyl]-N,N-diethyl-, benzoate; Benzyldiethyl [(2,6-xylylcarbamoyl) methyl] ammonium benzoate; N-[2-[(2,6-Dimethylphenyl) amino]-2-oxoethyl]N,N-diethylbenzenemethanaminium benzoate; Lignocaine benzyl benzoate

**Classification:** Organic compd.

**Empirical:** C28H34N2O3; C28H34N2O3 • H2O

**Formula:** C21H29N2O • C7H5O2

**Properties:** WH. cryst. powd., odorless, extremely bitter taste; very sol. in chloroform, methanol; sol. in water, alcohol; sparingly sol. in acetone; pract. insol. in ether; m.w. 446.59 (anhyd.); m.p. 174-176 C; pH 6.5-7.5 (3%)

**Toxicology:** Anhyd.: LD50 (oral, rat) 584 mg/kg; harmful solid; mod. toxic by ing.; irritant; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic vapors of NOx

**Storage:** Hygroscopic (anhyd.)

**Uses:** Pharmaceutical aid; alcohol denaturant, flavor for pharmaceuticals; aversive bitterant added to toxic substances as a deterrent to ingestion

**Regulatory:** FDA 27CFR §21.151; USP/NF compliance; Canada DSL


**Trade Names Containing:** Punctilious® SDA 1-1 190 Proof; Punctilious® SDA 1-1 Anhydrous

### Denatonium saccharide

**CAS:** 90823-38-4

**Synonyms:** Benzenemethanaminium, N-[2-[(2,6-dimethylphenyl)amino]-2-oxoethyl]-N,N-diethyl-, saccharide; Benzenemethanaminium, N-[2-[[2,6-dimethylphenyl] amino]-2-oxoethyl]-N,N-diethyl-, salt with 1,2-benzisothiazol-3(2H)-one 1,1-dioxide; Benzyldiethyl [(2,6-xylylcarbamoyl) methyl] ammonium saccharide

**Classification:** Organic compd.

**Empirical:** C28H33N3O4S

**Formula:** C21H28N2O • CrH4NO3

**Properties:** WH. cryst. powd.; odorless; bitter taste; m.w. 507.626; m.p. 176-182 C

**Toxicology:** LD50 (oral, rat) 1430 mg/kg; avoid dust inhalation

**Precaution:** Avoid excessive heat; wear protective gloves and dust respirator

**Hazardous Decomp. Prods.:** CO, CO2, NOx

**HMIS:** Health 1, Flammability 1, Reactivity 0

**Uses:** Aversive bitterant; denaturant

Deodorized kerosene
CAS 8008-20-6; EINECS/ELINCS 232-366-4
UN 1223 (DOT)
Synonyms: Kerosene, deodorized; Kerosene, odorless; Odorless kerosene
Definition: Mixt. of petrol.-derived hydrocarbons contg. 10 to 16 carbon atoms
Toxicology: TSCA listed
Precaution: DOT: Flamm. liq.
HMIS: Health 1, Flammability 2, Reactivity 1
Uses: Solvent, defoamer, diluent for pharmaceutical creams and lotions
Regulatory: FDA 21CFR §176.200, 176.210
Manuf./Distrib.: Ruger
http://www.rugerchemical.com
Trade Names: PD-23

Deodorized winterized cottonseed oil. See Cottonseed (Gossypium) oil
Deoiled lanolin. See Lanolin wax
Deoxycholate sodium; Deoxycholic acid sodium salt; 7-Deoxycholic acid sodium salt. See Sodium deoxycholate
6-Deoxy-L-mannose. See Rhamnose
1-Deoxy-1-(methylamino)-D-glucitol. See Meglumine
Deoxytetaric acid. See N-Hydroxysuccinic acid
4-Deoxytetronic acid. See Butyrolactone
DEP. See Diethyl phthalate
DETDA. See Diethyl toluene diamine
Detergent enzyme. See Protease
DETN. See Diethylamine
Detoxin. See Keratin
Devil’s dung. See Asafetida (Ferula asafoetida) gum
Devitalized wheat gluten. See Wheat (Triticum vulgare) gluten
Dewaxed lanolin. See Lanolin oil
Dewberry extract. See Blackberry (Rubus fruticosus) extract
3,6,9,12,15,18,21,24,27,30-Dexaaxodotetracontan-1-ol. See Laurethen-10
3,6,9,12,15,18,21,24,27,30-Dexaaxahexatetracontan-1-ol. See Ceteth-10
Dexpanthenol. See D-Panthenol; DL-Panthenol

Dextran
CAS 9004-54-0; EINECS/ELINCS 232-677-5
Synonyms: Macrose
Definition: Polymers of glucose with chain-like structures and m.w. to 200,000
Empirical: (C₆H₁₀O₅)n
Properties: Water-sol.; m.w. = 15,000-200,000
Toxicology: Histamine-releasing props.; may cause anaphylactoid reactions; questionable carcinogen; experimental tumorigen, teratogen, reproductive effects; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Storage: Hygroscopic
Uses: Visc. control agent in artificial tear prods., topical ophthalmics; blood plasma substitute or expander
Regulatory: FDA 21CFR §186.1275, GRAS as indirect additive; Japan approved; BP, EP compliance; Canada DSL
Manuf./Distrib.: AMRESCO
http://www.amresco-inc.com; Accurate Chem. & Scientific
http://www.accuratechemical.com; Am. Biorganics; CPI Chems.
http://www.cpichem.com; CarboMert
http://www.carbomer.com
Fluka http://www.sigma-aldrich.com;

Dextran
See Dextrin

Dextrates
Definition: Purified mixt. of saccharides resulting from controlled enzymatic hydrolysis of starch; either anhyd. or hydrated
Properties: Wh. free-flowing porous spherical gran., odorless, sweet taste producing cooling sensation in mouth; freely sol. in water; sol. in dil. acids and alkalis, basic org. solvs.; insol. in common org. solvs.; pH 3.8-5.8 (20%); DE 93-99%
Toxicology: Essentially nontoxic
Uses: Sweetener for pharmaceuticals; diluent, excipient in tablets and capsules
Features: May be compressed directly into self-binding tablets
Regulatory: USP/NF compliance
Manuf./Distrib.: AMRESCO
http://www.amresco-inc.com; Adept Sol’ns.; Ashland
http://www.ashchem.com; Avebe Am.
Chemical Component Cross-Reference

http://www.avebe.com; Barrington†
http://www.barringtonchem.com
CarboMer† http://www.carbomer.com;
Cerestar USA† http://www.cerestar.com;
Corn Prods.† http://www.cornproducts.com; Forum
Biosciences † http://www.forum.co.uk;
Spectrum Quality Prods.† http://www.spectrumchemical.com

Trade Names Containing: Emdex®

Dextrin
CAS 9004-53-9; EINECS/ELINCS 232-675-4
INS 1400
Synonyms: Artificial gum; British gum; Corn dextrin; Dextrins; Dextrin corn; Dextrine; Dextrins; Pyrodextrin; Starch gum; Tapioca; Vegetable gum; White dextrin; Yellow dextrin
Classification: Food starch modified
Definition: Gum produced by incomplete hydrolysis of starch
Empirical: (C6H10O5)n • xH2O
Properties: Wh., yel. or brn. powd. or gran.; odorless; sol. in water; insol. in alcohol, ether; forms colloids; sp.gr. 1.45; autoignition temp. 400 C
Toxicology: ACGIH 10 mg/m³ (total dust);
LD50 (IV, mouse) 350 mg(Fe)/kg; mildly toxic by IV route; may be harmful by ing., inh., skin absorp.; may cause irritation; if inhaled in sufficient amts., nuisance particulate will evoke some reversible cellular response in the lungs; TSCA listed
Precaution: Potentially explosive as dust; incompat. with strong oxidizing agents; avoid excessive temps., excessive dusting
Hazardous Decomp. Prods.: Toxic fumes of CO, CO2; heated to decomp., emits acrid smoke and irritating fumes; emits toxic fumes under fire conditions
Storage: Hygroscopic; protect from moisture; store @ R.T. in cool, dry place away from direct sunlight, heat, incompat. materials; keep container closed
Uses: Emulsifier, suspending agent, thickener for pharmaceuticals, orals (infant formulas), topicalcs; binder, diluent in tablets; adhesive and stiffener in surgical dressings; mfg. of penicillin
Regulatory: FDA 21CFR §184.1277, 186.1275, GRAS; USDA 9CFR §318.7, 381.147; FDA approved for orals, topicalcs; DOT nonregulated; SARA §302/311/312/313

†=pharmaceutical grade
nonreportable; Calif. Prop. 65 nonreportable;
USP/NF, BP, EP compliance; Canada DSL
Cerestar USA http://www.cerestar.com;
Degussa AG/Health & Nutrition; Ferro Pfanstiehl Europe†; Ferro Pfanstiehl Labs† http://www.pfanstiehl.com; Fluka http://www.sigma-aldrich.com
Polysciences† http://www.polysciences.com; Primera Foods† http://www.primerafoods.com;
Roquette UK; Roquette† http://www.roquette.fr
Tate & Lyle UK http://www.tateandlyle.com

Trade Names Containing: Beta Carotene 1%
CWS

Dextrin corn; Dextrine; Dextrins. See Dextrin
Dextro-limonene. See d-Limonene
Dextron acid. See D-Gluconic acid
Dextrose; α-Dextrose. See Glucose
Dextrose monohydrate. See D-Glucose monohydrate; D-(+)-Glucose monohydrate
Dextrosol. See Glucose
DHA. See Dihydroxyacetone;
Docosahexaenoic acid; Dehydroacetic acid
DHA-Na. See Sodium dehydroacetate
2,5-DHBA. See Gentisic acid
DHBP. See Benzophenone-1
DHS. See Dehydroacetic acid
α-5-Diacetamido-2,4,6-triido-m-toluic acid. See Iodamide
3,5-Diacetamido-2,4,6-triiodobenzoic acid. See Diatrizoic acid
Diacetic ether. See Ethylacetoacetate
Diacetoxymercury. See Mercury acetate (ic)
1,2-Diacetoxypropane. See Propylene glycol diacetate
Diacetyl
CAS 431-03-8; EINECS/ELINCS 207-069-8
UN 2346 (DOT); FEMA 2370
Synonyms: Biacetyl; Butadione; Butanedione; 2,3-Butanedione; 2,3-Diketobutane; Dimethyl diketone; Dimethylglyoxal
Classification: ketone
Empirical: C₄H₆O₂
Formula: CH₃COCOCH₃
Properties: Yel. to greenish-yel. liq., strong rancid butter odor; sol. in glycerin, water; misc. with alcohol, fixed oils, propylene glycol; m.w. 86.10; dens. 0.9904 (15/15 C); b.p. 88 C; flash pt. 80 F; ref. index 1.393-1.397
Toxicology: LD₅₀ (oral, guinea pig) 990 mg/kg, (IP, rat) 400 mg/kg; poison by IP route; mod. toxic by ing.; skin irritant; human mutagenic data; TSCA listed
Precaution: Flamm. liq.; dangerous fire hazard when exposed to heat or flame
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Uses: Flavor and adjuvant for pharmaceuticals; gelatin hardening agent
Regulatory: FDA 21CFR §184.1278, GRAS; USDA 9CFR §318.7; FEMA GRAS; Canada DSL
Manuf./Distrib.: Advanced BioTech
http://www.adv-bio.com; Advanced Synthesis Tech.

†=pharmaceutical grade

Diacetylated monoglyceride
Synonyms: Diacetylated monoglyceride
Definition: Glycerin esterified with edible fat-forming fatty acids and acetic acid
Properties: Clear liq.; sol. in 80% aq. alcohol, veg. and min. oils; acid no. 3 max.; sapon. no. 365-395; hyd. no. 15 max.
Storage: Preserve in tight, light-resist. containers
Uses: Excipient, solvent, plasticizer for pharmaceuticals, orals, parenterals
Regulatory: FDA approved for orals; USP/NF compliance
Trade Names: Dynacet® 285

Diacetyl ether. See Ethylacetoacetate
Diacetylmethane. See Acetylacetone
1,2-Diacetyl-sn-glycero-3-phosphocholine. See Hydrogenated lecithin
Di-n-alkyl (C7-C9) phthalate. See n-Diocetyl phthalate

Dialkyl dimethyl ammonium chloride
CAS 68514-95-4; 977065-95-4
Synonyms: Dimethyl dialkyl ammonium chloride
Properties: Cationic
Toxicology: TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Surfactant, antimicrobial in pharmaceuticals
Regulatory: FDA 21CFR §173.400, 177.1200
Trade Names Containing: Bio-Gentle® Formulation

Dialkyl methyl benzyl ammonium chloride
CAS 68391-06-0
Uses: Surfactant, antimicrobial in pharmaceuticals
Regulatory: FDA 21CFR §176.300
Trade Names Containing: BTC® 776

Diallyl disulfide. See Allyl disulfide

Diallyl maleate
CAS 999-21-3; EINECS/ELINCS 213-658-0
Synonyms: But-2-enedioic acid diallyl ester; DAM; Maleic acid diallyl ester
Classification: Nonaromatic ester
Empirical: C₁₀H₁₂O₄
Formula: CH₂:CHCH₂OCOCH:CHCOOCH₂CH:CH₂
Properties: Colorless to straw-colored liq.; pungent odor; insol. in water; m.w. 196.22; dens. 1.077 (20 C); b.p. 109-110 C (3 mm); ref. index 1.4699 (20 C); polymerizes on
heating
Toxicology:  LD50 (oral, rat) 300 mg/kg, (IP, mouse) 160 mg/kg, (skin, rabbit) 1150 mg/kg; toxic by ing. and IP routes; mod. toxic by skin contact; skin and eye irritant; TSCA listed
Precaution:  Polymerizes readily when exposed to light or temps. above 50 C Hazardous Decomp. Prods.:  Heated to decomp., emits acrid smoke and irritating fumes Storage:  Refrigerate; protect from light Uses:  Pharmaceutical intermediate Regulatory:  Canada DSL Manuf./Distrib.:  Aceto† http://www.aceto.com; Aldrich† http://www.sigma-aldrich.com; Ashland http://www.ashchem.com; Clariant/Functional Chems. http://www.fun.clariant.com; Fluka http://www.sigma-aldrich.com Diallyl monosulfide; Diallyl sulfide; Diallylthioether.  See Allyl sulfide Dialuminum chloride pentahydroxide.  See Aluminum chlorohydrate Dialuminum sulfate.  See Aluminum sulfate Dialuminum tetrahydroxychloro allantoinate.  See Alcloxa Dialuminum trisulfate.  See Aluminum sulfate 1,3-Diaminobenzene; Diamino-1,3-benzene; m-Diaminobenzene.  See m-Phenylene diamine α,α,ε-Diaminocaproic acid; L-α,α,ε-Diaminocaproic acid.  See L-Lysine 2,4-Diamino-3,5-diethytoluene.  See Diethyl tolune diamine 1,2-Diaminoethane.  See Ethylenediamine 1,2-Diaminoethane dihydrochloride.  See Ethylenediamine dihydrochloride 2,6-Diaminohexanoic acid.  See L-Lysine 2,6-Diaminohexanoic acid hydrochloride.  See L-Lysine hydrochloride 2,6-Diaminopyridine CAS 141-86-6; EINECS/ELINCS 205-507-2 UN 2811 Synonyms:  2,6-Pyridinediamine; Pyridine-2,6-diyldiamine Classification:  Aromatic amine Empirical:  C5H7N3 Properties:  Lt. brn. cryst. or leaflets; sol. in oxygenated solvs. and 13 g/100 g water; m.w. 109.13; f.p. 120.8 C; b.p. 285 C Toxicology:  LD50 (IP, mouse) 100 mg/kg, (IV, mouse) 56 mg/kg; poison by IV and IP routes; mutagenic data; TSCA listed Hazardous Decomp. Prods.:  Heated to decomp., emits toxic fumes of NOx Uses:  Pharmaceutical intermediate Manuf./Distrib.:  Aldrich http://www.sigma-aldrich.com; Alkali Metals Ltd http://www.alkalimetals.com; Cilag AG http://www.cilag.com; Fluka http://www.sigma-aldrich.ch; Jingjiang Wisdom Chems. http://www.wisdomchemical.com Reilly Ind.  http://www.reillyind.com; Sigma http://www.sigma-aldrich.com belgium Diammonium carbonate.  See Ammonium carbonate Diammonium edetate.  See Diammonium EDTA Diammonium EDTA CAS 20824-56-0; EINECS/ELINCS 244-063-4 Synonyms:  Diammonium edetate; Diammonium N,N´-1,2-ethanediylbis[N-(carboxymethyl)glycine]; Diammonium ethylene diamine tetraacetate; Edetate diammonium Classification:  Substituted diamine Empirical:  C10H16N2O8 • 2H3N Formula:  NCH2CH2N(CH2COOH)2(CH2COONH4)2 Uses:  Chelating agent, stabilizer for pharmaceuticals Regulatory:  Canada DSL Manuf./Distrib.:  Fluka http://www.sigma-aldrich.com Trade Names:  Versene Diammonium EDTA Diammonium N,N´-1,2-ethanediylbis[N-(carboxymethyl)glycine].  See Diammonium EDTA Diammonium hydrogen orthophosphate; Diammonium hydrogen phosphate; Diammonium phosphate.  See Ammonium phosphate, dibasic Diammonium sulfate.  See Ammonium sulfate 1,4,3,6-Dianhydro-2,5-di-O-methyl-D-glucitol.  See Dimethyl isosorbide (Z)-Dianhydro-D-mannitol, mono-9-octadecenoate; Dianhydromannitol monooleate; D-Dianhydromannitol monooleate.  See Mannide monooleate 1,4,3,6-Dianhydroinositol 2,5-dinitrate.  See Isosorbide dinitrate 1,4-Dianilinobenzene.  See N,N´-Diphenyl-p-phenylenediamine
Chemical Component Cross-Reference

Diasmol. See 1,3-Nonanediol acetate, mixed esters

Diatomaceous earth
CAS 6067-86-0; 7631-86-9; 68855-54-9; 61790-53-2
EINECS/ELINCS 231-545-4
Synonyms: Diatomaceous silica; Diatomite; Fossil flour; Infusorial earth; Kieselguhr; Siliceous earth; Silicon dioxide, diatomaceous; Solum diatomeae
Definition: Mineral material consisting chiefly of the siliceous frustules and fragments of various species of diatoms
Properties: Wh. to pale buff soft bulky solid; insol. in water, acids except HF, dil. alkalis; sol. in strong alkalis; dens. 1.9-2.35; bulk dens. 8-15 lb/ft³; bulking value 0.06 gal/lb; oil absorp. 135-185%; GE brightness 87-90; ref. index 1.42-1.49; hardness (Mohs) 4.5-6.0; 88% silica
Toxicology: TLV/TWA 10 mg/m³ (dust); poison by inhalation and ing.; dust may cause fibrosis of the lungs; tumorigen
Precaution: Noncombustible
HMIS: Health 1, Flammability 0, Reactivity 0
Uses: Filter aid, sorbent for pharmaceuticals, dentifrices; excipient for pill masses; absorbent for liqs.
Manuf./Distrib.: Alban Muller
†=pharmaceutical grade

Trade Names: Celite® 503; Celite® 512; Celite® 545; Celite® 577; Hyflo Super-Cel® Standard Super-Cel
Trade Names Containing: Sag 471

Diatomaceous earth, amorphous
CAS 61790-53-2
Synonyms: Amorphous silica; Diatomaceous earth, natural; Diatomaceous silica; Diatomite; Infusorial earth; Kieselguhr
Definition: Diatomaceous earth contg. < 1% cryst. silica
Properties: Wh. to tan solid; sol. in hydrofluoric acid; insol. in water
Toxicology: ACGIH TLV/TWA 10 mg/m³ (total dust); NIOSH REL:TWA 6 mg/m³; harmful dust; nuisance dust; may cause fibrosis of the lungs; irritating to eyes, respiratory system; possible carcinogen; tumorigen; TSCA listed
Uses: Filler, flattting agent, rheology control agent in dental applics.
Regulatory: FDA 21CFR §182.90, 184.1420, 573.340
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: DiaFil® 525; DiaFil® 570; DiaFil® 590; DiaFil® 880; DiaFil® 890
Trade Names Containing: Silbine™ 70451; Silbine™ 70454
See also Diatomaceous earth; Silica, amorphous

Diatomaceous silica. See Diatomaceous earth, amorphous; Diatomaceous earth

Diatomite. See Diatomaceous earth, amorphous; Diatomaceous earth

Diatrizoic acid
CAS 117-96-4
Synonyms: Amidotrizoic acid; 3,5-Bis(acetylamino)-1,4,6-triiodobenzoic acid; 3,5-Diacetamido-2,4,6-triiodobenzoic acid; Urografiin acid; Urogranoic acid
Empirical: C₁₁H₁₀I₃N₂O₄
Properties: Cryst.; m.w. 613.92
Toxicology: LD₅₀ (IP, rat) 14,300 mg/kg, (IV, rat) 11,300 mg/kg; mildly toxic by IP and IV routes
Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of NOₓ and I⁻
Uses: Pharmaceutical injectables; x-ray
Chemical Component Cross-Reference

Diazolidinyl urea

CAS 78491-02-8; EINECS/ELINCS 278-928-2

Synonyms: N-[1,3-Bis (hydroxymethyl)-2,5-dioxo-4-imidazolidinyl]-N,N′-bis (hydroxymethyl) urea; N-(Hydroxymethyl)-N-(1,3-dihydroxymethyl-2,5-dioxo-4-imidazolidinyl)-N′-(hydroxymethyl) urea; Imidazolidinyl urea 11; Urea, N-[1,3-bis (hydroxymethyl)-2,5-dioxo-4-imidazolidinyl]-N,N′-bis (hydroxymethyl)-

Classification: Heterocyclic substituted urea

Empirical: C9H14N4O7

Properties: Colorless clear liq.; mild to pungent odor; highly water sol.; m.w. 278.23; dens. 1.23-1.25; vapor pressure 1.0 mm Hg (20 C); ref. index 1.5590; b.p. 219 C; flash pt. > 110 C; odor; highly water sol.; m.w. 278.23; dens.

Toxicology: LD50 (oral, rat) 2600 mg/kg, (dermal, rabbit) > 2000 mg/kg; mod. toxicity by ing.; may cause mod. skin and eye irritation; may be respiratory irritant; TSCA listed

Environmental: Low avian toxicity; low toxicity to aquatic life

Precaution: May release formaldehyde

Hazardous Decomp. Prods.: Heated to decomp., emits toxic vapors of NOx

Uses: Antimicrobial, preservative for

Intermediate for pharmaceuticals

Features: Broad-spectrum

Regulatory: USA CIR approved; Europe listed; Japan not approved; Canada DSL

Manuf./Distrib.: ISP Sutton Labs; ISP

Trade Names: Germall® II; Unidacide U-26

Trade Names Containing: Germaben® II; Germall® Plus; Liquid Germall® Plus;

†=pharmaceutical grade

Unigerm G-2

Diazotizing salts. See Sodium nitrite

DIBAH; DiBAL-H. See Diisobutylaluminum hydride

Dibasic ammonium phosphate. See Ammonium phosphate, dibasic

Dibasic magnesium stearate. See Magnesium stearate

Dibasic potassium phosphate. See Potassium phosphate dibasic

Dibasic sodium phosphate. See Sodium phosphate dibasic anhydrous

Dibasic sodium phosphate heptahydrate. See Sodium phosphate dibasic heptahydrate

Dibasic zinc stearate. See Zinc stearate

Dibenzoazathiazine; Dibenzothiazine;

Dibenzo-1,4-thiazine. See Phenothiazine

Dibenzoyl peroxide. See Benzoyl peroxide

Dibenzyldisulfide. See Benzyl disulfide

Dibenzyl ether. See Benzyl ether

Dibenzylketone. See 1,3-Diphenyl-2-propanone

Dibenzyl oxide. See Benzyl ether

DIBK. See Diisobutyl ketone

1,2-Dibromo-2,4-dicyanobutane. See Methylidibromo glutaronitrile

4´,5´-Dibromo-3´,6´-dihydroxyspiro [isobenzofuran-1(3H),9´-[9H] xanthen]-3-one; Dibromofluorescein. See D&C Orange No. 5

β-Dibromohydri; Dibromopropanol; 2,3-Dibromopropanol. See 2,3-Dibromopropanol

2,3-Dibromopropanol

CAS 96-13-9; EINECS/ELINCS 202-480-9

Synonyms: Allyl alcohol dibromide; β-

Dibromo hydri; Dibromopropanol; 2,3-

Dibromopropanol

Classification: Aliphatic organic compd.

Empirical: C3H6Br2O

Formula: CH2BrCHBrCH2OH

Properties: Colorless liq.; sol. in acetone, alcohol, ether, benzene; m.w. 217.90; dens. 2.120 (20/4 C); b.p. 219 C; flash pt. > 110 C; ref. index 1.5590

Toxicology: LDLo (IP, mouse) 125 mg/kg; toxic; poison by IP route; irritant; carcinogenic; mutagenic data; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of Br–

Uses: Intermediate for pharmaceuticals


Germall® Plus; Liquid Germall® Plus;

### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Trade Names</th>
<th>Vendor/Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cetiol® B</td>
<td>Aldrich</td>
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<tr>
<td>Saboderm DOA</td>
<td>Aldrich</td>
</tr>
<tr>
<td>Saboderm DBA</td>
<td>Aldrich</td>
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<tr>
<td>Di-n-butyl adipate</td>
<td>Di-n-butyl adipate</td>
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<tr>
<td>Dibutyl adipate</td>
<td>Dibutyl adipate</td>
</tr>
<tr>
<td>Dibutyl-1,2-benzene dicarboxylate</td>
<td>Dibutyl adipate</td>
</tr>
<tr>
<td>Dibutyl butyrolactone</td>
<td>Dibutyl adipate</td>
</tr>
<tr>
<td>4,4-Dibutyl-γ-butyrolactone</td>
<td>Dibutyl adipate</td>
</tr>
</tbody>
</table>

### 4,4-Dibutyl-γ-butyrolactone

**CAS**: 7774-47-2; EINECS/ELINCS 231-875-9  
**FEMA**: 2372  
**Synonyms**: 4-Butyl-4-hydroxyoctanoic acid, γ-lactone; Dibutyl butyrolactone; 4,4-Dibutyl-4-hydroxybutyric acid, γ-lactone  
**Definition**: Synthesized from butyl pentanol and methyl acrylate using a catalyst  
**Empirical**: C₁₂H₂₂O₂  
**Properties**: Colorless oily liq., oily coconut-butter odor, coconut-like flavor; sol. in alcohol; insol. in water; m.w. 198.31  
**Uses**: Synthetic flavor for pharmaceuticals  
**Regulatory**: FDA 21CFR §172.515; FEMAGRAS; Canada approved  
**Manuf./Distrib.**: Degussa AG/Health & Nutrition  

#### Dibutyl adipate

**CAS**: 105-99-7; EINECS/ELINCS 203-350-4  
**Synonyms**: Adipic acid, dibutyl ester; Butyl adipate; Di-n-butyl adipate; Dibutyl adipinate; Dibutyl hexanedioate; Hexanedioic acid, dibutyl ester  
**Definition**: Diester of butyl alcohol and adipic acid  
**Empirical**: C₁₄H₂₆O₄  
**Formula**: [-CH₂CH₂CO₂(CH₂)₃CH₃]₂  
**Properties**: M.w. 258.36; dens. 0.962; b.p. 305°C; flash pt. > 110°C  
**Toxicology**: LD₅₀ (oral, rat) 12,900 mg/kg, (skin, rabbit) 20,000 mg/kg; mildly toxic; primary irritant to skin and eyes; experimental teratogen, reproductive effects; TSCA listed  
**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes  
**Uses**: Emollient, oily component in pharmaceutical sun and skin protective oils; solvent for lipid-sol. ingreds.  
**Regulatory**: Canada DSL  
**Manuf./Distrib.**: A&E Connock  

#### Dibutyl phthalate

**CAS**: 84-74-2; EINECS/ELINCS 201-557-4  
**UN 9095 (DOT)**  
**Synonyms**: 1,2-Benzenedicarboxylic acid, dibutyl ester; o-Benzenedicarboxylic acid dibutyl ester; Benzene-o-dicarboxylic acid di-n-butyl ester; Butyl phthalate; n-Butyl phthalate; DBP; Dibutyl-1,2-benzene dicarboxylate; Di-n-butyl phthalate  
**Classification**: Ester  
**Definition**: Aromatic diester of butyl alcohol and phthalic acid  
**Empirical**: C₁₆H₂₄O₄  
**Formula**: C₆H₄(COOC₄H₉)₂  
**Properties**: Colorless to yel. stable oily liq., odorless; misc. with common org. solvs.; insol. in water; m.w. 278.17; dens. 1.0484 (20/20°C); f.p. -35°C; b.p. 340°C; flash pt. (COC) 340°F; autoignition temp. 402°C; ref. index 1.4920; surf. tens. 33.4 dynes/cm; dielec. const. 6.44  
**Toxicology**: ACGIH TLV/TWA 5 mg/m³; LD₅₀ (oral, rat) 8000 mg/kg, (IP, rat) 3050 mg/kg;
Di-n-butyphthalate. See Dibutyl phthalate

Dibutyl sebacate
CAS 109-43-3; EINECS/ELINCS 203-672-5
FEMA 2373
Synonyms: Bis (n-buty) sebacate; DBS; Decanedioic acid, dibutyl ester; Dibutyl decanedioate; Di-n-buty sebacate; Sebacic acid, dibutyl ester
Definition: Diester of butyl alcohol and sebamic acid
Empirical: C_{18}H_{34}O_{4}
Formula: C_4H_9OCO(CH_2)_8OCOC_4H_9
Properties: Colorless clear liq., odorless; sol. in alcohol, IPA, min. oil; sl. sol. in propylene glycol; insol. in water; m.w. 314.47; dens. 0.936 (20/20 C); b.p. 349 C (760 mm); f.p. -11 C; acid no. 0.1 max.; sapon. no. 352-357; flash pt. 350 F; ref. index 1.429-1.441
Toxicology: LD50 (oral, rat) 16 g/kg; mildly toxic by ing.; experimental reproductive effects; TSCA listed
Precaution: Combustible when exposed to heat or flame; can react with oxidizing materials; NFPA: Health 0, Flammability 1, Reactivity 0
Storage: Preserve in tight containers
Uses: Plasticizer for pharmaceutical orals
Regulatory: FDA 21CFR §172.515, 175.105, 175.300, 175.320, 176.170, 177.2600, 178.3910, 181.22, 181.27; FEMA GRAS; FDA approved for orals; USP/NF compliance; Canada DSL
Phosphate dibasic dihydrate

Dicalcium pyrophosphate. See Calcium pyrophosphate

Dicaprin. See Glyceryl dicaprate

1,2-Dicaproyl-sn-glycero(3)-phosphatidylcholine


Trade Names Containing: BTC® 885 P40

Dicapryl/dicapryl dimonium chloride

CAS 68424-95-3; EINECS/ELINCS 270-331-5

Synonyms: Quaternary ammonium compds., di-C8-10-alkyldimethyl, chlorides, di-C8-10-alkyldimethyl ammonium chlorides

Classification: Quaternary ammonium compd.

Formula: \([RN(CH_3)_2R']^+Cl^-\), R rep. capryl radical and R’ rep. capryl radical

Uses: Antistat, emulsifier

Regulatory: Canada DSL

Trade Names Containing: BTC® 885 P40

Dicapryl ether. See Dioctyl ether

Dicaprylin. See Glyceryl dicaprylate

Dicaprylyl ether. See Dioctyl ether

Dicaprylyl maleate (INCI). See Dioctyl maleate

Dicarbethoxymethane. See Diethyl malonate

Dicarbomethoxy zinc. See Zinc acetate

Dicarboxylic acid C3. See Malonic acid

Dicarboxylic acid C6. See Adipic acid

Dicarboxylic acid C8. See Suberic acid

Dicarboxymethane. See Malonic acid

Dicetyl dimethyl ammonium chloride. See Dicetyldimonomium chloride

Dicetyldimonomium chloride

CAS 1812-53-9; 68391-05-9; EINECS/ELINCS 217-325-0

Synonyms: Ammonium dihexadecyldimethyl-, chloride; Dicetyl dimethyl ammonium chloride; Dihexadecyldimethylammonium chloride; Dicetyl dimethyl ammonium chloride; N-Hexadecyl-N,N-dimethyl-1-hexadecanaminium chloride; Quaternium-31; Quaternium-31

Classification: Quaternary ammonium salt

Empirical: C_{34}H_{72}N • Cl

Formula: \([CH_3(CH_2)_{14}CH_2N(CH_3)_{2}CH_2(CH_2)_{14}CH_3]^+Cl^-\)

Properties: Liq.; m.w. 530.52; cationic

Toxicology: TDLo (subcut., mouse) 50 mg/kg; experimental reproductive effects

Handbook of Pharmaceutical Additives, Third Edition 1205
Dicetyl phosphate

Chemical Component Cross-Reference

†=pharmaceutical grade

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx and Cl–
Uses: Conditioner, softener, emollient, emulsifier in pharmaceuticals
Regulatory: FDA 21 CFR §172.710, 177.1200
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk

CAS 2197-63-9; EINECS/ELINCS 218-594-7
Synonyms: Dihexadecyl hydrogen phosphate; Dihexadecyl phosphate; 1-Hexadecanol, hydrogen phosphate; Phosphoric acid, dihexadecyl ester
Definition: Complex mixture of diesters of cetyl alcohol and phosphoric acid
Empirical: C32H67O4P
Formula: [CH3(CH2)15O]2P(O)OH
Properties: M.w. 546.86; m.p. 74-75 C
Uses: Emulsifier in biomedical research
Manuf./Distrib.: Aldrich†
http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names Containing: Crodafos CES; Crodafos CS20A

Dichlorantin. See 1,3-Dichloro-5,5-dimethyl hydantoin
1,4-Dichlorobenzene. See p-Dichlorobenzene

p-Dichlorobenzene

CAS 106-46-7; EINECS/ELINCS 203-400-5
UN 1592 (DOT)
Synonyms: p-Chlorophenyl chloride; 1,4-DCB; 1,4-Dichlorobenzene; p-Dichlorobenzol; Paradichlorobenzene; Paradichlorobenzol; Parazene; PDB; PDCB
Classification: Halogenated aromatic hydrocarbon; halobenzene
Empirical: C7H6Cl2
Properties: Wh. cryst. solid, penetrating camphor-like odor; sol. in alcohol, benzene, ether, acetone, diethyl ether, chloroform, CS2, oxygenated/chlorinated/aromatic solvs.; insol. in water; m.w. 147.00; dens. 1.241; vapor pressure 10 mm (54.8 C); m.p. 54-56 C; b.p. 173 C; flash pt. 65 C
Toxicology: ACGIH TLV/TWA 75 ppm; STEL 110 ppm; LD50 (oral, rat) 810 mg/kg; (skin, rabbit) 400 mg/kg; poison by skin contact; mod. toxic by ing.
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of Cl–
Uses: Topical antiseptic, antifungal, preservative in pharmaceuticals
Use Level: 0.05-0.5%
Regulatory: USA CIR approved; Europe listed 0.15% max.; Japan not approved
Manuf./Distrib.: Advanced Synthesis Tech.
http://www.advancedsynthesis.com; Aldrich† http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Empirical</th>
<th>Classification:</th>
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<td>2,4-Dichlorobenzyl alcohol</td>
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<td>1,6-Dichloro-1,6-dideoxy-β-D-fructofuranosyl-4-chloro-4-deoxy-α-D-galactopyranoside</td>
<td>See Sucralose</td>
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</tbody>
</table>

### Dichlorodifluoromethane

**CAS**: 75-71-8; EINECS/ELINCS 200-893-9

**UN**: 1028 (DOT); INS 940

**Synonyms**: CFC 12; Difluorodichloromethane; F 12; FC 12; Fluorocarbon 12; Food freezeant 12; Halon; Propellant 12; R 12; Refrigerant 12

**Classification**: Halogenated aliphatic hydrocarbon

**Empirical**: CCl₂F₂

**Formula**: CICF₂Cl

**Properties**: Colorless gas; may be liquefied under pressure; odorless; noncorrosive; insol. in water; sol. in most org. solvs., alcohol, ether, acetic acid; m.w. 120.9; sp.gr. 1.325 (21 C, liq.); vapor pressure 5 atm (16 C); f.p. -158 C; m.p. 132-134 C; flash pt. (CC) 174 C; pH 4.4

**Toxicology**: ACGIH TLV/TWA 1000 ppm; LC₅₀ (inh., rat, 30 min) 80 pph; human systemic effects by inh.; narcotic in high concs.; may cause nose/throat/respiratory irritation, light-headedness, drowsiness, incoordination, liver changes; severe exposure may cause irregular heartbeat, cardiac arrest, death; contact with aerosol or liq. may cause frostbite to skin and eyes; TSCA listed

**Precaution**: Compressed gas; incompat. with reactive metals, e.g., sodium, potassium, aluminum, magnesium, zinc (can react violently or explosively), water (can cause violent spattering or explosion)

**Hazardous Decomp. Prods.**: Heated to decomp., emits highly toxic fumes of phosgene, CI⁻, and F⁻

**Storage**: Store cylinders in a cool, dry, well-ventilated area away from corrosive atmospheres, out of direct sunlight; leaked gas can accumulate in low areas

**Uses**: Aerosol propellant for pharmaceuticals, implants, inhalers, rectals, topicals; prep. of frozen tissue

**Trade Names**: Myacide® SP

**Regulatory**: FDA approved for implants, inhalers, rectals, topicals; USP/NF compliance; SARA §313 reportable; CERCLA hazardous substance; Canada DSL

**Manuf./Distrib.**: Air Prods.

**Synthetic Sources**: Aventis Pharmaceuticals†

**Reportable**: CERCLA hazardous substance; SARA §313 sections

### 7,16-Dichloro-6,15-dihydro-5,9,14,18-anthrazinetetronate

**CAS**: 118-52-5; EINECS/ELINCS 204-258-7

**Synonyms**: Dactin; DCDMH; DDH; Dichlorantin; Dichlorodimethylhydantoin; 1,3-Dichloro-5,5-dimethyl-2,4-imidazolidinedione; 1,3-Dichloro-5,5´-methyl hydantoin; Halane; Hydantoin, 1,3-dichloro-5,5-dimethyl-

**Classification**: Chlorinated hydantoin

**Empirical**: C₄H₆Cl₂N₂O₂

**Formula**: CINCONClO(CH₃)₂

**Properties**: Wh. powd., mild chlorine odor; sol. in benzene, chloroform, ethylene dichloride, alcohol, chlorinated and highly polar solvs.; sl. sol. in water; m.w. 185.01; sp.gr. 1.5 (20 C); m.p. 132-134 C; flash pt. (GC) 174 C; pH 4.4 (aq.); subl. @ 100 C; confлагrates @ 212 C

**Toxicology**: ACGIH TLV/TWA 0.2 mg/m³; STEL 0.4 mg/m³; LD₅₀ (oral, rat) 452 mg/kg; LCLo (inh., rat, 1 h) 20 g/m³; toxic by inhalation; mod. toxic by ing.; severe skin irritant; causes cancer when injected into rats; mutation data reported; TSCA listed

**Precaution**: Combustion with evolution of chlorine; will react with water or steam to produce toxic and corrosive fumes; mixts.
Chemical Component Cross-Reference

with xylene may explode

Hazardous Decomp. Prods.: Heated to
decom., emits toxic fumes of Cl– and NOx

Uses: Pharmaceutical intermediate

Regulatory: Canada DSL

Manuf./Distrib.: Aldrich http://www.sigma-
aldrich.com; Alfa Chem
http://www.alfachem1.com; Fluka
http://www.sigma-aldrich.com; Harcros
http://www.harcroschem.com; Morre-Tec
Ind. http://www.morretec.com

1,3-Dichloro-5,5-dimethyl-2,4-
imidazolidinedione. See 1,3-Dichloro-5,5-
dimethyl hydantoin

5,5′-Dichloro-3,3′-dimethylthioindigo. See Vat
red 1

Dichlorodiphenylsilane. See
Diphenylidichlorosilane

Dichloroethane; 1,2-Dichloroethane; Dichloro-
1,2-ethane; α,β-Dichloroethane; sym-
Dichloroethane. See Ethylene dichloride

1,1-Dichloroethene. See Vinyldiene chloride
monomer

1,2-Dichloroethene. See cis-trans-1,2-
Dichloroethylene (mixed isomers)

Dichloroethylene. See Ethylene dichloride

1,1-Dichloroethylene. See Vinyldiene chloride
monomer

1,2-Dichloroethylene. See cis-trans-1,2-
Dichloroethylene (mixed isomers)

asym-Dichloroethylene. See Vinyldiene
chloride monomer

cis-trans-1,2-Dichloroethylene; sym-
Dichloroethylene. See cis-trans-1,2-
Dichloroethylene (mixed isomers)

cis-trans-1,2-Dichloroethylene (mixed
isomers)

CAS 540-59-0; EINECS/ELINCS 208-750-2
UN 1150

Synonyms: Acetylene dichloride; 1,2-
Dichloroethene; 1,2-Dichloroethylene; cis-
trans-1,2-Dichloroethylene; sym-
Dichloroethylene; Ethylene, 1,2-dichloro-

Empirical: C2H2Cl2

Formula: CICH=CHCl

Properties: Colorless to lt. yel. clear liq.;
ethereal, sl. acrid odor; sol. in DMSO, 95%
ethanol, acetone, ether, most org. solvs.; sol. <
1 mg/ml in water; m.w. 96.94; sp.gr. 1.27;
vapor pressure 180-265 mm Hg (20 C); m.p.-
57 C; b.p. 48-60 C; flash pt. 3.9 C; ref. index
1.4463 (20 C)

Toxicology: ACGIH TLV/TWA 200 ppm; LD50

†=pharmaceutical grade

(oral, rat) 770 mg/kg, (IP, mouse) 2 g/kg;
LD50 (inh., frog, 1 h) 117 mg/m3; poison by
inh.; mod. toxic by ing. and other routes;
may be harmful by skin contact; may cause
irritation of eyes, skin, mucous
membranes, upper respiratory
tract; prolonged contact can have narcotic effect;
may cause drowsiness, unconsciousness,
digestive disturbances, CNS depression,
nausea, vomiting, weakness, tremors,
epigastric cramps, etc.; target organs: CNS,
liver, kidneys; TSCA listed

Precaution: Flamm.; reacts violently with Na,
NaOH, Cu/alloys; can react with caustic
alkalis; forms explosive mixts. with N2O4;
incompat. with strong oxidizers, bases;
corrosive to metals; attacks some plastics,
rubber, coatings; vapor can flash back

Hazardous Decomp. Prods.: Heated to
decom., emits highly toxic fumes of
hydrogen chloride gas, CO, CO2, phosgene
gas; emits toxic fumes under fire
conditions

NFPA: Health 2, Flammability 3, Reactivity 2

Storage: Air-, light-, and moisture-sensitive; keep
container tightly closed under inert
atmosphere; store in explosion-proof
refrigerator; protect from light

Uses: Solvent for pharmaceuticals; medicine

Regulatory: SARA §313 reportable

Manuf./Distrib.: Aldrich http://www.sigma-
aldrich.com

Dichlorofluoromethane

CAS 75-43-4

UN 1029 (DOT)

Synonyms: Dichloromonofluoromethane; F
21; FC 21; Fluorocarbon 21;
Fluorodichloromethane; Freon 21; HCFC
21; HFC 21; R 21; Refrigerant 21

Classification: Halogenated aliphatic
hydrocarbon

Empirical: CHClF2

Formula: Cl2CHF

Properties: Colorless clear gas or liquefied
compressed gas; sl. sweetish ether-like odor;
sol. in alcohol, ether, acetic acid, chloroform;
sl. sol. in water; m.w. 102.92; dens. 1.48;
vapor pressure 2 atm (28.4 C); m.p. -135 C;
b.p. 8.9 C; ref. index 1.356; surf. tens. 18
dynes/cm; dielec. const. 5.34; nonflamm.

Toxicology: ACGIH TLV/TWA 10 ppm; LC50
(inh., rat, 4 h) 49,900 ppm; mildly toxic by
inh.; may cause cooling of skin or eye tissue
Chemical Component Cross-Reference

due to rapid evaporation; gas unlikely to cause eye irritation; may cause CNS symptoms, mild nose/throat, airway irritation, lightheadedness, drowsiness, incoordination; severe exposure may cause irregular heartbeat, cardiac arrest, death; experimental reproductive effects; TSCA listed

Environmental: VOC; ThOD 0.16; replacement for CFC but characterized as global warming gas by the Kyoto Conference on Climate Change

Precaution: Incompat. with reactive metals (can react violently with sodium, potassium, calcium, powd. aluminum, zinc, magnesium and alloys), strong bases (can react violently with sodium, potassium, calcium, powd. aluminum, zinc, magnesium and alloys), strong bases (hydrolysis (dec.) can occur in presence of water)

Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of Cl– and F–

Storage: Store cylinders in a cool, dry, well-ventilated area away from flamm. materials and corrosive atmospheres, out of direct sunlight

Uses: Pharmaceutical orals

Regulatory: FDA approved for orals; SARA §313 reportable; Canada DSL

Manuf./Distrib.: Aldrich† http://www.sigma-aldrich.com

Dichloroindanthrone. See D&C Blue No. 9; Indanthrene blue

3,3’-Dichloroindanthrone. See D&C Blue No. 9; Indanthrene blue

7,16-Dichloroindanthrone. See D&C Blue No. 9; Indanthrene blue

7,16-Dichloro-6,15-indanthrone. See D&C Blue No. 9; Indanthrene blue

Dichloromethane. See Methylene chloride

1,3-Dichloro-5,5’-methyl hydantoin. See 1,3-Dichloro-5,5’-methyl hydantoin

Dichloromonofluoromethane. See Dichlorofluoromethane

Dichlorophenoxyphosphine oxide. See Phenyl dichlorophosphate

1-(3’,4’-Dichlorophenyl)-3-(4’-chlorophenyl) urea; N-(3,4-Dichlorophenyl)-N’-(4-chlorophenyl) urea. See 3,4,4’-Trichlorocarbanilide

1,6-Di (4´-chlorophenylidiguanidino) hexane diacetate. See Chlorhexidine diacetate

Dichlorotetrafluoroethane

CAS 1320-37-2

†=pharmaceutical grade

UN 1958 (DOT)

Synonyms: Ethane, dichlorotetrafluoro-; CFC 114; Cryofluorane; Dichlorotetrafluoroethane; Freon 114; Fluorane 114; Fluorocarbon 114; Freron 114; Halocarbon 114; Propellant 114; R 114; Refrigerant 114; Tetrafluorodichloroethane; 1,1,2,2-Tetrafluoro-1,2-dichloroethane

Empirical: C2Cl2F4

Properties: Colorless gas; m.w. 170.92; b.p. 3.5 C; nonflamm.

Toxicology: LC50 (inh., rat, 30 min) 700,000 ppm; mildly toxic irritant; narcotic in high concs.; asphyxiant; TSCA listed

Precaution: Reacts violently with alcohol

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of F– and Cl–

Uses: Aerosol propellant for pharmaceuticals

Regulatory: USP/NF compliance; Canada DSL

Manuf./Distrib.: Refron http://www.refron.com

See also 1,2-Dichlorotetrafluoroethane

1,2-Dichlorotetrafluoroethane

CAS 76-14-2; EINECS/ELINCS 200-937-7

UN 1958

Synonyms: CFC 114; Cryofluorane; Dichlorotetrafluoroethane; Ethane, 1,2-dichloro-1,1,2,2-tetrafluoroethylene; Freon 114; Fluorocarbon 114; Fluorane 114; Methylene chloride; Refrigerant 114; Tetrafluorodichloroethane; 1,1,2,2-Tetrafluoro-1,2-dichloroethane

Classification: Halogenated aliphatic hydrocarbon

Empirical: C2Cl2F4

Formula: CCIF2CCIF2

Properties: Colorless clear gas or liquefied compressed gas; nearly odorless to faint ethereal odor; pract. insol. in water; sol. in alcohol, ether; m.w. 170.92; sp.gr. 1.5312 (liq., 0 C); vapor pressure 1620 mm Hg; f.p. -94 C; b.p. 3.55 C; ref. index 1.3092; surf. tens. 12 dynes/cm; dielec. const. 2.26; nonflamm.

Toxicology: ACGIH TLV/TWA 1000 ppm; LC50 (inh., rat, 30 min) 72 ppm; toxic by inhalation; an asphyxiant; may cause mild irritation of nose, throat, upper airways; high concs. may cause lightheadedness, dizziness, drowsiness; TSCA listed

Environmental: ThOD 0.09

Precaution: Compressed gas; incompat. with reactive metals (sodium, potassium, magnesium, zinc, powd. aluminum); can react violently or explosively

Storage: Store cylinders in cool, dry, well-ventilated area away from corrosive atmospheres, out of direct sunlight; leaked gas
can accumulate in low areas

Uses: Aerosol propellant for pharmaceuticals, inhalants, nasals, rectals, topicals

Regulatory: FDA 21CFR §701.30; FDA approved for inhalants, nasals, rectals, topicals; NF compliance; SARA §313 reportable; Canada DSL


Trade Names: Genetron® 114

See also Dichlorotetrafluoroethane

1,2-Dichloro-1,1,2,2-tetrafluoroethane; sym-Dichlorotetrafluoroethane. See 1,2-Dichlorotetrafluoroethane

Dichlorotetrafluoroethane

CAS 76-14-2
Synonyms: Cryfluorane; Tetrafluorodichloromethane
Empirical: C2Cl2F4
Formula: ClCF2CF2Cl
Properties: M.p. -137.2 F; b.p. 38.6 F
Uses: Aerosol propellant for pharmaceuticals

Dichromium trioxide. See Chromium oxide (ic); Chromium hydroxide green

Dicocoyl pentaerythrityl distearyl citrate

Synonyms: Citric acid, 1,2-dodecyl ester, ester with bis (coco acyl) pentaerythrytol
Classification: Synthetic compd.
Definition: Coconut oil derivative
Uses: Emollient, moisturizer, emulsifier for pharmaceutical emulsions and lip balms

Di-C12-15 pareth-2 phosphate

CAS 149919-01-7
Definition: Complex mixt. of diesters of phosphoric acid and C12-15 pareth-2
Properties: Anionic
Uses: Surfactant, emulsifier, stabilizer, dispersant, detergent for pharmaceuticals
Trade Names: DDP-2

Di-C12-15 pareth-4 phosphate

CAS 149919-02-8
Definition: Complex mixt. of diesters of phosphoric acid and C12-15 pareth-4
Properties: Anionic
Uses: Surfactant, emulsifier, stabilizer, dispersant, detergent for pharmaceuticals
Trade Names: DDP-4

Di-C12-15 pareth-6 phosphate

CAS 149919-03-9
Definition: Complex mixt. of diesters of phosphoric acid and a syn. C12-15 ethoxylated alcohol with avg. 6 moles EO
Properties: Anionic
Uses: Surfactant, emulsifier, stabilizer, dispersant, detergent for pharmaceuticals
Trade Names: DDP-6

Di-C12-15 pareth-8 phosphate

CAS 25982-05-8
Definition: Complex mixt. of diesters of phosphoric acid and a syn. C12-15 ethoxylated alcohol with avg. 8 moles EO
Properties: Anionic
Toxicology: TSCA listed
Uses: Surfactant, emulsifier, stabilizer, dispersant, detergent for pharmaceuticals
Trade Names: DDP-8

Di-C12-15 pareth-10 phosphate

CAS 149919-04-0
Definition: Complex mixt. of diesters of phosphoric acid and a syn. C12-15 ethoxylated alcohol with avg. 10 moles EO
Properties: Anionic
Uses: Surfactant, emulsifier, stabilizer, dispersant, detergent for pharmaceuticals
Trade Names: DDP-10

Dicy. See Dicyandiamide

Dicyandiamide

CAS 461-58-5; EINECS/ELINCS 207-312-8
Synonyms: Cyanoguanidine; Dicyandiamide; Dicyanodiamide
Classification: Aliphatic organic compd.
Empirical: C2H4N4
Formula: NH2C(NH)(NHCN)
Properties: Pure wh. crystals; sol. in liq. ammonia; partly sol. in hot water; sl. sol. in alcohol; m.w. 84.08; dens. 1.4 (25 C); m.p. 207-209 C; stable when dry; nonflamm.
Toxicology: LD50 (oral, rat) > 500 mg/kg; TSCA listed
Precaution: Mixts. with ammonium nitrate, potassium chlorate, and related compds. are powerful explosives
Hazardous Decomp. Prods.: Heated to
Chemical Component Cross-Reference

**Chemical Component Cross-Reference** †=pharmaceutical grade

**Uses:** Pharmaceutical raw material

**Regulatory:** FDA 21CFR §175.105, 176.170, 177.2600, 178.2010; Canada DSL

**Manuf./Distrib.:** AMC Chems.; Aldrich†
- [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Allchem Ind.
- [http://www.allchem.com](http://www.allchem.com); Ashland
- [http://www.ashchem.com](http://www.ashchem.com); Austin
- [http://www.austinchemical.com](http://www.austinchemical.com)
- [http://www.bch-bruehl.de](http://www.bch-bruehl.de); Benco; Brook-Chem
- [http://www.brookchem.com](http://www.brookchem.com); CP
- [http://www.phibrochem.com](http://www.phibrochem.com); CPB Int’l.
- [http://www.cpweb.com](http://www.cpweb.com); CVC Spec. Chem.
- [http://www.cvcchem.com](http://www.cvcchem.com); ChemTech Specialties
- [http://www.chemtecspecialties.com](http://www.chemtecspecialties.com); Chemical
- [http://www.thechemco.com](http://www.thechemco.com); Dastech Int’l.
- [http://www.dastech.com](http://www.dastech.com); Filo
- [http://www.filochemical.com](http://www.filochemical.com); Fluka
- [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Gulf
- [http://www.gulfchem.com](http://www.gulfchem.com); Int’l. Resources
- [http://www.iri-us.com](http://www.iri-us.com); Kaltron/Pettibone
- [http://www.kaltron.com](http://www.kaltron.com); Kimson
- [http://www.maypro.com](http://www.maypro.com); Miljac
- [http://www.miljac.com](http://www.miljac.com); Monomer-Polymer & Dajac Labs
- [http://www.monomerpolymer.com](http://www.monomerpolymer.com); Nippon Carbide Ind.†
- [http://www.carbide.co.jp/EN/company/company.html](http://www.carbide.co.jp/EN/company/company.html); Parchem Trading†
- [http://www.par-chem.com](http://www.par-chem.com); Quaker City; Rochem Int’l.
- [http://www.rochemintl.com](http://www.rochemintl.com); SKW Chems.
- [http://www.skwhchem.com](http://www.skwhchem.com); San Yuan; Sigma
- [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium); Thomas Swan
- [http://www.thomas-swan.co.uk](http://www.thomas-swan.co.uk); Total Spec. Chems.
- [http://www.totaltsccom](http://www.totaltsccom); United Min. & Chem.
- [http://www.umccorp.com](http://www.umccorp.com); Wego
- [http://www.wegochemistry.com](http://www.wegochemistry.com); Whyte Chems. Ltd
- [http://www.whytechemicals.co.uk](http://www.whytechemicals.co.uk)

**Dicynandiamin; Dicyanodiamide. See Dicyandiamide**

**Dicyclohexyl carbodiimide**

CAS **538-75-0;** EINECS/ELINCS **208-704-1**

**Synonyms:** DCC; DCCD; N,N’-Dicyclohexyl carbodiimide

**Classification:** Nonaromatic nitrile

**Empirical:** C_{13}H_{22}N_{2}

**Uses:** Used in injectables (IM, IV)

**Regulatory:** FDA approved for injectables (IM, IV); Canada DSL

**Manuf./Distrib.:** Aldrich†
- [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Fluka
- [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Molecular BioSciences
- [http://www.molbio.com](http://www.molbio.com); Sigma
- [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)

**N,N’-Dicyclochexyl carbodiimide. See Dicyclohexyl carbodiimide**

**Dicyclohexyl disulfide**

CAS **2550-40-5;** EINECS/ELINCS **219-851-6**

**FEMA** 3448

**Synonyms:** Cyclohexyl disulfide; (Cyclohexyl) disulfide

**Empirical:** C_{12}H_{22}S_{2}

**Formula:** (C_{6}H_{11}S-)_2

**Properties:** Sol. in fats, and alcohol; insol. in water; m.w. 230.44; dens. 1.046; b.p. 162-163 C (6 mm); flash pt. > 230 F; ref. index 1.54300-1.55300

**Uses:** Flavor for pharmaceuticals

**Features:** Berry-like flavor

**Regulatory:** FEMA GRAS; Canada DSL

**Manuf./Distrib.:** SAFC Specialties
- [http://www.safcspecialties.com](http://www.safcspecialties.com)

**Didecanoic acid, diester with glycerol. See Glyceryl dicaprate**

**Didecyl dimethyl ammonium chloride. See Didecyldimmonium chloride**

**Didecyldimmonium chloride**

CAS **7173-51-5; 91490-94-7;** EINECS/ELINCS **230-525-2**

**Synonyms:** Ammonium, didecyldimethyl-chloride; 1-Decanamminium, N-decyl-N,N-dimethyl chloride; N-Decyl-N,N-dimethyl-1-decanamminium chloride; Didecyl dimethyl ammonium chloride; Dimethyl didecyl ammonium chloride; N,N-Dimethyldidecylammonium chloride; Quaternium-12

**Classification:** Quaternary ammonium chloride

**Empirical:** C_{22}H_{46}ClN

**Precaution:** Corrosive

**Uses:** Used in injectables (IM, IV)

**Regulatory:** FDA approved for injectables (IM, IV); Canada DSL

**Manuf./Distrib.:** Aldrich†
- [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Fluka
- [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Molecular BioSciences
- [http://www.molbio.com](http://www.molbio.com); Sigma
- [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)

**Dicynandiamin; Dicyanodiamide. See Dicyandiamide**

**Dicyclohexyl carbodiimide**

CAS **538-75-0;** EINECS/ELINCS **208-704-1**

**Synonyms:** DCC; DCCD; N,N’-Dicyclohexyl carbodiimide

**Classification:** Nonaromatic nitrile

**Empirical:** C_{13}H_{22}N_{2}
### Chemical Component Cross-Reference

**Chemical:** [CH₃(CH₂)₉N(CH₃)₂(CH₂)₉CH₃]⁺Cl⁻

**Properties:** Liq.; sol. in acetone; extremely sol. in benzene; m.w. 362.08; cationic

**Toxicology:** LD₅₀ (oral, rat) 84 mg/kg, (IP, rat) 45 mg/kg; poison by ing. and IP routes; primary irritant; causes eye damage and skin irritation; harmful if swallowed; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits very toxic fumes of NOₓ, NH₃, and Cl⁻

**Uses:** Antiseptic for pharmaceuticals, topicals (hand scrubs, athlete's foot prevention); biocide; disinfectant; surfactant

**Regulatory:** FDA 21CFR §177.1200; Canada DSL

**Manuf./Distrib.:** Dishman USA [http://www.dishman-usa.com]; Lonza [http://www.lonza.com]

**Trade Names:** Bardac® 2240; Bardac® 2270

**Trade Names Containing:** Bardac® 2270E; BTC® 885; BTC® 885 P40

**D-2,3-Didehydro-erythro-hexono-1,4-lactone.** See Erythorbic acid

**Didodecyl 3,3’-thiodipropionate.** See Dilauryl thiodipropionate

**3,7-Diemthyl-1,6-octadien-3-yl hexanoate.** See Linalyl hexanoate

**Diethamine.** See Diethylamine

**Diethanolamide condensate from soybean oil fatty acids.** See Soyamide DEA

**Diethanolamine**

**CAS:** 111-42-2; EINECS/ELINCS 203-868-0

**UN:** 1760

**Synonyms:** Bis (2-hydroxyethyl) amine; N,N-Bis (2-hydroxyethyl) amine; DEA; DELA; Diethylolamine; 2,2'-Dihydroxydiethlamine; Di (2-hydroxyethyl) amine; Diolamone; 2-(2-Hydroxyethylamino) ethanol; 2,2’-Iminobisethanol; 2,2’-Iminodietanol

**Classification:** Aliphatic amine; alkanolamine

**Empirical:** C₆H₁₁NO₂

**Formula:** (HOCH₂CH₂)₂NH

**Properties:** Colorless cryst. or liq., mild ammoniacal odor; very sol. in water and alcohol; misc. with acetone, chloroform, glycerin; insol. in ether, benzene; m.w. 105.09; dens. 1.0881 (30/4 C); m.p. 28 C; b.p. 268 C; flash pt. 300 F; ref. index 1.4770

**Toxicology:** ACGIH TLV/TWA 3 ppm in air; LD₅₀ (oral, rat) 12.76 g/kg, (IP, mouse) 2300 mg/kg, (subcut., mouse) 3553 mg/kg, (skin, rabbit) 12,200 mg/kg; mod. toxic by ing., IP, and subcut. routes; severe eye and skin irritant; mucous membrane irritant; experimental reproductive effects; TSCA listed

**Environmental:** ThOD 1.52

**Precaution:** Combustible; DOT: corrosive material; normally stable; slowly oxidized by air; incompatible with oxidizing agents, strong acids, acid anhydrides, nitrosating agents

**NFPA:** Health 1, Flammability 1, Reactivity 0

**Storage:** Hygroscopic, deliq.; light-sensitive; store @ R.T. in cool, dry, well-ventilated area away from heat and ignition sources

**Uses:** Alkalizer, detergent, emulsifier, solubilizer, and dispersant in pharmaceuticals, injectables (IV), ophthalmics

**Regulatory:** FDA 21CFR §175.105, 176.170, 176.180, 176.210, 177.2600; FDA approved for injectables (IV), ophthalmics; USP/NF compliance; SARA §313 reportable; HAP; Canada DSL

Diethanolamine cetyl phosphate. See DEA-cetyl phosphate
Diethanolamine coconut fatty acid condensate. See Cocamide DEA
Diethanolamine lauric acid amide. See Lauramide DEA
Diethanolamine lauryl sulfate. See DEA-lauryl sulfate
Diethanolamine linoleic acid amide. See Linoleamide DEA
Diethanolamine methoxycinnamate. See DEA methoxycinnamate
Diethanolamine oleic acid amide. See Oleamide DEA
Diethanolamine oleyl-3 phosphate. See DEA-oleth-3 phosphate
Diethanolamine oleyl-10 phosphate. See DEA-oleth-10 phosphate
Diethanolamine palm kernel oil acid amide. See Palm kernelamide DEA
Diethanolamine stearic acid amide. See Stearamide DEA
Diethanolamine tall oil acid amide. See Tallamide DEA
Diethanolammonium POE (3) oleyl ether phosphate. See DEA-oleth-3 phosphate
Diethanolammonium POE (10) oleyl ether phosphate. See DEA-oleth-10 phosphate
N,N-Diethanol laurate; N,N-Diethanol lauric acid amide. See Lauramide DEA
1,1-Diethoxyacetel. See Acetal
1,1-Diethoxy-3,7-dimethyl-2,6-octadiene. See Citral diethyl acetal
8,8-Diethoxy-2,6-dimethyl-octan-2. See Hydroxycitronellal diethyl acetal
1,1-Diethoxyethane. See Acetal
Diethyl. See Butane
Diethyl acetal. See Acetal
Diethyl acetaldehye. See 2-Ethylbutyraldehyde
Diethylic acid
CAS 88-09-5; EINECS/ELINCS 201-796-4

FEMA 2429
Synonyms: Butanoic acid, 2-ethyl-; Carboxylic acid C-6; 2-Ethyl butanoic acid; Ethylbutyric acid; 2-Ethylbutyric acid; α-Ethylbutyric acid; 3-Pentanecarboxylic acid
Empirical: C₆H₁₂O₂
Formula: (C₂H₅)₂CHCOOH
Properties: Colorless volatile liq., rancid odor; sol. in alcohol, ether; sl. sol. in water; m.w. 116.18; dens. 0.917; vapor pressure 0.08 mm Hg (20 C); m.p. -15 C; b.p. 194-195 C; flash pt. (CC) 78 F
Toxicology: LD₅₀ (oral, rat) 2200 mg/kg, (skin, rabbit) 520 mg/kg; mod. toxic by ing., skin contact; irritating to skin, mucous membranes; severe eye irritant; narcotic in high concs.; TSCA listed
Precaution: Flamm. liq.
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Synthetic flavor for pharmaceuticals; pharmaceutical intermediate
Features: Caramel or berry-like flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Celanese
http://www.celanesechemicals.com; http://www.chemvip.com; Fluka
http://www.sigma-aldrich.com; SAFC Specialties
http://www.safcspecialties.com; Sigma
http://www.sigma-aldrich.com/belgium; Whyte Chems. Ltd
http://www.whytechemicals.co.uk
Chemical Component Cross-Reference

N,N-Diethylethanolamine. See Diethylethanolamine. α-Diethylethanolacetate-2,6-xylidide. See Lidocaine

Diethylethanolamine

CAS 100-37-8; EINECS/ELINCS 202-845-2
UN 2686 (DOT)

Synonyms: DEAE; 2-Diethylethanolamine; β-Diethylethanolamine; N-N-Diethylethanolamine; N,N-Diethylethanolamine; N,N-Diethylethanolamine; N,N-Diethylethanolamine; N,N-Diethylethanolamine; Ethanol, 2-(diethylethanolamine)-2-Hydroxytriethylamine

Classification: Aliphatic amino alcohol

Empirical: C_6H_{15}NO

Formula: (C_2H_5)_2NCH_2CH_2OH

Properties: Colorless liq.; strong ammonia-like odor; sol. in water, alcohol, acetone, ether, benzene, petrol. ether; misc. with most org. solvs.; m.w. 117.19; dens. 0.88-0.89 (20/20 C); vapor pressure 1.4 mm Hg (20 C); f.p. -70 C; b.p. 161 C; flash pt. (OC) 140 F; ref. index 1.4389

Toxicology: ACGIH TLV/TWA 10 ppm (skin); LD50 (oral, rat) 1300 mg/kg, (IP, rat) 1220 mg/kg, (subcut., mouse) 1561 mg/kg, (IV, mouse) 188 mg/kg; poison by IP, IV routes; mod. toxic by ing., skin contact, subcut. routes; human systemic effects by inh. (nausea, vomiting); skin, severe eye irritant; corrosive; TSCA listed

Environmental: VOC; ThOD 2.32

Precaution: DOT: Flamm. liq.; moderate fire risk; reactive with oxidizing materials

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx

NFPA: Health 3, Flammability 2, Reactivity 0

Storage: Hygroscopic

Uses: Pharmaceutical intermediate

Regulatory: FDA 21CFR §173.310 (15 ppm max. in steam); Canada DSL
N-[2-(Diethylamino)ethyl]stearamide phosphate. See Diethylaminoethyl stearamide phosphate

Diethylaminoethyl stearate
CAS 3179-81-5; EINECS/ELINCS 221-662-9
Synonyms: 2-(Diethylamino) ethyl octadecanoate; 2-(Diethylamino) ethyl stearate; Octadecanoic acid, 2-(diethylamino) ethyl ester
Classification: Aliphatic ester
Empirical: C_{32}H_{54}NO_2
Properties: Straw to amber liq. to semisolid, amine odor; sol. in ethanol, IPM, oleyl alcohol; partly sol. in min. oil; disp. in water; sp.gr. 0.860-0.880; pH 9.5-10.5 (3%); sapon. no. 150-160
Toxicology: TSCA listed
Uses: Emulsifier, dispersant for pharmaceuticals, topicals
Regulatory: Canada DSL
Trade Names: Cerasynt® 303

2-(Diethylamino) ethyl stearate. See Diethylaminoethyl stearate

Diethyl-m-aminophenolphthalein hydrochloride. See Basic violet 10; D&C Red No. 19

Diethyl 1,2-benzenedicarboxylate. See Diethyl phthalate

Diethyl butanedioate. See Diethyl succinate

Diethyl carbinol. See 3-Pentanol

Diethyl 'Carbitol'. See Diethylene glycol diethyl ether

Diethyl cyanomethylphosphonate
CAS 2537-48-6; EINECS/ELINCS 219-806-0
Synonyms: Cyanomethyl phosphonic acid diethyl ester; (Diethylphosphono) acetonitrile
Classification: Nonaromatic phosphorus compd.
Empirical: C_{6}H_{12}NO_3P
Properties: M.w. 177.14; dens. 1.095; b.p. 101-102 C (0.4 mm); ref. index 1.4320
Toxicology: Harmful vapor; irritating to eyes, skin, respiratory system; avoid contact and inh.
Precaution: Corrosive
Uses: Pharmaceuticals intermediate

Precaution: Corrosive

Diethylaminoethyl stearate phosphate
CAS 68133-34-6
Synonyms: N-[2-(Diethylamino)ethyl]stearamide phosphate; Stearamidoethyl diethylamine phosphate
Uses: Pharmaceutical topicals
Diethylenediamine. See Diethylene glycol diethyl ether
Diethyl diglycol. See Diethylene glycol diethyl ether
Diethyl 2,3-dihydroxybutanedioate; Diethyl 2,3-dihydroxyisuccinate. See Diethyl tartrate
Diethyl diketone. See 3,4-Hexanedione
Diethylenediamine; 1,4-Diethylenediamine; N,N-Diethylenediamine. See Piperazine
Diethylene dioxide; 1,4-Diethylene dioxide; Diethylene ether. See 1,4-Dioxane
Diethylene glycol
CAS 111-46-6; EINECS/ELINCS 203-872-2
Synonyms: Bis (2-hydroxyethyl) ether; DEG; Diglycol; Digo; Dihydroxydiethyl ether; β,β'-Dihydroxydiethyl ether; 2,2'- Dihydroxyethyl ether; Ethanol, 2,2'-oxydi-; Ethylene diglycol; Glycol ether; Glycol ethyl ether; 3-Oxapentane-1,5-diol; 3-Oxa-1,5-pentanediol; 2,2'-Oxybisethanol; 2,2'-Oxydiethanol
Classification: Aliphatic diol; glycol ether
Empirical: C4H10O3
Formula: CH2OHCH2OCH2CH2OH
Properties: Colorless clear syrupy liq., pract. odorless, sweetish taste; lowers f.p. of water; misc. with water, ethanol, acetone, ether, ethylene glycol; m.w. 106.12; dens. 1.1184 (20/20 C); vapor pressure 1 mm Hg (91.8 C); f.p. -80 C; b.p. 245 C; flash pt. 124 C
Toxicology: LD50 (oral, human) 1000 mg/kg, (oral, rat) 12,565 mg/kg, (skin, rabbit) 11,890 mg/kg; poison by inh.; mod. toxic to humans by ing., IV routes; hazardous for household use in conc. of 10% or more; may cause acidosis and renal failure; experimental carcinogen, tumorigen, teratogen; eye and human skin irritant; TSCA listed
Environmental: VOC; BOD5 0.12; COD 1.51;

ThOD 1.51
Precaution: Combustible exposed to heat or flame; reactive with oxidizing materials; dec. exothermically with sodium hydroxide @ 230 C and releases explosive hydrogen gas
Hazardous Decomp. Prods.: CO, CO2; heated to decomp., emits acid smoke and irritating fumes
NFPA: Health 1, Flammability 1, Reactivity 0
Storage: Extremely hygroscopic
Uses: Solvent in pharmaceuticals
Regulatory: FDA 21CFR §175.105, 177.2420; Canada DSL
Manuf./Distrib.: AAE Chemie NV†
C.P. Hall† http://www.cphall.com; Celanese http://www.celanesechemicals.com; http://www.chemvip.com
Equistar http://www.equistarchem.com; ExxonMobil
http://www.shell-lubricants.com; Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality Prods.† http://www.spectrumchemical.com;

Handbook of Pharmaceutical Additives, Third Edition
Diethylene glycol dibutyl ether

CAS: 112-73-2; EINECS/ELINCS: 204-001-9

Synonyms: Bis (butoxyethyl) ether; Bis (2-butoxyethyl) ether; 2-Butoxyethyl ether; Butyl diglyme; Butyl glycol ether; Dibutoxy diethylene glycol; 2,2´-Dibutoxyethyl ether; Dibutyl 'Carbitol'; Dibutyl diglycol; Diethylene glycol di-n-butyl ether; Ether, bis (2-butoxyethyl); 1,1´-(Oxybis (2,1-ethanediol)) bisbutane; 5,8,11-Trioxapentadecane

Empirical: C12H26O3

Formula: C4H9O(C2H4O)2C4H9

Properties: Almost colorless liq.; char. mild ether odor; sol. in DMSO, 95% ethanol, acetone; misc. with ether, ketones, esters, CC14; sol. <1 mg/ml in water; m.w. 218.38; dens. 0.8853 (20/20 C); vapor pressure 0.02 mm Hg (20 C); f.p. -60.2 C; b.p. 256 C; flash pt. 118 C; ref. index 1.423 (20 C); vapor pressure 0.02 mm Hg (20 C); f.p. -60.2 C; b.p. 256 C; flash pt. 118 C; ref. index 1.423 (20 C)

Toxicology: LD50 (oral, rat) 3900 mg/kg, (skin, rabbit) 4040 mg/kg; mod. toxic by ing.; mildly toxic by skin contact; skin and eye irritant; experimental reproductive effects; TSCA listed

Environmental: ThOD 1.54

Precaution: Combustible exposed to heat or flame; may decompose violently on contact with nitric acid; can react with strong oxidizers; incompatible with strong acids, copper, and copper alloys; can form peroxides on exposure to air or oxygen

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke, irritating fumes, and toxic fumes of CO and CO2

NFPA: Health 1, Flammability 1, Reactivity 0

Storage: Store in tightly closed container under inert atmosphere at refrigerated temps.

Uses: Solvent, carrier, stabilizer for pharmaceuticals

Features: High-boiling; inert

Regulatory: SARA §313 reportable; HAP; Canada DSL


Trade Names: Butyl Diglyme

Diethylene glycol di-n-butyl ether. See Diethylene glycol dibutyl ether

Diethylene glycol diethyl ether

CAS: 112-36-7; EINECS/ELINCS: 203-963-7

Synonyms: Bis (2-ethoxyethyl) ether; Diethyl 'Carbitol'; Diethyl diglycol; Diglycol diethyl ether; 1-Ethoxy-2-(β-ethoxyethoxy) ethane; Ethoxyethyl ether; 2-Ethoxyethyl ether; Ethyl diglyme; 3,6,9-Trioxaundecane

Classification: Glycol ether

Empirical: C8H18O3

Formula: C2H5O(C2H4O)2C2H5

Properties: Colorless liq.; sol. in hydrocarbons, most org. solvs., and water; m.w. 162.93; dens. 0.9082 (20/20 C); vapor pressure 0.38 mm Hg (20 C); f.p. -44.3 C; b.p. 189 C; flash pt. 180 F; ref. index 1.412 (20 C); surf. tens. 26.68 dynes/cm; dielec. const. 5.70

Toxicology: LD50 (oral, rat) 4970 mg/kg; mod. toxic by ing.; primary irritant; eye irritant; experimental reproductive effects; TSCA listed

Environmental: VOC; ThOD 2.17

Precaution: Flamm. exposed to heat or flame

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 1, Flammability 2, Reactivity 0

Uses: Organic synthesis

Regulatory: SARA §313 reportable; HAP; Canada DSL


Trade Names: Ethyl Diglyme

Diethylene glycol dimethyl ether

CAS: 111-96-6; EINECS/ELINCS: 203-924-4

Synonyms: Bis (2-methoxyethyl) ether; Diethylene glycol dimethyl ether; Diglycol methyl ether; Diglyme; Dimethoxydiglycol;
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Synonyms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimethyldiglycol</td>
<td>2-Methoxyethyl ether; Methyl diglyme; Trioxanonane</td>
</tr>
<tr>
<td>Empirical: C₆H₁₄O₅</td>
<td></td>
</tr>
<tr>
<td>Formula: CH₃(OCH₂CH₂)₂OCH₃</td>
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</tr>
<tr>
<td>Properties: Colorless liq., faint ether-like odor; misc. with water, alcohol, ether, hydrocarbons, most org. solvs.; m.w. 134.18; dens. 0.9451 (20/20 C); f.p. -58 C; b.p. 162 C; flash pt. (OC) 70 C; ref. index 1.408 (20 C)</td>
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</tr>
<tr>
<td>Toxicology: TCLo (inh., rat, 6 h) 1100 ppm; (oral, mouse) 5 g/kg; mutagen; reproductive effects; TSCA listed</td>
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<tr>
<td>Environmental: VOC; ThOD 1.07</td>
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<tr>
<td>Precaution: Combustible; readily forms explosive peroxides on exposure to air, light, or heat; other explosive reactions possible; incompat. with strong oxidizing agents, strong acids, strong bases</td>
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<tr>
<td>Hazardous Decomp. Prods.: Explosive peroxides, CO, CO₂; heated to decomp., emits toxic fumes of NOₓ</td>
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<tr>
<td>NFPA: Health 1, Flammability 2, Reactivity 1</td>
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<tr>
<td>Uses: Solvent for pharmaceuticals</td>
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<tr>
<td>Regulatory: SARA §313 reportable; HAP; Canada DSL</td>
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<tr>
<td>Diethylene glycol dodecyl ether. See Laureth-2</td>
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<tr>
<td>Diethylene glycol ethyl ether. See Ethoxydiglycol</td>
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<tr>
<td>Diethylene glycol, monoester with stearic acid. See PEG-2 stearate</td>
<td></td>
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<tr>
<td>Diethylene glycol monoethyl ether. See Ethoxydiglycol</td>
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<tr>
<td>Diethylene glycol monooleate. See PEG-2 olate</td>
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<tr>
<td>Diethylene glycol monostearate. See PEG-2 stearate</td>
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<tr>
<td>Diethylene glycol monostearate self-</td>
<td></td>
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<tr>
<td>†=pharmaceutical grade</td>
<td></td>
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</tbody>
</table>

Diethylene glycol stearate. See PEG-2 stearate

Diethyleneimide oxide; Diethylene imidoxide. See Morpholine

Diethylene oxide. See Tetrahydrofuran

Di (ethylene oxide); 1,4-Diethylene oxide. See 1,4-Dioxane

Diethylene oxime. See Morpholine

Diethylenetriamine pentaacetic acid, calcium trisodium salt. See Calcium trisodium pentatate

Diethylenetriaminopentaacetic acid, pentasodium salt. See Pentasodium pentatate

Diethyleneimide oxide. See Morpholine

Diethyl ethanedicarboxylate. See Diethyl succinate

Diethylethanolamine; N,N-Diethylethanolamine. See Diethylaminoethanol

Diethyl ether. See Ethyl ether

Diethyl ethoxycarbonylmethylphosphonate. See Triethyl phosphonoacetate

Diethyl glycol dimethyl ether. See Diethylene glycol dimethyl ether

Di (2-ethylhexyl) adipate. See Dioctyl adipate

Di(2-ethylhexyl) succinate. See Dioctyl succinate

N,N-Diethyl-N-(β-hydroxyethyl) amine. See Diethylaminoethanol

Diethyl ketone

CAS 96-22-0; EINECS/ELINCS 202-490-3 UN 1156 (DOT)

Synonyms: DEK; Dimethylacetone; Metacetone; Methaceton; 3-Pentanone; Pentanone-3; Propione

Empirical: C₆H₁₀O

Formula: CH₃CH₂COCH₂CH₃

Properties: Colorless mobile liq.; acetone odor; misc. with alcohol, ether, oxygenated solvs.; sol. in 25 parts water; m.w. 86.14; dens. 0.814; m.p. -42 C; b.p. 99-103 C; flash pt. 55 F; ref. index 1.392

Toxicology: LD₅₀ (oral, rat) 2.1 g/kg, (IV, mouse) 513 mg/kg, (skin, rabbit) 20 g/kg; mod. toxic by ing., IP, IV routes; skin and eye irritant; mutagenic data; TSCA listed

Precaution: Highly flamm.; dangerous fire hazard exposed to heat or flame; can react vigorously with oxidizing materials; reacts with hydrogen peroxide + nitric acid to form a shock- and heat-sensitive explosive
**Chemical Component Cross-Reference**

**Diethyl malate.** See Diethyl DL-malate

**Diethyl DL-malate**

CAS 626-11-9; EINECS/ELINCS 210-930-0

**Synonyms:** Diethyl malate; Ethyl malate; DL-Malic acid diethyl ester

**Empirical:** C₈H₁₄O₅

**Properties:** Colorless to ylsh. liq.; fruity odor and flavor; m.w. 190.20; dens. 1.128 g/ml; b.p. 122-124 C (12 mm); flash pt. 85 C

**Toxicology:** May be harmful by inh., ing., or skin absorp.; may cause eye/skin irritation; TSCA listed

**Precaution:** Combustible; incompat. with strong oxidizing agents

**Hazardous Decomp. Prods.:** Toxic fumes of CO, CO₂; emits toxic fumes under fire conditions

**Storage:** Store in cool, dry place; keep tightly closed; keep away from heat, open flame

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Fruity flavor

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS


**Diethyl maleate**

CAS 141-05-9; EINECS/ELINCS 205-451-9

**Synonyms:** (Z)-2-Butenedioic acid diethyl ester; EM; Ethyl maleate; Maleic acid, diethyl ester

**Classification:** Nonaromatic ester

**Empirical:** C₈H₁₂O₄

**Formula:** C₈H₁₂O₄CH₂COOCH₃

**Properties:** Water-wh. liq.; readily sol. in alcohol, diethyl ether, paraffinic hydrocarbons, common org. solvs.; insol. in water; m.w. 172.18; dens. 1.064; m.p. -10 C; b.p. 225 C; flash pt. 200 F; ref. index 1.4400 (20 C); surf. tens. 3.70 dynes/cm (20 C); dielec. const. 2.18

**Toxicology:** LD₅₀ (oral, rat) 3200 mg/kg, (IP, rat) 3070 mg/kg, (skin, rabbit) 4000 mg/kg; mod. toxic by ing., skin contact, IP routes; skin and eye irritant; mutagen; TSCA listed

**Precaution:** Combustible; readily hydrolyzed by alkaline sol’ns.; can react with oxidizers

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**NFPA:** Health 1, Flammability 1, Reactivity 0

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Fruity, mild citrus banana-like flavor

**Regulatory:** Canada DSL


**Diethyl malonate**

CAS 105-53-3; EINECS/ELINCS 203-305-9

**FEMA 2375**

**Synonyms:** Carbethoxyacetic ester; DEM; Dicarbethoxymethane; Diethyl propanedioate; Ethyl malonate; Malonic acid, diethyl ester; Malonic ester; Methanedicarboxylic acid, diethyl ester; Propanedioic acid diethyl ester

**Classification:** Aliphatic organic compd.

**Empirical:** C₇H₁₂O₄

**Formula:** CH₂(COOC₂H₅)₂

**Properties:** Colorless liq., sl. aromatic pleasant odor; sol. in fixed oils, propylene glycol, oxygenated solvs.; misc. with alcohol, ether; sol. 1 g/50 ml in water; insol. in glycerin, min. oil; m.w. 160.17; dens. 1.055 (20/4 C); vapor pressure 1 mm (40 C); f.p. -50 C; b.p. 94-95 C (11 mm); flash pt. 80 C; ref. index 1.413 (20 C)

**Toxicology:** LD₅₀ (oral, rat) 15 g/kg; mildly toxic by ing.; skin irritant; TSCA listed

**Precaution:** Combustible; can react with oxidizers
Chemical Component Cross-Reference

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**NFPA:** Health 0, Flammability 1, Reactivity 0

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Fruity flavor

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL


**Diethyl 1,8-octanedicarboxylate.** See **Diethyl sebacate**

**Diethylenolamine.** See **Diethanolamine**

**Diethyl oxide.** See **Ethyl ether**

(Diethylphosphono) acetonitrile. See **Diethyl cyanomethylphosphonate**

**Diethyl phthalate**

CAS 84-66-2; EINECS/ELINCS 201-550-6

**Synonyms:** 1,2-Benzenedicarboxylic acid diethyl ester; DEP; Diethyl 1,2-benzenedicarboxylate; Diethyl-o-phthalate; Ethyl phthalate; Phthalic acid, diethyl ester; Phthalol

**Definition:** Aromatic diester of ethyl alcohol and phthalic acid

**Empirical:** C\textsubscript{12}H\textsubscript{14}O\textsubscript{4}

**Formula:** C\textsubscript{6}H\textsubscript{4}(CO\textsubscript{2}C\textsubscript{2}H\textsubscript{5})\textsubscript{2}

†=pharmaceutical grade

**Properties:** Water-wh. oily liq., odorless, bitter taste; misc. with alcohol, ketones, esters, oxygenated and aromatic solvs.; insol. in water; m.w. 222.24; dens. 1.120 (25/25 C); f.p. -40.5 C; b.p. 298 C; flash pt. (OC) 325 F; visc. 31.3 cs (0 C); ref. index 1.500-1.505; stable

**Toxicology:** ACGIH TLV/TWA 5 mg/m\textsuperscript{3}; LD50 (oral, rat) 8600 mg/kg, (IP, rat) 5058 mg/kg; poison by IV route; mod. toxic by ingestion, subcut., IP routes; human systemic effects; strong irritant to eyes and mucous membranes; narcotic in high concs.; experimental teratogen, reproductive effects; TSCA listed

**Precaution:** Combustible when exposed to heat or flame

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**NFPA:** Health 0, Flammability 1, Reactivity 0

**Uses:** Plasticizer, fragrance in pharmaceuticals, orals

**Regulatory:** FDA 21CFR §175.105, 175.300, 175.320, 178.3910, 181.22, 181.27, 212.177; 27CFR §21.105; FDA approved for orals; USP/NF, BP, EP compliance; SARA reportable; Canada DSL

Chemical Component Cross-Reference

Diethylo-phthalate. See Diethyl phthalate
Diethyl propanedioate. See Diethyl malonate
3,3-Diethylo-2,4(1H,3H)pyridinedione. See Pyridylidine

Diethyl sebacate
CAS 110-40-7; EINECS/ELINCS 203-764-5
FEMA 2376
Synonyms: Diethyl decanedioate; Diethyl-1,10-decanedioate; Diethyl 1,8-octanedicarboxylate; Dodecanedioic acid diethyl ester; Ethyl sebacate; Sebacic acid, diethyl ester
Definition: Diester of ethyl alcohol and sebacic acid
Empirical: C₁₄H₂₆O₄
Formula: CH₃CH₂OCO(CH₂)₈COOCH₂CH₃
Properties: Colorless to sl. yel. liq., faint fruity odor; misc. with alcohol, ether, other org. solvs., fixed oils; insol. in water; m.w. 174.22; dens. 1.039 (20/4 C); m.p. -20 C; b.p. 97-99 C (10 mm); flash pt. 230 F; ref. index 1.420
Toxicology: LD50 (oral, rat) 8530 mg/kg; mildly toxic by ing.; skin and eye irritant; TSCA listed
Precaution: Combustible liq.; may cause fire or explosion on reaction with ethyl trifluoroacetate + sodium hydride
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
NFPA: Health 1, Flammability 1, Reactivity 0
Uses: Synthetic flavor for pharmaceuticals; emollient
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Boith China
http://www.boith.com; ChemService
http://www.chemservice.com; DSM Fine Chems. Austria
http://www.dsmfinechemicals.com; Epochem http://www.epochem.com; Fluka
http://www.sigma-aldrich.com; Morflex http://www.morflex.com; Natural Advantage http://www.natural-advantage.net; Reilly Chems. SA; SAFC Specialties

Diethyl succinate
CAS 123-25-1; EINECS/ELINCS 204-612-0
FEMA 2377
Synonyms: Butanedioic acid diethyl ester; Diethyl butanedioate; Diethyl ethanedicarboxylate; Ethyl succinate; Succinic acid diethyl ester
Empirical: C₈H₁₄O₄
Formula: C₄H₆OCOCH₂CH₂COOC₂H₅
Properties: Colorless to lt. yel. clear mobile liq., pleasant odor; sol. in alcohol, fixed oils, ether, oxygenated solvs.; insol. in water; m.w. 174.22; dens. 1.039 (20/4 C); m.p. -20 C; b.p. 97-99 C (10 mm); flash pt. 230 F; ref. index 1.420
Toxicology: LD50 (oral, rat) 14,470 mg/kg; mildly toxic by ing.; skin and eye irritant; TSCA listed
Precaution: Combustible liq.; may cause fire or explosion on reaction with ethyl trifluoroacetate + sodium hydride
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
NFPA: Health 1, Flammability 1, Reactivity 0
Uses: Synthetic flavor for pharmaceuticals; emollient
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: ChemService
http://www.chemservice.com; Elan
http://www.elan-chemical.com; Firmenich
Chemical Component Cross-Reference

dihydroxysuccinate; (+)-Diethyl L-tartrate; (R)-2,3-Dihydroxybutanedioic acid diethyl ester; Ethyl tartrate
Empirical: C₈H₁₄O₆
Formula: C₂H₅OOCH(OH)CH(OH)COOC₂H₅
Properties: Colorless thick oily liq.; sl. sol. in water; misc. with alcohol, ether; m.w. 206.19; dens. 1.204 (20/4 C); m.p. 17 C; b.p. 280 C; flash pt. 93 C; ref. index 1.4476 (20 C)
Precaution: Combustible
NFPA: Health 0, Flammability 1, Reactivity 0
Uses: Synthetic flavor for pharmaceuticals
Features: Fruity flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

(+)-Diethyl L-tartrate. See Diethyl tartrate

2,5-Diethyltetrahydrofuran
CAS 41239-48-9
FEMA 3743
Synonyms: Furan, 2,5-diethyltetrahydro-
Empirical: C₈H₁₆O
Properties: Colorless liq., sweet herbaceous caramelic odor; sol. in alcohol, propylene glycol; sl. sol. in water; m.w. 128.21; b.p. 116 C
Toxicology: LD₅₀ (oral, rat) 3400 mg/kg; mod. toxic by ing.; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating vapors
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Degussa AG http://www.degussa.com

Diethyl toluenediamine
CAS 68479-98-1
Synonyms: DETDA; 2,4-Diamino-3,5-diethyldiamine; 3,5-Diethyltoluenediamine
Classification: Orthoalkylated aromatic
Definition: Mixed prod. contg. 75% 3,5-diethyl-2,4-toluenediamine, 20% 3,5-diethyl-2,6-toluenediamine, and 5% other amines
Empirical: C₁₂H₂₀N₂
Properties: M.w. 192.30
Uses: Intermediate for pharmaceuticals
Regulatory: Canada DSL

†=pharmaceutical grade

Manuf./Distrib.: Albemarle http://www.albemarle.com

3,5-Diethyltoluenediamine. See Diethyl toluene diamine

Difluorodichloromethane. See Dichlorodifluoromethane

Diglycerine sesquioleate. See Polyglyceryl-2 sesquioleate

Diglyceryl dioleate. See Polyglyceryl-2 dioleate

Diglyceryl monooleate. See Polyglyceryl-2 oleate

Diglyceryl monostearate. See Polyglyceryl-2 stearate

Diglyceryl PEG-4 stearate. See Polyglyceryl-2-PEG-4 stearate

Diglyceryl sesquisoostearate. See Polyglyceryl-2 sesquisoostearate

Diglyceryl sesquioleate. See Polyglyceryl-2 sesquioleate

Diglycol. See Diethylene glycol

Diglycol/CHDM/isophthalates/SIP copolymer
Synonyms:
- Diglycol/cyclohexanenedimethanol/isophthalates/sulfoisophthalates copolymer

Definition: Copolymer of diethylene glycol, 1,4-cyclohexanenedimethanol, and the simple esters of isophthalic acid and sulfoisophthalic acid
Uses: Film-former in topical pharmaceuticals

Diglycol/cyclohexanenedimethanol/isophthalates/sulfoisophthalates copolymer. See Diglycol/CHDM/isophthalates/SIP copolymer

Diglycol diethyl ether. See Diethylene glycol diethyl ether

Diglycol methyl ether. See Diethylene glycol dimethyl ether

Diglycol monoethyl ether. See Ethoxydiglycol

Diglycol monostearate. See PEG-2 stearate

Diglycol oleate. See PEG-2 oleate

Diglycol stearate. See PEG-2 stearate

Diglyme. See Diethylene glycol dimethyl ether

Digol. See Diethylene glycol

Diheptadecyl ketone. See Stearone

Dihexadecyl(dimethylammonium) chloride. See Dietyl(dimmonium) chloride

Dihexadecyl hydrogen phosphate; Dihexadeyl phosphate. See Diglyceryl phosphate

Dihexyl ether. See Hexyl acetate

Dihydroabietyl alcohol. See Hydroabietyl
Chemical Component Cross-Reference

†=pharmaceutical grade

Dihydroabietyl behenate
CAS 127036-29-7
Synonyms: Behenic acid, dihydroabietyl ester; 1-Phenanthrenemethanol, dodecahydro-1,4a-dimethyl-7-(1-methylethyl)-, docosanoate
Definition: Ester of dihydroabietyl alcohol and behenic acid
Empirical: C42H76O2
Properties: Sol. in oil, insol. in water
Uses: Emollient, barrier, substantivity agent for pharmaceuticals, topicals
Trade Names: Pelemol® HAB
Dihydroanethole. See p-Propyl anisole
3,4-Dihydro-2H-1-benzopyran-2-one. See Dihydrocoumarin

Dihydrobutadiene sulfone. See Sulfolane

Dihydrocarveol
CAS 619-01-2; 17699-09-1; EINECS/ELINCS 210-575-1
FEMA 2379
Synonyms: 1,6-Dihydrocarveol; 8-p-Menth-2-en-2-ol; 6-Methyl-3-isopropenylcyclohexanol; 2-Methyl-5-(1-methylethyl) cyclohexanol; Tuberyl alcohol
Definition: Synthesized by reducing carvone and separating the resulting isomers
Empirical: C10H18O
Properties: Almost colorless liq.; herbaceous spearmint odor; sol. in alcohol; m.w. 152.24; dens. 0.926; vapor dens. 5.2; b.p. 224-225 C; flash pt. 178 F; ref. index 1.4710
Toxicology: LD50 (oral, rat) > 5 g/kg, (subcut., mouse) 2900 mg/kg, (dermal, rabbit) > 5 g/kg; mod. toxic by subcutaneous route; primary irritant; TSCA listed
Precaution: Combustible liq.; wear safety glasses or goggles, rubber gloves
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes, CO, CO2
HMIS: Health 1, Flammability 2, Reactivity 1
Storage: Store away from heat, open flames, strong acids, strong bases; keep container tightly closed when not in use
Uses: Flavor for pharmaceuticals
Features: Minty flavor
Use Level: 0.03-0.50%
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan IEC; Philippines PICSS; China SEPA/CICS; EPA hazardous waste
Manuf./Distrib.: Frutarom Ltd
http://www.frutarom.com; J.H. Calo†
http://www.jhcalo.com; Millennium/F&F
http://www.aromachem.com
http://www.millenniumchem.com; SAFC Specialties http://www.safcspecialties.com

Dihydrocarvyl acetate
CAS 20777-49-5; EINECS/ELINCS 244-029-9
FEMA 2380
Synonyms: Dihydrocarveol acetate; l-Dihydrocarvyl acetate; Diydrocrevyl acetate; p-Menthen-8-en-2-ol, acetate; 8-p-Menthen-2-yl acetate; p-Menthen-8-en-2-yl acetate; 6-Methyl-3-isopropenyl cyclohexyl acetate; 2-Methyl-5-(1-methylethyl) cyclohexyl acetate
Classification: Nonaromatic ester
Definition: Acetylation of dihydrocarveol
Empirical: C12H20O2
Properties: Colorless liq., sweet floral rose-like

Dihydrocarvone
CAS 5524-05-0; 7764-50-3; EINECS/ELINCS 231-857-0
FEMA 3565
Synonyms: Dihydrocarvone; p-Menthen-8-en-2-one; d-2-Methyl-5-(1-methylethenyl)-cyclohexanone
Classification: Nonaromatic ketone
Empirical: C10H16O
Properties: Cl. nearly colorless liq.; herbaceous spearmint odor; sol. in alcohol; m.w. 152.24; dens. 0.926; vapor dens. 5.2; b.p. 87-88 C (6 mm); flash pt. 178 F; ref. index 1.4710
Toxicology: LD50 (oral, rat) > 5 g/kg, (subcut., mouse) 2900 mg/kg, (dermal, rabbit) > 5 g/kg; mod. toxic by subcutaneous route; primary irritant; TSCA listed
Precaution: Combustible liq.; wear safety glasses or goggles, rubber gloves
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes, CO, CO2
HMIS: Health 1, Flammability 2, Reactivity 1
Storage: Store away from heat, open flames, strong acids, strong bases; keep container tightly closed when not in use
Uses: Flavor for pharmaceuticals
Features: Minty flavor
Use Level: 0.03-0.50%
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan IEC; Philippines PICSS; China SEPA/CICS; EPA hazardous waste
Manuf./Distrib.: Frutarom Ltd
http://www.frutarom.com; J.H. Calo†
http://www.jhcalo.com; Millennium/F&F
http://www.aromachem.com
http://www.millenniumchem.com; SAFC Specialties http://www.safcspecialties.com

Handbook of Pharmaceutical Additives, Third Edition 1223
Chemical Component Cross-Reference

Dihydro-2,5-dioxofuran. See Maleic anhydride
1,4-Dihydro-1-ethyl7-methyl4-oxo-1,8-naphthyridine-3-carboxylic acid. See Nalidixic acid
Dihydro-2,5-furandione. See Succinic anhydride
2,5-Dihydrofuran-2,5-dione. See Maleic anhydride
Dihydro-2(3H)-furanone. See Butyrolactone

Dihydrogenated tallow phthalic acid amide
CAS 127733-92-0
Synonyms: Benzoic acid, 2-[bis (hydrogenated tallow alkyl)] aminocarbonyl-
Classification: Organic compd.
Properties: Nonionic
Uses: Emulsifier, suspending agent for antidandruff shampoos
Regulatory: Canada DSL
Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Trade Names: STEPAN® TAB-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Dihydrogen borate) phenylmercury. See Phenylmercuric borate</td>
</tr>
<tr>
<td>Dihydrogen (ethyl) [4-[4-ethyl (3-sulfonatobenzyl) amino] (4-hydroxy-2-sulfonatobenzhydrylidene) cyclohexa-2,5-dien-1-ylidene] (3-sulfonatobenzyl) ammonium, disodium salt. See Fast green FCF</td>
</tr>
<tr>
<td>Dihydrogen sulfate. See Sulfuric acid</td>
</tr>
<tr>
<td>DiHydrogeranyl acetone. See Tetrahydro-pseudo-ionone</td>
</tr>
<tr>
<td>2,3-Dihydro-1H-indole-2,3-dione. See Isatin</td>
</tr>
<tr>
<td>Dihydro-β-ionone</td>
</tr>
<tr>
<td>CAS 17283-81-7; EINECS/ELINCS 241-318-1</td>
</tr>
<tr>
<td>FEMA 3626</td>
</tr>
<tr>
<td>Synonyms: 2-Butanone, 4-2(2,6,6-trimethyl-1-cyclohexen-1-yl)-; 4-(2,6,6-Trimethylcyclohexene-1-yl)-butan-2-one-2; 4-(2,6,6-Trimethyl-1-cyclohexen-1-yl) butan-2-one</td>
</tr>
<tr>
<td>Empirical: C13H22O</td>
</tr>
<tr>
<td>Properties: Colorless to pale yel. liq.; woody, floral, orris, sl. amber, fruity odor; sweet, fruity, berry-like, sl. woody, floral taste; m.w. 194.32; dens. 0.923; m.p. 311 C; flash pt. &gt; 110 C; ref. index 1.4810</td>
</tr>
<tr>
<td>Toxicology: May be harmful by inh., ing., or skin absorp.; may cause irritation to eyes, skin, mucous membranes, upper respiratory tract; may cause sensitization by inh. and skin contact; TSCA listed</td>
</tr>
<tr>
<td>Precaution: Incomp. with strong oxidizing agents</td>
</tr>
<tr>
<td>Hazardous Decomp. Prods.: Toxic fumes of CO, CO2; emits toxic fumes under fire conditions</td>
</tr>
<tr>
<td>Storage: Store in cool, dry place; keep tightly closed</td>
</tr>
<tr>
<td>Uses: Flavor for pharmaceuticals</td>
</tr>
<tr>
<td>Use Level: 0.5-5%</td>
</tr>
<tr>
<td>Regulatory: FEMA GRAS; Canada DSL</td>
</tr>
<tr>
<td>Dihydroisosafrole. See Dihydroisafrole</td>
</tr>
<tr>
<td>4,5-Dihydro-5-methyl-2(3H)-furanone. See γ-Valerolactone</td>
</tr>
<tr>
<td>16,23-Dihydonaphth (2’,3’:6,7) indolo (2,3-c) dinaphtho (2,3-a:2’,3’-i) carbazole-5,10,15,17,22,24-hexone. See Vat brown 1</td>
</tr>
<tr>
<td>Dihydonorguaiaretic acid. See Nordihydroguaiaretic acid</td>
</tr>
<tr>
<td>Dihydrooxirene. See Ethylene oxide</td>
</tr>
<tr>
<td>2-(1,3-Dihydro-3-oxo-2H-indol-2-ylidene)-1,2-dihydro-3H-indol-3-one. See Indigo</td>
</tr>
<tr>
<td>2-(1,3-Dihydro-3-oxo-5-sulfo-2H-indol-2-ylidene)-2,3-dihydro-3-oxo-1H-indole-5-sulfonic acid disodium salt. See CI 73015; FD&amp;C Blue No. 2; Acid blue 74</td>
</tr>
<tr>
<td>4,5-Dihydro-5-oxo-1-(4-sulfophenyl) 4-[4-sulfophenyl] azo]-1H-pyrazole-3-carboxylic acid trisodium salt. See FD&amp;C Yellow No. 5; Tartrazine</td>
</tr>
<tr>
<td>2,2-Dihydropentafluoropropyl. See 1,1,1,3,3,3-Hexafluoropropene</td>
</tr>
<tr>
<td>Dihydropseudoionone; α,β- Dihydropseudoionone. See Geranyl acetone</td>
</tr>
<tr>
<td>Dihydrosafrole. See Dihydrosafrole</td>
</tr>
<tr>
<td>Dihydrosafrole</td>
</tr>
<tr>
<td>CAS 94-58-6</td>
</tr>
<tr>
<td>Synonyms: Benzene, 1,2-(methylenedioxy)-4-propyl--; 1,3-Benzodioxole, 5-propyl--; Dihydroisosafrole; Dihydrosafrole; 2’,3’- Dihydrosafrole; 1-(3,4-Methylenedioxyphenyl) propane; 1,2-(Methylenedioxy)-4-propylbenzene; 3,4-Methylenedioxy-propylbenzene; 5-Propyl-1,3-benzodioxole; 4-Propyl-1,2-methylenedioxybenzene; Safrole, dihydro-</td>
</tr>
<tr>
<td>Empirical: C10H12O2</td>
</tr>
<tr>
<td>Properties: Colorless to ylsh. oily liq., sassafras-like odor; sweet, fruity, berry-like, sl. woody, floral taste; m.w. 164.21; dens. 1.063-1.070; b.p. 112 C (15 mm); ref. index 1.5170-1.5200</td>
</tr>
<tr>
<td>Toxicology: LD50 (oral, rat) 2260 mg/kg, (IP, mouse) 2830 mg/kg; mod. toxic by ing. and IP routes; skin irritant; confirmed carcinogen</td>
</tr>
<tr>
<td>Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes</td>
</tr>
<tr>
<td>Uses: Fragrance in pharmaceuticals</td>
</tr>
<tr>
<td>Regulatory: Use in foods not permitted in U.S.; Canada DSL</td>
</tr>
<tr>
<td>Manuf./Distrib.: Boith China† <a href="http://www.boith.com">http://www.boith.com</a></td>
</tr>
<tr>
<td>2’,3’-Dihydrosafrole. See Dihydrosafrole</td>
</tr>
<tr>
<td>2,3-Dihydroisosuccinic acid. See L-Tartaric acid</td>
</tr>
<tr>
<td>3,4-Dihydro-2,5,7,8-tetramethyl-2-(4,8,12-trimethyltridecyl)-2H-benzopyran-6-ol. See DL-α-Tocopherol</td>
</tr>
<tr>
<td>3,7-Dihydro-1,3,7-trimethyl-1H-purine-2,6-dione. See Caffeine</td>
</tr>
</tbody>
</table>
Dihydroxyacetone
CAS 96-26-4; EINECS/ELINCS 202-494-5
Synonyms: DHA; 1,3-Dihydroxyacetone; 1,3-Dihydroxydimethyl ketone; 1,3-Dihydroxy-2-propanone; Oxatone chromelin
Classification: Aliphatic ketone
Empirical: C₃H₆O₃
Formula: HOCH₂COCH₂OH
Properties: Almost wh. crystals, char. odor, sweet taste; sol. in water, ethanol; m.w. 90.09; m.p. 78-80 C; pH 4-6 (5% aq.)
Toxicology: LD₅₀ (oral, rat) 16 g/kg; no known skin toxicity; can cause allergic contact dermatitis; TSCA listed
HMIS: Health 1, Flammability 1, Reactivity 0
Storage: Hygroscopic
Uses: Colorant for external pharmaceuticals
to impart color to human body; stain for suntan lotion
Regulatory: FDA 21CFR §73.1150, 73.2150; exempt from certification, permanently listed for drug use; Canada DSL

Protocatechualdehyde
Empirical: C₇H₆O₃
Properties: M.w. 138.12; m.p. 152-157 C
Storage: Store at 2-8 C; keep tightly closed.
Uses: Flavor for pharmaceuticals

3,4-Dihydroxybenzaldehyde methylene ketal.
See Heliotropine

Dihydroxybenzene. See Hydroquinone
1,2-Dihydroxybenzene. See Pyrocatechol
1,3-Dihydroxybenzene. See Resorcinol
1,4-Dihydroxybenzene. See Hydroquinone
m-Dihydroxybenzene. See Resorcinol
o-Dihydroxybenzene. See Pyrocatechol
p-Dihydroxybenzene. See Hydroquinone
2,5-Dihydroxybenzoic acid. See Gentisic acid
2,5-Dihydroxybenzoic acid ethanolamide.
See Gentisic acid ethanolamide
2,4-Dihydroxybenzophenone. See Benzophenone-1
2,3-Dihydroxy-1,2-benzothiazolin-3-one-1,1-dioxide. See Saccharin
1,3-Dihydroxybutane. See Butylene glycol

Dihydroxybutanedioic acid diethyl ester. See Diethyl tartrate

2,3-Dihydroxybutanedioic acid, monopotassium monosodium salt. See Potassium sodium tartrate

(3R,3’R)-Dihydroxy-β-carotene. See Zeaxanthin
(3-α,5-β,12-α)-3,12-Dihydroxy-cholan-24-oic acid monosodium salt; 3-α,12-α-Dihydroxy-5-β-cholan-24-oic acid sodium salt. See Sodium desoxycholate
1,10-Dihydroxydecane. See 1,10-Decanediol

2,2’-Dihydroxydiethylamine. See Diethanolamine

Dihydroxydiethyl ether; β,β’-Dihydroxydiethyl ether. See Diethyylene glycol

3,6-Dihydroxy-4,5-diidoanthene-9-spiro-1’-3H-isobenzofuran-3’-one disodium salt. See Acid red 95
3',6'-Dihydroxy-4',5'-diiodospiro
- [isobenzofuran-1(3H),9'-[9H] xanthen]-3-one. See D&C Orange No. 10
3',6'-Dihydroxy-4',5'-diiodospiro
- [isobenzofuran-1(3H),9'-[9H] xanthen]-3-one, disodium salt. See D&C Orange No. 11; Acid red 95
N-(2,4-Dihydroxy-3,3-dimethylbutyryl-β-alanine calcium. See Calcium D-pantothenate
1,3-Dihydroxydimethyl ketone. See Dihydroxyacetone
N,N-(2,4-Dihydroxy-3,3-dimethylbutyryl)-β-alanine calcium salt. See Calcium D-pantothenate
1,2-Dihydroxyethane. See Ethylene glycol
Di-β-hydroxyethoxyethane. See Triethylene glycol
Di (2-hydroxyethyl) amine. See Diethanolamine
2,2'-Dihydroxyethyl ether. See Diethylene glycol
3',6'-Dihydroxyfluorane; Dihydroxyfluorane. See Fluorescein
2,2'-Dihydroxy-3,3',5,5',6,6'-hexachlorodiphenylmethane. See Hexachlorophene
1,3-Dihydroxy-4-hexylbenzene. See 4-Hexylresorcinol
2,4-Dihydroxy-N-(3-hydroxypropyl)-3,3-dimethylbutanamide. See D-Panthenol; DL-Panthenol
d-(+)-2,4-Dihydroxy-N-(3-hydroxypropyl)-3,3-dimethylbutyramide. See D-Panthenol
1,3-Di(hydroxymethyl)-5,5-dimethylhydantoin. See DMDM hydantoin
2,4-Dihydroxy-2-methylpentane. See Hexylene glycol
1-O-(Dihydroxymethylsilyl)-β-D-mannopyranuronic acid. See Methylsilanol mannuronate
3,5-Dihydroxyphenol. See 1,3,5-Trihydroxybenzene
(2,4-Dihydroxyphenyl) phenylmethanone. See Benzophenone-1
Dihydroxypivalic acid. See Dimethylolpropionic acid
1,2-Dihydroxypropene. See Propylene glycol
1,3-Dihydroxy-2-propanone. See Dihydroxyacetone
(R)-2-[[2,3-Dihydroxypropoxy]hydroxyphosphinyl]oxy]-N,N,N-trimethylethanaminium hydroxide
†=pharmaceutical grade
inner salt. See Glycerophosphocholine
2,3-Dihydroxypropyl docosanoate. See Glyceryl behenate
2,3-Dihydroxypropyl octadecanoate. See Glyceryl stearate
3',6'-Dihydroxypropyl [isobenzofuran-1(3H),9'-[9H] xanthen]-3-one disodium salt. See D&C Yellow No. 7; Fluorescein
3',6'-Dihydroxypropyl [isobenzofuran-1(3H),9'-[9H] xanthen]-3-one disodium salt. See D&C Yellow No. 8; Fluorescein sodium
Dihydroxysuccinic acid; α,β-Dihydroxysuccinic acid. See L-Tartaric acid
2,3-Dihydroxysuccinic acid, potassium salt. See Potassium acid tartrate
2,2'-Dihydroxy-3,3',5,5'-tetrachlorodiphenylsulfide. See 2,2'-Thiobis (4,6-dichlorophenol)
3',6'-Dihydroxy-2',4',5',7'-tetaiodospiro [isobenzofuran-1(3H),9'-[9H] xanthen]-3-one disodium salt. See FD&C Red No. 3
3',6'-Dihydroxy-2',4',5',7'-tetaiodospiro [isobenzofuran-1(3H),9'-[9H] xanthen]-3-one disodium salt. See Acid red 51
Diiododifluorescein. See D&C Orange No. 10
1,1-Diisobutylx-2-phenylethane. See Phenylacetaldehyde diisobutyl acetal
Diisobutyaluminum hydride
CAS 1191-15-7; EINECS/ELINCS 214-729-9
UN UN 3076
Synonyms: Bis (isobutyl) hydroaluminum; DIBAH; DIBAL-H; Diisobutyl hydroaluminum; Hydrobis (2-methylpropyl) aluminum; Hydrodialuminum
Empirical: C8H10Al
Formula: [(CH3)2CHCH2]2AlH
Properties: Colorless, pyrophoric liq.; sol. in Et2O, C6H6, toluene, cyclohexane, aliphatic and aromatic hydrocarbons, ether-type solvs.; m.w. 142.25; dens. 0.798; vapor pressure 0.000174 mm Hg (20 C); f.p. -80 C; b.p. 269 C; sp. heat 0.489 cal/g C
Toxicology: ACGIH TLV/TWA 2 mg(Al)/m3; LCLo (inh., guinea pig, 1 h) 70 g/m3; mildly toxic by inh.; TSCA listed
Precaution: Ignites spontaneously in air; dangerous fire risk; reacts violently with water
NFPA: Flammability 3, Reactivity 3
Storage: Air-sensitive; handle and store under nitrogen
Uses: Reducing agent in pharmaceuticals,
**Chemical Component Cross-Reference**

**flavors, fragrances**

**Regulatory:** Canada DSL  
**Manuf./Distrib.: Akzo Nobel**  
[http://www.akzonobel.com; Albemarle](http://www.akzonobel.com; Albemarle)  
[http://www.albemarle.com; Aldrich](http://www.albemarle.com; Aldrich)  
[http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)

**Disobutyl cresoxy ethoxy ethyl dimethyl benzyl ammonium chloride; p-Disobutyl cresoxy ethyl dimethyl benzylammonium chloride.** See Methylbenzethonium chloride

**Disobutyl hydroaluminum.** See Diisobutylaluminum hydride

**Disobutyl ketone**

**CAS 108-83-8; EINECS/ELINCS 203-620-1**  
**UN 1157 (DOT); FEMA 3537**

**Synonyms:** DIBK; Dibutyl ketone; s-Diisopropylacetone; 2,6-Dimethyl-4-heptanone; 2,6-Dimethylheptan-4-one; Isobutyl ketone; Isovalerone; Valerone

**Classification:** Aliphatic ketone

**Empirical:** C₉H₁₈O

**Formula:** (CH₃)₂CHCH₂COCH₂CH(CH₃)₂

**Properties:** Colorless liq.; mild sweet peppermint odor; misc. with most org. liqs.; pract. insol. in water; m.w. 142.24; dens. 0.8076; vapor pressure 1.65 mm Hg; m.p. -46 C; b.p. 165 C; flash pt. (CC) 49 C; autoignition temp. 396 C; pressure 1.65 mm Hg; m.p. -46 C; b.p. 165 C; flash pt. (CC) 49 C; autoignition temp. 396 C; ref. index 1.4130 (20 C); pH neutral; surf. tens. 24.54 dynes/cm

**Toxicology:** ACGIH TLV/TWA 25 ppm; LD₅₀ (oral, rat) 4300 mg/kg, (skin, rabbit) 16 g/kg; mod. toxic by ing. and inh.; irritant to respiratory system; extremely high vapor concs. may cause dizziness, nausea, incoordination, possibly death; severe exposure unlikely; narcotic in high concs.; mild skin and eye irritant; ing. may cause irritation of mouth and stomach; may cause lung injury if aspirated; TSCA listed

**Environmental:** VOC; BOD₅ 1.37; COD 2.88; ThOD 2.93

**Precaution:** Flamm. exposed to heat or flame; LEL 0.81%; UEL 7.1%; incompat. with strong oxidizing agents (increases fire and explosion hazard)

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and fumes

**NFPA:** Health 1, Flammability 2, Reactivity 0

**Storage:** Store in cool, dry, well-ventilated area, out of direct sunlight

**Uses:** Flavor for pharmaceuticals

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**Diisobutylphenoxycethoxyethyl dimethyl benzyl ammonium chloride.** See Benzethonium chloride

**Diisopropanolamine**

**CAS 110-97-4; EINECS/ELINCS 203-820-9**

**Synonyms:** Bis (2-hydroxypropyl) amine; Bis (2-propanol) amine; DIPA; Dipropyl-2,2'-dihydroxyamine; 1,1'-iminobis-2-propanol; 1,1'-iminobis (propan-2-ol); 1,1'-iminodipropan-2-ol

**Classification:** Aliphatic amine alcohol compd.

**Empirical:** C₆H₁₅NO₂

**Formula:** HN(CH₂CHOHCH₃)₂

**Properties:** Wh. cryst. solid; mild ammoniacal odor; very sol. in water; sol. in ethanol, acetone; sl. sol. in diethyl ether; m.w. 133.19; dens. 1.004; m.p. 44.5-45.5 C; b.p. 249-250 C (745 mm); flash pt. 126 C

**Toxicology:** LD₅₀ (oral, rat) 6720 mg/kg, (IP, mouse) 96 mg/kg; poison by IP route; mildly toxic by ing.; skin and severe eye irritant; TSCA listed

**Precaution:** Combustible

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of NOₓ

**NFPA:** Health 2, Flammability 1, Reactivity 0

**Storage:** Hygroscopic; protect from light

**Uses:** Emulsifier for pharmaceuticals
<table>
<thead>
<tr>
<th>Chemical Component Cross-Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>topicals</strong></td>
</tr>
<tr>
<td><strong>Regulatory:</strong> FDA 21CFR §175.105, 176.210; FDA approved for topicals; Canada DSL</td>
</tr>
<tr>
<td><strong>Trade Names:</strong> DIPA Commercial Grade; DIPA Low Freeze Grade 85; DIPA Low Freeze Grade 90; DIPA NF Grade</td>
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<tr>
<td><strong>s-Diisopropylacetone.</strong> See Diisobutyl ketone</td>
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<tr>
<th>Diisopropyl adipate</th>
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<tbody>
<tr>
<td><strong>CAS</strong> 6938-94-9; EINECS/ELINCS 230-072-0</td>
</tr>
<tr>
<td><strong>Synonyms:</strong> Adipic acid diisopropyl ester; Bis (1-methylethyl) hexanediol; DIPA; Hexanediolic acid, bis (1-methylethyl) ester; Isopropyl adipate</td>
</tr>
<tr>
<td><strong>Definition:</strong> Diester of isopropyl alcohol and adipic acid</td>
</tr>
<tr>
<td><strong>Empirical:</strong> C_{12}H_{22}O_{4}</td>
</tr>
<tr>
<td><strong>Formula:</strong> (CH_{3})<em>{2}CHOCHO(CH</em>{2})<em>{4}COOCH(CH</em>{3})_{2}</td>
</tr>
<tr>
<td><strong>Properties:</strong> Colorless to pale yel. clear liq.; sol. in min. oil, ethanol, propylene glycol, IPM, oleyl alcohol; insol. in water, glycerin; m.w. 230.31; dens. 0.950-0.962; ref. index 1.4216-1.4245</td>
</tr>
<tr>
<td><strong>Toxicology:</strong> LD_{50} (oral, rat) &gt; 20 ± 3 ml/kg, (IV, rat) 640 mg/kg; mod. toxic by IV route; skin irritant; nonirritating to eyes; TSCA listed</td>
</tr>
<tr>
<td><strong>Hazardous Decomp. Prods.:</strong> Heated to decomp., emits acrid smoke and fumes</td>
</tr>
<tr>
<td><strong>Uses:</strong> Emollient, cosolvent, coupling agent for pharmaceuticals, topicals</td>
</tr>
<tr>
<td><strong>Regulatory:</strong> FDA approved for topicals; Canada DSL</td>
</tr>
<tr>
<td><strong>Trade Names:</strong> DIIS; Pelemol® DIPS</td>
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</tbody>
</table>

| Diisostearyl dimerate. **See** Diisostearyl dimer dilinoleate |
| **†=pharmaceutical grade** |
| **Trade Names:** Ceraphyl® 230; Crodamol DA; DID |

<table>
<thead>
<tr>
<th>Diisopropyl cresol</th>
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</thead>
<tbody>
<tr>
<td><strong>CAS</strong> 31291-59-5</td>
</tr>
<tr>
<td><strong>Synonyms:</strong> Diisopropylcresol; Diisopropyl-\text{-}m\text{-}cresol; Phenol, 3\text{-}methylb(1\text{-}methyl)ethyl)-</td>
</tr>
<tr>
<td><strong>Uses:</strong> Antioxidant, stabilizer in external pharmaceuticals</td>
</tr>
<tr>
<td><strong>Diisopropylcresol; Diisopropyl-\text{-}m\text{-}cresol.</strong> See Diisopropyl cresol</td>
</tr>
<tr>
<td><strong>N\text{-}[[2,6-Diisopropylphenyl]carbamoyl]-methyl]iminodiacetic acid.</strong> See Disofenin</td>
</tr>
</tbody>
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<tr>
<th>Diisopropyl sebacate</th>
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<tbody>
<tr>
<td><strong>CAS</strong> 7491-02-3; EINECS/ELINCS 231-306-4</td>
</tr>
<tr>
<td><strong>Synonyms:</strong> Bis (1-methylethyl) decanedioate; Decanediolic acid, bis (1-methylethyl) ester; DIPS</td>
</tr>
<tr>
<td><strong>Definition:</strong> Diester of isopropyl alcohol and sebacic acid</td>
</tr>
<tr>
<td><strong>Empirical:</strong> C_{16}H_{30}O_{4}</td>
</tr>
<tr>
<td><strong>Formula:</strong> (CH_{3})<em>{2}CHOCHO(CH</em>{2})<em>{8}COOCH(CH</em>{3})_{2}</td>
</tr>
<tr>
<td><strong>Properties:</strong> Colorless liq.; m.w. 286.41; sp.gr. 0.936; acid no. 1 max.; sapon. no. 380-400; flash pt. (COC) 190 C; ref. index 1.4310</td>
</tr>
<tr>
<td><strong>Toxicology:</strong> TSCA listed</td>
</tr>
<tr>
<td><strong>Uses:</strong> Emollient, solubilizer, coupling agent, penetrant in pharmaceuticals, topicals, creams, lotions</td>
</tr>
<tr>
<td><strong>Features:</strong> Liquid feel</td>
</tr>
<tr>
<td><strong>Regulatory:</strong> Canada DSL</td>
</tr>
<tr>
<td><strong>Trade Names:</strong> DIIS; Pelemol® DIPS</td>
</tr>
</tbody>
</table>

| Diisostearyl dimerate. **See** Diisostearyl dimer dilinoleate |
Diisostearyl dimer dilinoleate
CAS 103213-19-0; 127358-81-0
Synonyms: Diisostearyl dimerate; Dimer acid, diisostearyl ester
Definition: Diester of isostearyl alcohol and dilinoleic acid
Empirical: C_{75}H_{145}O_{4}
Properties: Clear to sl. hazy yel. liq., mild fatty odor; sp.gr. 0.9; b.p. > 390 C; flash pt. (COC) 170 C
Toxicology: Nonhazardous
Precaution: Incompat. with oxidizing agents
Storage: Store away from strong oxidizing agents; avoid excessive heat
Uses: Moisturizer
Regulatory: Canada DSL
Trade Names: Dermol DISD

2,3-Diketobutane. See Diacetyl
4,4´-Diketo-β-carotene. See Canthaxanthine
2,3-Diketoin diline. See Isatin
2,5-Diketotetrahydrofuran. See Succinic anhydride

Dialaurin. See Glyceryl dialaurate
1,2-Dilauroyl-sn-glycero(3) phosphocholine
CAS 18194-25-7
Synonyms: 1,2-Dilauroylphosphatidylcholine
Classification: Lipid
Empirical: C_{32}H_{64}NO_{8}P
Properties: Wh. to off-wh. solid; sol in chloroform (20 mg/l); insol. in methanol; m.w. 621.8
Storage: Store protected from light @-20 C
Uses: Emulsifier, solubilizer for dermatology; for mfg. of liposomes and mixed micelles

1,2-Dilauroylphosphatidylcholine. See 1,2-Dilauroyl-sn-glycero(3) phosphocholine

Dilauryl thiodipropionate
CAS 123-28-4; EINECS/ELINCS 204-614-1
INS389
Synonyms: Bis (dodecylxlycarbonylethyl)sulfide; Didodecyl 3,3´-thiodipropionate; Dilauryl 3,3´-thiodipropionate; DLT; DLTP; LTD; Propionic acid, 3,3´-thiodi, didodecyl ester; Thiobis (dodecyl propionate); 3,3´-Thiobispropanoic acid, didodecyl ester; Thiodipropionic acid dilauryl ester
Classification: Diester
Definition: Diester of lauryl alcohol and 3,3´-thiodipropionic acid
Empirical: C_{30}H_{68}O_{4}S
Formula: (C_{12}H_{25}OOCCH_{2}CH_{2})_{2}S
Properties: Wh. flakes, sweetish odor; sol. in benzene, toluene, acetone, ether, chloroform; sl. sol. in alcohols, ethyl acetate; insol. in water; m.w. 514.94; dens. 0.975; m.p. 40 C; b.p. 240 C (1 mm); acid no. < 1; flash pt. 110 C
Toxicology: LD50 (oral, rat) > 10.3 g/kg; no known toxicity; eye irritant; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes; thermal decomp. prods.: SOx
Uses: Antioxidant, preservative for pharmaceuticals
Regulatory: FDA 21CFR §175.300, 177.1010, 181.22, 181.24 (0.005% migrating from food pkg.), 182.3280 (0.02% max. fat/oil); Canada DSL

Dilauryl 3,3´-thiodipropionate. See Dilauryl thiodipropionate

Dill. See Dill (Anethum graveolens)

Dill (Anethum graveolens)
CAS 977050-60-4
FEMA 2382
Synonyms: Anethum graveolens; Dill; Dill leaf; Dill leaves; Dill seed
Definition: Seeds and/or leaves of Anethum graveolens
Uses: Natural flavor for pharmaceuticals
Regulatory: BP compliance; FDA 21CFR §184.1282, GRAS; FEMA GRAS; Japan approved
Manuf./Distrib.: Biolandes http://www.biolandes.com; Degussa AG/Health & Nutrition

Dill (Anethum graveolens) seed oil
CAS 8006-75-5; 8016-05-5; 8016-06-6
FEMA 2383
Synonyms: American dill seed oil; Anethum graveolens oil; Anethum graveolens seed oil; Dill fruit oil; Dill oil; Dill seed oil; Dill seed oil, European; European dill seed oil
Definition: Volatile oil from dried ripe fruit of...
Anethum graveolens, contg. 50% carvone, d-limonene, phellandrene, other terpenes

**Properties:** Colorless or pale yel. liq., char. odor; sol. in fixed oils, min. oil, propylene glycol; sol. in 1 vol. 90% alcohol; insol. in water, glycerin; dens. 0.900-0.915 (15/15 C); ref. index 1.481-1.492 (20 C)

**Toxicology:** LD50 (oral, rat) 4040 mg/kg; mildly toxic by ing.; primary skin irritant; mutagen; TSCA listed

**Hazardous Decomp. Pros.:** Heated to decomp., emits acrid smoke and fumes

**Storage:** Keep cool, well closed; protect from light

**Uses:** Natural flavor and adjuvant in pharmaceuticals; aromatic; carminative

**Regulatory:** FDA 21CFR §184.1282, GRAS; FEMA GRAS; BP compliance

**Manuf./Distrib.:** Buckton Page Ltd [http://www.bucktonpage.com](http://www.bucktonpage.com); De Monchy Aromatics [http://www.demonchyaromatics.com](http://www.demonchyaromatics.com); F.D. Copeland [http://www.copelandoil.co.uk](http://www.copelandoil.co.uk); Lebermuth [http://www.lebermuth.com](http://www.lebermuth.com); SAFC Specialties [http://www.safcspecialties.com](http://www.safcspecialties.com)

**Dill (Anethum graveolens) weed oil**

**CAS:** 8006-75-5

**Synonyms:** Anethum graveolens; Anethum graveolens oil; Dill oil; Dill weed oil

**Definition:** Oil from dill herb, contg. d-phellandrene, terpinene, limonene, carvone, dillapiole, isomyristicin, and myristicin

**Properties:** Sl. yel.; typical dill odor; flash pt. 118 F

**Toxicology:** LD50 (oral, rat) 4040 mg/kg; mildly toxic by ing.; skin irritant; mutagenic data; TSCA listed

**Precaution:** Avoid contact with skin, wear protective clothing

**Hazardous Decomp. Pros.:** Heated to decomp., emits acrid smoke and fumes

**Uses:** Natural flavor in pharmaceuticals

**Regulatory:** FDA 21CFR §184.1282, GRAS; FEMA GRAS; Europe listed, no restrictions; Canada DSL


**Dill fruit oil.** See Dill (Anethum graveolens) seed oil

**Dill leaf; Dill leaves.** See Dill (Anethum graveolens)

**Dill oil.** See Dill (Anethum graveolens) weed oil; Dill (Anethum graveolens) seed oil

**Dill seed.** See Dill (Anethum graveolens)

**Dill seed oil; Dill seed oil, European.** See Dill (Anethum graveolens) seed oil

**Dill weed oil.** See Dill (Anethum graveolens) weed oil

**Dimagnesium monohydrogen monophosphate; Dimagnesium orthophosphate; Dimagnesium phosphate.** See Magnesium phosphate dibasic

**Dimagnesium trisilicate.** See Magnesium trisilicate

**Dimer acid, bis[amidopropyl-N,N-dimethyl-N-ethyl ammonium ethosulfate].** See Quaternium-61

**Dimer acid, diisostearyl ester.** See Diisostearyl dimer dilinoleate

**Dimercury dichloride**

**CAS:** 10112-91-1; EINECS/ELINCS 233-307-5

**UN 2025**

**Synonyms:** Mercurous chloride; Mercury chloride; Mercury (I) chloride; Mercury subchloride

**Classification:** Halide

**Empirical:** Cl₂Hg₂

**Formula:** Hg₂Cl₂

**Properties:** Off-wh. heavy powd. or cryst.; odorless; tasteless; pract. insol. in water; insol. in alcohol, ether, cold dil. acids; m.w. 472.08; dens. 7.15; m.p. 302 C; b.p. 384 C; sublimes @ 400-500 C without melting; dec. by sunlight into mercuric chloride and metallic mercury; dec. by alkalis

**Toxicology:** LD50 (oral, rat) 210 mg/kg; TDLo (oral, rat, 12 wks intermittent) 84 mg/kg; toxic; poison by ing.; sensitizer;
Chemical Component Cross-Reference

eyes/skin/respiratory system irritant; excessive doses may cause mercury poisoning; neurologic hazard; readily absorbed through skin; may cause proteinuria, changes in urine, kidney damage, CNS effects, reproductive and fetal effects; possible mutagen; target organ: kidneys, CNS; TSCA listed

Precaution: Incompat. with bromides, iodides, alkali chlorides, sulfates, sulfites, carbonates, hydroxides, lime water, acacia, ammonia, golden antimony sulfide, cyanides, copper salts, hydrogen peroxide, iodine, lead and silver salts, soaps

Hazardous Decomp. Prods.: Hydrogen chloride, mercury oxides; heated to decom., emits toxic vapors of Cl– and Hg

Storage: Light-sensitive; protect from light

Uses: Pharmaceuticals; cathartic; diuretic; antiseptic

Regulatory: Canada DSL


Dimethicone

CAS 9006-65-9

Synonyms: Dimethicones; Dimethylpolysiloxane; Dimethyl silicone; Dimeticone; Polydimethylsiloxane; Poly(oxy (dimethylsilyleylene), α-(trimethylsilyl)-ω-methyl-; α-(Trimethylsilyl)-ω-methylpoly[oxy (dimethylsilyleylene)]

Definition: Silicone oil consisting of a mixt. of fully methylated linear siloxane polymers end-blocked with trimethylsiloxy units

Empirical: \( \text{(C}_2\text{H}_6\text{OSi})_x\text{C}_4\text{H}_{12}\text{Si} \)

Properties: Colorless clear liq.; misc. with chloroform, ether; immisc. with water, alcohol; visc. inc. with degree of polymerization

Uses: Antifoam, vehicle, emollient, water repellent for ointments and topical pharmaceuticals; skin protectant; prosthetic aid (soft tissue); antiflatulent

Features: Oleaginous


†=pharmaceutical grade

listed; UK approved; Canada DSL; FDA approved for topicals; USP/NF, BP, EP compliance


Trade Names: Dow Corning® 360 Medical Fluid (20 cst); Dow Corning® 360 Medical Fluid (100 cst); Dow Corning® 360 Medical Fluid (350 cst); Dow Corning® 360 Medical Fluid (1000 cst); Dow Corning® 360 Medical Fluid (12,500 cst); Dow Corning® Q7-9120 Silicone Fluid; Foamkill® 810F; Foamkill® 830F; L-45 Series; Sentry® Dimethicone NF Silbione® Antifoam 70452 Compound; Silbione™ Oils 70047 V50

Trade Names Containing: Dow Corning® ST Elastomer 10; Fancorsil A; Fancorsil P; PVP/Si-10; Sag 710; Zinc Oxide NDM

Dimethicone. See Dimethylsiloxane

Dimethicone copolyol

CAS 64365-23-7; 68937-54-2; 68938-54-5

Synonyms: Dimethylmethyl (polyethylene oxide) siloxane; Dimethylsiloxane/glycol copolymer; Polyoxyethylene-grafted polydimethylsiloxane; Polysiloxane polyether copolymer; Siloxanes and silicones, dimethyl, hydroxy-terminated,
Chemical Component Cross-Reference

- **ethoxylated propoxylated**
  - **Classification:** Silicone glycol surfactant
  - **Definition:** Polymer of dimethylsiloxane with polyoxyethylene and/or polyoxypropylene side chains
  - **Properties:** Sol. in water and lower alcohols; nonionic
  - **Toxicology:** Very low toxicity; TSCA listed
  - **Uses:** Surfactant, antifoam, dispersant, emulsifier, leveling agent, flow control agent in pharmaceuticals, injectables (percutaneous)
  - **Regulatory:** FDA 21CFR §177.1520; FDA approved for injectables (percutaneous); Canada DSL
  - **Manuf./Distrib.:** Avatar†
    - [http://www.avatarcorp.com](http://www.avatarcorp.com)
    - Biosil Tech.
    - [http://www.biosiltech.com](http://www.biosiltech.com)
    - C.P. Hall
    - [http://www.cphall.com](http://www.cphall.com)
    - Dow Corning
    - [http://www.dowcorning.com](http://www.dowcorning.com)
    - Fanning
    - [http://www.fanncorp.com](http://www.fanncorp.com)
    - GE Silicones
    - [http://www.gesilicones.com](http://www.gesilicones.com)
    - Goldschmidt
    - [http://www.goldschmidt.com](http://www.goldschmidt.com)
    - Koster Keunen
    - [http://www.kosterkeunen.com](http://www.kosterkeunen.com)
    - Lanaetex Prods.
    - Phoenix
    - [http://www.phoenix-chem.com](http://www.phoenix-chem.com)
    - RTD Hallstar
    - [http://www.rtdhallstar.com](http://www.rtdhallstar.com)
    - Surfchem Ltd†
    - [http://www.surfchem.com](http://www.surfchem.com)
    - Thornley
    - [http://www.thornleycompany.com](http://www.thornleycompany.com)
    - Wacker Silicones
    - [http://www.wackersilicones.com](http://www.wackersilicones.com)
  - **Trade Names:** Abil® B 8843; Abil® B 8852; Abil® B 8863; Abil® B 88183; Abil® B 88184; Biowax 754; Silbione™ 70646; Silwet® L-720 AP
  - **Trade Names Containing:** Stableact® C

- **Dimethicone copolyol eicosanate**
  - **CAS:** 157479-50-0; 157479-51-1
  - **Synonyms:** PEG-8 dimethicone meadowfoamate
  - **Uses:** Emollient, slip agent, conditioner for pharmaceuticals, topicals, ointments
  - **Trade Names Containing:** Fancor® Uni-enbase

- **Dimethicone copolyol meadowfoamate**
  - **Definition:** Partial ester of dimethicone copolyol and the fatty acids derived from meadowfoam oil
  - **Uses:** Softener and conditioner for pharmaceuticals, topicals, ointments
  - **Trade Names:** Fancorsil LIM 1; Fancorsil LIM 2; Fancorsil LIM 3

- **Dimethicone copolyol phosphate**
  - **CAS:** 132207-31-9

- **Dimethicone propylethlenediamine behenate**
  - **CAS:** 132207-30-8; 133448-12-1
  - **Synonyms:** Siloxanes and silicones, 3-[(2-aminoethyl amino]propyl, methyl, dimethyl, docosanoates
  - **Classification:** Silicone polymer
  - **Uses:** Emollient, film-former, humectant, protective barrier for pharmaceuticals, topicals
  - **Trade Names:** Pecosil® OS-100B

- **Dimethicone propyl PG-betaine**
  - **CAS:** 102523-96-6
  - **Classification:** Silicone polymer
  - **Properties:** Amphoteric
  - **Uses:** Surfactant, conditioner in pharmaceuticals
  - **Trade Names:** Abil® B 9950

- **Dimethicones.** See Dimethicone

- **Dimethicone/sodium PG-propyldimethicone thiosulfate copolymer**
  - **Classification:** Silicone polymer
  - **Formula:** \((\text{CH}_3)_3\text{SiO}[(\text{CH}_3)_2\text{SiO}]_x[(\text{CH}_3\text{SiO})(\text{CH}_2)_3\text{OCH}_2\text{C HOCH}_2\text{SSO}_3\text{Na}]_y\text{Si(CH}_3)_3\)
  - **Uses:** Film-former, conditioner for pharmaceuticals
  - **Features:** Thermoset props.
Dimethiconol
CAS 31692-79-2; 70131-67-8
Synonyms: Dimethyl silicones and siloxanes, hydroxy-terminated; Dimethysiloxane, hydroxy-terminated; Poly[oxy(dimethylsilylene)], α-hydro-ω-hydroxy-; Siloxanes and silicones, dimethyl, hydroxy-terminated
Definition: Dimethyl silicone terminated with hydroxyl groups
Properties: Anionic
Toxicology: TSCA listed
Uses: Emollient, spreading agent for pharmaceuticals
Manuf./Distrib.: Fluka http://www.sigma-aldrich.com
Trade Names Containing: Dow Corning®Dimethiconol Blend 20; Lubrasil® DS
Dimethiconol arginate. See Dimethiconol arginine

Dimethiconol arginine
Synonyms: Dimethiconol arginate
Definition: Reaction prod. of dimethiconol and arginine
Uses: Substantivity agent for pharmaceuticals, topicals, creams, lotions, skin care

Dimethiconol cysteinate. See Dimethiconol cysteine

Dimethiconol cysteine
Synonyms: Dimethiconol cysteinate
Definition: Reaction prod. of dimethiconol and cysteine
Uses: Ingrd. for pharmaceuticals, creams/lotions
Trade Names: Biosil Basics L-Cysteine

Dimethiconol panthenate. See Dimethiconol panthenol

Dimethiconol panthenol
Synonyms: Dimethiconol panthenate
Definition: Reaction prod. of dimethiconol and panthenol
Uses: Conditioner and bodying agent for pharmaceuticals, creams and lotions, skin care
Trade Names: Biosil Basics DL-30

1,2-Dimethoxy-4-allylbenzene. See Methyl eugenol
1,1-Dimethoxy-2-aryl-3-phenyl-2-propene. See α-Amylecinnamaldehyde dimethyl acetal

3,4-Dimethoxybenzaldehyde. See Veratraldehyde
1,2-Dimethoxybenzene. See o-Dimethoxybenzene
1,3-Dimethoxybenzene. See m-Dimethoxybenzene
1,4-Dimethoxybenzene. See p-Dimethoxybenzene

m-Dimethoxybenzene
CAS 151-10-0; EINECS/ELINCS 205-783-4
FEMA 2385
Synonyms: Benzene, 1,3-dimethoxy-; Benzene, m-dimethoxy-; 1,3-Dimethoxybenzene; Dimethylether resorcinol; Dimethylresorcinol; 3-Methoxyanisole; Resorcinol dimethyl ether
Definition: Synthesized from resorcinol by methylation using dimethyl sulfate and alkali
Empirical: C₈H₁₀O₂
Formula: C₆H₄(OCH₃)₂
Properties: Pale straw liq., acrid fruity odor reminiscent of nerolin; sol. in alcohol, ether, benzene; sl. sol. in water; m.w. 138.17; dens. 1.067 (20/4 C); b.p. 85-87 C (10 mm); flash pt. 190 F; ref. index 1.525 (20 C)
Toxicology: LD₅₀ (IP, mouse) 900 mg/kg; mod. toxic by IP route; skin irritant; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating vapors
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

o-Dimethoxybenzene
CAS 91-16-7; EINECS/ELINCS 202-045-3
FEMA 3799
Synonyms: 1,2-Dimethoxybenzene; Pyrocatechol dimethyl ether; Veratrol; Veratrole
Classification: Aromatic ether
Empirical: C₈H₁₀O₂
Formula: C₆H₄(OCH₃)₂
Properties: Colorless cryst. or liq.; sol. in alcohol, ether; sl. sol. in water; m.w. 138.17; dens. 1.084; m.p. 15 C; b.p. 205-207 C; flash pt. 189
**Chemical Component Cross-Reference**


**Regulatory:** Canada DSL

**Features:** Vanilla-like flavor

**Uses:** Flavor in pharmaceuticals; medicine (antiseptic)

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Precaution:** Flamm. exposed to heat or flame; can react with oxidizers

**Hazardous Decomp. Prods.:** Heated to dep., emits acrid smoke and irritating fumes

**Properties:** Wh. flakes; sweet clover odor; very sol. in benzene, ether; sol. in 95% ethanol; sl. sol. in water; m.w. 138.17; dens. 1.053 (55/55 C); m.p. 53-56 C; b.p. 213 C; flash pt. 98 C

**Chemical Component Cross-Reference †=pharmaceutical grade**

<table>
<thead>
<tr>
<th>CAS</th>
<th>EINECS/ELINCS</th>
<th>FEMA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1-Dimethoxy benzene</td>
<td>150-78-7; EINECS/ELINCS 205-771-9</td>
<td>2386</td>
</tr>
</tbody>
</table>

**Synonyms:** Anisole, p-methoxy-; Benzene, 1,4-dimethoxy-; 1,4-Dimethoxybenzene; Dimethyl ether hydroquinone; Dimethyl hydroquinone; Dimethyldihydroquinone ether; DMB; DMHQ; HQDME; Hydroquinone dimethyl ether; p-Methoxyanisole; Quinol dimethyl ether

**Classification:** Aromatic ether

**Definition:** Obtained by methylation of hydroquinone using dimethyl sulfate and alkali

**Empirical:** C₆H₄(OCH₃)₂

**Formula:** C₆H₁₀O₂

**Properties:** Sol. in benzene, ether; sol. in 95% ethanol; sl. sol. in water; m.w. 138.17; dens. 1.053 (55/55 C); m.p. 53-56 C; b.p. 213 C; flash pt. 98 C

**Chemical Component Cross-Reference**

<table>
<thead>
<tr>
<th>CAS</th>
<th>EINECS/ELINCS</th>
<th>FEMA</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,6-Dimethoxy phenol</td>
<td>91-10-1; EINECS/ELINCS 202-041-1</td>
<td>3137</td>
</tr>
</tbody>
</table>

**Synonyms:** 1,3-Dimethyl pyrogallate; Pyrogallol dimethyl ether; Pyrogallol 1,3-dimethyl ether

**Classification:** Aromatic phenol

**Empirical:** C₆H₁₀O₃

**Formula:** (CH₃O)₂C₆H₃OH

**Properties:** Solid; m.w. 154.17; m.p. 53-56 C; b.p. 261 C; flash pt. > 230 F

**Chemical Component Cross-Reference**

<table>
<thead>
<tr>
<th>CAS</th>
<th>EINECS/ELINCS</th>
<th>FEMA</th>
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<tbody>
<tr>
<td>3,4-Dimethoxybenzene</td>
<td>91-10-1; EINECS/ELINCS 202-041-1</td>
<td>3137</td>
</tr>
</tbody>
</table>

**Synonyms:** 1,1-Dimethoxy decane; 10,10-Dimethoxydecane. See Decanal dimethyl acetal

**Classification:** Aromatic phenol

**Empirical:** C₆H₁₀O₃

**Formula:** (CH₃O)₂C₆H₃OH

**Properties:** Solid; m.w. 154.17; m.p. 53-56 C; b.p. 261 C; flash pt. > 230 F

**Chemical Component Cross-Reference**

<table>
<thead>
<tr>
<th>CAS</th>
<th>EINECS/ELINCS</th>
<th>FEMA</th>
</tr>
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<tr>
<td>1,1-Dimethoxy phenol</td>
<td>91-10-1; EINECS/ELINCS 202-041-1</td>
<td>3137</td>
</tr>
</tbody>
</table>

**Synonyms:** 1,3-Dimethyl pyrogallate; Pyrogallol dimethyl ether; Pyrogallol 1,3-dimethyl ether

**Classification:** Aromatic phenol

**Empirical:** C₆H₁₀O₃

**Formula:** (CH₃O)₂C₆H₃OH

**Properties:** Solid; m.w. 154.17; m.p. 53-56 C; b.p. 261 C; flash pt. > 230 F

**Chemical Component Cross-Reference**

<table>
<thead>
<tr>
<th>CAS</th>
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<tr>
<td>3,4-Dimethoxybenzene</td>
<td>91-10-1; EINECS/ELINCS 202-041-1</td>
<td>3137</td>
</tr>
</tbody>
</table>
**Chemical Component Cross-Reference**


1,1-Dimethoxy-2-phenylethane. See Phenylacetaldehyde dimethyl acetal

1,1-Dimethoxy-2-phenyl propane. See 2-Phenylpropionaldehyde dimethylacetal

1-(3,4-Dimethoxyphenyl) propene. See Methyl isoeugenol

1-(3,4-Dimethoxyphenyl)-2-propene; 3-(3,4-Dimethoxyphenyl) propene. See Methyl isoeugenol

**Dimethoxypropane**

CAS 77-76-9; EINECS/ELINCS 201-056-0

UN 1993

Synonyms: Acetone dimethyl acetal; 2,2-Dimethoxypropane

Classification: Aliphatic organic compd.

Definition: Protein precipitant

Empirical: C₅H₁₂O₂

Formula: (CH₃)₂C(OCH₃)₂

Properties: Colorless liq.; sol. in water; misc. with alcohol, ether; m.w. 104.15; dens. 0.849 (20/4 C); m.p. -47 C; b.p. 81-83 C; flash pt. 165-167 C; autoignition temp. 490 C; ref. index 1.437; surf. tens. 32.43 dynes/cm; dielec. const. 37.78

Toxicology: ACGIH TLV/TWA 10 ppm (skin); LD₅₀ (oral, rat) 4300 mg/kg, (IP, rat) 2750 mg/kg, (skin, rabbit) 2240 mg/kg; mod. toxic by skin contact, inh., IV, IP routes; mildly toxic by ing.; primary skin irritant; mutagen; reproductive effects; TSCA listed

Environmental: ThOD 1.84

Precaution: Flamm. exposed to heat or flame; LEL 1.8%; UEL 11.5%; mod. explosion hazard; violent reaction with halogenated compds. above 90 C

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOₓ

NFPA: Health 2, Flammability 2, Reactivity 0

Uses: Solvent in pharmaceuticals

Regulatory: Canada DSL


Trade Names Containing: Celtone

2,2-Dimethoxypropane. See Dimethoxypropane

1,2-Dimethoxy-4-propenylbenzene. See Methyl isoeugenol

†=pharmaceutical grade

1,2-Dimethoxy-4-(2-propenyl) benzene. See Methyl isoeugenol

α,α-Dimethoxytoluene. See Benzaldehyde dimethyl acetal

Dimethyacetamide

CAS 127-19-5; EINECS/ELINCS 204-8264

Synonyms: Acetdimethylamide; Acetic acid dimethylamide; Acetyldimethylamine; N,N-Dimethylacetamide; Dimethylacetamide; Dimethylamide acetate; DMA; DMAC

Empirical: C₄H₉NO

Formula: CH₃CON(CH₃)₂

Properties: Colorless clear oily liq.; weak ammonia fishy odor; misc. with water, oxygenated and aromatic solvs., esters, ethers, ketones, ethers; m.w. 87.12; dens. 0.942; vapor pressure 1.3 mm Hg; m.p. -20 C; b.p. 165-167 C; flash pt. 70 C; autoignition temp. 490 C; ref. index 1.437; surf. tens. 32.43 dynes/cm; dielec. const. 37.78

Toxicology: ACGIH TLV/TWA 10 ppm (skin); LD₅₀ (oral, rat) 4300 mg/kg, (IP, rat) 2750 mg/kg, (skin, rabbit) 2240 mg/kg; mod. toxic by skin contact, inh., IV, IP routes; mildly toxic by ing.; primary skin irritant; mutagen; reproductive effects; TSCA listed

Environmental: ThOD 1.84

Precaution: Flamm. exposed to heat or flame; LEL 1.8%; UEL 11.5%; mod. explosion hazard; violent reaction with halogenated compds. above 90 C

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOₓ

NFPA: Health 2, Flammability 2, Reactivity 0

Uses: Solvent in pharmaceuticals

Regulatory: Canada DSL


1,2-Dimethoxynaphthalene. See Naphthalene
Chemical Component Cross-Reference

acetamide
Dimethylacetic acid. See Isobutyric acid
Dimethylacetone. See Diethyl ketone
Dimethylacetone amide. See Dimethyl acetamide

2,4-Dimethylacetophenone
CAS 89-74-7; EINECS/ELINCS 201-935-9
FEMA 2387
Synonyms: Methyl 2,4-dimethylphenyl ketone
Classification: Aromatic ketone
Definition: Obtained by condensation of acetyl chloride and m-xylene in presence of aluminum or ferric chloride
Empirical: C_{10}H_{12}O
Formula: CH_3CO_C_6H_3(CH_3)_2
Properties: Colorless to ylsh. oil liq., floral sweet odor; m.w. 148.21; dens. 0.998 (20/4 C); b.p. 120 C (10 mm); flash pt. > 100 C; ref. index 1.543 (20 C)
Toxicology: TSCA listed
Precaution: Combustible
Uses: Synthetic flavor for pharmaceuticals
Features: Sweet flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Dimethyl acetylene carbinol; Dimethylacetylenylcarbinol. See Methyl butynol
2,5-Dimethyl-3-acetylfuran. See 3-Acetyl-2,5-dimethylfuran
Dimethylalkyl (C13-C15) amine. See Dimethyl C13-15 alkyl amine
Dimethylallyl alcohol; 3,3-Dimethylallyl alcohol; \( \gamma,\gamma \)-Dimethylallyl alcohol. See 3-Methyl-2-buten-1-ol
Dimethylamide acetate. See Dimethyl acetamide
4-Dimethylaminobenzoic acid, ethylhexyl ester. See Octyl dimethyl PABA
2-Dimethylamin ethanol; \( \beta \)-Dimethylaminooethanol; N,N-Dimethylaminooethanol; \( \beta \)-Dimethylaminooethanol alcohol. See Dimethyl ethanolamine
Dimethylaminoethyl chloride hydrochloride
CAS 4584-46-7; EINECS/ELINCS 224-970-1
Synonyms: 1-Chloro-2-dimethylaminoethane hydrochloride; 2-Chloro-N,N-

dimethylamine hydrochloride; N-(2-Chloroethoxy) dimethylamine hydrochloride; 2-Chloroethyldimethylammonium chloride; 2-Dimethylaminooethyl chloride hydrochloride; Dimethyl (2-chloroethyl) amine hydrochloride; Dimethyl-\( \beta \)-chloethyamine hydrochloride; DMC
Classification: Nonaromatic amine
Empirical: C_4H_{10}Cl \( \text{N} \) • HCl
Formula: (CH_3)_2NCH_2CH_2Cl • HCl
Properties: Solid; sol. in water, alcohol; m.w. 144.05; m.p. 205-208 C
Toxicology: LD50 (IP, mouse) 280 mg/kg, (subcut., mouse) 250 mg/kg; highly toxic; poison by IP and subcut. routes; severe eye irritant; suspected carcinogen; tumorigen; mutagen; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of NO_x and Cl_
Storage: Hygroscopic
Uses: Mfg. of antihistamines and other pharmaceuticals
Regulatory: Canada DSL

2-Dimethylaminoethyl chloride hydrochloride. See Dimethylaminoethyl chloride hydrochloride
7-(Dimethylamino)-3-(methylimino)-3H-phenothiazine, 3-methochloride, trihydrate. See Methylene blue trihydrate
4-(Dimethylamino)-1,4a,5,5a,6,11,12a-octahydro-3,5,6,10,12,12a-hexahydroxy-6-methyl-1,11-dioxo-2-naphthacenecarboxamide monohydrochloride. See Oxytetracycline hydrochloride
N-[3-(Dimethylamino) propyl] coco amides-N-oxide. See Cocamidopropylamine oxide
N-[3-(Dimethylamino) propyl] octadecanamide; Dimethylaminopropyl stearamide. See Stearamidopropyl dimethylamine
Dimethyl anthranilate

**Empirical:** C₉H₁₁NO₂

**Classification:** aromatic compd.

**Synonyms:**
- 2-Methylamino methyl benzoate
- N-Methylanthranilic acid, methyl ester
- Methyl methylaminobenzoate
- Methyl 2-methylaminobenzoate
- Methyl N-methyl-2-aminobenzoate
- N-Methyl methyl anthranilate
- Methyl-N-methyl anthranilate

**Properties:**
- Pale yel. liq. or solid; grape-like odor; sol. in fixed oils, oxygenated solvs.; sl. sol. in propylene glycol; insol. in water, glycerin; m.w. 165.21; dens. 1.126-1.132; m.p. 19 C; b.p. 256 C; flash pt. 196 F; ref. index 1.578-1.581

**Toxicology:**
- LD₅₀ (IV, mouse) 180 mg/kg
- LD₅₀ (oral, rat) 3380 mg/kg; poison by IV route; mod. toxic by ing.; TSCA listed

**Precaution:**
- Combustible

**Health 1; Flammability 2, Reactivity 0**

**Storage:**
- 6 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air

**Uses:**
- Synthetic flavor for pharmaceuticals

**Features:**
- Orange, grape-like flavor

**Regulatory:**
- FDA 21 CFR §172.515; FEMA GRAS; Japan approved as flavoring; Canada DSL; Australia AICS

**Manuf./Distrib.:**
- Advanced BioTech
  - [http://www.adv-bio.com](http://www.adv-bio.com)
- Augustus Oils Ltd
  - [http://www.augustus-oils.ltd.uk](http://www.augustus-oils.ltd.uk)
- Axxence Aromatic GmbH
  - [http://www.axxence.com](http://www.axxence.com)
- Bell Flavors & Fragrances
  - [http://www.bellff.com](http://www.bellff.com)
- Citrus and Allied Essences
  - [http://www.citrusandallied.com](http://www.citrusandallied.com)
- De Monchy Aromatics
  - [http://www.demonchyaromatics.com](http://www.demonchyaromatics.com)
- Fleurchem
  - [http://www.fleurchem.com](http://www.fleurchem.com)
- Fluka
  - [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
- Givaudan Fragrances
  - [http://www.givaudan.com](http://www.givaudan.com)
- Moore Ingreds.
  - [http://www.moorelab.com](http://www.moorelab.com)
- Penta Mfg.
  - [http://www.pentamfg.com](http://www.pentamfg.com)
- R.C. Treatt & Co. Ltd
  - [http://www.rctreatt.com](http://www.rctreatt.com)
- SAFC Specialties
  - [http://www.safcspecialties.com](http://www.safcspecialties.com)
- Treatt USA
  - [http://www.rctreatt.com](http://www.rctreatt.com)
- V. Mane Fils SA
  - [http://www.mane.com](http://www.mane.com)

Dimethylbenzaldehyde

**Empirical:** C₉H₁₀O

**Classification:** Aromatic aldehyde

**Synonyms:**
- Benzydimethyl carbinol; α,α-Dimethylbenzenepropanol acetate
- See 2-Methyl-4-phenyl-2-butyl acetate
- Dimethylbenzene sulfonic acid, sodium salt
- See Sodium xylenesulfonate
- Dimethylbenzimidazolycobamide; 5,6-Dimethylbenzimidazolycobamide cyanide; α-(5,6-Dimethylbenzimidazolyl) cyanocobamide
  - See Cyanocobalamin

**Properties:**
- Wh. cryst. solid or liq.; fresh floral odor; bitter taste; sol. in oxygenated and aromatic solvs.; insol. in water; m.w. 150.22; dens. 0.98 kg/l (20 C); m.p. 24 C; b.p. 108 C (11 mm); flash pt. 92 C

**Toxicology:**
- LD₅₀ (oral, rat) 1280 mg/kg; mod. toxic by ingestion; TSCA listed

**Precaution:**
- Combustible liq.

**Health 1; Flammability 2, Reactivity 0**

**Storage:**
- Heated to decomp., emits acrid smoke and fumes

**Uses:**
- Synthetic flavor for pharmaceuticals

**Regulatory:**
- FDA 21 CFR §172.515; FEMA GRAS; Canada DSL

**Manuf./Distrib.:**
- Advanced BioTech
  - [http://www.adv-bio.com](http://www.adv-bio.com)
Dimethylbenzyl carbinyl acetate
CAS 151-05-3; EINECS/ELINCS 205-781-3
FEMA 2392
Synonyms: Benzyldimethyl carbinyl acetate; Benzylpropyl acetate; Dimethylbenzyl carbinylacetate; α,α-Dimethylphenethyl acetate; 1,1-Dimethyl-2-phenylacetate; DMBCA
Classification: aromatic compd.
Definition: Obtained by acetylation of dimethylbenzyl carbinol
Empirical: C12H16O2
Formula: C6H5CH2C(CH3)2OOCCH3
Properties: Water-wh. liq. or solid; floral fruity odor; sol. in fixed oils; sol. in alcohol (4 parts/70%); sl. sol. in propylene glycol; insol. in water; m.w. 192.26; dens. 0.995-0.999 (supercooled); m.p. 29.5 C; flash pt. > 100 C; ref. index 1.4900-1.4940 (supercooled)
Toxicology: LD50 (oral, rat) 3300 mg/kg; mod. toxic by ing.; skin irritant
Precaution: Combustible liq.
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
NFPA: Health 1, Flammability 1, Reactivity 0
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Degussa AG/Health & Nutrition

Dimethyldimethylbenzylcarbinyl butyrate. See α,α-Dimethylphenethyl butyrate

Dimethyldimethylbenzylcarbinyl formate. See α,α-Dimethylphenethyl formate

4,5-Dimethyl-2-benzyl-1,3-dioxolan. See Phenylacetaldehyde 2,3-butylen glycol acetel

α,α-Dimethylbenzyl isobutyrate
CAS 7774-60-9; EINECS/ELINCS 231-876-4
## Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Chemical Component Cross-Reference</th>
<th>℃=pharmaceutical grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>β-4-Dimethyl-3-cyclohexane-1-ethanol acetate. See p-Menth-1-en-9-yl acetate</td>
<td>and most org. solvs.; m.w. 132.18; dens. 1.065; vapor pressure 70 mm Hg (20 C); m.p. -26.4 C; b.p. 82 C (10 mm); flash pt. 90 C; ref. index 1.43</td>
</tr>
<tr>
<td>Dimethylidiacetoxyisilane</td>
<td>Toxicology: LD50 (oral, rat) 7 g/kg, (IP, rat) 3 g/kg; poison by IV route; eye irritant; mutagen; TSCA listed</td>
</tr>
<tr>
<td>CAS 2182-66-3; EINECS/ELINCS 218-562-2</td>
<td>Precaution: Combustible; can react vigorously with oxidizing materials</td>
</tr>
<tr>
<td>Classification: Silane</td>
<td>Uses: Solubilizer and suspending agent in pharmaceuticals</td>
</tr>
<tr>
<td>Empirical: C₆H₁₂O₄Si</td>
<td>Regulatory: Canada DSL</td>
</tr>
<tr>
<td>Properties: Liq.; m.w. 176.3; dens. 1.054 (20/4 C); m.p. -12.5 C; b.p. 164-166 C; flash pt. 37 C; ref. index 1.4030</td>
<td>Manuf./Distrib.: AP Resources <a href="http://www.apr.co.kr">http://www.apr.co.kr</a>; Aldrich <a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a>; Fluka <a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a>; Gelest <a href="http://www.gelest.com">http://www.gelest.com</a></td>
</tr>
<tr>
<td>Trade Names: D5490</td>
<td>Dimethyl disulfide. See Methyl disulfide</td>
</tr>
<tr>
<td>Dimethyl dialkyl ammonium chloride. See Diallyl dimethyl ammonium chloride</td>
<td>N,N-Dimethyl-1-dodecanamine. See Dimethyl lauramide</td>
</tr>
<tr>
<td>2,5-Di-o-methyl-1,4,3,6-dianhydro-D-glucitol. See Dimethyl isosorbide</td>
<td>N,N-Dimethyl-1-dodecanamine-N-oxide. See Lauramine oxide</td>
</tr>
<tr>
<td>2,3-Dimethyl-1,4-diazine. See 2,3-Dimethylpyrazine</td>
<td>Dimethylidodecylamine; N,N-Dimethylidodecylamine. See Dimethyl lauramine</td>
</tr>
<tr>
<td>2,5-Dimethyl-1,4-diazine. See 2,5-Dimethylpyrazine</td>
<td>Dimethylidodecylamine-N-oxide; N,N-Dimethylidodecylamine oxide; N,N-Dimethylidodecylamine-N-oxide. See Lauramine oxide</td>
</tr>
<tr>
<td>Dimethyl dicetyl ammonium chloride. See Dicetylldimonomium chloride</td>
<td>N,N-Dimethyl-N-dodecylbenzenemethanaminium chloride; Dimethyl dodecyl benzyl ammonium chloride. See Lauralkonium chloride</td>
</tr>
<tr>
<td>Dimethyl didecyl ammonium chloride; N,N-Dimethylididecylammonium chloride. See Didecylldimonomium chloride</td>
<td>Dimethylenediamine. See Ethylenediamine</td>
</tr>
<tr>
<td>Dimethylglycol. See Diethylene glycol dimethyl ether</td>
<td>Dimethylene oxide. See Ethylene oxide</td>
</tr>
<tr>
<td>Dimethyl diketone. See Diacetyl</td>
<td>Dimethylethanol; 1,1-Dimethylethanol. See t-Butyl alcohol</td>
</tr>
<tr>
<td>8,8-Dimethyl-2,6-dimethyl-2-octanol. See Hydroxycitronellal dimethyl acetal</td>
<td>Dimethylethanolamine CAS 108-01-0; EINECS/ELINCS 203-542-8 UN 2051 (DOT)</td>
</tr>
<tr>
<td>3,3-Dimethyl-8,9-dinbornan-2-ol. See Fenchyl alcohol</td>
<td>Synonyms: Deanol; 2-Dimethylaminoethanol; β-Dimethylaminoethanol; N,N-Dimethylaminoethanol; β- Dimethylinooethyl alcohol; N,N-Dimethyl ethanolamine; N,N-Dimethyl-2-hydroxyethylamine; DMAE; DMEA; Ethanol, 2-(dimethylamino)-; β-Hydroxyethylidimethyleamine</td>
</tr>
<tr>
<td>3,3-Dimethyl-8,9-dinbornan-2-one. See d-Fenchone</td>
<td>Classification: Amino alcohol; alkanolamine</td>
</tr>
<tr>
<td>Dimethylidioctadecylammonium chloride. See Distearylldimonomium chloride</td>
<td>Empirical: C₄H₁₃NO</td>
</tr>
<tr>
<td>Dimethyldioctyl ammonium chloride. See Dioctyl dimonium chloride</td>
<td>Formula: (CH₃)₂NCH₂CH₂OH</td>
</tr>
<tr>
<td>2,2-Dimethyl-1,3-dioxolane-4-methanol CAS 100-79-8; EINECS/ELINCS 202-888-7</td>
<td>Properties: Colorless to pale yel. liq., amine</td>
</tr>
</tbody>
</table>

Handbook of Pharmaceutical Additives, Third Edition
Chemical Component Cross-Reference

odor; sol. in water, alcohol, ether; misc. with oxygenated and aromatic solvs.; m.w. 89.14; dens. 0.8866 (20/4 C); visc. 3.8 cps (20 C); vapor pressure 0.42 mm Hg (20 C); f.p. -64 C; b.p. 133 C; flash pt. (TCC) 39 C; autoignition temp. 295 C; ref. index 1.430; surf. tens. 28.3 dynes/cm

Toxicology: LD50 (oral, rat) 2 g/kg, (IP, rat) 1080 mg/kg, (subcut., mouse) 961 mg/kg, (skin, rabbit) 1370 mg/kg; mod. toxic by ing., inh., skin contact, IP, subcut. routes; skin and severe eye irritant; CNS stimulant; ThOD

Hazardous Decomp. Prods.: CO, CO2, NOx

NFPA: Health 2, Flammability 2, Reactivity 0

Storage: Hygroscopic; store in cool, dry, well-ventilated area away from heat and ignition sources

Uses: Synthesis of pharmaceuticals

Regulatory: FDA 21CFR §173.20, 175.105, 175.300; Canada DSL

Manuf./Distrib.: Air Prods.
http://www.airproducts.com; Aldrich†
http://www.sigma-aldrich.com; Alfa Chem
http://www.alfachem1.com; Allchem Ind.
http://www.allchem.com; Arkema
http://www.total.com/

Ashland http://www.ashchem.com; BASF
AG http://www.basf.de; BASF
http://www.basf.com; Dow†
http://www.dow.com; Fluka
http://www.sigma-aldrich.com

Huntsman http://www.huntsman.com;
Mallinckrodt Baker†
http://www.mallbaker.com; Nippon
Nyukazai http://www.sanky.co.jp; Pelron
http://www.ele-pelron.com; Richman†
http://www.richmanchemical.com
Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality Prods.†
http://www.spectrumchemical.com; Triple Crown Am.†
http://www.triplecrownamerica.com

N,N-Dimethyl ethanolamine. See Dimethylethanolamine

Dimethyl ether hydroquinone. See p-

†=pharmaceutical grade

Dimethoxybenzene

Dimethyl ether protocatechualedehyde. See Veratraldehyde

Dimethylether resorcinol. See m-Dimethoxybenzene

Dimethylethylamine; 1,1-Dimethylethylamine. See t-Butylamine

2-(1,1-Dimethylethyl)-1,4-benzenediol. See t-Butyl hydroquinone

Dimethyl ethyl carbinol. See t-Amyl alcohol

Dimethyl ethyl hexadecyl ammonium bromide. See Cetethyldimonium bromide

(1,1-Dimethylethyl)-4-methoxyphenol. See BHA

1-[4-(1,1-Dimethylethyl) phenyl]-3-(4-methoxyphenyl)-1,3-propanedione. See Butyl methoxy dibenzoyl methane

2,6-Dimethyl-3-ethylpyrazine. See 2-Ethyl-3,5(6)-dimethylpyrazine

Dimethyl ethynyl carbinol;

Dimethylethynylmethanol. See Methyl butynol

Dimethyl formaldehyde. See Acetone

Dimethyl formamide

CAS 68-12-2; EINECS/ELINCS 200-679-5

UN NA 1693 (DOT); UN 2265 (DOT)

Synonyms: N,N-Dimethylformamide; N,N-Dimethylmethanamide; DMF; DMFA; Formic acid, amide, N,N-dimethyl-; N-Formyldimethylamine

Classification: Amide

Empirical: C3H7NO

Formula: CHCON(CH3)2

Properties: Water-wh. clear liq.; fishy unpleasant odor; a dipolar aprotic solv.; sol. in water; misc. with alcohol, ether, acetone, benzene, most org. solvs.; insol. in aliphatic hydrocarbons; m.w. 73.10; sp.gr. 0.953-0.954 (15.6/15.6 C); f.p. -61 C; b.p. 152.8 C; flash pt. 57.7 C; ref. index 1.423-1.431; pH 6.6-8.0 (20 C, 20% aq.)

Toxicology: ACGIH TLV/TWA 10 ppm (skin)

LD50 (oral, rat) 2800 mg/kg, (IP, rat) 1400 mg/kg, (IV, rat) 2000 mg/kg; mod. toxic by ing., IV, IP, subcut. routes; mildly toxic by skin contact, inh.; strong irritant to skin and tissue; severe eye irritant; inh. may cause abdominal pains, loss of appetite, nausea, vomiting, constipation, diarrhea, increased blood pressure, liver injury, irritation of mucous membranes of respiratory tract; suspected carcinogen; teratogen; human mutagenic data; TSCA listed

Precaution: Combustible; moderate fire risk;
Chemical Component Cross-Reference

N,N-Dimethylformamide. See Dimethyl formamide
1-(2,5-Dimethylfuran-3-yl) ethanone. See 3-Acetyl-2,5-dimethylfuran
Dimethylglycol. See Ethylene glycol dimethyl ether
Dimethylglyoxal. See Diacetyl
2,6-Dimethyl-4-heptanone; 2,6-Dimethylheptan-4-one. See Diisobutyl ketone
Dimethylheptenal. See 2,6-Dimethyl-5-heptenal
2,6-Dimethyl-5-heptenal
CAS 106-72-9; EINECS/ELINCS 203-427-2
FEMA 2389

Synonyms: Bergamal; Dimethylheptenal; 2,6-Dimethylhept-5-enal; 5-Heptenal, 2,6-dimethyl-; Melomor; Melonal; Melonyl
Empirical: C₉H₁₆O
Formula: (CH₃)₂C:CH(CH₂)₂CH(CH₃)CHO
Properties: Pale yel. liq. or oil; melon odor; sol. in 2 parts 70% alcohol; m.w. 140.23; dens. 0.852-0.858; b.p. 80 C (19 mm); flash pt. (TOC) 62.2 C; ref. index 1.443-1.448
Toxicology: LD₅₀ (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; skin and eye irritant; TSCA listed
Precaution: Combustible

Hazardous Decomp. Prods.: Heated to decomp., emits CO, CO₂, acrid smoke and irritating fumes

Storage: 6 mos. when stored in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, cold, air

Uses: Synthetic flavor for pharmaceuticals
Features: Melon-like flavor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI

Manuf./Distrib.: Advanced BioTech
**Chemical Component Cross-Reference**

2,6-Dimethylhept-5-enal.  See 2,6-Dimethyl-5-heptenal

N,N-Dimethyl-1-hexadecanamine-N-oxide.  See Palmitamine oxide

Dimethylhexadecylbenzylammonium chloride.  See Cetalkonium chloride

N,N-Dimethyl-N-hexadecyglycine.  See Cetyl betaine

Dimethylhydantoin; 5,5-Dimethyl hydantoin.  See DM hydantoin

Dimethyl hydroquinone;
Dimethylhydroquinone ether.  See p-Dimethoxybenzene

1,1-Dimethyl-2-hydroxyethylamine.  See Aminomethyl propanol

N,N-Dimethyl-2-hydroxyethylamine.  See Dimethylethanolamine

Dimethylhydroxy furanone; 2,5-Dimethyl-4-hydroxy-3-furanone; 2,5-Dimethyl-4-hydroxy-3-(2H)-furanone.  See 4-Hydroxy-2,5-dimethyl-3(2H) furanone

3,7-Dimethyl-7-hydroxyoctanal; 3,7-Dimethyl-7-hydroxyoctan-1-ol; 3,7-Dimethyl-7-hydroxy-octane-1-al.  See Hydroxycitronellal

3,7-Dimethyl-7-hydroxy-1-octanol.  See Hydroxycitronellol

5,5-Dimethyl-2,4-imidazolidinedione.  See DM hydantoin

Dimethyl isosorbide

CAS 5306-85-4; EINECS/ELINCS 226-159-8

Synonyms: 1,4,3,6-Dianhydro-2,5-di-O-methyl-D-glucitol; 2,5-Di-o-methyl-1,4,3,6-dianhydro-D-glucitol; DMI; D-Glucitol; 1,4:3,6-dianhydro-2,5-di-o-methyl-Isosorbide dimethyl ether

Definition:  Dimethyl ether of an anhydride of an isomer of sorbitol

Empirical:  C₉H₁₄O₄

Properties:  Wh. to ylsh. visc. liq.; m.w. 174.20; dens. 1.150; b.p. 93-95°C (0.1 mm); flash pt. 108°C; ref. index 1.4610; nonionic

Uses:  Surfactant, carrier, solvent, emollient, solubilizer for pharmaceutical sol'n's.


Trade Names:  Arlasolve® DMI

Dimethylketal.  See Acetone

Dimethylketol.  See Acetyl methyl carbinol

Dimethylketone.  See Acetone

Dimethyl lauramine

CAS 112-18-5; 67700-98-5; EINECS/ELINCS 203-943-8; 266-922-2

Synonyms:  DDA; N,N-Dimethyl-1-dodecanamine; Dimethyldodecylamine; N,N-Dimethyldodecylamine; Dimethyl laurylamine; N,N-Dimethyl laurylamine; Dodecyl dimethylamine; N-Dodecyl dimethylamine; Lauryl dimethylamine; N-Lauryl dimethylamine; Monolauryl dimethylamine

Classification:  Tertiary aliphatic amine

Empirical:  C₁₄H₂₁N

Formula:  CH₃(CH₂)₁₀CH₂N(CH₃)₂

Properties:  Liq.; m.w. 213.46; m.p. -10°C; cationic

Toxicology:  LD₅₀ (oral, rat) 740 mg/kg; mod. toxic by ing.; severe skin and eye irritant; TSCA listed

Environmental:  LC₅₀ (fish, 96 h) 0.71-1.0 mg/l, (daphnia magna, 48 h) 0.083 mg/l, (activated sludge, 3 h) 27.3 mg/l; readily biodeg.

Hazardous Decomp. Prods.:  Heated to decomp., emits toxic NOₓ

Uses:  Bactericide precursor in pharmaceuticals

Features:  Acid-stable

Regulatory:  FDA 21CFR §177.1680; Canada DSL


Dimethyl lauramide oxide.  See Lauramine oxide

Dimethyl laurylamine; N,N-Dimethyl laurylamine.  See Dimethyl lauramine

Dimethyl laurylamine oxide.  See Lauramine oxide

Dimethyl lauryl benzyl ammonium chloride.  See Lauralkonium chloride

N,N-Dimethylmethanamide.  See Dimethyl formamide

N,N-Dimethylmethanamine.  See Trimethylamine

Dimethylmethane.  See Propane

2,2-Dimethyl-3-methylenebicyclo [2.2.1] heptane.  See Camphene

6,6-Dimethyl-2-methylenebicyclo [3.1.1]
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Component</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heptane; 6,6-Dimethyl-2-methylene</td>
<td><a href="#">3.1.1.</a> Heptane. See β-Pinene</td>
</tr>
<tr>
<td>2,2-Dimethyl-3-methylenenorbornane; 3,3-Dimethyl-2-methylene norcamphane</td>
<td>See Camphene</td>
</tr>
<tr>
<td>α-4-Dimethyl-α-(4-methyl-3-pentenyl)-3-cyclohexene-1-methanol</td>
<td>See Bisabolol</td>
</tr>
<tr>
<td>Dimethylmethyl (polyethylene oxide) siloxane.</td>
<td>See Dimethicone copolyol</td>
</tr>
<tr>
<td>N,N-Dimethyl-N-[2-[2-methyl-4-(1,1,3,3-tetramethylbutyl) phenoxy] ethoxy] ethyl] benzenemethanaminium chloride.</td>
<td>See Methylbenzethonium chloride</td>
</tr>
<tr>
<td>Dimethyl monosulfide.</td>
<td>See Dimethyl sulfide</td>
</tr>
<tr>
<td>Dimethyl myristyl benzylammonium chloride.</td>
<td>See Myristalkonium chloride</td>
</tr>
<tr>
<td>Dimethylnitromethane.</td>
<td>See 2-Nitropropane</td>
</tr>
<tr>
<td>N,N-Dimethyl-1-octadecanamine-N-oxide.</td>
<td>See Stearamine oxide</td>
</tr>
<tr>
<td>N,N-Dimethyl-N-9-octadecenylbenzenemethanaminium chloride.</td>
<td>See Olealkonium chloride</td>
</tr>
<tr>
<td>N,N-Dimethyl octadecylamine-N-oxide.</td>
<td>See Stearamine oxide</td>
</tr>
<tr>
<td>N,N-Dimethyl-N-octadecylbenzenemethanaminium chloride; Dimethyloctadecylbenzyl ammonium chloride.</td>
<td>See Stearalkonium chloride</td>
</tr>
<tr>
<td>N,N-Dimethyl-N-octadecyl-1-octadecanaminium chloride.</td>
<td>See Distearyleldimmonium chloride</td>
</tr>
<tr>
<td>2,6-Dimethyloctadien-2,6-al-8; 3,7-Dimethyl-2,6-octadienial; 3,7-Dimethyl-2,6-octadien-1-ol.</td>
<td>See Citral</td>
</tr>
<tr>
<td>3,7-Dimethyl-2,6-octadienial diethyl acetal.</td>
<td>See Citral diethyl acetal</td>
</tr>
<tr>
<td>3,7-Dimethyl-2,6-octadienial dimethyl acetal; 3,7-Dimethyl-2,6-octadien-1-ol dimethyl acetal.</td>
<td>See Citral dimethyl acetal</td>
</tr>
<tr>
<td>2,6-Dimethyl-2,6-octadien-8-ol.</td>
<td>See Nerol</td>
</tr>
<tr>
<td>2,6-Dimethyl-2,7-octadien-6-ol.</td>
<td>See Linalool</td>
</tr>
<tr>
<td>2-cis-3,7-Dimethyl-2,6-octadien-1-ol.</td>
<td>See Nerol</td>
</tr>
<tr>
<td>3,7-Dimethyl-1,6-octadien-3-ol.</td>
<td>See Linalool</td>
</tr>
<tr>
<td>3,7-Dimethyl-2,6-octadien-1-ol.</td>
<td>See Geraniol</td>
</tr>
<tr>
<td>3,7-Dimethyl-octa-2,6-dien-1-ol; 3,7-Dimethyl-cis-2,6-octadien-1-ol.</td>
<td>See Nerol</td>
</tr>
<tr>
<td>3,7-Dimethyl-trans-2,6-octadien-1-ol.</td>
<td>See Geraniol</td>
</tr>
<tr>
<td>3,7-Dimethyl-(Z)-2,6-octadien-1-ol; cis-3,7-Dimethyl-2,6-octadien-1-ol.</td>
<td>See Nerol</td>
</tr>
<tr>
<td>(E) 3,7-Dimethyl-2,6-octadien-1-ol; trans-3,7-Dimethyl-2,6-octadien-1-ol.</td>
<td>See Geraniol</td>
</tr>
</tbody>
</table>

†=pharmaceutical grade

3,7-Dimethyl-1,6-octadien-3-ol acetate. See Linalyl acetate
3,7-Dimethyl-2,6-octadien-1-ol acetate. See Neryl acetate
(E)-3,7-Dimethyl-2,6-octadien-1-ol acetate; trans-3,7-Dimethyl-2,6-octadien-1-ol acetate. See Geranyl acetate
3,7-Dimethyl-1,6-octadien-3-ol 2-amino benzoate. See Linalyl anthranilate
3,7-Dimethyl-1,6-octadien-3-ol benzoate. See Linalyl benzoate
3,7-Dimethyl-1,6-octadien-3-ol cinnamate. See Linalyl cinnamate
3,7-Dimethyl-1,6-octadien-3-ol formate. See Linalyl formate
cis-3,7-Dimethyl-2,6-octadien-1-ol formate. See Neryl formate
trans-3,7-Dimethyl-2,6-octadien-1-ol formate. See Geranyl formate
3,7-Dimethyl-1,6-octadien-3-ol isobutyrate. See Linalyl isobutyrate
trans-3,7-Dimethyl-2,6-octadien-1-ol isobutyrate. See Geranyl isobutyrate
4,7-Dimethyl-1,6-octadien-3-ol isovalerate. See Linalyl isovalerate
3,7-Dimethyl-1,6-octadien-3-ol propanoate. See Linalyl propionate
cis-3,7-Dimethyl-2,6-octadien-1-ol propionate. See Neryl propionate
(E)-3,7-Dimethyl-2,6-octadien-1-ol propionate. See Geranyl propionate
(Z)-3,7-Dimethyl-2,6-octadien-1-ol propionate. See Neryl propionate
3,7-Dimethyl-1,6-octadien-3-yl acetate. See Linalyl acetate
3,7-Dimethyl-2-trans-6-octadienyl acetate. See Geranyl acetate
cis-3,7-Dimethyl-2,6-octadien-1-yl-acetate. See Neryl acetate
(E)-3,7-Dimethyl-2,6-octadienyl acetoacetate; trans-3,7-Dimethyl-2,6-octadien-1-yl acetoacetate. See Geranyl acetoacetate
3,7-Dimethyl-1,6-octadien-3-yl anthranilate. See Linalyl anthranilate
3,7-Dimethyl-1,6-octadien-3-yl benzoate. See Linalyl benzoate
3,7-Dimethyl-2,6-octadien-1-yl benzoate. See Geranyl benzoate
3,7-Dimethyl-1,6-octadien-3-yl butanoate. See Linalyl butyrate
cis-3,7-Dimethyl-2,6-octadienyl butanoate. See Neryl butyrate
(E)-3,7-Dimethyl-2,6-octadienyl butanoate. See Geranyl butyrate

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3,7-Dimethyl-1,6-octadien-3-yl butyrate. See Linalyl butyrate
3,7-Dimethyl-2,6-octadien-1-yl butyrate; trans-3,7-Dimethyl-2,6-octadien-1-yl butyrate. See Geranyl butyrate
(E)-(E)-3,7-Dimethylocta-2,6-dien-1-yl ester, hexanoic acid. See Geranyl hexanoate
(Z)-3,7-Dimethyl-2,6-octadienyl ester isovaleric acid. See Neryl isovalerate
tans-2,6-Dimethyl-2,6-octadien-8-yl ethanoate. See Geranyl acetate
3,7-Dimethyl-1,6-octadien-3-yl formate. See Linalyl formate
3,7-Dimethyl-2,6-octadien-1-yl formate; (E)-3,7-Dimethyl-2,6-octadienyl formate; trans-3,7-Dimethyl-2,6-octadien-1-yl formate. See Geranyl formate
Dimethyl-2,6-octadien-1-yl hexanoate; (E)-3,7-Dimethylocta-2,6-dien-1-yl-n-hexanoate. See Geranyl hexanoate
3,7-Dimethyl-1,6-octadien-3-yl isobutyrate. See Linalyl isobutyrate
trans-3,7-Dimethyl-2,6-octadienyl isobutyrate. See Geranyl isobutyrate
trans-3,7-Dimethyl-2,6-octadienyl isopentanoate. See Geranyl isovalerate
3,7-Dimethyl-1,6-octadien-3-yl isovalerate. See Linalyl isovalerate
3,7-Dimethyl-2-cis-6-octadien-1-yl isovalerate. See Neryl isovalerate
cis-3,7-Dimethyl-2,6-octadienyl methanoate. See Neryl formate
cis-3,7-Dimethyl-2,6-octadienyl 3-methylbutanoate. See Neryl isovalerate
(E)-(E)-3,7-Dimethyl-2,6-octadienyl 3-methylbutanoate. See Geranyl isovalerate
3,7-Dimethyl-1,6-octadien-3-yl octanoate. See Linalyl octanoate
3,7-Dimethyl-2,6-octadien-1-yl phenylacetate; (E)-(E)-3,7-Dimethyl-2,6-octadienyl phenylacetate; trans-3,7-Dimethyl-2,6-octadien-1-yl phenylacetate. See Geranyl phenylacetate
cis-3,7-Dimethyl-2,6-octadienyl propanoate. See Neryl propionate
(E)-(E)-3,7-Dimethyl-2,6-octadienyl propanoate; 3,7-Dimethyl-2,6-octadien-1-yl propionate. See Geranyl propionate
3,7-Dimethyl-2,6-octadien-3-yl propionate. See Linalyl propionate
trans-3,7-Dimethyl-2,6-octadien-1-yl propionate. See Geranyl propionate

†=pharmaceutical grade

2,6-Dimethyl octanol
CAS 7779-07-9
FEMA 2390
Synonyms: 2,6-Dimethyl octanoic aldehyde; Isoaldehyde C-10; Isodecylaldehyde
Empirical: C10H20O
Properties: Colorless liq., sweet fruity odor, somewhat green flavor; sol. in alcohol; insol. in water; m.w. 156.26
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
3,7-Dimethyloctane-1,7-diol; 3,7-Dimethyloctanediol. See Hydroyxycitronellol
3,7-Dimethyloctane-3-ol. See Tetrahydrocitronellol
2,6-Dimethyl octanoic aldehyde. See 2,6-Dimethyl octanal
Dimethyl octanol; 2,6-Dimethyl-8-octanol. See 3,7-Dimethyl-1-octanol
3,7-Dimethyl-1-octanol
CAS 106-21-8; EINECS/ELINCS 203-374-5
FEMA 2391
Synonyms: Dihydrocitronellol; Dimethyl octanol; 2,6-Dimethyl-8-octanol; 3,7-Dimethyloctan-1-ol; Geraniol tetrahydride; Perhydrogeranial; Tetrahydrogeranial
Classification: acrylic terpene
Definition: Usually prepared by hydrogenation of geraniol, citronellol, or citronellal
Empirical: C10H22O
Formula: (CH3)2CH(CH2)3CH(CH3)CH2CH2OH
Properties: Colorless liq., sweet rosy odor, bitter taste; sol. in fixed oils, min. oil, propylene glycol, alcohol, hydrocarbon solvs.; insol. in glycerol; m.w. 158.29; dens. 0.828 (20/4 C); b.p. 98-99 C (9 mm); flash pt. 97 C; ref. index 1.435 (20 C); tenacity 12 hrs. on blotter
Toxicology: LD50 (oral, rat) > 5 g/kg, (skin, rabbit) 2400 mg/kg; mod. toxic by skin contact; skin irritant; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
HMIS: Health 1, Flammability 1, Reactivity 0
Storage: Store in cool, dry place in tightly sealed containers, protected from heat, light
Uses: Synthetic flavor for pharmaceuticals
Features: Sweet flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia; Canada DSL; Japan ENCS (no. 2-217); Philippines PICCS
Manuf./Distrib.: Citrus and Allied Essences

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3,7-Dimethyloctan-1-ol. See 3,7-Dimethyl-1-octanol
3,7-Dimethyl-3-octanol; 3,7-Dimethyloctan-3-ol. See Tetrahydrolinalool
3,7-Dimethyl-6-octenal; 3,7-Dimethyl-6-octen-1-al. See Citronellal
2,6-Dimethyl-2-octen-8-ol; 3,7-Dimethyl-6-octen-1-ol; 3,7-Dimethyl-oct-6-en-1-ol. See β-Citronellol
(3S)-3,7-Dimethyl-7-octen-1-ol; S-(−)-3,7-Dimethyl-7-octen-1-ol. See (−)-Rhodinol
2,6-Dimethyl-2-octen-8-ol acetate; 3,7-Dimethyl-6-octen-1-ol acetate. See Citronellyl acetate
3,7-Dimethyl-7-octen-1-ol acetate. See Rhodinyl acetate
2,6-Dimethyl-2-octen-8-ol butyrate; 3,7-Dimethyl-6-octen-1-ol butyrate. See Rhodinyl butyrate
3,7-Dimethyl-6-octen-1-ol formate. See Citronellyl formate
3,7-Dimethyl-7-octen-1-ol formate. See Rhodinyl formate
3,7-Dimethyl-6-octen-1-yl acetate. See Citronellyl acetate
3,7-Dimethyl-7-octenyl butanoate; 2,6-Dimethyl-2-octen-8-yl butyrate. See Rhodinyl butyrate
3,7-Dimethyl-6-octen-1-yl butyrate. See Citronellyl butyrate
2,6-Dimethyl-2-octen-8-yl formate; 3,7-Dimethyl-6-octen-1-yl formate. See Citronellyl formate
3,7-Dimethyl-6-octen-1-yl isobutyrate. See Citronellyl isobutyrate
3,7-Dimethyl-6 or 7-octen-1-yl isobutyrate. See Rhodinyl isobutyrate
(S)-3,7-Dimethyloct-7-enyl isovalerate. See Rhodinyl isovalerate
3,7-Dimethyl-6 or 7-octen-1-yl methanoate.
6,10-Dimeth-3-oxa-9-undecenal. See Citronelloxyacetaldehyde

Dimethyl oxazolidine
CAS 51200-87-4; EINECS/ELINCS 257-048-2
Synonyms: 4,4-Dimethyloxazolidine; Oxazolidine A
Classification: Heterocyclic compd.
Empirical: C₅H₁₁NO
Properties: Sol. in water and oil; m.w. 101.17; dens. 0.942; flash pt. 48 C; ref. index 1.4320
Toxicology: LD₅₀ (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low oral toxicity; skin irritant; TSCA listed
Precaution: Combustible liq.
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Trade Names: Oxaban®-A

4,4-Dimethyloxazolidine. See Dimethyl oxazolidine

Dimethyl oxobenzo dioxasilane
Classification: Organic compd.
Empirical: C₉H₁₀O₃Si
Properties: In pharmaceuticals
Trade Names Containing: Pro D.S.B.®

Dimethyloxychinizin. See Antipyrine
2,2-Dimethyl-4-oxyethyl-1,3-dioxolane. See 2,2-Dimethyl-1,3-dioxolane-4-methanol

Dimethyloxyquinazine. See Antipyrine
α,α-Dimethylphenethyl acetate. See Dimethylbenzyl carbinyl acetate
α,α-Dimethylphenethyl alcohol. See Dimethylbenzyl carbinol
α,α-Dimethylphenethyl alcohol acetate. See Dimethylbenzyl carbinyl acetate
α,α-Dimethylphenethyl butanoate. See α,α-Dimethylphenethyl butanoate. See α,α-

†=pharmaceutical grade

Dimethylphenethyl butyrate
α,α-Dimethylphenethyl butyrate
CAS 10094-34-5; EINECS/ELINCS 233-221-8
FEMA 2394
Synonyms: Benzyl dimethylcarbinyl butyrate; Dimethylbenzylcarbinyl butyrate; α,α-Dimethylphenethyl butanoate; DMBC butyrate
Classification: aromatic compd.
Definition: Obtained by esterification of dimethyl benzyl carbinol with n-butyric acid
Empirical: C₁₄H₂₀O₂
Properties: Colorless liq., plum-prune odor, apricot/peach/plum-like taste; sol. in alcohol; insol. in water; m.w. 220.31
Toxicology: LD₅₀ (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low oral toxicity; skin irritant; TSCA listed
Precaution: Combustible liq.
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Dimethyl phenethyl carbinyl acetate. See 2-Methyl-4-phenyl-2-butyl acetate

Dimethylphenethyl carbinyl isobutyrate. See 2-Methyl-4-phenyl-2-butyl isobutyrate

α,α-Dimethylphenethyl formate
CAS 10058-43-2
FEMA 2395
Synonyms: Benzyl dimethylcarbinyl formate; 2-Benzyl-2-propyl formate; Dimethylbenzylcarbinyl formate; DMBC formate
Definition: Synthesized from dimethyl benzyl carbinol and formic acid using acetic anhydride
Empirical: C₁₁H₁₄O₂
Properties: Colorless liq., lily-jasmine odor, spicy taste; sol. in alcohol; almost insol. in water; m.w. 178.23
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Degussa AG/Health &
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Component</th>
<th>Synonyms</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,5-Dimethylphenol</td>
<td>See 2,5-Xylenol</td>
</tr>
<tr>
<td>2,6-Dimethylphenol</td>
<td>See 2,6-Xylenol</td>
</tr>
<tr>
<td>3,6-Dimethylphenol</td>
<td>See 2,5-Xylenol</td>
</tr>
<tr>
<td>N,N-Dimethyl-N-(2-phenoxyethyl)-1-dodecanaminium bromide</td>
<td>See Domiphen bromide</td>
</tr>
<tr>
<td>1,1-Dimethyl-2-phenyl acetate</td>
<td>See Dimethylbenzyl carbinyl acetate</td>
</tr>
<tr>
<td>N-[2-[(2,6-Dimethylphenyl) amino]-2-oxoethyl]-N,N-diethylbenzenemethanaminium benzoate</td>
<td>See Denatonium benzoate</td>
</tr>
<tr>
<td>4-[(3-[2,4-Dimethylphenyl] azo]-3-hydroxy-2,7-naphthalenedisulfonic acid, disodium salt</td>
<td>See D&amp;C Brown No. 1</td>
</tr>
<tr>
<td>1,1-Dimethyl-2-phenylethanol</td>
<td>See Dimethylbenzyl carbinol</td>
</tr>
<tr>
<td>Dimethyl phenylethyl carbonyl acetate</td>
<td>See 2-Methyl-4-phenyl-2-butyl acetate</td>
</tr>
<tr>
<td>Dimethylphenylethyl carbonyl isobutyrate</td>
<td>See 2-Methyl-4-phenyl-2-isobutyl acetate</td>
</tr>
<tr>
<td>1,1-Dimethyl-3-phenylpropyl acetate; (1,1-Dimethyl-3-phenylpropyl) ester acetic acid</td>
<td>See 2-Methyl-4-phenyl-2-butyl acetate</td>
</tr>
<tr>
<td>1,1-Dimethyl-3-phenylpropyl isobutyrate; 1,1-Dimethyl-3-phenylpropyl 2-methylpropanoate</td>
<td>See 2-Methyl-4-phenyl-2-butyl isobutyrate</td>
</tr>
<tr>
<td>2,3-Dimethyl-1-phenyl-3-pyrazolin-5-one; 2,3-Dimethyl-1-phenyl-5-pyrazolone</td>
<td>See Antipyrine</td>
</tr>
<tr>
<td>Dimethylpolysiloxane</td>
<td>See Polydimethylsiloxane; Dimethicone</td>
</tr>
<tr>
<td>Dimethylpolysiloxane hydrolyzate</td>
<td>See Dimethylsiloxane</td>
</tr>
<tr>
<td>2,2-Dimethyl-1,3-propanediyl dioctanoate; 2,2-Dimethyl-1,3-propanediyl 2-ethylhexanoate</td>
<td>See Neopentyl glycol dioctanoate</td>
</tr>
<tr>
<td>2,2-Dimethylpropanoic acid, isooctadecyl ester</td>
<td>See Isostearyl neopentanoate</td>
</tr>
<tr>
<td>2,2-Dimethylpropanoyl chloride</td>
<td>See Pivaloyl chloride</td>
</tr>
<tr>
<td>1,1-Dimethylpropargyl alcohol; α,α-Dimethylpropargyl alcohol</td>
<td>See Methyl butynol</td>
</tr>
<tr>
<td>2,2-Dimethylpropionyl chloride</td>
<td>See Pivaloyl chloride</td>
</tr>
<tr>
<td>p-(1,1-Dimethylpropyl) phenol</td>
<td>See p-t-</td>
</tr>
</tbody>
</table>
Chemical Component Cross-Reference

*like odor; misc. with water, ethanol, org. solvs.; m.w. 108.14; dens. 0.990; vapor dens. 3.7; m.p. 15 C; b.p. 155 C; flash pt. (OC) 147 F; ref. index 1.497-1.501*

Toxicology: LD50 (oral, rat) 1020 mg/kg, (IP, mouse) 1350 mg/kg; irritant; mod. toxic by ingestion and IP routes; mutagenic data; TSCA listed

Precaution: Flamm. liq. exposed to heat, flame, or oxidizers

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx, COx

NFPA: Flammability 2, Reactivity 0

Storage: 6 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FEMA GRAS; Australia AICS; Canada DSL; Japan MITI


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**2,6-Dimethylpyrazine**

- CAS 108-50-9; EINECS/ELINCS 203-589-4
- FEMA 3273
- Classification: pyrazine
- Empirical: C_6_ H_8_ N_2
- Properties: Wh. to yel. cryst. or prisms; nutty coffee odor; sol. in water, ethanol; m.w. 108.14; dens. 0.965 (50 C); m.p. 35-40 C; b.p. 154 C; flash pt. 127 F; ref. index 1.4748-1.5013
- Toxicology: LD50 (oral, rat) 880 mg/kg, (IP, mouse) 1080 mg/kg; mod. toxic by ing. and IP route; mutagen; TSCA listed
- Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx
- Storage: 6 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air
- Uses: Synthetic flavor for pharmaceuticals
- Regulatory: FEMA GRAS; Australia AICS; Canada DSL; Japan MITI

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2,6-Dimethylpyridine; α-α'-Dimethylpyridine. See 2,6-Lutidine

N,N-Dimethyl-N-(2-pyridyl)-N’-(5-chloro-2-thenyl) ethylenediamine. See Chlorothen

1,3-Dimethyl pyrogallate. See 2,6-Dimethoxyphenol

Dimethylresorcinol. See m-Dimethoxybenzene

6,7-Dimethyl-9-d-ribitylisoalloxazine; 7,8-Dimethyl-10-(d-ribityl) isoalloxazine; 7,8-Dimethyl-1-(d-ribo-2,3,4,5-tetrahydroxypentyl) isoalloxazine. See Riboflavin

Dimethyl salicylate. See Methyl o-Methoxybenzoate

Dimethyl silicone. See Dimethicone

Dimethyl silicones and siloxanes, hydroxy-terminated. See Dimethiconol

Dimethyl silicones and siloxanes, reaction prods. with silica. See Siloxanes and silicones, dimethyl, reaction prods. with silica

Dimethylsiloxane

- CAS 63148-62-9
- Synonyms: Dimethicone;
<table>
<thead>
<tr>
<th>Chemical Component Cross-Reference</th>
<th>t=pharmaceutical grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimethylpolysiloxane hydrolyzate; α-Methyl-ω-methoxypolydimethylsiloxane; Polydimethylsiloxane, methyl end-blocked; Poly (oxy (dimethylsilylene)); Polyoxy (dimethylsilylene), α-(trimethylsilyl)-ω-hydroxy; Silicone oil; Silicone oils; Siloxane, dimethyl-; Siloxanes and silicones, dimethyl-; α-(Trimethylsilyl) poly (oxy (dimethylsilylene))-ω-methyl; α-(Trimethylsilyl)-ω-(trimethylsilyl) oxy</td>
<td></td>
</tr>
</tbody>
</table>

**Classification:** Silane

**Properties:** Dens. 0.963; b.p. > 140 °C (0.002 mm); ref. index 1.4040

**Toxicology:** TDL0 (subcut., mouse) 120 g/kg; questionable carcinogen; experimental tumorigen; mutagen; TSCA listed

**Uses:** Antifoam for aq. systems for pharmaceuticals, fermentation

**Regulatory:** Canada DSL

**Manuf./Distrib.:** Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)

**Trade Names:** Dow Corning® Q7-2243 LVA; Hodag® FD-62 K; Hodag® FD-82

**Dimethylsiloxane/glycol copolymer. See Dimethicone copolyol**

**Dimethylsiloxane, hydroxy-terminated. See Dimethiconol**

**Dimethylsiloxane pentamer. See Decamethylcyclopentasiloxane**

**Dimethyl siloxy stearyoxy siloxane polymer. See Stearoyx dimethicone**

**Dimethylstearylamine oxide. See Stearamine oxide**

**Dimethyl stearyl benzyl ammonium chloride. See Stearamonium chloride**

**Dimethyl succinate**

CAS 106-65-0; EINECS/ELINCS 203-419-9

**FEMA 2396**

**Synonyms:** Butanediolic acid, dimethyl ester; Dimethyl butanedioate; Methyl succinate; Succinic acid, dimethyl ester

**Empirical:** C₆H₁₀O₄

**Formula:** CH₃OCOCH₂CH₂COOCH₃

**Properties:** Colorless liq., disagreeable cabbage-like odor; sol. in alcohol, ether, oxygenated solvs.; insol. in water; m.w. 62.14; dens. 0.8458; m.p. -83.2 °C; b.p. 37.5-38 °C; flash pt. -38 °C; autoignition temp. 206 °C; ref. index 1.435 (20 °C)

**Toxicology:** LD₅₀ (oral, rat) 3300 mg/kg, (IP, mouse) 8 g/kg; LC₅₀ (inh., rat) 40,250 ppm; poison by inh.; mod. toxic by ing.; skin and severe eye irritant; TSCA listed

**Precaution:** Flamm., dangerous fire hazard; flamm. limits in air 2.2-19.7%; explosive as vapor; vigorous reactions with oxidizers

**Hazardous Decomp. Prods.:** Heated to decomp., emits highly toxic fumes of SOₓ and may explode

**NFPA:** Health 1, Flammability 4, Reactivity 0

**Storage:** 12 mos. when stored at 40-70 °F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air

**Uses:** Synthetic flavor for pharmaceuticals

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL; Japan MITI

Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Chemical Component</th>
<th>Cross-Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimethyl sulfoxide</td>
<td>CAS 67-71-0; EINECS/ELINCS 200-665-9</td>
</tr>
<tr>
<td></td>
<td>Synonyms: DMSO₂; Methane, sulfinylbis-; Methylsulfone; Methylsulfonyl methane; MS; Sulfinylbismethane</td>
</tr>
<tr>
<td></td>
<td>Classification: Aliphatic organic compd.</td>
</tr>
<tr>
<td></td>
<td>Empirical: C₂H₆OS</td>
</tr>
<tr>
<td></td>
<td>Formula: (CH₃)₂SO</td>
</tr>
<tr>
<td></td>
<td>Properties: Colorless clear liq., strong char. odor (garlic-onion); sol. in water; pract. insol. in alcohol, benzene, acetone, chloroform, ether; m.w. 78.13; dens. 1.101; vapor pressure 0.37 mm Hg (20 C); m.p. 18.4 C; b.p. 189 C; acid no. 0.03 max.; flash pt. 95 C; ref. index 1.4790 (20 C)</td>
</tr>
<tr>
<td></td>
<td>Toxicology: LD₅₀ (oral, rat) 17,500 mg/kg, (IP, rat) 8200 mg/kg; poison by ing.; mod. toxic by IV, IP routes; human mutagenic data; little systemic toxicity, but a primary irritant when used topically (may cause contact urticaria, shortness of breath, facial swelling, GI disturbances, headache, nausea, diarrhea, photophobia); experimental tumorigen, teratogen, reproductive effect; TSCA listed</td>
</tr>
<tr>
<td></td>
<td>Environmental: VOC, ThOD 1.84</td>
</tr>
<tr>
<td></td>
<td>Precaution: Combustible exposed to heat or flame; can react with oxidizing materials; violent or explosive reaction with many acyl, aryl, and nonmetal halides, boron compds., etc.; incompat. with metal oxosalts, sulfur trioxide, magnesium perchlorate</td>
</tr>
<tr>
<td></td>
<td>Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of SO₅</td>
</tr>
<tr>
<td></td>
<td>NFPA: Health 1, Flammability 1, Reactivity 0</td>
</tr>
<tr>
<td></td>
<td>Storage: Hygroscopic; store @ R.T.</td>
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<tr>
<td></td>
<td>Uses: Carrier, solubilizer, solvent for pharmaceuticals; medicine (anti-inflammatory); dissolves highly lipophilic materials; in treatment of scleroderma, systemically for rheumatoid arthritis; veterinary medicine</td>
</tr>
<tr>
<td></td>
<td>Regulatory: FDA 21CFR §177.1655, 177.2440; BP, EP compliance; Canada DSL</td>
</tr>
<tr>
<td>Manuf./Distrib.:</td>
<td>Amresco</td>
</tr>
</tbody>
</table>

†=pharmaceutical grade
N,N-Dimethyl-1-tetradecanamine-N-oxide; N,N-Dimethyltetradecylamine-N-oxide. See Myristamine oxide

N,N-Dimethyl-1-tetradecanaminium chloride. See Myristalkonium chloride

3,6-Dimethyl-5,6,7,7a-tetrahydro-2(4H)-benzofuranone. See Mentholactone

N,N-Dimethyl-N-[2-[2-[4-(1,1,3,3-tetramethylbutyl) phenoxy] ethoxy] ethyl] benzenemethanaminium chloride. See Benzethonium chloride

4,4’-(2,3-Dimethyltetramethylene) dipropenecarboxylic. See Nordihydroguaiaretic acid

5-(2,3-Dimethyltricyclo[2.2.1.0²⁶]hept-3-yl)-2-methylpent-2-en-1-ol. See Santalol

5-(2,3-Dimethyltricyclo[2.2.1.0²⁶]hept-3-yl)-2-methylpent-2-en-1-ol acetate. See Santalyl acetate

3,7-Dimethyl-9-(2,6,6-trimethyl-1-cyclohexen-1-yl)-2,4,6,8-nonatetraen-1-ol. See Retinol

6,10-Dimethyl-5,9-undecadiene-2-one; 6,10-Dimethylundeca-5,9-dien-2-one; (E)-6,10-Dimethylundeca-5,9-dien-2-one; trans-6,10-Dimethylundeca-5,9-dien-2-one. See Retinol

6,10-Dimethyl-9-undecen-2-one. See Geranyl acetone

6,10-Dimethyl-9-undecen-2-one. See Tetrahydro-pseudo-ionone

1,5-Dimethyl-1-vinyl-4-hexen-1-ol benzoate. See Linalyl benzoate

1,5-Dimethyl-1-vinyl-4-hexen-1-ol cinnamate. See Linalyl cinnamate

1,5-Dimethyl-1-vinyl-4-hexen-1-yl-o-aminobenzoate; 1,5-Dimethyl-1-vinylhex-4-enyl anthranilate. See Linalyl anthranilate

1,5-Dimethyl-1-vinylhex-4-enyl benzoate; 1,5-Dimethyl-1-vinyl-4-hexen-1-yl benzoate. See Linalyl benzoate

1,5-Dimethyl-1-vinyl hex-4-enyl butanoate. See Linalyl butyrate

1,5-Dimethyl-1-vinyl-4-hexen-1-yl cinnamate. See Linalyl cinnamate

1,5-Dimethyl-1-vinyl-4-hexenyl ester, isobutyric acid. See Linalyl isobutyrate

1,5-Dimethyl-1-vinylhex-4-enyl formate. See Linalyl formate

1,5-Dimethyl-1-vinyl hex-4-enyl hexanoate. See Linalyl hexanoate

1,5-Dimethyl-1-vinylhex-4-enyl isovalerate; 1,5-Dimethyl-1-vinylhex-4-enyl 3-methylbutanoate. See Linalyl isovalerate

1,5-Dimethyl-1-vinylhex-4-enyl 2-methylpropanoate. See Linalyl isobutyrate

1,5-Dimethyl-1-vinyl-4-hexenyl octanoate. See Linalyl octanoate

1,5-Dimethyl-1-vinylhex-4-enyl 3-phenyl-2-propenoate. See Linalyl cinnamate

1,5-Dimethyl-1-vinylhex-4-enyl propionate. See Linalyl propionate

2,6-Dimethylypyrididine. See 2,6-Lutidine

Dimeticone. See Dimethicone

(E)-3,7-Dimethyl-2,6-octadienyl benzoate. See Geranyl benzoate

1,2-Dimysteryl-sn-glycero(3) phosphatidylcholine

CAS 18194-24-6; 13699-48-4; EINECS/ELINCS 242-085-9

Synonyms: 1,2-Dimysteryl phosphatidylcholine; 1,2-Ditetradecanoyl-sn-glycero-3-phosphocholine; DMPC; 3-sn-Phosphatidylcholine-1,2-dimysteryl

Classification: Phospholipid

Empirical: C₃₆H₇₂N₀₉₈

Properties: Wh. powd.; sol. in methylene chloride and methanol

Precaution: Incompatible with strong oxidizing agents
Chemical Component Cross-Reference

Storage: Store in freezer @ <-20 C

Uses: Emulsifier, solubilizer for dermatology

Manuf./Distrib.: Fluka http://www.sigma-aldrich.com; Genzyme http://www.genzyme.com; Sigma http://www.sigma-aldrich.com/belgium

1,2-Dimyristoyl-sn-glycero(3)phosphoglycerol sodium salt. See Sodium 1,2-dimyristoyl-sn-glycero (3) phosphatidylcholine

1,2-Dimyristoyl phosphatidylcholine. See 1,2-Dimyristoyl-sn-glycero(3) phosphatidylcholine

Dimyristoyl thiodipropionate

CAS 16545-54-3; EINECS/ELINCS 240-613-2

Synonyms: Dimyristyl 3,3'-thiodipropionate; Ditetradecyl 3,3'-thiobispropanoate; Ditetradecyl 3,3'-thiobispropanoate; DMTDP: Propanoic acid, 3,3'-thiobis-, ditetradecyl ester

Classification: Diester; thioether

Definition: Diester of myristyl alcohol and thiodipropionic acid

Empirical: C₃₄H₆₆O₄S

Formula: S(CH₂CH₂COOC₁₄H₂₉)₂

Properties: Lt.-colored oily liq.; insol. in water; m.w. 370.64; dens. 0.9268 (20/20 C); b.p. 417 C; flash pt. 196 C; ref. index 1.4472

Uses: Antioxidant for pharmaceuticals

Regulatory: FDA 21CFR §175.105, 175.300, 177.1200, 177.1210, 177.1400, 177.2600, 178.0700, 178.0800, 178.1000, 178.1600; Canada DSL


Dimyristyl 3,3’-thiodipropionate. See Dimyristyl thiodipropionate

Dimyristoyl thiodipropionate

Dinaphtho (2,3-a:2’,3’-i) naphth (2’,3’:6,7) indolo (2,3-c) carbazole-5,10,15,17,22,24-hexone, 16,23-dihydro. See Vat brown 1

Dinitroaniline red. See D&C Orange No. 17

Dinitrogen monoxide; Dinitrogen oxide. See Nitrous oxide

2,4-Dinitro-1-naphthol-7-sulfonic acid disodium salt. See CI 10316; Ext. D&C Yellow No. 7

1-(2,4-Dinitrophenylazo)-2-naphthol. See D&C Orange No. 17

Dinitrosoamide. See Isosorbide dinitrate

Dinkum oil. See Eucalyptus globulus oil

Dioctadecyl dimethyl ammonium chloride. See Distearylidimonium chloride

Dioctadecyl thiodipropionate, 3,3’-
Chemical Component Cross-Reference

Degussa AG http://www.degussa.com;
Eastman http://www.eastman.com
J.H. Calo http://www.jhcalo.com;
MelChem† http://www.melchem.com; Parchem Trading† http://www.parchem.com; Shandong Haihua Tianhe
Sigma http://www.sigma-aldrich.com/belgium; Solutia http://www.solutia.com;
Velsicol http://www.velsicol.com
Trade Names: Wickenol® 158
Trade Names Containing: Wickenol® 161

Diocetyl-o-benzenedicarboxylate. See n-Dioctyl phthalate

Diocetyl calcium sulfosuccinate
Synonyms: Calcium diocetyl sulfosuccinate; DCS; Docusate calcium
Uses: Surfactant in pharmaceuticals, stool softeners, vitamin formulations, ear wax removal compds.; lubricant, emollient in laxative prod.
Regulatory: FDA approved
Trade Names Containing: Docusate Calcium USP in Corn Oil NF So’n.

Diocetyl cyclohexane
CAS 84753-08-2; 100182-46-5; EINECS/ELINCS 283-854-9
Synonyms: 1,3-Bis (2-ethylhexyl) cyclohexane; Cyclohexane, 1,3-bis (2-ethylhexyl) -; Cyclohexane, disooctyl-; 1,3 Diocetyl cyclohexane
Classification: Organic compd.
Empirical: C22H44
Uses: Emollient, superfatting agent for pharmaceutical creams and emulsions
Trade Names: Cetiol® S

1,3 Diocetyl cyclohexane. See Diocetyl cyclohexane
Diocetyl dimethyl ammonium chloride; Di-n-octyl dimethyl ammonium chloride. See

†=pharmaceutical grade

Diocetyl dimonium chloride
CAS 5538-94-3; EINECS/ELINCS 226-901-0
Synonyms: Chloride diocetyl dimethylammonium; Dimethyldioctyl ammonium chloride; N,N-Dimethyl-N-octyl-1-octanaminium chloride; Diocetyl dimethyl ammonium chloride; Di-n-octyl dimethyl ammonium chloride; Octanaminium, N,N-dimethyl-N-octyl-, chloride; 1-Octanaminium, N-octyl-N,N-dimethyl-, chloride
Classification: Quaternary ammonium compd.
Empirical: C18H40ClN
Formula: [CH3(CH2)7]2N(CH3)2+ Cl–
Properties: M.w. 305.97
Uses: Disinfectant drug
Regulatory: Canada DSL
Manuf./Distrib.: Lonza http://www.lonza.com; Spectrum Labs http://www.speclab.com
Trade Names Containing: BTC® 885; BTC® 885 P40

Diocytldodecyl fluoroheptyl citrate
Classification: Organic compd.
Formula: HOCCH2COORCOORCH2CO(CH2)2(CF2)4CF3 where R rep. the octyldodecyl radical
Uses: Emollient, pigment dispersant for pharmaceuticals, creams, lotions, gels, pigmented prods.
Trade Names: Biosil Basics Fluoro Guerbet 3.5%

Diocetyl ether
CAS 629-82-3; EINECS/ELINCS 211-112-6
Synonyms: Caprylic ether; Dicapryl ether; Dicaprylyl ether; Di-n-octyl ether; Ether, di-n-octyl; Octane, 1,1’-oxybis-; Octyl ether; 1,1’-Oxybisoctane
Empirical: C16H34O
Formula: (C8H17)2O
Properties: Colorless liq.; m.w. 242.50; dens. 0.805 (17/4 C); f.p. -7.6 C; b.p. 291.7 C; flash pt. > 100 C; ref. index 1.4329 (24 C)
Toxicology: LD50 (IV, mouse) 1183 mg/kg; mod. toxic by IV route; may be harmful by ing., inh., skin absorp.; may cause eye/skin irritation; TSCA listed
Precaution: Combustible; incompat. with strong oxidizing agents; can react vigorously with oxidizers; forms explosive peroxides on prolonged storage
Hazardous Decomp. Prods.: Toxic fumes of CO, CO2; heated to decomp., emits acrid

Handbook of Pharmaceutical Additives, Third Edition 1254
Chemical Component Cross-Reference

**smoke and irritating fumes**

*NFPA: Health 0, Flammability 1, Reactivity 0*

**Storage:** Store in cool, dry place; keep tightly closed

**Uses:** Emollient, spreading agent for pharmaceutical emulsions

**Regulatory:** Canada DSL

**Manuf./Distrib.:** Aldrich [http://www.sigma-aldrich.com]; Fluka [http://www.sigma-aldrich.com]

**Trade Names:** Cetiol® OE; Saboderm DOE

### Di-n-octyl ether.

See Dioctyl ether

### Dioctyl maleate

**CAS:** 15763-02-7; 56235-92-8; EINECS/ELINCS 260-070-5

**Synonyms:** Bis (2-ethylhexyl) maleate; Butanedic acid, hydroxy-, bis(2-ethylhexyl) ester; Hydroxybutanedic acid, dioctyl ester

**Definition:** Diester of malic acid and 2-ethylhexanol

**Empirical:** C_{20}H_{36}O_{5}

**Formula:** C_{8}H_{17}OCOCH_{2}CHOHCOC_{8}H_{17}

**Uses:** Emollient, binder for pharmaceuticals, topicals, hypoallergenic prods.; coupling agent for fragrances; solubilizer; antitackifier in antiperspirants, carbomer formulations

**Trade Names:** Ceraphyl® 45

### Dioctyl maleate

**CAS:** 2915-53-9; EINECS/ELINCS 220-835-6

**Synonyms:** Bis (1-octyl) maleate; 2-Butanedioc acid, (Z)-, dioctyl ester; Dicaprylyl maleate (INCI); Di-N-octyl maleate; DOM; Maleic acid, dioctyl ester

**Definition:** Diester of capryl alcohol and maleic acid

**Empirical:** C_{20}H_{36}O_{4}

**Formula:** CH_{3}(CH_{2})_{7}OCOCH=CHCOO(CH_{2})_{7}CH_{3}

**Properties:** Lt.-colored liq., odorless, bitter taste; misc. with min. oil; insol. in water; m.w. 340.56; sp.gr. 0.94 (20 °C); m.p. -20 °C; b.p. 229-239 °C; flash pt. (COC) 160 °C; ref. index 1.4836

**Toxicology:** LD_{50} (oral, rat) 14,200 mg/kg, (skin, rabbit) 14 g/kg; mildly toxic by ing.; mildly toxic by effects; experimental teratogen; affects human GI tract; experimental teratogen, reproductive effects; TSCA listed

**Precaution:** Combustible

**Hazardous Decomp. Prods.:** Heated to decomps., emits acrid smoke and irritating fumes

**NFPA:** Health 0, Flammability 1, Reactivity 0

**Uses:** Solvent, fixing agent in pharmaceuticals

**Regulatory:** FDA 21CFR §175.105, 177.1460, 177.2600; Canada DSL

**Manuf./Distrib.:** AAE Chemie NV† [http://www.aaechemie.com]; Aldrich

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†=pharmaceutical grade

**http://www.basf.com; Celanese**

**http://www.celanesechemicals.com; ChemService**

**http://www.chemservice.com; Chemial SpA**

**http://www.chemvip.com; ChemVIP**

**http://www.chemal.com; DSM Fine Chems. Austria**

**http://www.dsmfinechemicals.com; Filo**

**http://www.finetexinc.com; Haltermann**

**http://www.chemial.com; Prods. UK **http://www.haltermann.com; Monomer-Polymer & Dajac Labs

**http://www.monomerpolymer.com; NOF http://www.nof.co.jp; Sunoco**

**http://www.sunocochem.com; Unitex**

**http://www.whytechchemicals.co.uk; Whyte Chems. Ltd**

**http://www.chemservice.com**

**http://www.chemvip.com**

**http://www.chemal.com**

**http://www.chemal.com; Haltermann**

**http://www.chemial.com**

**http://www.chemal.com; Prods. UK**

**http://www.haltermann.com; Monomer-Polymer & Dajac Labs**

**http://www.monomerpolymer.com; NOF http://www.nof.co.jp; Sunoco**

**http://www.sunocochem.com; Unitex**

**http://www.whytechchemicals.co.uk; Whyte Chems. Ltd**

**http://www.chemservice.com**

**http://www.chemVIP.com**

**http://www.celanesechemicals.com; ChemService**

**http://www.chemVIP.com; ChemVIP**

**http://www.chemVIP.com; ChemVIP**

**http://www.chemVIP.com; ChemVIP**

**http://www.basf.com; Aldrich**
Chemical Component Cross-Reference

http://www.sigma-aldrich.com; Allchem Ind.
http://www.allchem.com; Ashland
http://www.ashchem.com; BASF
http://www.basf.com
BCH Brühl http://www.bch-bruehl.de;
Bencorp Int’l.; C.P. Hall
http://www.cphall.com; Celanese
http://www.celaneschemicals.com;
http://www.chemvip.com; ChemService
http://www.chemservice.com
Chemisphere Ltd
http://www.chemisphere.co.uk; Chisso Am.;
Coyne http://www.coynechemical.com;
Degussa AG http://www.degussa.com;
Eastman http://www.eastman.com
Fluka http://www.sigma-aldrich.com;
Houghton Chem.
http://www.houghtonchemical.com; I.C.
Trading http://www.ic-trading.com; KIC
Chems. http://www.kicchemicals.com;
http://www.kicgroup.com; Marlin Chems.
Ltd http://www.marlinchemicals.co.uk
Parchem Trading† http://www.parchem.com;
Primachem; Shandong Haihua
Tianhe http://www.tianhe-chemical.com;
Sigma http://www.sigma-aldrich.com/belgium;
Spectrum Quality
Prods. http://www.spectrumchemical.com
Storchem http://www.storchem.com;
Sunoco http://www.sunocochem.com;
Velsicol http://www.velsicol.com

Di-n-octyl phthalate. See n-Di-octyl phthalate

Diocetyl sodium sulfosuccinate
CAS 577-11-7; 1369-66-3; EINECS/ELINCS 209-406-4
INS480
Synonyms: Bis (2-ethylhexyl) sodium sulfosuccinate; 1,4-Bis (2-ethylhexyl) sulfobutanedioic acid sodium salt; Dioctyl sulfosodiumsuccinate; Diocetyl sulfosuccinate sodium salt; Docusate sodium; DSS; 2-Ethylhexyl sulfosuccinate sodium; NaDOSS; Sodium 1,4-bis (2-ethylhexyl) sulfosuccinate; Sodium bis (2-ethylhexyl) sulfosuccinate; Sodium di (2-ethylhexyl) sulfosuccinate; Sodium dioctyl sulfosuccinate; Sulfo-butanedioic acid 1,4-bis (2-ethylhexyl) ester sodium salt; Sulfosuccinic acid 1,4-bis (2-ethylhexyl) ester sodium salt
Definition: Sodium salt of the diester of 2-ethylhexyl alcohol and sulfosuccinic acid
Empirical: C₂₀H₃₇NaO₇S

†=pharmaceutical grade

Formula: C₈H₁₇OCOC₂H₇(CH(SO₃Na)COOC₈H₁₇
Properties: Wh. wax-like solid. char. octyl alcohol odor; slowly sol. in water; freely sol. in alcohol, glycerol, CCl₄, acetone, xylene, hexane; m.w. 445.63; m.p. 173-179 C; anionic
Toxicology: LD₅₀ (oral, rat) 1900 mg/kg, (IP, rat) 590 mg/kg, (IV, mouse) 60 mg/kg; mod.
toxic by ing., IP routes; poison by IV route;
skin, severe eye irritant; TSCA listed
Hazardous Decomp. Prods.: Heated to
decomps. emits toxic fumes of SOₓ and Na₂O
HMIS: Health 2, Flammability 1, Reactivity 0
Storage: Hygroscopic; preserve in well-closed containers
Uses: Emulsifier, wetting agent, solubilizer in pharmaceuticals, injectables (IM), orals,
topicals, vaginals; adjuvant in tablet formation; stool softener; lubricant, emollient in laxatives

Regulatory: FDA 21CFR §73.1, with cocoa,
131.130, 131.132, 133.124, 133.133, 133.134,
133.162, 133.178, 133.179, 163.114, 163.117,
169.115, 169.150, 172.520, 172.808, 172.810,
175.105, 175.300, 175.320, 176.170, 176.180,
176.210, 177.1200, 177.2800, 178.1010,
178.3400; USDA 9 CFR §318.7, 381.147; FDA
approved for injectables (IM), orals, topicals;
USP/NF, BP, EP compliance; Canada DSL

Manuf./Distrib.: Alco
http://www.alcochemical.com; Aldrich†
http://www.sigma-aldrich.com; Alfa Chem†
http://www.alfachem1.com; Ashland
http://www.ashchem.com; Atlas Refinery
http://www.atlasrefinery.com
Brotherton Ltd
http://www.brotherton.co.uk; Burlington
Chem. http://www.burco.com; Ceres
Chem.† http://www.cereschemical.com/;
Chemax
http://www.chemaxperformancesolutions.com;
Chemical SpA http://www.chemical.com
CoKEM Assoc.; Cognis/Chems. Group
http://www.cognis-us.com; Croda Inc†
http://www.croda.com;
http://www.crodausa.com; Cytec Ind.
http://www.cytec.com; DeForest
Enterprises http://www.deforest.net
EMD Chems.
http://www.emdchemicals.com; Eastern
Finetex http://www.finetexinc.com; Fluka
http://www.sigma-aldrich.com; Functional
Foods† http://www.functionalfoods.com
Chemical Component Cross-Reference

Gallard-Schlesinger Ind.†
http://www.independentchemical.com; Lambent Tech.
http://www.lambentcorp.com; Mallinckrodt
Baker† http://www.mallbaker.com
McIntyre http://www.m McIntyre group.com; Norman, Fox http://www.normofox.com;
Penta Mfg.† http://www.pentamfg.com;
R.W. Greeff† http://www.pechney-chemicals.com; RIA Int'l.†
http://www.riausa.com
RTD Hallstar† http://www.rtdhallstar.com;
Rhodia HPCI li http://www.rhodia-hpcil.com;
Ruger† http://www.rugerchemical.com;
Sigma http://www.sigma-al drich.com/belgium; Spectrum Quality
Prods.† http://www.spectrumchemical.com
Thornley http://www.thornleycompany.com; Uniqema
http://www.uniqema.com; Universal
Preserv-A-Chem†
http://www.upichem.com; Venchem
http://www.venchem.co.uk; Voigt Global
Distrib.† http://www.vgdllc.com

Trade Names: Docusate Sodium USP; OTP-100; Paxanate OT; Paxanate OTL;
Rewopol® SBDO 75
Trade Names Containing: Docusate Sodium USP in Polyethylene Glycol 400 NF; DSS
Granular; DSS Tablet Grade

Diocyl succinate
CAS 2915-57-3; EINECS/ELINCS 220-836-1
Synonyms: Bis (2-ethylhexy l) butanedi olate; Butanedioc acid, bis(2-ethylhexyl) ester;
Di(2-ethylhexyl) suc cinate
Definition: Diester of 2-ethylhexyl alcohol and succinic acid
Empirical: C_{20}H_{38}O_4
Formula: C_{8}H_{17}OCOCH_{2}CH_{2} COOCH_{2}CH_{2}COOC_{8}H_{17}
Properties: Liq.; sol. < 0.01% in water @ 20°C;
dens. 0.9346 (20/20°C); b.p. 257°C (50 mm);
f.p. set to glass < -60°C; flash pt. (OC) 157°C
Toxicology: No known skin toxicity
Uses: Wetting agent in calamine lotion formulation; emollient, film-former,
moisturizer, pigment dispersant/wetting agent in pharmaceuticals
Regulatory: Canada DSL
Trade Names: Wickenol® 159

Diocyl sulfosomusuccinate; Diocyl sul fosuccinate sodium salt. See Diocyl
sodium sulfosuccinate

Diolamine. See Diethanolamine
Dioleic acid, diester with decaglycerol. See Polyglyceryl-10 dioleate
Dioleic acid, diester with hexaglycerol. See Polyglyceryl-6 dioleate
1,4-Dioxacycloheptadecane-5,17-dione. See Ethylene brassylate
1,4-Dioxacyclohexane. See 1,4-Dioxane
2,5-Dioxahexane. See Ethylene glycol dimethyl ether
1,3-Dioxandane. See 1,2-Methylendioxybenzene
Dioxan; 1,4-Dioxan; Dioxane. See 1,4-Dioxane
1,4-Dioxane
CAS 123-91-1; EINECS/ELINCS 204-661-8
UN 1165 (DOT)
Synonyms: Diethylene dioxide; 1,4-Diethylen e dioxide; Diethylene ether; Di (ethylene oxide);
1,4-Diethylen e oxide; 1,4-Dioxy cacyclohexane; Dioxan; 1,4-Dioxan;
Dioxane; Dioxane-1,4; p-Dioxane; p-Dioxin, tetrahydro-;
Dioxyethylen e ether; Ethylene glycol ethylene ether; Glycol ethylene ether;
Tetrahydro-1,4-dioxin; Tetrahydro-p-dioxin
Classification: Sat. cyclic aliphatic ether
Empirical: C_{4}H_{8}O_2
Formula: OCH_{2}CH_{2}OCH_{2}CH_{2}
Properties: Colorless clear liq., ethereal odor;
stable; sol. in water, most org. solvs.; m.w. 88.11; sp.gr. 1.0356 (20/20°C);
b.p. 101.3°C; flash pt. 18.3°C; autoignition temp. 180°C; ref. index 1.4220
Toxicology: ACGIH TLV/TWA 25 ppm (skin);
LD50 (oral, mouse) 5700 mg/kg, (skin, rabbit) 7600 mg/kg; poison by IP route; mod. toxic by inh., ing., absorbed by skin; eye and skin irritant; inh. may cause nose/throat irritation, tearing, and burning; coughing, nausea, vomiting, headache, drowsiness, stomach pains; repeated exposure may cause severe injury or death; target organs: liver, kidneys; carcinogen; tumorigen; teratogen; mutagen; TSCA listed
Environmental: VOC; BOD5 0; ThOD 1.09
Precaution: DOT: Flamm. liq.; dangerous fire risk; stable if properly inhibited; may form explosive peroxides on exposure to air/moisture; incompat. with strong oxidizers, catalytic hydrogen, sulfur trioxide, triethylnaluminum
Hazardous Decomp. Prods.: May form
Dioxane-1,4; p-Dioxane. See 1,4-Dioxane
3,6-Dioxoactane-1,8-diol. See Triethylene glycol
1,1-Dioxide-1,2-benzisothiazol-3(2H)-one sodium salt. See Saccharin sodium anhydrous
1,1-Dioxide tetrahydrothiophuran; 1,1-Dioxidetetrahydrothiophene. See Sulfolane
p-Dioxin, tetrahydro-. See 1,4-Dioxane
2,3-Dioxo-2,3-dihydroindole. See Isatin
(2,5-Dioxo-4-imidazolidinyl) urea. See Allantoin
2,3-Dioxoindoline. See Isatin
Dioxolan. See 2,2-Dimethyl-1,3-dioxolan-4-methanol
1,3-Dioxolane-4-methanol. See Glyceryl

†=pharmaceutical grade

1,3-Dioxolan-2-one. See Ethylene carbonate
1,3-Dioxolan-2-one, 4-methyl. See Propylene carbonate
Dioxolone-2. See Ethylene carbonate
Dioxothiolan; 1,1-Dioxothiolan. See Sulfolane
m-Dioxynbenzene. See Resorcinol
o-Dioxynbenzene. See Pyrocatechol
Dioxyethylene ether. See 1,4-Dioxane
Dioxymethyleneprotocatechuic aldehyde. See Heliotropine
DIPA. See Diisopropyl adipate;
Diisopropanolamine

Dipalmitylolethyl hydroxyethylmonium methosulfate
Synonyms: Hexadecanoic acid, diester with N,N,N-tris (2-hydroxyethyl) methanaminium methyl sulfate
Classification: Quaternary ammonium salt
Formula: [RCO–OCH2CH2N(CH2CH2OH)CH2CH2OCRO]+CH3OSO3–
Properties: Cationic
Uses: Surfactant, emulsifier, conditioner, softener, emollient in pharmaceuticals, skin care prod.
Features: Mild
Trade Names: AMMONYX® GA-90

1,2-Dipalmitoyl-sn-glycero(3) phosphatidylcholine
CAS 2644-64-6
Synonyms: Dipalmityllecithin; L-α-1,2-Dipalmityl phosphatidylcholine; Disaturated phosphatidylcholine; DPPC
Empirical: C5H14NO
Properties: M.w. 104.17
Uses: Emulsifier, solubilizer for dermatology; for mfg. of liposomes and mixed micelles; drug carrier

Dipalmitylolethylchitin; L-α-1,2-Dipalmityl phosphatidylcholine. See 1,2-Dipalmitoyl-sn-glycero(3) phosphatidylcholine
L-α-1,2-Dipalmitoyl-sn-phosphatidylglycerol sodium salt. See Sodium 1,2-dipalmitoyl-sn-glycero (3) phosphatidylcholine
Dipanol; Dipentene (INCI). See dl-Limonene
o-Diphenol. See Pyrocatechol
Diphenyl. See Biphenyl
Diphenylamine, p-amino-. See N-Phenyl-p-phenylenediamine
Chemical Component Cross-Reference

N,N-Diphenyl-1,4-benzenediamine. See N,N′-Diphenyl-p-phenylenediamine

Diphenyl chlorophosphate
CAS 2524-64-3
Synonyms: Diphenyl phosphorochloridate; Diphenyl phosphoryl chloride; DPCP; Phosphorochlorodic acid diphenyl ester
Classification: Aromatic phosphorus compd.
Empirical: C12H10ClO3P
Formula: (C6H5)2P(O)Cl
Properties: Liq.; sol. in inert org. solvs.; hydrolyzes with water; m.w. 268.64; dens. 1.296; b.p. 145-148 C; flash pt. 113 C; ref. index 1.5500
Toxicology: Harmful; causes burns; TSCA listed
Precaution: Corrosive; hydrolyzes on contact with water to form HCl and diphenyl acid phosphate; reacts with alcohols, phenols, amines; mild dehydrating agent
Storage: Moisture-sensitive; store under nitrogen
Uses: Pharmaceutical intermediate

Diphenyl dichlorosilane
CAS 80-10-4; EINECS/ELINCS 201-251-0
UN 1769 (DOT)
Synonyms: Dichlorodiphenylsilane; Diphenylsilicon dichloride; Diphenylsilyle dichloride; Silane, dichlorodiphenyl-
Empirical: C12H10Cl2Si
Formula: (C6H5)2SiCl2
Properties: Colorless liq.; m.w. 253.21; dens. 1.19 (20 C); m.p. -22 C; b.p. 305 C; flash pt. (COC) 142 C; ref. index 1.19 (20 C); m.p. -22 C; b.p. 305 C; flash pt. (COC) 142 C; ref. index 1.5773 (25 C)
Toxicology: LD50 (skin, rabbit) 100 µl/kg; poison; corrosive; causes burns; strong irritant to skin, eyes, mucous membranes; harmful by ing., inh., skin absorp.; extremely destructive to tissue of mucous membranes, upper respiratory tract, eyes, skin; inh. may cause spasm/inflamm./edema of larynx/bronchi; chem. pneumonitis, pulmonary edema; may cause burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, vomiting; TSCA listed
Precaution: Combustible; incompat. with

Diphenyl ether. See Diphenyl oxide
Diphenyl ketone; Diphenyl methanone. See Benzophenone
Di (phenylmethyl) disulfide. See Benzyl disulfide
o-Diphenylol. See o-Phenylphenol

Diphenyl oxide
CAS 101-84-8; EINECS/ELINCS 202-981-2
FEMA 3667
Synonyms: Biphenyl oxide; Diphenyl ether; Geranin crystals; 1,1′-Oxybisbenzene; Phenoxybenzene; Phenyl ether
Classification: Aromatic ether
Empirical: C12H10O
Formula: (C6H5)2O
Properties: Colorless cryst.; geranium odor; sol. in ethanol, benzene, diethyl ether, glacial acetic acid; misc. with oxygenated solvs.; insol. in
Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Water; m.w. 170.21; dens. 1.073; vapor pressure 0.0213 mm Hg; m.p. 26-30 C; b.p. 259 C; flash pt. 96 C; autoignition temp. 618 C; ref. index 1.5790; surf. tens. 38.82 dynes/cm</th>
</tr>
</thead>
</table>

Toxicology: ACGIH TLV/TWA 1 ppm; STEL 2 ppm (vapor); LD50 (oral, rat) 3370 mg/kg; mod. toxic by ing.; harmful vapor; avoid contact and inh.; primary skin and eye irritant; prolonged exposure causes liver/spleen/kidney/thyroid damage, GI upset; target organs: eyes, skin, respiratory system, liver, kidneys, spleen, thyroid; TSCA listed

Environmental: VOC; ThOD 2.63

Precaution: Combustible exposed to heat or flame; LEL 0.8%; UEL 1.5%; can react with oxidizing materials

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 1, Flammability 1, Reactivity 0

Uses: Flavor for pharmaceuticals

Regulatory: FEMA GRAS; Canada DSL

Manuf./Distrib.: ADA Int'l.

http://www.joinme.net/ada/index.htm

Adrian Amer. http://www.adrianusa.com

Advanced Synthesis Tech.

http://www.advancedsynthesis.com

Augustus Oils Ltd http://www.augustus-oils.ltd.uk

Berje http://www.berjeinc.com

D&O http://www.dochem.com

Fluka http://www.sigma-aldrich.com

Fuerst Day Lawson http://www.fdl.co.uk

Haltermann GmbH http://www.haltermann.com


R.C. Treatt & Co. Ltd

http://www.rctreatt.com

SAFC Specialties http://www.safcspecialties.com

Schenectady Herdillia Ltd http://www.siigroup.com/herdillia/index.htm

N,N'-Diphenyl-p-phenylenediamine

CAS 74-31-7; EINECS/ELINCS 200-806-4

Synonyms: 1,4-Bis(phenylamino)benzene; 1,4-Dianilinobenzene; N,N-Diphenyl-1,4-benzenediamine; DPPD

Classification: Aromatic organic compd.; alkylated p-phenylenediamine

Empirical: C_{18}H_{16}N_{2}

Formula: (C_{6}H_{5}NH)_{2}C_{6}H_{4}

Properties: Gray powd.; insol. in water; sol. in acetone, benzene, monochlorobenzene,

†=pharmaceutical grade

isopropyl acetate, DMF, ether, chloroform, ethyl acetate, glacial acetic acid; m.w. 260.36; dens. 1.28; m.p. 145-152 C; b.p. 220-225 C (0.5 mm)

Toxicology: LD50 (oral, rat) 2370 mg/kg, (IP, mouse) 300 mg/kg; poison by intravenous, intraperitoneal routes; moderately toxic by ing.; eye irritant; weak allergen; suspected carcinogen; TSCA listed

Precaution: Combustible; incompat. with oxidizing materials; emits toxic fumes of NOx

Uses: Intermediate for pharmaceuticals

Regulatory: FDA 21CFR §175.105, 175.320, 176.170, 177.2600; Canada DSL

Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com

ChemService http://www.chemservice.com


Fluka http://www.sigma-aldrich.com

R.T. Vanderbilt http://www.rtvanderbilt.com

Seiko Chem.† http://www.seiko-chem.co.jp

Skymart Enterprises; Sumitomo Chem. http://www.sumitomo-chem.co.jp

Diphenyl phosphorochloridate; Diphenyl phosphoryl chloride. See Diphenyl chlorophosphate

1,3-Diphenyl-2-propanone

CAS 102-04-5; EINECS/ELINCS 203-000-0

FEMA 2397

Synonyms: Benzyl ketone; Dibenzyl ketone

Classification: aromatic ketone

Empirical: C_{15}H_{14}O

Formula: (C_{6}H_{5}CH_{2})_{2}CO

Properties: Low-melting solid, bitter almond odor; sol. in ether; insol. in water; m.w. 210.28; m.p. 32-34 C; b.p. 330 C; flash pt. > 230 F

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: Fluka http://www.sigma-aldrich.com

SAFC Specialties http://www.safcspecialties.com

Diphensilicon dichloride; Diphensilsilyl dichloride. See Diphensildichlorosilane

N,N´-Diphenylthiocarbamide, sym-Diphenylthiocarbamide; Diphenylthiourea; 1,3-Diphenylthiourea; 1,3-Diphenyl-2-thiourea. See N,N´-Diphenylthiourea

N,N´-Diphenylthiourea

CAS 102-08-9; EINECS/ELINCS 203-004-2
Chemical Component Cross-Reference

Synonyms: N,N´-Diphenylthiocarbamide; sym-Diphenylthiocarbamide; Diphenylthiourea; 1,3-Diphenylthiourea; 1,3-Diphenyl-2-thiourea; sym-Diphenylthiourea; Sulfocarbanilide; Thiocarbanilide
Classification: Aromatic organic compd.

Empirical: C_{13}H_{12}N_{2}S
Formula: CS(NHC_{6}H_{5})_{2}

Properties: Wh. to faint gray cryst. powd.; bitter taste; sol. in acetone, alcohol, ether, chloroform, oxygenated and chlorinated solvs.; pract. insol. in water; m.w. 228.33; dens. 1.32 (25 C); m.p. 153-154 C; b.p. dec.

Toxicology: LD_{50} (oral, rat) 50 mg/kg, (IP, rat) 1000 mg/kg; mod. toxic by ing. and IP routes; experimental reproductive effector; TSCA listed

Precaution: Combustible

Hazardous Decomp. Prods.: Heated to decomp., emits highly toxic fumes of SO_{x} and NO_{x}

Uses: Synthetic organic pharmaceuticals

Regulatory: FDA 21CFR §175.105, 177.2600, 178.2010; Canada DSL

Manuf./Distrib.: Aldrich† http://www.sigma-aldrich.com; Boehme Filatex http://www.boehmefilatex.com; Charkit http://www.charkit.com; Fluka http://www.sigma-aldrich.com; Ouchi Shinko Chem. Ind.†

sym-Diphenylthiourea. See N,N´-Diphenylthiourea

Diphenphoric acid, calcium salt (1:2). See Calcium pyrophosphate

Diphenphoric acid tetrasodium salt. See Tetrasodium pyrophosphate

Diphenphoric acid, tin salt (1:2); Diphosphoric acid tin (2+) salt. See Stannous pyrophosphate

Dipotassium carbonate. See Potassium carbonate

Dipotassium dichloride. See Potassium chloride

Dipotassium disulfite. See Potassium metabisulfite

Dipotassium EDTA dihydrate

CAS 25102-12-9

Synonyms: Edetate dipotassium; EDTA dipotassium; Ethylenediaminetetraacetic acid, dipotassium salt dihydrate; (Ethylenedinitrilo) tetraacetic acid, dipotassium salt

Classification: Nonaromatic amino acid

†=pharmaceutical grade

Empirical: C_{10}H_{14}K_{2}N_{2}O_{8} • 2H_{2}O

Properties: Wh. powd.; sol. in water; m.w. 404.47; m.p. 272 C (dec.)

Toxicology: Irritating to eyes, skin, respiratory system; TSCA listed

Storage: Store @ R.T. in tightly closed container

Uses: Chelating agent for pharmaceuticals; treatment of lead and heavy metal poisoning of farm animals


Dipotassium glycyrrhizate

CAS 68797-35-3; EINECS/ELINCS 272-296-1

Synonyms: Dipotassium glycyrrhizinate; α-D-Glucopyranosiduronic acid, (3β,20β)-20-carboxy-11-oxo-30-norlean-12-en-3-yl-2-O-β-D-glucopyranuronosyl-, dipotassium salt

Definition: Dipotassium salt of glycyrrhizic acid

Empirical: C_{42}H_{62}O_{16} • 2K

Properties: Pale yel. cryst. powd.; water-sol.

Toxicology: TSCA listed

Uses: Flavor and colorant for pharmaceuticals; anti-inflammatory; anti-allergenic; soothes skin


Trade Names: Nikkol Dipotassium Glycyrrhizinate

Dipotassium glycyrrhizinate. See Dipotassium glycyrrhizate

Dipotassium hydrogen orthophosphate; Dipotassium hydrogen phosphate; Dipotassium monophosphate; Dipotassium orthophosphate. See Potassium phosphate dibasic

Dipotassium persulfate. See Potassium persulfate

Dipotassium phosphate. See Potassium phosphate dibasic

Dipotassium pyrosulfite. See Potassium metabisulfite

Dipotassium L-(+)-tartrate. See Potassium acid tartrate

Dipping acid. See Sulfuric acid

Diisopropanolamine
Dipropyl disulfide. See Propyl disulfide
Dipropylene carbonate. See Propylene carbonate
Dipropylene glycol monosalicylate. See Dipropylene glycol salicylate
Dipropylene glycol, myristyl ether, propionate. See PPG-2 myristyl ether propionate
Dipropylene glycol salicylate
CAS 7491-14-7; 68683-31-8; EINECS/ELINCS 272-070-2
Synonyms: Dipropylene glycol monosalicylate; 2-(2-Hydroxypropyl)-1-methylethyl salicylate; POP (2) monosalicylate; PPG (2) monosalicylate; PPG-2 salicylate
Definition: Ester of dipropylene glycol and salicylic acid
Empirical: C₇H₆O₃ • xC₆H₁₄O₃
Formula: C₃H₆(COOC₆H₄OH)OC₃H₆OH
Properties: Lt. colored oil; fragrant odor; sol. in alcohol; insol. in water; dens. 1.16 (40 C); ref. index 1.52
Uses: Plasticizer, emollient, UV absorber in pharmaceuticals
Regulatory: Canada DSL
Manuf./Distrib.: Ruger
http://www.rugerchemical.com

Dipropyl ketone. See 4-Heptanone
Dipropyl methane. See Heptane
DIPS. See Diisopropyl sebacate
Dirosorcinolphthalein. See Fluorescein
Disaturated phosphatidylycholine. See 1,2-Dipalmitoyl-sn-glycero(3)phosphatidylcholine
DISIDA. See Disofenin
Disiloxane, hexamethyl-. See Hexamethyldisiloxane
Disodium acid phosphate. See Sodium phosphate dibasic anhydrous
Disodium 5-amino-4-hydroxy-3-(phenylaz)naphthalene-2,7-disulfonate. See CI 17200
Disodium ascorbyl sulfate
CAS 53910-28-4
Synonyms: L-Ascorbic acid, sulfate monoester, disodium salt
Definition: Disodium salt of sulfated ascorbic acid
Empirical: C₆H₈O₉S • 2Na
Properties: Water-sol.
Uses: Antioxidant
Trade Names: VC-SS

Disodium butanedioate. See Sodium succinate
Disodium calcium ethylenediaminetetraacetate. See Calcium disodium EDTA
Disodium capryloamphodipropionate
CAS 68815-55-4
Synonyms: Capryloamphocarboxypropionate; Capryloamphodipropionate; Octanamide, N-[2-[N-(2-carboxyethyl)]-N-[2-(2-carboxyethoxy) ethyl] aminoethyl]-, disodium salt
Classification: Organic compd.
Empirical: C₁₉H₃₄N₂O₆ • 2Na
Properties: Amphoteric
Uses: Surfactant
Regulatory: Canada DSL
Trade Names: Miranol® JBS

Disodium carbonate. See Sodium carbonate
Disodium 1-[2-(carboxymethoxy) ethyl]-1-(carboxymethyl)-4,5-dihydro-2-undecyl-1H-imidazolium hydroxide. See Disodium lauroamphodiacetate
Disodium cocoamphodiacetate
CAS 61791-32-0; 68650-39-5; EINECS/ELINCS 263-164-4; 272-043-5
Synonyms: N-Cocamidoethyl-N-2-hydroxyethyl-N-carboxyethylglycine, sodium salt; Cocoamphocarboxyglycinate; Cocoamphodiacetate; Imidazolium compds., 1-[2-(carboxymethoxy) ethyl]-1-(carboxymethyl)-4,5-dihydro-2-norcoco alkyl, hydroxides, sodium salts
Classification: Organic compd.
Formula: RCO–NH(CH₂)₅ON(COO)₂Na₂, RCO–represents the coconut acid radical
Properties: Amphoteric
Toxicology: TSCA listed
Uses: Surfactant, foaming agent, wetting agent, emulsifier, solubilizer, coupling agent for pharmaceuticals
Regulatory: Canada DSL
Manuf./Distrib.: Cosmetic Supplies USA
http://www.cosmeticsuppliesusa.com
Trade Names: Ampholak® XCO-30; Miranol® C2M Conc. NP
Trade Names Containing: Cephalipin

Disodium cocoamphodipropionate
CAS 68411-57-4; 68604-71-7; 68910-41-5; 86438-35-9; EINECS/ELINCS 270-131-8; 271-704-5; 272-897-9
Synonyms: Cocoamphocarboxypropionate;
Cocoamphodipropionate; Imidazolium compds., 1-[2-(2-carboxyethoxy) ethyl]-1(or 3)-(2-carboxyethyl)-4,5-dihydro-2-norcoco alkyl, hydroxides, disodium salts; Sodium cocoamphodipropionate

Classification: Organic compd.

Formula: \( RCO–NH(CH_2)_8ON(COO)\textsubscript{2}Na_2, RCO– \) represents the coconut acid radical

Properties: Amphoteric

Uses: Visc. builder, stabilizer, solubilizer

Manuf./Distrib.: Cosmetic Supplies USA
http://www.cosmeticsuppliesusa.com

Trade Names: Miranol\textsuperscript{®} C2M-SF 70%; Miranol\textsuperscript{®} C2M-SF Conc.

Disodium dihydrogen ethylenediaminetetraacetate. See Disodium EDTA

Disodium 5,5\textsuperscript{-}(2-(1,3-dihydro-3-oxo-2H-indazol-2-ylidene)-1,2-dihydro-3H-indol-3-one) disulfonate. See CI 73015

Disodium (2,4-dimethylphenylazo)-2-hydroxynaphthalene-3,6-disulfonate. See Acid red 26

Disodium 3-((2,4-dimethyl-5-sulfonatophenylazo)-4-hydroxynaphthalene-1-sulfonate. See CI 14700

Disodium 5,7-dinitro-8-oxidonaphthalene-2-sulfonate. See CI 10316

Disodium dithionite. See Sodium peroxide

Disodium dithionate. See Sodium metabisulfite

Disodium hydrosulfite

Disodium 4-dodecyl 2-sulfonatosuccinate. See Disodium lauryl sulfosuccinate

Disodium edetate. See Disodium EDTA

Disodium EDTA

CAS 139-33-3 (anhyd.); 6381-92-6 (dihydrate);
EINECS/ELINCS 205-358-3

INS386

Synonyms: Disodium dihydrogen ethylenediaminetetraacetate; Disodium edetate; Disodium ethylenediamine tetraacetate; Edetate disodium; Ethylenediaminetetraacetic acid, disodium salt; (Ethylenedinitrilato) tetraacetic acid, sodium salt; Glycine, N,N\textsuperscript{-}1,2-ethanediylibis[N-(carboxymethyl)]-, disodium salt dihydrate

Classification: Substituted diamine

Empirical: \( C_{10}H_{14}N_2Na_2O_8 \)

Formula: \( (–OOCCH_2)\textsubscript{2}NCH_2CH_2N(CH_2COO^-)\textsubscript{2}2H^+ \cdot 2Na^+ \)

Properties: Wh. cryst. powd.; odorless; freely sol. in water; m.w. 336.24 (anhyd.); 372.24 (dihydrate); m.p. 252 (dec.); pH 4-6

Toxicology: LD50 (oral, rat) 2 g/kg, (IV, mouse) 56 mg/kg, (IP, mouse) 260 mg/kg; poison by IP and IV route; mod. toxic by ing.; experimental teratogen, reproductive effects; mutagenic data; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NO\textsubscript{x} and Na\textsubscript{2}O

HMIS: Health 2, Flammability 1, Reactivity 0

Storage: Store @ R.T.

Uses: Pharmaceutical aid; chelating agent, complexing agent in pharmaceuticals, injectables, inhalants, intravenous, ophthalmics, orals, otics, rectals, topicals; preservative in nasal drops, decongestants

Regulatory: FDA 21CFR §73.1, 155.200, 169.115, 169.140, 169.150, 172.120, 172.135, 175.105, 176.150, 176.170, 177.1200, 177.2800, 178.1010, 178.3570, 178.3910, 573.360; USDA 9CFR §318.7; Canada DSL; Japan approved (0.25 g/kg max. as calcium disodium EDTA); FDA approved for injectables, inhalants, IV, ophthalmics, orals, otics, rectals, topicals; USP/NF, BP, EP compliance

Manuf./Distrib.: AMRESCO
http://www.amresco-inc.com; Aldrich
http://www.sigma-aldrich.com; Am. Int'l.
http://www.aicma.com; Avatar
http://www.avatarchempor.com; Bimal Pharma Chem
Chemacon GmbH
http://www.chemacon.de; EMD Chems
http://www.emdchemicals.com; Fluka
http://www.sigma-aldrich.com; Functional Foodst
http://www.functionalfoods.com; Hampshire
http://www.hampshire-chemical.com
Integra
http://www.integrachem.com; Jarchem Ind.
http://www.jarchem.com; Mallinckrodt Baker
http://www.mallbaker.com; Penta Mfg.
http://www.pentamfg.com; R.W. Greeff
http://www.pechiney-chemicals.com; Ruger
http://www.rugerchemical.com; Sigma
http://www.sigma-aldrich.com/belgium; Spectrum Quality Prods.
http://www.spectrumchemical.com; Universal Preserv-A-Chem
http://www.upichem.com; VWR Int'l.
http://www.vwrsp.com
### Chemical Component Cross-Reference

| Voigt Global Distrib.† | http://www.vgdllc.com |
| Trade Names: Dissolvine® NA-2-P; Protacide™ NA2 P; Versene NA; Versene Na2 |
| Regulatory: |
| Empirical: |
| Toxicology: |
| Properties: |
| Formula: Na2C10H12N5O8P • 2HOH |
| Trade Name: Disodium guanylate. See Disodium guanylate |
| Disodium hydrogen orthophosphate; Disodium hydrogen phosphate. See Sodium phosphate dibasic anhydrous |
| Disodium hydrogen phosphate heptahydrate. See Sodium phosphate dibasic heptahydrate |
| Disodium 6-hydroxy-5-[(2-methoxy-4-sulfonato-m-tolyl) azo] naphthalene-2-sulfonate. See Cl 16035 |
| Disodium 3-hydroxy-4-[(4-methyl-2-sulfonatophenyl) azo]-2-naphthoate. See Cl 15850 |
| Disodium 1-[2-[(12-hydroxy-1-oxooctadec-9-enyl) amino] ethyl] 2-sulfosuccinate. See Disodium ricinoleamido MEA-sulfosuccinate |
| Disodium-6-hydroxy-3-oxo-9-xanthene-o-benzoate. See D&C Yellow No. 8; Fluorescein sodium |
| Disodium 6-hydroxy-5-[(4-sulfonatophenyl) azo] naphthalene-2-sulfonate. See Cl 15985 |
| Disodium IMP. See Disodium inosinate |
| Disodium indigo-5,5-disulfonate. See FD&C Blue No. 2; Acid blue 74 |
| Disodium inosinate CAS 4691-65-0 |
| FEMA 3669; INS631; E631 |
| Synonyms: Disodium IMP; Disodium 5´-inosinate; Disodium inosine 5´-monophosphate; Disodium inosine-5´-phosphate; IMP; IMP disodium salt; IMP sodium salt; Inosine 5´-disodium phosphate; Inosine-5´-monophosphate disodium; Sodium inosinate; Sodium 5´-inosinate |
| Definition: A 5´-nucleotide derived from seaweed or dried fish |
| Empirical: C10H11N4O8P • 2Na |
| Properties: Colorless to wh. cryst., char. taste; sol. in cold water, very sol. in hot water; sl. sol. in alcohol; insol. in ether; m.w. 407.18 |
| Toxicology: LD50 (oral, mouse) 15 g/kg, (IP, rat) 3880 mg/kg, (subcut., rat) 3400 mg/kg, (IV, rat) 2720 mg/kg; mod. toxic by IP, subcut., IV routes; mildly toxic by ing.; mutagenic data; TSCA listed |
| Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of POx, NOx, Na2O |
| Storage: Moisture-sensitive; keep under argon |
| Uses: Flavor for pharmaceuticals; in eye drops for treatment of corneal damage |
| Regulatory: FDA 21CFR §155.120, 155.130, 155.170, 155.200, 155.201, 170.60, 172.530; USDA 9CFR §318.7, 381.147; FEMA GRAS; Japan approved; Europe listed; UK approved; Canada DSL |

**Disodium guanylate**

**CAS 5550-12-9 (anhyd.)**

**FEMA 3668; INS627; E627**

**Synonyms:** Disodium GMP; Disodium guanosine-5´-monophosphate; Disodium 5´-guanylate

**Empirical:** C10H12N5O8P • 2Na

**Formula:** Na2C10H12N5O8P • 2NaOH

**Properties:** Colorless to wh. cryst., char. taste; sol. in cold water, very sol. in hot water; sl. sol. in alcohol; insol. in ether; m.w. 407.18

**Toxicology:** LD50 (oral, mouse) 15 g/kg, (IP, rat) 3880 mg/kg, (subcut., rat) 3400 mg/kg, (IV, rat) 2720 mg/kg; mod. toxic by IP, subcut., IV routes; mildly toxic by ing.; mutagenic data; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of POx, NOx, Na2O

**Storage:** Moisture-sensitive; keep under argon

**Uses:** Flavor for pharmaceuticals; in eye drops for treatment of corneal damage

**Regulatory:** FDA 21CFR §155.120, 155.130, 155.170, 155.200, 155.201, 170.60, 172.530; USDA 9CFR §318.7, 381.147; FEMA GRAS; Japan approved; Europe listed; UK approved; Canada DSL

Chemical Component Cross-Reference

†=pharmaceutical grade

Properties: Amphoteric
Toxicology: TSCA listed
Uses: Visc. control agent, surfactant
Trade Names: Colateric J49

Disodium laureth sulfo succinate
CAS 13192-12-6; 19040-44-9; 26838-05-1; 36409-57-1; EINECS/ELINCS 236-149-5; 248-030-5
Synonyms: Disodium 4-dodecyl 2-sulfonatosuccinate; Sulfo butanedioic acid, 1-dodecyl ester, disodium salt
Definition: Disodium salt of a lauryl alcohol half ester of sulfo succinic acid
Empirical: C_{16}H_{28}Na_{2}O_{7}S
Properties: Wh. liq. or solid; m.w. 410.43; anionic
Toxicology: TSCA listed
Uses: Surfactant, foaming agent for pharmaceuticals
Features: High-foaming
Regulatory: Canada DSL
Manuf./Distrib.: DeWolf Chem.
http://www.dewolfchem.com

Disodium 4,4′-methylenebis3-hydroxy-2-naphthoate. See Disodium pamoate
Disodium 4-[1-methyl-2-[(1-oxooctadec-9-enyl) amino] ethyl] 2-sulfonatosuccinate. See Disodium oleamido MIPA-sulfosuccinate
Disodium monofluorophosphate. See Sodium fluorophosphate
Disodium monohydrogen orthophosphate; Disodium monohydrogen phosphate. See Sodium phosphate dibasic anhydrous
Disodium monoo leamido MIPA-sulfosuccinate. See Disodium oleamido MIPA-sulfosuccinate
Disodium oleamido diglycol sulfo succinate. See Disodium oleamido PEG-2 sulfo succinate
Disodium oleamido MIPA-sulfosuccinate
CAS 43154-85-4; 67815-88-7; EINECS/ELINCS 256-120-0; 267-199-6
Synonyms: Butanedioic acid, sulfo-, 1-[1-methyl-2-[(1-oxooctadec-9-enyl) amino] ethyl] ester, disodium salt; Butanedioic acid, sulfo-, 4-[1-methyl-2-[(1-oxooctadec-9-enyl) amino] ethyl] ester, disodium salt; Disodium 4-[1-methyl-2-[(1-oxooctadec-9-enyl) amino] ethyl] 2-
Chemical Component Cross-Reference

†=pharmaceutical grade

**sulfonatosuccinate**; **Disodium monoolemido MIPA-sulfosuccinate**; **Disodium oleic monoisopropanolamide sulfosuccinate**; **Disodium oleoyl isopropanolamide sulfosuccinate**; **Oleoyl monoisopropanolamide disodium sulfosuccinate**; **Sulfobutanedioic acid, 4-[1-methyl-2-[(1-oxo-9-octadecenyl) amino] ethyl] ester, disodium salt**

Classification: Sulfosuccinate

Definition: Disodium salt of a substituted isopropanolamide half ester of sulfosuccinic acid

Empirical: \( \text{C}_{25}\text{H}_{43}\text{Na}_{2}\text{NO}_{8}\text{S} \)

Properties: Amber liq.; m.w. 549.65; anionic

Toxicology: TSCA listed

Uses: Surfactant

Regulatory: FDA 21CFR §175.105, 176.170; Canada DSL

Trade Names: **Fizul MD-318C**

**Disodium oleamido PEG-2 sulfosuccinate**

CAS 56388-43-3; 68227-80-5; EINECS/ELINCS 260-143-1; 269-392-0


Definition: Disodium salt of the monooleyl amide of the PEG-2 half ester of sulfosuccinic acid

Empirical: \( \text{C}_{26}\text{H}_{47}\text{NO}_{9}\text{S} \cdot 2\text{Na} \)

Properties: Anionic

Uses: Surfactant, cleanser, foaming agent for pharmaceuticals

Features: Mild; skin-friendly

Trade Names: **Rewopol® SB Z**

**Disodium PEG-4 coca monoolemido MIPA sulfosuccinate**

**Disodium peroxide**. See Sodium peroxide

**Disodium phosphate**. See Sodium phosphate dibasic anhydrous

**Disodium phosphate heptahydrate**. See Sodium phosphate dibasic heptahydrate

**Disodium phosphofluoridate**. See Sodium fluorophosphate

**Disodium phosphoric acid**. See Sodium phosphate dibasic anhydrous

**Disodium pyrosulfite**. See Sodium metabisulfite

**Disodium ricinoleamido MEA-sulfosuccinate**

**Disodium ricinoleamido MEA-sulfosuccinate**

CAS 6640-22-8

Synonyms: Disodium 4,4'-methylenebis3-hydroxy-2-naphthoate; 4,4'-Methylenebis(3-hydroxy-2-naphthoic acid) disodium salt; Pamoic acid, disodium salt

Empirical: \( \text{C}_{23}\text{H}_{14}\text{O}_{6}\text{Na}_{2} \)

Properties: Yel. to tan powd.; m.w. 432.34; m.p. 300 C

Uses: Masks bitter taste in pharmaceutical prods.; permits slow release of active drugs; prod. of pamoate salts

Manuf./Distrib.: Aceto† http://www.aceto.com

**Disodium pamoate**

**Disodium phosphate**. See Sodium phosphate dibasic anhydrous

**Disodium phosphate heptahydrate**. See Sodium phosphate dibasic heptahydrate

**Disodium phosphofluoridate**. See Sodium fluorophosphate

**Disodium phosphoric acid**. See Sodium phosphate dibasic anhydrous

**Disodium pyrosulfite**. See Sodium metabisulfite

**Disodium ricinoleamido MEA-sulfosuccinate**

CAS 40754-60-7; 65277-54-5; 67893-42-9; EINECS/ELINCS 267-617-7; 265-672-1


**Disodium ricinoleamido MEA-sulfosuccinate**

CAS 40754-60-7; 65277-54-5; 67893-42-9; EINECS/ELINCS 267-617-7; 265-672-1


**Disodium ricinoleamido MEA-sulfosuccinate**

CAS 40754-60-7; 65277-54-5; 67893-42-9; EINECS/ELINCS 267-617-7; 265-672-1

Chemical Component Cross-Reference

†=pharmaceutical grade

Disofenin
CAS 65717-97-7
Synonyms: N-[[2,6-
Diisopropylphenyl]carbamoyl]-
methyl]iminodiacetic acid; DISIDA; Glycine,
N-[2-[2,6-bis(1-methylphenyl)amino]-
2-oxoethenyl]-N-(carboxymethyl)-

Definition: A diisopropyl-substituted analogue of
iminodiacetic acid
Empirical: C₁₉H₂₆N₂O₅
Properties: Wh. crystals; sol in DMSO and
ethanol
Uses: Used in injectables (IV, infusion)
Regulatory: FDA approved for injectables (IV,
infusion)

Manuf./Distrib.: Sigma http://www.sigma-
aldrich.com/belgium

Disperse blue 72
CAS 81-48-1; EINECS/ELINCS 201-353-5
Synonyms: Alizuroil purple SS; CI 60725; D&C
Violet No. 2; N-(4-Hydroxy-1-
anthaquinonyl)-4-methylaniline; N-(4-
Hydroxy-1-anthaquinonyl)-p-toluidine; 1-
Hydroxy-4-[4-methylphenyl] amino]-9,10-
anthracenedione; 1-Hydroxy-4-(p-toluidino)
anthraquinone; Solvent violet 13; N-(p-
Tolyl)-4-hydroxy-1-anthaquinonylamine
Classification: Anthraquinone color
Empirical: C₂₁H₁₅NO₃
Properties: Dull bluish violet cryst.; sol. in conc.
H₂O₄; m.w. 329.35
Toxicology: LD₅₀ (intratracheal, rat) 250
mg/kg; poison by intratracheal
route; mutagenic data; TSCA listed
Hazardous Decomp. Prods.: Heated to
decomp., emits toxic fumes of NOₓ
Uses: Colorant for external pharmaceuticals
Regulatory: D&C Violet No. 2: FDA 21CFR
§74.1602, 74.2602, 74.3602, 82.1602

Manuf./Distrib.: Aakash Chems. & Dyestuffs
http://www.aakashchemicals.com; Carey
Ind. http://www.careyind.com; Keystone
Aniline http://www.dyes.com; Noveon
http://www.carbopol.com;
http://www.noveoncoatings.com; Org.
Dyestuffs http://www.organicdye.com
Passaic Color & Chem.
http://www.royceintl.com; Rainbow
http://www.rainbowchemicals.com;
Sensient Tech. Colors
http://www.triconcolors.com; Shreya

Handbook of Pharmaceutical Additives, Third Edition 1267
Distarch phosphate
CAS 55963-33-2; 977088-74-6; 977088-75-7
INS1412; E1412
Synonyms: Phosphate crosslinked starch
Classification: Food starch modified
Definition: Prod. from crosslinking of starch with sodium metaphosphate, sodium trimetaphosphate, or phosphorus oxychloride
Properties: Wh. or nearly wh. powd. or gran.; flakes, amorphous powd. or coarse particles if pregelatinized
Toxicology: No known toxicity
Uses: Absorbable dusting powd. for surgical gloves; production aid, filler, carrier for pharmaceuticals; water softener, sequestrant, and texturizer in dandruff shampoos
Regulatory: FDA 21CFR §175.105; Canada DSL
Manuf./Distrib.: AB R Lundberg http://www.norfoods.se/lundberg

Distearic acid, diester with hexaglycerol. See Polyglyceryl-6 distearate

N,N´-Distearoylethlenediamine. See Ethylene distearamide

1,2-Distearoyl-sn-glycero(3) phosphatidylcholine
CAS 816-94-4; EINECS/ELINCS 212-440-2
Synonyms: L-α,1,2-Distearoylphosphatidylcholine; DSPC
Classification: Phospholipid
Empirical: C₄₄H₈₈NO₈P
Properties: Wh. to off-wh. solid; m.w. 790.16
Precaution: Incompatible with strong oxidizing agents
HMIS: Health 1, Flammability 0, Reactivity 0
Storage: Sore @ -20 C
Uses: Emulsifier, solubilizer for dermatology; for mfg. of liposomes and mixed micelles
Manuf./Distrib.: Genzyme http://www.genzyme.com; Sigma http://www.sigma-aldrich.com/belgium

1,2-Distearoyl-sn-glycero(3)phosphoglycerol sodium salt. See Sodium 1,2-distearoyl-sn-glycero (3) phosphatidylcholine

L-α,1,2-Distearoylphosphatidylcholine. See 1,2-Distearoyl-sn-glycero(3) phosphatidylcholine

†=pharmaceutical grade

Distearyl dimethyl ammonium chloride. See Distearyldimonium chloride

Distearyldimonium chloride
CAS 107-64-2; EINECS/ELINCS 203-508-2
Synonyms: Ammonium, dimethyldioctadecyl-, chloride; Dimethyldioctadecylammonium chloride; N,N-Dimethyl-N-octadecyl-1-octadecanaminium chloride; Dioctadecyl dimethyl ammonium chloride; Distearyl dimethyl ammonium chloride; Octadecanaminium, N,N-dimethyl-N-octadecyl-, chloride; Quaternium-5
Classification: Quaternary ammonium salt
Empirical: C₃₈H₇₆N • Cl
Properties: Paste; m.w. 586.52; m.p. 36-44 C; cationic
Toxicology: LD50 (oral, rat) 11,300 mg/kg; mildly toxic by ing.; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits toxic vapors of NOₓ and Cl⁻
Uses: Visc. builder in pharmaceuticals
Regulatory: FDA 21CFR §172.710, 177.1200; Canada DSL
Manuf./Distrib.: Fluka http://www.sigma-aldrich.com

Distearyl ketone. See Stearone

Distearyl phthalic acid amide
Uses: Surfactant for pharmaceuticals; emulsifier, suspending agent for triglycerides, min. oil, and silicones
Trade Names: STEPAN® SAB-2

Distearoyl thiodipropionate
CAS 693-36-7; EINECS/ELINCS 211-750-5
INS390
Synonyms: Dioctadecyl thiodipropionate; 3,3´-Dioctadecyl thiodipropionate; Di-n-octadecyl 3,3´-thiodipropionate; Distearyl 3,3´-thiodipropionate; Distearyl β-thiodipropionate; Distearyl β,β´-thiodipropionate; Distearyl thiopropionate; DSTDP; DSTP; Propanoic acid, 3,3´-thiobis-, dioctadecyl ester; Propionic acid, 3,3´-thiobis-, dioctadecyl ester; 3,3´-Thiobispropanoic acid, dioctadecyl ester; Thiodipropionic acid, distearyl ester
Classification: Aliphatic organic compd.; thioether
Definition: Diester of stearyl alcohol and 3,3´-thiodipropionic acid
Empirical: C₄₂H₆₂O₄S
Formula: (C₁₈H₃₇OOCCH₂CH₂)₂S
Properties: Wh. flakes; insol. in water; sol. in...
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of SOx
Uses: Antioxidant for pharmaceuticals
Regulatory: FDA 21 CFR §175.105, 175.300, 181.22, 181.24 (0.005% migrating from food pkg.); Canada DSL


Distearyl 3,3´-thiodipropionate; Distearyl β-thiodipropionate; Distearyl β,β´-thiodipropionate; Distearyl thiopropionate. See Distearyl thiodipropionate

Disteardimonium hectorite
CAS 97280-96-1; EINECS/ELINCS 306-493-1
Synonyms: 1-Octadecanaminium, N,N-dimethyl-N-octadecyl-, chloride, reaction products with hectorite
Uses: Suspending agent
Trade Names Containing: Bentone Gel® EUG V

Distilled lime oil. See Lime (Citrus aurantifolia) oil
Distilled spirits. See Alcohol
Disulfide dibenzyl. See Benzyl disulfide
Disulfide, di-2-propenyl. See Allyl disulfide
Disulfurous acid dipotassium salt. See Potassium metabisulfite
Disulfurous acid disodium salt. See Sodium metabisulfite
1,2-Ditetradecanoyl-sn-glycero-3-phosphocholine. See 1,2-Dimyristoyl-sn-glycero(3) phosphatidylcholine
Ditetradecyl 3,3´-thiobispropanoate; †=pharmaceutical grade

Dithiothreitol
CAS 3483-12-3; EINECS/ELINCS 240-263-0
Synonyms: 2,3-Butanediol, 1,4-dimercapto-, D-threo; Cleland's reagent; 1,4-Dithiothreitol; 1,4-Dithio-L-threitol; D-1,4-Dithiothreitol; DTT; D-DTT; D-Threo-1,4-dimercapto-2,3-butanediol
Empirical: C4H10O2S2
Properties: Solid; m.w. 154.26; m.p. 42-43.5 C; b.p. 115-116 (1 mm)
Toxicology: LD50 (IP, mouse) 154 mg/kg, (intramuscular, mouse) 108 mg/kg; poison by IP and intramuscular routes; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of SOx
Uses: Reducing agent for proteins and enzymes, biochemical research; drug
Regulatory: Canada DSL


1,4-Dithiothreitol; 1,4-Dithio-L-threitol; D-1,4-Dithiothreitol. See Dithiothreitol
Ditip diphasphate. See Stannous pyrophosphate
1,4-Di-p-toluidinoantraquinone. See D&C Green No. 6; Solvent green 3

Ditridecyl thiodipropionate
CAS 10595-72-9; EINECS/ELINCS 234-206-9
Synonyms: Ditridecyl 3,3'-thiodipropionate; DTDTP; 3,3'-Tetramethylmononyl thiodipropionate; 3,3'-Thiobispropanoic acid, ditridecyl ester; Thiodipropionic acid ditridecyl ester
Classification: Thioether
Definition: Diester of tridecyl alcohol and 3,3'-thiodipropionic acid
Empirical: C_{32}H_{62}O_{4}S
Formula: S(CH_{2}CH_{2}COOC_{13}H_{27})_{2}
Properties: Colorless mobile liq.; sol. in most org. solvs., oxygenated solvs.; sl. sol. in methanol; insol. in water; m.w. 542.91; dens. 0.936; m.p. < -24 C; b.p. 265 C (0.25 mm); flash pt. > 110 C
Toxicology: LD_{50} (oral, rat) > 10 ml/kg, (skin, rabbit) > 5 ml/kg; TSCA listed
Precaution: Combustible
Uses: Antioxidant, stabilizer, plasticizer, and softener for pharmaceuticals
Regulatory: Canada DSL
Manuf./Distrib.: Aldrich†; http://www.sigma-aldrich.com; Cytec Ind.; http://www.cytec.com; Hampshire; http://www.hampshire-chemical.com

Ditridecyl 3,3'-thiodipropionate. See Ditridecyl thiodipropionate
Di (trimethylsilyl) amine. See Hexamethyldisilazane

Dittany of Crete
CAS 977017-92-7
FEMA 2399
Synonyms: Cretan dittany; Origanum dictamnus; Spanish hops
Definition: From Origanum dictamnus
Properties: Intense pleasant odor, bitter aromatic flavor
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.510; FEMA GRAS

Diuretic salt. See Potassium acetate
Divinylbenzene; 1,3-Divinylbenzene. See m-Divinylbenzene
m-Divinylbenzene
CAS 108-57-6
Synonyms: Benzene, 1,3-diethenyl-; Benzene, m-divinyl; Divinylbenzene; 1,3-Divinylbenzene; DVB; m-Vinylstyrene

Empirical: C_{10}H_{10}
Properties: Pale straw-colored liq.; sol. in ether, methanol; insol. in water; m.w. 130.19; dens. 0.90 kg/l (22% sol'n.); m.p. -87 C; b.p. 180 C; flash pt. 173.9 C
Toxicology: ACGIH TLV/TWA 10 ppm; primary irritant; eye irritant; TSCA listed
Precaution: Combustible; sol'n. contg. higher DVB concs. polymerize explosively
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
NFPA: Health 1, Flammability 2, Reactivity 2
Uses: Pharmaceuticals (polymers for enzyme immobilization, dental cements, prostheses)
Manuf./Distrib.: Deltech; http://www.deltechcorp.com; Varsal Instruments; http://www.varsal.com
Trade Names: DVB 55; DVB 63; DVB HP

Divinylene oxide. See Furan
Divinylene sulfide. See Thiophene
Divinylbenzene. See Pyrrole
Diydrocarvyl acetate. See Dihydrocarvyl acetate
DKP. See Potassium phosphate dibasic
DLT; DLTDP; DLTP. See Dilauryl thiodipropionate
DMA; DMAC. See Dimethyl acetamide
DMAE. See Dimethylethanolamine
DMB. See p-Dimethoxybenzene
DMBC. See Dimethylbenzyl carbinoxil
DMBCA. See Dimethylbenzyl carbinoxil acetate
DMBC butyrate. See α,α-Dimethylenephenthyl butyrate
DMBC formate. See α,α-Dimethylenephenthyl formate
DMC. See Dimethylaminoethyl chloride hydrochloride
DMDH; DMDMH. See DMDM hydantoin
DMDM hydantoin
CAS 6440-58-0; EINECS/ELINCS 229-222-8
Synonyms: Bis (hydroxymethyl)-5,5-dimethylhydantoin; 1,3-Bis (hydroxymethyl)-5,5-dimethylimidazolidinedione; 1,3-Bis (hydroxymethyl)-5,5-dimethylimidazolidinedione-2,4-dione; Bis (hydroxymethyl)-5,5-dimethyl-2,4-imidazolidinedione; 1,3-Di (hydroxymethyl)-5,5-dimethylhydantoin; Dimethyol dimethyl hydantoin; 1,3-Dimethyl-5,5-dimethylhydantoin; Dimethyl-5,5-dimethylhydantoin; DMDH;
<table>
<thead>
<tr>
<th>Chemical Component Cross-Reference</th>
<th>†=pharmaceutical grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>DMDMH: Hydantoin, 1,3-bis (hydroxymethyl)-5,5-dimethyl-</td>
<td>Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx</td>
</tr>
<tr>
<td>Imidazolidinedione, 1,3-bis (hydroxymethyl)-5,5-dimethyl-</td>
<td>Uses: Used in the manufacture of anticonvulsant drugs such as phenytoin, ethotoin, and methyphenytoin</td>
</tr>
<tr>
<td>2,4-Imidazolidinedione, 1,3-bis (hydroxymethyl)-5,5-dimethyl-</td>
<td>Regulatory: Canada DSL</td>
</tr>
<tr>
<td>Classification: Organic compd.</td>
<td></td>
</tr>
<tr>
<td>Empirical: C7H12N2O4</td>
<td></td>
</tr>
<tr>
<td>Properties: M.w. 188.21</td>
<td></td>
</tr>
<tr>
<td>Toxicology: LD50 (oral, rat) 2 g/kg; primary irritant; TSCA listed</td>
<td></td>
</tr>
<tr>
<td>Precaution: May release formaldehyde</td>
<td></td>
</tr>
<tr>
<td>Uses: Antimicrobial, preservative for pharmaceuticals, topicals</td>
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</tr>
<tr>
<td>Regulatory: USA CIR approved, EPA registered; Europe listed 0.6% max.; FDA approved for topicals; Canada DSL</td>
<td></td>
</tr>
<tr>
<td>Manuf./Distrib.: Acme-Hardesty†</td>
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<tr>
<td></td>
<td><a href="http://www.acme-hardesty.com">http://www.acme-hardesty.com</a>; High Polymer Labs</td>
</tr>
<tr>
<td></td>
<td><a href="http://www.highpolymerlabs.com">http://www.highpolymerlabs.com</a>; Jan Dekker BV <a href="http://www.jandekker.com">http://www.jandekker.com</a></td>
</tr>
<tr>
<td>Trade Names Containing: Dantogard® Plus DMDM; Protacide™ DMDM; Protacide™ DMDMH</td>
<td></td>
</tr>
<tr>
<td>Trade Names Containing: Dantogard® Plus Liq.</td>
<td></td>
</tr>
<tr>
<td>DMDS. See Methyl disulfide</td>
<td></td>
</tr>
<tr>
<td>DME. See Ethylene glycol dimethyl ether</td>
<td></td>
</tr>
<tr>
<td>DMEA. See Dimethylethanolamine</td>
<td></td>
</tr>
<tr>
<td>α,α-Dimethyl benzyl 2-methyl propanoate.</td>
<td></td>
</tr>
<tr>
<td>See α,α-Dimethylbenzyl isobutyrate</td>
<td></td>
</tr>
<tr>
<td>2,3-Dimethyl-2-butenoic acid benzyl ester.</td>
<td></td>
</tr>
<tr>
<td>See Benzyl 2,3-dimethylcrotonate</td>
<td></td>
</tr>
<tr>
<td>DMF; DMFA. See Dimethyl formamide</td>
<td></td>
</tr>
<tr>
<td>DMH. See DM hydantoin</td>
<td></td>
</tr>
<tr>
<td>DMHQ. See p-Dimethoxybenzene</td>
<td></td>
</tr>
<tr>
<td>DM hydantoin</td>
<td></td>
</tr>
<tr>
<td>CAS 77-71-4; EINECS/ELINCS 201-051-3</td>
<td></td>
</tr>
<tr>
<td>Synonyms: Dimethylhydantoin; 5,5-Dimethyl hydantoin; 5,5-Dimethyl-2,4-imidazolidinedione; DMH; 2,4-Imidazolidinedione, 5,5-dimethyl-</td>
<td></td>
</tr>
<tr>
<td>Classification: Organic compd.</td>
<td></td>
</tr>
<tr>
<td>Empirical: C10H10N2O2</td>
<td></td>
</tr>
<tr>
<td>Formula: HNCONHCOC(CH3)2</td>
<td></td>
</tr>
<tr>
<td>Properties: Wh. cryst. solid; sol. in water, alcohol, ether, oxygenated solvs.; m.w. 128.13; m.p. 178 C</td>
<td></td>
</tr>
<tr>
<td>Toxicology: LD50 (oral, rat) 7800 mg/kg, (subcut., mouse) 2800 mg/kg; mod. toxic by subcut. route; mildly toxic by ing.; CNS depressant; TSCA listed</td>
<td></td>
</tr>
<tr>
<td>1-Docosanaminium, N,N,N-trimethyl-, methosulfate. See Behentrimonium</td>
<td></td>
</tr>
</tbody>
</table>
Chemical Component Cross-Reference

methosulfate
Docosanoic acid. See Behenic acid
Docosanoic acid, 2,3-dihydroxypropyl ester. See Glycerol behenate
Docosanoic acid, docosyl ester. See Behenyl behenate
Docosanoic acid, dodecyl ester. See Lauryl behenate
Docosanoic acid, isocetyl ester. See Isocetyl behenate
Docosanoic acid, isoctadecyl ester. See Isostearyl behenate
Docosanoic acid, 2-octyldodecyl ester. See Octyldodecyl behenate
Docosanoic acid, 1,2,3-propanetriyl ester. See Tribehenin
1-Docosanol. See Behenyl alcohol
Docos-13-enoic acid; 13-Docosenoic acid, (Z)-; cis-13-Docosenoic acid; δ-13:14-Docosenoic acid; δ-(13)-cis-Docosenoic acid; (Z)-13-Docosenoic acid. See Erucic acid
Docosyl docosanoate. See Behenyl behenate
Docosyltrimethylammonium methyl sulfate. See Behentrimonium methosulfate
Docusate calcium. See Dioctyl calcium sulfosuccinate
Docusate sodium. See Dioctyl sodium sulfosuccinate
Dodecahydro-1,4a-dimethyl-7-(1-methylethyl)-1-phenanthrenemethanol. See Hydroabietyl alcohol
Dodecahydrosqualene. See Squalane
δ-Dodecalactone
CAS 713-95-1; EINECS/ELINCS 211-932-4
FEMA 2401
Synonyms: Dodecan-5-olide; 5-Hydroxydodecanoic acid, δ-lactone
Classification: Nonaromatic lactone
Definition: Obtained by lactonization of 5-hydroxydodecanoic acid
Empirical: C_{12}H_{22}O_2
Properties: Colorless to very pale straw-yel. visc. liq., fresh-fruit oily odor; sol. in alcohol, propylene glycol, veg. oil; insol. in water; m.w. 198.31; dens. 0.942; m.p. -12 C; b.p. 140-141 C (1 mm); flash pt. > 230 F; ref. index 1.4600
Toxicology: LD_{50} (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; primary irritant; TSCA listed
Precaution: Combustible liq.; wear safety glasses or goggles, rubber gloves, apron; incompat. with strong oxidizers, reducers
Hazardous Decomp. Prods.: Heated to decomp., emits CO, CO_2, acrid smoke and irritating fumes
Uses: Synthetic flavor for pharmaceuticals
Features: Coconut, peach-like flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI

γ-Dodecalactone
CAS 2305-05-7; EINECS/ELINCS 218-971-6
FEMA 2400
Synonyms: Dodecanolide-1,4; 2(3H)-Furanone, dihydro-5-octyl-; 4-Hydroxydodecanoic acid γ-lactone; γ-Octyl-γ-butyrolactone; γ-n-Octyl-γ-n-butyrolactone
Classification: Nonaromatic lactone
Empirical: C_{12}H_{22}O_2
Properties: Colorless oily liq., fatty peachy odor, butter peach-like flavor; sol. in alcohol; insol. in water; m.w. 198.31; dens. 0.936; m.p. 17-18 C; b.p. 258 C; ref. index 1.4520
Toxicology: Primary skin irritant; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating vapors
Uses: Synthetic flavor for pharmaceuticals
Features: Fruity flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Chemical Component Cross-Reference

Manuf./Distrib.: Acme-Hardesty
   Axxence Aromatic GmbH http://www.axxence.com;
   http://www.axxence.de; Citrus and Allied Essences http://www.citrusandallied.com;
   De Monchy Aromatics http://www.demonchyaromatics.com;
   Eramex Aromatics http://www.eramex.de;
   Lluch Essence http://www.lluch-essence.com

Dodecamethylcyclohexasiloxane
CAS 540-97-6
Synonyms: Cyclic VMS; Cyclic volatile methyl siloxane; Cyclohexasiloxane, dodecamethyl-
Classification: Volatile methyl siloxane
Empirical: C₁₂H₃₆O₆Si₆
Properties: Insol. in water; m.w. 444.93; dens. 0.95; m.p. -3°C; b.p. 245°C; flash pt. > 76°C
Uses: Delivery system for pharmaceuticals
Regulatory: Canada DSL
Trade Names Containing: Melarrest™ L
See also Cyclomethicone

Dodecanal; 1-Dodecanal; n-Dodecanal. See Lauric aldehyde
1-Dodecanaminium, N,N-dimethyl-N-(2-phenoxyethyl)-, bromide. See Domiphen bromide
Dodecanaminium, N,N-dimethyl-N-(3-(wheat-protein-hydrolysate) propyl)-, chloride. See Laurdimonium hydroxypropyl hydrolyzed wheat protein
Dodecanedioic acid diethyl ester. See Diethyl sebacate
Dodecanoic acid; n-Dodecanoic acid. See Lauric acid
Dodecanoic acid, 2,2-bis [[(1-oxododecyl oxy) methyl-1,3-propanediyl ester. See Pentaeerythrityl tetralaurate
dodecanoic acid butyl ester. See Butyl

†=pharmaceutical grade

Dodecanoic acid, diester with 1,2,3-propanetriol. See Glyceryl dilaurate
Dodecanoic acid, 2,3-dihydroxypropyl ester. See Glyceryl laurate
Dodecanoic acid 1,2-ethanediyl ester. See Glycol dilaurate
Dodecanoic acid, ethyl ester. See Ethyl laurate
Dodecanoic acid, hexyl ester. See Hexyl laurate
Dodecanoic acid, 2-hydroxypropyl ester. See Propylene glycol laurate
Dodecanoic acid, 3-methylbutyl ester. See Isoamyl laurate
Dodecanoic acid, 11-methyldodecyl ester. See Isotridecyl laurate
Dodecanoic acid methyl ester. See Methyl laurate
Dodecanoic acid, 1-methylethyl ester. See Isopropyl laurate
Dodecanoic acid 4-methyl phenyl ester. See p-Tolyl laurate
Dodecanoic acid, mixed triesters with octanoic acid, decanoic acid, and 1,2,3-propanetriol. See Caprylic/capric/lauric triglyceride
Dodecanoic acid, monoester with decaglycerol. See Polyglyceryl-10 laurate
Dodecanoic acid, monoester with 1,2-propanediol. See Propylene glycol laurate
Dodecanoic acid, monoester with 1,2,3-propanetriol. See Glyceryl laurate
Dodecanoic acid, 1,2,3-propanetriyl ester. See Trilaurin
Dodecanoic acid, zinc salt. See Zinc laurate
1-Dodecanol; Dodecan-1-ol; n-Dodecanol; n-Dodecan-1-ol. See Lauryl alcohol
Dodecanol acetate; 1-Dodecanol acetate. See Lauryl acetate
Dodecanolide-1,4. See γ-Dodecalactone
Dodecanol-5-olide. See δ-Dodecalactone
1-Dodecanol, 2-octyl-. See Octyldodecanol
Dodecanyl acetate. See Lauryl acetate
3,6,9,12,15,18,21,24,27,30,33,36-Dodecoxyapentacontan-1-ol. See Ceteth-12
2,6,10-Dodecatrienol, 3,7,11-trimethyl-. See Farnesol
2,6,10-Dodecatrien-1-ol, 3,7,11-trimethyl-, acetate. See Farnesyl acetate
2-Dodecanal
CAS 4826-62-4; EINECS/ELINCS 225-402-5
**Chemical Component Cross-Reference**

**FEMA 2402**

**Synonyms:** Dodec-2-en-1-al; 3-Nonyl acrolein; β-Octyl acrolein

**Empirical:** C_{12}H_{22}O

**Properties:** Colorless oily liq., orange-like odor, mandarin taste; sol. in alcohol; insol. in water; m.w. 182.31; b.p. 272°C

**Toxicology:** LDLo (skin, rabbit) 5 g/kg; severe skin irritant; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and fumes

**Uses:** Synthetic flavor for pharmaceuticals

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Manuf./Distrib.:** Frutarom Ltd

[http://www.frutarom.com](http://www.frutarom.com); SAFC Specialties

[http://www.safcspecialties.com](http://www.safcspecialties.com); Vioryl

[http://www.vioryl.gr](http://www.vioryl.gr)

Dodec-2-en-1-al. See 2-Dodecanal

Dodecene-1

**CAS 112-41-4; EINECS/ELINCS 203-968-4**

**UN NA 1933**

**Synonyms:** C12 alpha olefin; 1-Dodecene; Dodec-1-ene; α-Dodecene; n-Dodec-1-ene; α-Dodecylene; Tetrapropylene

**Empirical:** C_{12}H_{24}

**Formula:** H_{2}C:CH(CH_{2})_{9}CH_{3}

**Properties:** Colorless liq.; insol. in water; sol. in alcohol, acetone, ether, petrol., coal tar solvs.; m.w. 188.32; dens. 0.764; m.p. -31.5°C; b.p. 213-215°C; flash pt. (Seta) 168°F; ref. index 1.430

**Toxicology:** LD50 (oral, rat) > 5 g/kg; low acute inhalation toxicity; sl. toxic by ing.; narcotic in high concns.; irritating to eyes, skin, respiratory system; TSCA listed

**Precaution:** Combustible liq.; avoid contact with air or oxygen (explosion danger, adverse effect on subsequent reactions)

**Storage:** Store under nitrogen

**Uses:** Pharmaceutical intermediate

**Regulatory:** Canada DSL


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**Trade Names Containing:** Dow Corning® Emulsifier 10

1-Dodecene; Dodec-1-ene; α-Dodecene; n-Dodec-1-ene. See Dodecene-1

Dodecoic acid. See Lauric acid

Dodecyl acetate. See Lauryl acetate

Dodecyl alcohol; 1-Dodecyl alcohol; n-Dodecyl alcohol. See Lauryl alcohol

Dodecyl alcohol acetate. See Lauryl acetate

Dodecyl alcohol, hydrogen sulfate, sodium salt. See Sodium lauryl sulfate

1-Dodecyl aldehyde; n-Dodecyl aldehyde. See Lauric aldehyde

Dodecyl ammonium sulfate. See Ammonium lauryl sulfate

Dodecylbenzene sodium sulfonate; Dodecylbenzenesulfonate, sodium salt. See Sodium dodecylbenzenesulfonate

Dodecylbenzenesulfonate, triethanolamine salt; Dodecylbenzenesulfonic acid, compd. with 2,2’,2”-nitrotris[ethanol] (1:1). See TEA-dodecylbenzenesulfonate

Dodecylbenzenesulfonic acid sodium salt. See Sodium dodecylbenzenesulfonate

Dodecylbenzenesulfonic acid triethanolamine salt. See TEA-dodecylbenzenesulfonate

Dodecyl dimethylamine; N-Dodecyl dimethylamine. See Dimethyl lauramine

Dodecylidimethylamine oxide. See Dimethyl lauramine oxide

Dodecyl dimethyl benzyl ammonium chloride. See Lauralkonium chloride

Dodecyl dimethyl ethylbenzyl ammonium chloride. See Quaternium-14

Dodecyltrimethyl (2-phenoxyethyl) ammonium bromide. See Domiphen bromide

Dodecyl docosanoate. See Lauryl behenate

α-Dodecylene. See Dodecene-1

Dodecyl (ethylbenzyl) dimethylammonium chloride; N-Dodecyl-ar-ethyl-N,N-dimethylbenzenemethanaminium chloride. See Quaternium-14

Dodecyl gallate

**CAS 1166-52-5; EINECS/ELINCS 214-620-6**

**INS 312**

**Synonyms:** Dodecyl-3,4,5-trihydroxybenzoate; Gallic acid dodecyl ester; Gallic acid lauryl ester; Lauryl gallate; 3,4,5-Trihydroxybenzoic acid, dodecyl ester

**Definition:** Ester of gallic acid

**Empirical:** C_{19}H_{30}O_{5}

**Properties:** Wh. cryst. solid; sol. in ethanol,
Chemical Component Cross-Reference

†=pharmaceutical grade

Dodecyl trimethyl ammonium chloride. See Laurtrimonium chloride

Dog rose hips extract. See Dog rose (Rosa canina) hips extract

Dog rose hips oil. See Dog rose (Rosa canina) hips oil

Dog rose (Rosa canina) hips extract
CAS 84696-47-9
FEMA 2990
Synonyms: Dog rose hips extract; Rosa canina; Rosa canina hips extract; Rose hips extract
Definition: Extract of the hips of the dog rose, Rosa canina
Properties: Brown to dark brown powd.; sol. in water; pH 2.5-4. (10% sol'n.)
Toxicology: Skin irritant
Precaution: Wear safety glasses, dust respirator, protective gloves, and lab coat
HMIS: Health 1, Flammability 1, Reactivity 0
Storage: Store in a tightly closed container in a cool, well-ventilated area @ ≤ 24 C
Uses: Natural flavor for pharmaceuticals
Regulatory: FEMA GRAS
Manuf./Distrib.: Bell Flavors & Fragrances
http://www.bellff.com; Bio-Botanica
http://www.bio-botanica.com; Carrubba
http://www.carrubba.com; Frutarom
http://www.frutarom.com; Mini Star Int'l.
http://www.ministar.com; Pharmachem Labs

Dog rose (Rosa canina) hips oil
CAS 84603-93-0
Synonyms: Dog rose hips oil; Rosa canina; Rosa canina fruit oil; Rose hips oil
Definition: Oil derived from rose hips, Rosa canina; main components are linoleic acid and linolenic acid
Properties: Lt. yel. liq.
Uses: Emollient in pharmaceuticals
Features: Oily
Manuf./Distrib.: Alzo
http://www.alzointernational.com; Desert Whale Jojoba http://www.desertwhale.com
Trade Names: Lipovol RHO

Dolcymene. See p-Cymene

Dolomite. See Calcium carbonate

DOM. See Dioctyl maleate
Domiphen bromide
CAS 538-71-6; EINECS/ELINCS 208-702-0
Synonyms: N,N-Dimethyl-N-(2-phenoxethyl)-1-dodecanaminium bromide; 1-Dodecanaminium, N,N-dimethyl-N-(2-phenoxethyl)-, bromide; Dodecyldimethyl(2-phenoxethyl) ammonium bromide; PDDB; Phenododecinium bromide; β-Phenoxethylidimethyldodecylammonium bromide
Classification: Quaternary ammonium salt
Empirical: C₂₂H₄₆BrNO
Formula: C₆H₅OC₂H₄N(C₁₂H₂₅)(CH₃)₂Br
Properties: Crystals, mild char. odor, bitter taste; sol. in water, ethanol, acetone, ethyl acetate, chloroform; very sl. sol. in benzene; m.w. 414.54; m.p. 112 C
Toxicology: LD₅₀ (IP, rat) 40 mg/kg, (IV< rat) 18 mg/kg; poison by IP and IV routes; mutagenic data; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of NOₓ, NH₃, and Br⁻
Uses: Antimicrobial, fungicide for mouthwashes, cold sterilization; antiseptic in oral rinse prods.; anti-infective
Regulatory: BP compliance; Canada DSL
DOP. See n-Dioctyl phthalate
1-Dotriacontanol
CAS 6624-79-9
Synonyms: Lacceryl alcohol
Classification: Fatty alcohol
Empirical: C₃₂H₆₆O
Formula: M.w. 466.90; m.p. 120 C; b.p. 89 C
Properties: Crystals, mild char. odor, bitter taste; sol. in water, ethanol, acetone, ethyl acetate, chloroform; very sl. sol. in benzene; m.w. 414.54; m.p. 112 C
Toxicology: LD₅₀ (IP, rat) 40 mg/kg, (IV< rat) 18 mg/kg; poison by IP and IV routes; mutagenic data; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of NOₓ, NH₃, and Br⁻
Uses: Antimicrobial, fungicide for mouthwashes, cold sterilization; antiseptic in oral rinse prods.; anti-infective
Regulatory: BP compliance; Canada DSL
Trade Names Containing: Lesstanol™ Natural Octacosanol 30%
Douglas fir oil. See Balsam Oregon (Pseudotsuga menziesii)
DPCP. See Diphenyl chlorophosphate
DPPC. See 1,2-Dipalmityl-sn-glycero(3) phosphatidylcholine
DPPD. See N,N’-Diphenyl-p-phenylenediamine
Draconic acid. See p-Anisic acid
Dracryl acid. See Benzoic acid
Dried calcium sulfate. See Calcium sulfate
†=pharmaceutical grade
Dried egg white. See Albumen
Dried ferrous sulfate. See Ferrous sulfate monohydrate
Dried gypsum. See Calcium sulfate hemihydrate
Dried zinc sulfate. See Zinc sulfate monohydrate
Drop chalk. See Calcium carbonate
Drupwort extract. See Meadowsweet (Spiraea ulmaria) extract
Dry ice. See Carbon dioxide
DSP. See Sodium phosphate dibasic anhydrous
DSP-7. See Sodium phosphate dibasic heptahydrate
DSP-O. See Sodium phosphate dibasic anhydrous
DSPC. See 1,2-Distearoyl-sn-glycero(3) phosphatidylcholine
DSS. See Dioctyl sodium sulfosuccinate
DSTDP; DSSTP. See Distearoyl thiodipropionate
DTDTP. See Ditridecyl thiodipropionate
DTPAN; DTPANa5. See Pentasodium pentetate
Dutch rush extract. See Horsetail (Equisetum arvense) extract
Dutch liquid. Dutch oil. See Ethylene dichloride
Dye quinoline yellow. See Acid yellow 3
DVB. See m-Divinylbenzene
Dwarf pine needle oil. See Pine (Pinus pumilio) needle oil
East Indian sandalwood oil. See Sandalwood (Santalum album) oil
East Indian nutmeg oil. See Nutmeg (Myristica fragrans) oil
East Indian geranium oil. See Palmarosa (Cymbopogon martini) oil
East Indian lemongrass oil. See Lemongrass oil East Indian
East Indian geranium oil. See Palmarosa (Cymbopogon martini) oil
East Indian lemongrass oil. See Lemongrass oil East Indian
East Indian nutmeg oil. See Nutmeg (Myristica fragrans) oil
East Indian sandalwood oil. See Sandalwood (Santalum album) oil
EB. See Ethylbenzene
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>EC</th>
<th>See Ethylcellulose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Echinacin</td>
<td><strong>Definition:</strong> Polysaccharide fraction derived from the dried rhizomes and roots of <em>Echinacea pallida</em></td>
</tr>
<tr>
<td>Edetate</td>
<td><strong>See Edetate acid</strong></td>
</tr>
<tr>
<td>Edathamil</td>
<td><strong>See Edathamil</strong></td>
</tr>
<tr>
<td>Edathanil tetrasodium</td>
<td><strong>See Tetrasodium EDTA</strong></td>
</tr>
<tr>
<td>EDC</td>
<td><strong>See Ethylene dichloride</strong></td>
</tr>
<tr>
<td>Edetate calcium disodium</td>
<td><strong>See Calcium disodium EDTA</strong></td>
</tr>
<tr>
<td>Edetate disodium</td>
<td><strong>See Disodium EDTA</strong></td>
</tr>
<tr>
<td>Edetate sodium</td>
<td><strong>See Tetrasodium EDTA</strong></td>
</tr>
<tr>
<td>Edetate trisodium</td>
<td><strong>See Trisodium EDTA</strong></td>
</tr>
<tr>
<td>Edetic acid</td>
<td><strong>See Diammonium EDTA</strong></td>
</tr>
<tr>
<td>Edetate dipotassium</td>
<td><strong>See Dipotassium EDTA dihydrate</strong></td>
</tr>
<tr>
<td>Edetate disodium</td>
<td><strong>See Disodium EDTA</strong></td>
</tr>
<tr>
<td>Edetate sodium</td>
<td><strong>See Tetrasodium EDTA</strong></td>
</tr>
<tr>
<td>Edetate trisodium</td>
<td><strong>See Trisodium EDTA</strong></td>
</tr>
<tr>
<td>Toxicology:</td>
<td><strong>LD₅₀ (oral, mouse) 30 mg/kg, (IP, rat) 397 mg/kg; irritant; poison by IP route; mutagenic data; experimental teratogenic and reproductive effects; TSCA listed</strong></td>
</tr>
<tr>
<td>Environmental:</td>
<td><strong>Environmentally hazardous substance; VOC; BOD₅ 0.01; ThOD 0.93</strong></td>
</tr>
<tr>
<td>Hazardous Decomp. Prods.:</td>
<td><strong>Heated to decomp., emits very toxic fumes of NOₓ</strong></td>
</tr>
<tr>
<td>Storage:</td>
<td><strong>Store @ R.T.</strong></td>
</tr>
<tr>
<td>Uses:</td>
<td><strong>Chelating agent, metal complexing agent, excipient, preservative, stabilizer in pharmaceuticals, otics, rectals, topicals, ophthalmics, ear/eye/nose drops, local</strong></td>
</tr>
</tbody>
</table>

**†=pharmaceutical grade**

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**Handbook of Pharmaceutical Additives, Third Edition**
Chemical Component Cross-Reference

†=pharmaceutical grade

http://www.sigma-aldrich.com/belgium; Spectrum Quality Prods.†
http://www.spectrumchemical.com
Synthron SA †=http://www.protex-international.com; Ubichem plc†
http://www.ubichem.com; Univar Ltd†
Int'l.† http://www.vwrsp.com

Trade Names: Versene Acid

Edetic acid calcium disodium salt. See Calcium disodium EDTA
Edetic acid tetrasodium salt. See Tetrasodium EDTA
Edetol. See Tetrahydroxypropyl ethylenediamine
EDTA (INCI): EDTA acid. See Edetic acid
EDTA calcium disodium salt. See Calcium disodium EDTA
EDTA dipotassium. See Dipotassium EDTA dihydrate
EDTA Na4; EDTA sodium salt; EDTA tetrasodium salt. See Tetrasodium EDTA
EDTA trisodium; EDTA trisodium salt. See Trisodium EDTA
EE; 2-EE. See Ethoxyethanol
EEA. See Ethylacetocacetate
EG. See Ethylene glycol
EGCG. See (-)-Epigallocatechin gallate
EGDME. See Ethylene glycol dimethyl ether
EGDS. See Glycol distearate
EGEE. See Ethoxyethanol
Egg albumin. See Albumen

Egg oil
CAS 8001-17-0; EINECS/ELINCS 232-271-8
Synonyms: Oil of egg; Oil of egg yolk
Definition: Oil obtained by extraction of the yolks of fresh chicken eggs
Properties: Dark oil; sol. in common org. solvs.; misc. with other oils; insol. in water, but readily forms emulsions on strong agitation; dens. 0.95; ref. index 1.4790 (20 C)
Uses: Emollient, moisturizer, emulsifier, superfatting agent, humectant, mold release agent for hydrophilic pharmaceutical ointments
Regulatory: Canada DSL
Manuf./Distrib.: Alban Muller http://www.albanmuller.com; Fanning http://www.fanncorpc.com

Eglandine. See Isobutyl benzoate
EGME. See Methoxyethanol
EGMEE. See Ethoxyethanol

EGMS. See Glycol stearate
2-EH. See 2-Ethylhexanol
Eicosanol; 1-Eicosanol. See Arachidyl alcohol
1-Eicosanol, 2-hexadecyl-. See Cetylarchidol
1-Eicosanol, 2-tetradecyl-. See Tetradeceyleicosanol
Eicosanyl propanoate; Eicosanyl propionate. See Arachidyl propionate

Eicosapentaenoic acid
CAS 10417-94-4
Synonyms: 5,8,11,14,17-Eicosapentaenoic acid; EPA
Classification: Unsaturated acid
Empirical: C20H30O2
Formula: CH3(CH2CH=CH)5CH2CH2CH2COOH
Properties: M.w. 302.46; dens. 0.943; m.p. -54 to 53 C; flash pt. 200 F; ref. index 1.4977
Storage: Light-sensitive
Uses: Additive

Trade Names Containing: Incromega DHA 500TG SR; Incromega E3322; Incromega TG3322; Ropufa® '10' n-3 INF Powder

5,8,11,14,17-Eicosapentaenoic acid. See Eicosapentaenoic acid

1-Eicoseny, polymer with 1-ethenyl-2-pyrroolidinone. See PVP/eicosene copolymer

Eicosyl erucate. See Octyldodecyl erucate

Elaeis guineensis; Elaeis guineensis oil. See Palm (Elaeis guineensis) oil
Elaeis guineensis seed oil. See Palm (Elaeis guineensis) kernel oil
Elaic acid. See Oleic acid

Elastin
CAS 9007-58-3; EINECS/ELINCS 232-701-4
Classification: Scleroprotein
Definition: Fibrous protein found in animal connective tissue
Properties: Yel. fibrous mass; insol. in water, dil. acids, alkalis, salt sol'ns., alcohol; partly digested by pepsin sol'n.; wholly digested by trypsin
Storage: Store under argon; sensitive to humidity
Uses: Emollient for pharmaceuticals,
Chemical Component Cross-Reference

**Elder flowers**
- CAS 977002-47-3
- FEMA 2406
- Synonyms: Sambucus; Sambucus canadensis; Sambucus nigra; Sweet elder
- Definition: From Sambucus canadensis or S. nigra
- Properties: Aromatic bitter tonic
- Uses: Natural flavor for pharmaceuticals
- Regulatory: BP, EP compliance; FDA 21 CFR §182.10, GRAS; FEMA GRAS

**Elm** (Ulmus campestris) extract
- Definition: Extract of the bark of the elm, Ulmus campestris
- Uses: Botanical; in herbal medicine to soothe the skin; in pharmaceutical orals
- Regulatory: FDA approved for orals

**Elder flowers oil.** See Sambucus nigra oil

**Elecrol**
- Synonyms: RITA†, Ethylene/methylacrylic acid copolymer
- Properties: Aromatic elixir

**Elp**
- Synonyms: Ethyl-2-furanpropionate

**Emulsifying wax NF**
- CAS 97069-99-0
- Definition: A waxy solid derived from cetostearyl alcohol contg. a polyoxyethylene deriv. of a fatty acid ester of sorbitan
- Properties: Creamy wh. waxy solid, mild char.

†=pharmaceutical grade

**Enanth**
- Synonyms: Ethyl methylphenylglycidate

**Emulsion stabilizer for pharmaceuticals**
- Odor; sol. in alcohol, ether, chloroform, hydrocarbon solvs., aerosol propellants; insol. in water; m.p. 50-54 C; iodine no. 3.5 max.; sapon. no. 14 max.; hyd. no. 178-192; pH 5.5-7.0 (3% disp.); nonionic
- Uses: Emulsifier, thickener, opacifier, solubilizer, suspending agent, stiffener, emulsion stabilizer for pharmaceuticals
- Regulatory: USP/NF compliance

**Enamel white.** See Barium sulfate

**Enanthal; Enanthaldehyde.** See Heptanal

**Enanthic acid.** See Heptanoic acid

**Enanthic alcohol.** See Heptyl alcohol

**Enanthic aldehyde.** See Heptanal

**Enanthic anhydride.** See Heptanoic acid

**Enanthole.** See Heptanal

**Enanthyl alcohol.** See Heptyl alcohol

**Enanthyllic acid.** See Heptanoic acid

**Enanthyl ether.** See Ethyl heptanoate

**English chamomile extract.** See Chamomile (Anthemis nobilis) extract

**English white.** See Calcium carbonate

**Engraver's acid.** See Nitric acid
Chemical Component Cross-Reference

Enocianina; Enocyainin. See Grape skin extract

Enoxolone. See Glycyrrhetinic acid

Entsufon; Entsufon sodium. See Sodium octoxynol-2 ethane sulfonate

Enzactin. See Triacetin

EO. See Ethylene oxide

EO/PO block polymer or copolymer
CAS 9003-11-6 (generic); 106392-12-5
Synonyms: Ethylene glycol/propylene glycol block copolymer; POE/POP copolymer; Polyoxyethylene/polyoxypropylene block copolymer; Polyoxyethylene/polyoxypropylene block copolymer; POP/POE copolymer

Formula: (C₃H₆O • C₂H₄O)ₓ

Properties: Liq., powd., or flake; 10-80% EO content; m.w. 1100-10,000; HLB 9.5-18.7; nonionic

Toxicology: LD₅₀ (IV, mouse) 129 mg/kg; TSCA listed

Uses: Wetting agent, dispersant, defoamer, gellant, solubilizer, lubricant base for medical applics., pharmaceuticals


Trade Names: PEP-101 See also Merocapol Series; Poloxamer Series

EO/PO ethylenediamine block copolymer
CAS 26314-40-5; 107397-59-1
Synonyms: Ethylenediamine propoxylate/ethoxyxlate

Definition: Block copolymer with PO blocks adjacent to the amine group; prods. with EO block in this position are also avail.

Properties: Liq. or flakes; nonionic

Uses: Dispersant

Trade Names: Tetronic® 50R1; Tetronic® 90R4; Tetronic® 150R1

Eosin. See D&C Red No. 21

Eosin blue. See CI 45410

Eosin disodium. See D&C Red No. 22; Acid red 87

Eosine. See D&C Red No. 22; D&C Red No. 21; Acid red 87

Eosine blue; Eosine bluish. See CI 45410

Eosine G; Eosin Y. See Acid red 87

Eosin YS. See D&C Red No. 22; Acid red 87

EP. See p-Ethylphenol; Propylene glycol ethyl ether

†=pharmaceutical grade

EPA. See Eicosapentaenoic acid

(-)-Epigallocatechin gallate
CAS 989-51-5

Synonyms: EGCG; Epigallocatechin 3-gallate; (-)-Epigallocatechin-3-O-gallate; 3,4,5-trihydroxybenzoic acid, (2R-cis)-3,4-dihydro-5,7-dihydroxy-2-(3,4,5-trihydroxyphenyl)-2H-1-benzopyran-3-yl ester; (2R, 3R)-2-(3,4,5-trihydroxyphenyl)-3,4-dihydro-1(2H)-benzopyran-3,5,7-triol 3-(3,4,5-trihydroxybenzoate)

Classification: Flavenol

Definition: Major component of green tea extract

Empirical: C₂₂H₁₈O₁₁

Properties: Wh. to faint pink cream-colored powd. or crystals; odorless; sol in water (5 mg/ml, acetone, ethanol, methanol, pyridine, and tetrahydrofuran; m.w. 458.40; m.p. 218 C

Toxicology: TSCA listed

Uses: Dietary supplement and antioxidant

Regulatory: Canada DSL


Trade Names Containing: Teavigo™ TG

Epigallocatechin 3-gallate; (-)-Epigallocatechin-3-O-gallate. See (-)-Epigallocatechin gallate

Ephydalin alcohol. See Glycidol

Epilobium angustifolium extract

Definition: Alkaloids obtained from the plant belonging to the family Onagraceae

Toxicology: LD₅₀ (IP, mouse) 200 mg/kg

Uses: Counter-irritant in topicals

Trade Names: Canadian Willowherb Extract (5% clear)

Epoxides, polymers, epoxy resins. See Epoxy resin

1,4-Epoxy-1,3-butadiene. See Furan

1,4-Epoxybutane. See Tetrahydrofuran

Epoxy compds. See Epoxy resin

Epoxy cyclohexane; 1,2-Epoxy cyclohexene. See Cyclohexene oxide

Epoxyethane; 1,2-Epoxyethane. See Ethylene oxide

Epoxy linalool. See Linalool oxide

1,4-Epoxy-p-menthane. See 1,4-Cineole

1,8-Epoxy-p-menthane. See Eucalyptol

α-β-Epoxy-β-methylhydrocinnamic acid, ethyl ester. See Ethyl methylphenylglycidate

1,2-Epoxy-3-phenoxypropane. See Phenyl glycidyl ether
2,3-Epoxypropanol; 2,3-Epoxy-1-propanol.  
See Glycidol

2,3-Epoxypropyl phenyl ether.  See Phenyl glycidyl ether

Epoxy resin
CAS 25928-94-3

Synonyms:  Condensation prods., epoxy; Epoxides, polymers, epoxy resins; Epoxy compds.; Ethers, cyclic, epoxides, polymers; Plastics, epoxy; Polyethers, epoxy resins

Classification:  Polymer

Definition:  A thermosetting resin based on the reactivity of the epoxide group

Toxicology:  LD50 (oral, rat) 2200 mg/kg; strong skin irritant in uncured state; poison by inhalation; moderately toxic by ing.; little or no toxicity in cured state

Hazardous Decomp. Prods.:  Heated to decomp., emits toxic fumes of Cl-

Uses:  Biomaterial for topicals, slow-release and microencapsulation prods.

Regulatory:  FDA 21CFR §175.300, 177.1390, 177.1650


†=pharmaceutical grade

propanesulfonic acid
Epsom salts.  See Magnesium sulfate heptahydrate; Magnesium sulfate anhydrous

Equisetum arvense
Equisetic acid.  See Aconitic acid

Equisetum arvense arvensium.  See Horsetail (Equisetum arvense) extract

Ercalciol.  See Ergocalciferol

Ergocalciferol
CAS 50-14-6; EINECS/ELINCS 200-014-9

Synonyms:  Calciferol; Ercalciol; Ergorone; Ergosterol, activated; Ergosterol, irradiated; Irradiated ergosta-5,7,22-trien-3-β-ol; Oleovitamin D; 9,10-Secoergosta-5,7,10(19),22-tetraen-3-β-ol; 9,10-Seco (5Z,7E,22E)-5,7,10(19),22-ergostatetraen-3-ol; Viosterol; Vitamin D2

Definition:  Derived from ergosterol by irradiation with UV light

Empirical:  C28H44O

Properties:  Wh. cryst., odorless; sol. in alcohol, chloroform, ether, fatty oils; insol. in water; m.w. 396.72; m.p. 115-118 C

Toxicology:  LD50 (oral, rat) 56 mg/kg; LDL0 (IP, dog) 10 mg/kg, (IV, dog) 5 mg/kg, (intramuscular, dog) 5 mg/kg; poison by ing. IP, IV, and intramuscular routes; human systemic effects by ingestion (anorexia, nausea, etc.); experimental teratogen, reproductive effects; TSCA listed

Hazardous Decomp. Prods.:  Heated to decomp., emits acrid smoke and irritating fumes

Storage:  Light-sensitive

Uses:  Dietary supplement, nutrient for mfg. of human and veterinary specialties for oral and parenteral use; antirachitic drug

Regulatory:  FDA 21CFR §166.110, 184.1950, GRAS; SARA reportable; Japan approved; Canada DSL

Chemical Component Cross-Reference

| Varsal Instruments† | http://www.varsal.com |

Trade Names Containing: Vitamin A Acetate/D3 500/50; Vitamin D2 850

Ergorone; Ergosterol, activated; Ergosterol, irradiated. See Ergocalciferol

Ergot sugar. See Trehalose

Eriodictyon californicum; Eriodictyon californicum extract. See Yerba santa (Eriodictyon californicum) extract

Erioglaucine. See D&C Blue No. 4

Eruvic acid
CAS 112-86-7; EINECS/ELINCS 204-011-3

Synonyms: Docos-13-enoic acid; 13-Docosenoic acid, (Z); cis-13-Docosenoic acid; â-13:14-Docosenoic acid; â-(13)-cis-13-Docosenoic acid; (Z)-13-Docosenoic acid

Classification: Monoethenoid acid

Definition: C22 fatty acid with one double bond; a homologue of oleic acid with 4 more carbons

Empirical: C22H42O2

Formula: C15H27CH(CH(2)11)COOH

Properties: Colorless needles; very sol. in ether; sol. in alcohol; insol. in water; m.w. 338.56; dens. 0.860 (55/4°C); m.p. 33-34°C; b.p. 381°C (dec.); iodine no. 74.98; flash pt. 110°C; ref. index 1.4534 (45°C)

Precaution: Combustible

Uses: Pharmaceuticals; flavors

Regulatory: Canada DSL


†=pharmaceutical grade

Lutianhua; NetQem http://www.netqem.us
Sigma http://www.sigma-aldrich.com/belgium

Trade Names: Synative FA U 122

Eruvic acid, 2-octylidodecyl ester. See Octylidodecyl erucate

Eruvic acid, oleyl ester. See Oleyl erucate

Erycorbin. See Erythorbic acid

Erythorbic acid
CAS 89-65-6; EINECS/ELINCS 201-928-0; FEMA 2410; INS315

Synonyms: Araboascorbic acid; d-Araboascorbic acid; D-2,3-Didehydro-erythro-hexono-1,4-lactone; Erycorbin; d-Erythorbic acid; D-Erythro-ascorbic acid; D-Erythro-hex-2-enonic acid, γ-lactone; D-Erythro-3-ketohexonic acid lactone; Glucosaccharonic acid; Isoascorbic acid; D-Isoascorbic acid; Isovitamin C; Saccharosonic acid

Definition: Isomer of ascorbic acid

Empirical: C6H8O6

Properties: Wh. or sl. yel. cryst. or powd.; darkens on exposure to light; sol. in water, alcohol, pyridine, oxygenated solvs.; mod. sol. in acetone; sl. sol. in glycerin; m.w. 176.14; m.p. 164-171°C (dec.)

Toxicology: Nontoxic; mutagenic; causes DNA damage; TSCA listed

Hazardous Decomp. Prods.: Heated to decomps., emits acrid smoke and irritating fumes

Storage: Light-sensitive

Uses: Antioxidant, preservative for pharmaceuticals

Regulatory: FDA 21CFR §101.33, 145.110, 155.200, 175.105, 182.3041, GRAS; FEMA GRAS; USDA 9CFR §318.7, 381.147; Japan restricted for purpose of anti-oxidation; Canada DSL


Handbook of Pharmaceutical Additives, Third Edition 1282
d-Erythorbic acid. See Erythorbic acid
Erythrite. See Erythritol

Erythritol
CAS 149-32-6; EINECS/ELINCS 205-737-3
Synonyms: 1,2,3,4-Butanetetrol; 2(r),3(s)-1,2,3,4-Butanetetrol; Erythritole; L-Erythritol; Erythritol, meso-; Erythrogulcin; Erythrol; meso-Erythritol; Tetrahydroxybutane
Classification: Organic compd.
Empirical: C\textsubscript{4}H\textsubscript{10}O\textsubscript{4}
Formula: CH\textsubscript{2}OH(CH\textsubscript{2}OH)\textsubscript{2}CH\textsubscript{2}OH
Properties: Wh. powd.; m.w. 122.12; m.p. 121.5 C; b.p. 330.5 C
Toxicology: LD\textsubscript{50} (IP, mouse) 7 g/kg; LD\textsubscript{10} (IV, dog) 5 g/kg; irritating to eyes, skin, mucous membranes, upper respiratory tract; may be harmful by inh., ing., or skin absorb.
Precaution: Incomp. with strong oxidizing agents, strong bases
Hazardous Decomp. Prods.: CO, CO\textsubscript{2}; emits toxic fumes under fire conditions
Storage: Store in cool, dry place below 0 C; keep tightly closed
Uses: Sweetener for pharmaceutical tablets and coatings; excipient for pharmaceutical syrups and medicated candies; taste masking agent to mask unpleasant bitter
taste of actives in pharmaceutical syrups and oral care prods.; coolant for oral care prods.
Features: Low-calorie
Regulatory: BP, EP compliance; Canada DSL
Manuf./Distrib.: AAA Int'l.
http://www.aaainternational.com; Aldrich
http://www.sigma-aldrich.com; Cerestar†
Sigma http://www.sigma-aldrich.com/belgium
L-Erythritol; Erythritol, meso-. See Erythritol
D-Erythro-ascorbic acid. See Erythorbic acid
Erythrogulcin. See Erythritol
D-Erythro-hex-2-enonic acid, \( \gamma \)-lactone; D-Erythro-3-ketohexonic acid lactone. See Erythorbic acid
Erythrol. See Erythritol
Erythrosin; Erythrosin B. See Acid red 51
Erythrosine. See FD&C Red No. 3; Acid red 51
Erythrosine bluish. See FD&C Red No. 3
Erythrosine yellowish NA. See D&C Orange No. 11; Acid red 95
Esbericard. See Crataegus monogina extract

Escarin
CAS 680541-0; EINECS/ELINCS 229-880-6
Definition: Saponin occurring in the seed of the horse chestnut tree, Aesculus hippocastanum
Empirical: C\textsubscript{54}H\textsubscript{84}O\textsubscript{23}
Formula: http://www.sigma-aldrich.com/belgium
Properties: M.w. 1101.38; \( \alpha \): Amorphous powd.; very sol. in water; m.p. 222-225 C; \( \beta \): leaflets; pract. insol. in water; m.p. 222-223 C
Toxicology: LD\textsubscript{50} (oral, rat) 833 mg/kg, (IP, rat) 10,150 \mu g/kg, (subcut., rat) 150 mg/kg; poison by ing., subcut., IV, and IP routes; experimental teratogen
Hazardous Decomp. Prods.: Heated to decomp., emits acid smoke and irritating fumes
Uses: In pharmaceuticals
Regulatory: Canada DSL
Manuf./Distrib.: Chemos GmbH
http://www.chemos-group.com
Trade Names Containing: Escarin/\( \beta \)-Sitosterol
Phytosome®

Esdragol. See Estragole
Esdragol oil; Esdragon oil. See Tarragon (Artemisia dracunculus) oil
Essence of niobe. See Ethyl benzoate; Methyl benzoate
### Essence of rose. See Rose oil

**Estragole**

**CAS 140-67-0; EINECS/ELINCS 205-427-8**

- **FEMA 2411**

- **Synonyms:** 4-Allylanisole; p-Allylanisole; 4-Allyl-1-methoxybenzene; Chavicol methyl ether; Chavicyl methyl ether; Esdragon; Isoanethole; p-Methoxyallylbenezene; 1-Methoxy-4-(2-propenyl) benzene; Methyl chavicol

- **Definition:** Main constituent of tarragon oil derived from *Artemisia dracunculus*

- **Empirical:** C_{10}H_{12}O

- **Formula:** C_{6}H_{4}(C_{3}H_{5})(OCH_{3})

- **Properties:** Colorless to sl. yel. liq.; anise odor; sol. in alcohol, chloroform; forms azeotropic mixts. with water; m.w. 148.20; dens. 0.9645 (21/4 C); b.p. 216 C (764 mm); flash pt. 178 F; m.w. 148.20; dens. 0.9645; sol. in alcohol, chloroform; forms azeotropic mixts. with water; m.w. 148.20; dens. 0.9645 (21/4 C); b.p. 216 C (764 mm); flash pt. 178 F; tenacity 4 hrs. on blotter

- **Toxicology:** LD50 (oral, rat) 1820 mg/kg, (IP, rat) 1030 mg/kg; mod. acute toxicity by many routes; primary irritant; skin irritant; questionable carcinogen; mutagen; tumorigen; TSCA listed

- **Precaution:** Combustible

- **Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

- **Uses:** Synthetic flavor for pharmaceuticals

- **Features:** Sweet, minty flavor

- **Use Level:** < 1%

- **Regulatory:** FDA 21CFR §172.515, 186.60; FEMA GRAS; Australia; Canada DSL; Japan ENCS (no. 3-572); Philippines PICCS

- **Manuf./Distrib.:** Adrian Amer.
  - [http://www.adrianusa.com](http://www.adrianusa.com)
  - B D Aromatics [http://www.bdaromatics.com](http://www.bdaromatics.com)
  - BFA Labs [http://www.bfa-lab.com](http://www.bfa-lab.com)
  - Chinessence [http://www.chinessence.com](http://www.chinessence.com)
  - Citrus and Allied Essences [http://www.citrusandallied.com](http://www.citrusandallied.com)
  - Eramex Aromatics [http://www.eramex.de](http://www.eramex.de)
  - Fleurchem [http://www.fleurchem.com](http://www.fleurchem.com)
  - Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
  - Frutarom Ltd [http://www.frutarom.com](http://www.frutarom.com)
  - SAFC Specialties [http://www.safcspecialties.com](http://www.safcspecialties.com)
  - Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)
  - Takasago Int’l. [http://www.takasago.com](http://www.takasago.com)

- **See also** Tarragon (*Artemisia dracunculus*)

- **Estragol oil; Estragon absolute; Estragon oil. See Tarragon (*Artemisia dracunculus*) oil**

- **Ethanol. See Cetyl alcohol**

- **Ethanal. See Acetaldehyde**

- **Ethanamide. See Acetamide**

- **Ethanamine, 2-hydroxy-N,N,N-trimethyl, salt with (R-(R+,R+))-2,3-dihydroxybutanedioic acid (1:1); Ethanamine, 2-hydroxy-N,N,N-trimethyl-, salt with (R-(R,R))-2,3-dihydroxybutanedioic acid (1:1). See Choline bitartrate**

- **Ethanecarboxylic acid. See Propionic acid**

- **1,2-Ethanediamine. See Ethylenediamine**

- **1,2-Ethanediame, dihydrochloride. See Ethylenediamine dihydrochloride**

- **1,2-Ethanedicarboxylic acid. See Succinic acid**

- **Ethane dichloride. See Ethylene dichloride**

- **Ethane, dichlorotetrafluoro-. See Dichlorotetrafluoroethane**

- **Ethane, 1,2-dichloro-1,2,2-tetrafluoro-. See 1,2-Dichlorotetrafluoroethane**

- **1,2-Ethanediol; Ethane-1,2-diol. See Ethylene glycol**

- **1,2-Ethanediol carbonate. See Ethylene carbonate**

- **N,N’-1,2-Ethanediylbis[N-(carboxymethyl) glycine]. See Edetic acid**

- **N,N’-1,2-Ethandiyilbis (N-(carboxymethyl)) glycine tetrasodium salt. See Tetrasodium EDTA**

- **N,N’-1,2-Ethandiyilbis [N-(carboxymethyl) glycine], trisodium salt. See Trisodium EDTA**

- **N,N’-1,2-Ethandiyilbisoctadecanamide. See Ethylene distearamide**

- **2,2’-[1,2-Ethandiyilbis (oxy)] bisethanol. See Triethylene glycol**

- **Ethanene, hexafluoro-. See Hexafluoroethane**

- **Ethanene-1-hydroxy-1,1-diphosphonic acid. See Etidronic acid**

- **Ethanene-1-hydroxy-1,1-diphosphonic acid, tetrasodium salt. See Tetrasodium etidronate**

- **Ethanenitrile. See Acetonitrile**

- **Ethanene, nitro-. See Nitroethane**
Chemical Component Cross-Reference

Ethaneperoxic acid. See Peracetic acid
Ethanesulfonic acid, 2-amino-. See Taurine
Ethanesulfonic acid, 2-(methylamino)-, N-coco acyl derivs., sodium salts. See Sodium methyl cocoyl taurate
Ethane trichloride. See 1,1,2-Trichloroethane
Ethane, 1,1,1-trichloro-. See 1,1,1-Trichloroethane
Ethane, 1,1,2-trichloro-1,2,2-trifluoro. See Trichlorotrifluoroethane
1,1,1-Ethanetriol diphosphonate. See Ethylenediphosphonic acid
Ethanoic anhydride. See Acetic anhydride
Ethanol. See Alcohol
N-Ethanolacetamide. See Acetamide MEA
Ethanolamine. See Acetamide

Ethanolamine
CAS 141-43-5; EINECS/ELINCS 205-483-3
UN 2491 (DOT)
Synonyms: 2-Aminoethanol; 2-Aminoethyl alcohol; β-Aminoethyl alcohol; β-Ethanolamine; Ethylolamine; Glycolin; 2-Hydroxyethylamine; β-Hydroxyethylamine; MEA; MELA; Monoethanolamine
Classification: Aliphatic amino alcohol; alkanolamine
Empirical: C2H7NO
Formula: NH2CH2CH2OH
Properties: Colorless clear mod. visc. liq.;
ammoniacal odor; misc. with water, alcohol, acetone, glycerin; sol. in chloroform; sl. sol. in benzene; m.w. 61.10; dens. 1.012; vapor pressure 0.26 mm Hg; m.p. 10.5 C; b.p. 170 C; flash pt. 93 C; autoignition temp. 410 C; ref. pressure 0.26 mm Hg; m.p. 10.5 C; b.p. 170 C; flash pt. 93 C; dielec. index 1.4540; pH 12.1; surf. tens. 48.89 dynes/cm; dielec. const. 37.72
Toxicology: ACGIH TLV/TWA 3 ppm; LD50 (oral, rat) 2140 mg/kg, (skin, rat) 1500 mg/kg; poison by IP route; mod. toxic by ingestion, skin contact, subcut., IV routes; corrosive irritant to eyes, skin, mucous membranes; TSCA listed
Environmental: VOC; BOD5 0.85; COD 1.28; ThOD 1.31
Precaution: DOT: Corrosive material; flamm. exposed to heat or flame; powerful reactive base; incompat. with sulfuric acid, HCl, CO2 in air, copper and alloys, aluminum, acrylic acid, nitric acid, etc.
Hazardous Decomp. Prods.: CO, CO2, NOx
NFPA: Health 3, Flammability 2, Reactivity 0

†=pharmaceutical grade

Storage: Hygroscopic; store in cool, dry well-ventilated area away from heat and ignition sources
Uses: Emulsifier for pharmaceuticals
Regulatory: FDA 21CFR §173.315, 175.105, 176.180, 176.210, 176.300, 178.3120; not permitted for use in foods intended for babies and young infants in UK; USP/NF, BP compliance; Canada DSL

Manuf./Distrib.: AAE Chemie NV†
http://www.aaechemie.com; Aldrich†
http://www.sigma-aldrich.com; Allchem Ind.
http://www.allchem.com; Ashland†
http://www.ashchem.com; BASF†
http://www.basf.com
BP Chems. Ltd
http://www.bp.com/chemicals/
Chevron†
http://www.camida.com
Houghton Chem.
http://www.houghtonchemical.com
Huntsman†
http://www.huntsman.com
Mallinckrodt Baker†
http://www.mallbaker.com
Mallinckrodt Baker†
http://www.mallbaker.com; Merck KGaA†
http://www.merck.de; Mosselman NV
http://www.mosselman.be
Mutchler†
http://www.mutchlerchem.com
Occidental http://www.oxychem.com
Oxiteno
Penta Mfg.†
http://www.pentamfg.com
Research Organics http://www.resorg.com
Romil Ltd http://www.romil.com; Ruger
http://www.rugerchemical.com; Sal Chem.
http://www.salchem.com; Sigma
http://www.sigma-aldrich.com; Sigma
Sigma-Aldrich†
http://www.sigma-aldrich.com/belgium
Spectrum Quality Prods.†
http://www.spectrumchemical.com
Surfachem Ltd†
http://www.surfachem.com; Tennants Distrib. Ltd†
http://www.tennantsdistribution.com
Univar Ltd†
http://www.univar.co.uk
Universal Preserv-A-Chem†
http://www.upichem.com
VWR Int'l.†
http://www.vwrsp.com

Handbook of Pharmaceutical Additives, Third Edition 1285
Chemical Component Cross-Reference

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<th>Chemical Component</th>
<th>Trade Names</th>
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<td>β-Ethanolamine</td>
<td>See Ethanolamine</td>
<td>NINOL® LMP</td>
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<td>Ethanol, 2,2'-(3-aminopropyl)imino)bis-</td>
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<td>Ethanol, 2-(diethylamino)</td>
<td>See Diethylaminoethanol</td>
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<td>Ethanol, 2-(dimethylamino)</td>
<td>See Dimethylethanolamine</td>
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<td>Ethanol, 2-ethoxy-</td>
<td>See Ethoxyethanol</td>
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<td>Ethanol, 2-(2-ethoxyethoxy)</td>
<td>See Ethoxydiglycol</td>
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<td>Ethanol, 2,2'-(3,3'-[2-hydroxyethyl]octadecylamino)propyl)imino)bis-, dihydrofluoride: Ethanol, 2,2'-(3,3'-[2-hydroxyethyl]-N-octadecylamino)propyl)imino)di-, dihydrofluoride</td>
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<td>Ethanolic acid</td>
<td>See Acetic acid, glacial</td>
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<td>Ethanol, 2,2'-oxydi-</td>
<td>See Diethylene glycol</td>
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<td>Ethanol, 1-phenyl-</td>
<td>See α-Methylbenzyl alcohol</td>
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<td>Ethanol, 2-phenyl-</td>
<td>See Phenethyl alcohol</td>
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<td>Ethanol-2-thiol</td>
<td>See 2-Mercaptoethanol</td>
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<td>Ethanol, 2-(2-[(tridecyl oxyethyl)ethoxy]ethoxy)-, hydrogen sulfate, sodium salt</td>
<td>See Sodium trideceth sulfate</td>
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<td>Ethanol, 2-[(1,7,7-trimethylbicyclo [2.2.1] hept-2-yl)oxy], exo-</td>
<td>See (exo)-2-Camphanyl-β-hydroxyethyl ether</td>
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<td>Ethanol, undenatured</td>
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<td>Ethanolone, 2-hydroxy-1,2-diphenyl-</td>
<td>See Benzoin</td>
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<td>Ethanolone, 1-(2-hydroxyphenyl)-</td>
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<td>Ethanolone, 1-(4-methoxyphenyl)-</td>
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<td>Ethanolone, 1-[4-(1-methylethyl) phenyl]-</td>
<td>See p-Isopropylacetophenone</td>
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<td>Ethanolone, 1-(4-methylphenyl)-</td>
<td>See 4-Methylacetophenone</td>
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<td>Ethanolone, 1-(2-pyridinyl)-</td>
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<td>Ethanoxy chloride</td>
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<td>Ethene, chloro-, homopolymer</td>
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<td>Ethene, 1,1-dichloro.</td>
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<td>Ethene, homopolymer</td>
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<td>Ethene oxide</td>
<td>See Ethylene oxide</td>
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<tr>
<td>Ethene polymer</td>
<td>See Polyethylene</td>
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<td>Ethenol homopolymer</td>
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<td>See Polyvinyl acetate</td>
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<td>Ethynylbenzene</td>
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<td>Ethynylbenzene homopolymer</td>
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<td>1-Ethynyl-1,5-dimethyl-4-hexen-1-yl butanoate</td>
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<td>1-Ethynyl-1,5-dimethyl-4-hexenyl hexanoate</td>
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<td>1-Ethynyl-1,5-dimethyl-4-hexenyl octanoate</td>
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<td>1-Ethynyl-1,5-dimethyl-4-hexenyl 3-phenyl-2-propenoate</td>
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<td>1-Ethynyl-2-pyrrolidinone homopolymer</td>
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<td>1-Ethynyl-2-pyrrolidinone homopolymer compd. with iodine</td>
<td>See PVP-iodine</td>
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<tr>
<td>5 Ethenyl tetrahydro-α,α,5-trimethyl 2 furan methanol</td>
<td>See Linalool oxide</td>
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<tr>
<td>Ether</td>
<td>See Ethyl ether</td>
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<td>Ether, benzyl butyl</td>
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<td>Ether, bis (2-butoxyethyl)</td>
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<td>Ethers, cyclic, epoxides, polymers</td>
<td>See Epoxy resin</td>
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<td>2-Ethynylbutanol-2; Ethynylmethylethyl carbinol</td>
<td>See Methyl pentynol</td>
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<td>Ethynyl trichloride</td>
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<td>Ethiops iron</td>
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<td>Ethocel</td>
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<td>3-Ethochloride of 9-o-carboxyphenyl-6-diethylaminio-3-ethylimino-3-isoxanthene</td>
<td>See Basic violet 10; D&amp;C Red No. 19</td>
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<td>Ethohexadiol</td>
<td>See Ethyl hexanediol</td>
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<td>Ethol</td>
<td>See Cetyl alcohol</td>
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<tr>
<td>Ethone</td>
<td>See 1-(p-Methoxyphenyl)-1-penten-3-one</td>
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<tr>
<td>3-Ethostearate of 9-o-carboxyphenyl-6-diethylaminio-3-ethylimino-3-isoxanthene</td>
<td>See</td>
<td></td>
</tr>
</tbody>
</table>
Empirical: C9H10O2

Properties: Red-brn., sweet floral odor and taste; sol. in alcohol; misc. with ether; pract. insol. in water; m.w. 150.18; dens. 1.081 (20/4 C); m.p. 13–16 C; b.p. 255 C; flash pt. 75 C; ref. index 1.559 (20 C)

Toxicology: LD50 (oral, rat) 2100 mg/kg; mod. toxic by ing.; severe skin irritant; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Storage: Air-sensitive; store under nitrogen

Uses: Synthetic flavor for pharmaceuticals

Features: Sweet flavor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL


4-(Ethoxycarbonyl) aniline. See Ethyl-p-aminobenzoate

Ethoxycarbonylethylene. See Ethyl acrylate

Ethyox (35) castor oil. See PEG-35 castor oil

2-Ethoxy-p-cymene. See Carvacryl ethyl ether

Ethoxydiglycol

CAS 111-90-0; EINECS/ELINCS 203-919-7

Synonyms: ’Carbitol’; DEGEE; Diethylene glycol ethyl ether; Diethylene glycol monoethyl ether; Diglycol monoethyl ether; Ethanol, 2-(2-ethoxyethoxy); 2-(2-Ethoxyethoxy) ethanol; Ethyl diethylene glycol; Ethylene diglycol monoethyl ether

Classification: Aliphatic ether alcohol; glycol ether

Empirical: C6H14O3

Formula: CH2OHCH2OCH2CH2OC2H5

Properties: Colorless liq., mild pleasant odor; sol. in water and org. solvs., e.g., acetone, benzene, chloroform, ethanol, ether; m.w. 134.20; dens. 0.990 (20 C); m.p. -76 C; b.p. 195-202 C; flash pt. (OC) 96.1 C; ref. index 1.425 (25 C)

Toxicology: LD50 (oral, rat) 5500 mg/kg, (IP, rat) 6310 mg/kg, (IV, rat) 2200 mg/kg, (skin, rat) 6000 mg/kg; mod. toxic by ing., IP, IV, and other routes; mildly toxic by skin contact; skin and eye irritant; can be absorbed through skin; ing. may cause CNS depression, respiratory depression, sl. kidney injury, thirst, metabolic acidosis and cyanosis; high/repeated exposure may affect kidney; experimental reproductive effects; mutation data; TSCA listed

Environmental: VOC; BOD5 0.58; COD 1.85; ThOD 1.91

Precaution: Combustible liq. and vapor; peroxide former; can react with oxidizers

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 1, Flammability 1, Reactivity 0

Storage: Store in cool, dry, well-ventilated area, out of direct sunlight; very hygroscopic

Uses: Ointment base, solvent, solubilizer, cosurfactant for pharmaceuticals

Regulatory: FDA 21CFR §175.105, 176.180; USP/NF compliance; SARA §313 reportable; HAP; Canada DSL

### Chemical Component Cross-Reference

**Trade Names Containing:**  
Cremogen®  
Camomile Forte 728790; Extrapone  
Avocado Special; Niaproof® Anionic Surfactant 4

**Ethoxyethane.** See Ethyl ether

**Ethoxyethanol**  
CAS 110-80-5; EINECS/ELINCS 203-804-1  
UN 1171 (DOT)

**Synonyms:** 'Cellosolve'; 'Cellosolve' solvent; EE; 2-EE; EGEE; EGMEE; Ethanol, 2-ethoxy-; 2-Ethoxyethanol; Ethyl 'Cellosolve'; Ethylene glycol ethyl ether; Ethylene glycol monoethyl ether; Ethyl glycol; Glycol ether  
EE; Glycol ethyl ether; Glycol monoethyl ether; Hydroxy ether

**Classification:** Aliphatic ether alcohol; glycol ether  
Empirical: C₄H₁₀O₂  
Formula: CH₃CH₂OCH₂CH₂OH

**Properties:** Colorless liq.; mild sweet ether odor; misc. with hydrocarbons, alcohol, ether, acetone, liq. esters, water; m.w. 90.14; dens. 0.9311 (20/20 C); vapor pressure 5.31 mm Hg; m.p. -70 C; b.p. 135.6 C; flash pt. 48.9 C; ref. index 1.4060; surf. tens. 28.2 dynes/cm; dielec. const. 29.6

**Toxicology:** ACGIH TLV/TWA 5 ppm (skin); LD₅₀ (oral, rat) 3 g/kg, (IP, rat) 2800 mg/kg, (IV, rat) 2400 mg/kg, (skin, rabbit) 3300 mg/kg; mod. toxic by ing., skin contact, IV, IP routes; mildly toxic by inhalation, subcut. routes; mild eye/skin irritant; experimental teratogen, reproductive effects; TSCA listed

**Environmental:** VOC; BOD₅ 1.03; COD 1.92; ThOD 1.96

**Precaution:** Flamm.; reacts with oxidizing materials; mod. explosion hazard in form of vapor when exposed to flames; may form explosive peroxides on exposure to light

**Hazardous Decomp. Prods.:** CO, CO₂

**NFPA:** Health 2, Flammability 2, Reactivity 0

**Uses:** Solvent for pharmaceuticals

**Regulatory:** FDA 21CFR §73.1, 175.105, 177.2600; SARA §313 reportable; CERCLA hazardous substance; Calif. Prop. 65 reportable; HAP; Canada DSL

**Manuf./Distrib.:** Aldrich http://www.sigma-aldrich.com; Alchem Ind.  
http://www.alchem.com; Ashland  
http://www.ashchem.com; Brown  
http://www.brownchem.com; Dow  
http://www.dow.com

<table>
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<tr>
<th>CAS</th>
<th>EINECS/ELINCS</th>
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<th>Trade Names Containing</th>
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<td>EINECS/ELINCS 203-804-1</td>
<td>UN 1171 (DOT)</td>
<td>2-Ethoxyethanol</td>
<td>FDA 21CFR §73.1, 175.105, 177.2600; SARA §313 reportable</td>
<td>Solvent for pharmaceuticals</td>
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<td>2-(2-Ethoxyethoxy) ethanol</td>
<td>EINECS/ELINCS 203-804-1</td>
<td>UN 1171 (DOT)</td>
<td>Ethoxydiglycol</td>
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<td>1-Ethoxy-2-(β-ethoxyethoxy) ethane</td>
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<td>UN 1171 (DOT)</td>
<td>Ethoxyethyl ether; 2-Ethoxyethyl ether</td>
<td>FDA 21CFR §73.1, 175.105, 177.2600; SARA §313 reportable</td>
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<tr>
<td>3-Ethoxy-4-hydroxybenzaldehyde</td>
<td>EINECS/ELINCS 203-804-1</td>
<td>UN 1171 (DOT)</td>
<td>Ethyl vanillin</td>
<td>FDA 21CFR §73.1, 175.105, 177.2600; SARA §313 reportable</td>
<td>Solvent for pharmaceuticals</td>
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<td>1-(4-Ethoxy-3-hydroxyphenyl) propene; 1-Ethoxy-2-hydroxy-4-propenylbenzene</td>
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<td>Ceteth</td>
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<td>Ethoxylated mono- and diglycerides</td>
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<td>Propenylguaethol</td>
<td>FDA 21CFR §73.1, 175.105, 177.2600; SARA §313 reportable</td>
<td>Solvent for pharmaceuticals</td>
</tr>
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†=pharmaceutical grade

**Fluka** [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)  
**Lyondell** [http://www.lyondell.com](http://www.lyondell.com)  
**Romil Ltd** [http://www.romil.com](http://www.romil.com)  
**Ruger** [http://www.rugerchemical.com](http://www.rugerchemical.com)  
**Sigma** [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)  
**Spectrum Quality Prods.** [http://www.spectrumchemical.com](http://www.spectrumchemical.com)  

**1-Ethoxy-2-propanol**  
**2-Ethoxy-5-prop-1-yl benzene**  
**2-(2-Ethoxyethoxy) ethanol**  
**2-(2-Ethoxyethoxy) ethanol**  

**EINECS/ELINCS**  
**UN**  
**Trade Names:** Avapol™ EMD  
**Uses:** Emulsifier

**Regulatory:** FDA 21CFR §172.834

**Trade Names:** Avapol™ EMD

**Ethoxylated tridecyl alcohol.** See Trideceth

**1-Ethoxy-2-methoxy-4-propen-1-yl benzene.** See Isoeugenyl ethyl ether

**Ethoxyethylbenzene.** See Benzyl ethyl ether

**2-Ethoxy-1-methyl-4-(1-methyl ethyl) benzene.** See Carvacryl ethyl ether

**Ethoxypropanol; 1-Ethoxy-2-propanol.** See Propylene glycol ethyl ether

**2-Ethoxy-5-propenyl anisole.** See Isoeugenyl ethyl ether

**Ethoxy propenylphenol; 2-Ethoxy-5-propenylphenol; 2-Ethoxy-5-prop-1-enylphenol.** See Propenylguaethol

**Ethyl 2-acetal-3-phenylpropionate.** See Ethyl-2-acetyl-3-phenylpropionate

**Ethyl acetate**  
CAS 141-78-6; EINECS/ELINCS 205-500-4  
UN 1173 (DOT); FEMA 2414
Acetic acid, ethyl ester; Acetic ester; Acetic ether; Acetoxymethane; Ethyl acetic ester; Ethyl ethanoate; Vinegar naphtha

Classification: Sat. aliphatic carboxylic acid ester

Definition: Ester of ethyl alcohol and acetic acid

Empirical: \( \text{C}_4\text{H}_8\text{O}_2 \)

Formula: \( \text{CH}_3\text{COOC}_2\text{H}_5 \)

Properties: Colorless liq., fragrant fruity odor, acetous burning taste; sol. in chloroform, alcohol, ether, acetone, benzene, fixed and volatile oils; sl. sol. in water; m.w. 88.12; dens. 0.902 (20/4 C); bulk dens. 0.8945 g/ml; f.p. -83.6 C; b.p. 77 C; flash pt. -4.4 C; ref. index 1.3723; surf. tens. 24 dynes/cm (20 C)

Toxicology: ACGIH TLV/TWA 400 ppm; LD50 (oral, rat) 5620 mg/kg, (IP, mouse) 709 mg/kg; LC50 (inh., rat, 8 h) 1600 ppm; poison by inh.; mod. toxic by IP and subcut. routes; mildly toxic by ing.; irritant to eyes, skin, mucous membranes; human systemic effects by inh.; mildly narcotic; CNS depressant; can cause dermatitis; high concs. can cause liver/kidney congestion; mutagenic data; TSCA listed

Environmental: VOC; BOD5 1.00; COD 1.69; ThOD 1.82

Precaution: DOT: Flamm. liq.; very dangerous fire hazard exposed to heat or flame; can react vigorously with oxidizers; incompat. with strong oxidizers, strong acids, bases, potassium t-butoxide

Hazardous Decomp. Prods.: Ethanol, acetic acid; heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 1, Flammability 3, Reactivity 0

Storage: Store in cool, dry, well-ventilated area, out of direct sunlight, away from heat/ignition sources

Uses: Solvent in pharmaceuticals, ophthalmics, orals, topicals; flavor in pharmaceuticals; recovery, crystallization of drugs

Features: Pineapple-like flavor

Regulatory: FDA 21CFR §73.1, 172.560, 172.859, 173.228, 175.320, 177.1200, 182.60, GRAS; 27CFR §21.106; FEMA GRAS; FDA approved for ophthalmics, orals, topicals; USP/NF, BP, EP compliance; Australia AICS; Canada DSL; CERCLA hazardous substance; Japan approved with restrictions

Manuf./Distrib.: AAE Chemie NV†
  http://www.aaechemie.com; AMC Chems.;
  AP Resources http://www.apr.co.kr

†=pharmaceutical grade

Aastrid Int’l†
http://www.aastrid.com

Advanced BioTech http://www.adv-bio.com

Allchem Ind. http://www.allchem.com

Ashland† http://www.ashchem.com; Astral

Extracts http://www.astralextracts.com

Augustus Oils Ltd http://www.augustus-oils.ltd.uk

Axxence Aromatic GmbH
http://www.axxence.com

http://www.axxence.de

BP Chemicals† http://www.bp.com; BP

Chems. Ltd http://www.bp.com/chemicals/;

Baychem; Berje http://www.berjeinc.com;

Brenntag AG† http://www.brenntag.de

Brown http://www.brownchem.com; Cargill

Flavors & Fruit Systems USA
http://www.flavors-fruit-systems.com;

Celanese http://www.celanesechemicals.com;

http://www.chemvip.com; Chemcentral

http://www.chemcentral.com; Chisso Am.

Chisso Petrochem.† http://www.chisso-eng.co.jp/ENGProfile.htm; Citrus and Allied

Essences http://www.citrusandalldied.com;

Daicel Chem. Ind.† http://www.daicel.co.jp;

Degussa AG http://www.degussa.com;

Dow† http://www.dow.com

Eastman† http://www.eastman.com; Elan

http://www.elan-chemical.com; Eramex

Aromatics http://www.eramex.de; Fisher

Scientific

Fleurechem http://www.fleurechem.com

Fluka http://www.sigma-aldrich.com; GFS†

http://www.gfschemicals.com; General

Chem. http://www.gencalrich.com; GFS†

http://www.gfschemicals.com; General


Harcros http://www.harcroschem.com;

Houghton Chem.
http://www.houghtonchemical.com

Hukill http://www.hukill.com; Integra†

http://www.integchem.com; Lluch

Essence http://www.lluch-essence.com;

Lonza Ltd http://www.lonza.com;

Mallinckrodt Baker†
http://www.mallbaker.com


Oxford Chems. Ltd http://www.oxfordchemicals.com; Penta

Mfg.† http://www.pentamfg.com; Punda

Mercantile http://www.punda.com

R.C. Treatt & Co. Ltd
http://www.rctreatt.com; Romil Ltd
http://www.romil.com; Ruger

http://www.rugerchemical.com; SAFC

Specialties
Chemical Component Cross-Reference

http://www.safcspecialties.com; Sal Chem.
http://www.salchem.com
Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality Prods.†
http://www.spectrumchemical.com;
Synasia† http://www.synasia.com; Thomas Scientific† http://www.thomassci.com; Vinchenv† http://www.vinchem.com;
Xinchem† http://www.finechemnet.com
Trade Names Containing: BIO-PSA® 7-4102
Silicone Adhesive; BIO-PSA® 7-4202
Silicone Adhesive; Carbopol® 971P NF;
Carbopol® 974P NF; Filmex® C 190 Proof
Filmex® C Anhydrous; Punctilious® SDA 29-3 190 Proof

Ethylacetic acid. See n-Butyric acid
Ethyl acetic ester. See Ethyl acetate

Ethylacetoacetate

CAS 141-97-9; EINECS/ELINCS 205-516-1
UN 1993 (DOT); FEMA 2415
Synonyms: Acetoacetic acid ethyl ester;
Acetoacetic ester; Diacetic ether; Diacetyl ether; EAA; EEA; Ethyl acetaldehyde; Ethyl acetylacetone; Ethyl benzyl acetoacetate;
Etyl 3-oxobutanoate; Ethyl 3-oxobutyrate;
3-Oxobutanoic acid ethyl ester
Classification: Aliphatic organic compd.
Empirical: C₆H₁₂O₃
Formula: CH₃COCH₂COOC₂H₅
Properties: Colorless liq., fruity odor; sol. in ≈ 35 parts water; misc. with oxygenated, chlorinated, and aromatic solvs.; m.w. 130.14;
dens. 1.0213 (25/4 C); m.p. -45 C; b.p. 180.8 C; flash pt. (CC) 184 F; ref. index 1.4180-1.4195
Toxicology: LD50 (oral, rat) 3.98 g/kg; mod. toxic by ing.; mod. irritating to skin, mucous membranes, eyes; TSCA listed
Precaution: DOT: Flamm. liq.; combustible liq. when exposed to heat or flame; can react with oxidizing materials; explosive reactions possible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
NFPA: Health 2, Flammability 2, Reactivity 0
Uses: Synthetic flavor for pharmaceuticals; intermediate for vitamins, drugs
Features: Sweet flavor
Regulatory: FDA 21CFR §172.515, 175.300; FEMA GRAS; Japan approved as flavoring; Canada DSL
†=pharmaceutical grade

Manuf./Distrib.: Aceto† http://www.aceto.com;
Citrus and Allied Essences http://www.citrusandallied.com; Daicel Chem. Ind.† http://www.daicel.co.jp
Honeywill & Stein† http://www.honeywill.co.uk; Integra† http://www.integramchem.com
Lluch Essence http://www.lluch-essence.com; Lonza http://www.lonza.com;
http://www.pentamfg.com
Prodasynth http://www.prodasynth.com;
R.C. Trett & Co. Ltd
Spectrum Quality Prods.† http://www.spectrumchemical.com
Symrise USA† http://www.symrise.com;
VWR Int’l† http://www.vwrsp.com; Wacker Chems.† http://www.wackersilicones.com;
Wacker-Chemie AG† http://www.wacker.de
Trade Names: Eastman® EAA
Trade Names Containing: Punctilious® SDA 29-2 190 Proof; Punctilious® SDA 29-2 Anhydrous

Ethyl acetone. See Methyl propyl ketone
Ethyl acetyl acetate; Ethyl acetylacetone. See Ethylacetoacetate

Ethyl α-acetylmethoxycinnamate; Ethyl α-acetylhydroxycinnamate. See Ethyl-2-acetyl-3-phenylpropionate

Ethyl-2-acetyl-3-phenylpropionate

CAS 620-79-1; EINECS/ELINCS 210-651-4
FEMA 2416
Synonyms: Ethyl 2-acetal-3-phenylpropionate;
Ethyl α-acetylhydroxycinnamate; Ethyl α-acetylmethoxycinnamate; Ethylbenzyl acetoacetate; Ethyl-3-oxo-2-benzylbutanoate
Definition: Obtained by reacting benzyl chloride over hot sodium acetoacetate
Empirical: C₁₃H₁₆O₃
Formula: CH₃COCH(CH₂C₆H₅)CO₂C₂H₅
Properties: Colorless liq.; balsamic fruity jasmine odor; misc. with alcohol, ether; insol. in water;
Chemical Component Cross-Reference

m.w. 220.27; dens. 1.036; b.p. 276 C; flash pt. > 230 F
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: SAFC Specialties
http://www.safcspecialties.com

†=pharmaceutical grade

Ethyl 3-acetylpropionate. See Ethyl levulinate

Ethyl aconitate, mixed esters
CAS 1321-30-8
FEMA 2417
Synonyms: Ethyl-2-carboxyglutaconate; Ethyl 1-propene-1,2,3-tricarboxylate; Mono-ethyl 1-propene-1,2,3-tricarboxylate; 1Ppropene-1,2,3-tricarboxylic acid ethyl ester
Properties: Colorless oily liq., sweet fruity winey odor and flavor; sol. in alcohol; sl. sol. in water; dens. 1.0961; b.p. 260 C; ref. index 1.45771 (14.5 C)
Uses: Synthetic flavor for pharmaceuticals
Features: Sweet fruity wine odor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Degussa AG/Health & Nutrition

Ethyl acrylate
CAS 140-88-5; EINECS/ELINCS 205-438-8
UN 1917 (DOT); FEMA 2418
Synonyms: Acrylic acid, ethyl ester; Ethoxycarbonylethylene; Ethyl propenoate; Ethyl 2-propenoate; 2-Propenoic acid, ethyl ester
Definition: Esterification of acrylic acid
Empirical: C5H8O2
Formula: CH2:CHCOOC2H5
Properties: Colorless liq., penetrating and persistent odor; sol. in alcohol, ether, oxygenated solvs.; sl. sol. in water; m.w. 100.12; sp.gr. 0.918; m.p. -71 to -75 C; f.p. 60 F; b.p. 99-100 C; ref. index 1.4068
Toxicology: ACGIH TLV/TWA 5 ppm; STEL 15 ppm; LD50 (oral, rat) 800 mg/kg, (IP, rat) 450 mg/kg; LC50 (inh., mouse) 16,200 mg/m3; poison by ing. and inh.; mod. toxic by skin contact and IP routes; skin and eye irritant; human systemic effects by inh.; pulmonary changes; can severely irritate gastrointestinal tract; may cause dyspnea, cyanosis, convulsions; migrates to food from pkg.; delisted as human carcinogen; TSCA listed
Precaution: Flamm. liq.; very dangerous fire hazard exposed to heat/flame; can react vigorously with oxidizers; readily polymerized; violent reaction with chlorosulfonic acid
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
NFPA: Health 2, Flammability 3, Reactivity 2
Uses: Synthetic flavor for pharmaceuticals
Features: Fruity flavor
Regulatory: FDA 21CFR §172.515, 174.2420, 175.105, 175.300, 175.360, 176.170, 177.1010, 177.1200, 177.1630, 178.3790; FEMA GRAS; SARA reportable; HAP; Canada DSL

Ethyl acrylate/methyl methacrylate copolymer
Uses: Controlled-release permeable film coatings in pharmaceuticals
Trade Names: Eudragit® NE 30 D; Eudragit® NE 40 D
Trade Names Containing: Kollicoat® EMM 30 D

Ethyl alcohol; Ethyl alcohol, undenatured. See Alcohol

Ethyl alcohol. See Acetaldehyde

Ethylaminobenzoate. See Ethyl-p-aminobenzoate

Ethyl 2-aminobenzoate. See Ethyl anthranilate

Ethyl-4-aminobenzoate. See Ethyl-p-aminobenzoate

Ethyl o-aminobenzoate. See Ethyl anthranilate

Ethyl-p-aminobenzoate
CAS 94-09-7; EINECS/ELINCS 202-303-5
Synonyms: 4-Aminobenzoic acid ethyl ester; p-Aminobenzoic acid ethyl ester; Benzocaine; Benzocic acid, 4-aminoc-, ethyl ester; Benzoic acid, p-amino-, ethyl ester; 4-Carboxethoxyaniline; 4-(Ethoxycarbonyl) aniline; Ethylaminobenzoate; Ethyl-4-
aminobenzoate; Ethyl p-aminophenylcarboxylate; Ethyl PABA (INCI)

Classification: Aromatic ester

Definition: Ester of ethyl alcohol and p-aminobenzoic acid

Empirical: C₉H₁₁NO₂

Properties: Cryst. or needles; sol. in oxygenated and chlorinated solvs.; sol. 1 g in 2500 ml water, 5 ml alcohol, 2 ml chloroform, 4 ml ether, 30-50 ml olive oil or almond oil; m.w. 165.19; m.p. 88-90 C; b.p. 183-184 C (14 mm)

Toxicology: LD₅₀ (IP, mouse) 216 mg/kg, (oral, bird) 56 mg/kg; harmful; poison by ing. and IP routes; primary skin irritant; mild sensitizer; human systemic effects by rectal route; may cause contact dermatitis; target organs: blood, nerves; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits highly toxic fumes of NOₓ

Uses: Topical anesthetic; sunscreening agent

Regulatory: Canada DSL

Manuf./Distrib.: ABCR http://www.abcr.de;
Anmar Int'l† http://www.anmarinternational.com;
Integra† http://www.integrachem.com;
Mallinckrodt Baker† http://www.mallbaker.com; Napp Tech.† http://www.napptech.com
Penta Mfg.† http://www.pentamfg.com;

†=pharmaceutical grade

http://www.upichem.com; VWR Int'l† http://www.vwrsrp.com

Ethyl-p-aminobenzoate hydrochloride. See Procaine hydrochloride

Ethyl p-aminophenylcarboxylate. See Ethyl-p-aminobenzoate

2-Ethyl-2-aminopropan-1,3-diol; 2-Ethyl-2-aminopropanediol; 2-Ethyl-2-amino-1,3-propanediol. See Aminoethyl propanediol

Ethyl amyl carbinol; Ethyl n-amyl carbinol. See 3-Octanol

Ethyl amyl ketone; Ethyl n-amyl ketone. See 3-Octanone

Ethyl anisate. See Ethyl-p-anisate

Ethyl-p-anisate

CAS 94-30-4; EINECS/ELINCS 202-320-8

FEMA 2420

Synonyms: p-Anisic acid ethyl ester; Ethyl anisate; Ethyl-4-methoxybenzoate; Ethyl-p-methoxybenzoate

Definition: Obtained by esterification of anisic acid with ethanol in presence of an acid catalyst

Empirical: C₁₀H₁₂O₃

Properties: Colorless liq., fruity anise odor; sol. in alcohol, ether; sl. sol. in water; m.w. 180.21; dens. 1.103; m.p. 7-8 C; b.p. 269-270 C; flash pt. > 100 C; ref. index 1.522-1.526

Toxicology: LD₅₀ (oral, rat) 2040 mg/kg; mod. toxic by ingestion; TSCA listed

Precaution: Combustible liq.

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals

Features: Fruity flavor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL


Ethyl anthranilate

CAS 87-25-2; EINECS/ELINCS 201-735-1

FEMA 2421

Synonyms: o-Aminobenzoic acid, ethyl ester; Ethyl 2-aminobenzoate; Ethyl o-aminobenzoate

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**4-Ethylbenzaldehyde**

*Definition:* Obtained by esterification of anthranilic acid with ethanol in presence of acid catalysts

*Empirical:* C₉H₁₁NO₂

*Formula:* NH₂C₆H₄COOC₂H₅

*Properties:* Colorless to amber liq.; fruity odor; sol. in alcohol, propylene glycol, fixed oils; m.w. 165.19; dens. 1.118 (20/4 C); m.p. 13-15 C; b.p. 264-268 C; ref. index 1.564 (20 C)

*Toxicology:* LD₅₀ (oral, rat) 3750 mg/kg; mod. toxic by ing.; skin irritant; TSCA listed

*Precaution:* Combustible liq.

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of NOₓ

*Toxicity:* LD₅₀ (oral, rat) 3750 mg/kg; mod. toxic by ing.; skin irritant; TSCA listed

*Uses:* Synthetic flavor for pharmaceuticals

*Features:* Sweet grape-like flavor

*Regulatory:* FDA 21CFR §172.515; FEMA GRAS; Canada DSL

*Manufacturers/Distributors:*
- Bell Flavors & Fragrances [http://www.bellff.com](http://www.bellff.com)
- Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
- SAFC Specialties [http://www.safcspecialties.com](http://www.safcspecialties.com)

**Ethylbenzene**

*Definition:* See p-Ethylbenzaldehyde

*Synonyms:* EB; Ethylbenzol; Phenylethane

*Classification:* Aromatic hydrocarbon

*Empirical:* C₈H₁₀

*Formula:* C₆H₅C₂H₅

*Properties:* Colorless liq., aromatic odor; sol. in ethanol, ether, toluene; insol. in water; m.w. 106.17; dens. 0.867 (20 C); vapor pressure 10 mm (25.9 C); f.p. -95 C; b.p. 136.187 C; flash pt. (TCC) 15 C; autoignition temp. 432 C; ref. index 1.495 (20 C); surf. tens. 28.48 dynes/cm; KB value 96; dielec. const. 2.042

*Toxicology:* ACGIH TLV/TWA 100 ppm; STEL 125 ppm; LD₅₀ (oral, rat) 3500 mg/kg, (dermal, rabbit) 17,800 mg/kg; mod. toxic by ing., IP route; mildly toxic by inh. and skin contact; eye irritant; inh. of vapor can irritate nose and throat, cause CNS depression, headache, vomiting, nausea; can cause severe lung damage or death if liq. is aspirated into lungs; experimental teratogen; human mutagenic data; TSCA listed

*Environmental:* VOC; BOD₅ 0.92; ThOD 3.17

*Precaution:* Highly flamm.; LEL 1%; UEL 6.7%; dangerous fire risk; incompat. with strong oxidizing agents (can react violently; increased risk of fire and explosion)

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*NFPA:* Health 2, Flammability 3, Reactivity 0

*Storage:* Store in cool, dry, well-ventilated area of out direct sunlight, away from ignition sources

*Uses:* Reagent

*Regulatory:* SARA §313 reportable; CERCLA hazardous substance; HAP; Canada DSL

*Manufacturers/Distributors:*
- Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
- Ashland [http://www.ashchem.com](http://www.ashchem.com)
- BP Chemicals [http://www.bp.com](http://www.bp.com)
- ChevronPhillips [http://www.cpchem.com](http://www.cpchem.com)
- Dow [http://www.dow.com](http://www.dow.com)
- Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
- Huntsman [http://www.huntsman.com](http://www.huntsman.com)
- Lyondell [http://www.lyondell.com](http://www.lyondell.com)
- Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)
- Spectrum Quality Prods. [http://www.spectrumchemical.com](http://www.spectrumchemical.com)
- Sterling Chems. [http://www.sterlingchemicals.com](http://www.sterlingchemicals.com)

*Trade Names Containing:* VM&P Naphtha HT
Ethyl benzeneacetate. See Ethyl phenylacetate
Ethyl benzenecarboxylate. See Ethyl benzoate
α-Ethylbenzenemethanol. See 1-Phenyl-1-propanol

Ethyl benzoate
CAS 93-89-0; EINECS/ELINCS 202-284-3
FEMA 2422
Synonyms: Benzoic acid ethyl ester; Benzoic ether; Essence of niobe; Ethyl benzenecarboxylate
Definition: Ester of ethyl alcohol and benzoic acid
Empirical: C_{9}H_{10}O_{2}
Formula: C_{6}H_{5}COOC_{2}H_{5}
Properties: Colorless liq., green grassy, fruity ester-like, aromatic odor; sol. in alcohol, fixed oils, propylene glycol; misc. with chloroform, ether, petroleum ether; insol. in water, glycerin; m.w. 150.18; dens. 1.046 (20/4 C); m.p. -34 C; b.p. 211-214 C; flash pt. 184 F; ref. index 1.505 (20 C)
Toxicology: LD50 (oral, rat) 2100 mg/kg; LDLo (skin, cat) 10 g/kg; mod. toxic by ing.; mildly toxic by skin contact; skin and eye irritant; vapors cause cough; TSCA listed
Precaution: Combustible liq.; can react with oxidizers
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
NFPA: Health 1, Flammability 1, Reactivity 0
Uses: Synthetic flavor for pharmaceuticals
Features: Banana-, cherry-, plum-like flavor
Use Level: 0.5% max. as benzoic acid in finished cosmetics
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Advanced BioTech
http://www.adv-bio.com; Advanced Synthesis Tech.
http://www.advancedsynthesis.com; Allan
http://www.allanchem.com; Augustus Oils Ltd http://www.augustus-oils.ltd.uk;
Axxence Aromatic GmbH
http://www.axxence.com;
http://www.axxence.de
Bell Flavors & Fragrances
http://www.bellff.com; Chemial SpA
http://www.chemical.com; Elan
http://www.elan-chemical.com; Fleurchem
t=pharmaceutical grade
http://www.fleurchem.com; Fluka
http://www.sigma-aldrich.com
Lluch Essence http://www.lluch-essence.com; Oxford Chems. Ltd
SAFC Specialties http://www.safcspecialties.com

Ethylbenzol. See Ethylbenzene

Ethyl benzoylacetate
CAS 94-02-0; EINECS/ELINCS 202-295-3
FEMA 2423
Synonyms: Acetic acid, benzoyl-, ethyl ester; Benzenepropanoic acid, β-oxo-, ethyl ester; Benzoylacetic acid ethyl ester; Ethyl β-keto-β-phenylpropionate; Ethyl β-oxobenzenepropanoate; Ethyl 3-phenyl-3-oxopropanoate; β-Oxobenzenepropanoic acid ethyl ester
Definition: Obtained by condensation of ethyl benzoate with ethyl acetate using sodium ethoxide
Empirical: C_{11}H_{12}O_{3}
Formula: C_{6}H_{5}COCH_{2}COOC_{2}H_{5}
Properties: Lt. yel. oily liq., pleasant odor; becomes yel. on exposure to air and light; misc. with alcohol, ether; insol. in water; m.w. 192.21; dens. 1.122 (15 C); m.p. < 0 C; b.p. 265-270 C (dec.); flash pt. 184 C; ref. index 1.5270
Toxicology: LD50 (oral, mouse) 6800 mg/kg; mildly toxic by ing.; TSCA listed
Precaution: Combustible; volatile with steam
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating vapors
NFPA: Health 0, Flammability 1, Reactivity 0
Uses: Synthetic flavor for pharmaceuticals; pharmaceutical intermediate
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Advanced Synthesis Tech.
http://www.advancedsynthesis.com; Fluka
http://www.sigma-aldrich.com; Oxford Chems. Ltd
http://www.oxfordchemicals.com; SAFC Specialties http://www.safcspecialties.com

Ethylbenzyl acetoacetate. See Ethyl-2-acetyl-3-phenylpropionate
Ethyl benzyl acetoacetate. See Ethylacetoacetate

Handbook of Pharmaceutical Additives, Third Edition 1294
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th><strong>α-Ethylbenzyl alcohol; α-Ethylbenzyl alcohol.</strong> See 1-Phenyl-1-propanol</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>α-Ethylbenzyl butyrate</strong></td>
</tr>
<tr>
<td>CAS: <strong>10031-86-4</strong>; EINECS/ELINCS: <strong>233-094-9</strong>; FEMA: <strong>2424</strong></td>
</tr>
<tr>
<td>Synonyms: Butanoic acid 1-phenyl propyl ester; Butyric acid alpha-ethyl benzyl ester; α-Ethyl benzyl butyrate; Ethyl phenyl carbinyl butyrate; α-Phenylpropyl butyrate</td>
</tr>
<tr>
<td>Empirical: <strong>C₉H₁₅O₂</strong></td>
</tr>
<tr>
<td>Properties: Liq., floral fruity odor, sweet plum-like taste; m.w. 206.28; dens. 0.9875-0.9905 (15°C); b.p. 282°C; flash pt. 118°C; ref. index 1.4875-1.4895</td>
</tr>
<tr>
<td>Uses: Synthetic flavor for pharmaceuticals</td>
</tr>
<tr>
<td>Regulatory: FDA 21 CFR §172.515; FEMA GRAS; Canada DSL</td>
</tr>
<tr>
<td>Manuf./Distrib.: Degussa AG/Health &amp; Nutrition</td>
</tr>
<tr>
<td>α-Ethyl benzyl butyrate. See α-Ethylbenzyl butyrate</td>
</tr>
<tr>
<td>Ethyl benzyl ether. See Benzyl ethyl ether</td>
</tr>
<tr>
<td>7-Ethyl bicyclocxazolidine</td>
</tr>
<tr>
<td>CAS: <strong>7747-35-5</strong>; EINECS/ELINCS: <strong>231-810-4</strong></td>
</tr>
<tr>
<td>Synonyms: 1-Aza-3,7-dioxa-5-ethylbicyclo(3.3.0) octane; 7A-Ethylidihydro-1H,3H,5H-oxazolo (3,4-C) oxazole</td>
</tr>
<tr>
<td>Classification: Heterocyclic compd.</td>
</tr>
<tr>
<td>Uses: Preservative, antibacterial for pharmaceuticals, topicals</td>
</tr>
<tr>
<td>Features: Does not increase VOC content</td>
</tr>
<tr>
<td>Regulatory: USA not restricted; Europe provisional list 3000 ppm max.; Canada DSL</td>
</tr>
<tr>
<td>Manuf./Distrib.: Aldrich <a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a>; Fluka <a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a></td>
</tr>
<tr>
<td>Trade Names: Oxaban®-E</td>
</tr>
<tr>
<td>Ethyl brassylate. See Ethylene brassylate</td>
</tr>
<tr>
<td>2-Ethylbutanal; 2-Ethyl-1-butanal. See 2-Ethylbutyraldehyde</td>
</tr>
<tr>
<td>Ethyl butanoate. See Ethyl butyrate</td>
</tr>
<tr>
<td>2-Ethyl butanoic acid. See Diethylacetic acid</td>
</tr>
<tr>
<td>Ethyl trans-2-butenoate. See Ethyl crotonate</td>
</tr>
<tr>
<td>3-Ethylbutinol. See Methyl pentynol</td>
</tr>
<tr>
<td>Ethyl butylacetate. See Ethyl caproate</td>
</tr>
<tr>
<td>2-Ethylbutyl acetate</td>
</tr>
<tr>
<td>CAS: <strong>10031-87-5</strong>; EINECS/ELINCS: <strong>233-095-4</strong>; FEMA: <strong>2425</strong></td>
</tr>
<tr>
<td>Synonyms: Acetic acid 2-ethylbutyl ester</td>
</tr>
<tr>
<td>Definition: Obtained by reacting 2-ethylbutanol with acetic anhydride in the presence of sulfuric acid</td>
</tr>
</tbody>
</table>

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| **2-Ethyl-3-butyraldehyde; α-Ethyl-β-butyl acrolein.** See 2-Ethyl-2-heptenal |
| Ethyl butyl carbinol. See 3-Heptanol |
| Ethyl butyl ketone; Ethyl-n-butyl ketone. See 3-Heptanone |
| Ethyl butyl malonate. See Butyl ethyl malonate |
| Ethyl t-butyl malonate. See t-Butyl ethyl malonate |
| 3-Ethylbutynol. See Methyl pentynol |
| Ethylene brassylate. See Ethylene brassylate |
| 2-Ethyldihydrocarbinyl butyrate; α-Ethyl-β-butyl malonate; α-Butyl-β-butyl malonate; β-Butyl-β-butyl malonate |
| α-Ethylbutyric acid; α-Ethylbutyric aldehyde; α-Ethylbutyraldehyde; Ethylbenzyl butyrate; Ethyl benzyl butyrate; Ethyl-3-butylacrolein |
| Ethyl bicyclooxazolidine; Ethyl brassylate; 2-Ethyl-3-butyraldehyde; α-Ethyl-β-butyl acrolein; 2-Ethyl-2-heptenal; Ethyl butyl carbinol; 3-Heptanol; Ethyl butyl ketone; Ethyl-n-butyl ketone; 3-Heptanone; Ethyl butyl malonate; Butyl ethyl malonate; Ethyl t-butyl malonate; 3-Ethylbutynol; Ethylene brassylate |
| **Empirical: C₆H₁₂O** |
| **Formula:** C₂H₅CH(C₂H₅)CH₂OOCCH₃ |
| **Properties:** Colorless liq.; mild odor; m.w. 144.21; dens. 0.876; b.p. 160-163°C; flash pt. 52°C; ref. index 1.4109 |
| **Toxicology:** TSCA listed |
| **Precaution:** Combustible; moderate fire risk |
| **NFPA:** Health 1, Flammability 2, Reactivity 0 |
| **Uses:** Synthetic flavor for pharmaceuticals |
| **Features:** Fruity flavor |
| **Regulatory:** FDA 21 CFR §172.515; FEMA GRAS; Canada DSL |
| **Manuf./Distrib.:** SAFC Specialties [http://www.safcspecialties.com](http://www.safcspecialties.com) |

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| **2-Ethyl-3-butyraldehyde** |
| CAS: **97-96-1**; EINECS/ELINCS: **202-623-5**; UN 1178 (DOT); FEMA: **2426** |
| Synonyms: Butanal, 2-ethyl-; Butyraldehyde, 2-ethyl-; Diethyl acetaldehyde; 2-Ethylbutanal; 2-Ethyl-1-butanal; Ethyl butyraldehyde; α-Ethylbutyrinaldehyde; 2-Ethylbutyric aldehyde; α-Ethylbutyric aldehyde; Ethylbenzyl butyrate; Ethyl benzyl butyrate; Ethyl-3-butylacrolein; Ethyl benzyl butyrate; Ethyl-3-butylacrolein |
| Classification: Nonaromatic aldehyde |
| Empirical: **C₆H₁₂O** |
| Formula: (C₂H₅)₂CHCHO |
| Properties: Colorless liq., pungent odor; misc. with alcohol, ether; sl. sol. in water; m.w. 100.16; dens. 0.811; vapor pressure 13.7 mm Hg (20°C); m.p. -89°C; b.p. 117°C; flash pt. (OC) 70°F; ref. index 1.40398 |
| Toxicology: LD₅₀ (oral, rat) 3980 mg/kg, (skin, rabbit) 5990 µl/kg; (skin, rabbit) 5990 µl/kg; mod. toxic by ing.; mildly toxic by inh.; skin and eye irritant; TSCA listed |
| Precaution: Flamm. liq.; dangerous fire risk; can react vigorously with oxidizing materials |
| Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes |
| **NFPA:** Health 2, Flammability 3, Reactivity 1 |
α-Ethylbutyraldehyde. See 2-Ethylbutyraldehyde

Ethyl butyrate
CAS 105-54-4; EINECS/ELINCS 203-306-4
UN 1180 (DOT); FEMA 2427
Synonyms: Butanoic acid, ethyl ester; Butyric acid, ethyl ester; Butyric ether; Ethyl butanoate; Ethyl n-butyrate
Classification: Butanoic acid ester
Definition: Obtained by esterification of n-butyric acid with ethyl alcohol in presence of Twitchell's reagent or MgCl₂
Empirical: C₈H₁₆O₂
Formula: CH₃(CH₂)₄COOC₂H₅
Properties: Colorless liq., banana-pineapple odor; sol. in water, fixed oils, propylene glycol; misc. with alcohol, ether; insol. in glycerin @ 121 C; m.w. 116.18; dens. 0.874; m.p. -100.8 C; b.p. 121.6 C; flash pt. (CC) 24 C; ref. index 1.391
Toxicology: LD₅₀ (oral, rat) 13 g/kg; mildly toxic by ing.; skin irritant; TSCA listed
Precaution: Flamm. liq.; can react vigorously with oxidizing materials
Hazardous Decomp. Pros.: Heated to decomp., emits acrid smoke and irritating fumes
NFPA: Health 0, Flammability 3, Reactivity 0
Storage: 12 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air
Uses: Synthetic flavor and fragrance for pharmaceuticals
Features: Banana-, pineapple-like flavor
Regulatory: FDA 21 CFR §182.60, GRAS; FEMA GRAS; Australia AICS; Japan approved as flavoring; Canada DSL
Manufacturers/Distributors:

Ethyl n-butyrate. See Ethyl butyrate

Ethylbutyric acid; 2-Ethylbutyric acid; α-Ethylbutyric acid. See Diethylacetic acid

2-Ethylbutyric aldehyde; α-Ethylbutyric aldehyde. See 2-Ethylbutyraldehyde

Ethyl butyro lactone; γ-Ethylbutyro lactone. See γ-Hexalactone

Ethyl caprate; Ethyl caprinate. See Ethyl decanoate

Ethyl caproate
CAS 123-66-0; EINECS/ELINCS 204-640-3
UN 3272; FEMA 2439
Synonyms: Ethyl butyrate; Ethanol caprate; Ethyl hexanoate; Ethyl hexoate; Ethyl hexylate; Hexanoic acid ethyl ester
Definition: Obtained by esterification of caproic acid with ethyl alcohol in presence of conc. H₂SO₄ or HCl
Empirical: C₈H₁₆O₂
Formula: CH₃(CH₂)₄COOC₂H₅
Properties: Colorless to ylsh. liq.; fruity ester-like, tropical, mild wine odor; sol. in fixed oils, most
Chemical Component Cross-Reference

org. solvs.; sl. sol. in propylene glycol; misc. with alcohol, ether; insol. in water, glycerin; m.w. 144.24; dens. 0.867-0.871; vapor dens. 4.9; b.p. 163; ref. index 1.406-1.409

Toxicology: Skin irritant; TSCA listed
Precaution: Flamm. or combustible liq.; can react with oxidizing materials

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 2, Flammability 2, Reactivity 0

Storage: 12 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air

Uses: Synthetic flavor and fragrance for pharmaceuticals

Features: Apple, banana, pineapple-like flavor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Japan approved as flavoring; Canada DSL; Australia AICS

Manuf./Distrib.: A&E Connock
Axxence Aromatic GmbH

†=pharmaceutical grade

http://www.safcspecialties.com; Sigma
http://www.sigma-aldrich.com/belgium
V. Mane Fils SA http://www.mane.com

Ethyl capronate. See Ethyl caproate
Ethyl caprylate. See Ethyl octanoate
Ethyl carbinol. See Propyl alcohol
Ethyl-2-carboxyglutaconate. See Ethylaconitate, mixed esters
Ethyl carvacrol; Ethyl carvacyl ether. See Carvacryl ethyl ether
Ethyl 'Cellosolve'. See Ethoxyethanol

Ethylcellulose
CAS 9004-57-3
INS462

Synonyms: Cellulose ethyl; Cellulose ethylate; Cellulose ethyl ether; EC; Ethocel
Definition: Ethyl ether of cellulose
Properties: Wh. to lt. tan powd.; sol. in most org. liqs., alcohol, aromatic solvs.; insol. in water, glycerol, propylene glycol; dens. 1.07-1.18; ref. index 1.47

Toxicology: LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; skin irritant; TSCA listed

Precaution: Combustible

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Storage: Hygroscopic

Uses: Protective coating agent and tablet binder in pharmaceutical vitamin/mineral preps., orals, topicals

Regulatory: FDA 21CFR §73.1, 172.515; FEMA GRAS; Japan approved for orals, topicals; USP/NF, BP, EP compliance; Canada DSL

Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Alfa Chem† http://www.alfachem1.com; Allchem Int'l. Ltd† http://www.allchem.co.uk; Ashland† http://www.ashchem.com; CarboMer† http://www.carbomer.com
FMC http://www.fmcechemicals.com; Fluka http://www.sigma-aldrich.com; Hercules/Aqualon† http://www.aqualon.com; Honeywill &
### Chemical Component Cross-Reference

| Stein† | http://www.honeywill.co.uk; |
| Mutcher† | http://www.mutchlerchemical.com; |
| Punda Mercantile | http://www.punda.com; |
| Ruger† | http://www.rugerchemical.com; |
| Sansho† | http://www.sansho.co.jp; Sigma |
| http://www.sigma-aldrich.com/belgium; |
| Spectrum Quality Prods.† | http://www.spectrumchemical.com |

**Trade Names:** Aqualon® N-7; Aqualon® N-10; Aqualon® N-14; Aqualon® N-22; Aqualon® N-50; Aqualon® N-100; Ethocel™ Standard 4 Premium; Ethocel™ Standard 7 Premium; Ethocel™ Standard 14 Premium; Ethocel™ Standard 20 Premium; Ethocel™ Standard 45 Premium; Ethocel™ Standard 100 Premium; Surelease®

**Trade Names Containing:** Aquacoat® ECD; CVC™ Type A Coated Ascorbic Acid; Coated Ascorbic Acid, Type EC; Nutrateric™

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### Ethyl cetab

**See** Cetethyldimonium bromide

### Ethyl cinnamate

**CAS** 103-36-6; EINECS/ELINCS 203-104-6

**FEMA** 2430

**Synonyms:** Ethyl-trans-cinnamate; Ethyl phenylacrylate; Ethyl-β-phenylacrylate; Ethyl-3-phenylpropenoate; Ethyl 3-phenyl-2-propenoate; Ethyl (E)-3-phenylprop-2-enolate; 3-Phenyl-2-propenoic acid, ethyl ester; 2-Propenoic acid, 3-phenyl-, ethyl ester

**Definition:** Esters of ethyl alcohol and cinnamic acid; obtained by heating cinnamic acid; alcohol and sulfuric acid to 100°C in presence of aluminum sulfate

**Empirical:** C_{11}H_{12}O_2

**Properties:** Nearly colorless oily liq., faint cinnamon odor; misc. with alcohol, ether, fixed oils; insol. in glycerin, water; m.w. 176.23; dens. 1.049 (20/4°C); m.p. 9°C; b.p. 271°C; flash pt. > 212°F; ref. index 1.558-1.561

**Toxicology:** LD50 (oral, rat) 4000 mg/kg; mod. toxic by ingestion; TSCA listed

**Precaution:** Combustible liq.

**Hazardous Decomp. Prods.:** Heated to decompo., emits acrid smoke and irritating fumes

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Sweet cinnamon, plum-like flavor

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### Ethyl-trans-cinnamate

**See** Ethyl cinnamate

### Ethyl citrate

**See** Triethyl citrate

### Ethyl crotonate

**CAS** 623-70-1; 10544-63-5 (trans); EINECS/ELINCS 210-808-7; 234-125-9 (trans)

**UN** 1862 (DOT); FEMA 3486

**Synonyms:** 2-Butenoic acid, ethyl ester; trans-2-Butenoic acid ethyl ester; Crotonic acid, ethyl ester; Ethyl trans-2-butenoate; Ethyl α-crotonate; Ethyl β-methylacrylate

**Definition:** Obtained by esterification of crotonic acid with ethyl alcohol in presence of conc. H₂O₄

**Empirical:** C_6H_{10}O_2

**Formula:** CH₃CH:C=CHCOOC₂H₅

**Properties:** Water-wh. solid or liq., char. pungent persistent odor; sol. in alcohol, ether, oxygenated solvs.; insol. in water; m.w. 114.15; dens. 0.916 (20/4°C); m.p. 45°C; b.p. 126°C (cis), 145°C (trans); flash pt. 2°C; ref. index 1.425 (20°C)

**Toxicology:** LD50 (oral, rat) 3 g/kg; corrosive; sl. toxic by ing.; lachrymator; strong irritant to eyes, skin, respiratory system; TSCA listed

**Precaution:** Highly flamm.; dangerous fire risk; incompat. with oxidizers, acids

**Hazardous Decomp. Prods.:** Heated to decompo., emits acrid smoke and irritating fumes, CO₂
Ethyl α-crotonate. See Ethyl crotonate

Ethyl cyclohexanepropionate
CAS 10094-36-7; EINECS/ELINCS 233-222-3
FEMA 2431
Synonyms: Cyclohexane ethyl propionate; Ethyl 3-cyclohexylpropionate; Ethyl cyclohexylpropionate; Hexahydro phenylethylpropionate
Definition: Obtained by esterification of ethyl cyclohexanol with propionic acid or anhydride
Empirical: C11H20O2
Properties: Colorless oily liq., fruity sweet pineapple-like odor; sol. in alcohol; insol. in water; m.w. 184.28; dens. 0.940; b.p. 216 F; ref. index 1.425 (20 C)
Uses: Synthetic flavor for pharmaceuticals
Features: Grape, pear-like flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL; Australia AICS

Ethyl cyclohexylpropionate; Ethyl cyclohexanepropionate. See Ethyl cyclohexanepropionate

Ethyl decanoate
CAS 110-38-3; EINECS/ELINCS 203-761-9
FEMA 2432
Synonyms: Capric acid ethyl ester; Decanoic acid ethyl ester; Ethyl caprate; Ethyl caprinate; Ethyl decylate
Definition: Obtained by esterification of decanoic acid and ethyl alcohol in presence of HCl or H2SO4
Empirical: C12H24O2
Formula: CH3(CH2)10COOC2H5
Properties: Colorless liq.; fragrant, green grassy, fruity ester-like odor; sol. in fixed oils; misc. with alcohol, chloroform, ether; insol. in water, glycerin, propylene glycol; m.w. 200.32; dens. 0.862 (20 C); m.p. -20 C; b.p. 243-245 C; flash pt. 216 F; ref. index 1.425 (20 C)
Toxicology: Skin irritant; TSCA listed
Precaution: Combustible liq.; reacts with oxidizing materials
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
NFPA: Health 0, Flammability 1, Reactivity 0
Storage: 6 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air
Uses: Synthetic flavor for pharmaceuticals
Features: Grape, pear-like flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Japan approved as flavoring; Canada DSL; Australia AICS

†=pharmaceutical grade

Ethyl decylate. See Ethyl decanoate

Ethyl diethylene glycol. See Ethoxydiglycol

Ethyl (diethoxyphosphoryl) acetate. See Triethyl phosphonoacetate

Ethyl diglyme. See Diethylene glycol diethyl ether

1-Ethyl-1,4-dihydro-7-methyl-4-oxo-1,8-naphthrydine-3-carboxylic acid. See Nalidixic acid

7A-Ethyldihydro-1H,3H,5H-oxazolo (3,4-C) oxazole. See 7-Ethyl bicyclooxazolidine

Ethyl trans-2,3-dimethyl acrylate. See Ethyl...
Chemical Component Cross-Reference

**tiglate**
N-Ethyl-N,N-dimethyl-1-hexadecanaminium bromide. See Cetethyldimonium bromide
N-Ethyl-N,N-dimethyl-3-[(1-oxircinoleyl) amino]-1-propanaminium ethosulfate. See Ricinoleamidopropyl ethyldimonium ethosulfate
2-Ethyl-3,5-dimethylpyrazine. See 2-Ethyl-3,5(6)-dimethylpyrazine

2-Ethyl-3,5(6)-dimethyl pyrazine

- IL: Colorless to sl. yel. liq.; pungent, nutty, roasted cocoa odor; sol. in alcohol, most org. solvs.; insol. in water; m.w. 270.37; dens. 1.05; b.p. 332 C; flash pt. > 100 C; ref. index 1.4690-1.4730; tenacity 1 wk. on blotter
- Inh.: Harmful by ing., inh.; skin, eye, respiratory system irritant
- Environ.: Do not contaminate sewers, water sources
- Precaution: Combustible liq.; wear protective gloves, splash-proof eye goggles; incompat. with strong oxidizers, acids
- Decomp.: CO, CO₂; heated to decomp., emits toxic fumes of NOx
- Storage: Keep in original, tightly closed container; keep away from heat, sparks, open flame
- Uses: Synthetic flavor for pharmaceuticals
- Features: Chocolate flavor
- Regulatory: FEMA GRAS; Canada DSL
- 2-Ethyl-3(5/6)-dimethyl pyrazine. See 2-Ethyl-3,5(6)-dimethylpyrazine

**Ethyl dodecanoate; Ethyl dodecylate. See Ethyl laurate**

**Ethyl enanthate. See Ethyl heptanoate**

**Ethylene/acrylic acid copolymer**
CAS 9010-77-9
Synonyms: EAA; Poly (ethylene-co-acrylic acid); 2-Propenoic acid with ethene; 2-Propenoic acid, polymer with ethene
Definition: Copolymer of ethylene and acrylic acid monomers
Formula: \((\text{C}_2\text{H}_4\text{CH}_2\text{CH}(_2)\text{CO}_2\text{H})_y\)
Properties: Solid; dens. 0.960
Toxicology: Irritant; TSCA listed
Uses: Emollient, gellant, film-former for pharmaceuticals
Regulatory: FDA 21CFR §176.170, 177.1310, 178.1005; Canada DSL
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com
Trade Names: A-C® 540; A-C® 5120

**Ethylene alcohol. See Ethylene glycol**

**Ethylene aldehyde. See Acrolein**

**Ethylenebis (iminodiacetic acid) tetrasodium salt. See Tetrasodium EDTA**

**Ethylene bis (stearamide); N,N’-Ethylene bisstearamide; Ethylenebisstearoamide; Ethylenebis (stearylamine). See Ethylene distearamide**

**Ethylene brassylate**
CAS 105-95-3; EINECS/ELINCS 203-347-8
FEMA 3543
Synonyms: Cyclo-1,13-ethylenedioxytridecan-1,13-dione; Cyclo-1,13-ethylenedioxytridecan-1,13-dione, 1,4-Dioxacycloheptadecane-5,17-dione; Ethyl brassylate; Ethylene glycol brassylate; Ethylene glycol brassylate cyclic diester; Ethylene undecane dicarboxylate; Muss T; Tridecanedioic acid cyclic ethylene glycol diester; 1,13-Tridecanedioic acid, 1,2-ethanediol ester; 1,13-Tridecanedioic acid ethylene ester; Tridecanoic acid, cyclic ethylene ester; 1,1’-Undecanedicarboxylic acid ester with ethylene glycol
Classification: Cyclic ester; macrocyclic musk
Definition: Obtained by esterification of brassyllic acid
Empirical: \(\text{C}_{15}\text{H}_{26}\text{O}_4\)
Properties: Wh. to lt. yel. liq., sweet musk-like odor; sol. in alcohol, most org. solvs.; insol. in water; m.w. 270.37; dens. 1.05; b.p. 332 C; flash pt. > 100 C; ref. index 1.4690-1.4730; tenacity 1 wk. on blotter
Ethylene carbonate
CAS 96-49-1; EINECS/ELINCS 202-510-0
Synonyms: Carbonic acid, cyclic ethylene ester; 1,3-Carboxyldioxethane; Cyclic ethylene carbonate; 1,3-Dioxolan-2-one; Dioxolone-2; 1,2-Ethanediol carbonate; Ethylene carbonate acid; Ethylene glycol carbonate; Ethylene glycol cyclic carbonate; Glycol carbonate
Classification: Carbonic acid ester
Empirical: C3H4O3
Formula: (CH2O)2CO
Properties: Colorless solid (below 36.4 °C) or liq., odorless; very sol. in water; sol. in ether, n-butanol, CCl4; misc. with alcohol, ethyl acetate, benzene, chloroform; m.w. 88.07; dens. 1.3218 (39/4 °C); vapor pressure 0.01 mm Hg (20 °C); m.p. 36.4 °C; b.p. 248 °C; flash pt. (OC) 143 °C; ref. index 1.4158 (50 °C)
Toxicology: LD50 (oral, rat) 10 g/kg; LDLo (IP, mouse) 500 mg/kg; moderately toxic by IP route; mildly toxic by ing.; skin and eye irritant; TSCA listed
Environmental: Biodeg.
Precaution: Combustible exposed to heat or flame; incompat. with strong oxidizing

Ethylene chloride. See Ethylene dichloride

Ethylene, chloro-, polymer. See Polyvinyl chloride

Ethylenediamine
CAS 107-15-3 (anhdy.); 6780-13-8 (monohydrate); EINECS/ELINCS 203-468-6
UN 1604 (DOT)
Synonyms: 1,2-Diaminoethane; Dimethylenediamine; EDA; 1,2-Ethanediamine
Classification: Aliphatic organic compd.; aliphatic polyamine
Empirical: C2H8N2
Formula: NH2CH2CH2NH2
Properties: Colorless to sl. yel. clear volatile liq., ammonia-like odor; sol. in acetone, ethanol, dimethylsulfoxide, benzene, water; sl. sol. in diethyl ether, heptane; misc. with water, alcohol, oxygenated and aromatic solvs.; m.w. 60.12; dens. 0.8994 (20/4 °C); m.p. 8.5 °C; b.p. 117.2 °C; flash pt. (CC) 42 °C; ref. index 1.4565
Toxicology: TLV/TWA 10 ppm; LD50 (oral, rat) 500 mg/kg; human irritant poison by inh.; mod. toxic by ingestion, skin contact; corrosive; severe skin and eye irritant; lachrymator; allergen, sensitizer; mutagenic data; TSCA listed
Precaution: DOT: Corrosive material; flamm. exposed to heat, flame, oxidizers; can react...
violently with acetic acid, acetic anhydride,
acrylic acid, epichlorohydrin, many others;
absorbs CO₂ from air to form the carbamate salt

Hazardous Decomp. Prods.: CO, CO₂,
hydrogen cyanide, volatile amines; heated
to decomp., emits toxic fumes of NOₓ and
NH₃

NFPA: Health 3, Flammability 2, Reactivity 0
Storage: Hygroscopic; air-sensitive
Uses: Stabilizer, buffer in pharmaceuticals,
intravenous drugs, injectables, orals,
rectals, topicals, aminophylline
formulations, antihistamines, topical
steroids, topical creams incl. Mycolog
cream

Regulatory: FDA 21CFR §173.320 (1 ppm
max.), 175.105, 175.300, 175.320, 176.180,
176.300, 178.1010, 178.3120, 181.30,
556.270; FDA approved for IV, injectables,
orals, rectals, topicals; BP, EP, JP compliance;
Canada DSL

Manuf./Distrib.: AMC Chems.; Accurate
Chem. & Scientific
http://www.accuratechemical.com
Advanced Synthesis Tech.
http://www.advancedsynthesis.com
Aldrich http://www.sigma-aldrich.com
Alfa Aesar http://www.alfa.com
Alkyl Amines Chems. Ltd
http://www.alkylamines.com
Allchem Ind. http://www.allchem.com
BASF AG http://www.basf.de; BASF
http://www.basf.com; Coyne
http://www.coynechemical.com
Dow http://www.dow.com; Filo
http://www.filochemical.com; Fluka
http://www.sigma-aldrich.com; Houghton
Integra http://www.integrachem.com
Kanto Denka Kogyo http://www.kantodenka.co.jp; Nova
Molecular Tech.
http://www.novamolecular.com; Sigma
http://www.sigma-aldrich.com/belgium;
Sumitomo Seika http://www.sumitomoseika.co.jp
Tosoh http://www.tosoh.co.jp; VWR Int'l.
http://www.vwrsp.com; Voigt Global

Ethylenediamine acetic acid trisodium salt.

See Trisodium EDTA
Ethylenediamine bisstearamide. See
Ethylene distearamide
N,N´-Ethylenediaminediacetic acid
tetrasodium salt. See Tetrasodium EDTA

Ethylenediamine dihydrochloride
CAS 333-18-6; EINECS/ELINCS 206-369-6
Synonyms: Chlor-ethamine; 1,2-
Diaminoethane dihydrochloride; 1,2-
Ethanediylamine, dihydrochloride;
Ethylendiamine hydrochloride;
Ethylenediammonium chloride

Classification: Nonaromatic amine
Empirical: C₂H₈N₂ • 2HCl
Formula: H₂NCH₂CH₂NH₂ • 2HCl
Properties: Prisms; sol. in water; insol. in alcohol
and ether; m.w. 133.02; m.p. > 300 C;
sublimes

Toxicology: LD₅₀ (oral, mouse) 1620 mg/kg,
(IM, rat) 150 mg/kg; harmful solid; poison
by IM route; mod. toxic by ing.; irritant;
sensitizer; experimental teratogen and
reproductive effects; TSCA listed

Hazardous Decomp. Prods.: Heated to
decom., emits very toxic fumes of HCl and
NOₓ

Storage: Hygroscopic
Uses: Pharmaceutical topicals

Regulatory: FDA approved for topicals; Canada
DSL

Manuf./Distrib.: Aldrich http://www.sigma-
aldrich.com; Fluka http://www.sigma-
aldrich.com; Sigma http://www.sigma-
aldrich.com/belgium; Spectrum Quality
Prods. http://www.spectrumchemical.com

Ethylenediamine hydrochloride. See
Ethylenediamine dihydrochloride

Ethylenediamine propoxylate/ethoxylate. See
EO/PO ethylenediamine block copolymer

Ethylenediamine steardiamide. See Ethylene
distearamide

Ethylenediaminetetraacetic acid. See Edetic
acid

Ethylenediaminetetraacetic acid, calcium
disodium salt. See Calcium disodium
EDTA

Ethylenediaminetetraacetic acid, dipotassium
salt dihydrate. See Dipotassium EDTA
dihydrate

Ethylenediaminetetraacetic acid, disodium
salt. See Disodium EDTA

Ethylenediaminetetraacetic acid, ferric-
sodium salt; Ethylenediaminetetraacetic
<table>
<thead>
<tr>
<th>Chemical Component Cross-Reference</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>acid, sodium ferric salt. See Sodium ferric EDTA</td>
<td></td>
</tr>
<tr>
<td>Ethylenediaminetetraacetic acid, sodium salt; Ethylenediaminetetraacetic acid, tetradsodium salt. See Tetradsodium EDTA</td>
<td></td>
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<tr>
<td>Ethylenediaminetetraacetic acid, trisdodium salt. See Trisdodium EDTA</td>
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</tr>
<tr>
<td>Ethylenediammonium chloride. See Ethylenediamine dihydrochloride</td>
<td></td>
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<tr>
<td>Ethylenedicarboxylic acid. See Maleic acid</td>
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<tr>
<td>1,2-Ethylenedicarboxylic acid. See Fumaric acid</td>
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<tr>
<td>cis-1,2-Ethylenedicarboxylic acid. See Maleic acid</td>
<td></td>
</tr>
<tr>
<td>trans-1,2-Ethylenedicarboxylic acid. See Fumaric acid</td>
<td></td>
</tr>
<tr>
<td>Ethylenedichloride</td>
<td></td>
</tr>
<tr>
<td>CAS 107-06-2; EINECS/ELINCS 203-458-1 UN 1184 (DOT)</td>
<td></td>
</tr>
<tr>
<td>Synonyms: 1,2-Dichloroethane; 1,2-DCE; Dichloroethane; 1,2-Dichloroethene; Dichloro-1,2-ethene; α,β-Dichloroethene; sym-Dichloroethene; Dichloroethylene; Dutch liquid; Dutch oil; EDC; Ethane dichloride; Ethylene chloride; 1,2-Ethylene dichloride; Glycol dichloride</td>
<td></td>
</tr>
<tr>
<td>Classification: Halogenated aliphatic hydrocarbon; chlorinated alkane</td>
<td></td>
</tr>
<tr>
<td>Empirical: C₂H₄Cl₂</td>
<td></td>
</tr>
<tr>
<td>Formula: Cl • CH₂CH₂ • Cl</td>
<td></td>
</tr>
<tr>
<td>Properties: Colorless oily liq., chloroform-like odor, sweet taste; misc. with ethanol, chloroform, diethyl ether, acetone, benzene, oxygenated and chlorinated solvs.; very sl. sol. in water; m.w. 98.96; dens. 1.2554 (20/4°C); vapor pressure 100 mm Hg (29.4°C); f.p. -35.5°C; b.p. 83.5°C; flash pt. 56°C; ref. index 1.445</td>
<td></td>
</tr>
<tr>
<td>Toxicology: ACGIH TLV/TWA 10 ppm; LD50 (oral, rat) 670 mg/kg, (skin, rabbit) 3890 mg/kg; poison by IV, subcut. route; human poison by ing.; mod. toxic by inh., skin contact, IP route; strong narcotic; skin/severe eye irritant; may cause dermatitis; human systemic effects by ing., inh. (somnolence, cough, nausea, vomiting, diarrhea, stomach ulceration, cardiac rate change, cyanosis, coma); carcinogen; tumorigenic data; experimental teratogen, reproductive effects; human mutagenic data; TSCA listed</td>
<td></td>
</tr>
<tr>
<td>Precaution: Flamm.; dangerous fire hazard exposed to heat, flame, or oxidizers; mod. explosive as vapor exposed to flame; t=pharmaceutical grade</td>
<td></td>
</tr>
<tr>
<td>Hazardous Decomp. Prods.: Heated to decomp., emits highly toxic fumes of Cl-, phosgene</td>
<td></td>
</tr>
<tr>
<td>NFPA: Health 2, Flammability 3, Reactivity 0</td>
<td></td>
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<tr>
<td>Uses: Solvent in pharmaceuticals</td>
<td></td>
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<tr>
<td>Use Level: 5 ppm (pharmaceuticals)</td>
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<tr>
<td>Regulatory: FDA 21CFR §73.30, 73.345, 73.615, 172.385, 172.560, 172.710, 173.230, 173.315, 175.105, 176.170, 177.1580, 177.1585, 177.2550, 573.440; SARA reportable; HAP; Canada DSL</td>
<td></td>
</tr>
</tbody>
</table>
Chemical Component Cross-Reference

1,2-Ethylene dichloride. See Ethylene dichloride

Ethylene, 1,1-dichloro-. See Vinylidene chloride monomer

Ethylene, 1,2-dichloro-. See cis-trans-1,2-Dichloroethylene (mixed isomers)

Ethylene diglycol. See Diethylene glycol

Ethylene diglycol monoethyl ether. See Ethoxydiglycol

Ethylene dihydrate. See Ethylene glycol

Ethylene dimethyl ether. See Ethylene glycol dimethyl ether

((Ethylene dinitrilo) tetraacetato)-ferate (1-), sodium. See Sodium ferric EDTA

(Ethylene dinitrilo) tetraacetic acid. See Edetic acid

(Ethylene dinitrilo) tetraacetic acid, dipotassium salt. See Dipotassium EDTA dihydrate

(Ethylene dinitrilo) tetraacetic acid, sodium salt. See Disodium EDTA

Ethylene nitritol tetra-2-propanol; 1,1′,1″,1‴-((Ethylene dinitrilo) tetra-2-propanol. See Tetrahydroxypropyl ethylenediamine

2,2′-Ethenediethyoxyl; 2,2′-Ethenediethanol. See Triethylene glycol

Ethylene distearamide

CAS 110-30-5; 68955-45-3; EINECS/ELINCS 203-755-6; 273-277-0

Synonyms: 1,2-Bis (octadecanamido) ethane; 1,2-Bis (stearoylamino) ethane; N,N-Bis(stearoylethylendiamine); N,N′-Distearylethylendiamine; N,N′-1,2-Ethenediybisoctadecanamide; Ethylene bis(stearamide); N,N′-Ethylene bistearamide; Ethylenebisstearamamide; Ethylenebis(stearylamide); Ethylenediamine bistearamide; Ethylenediamine stearidamide; N,N′-Ethylendistearamide; N,N′-Ethylene distearlamid; Octadecanamide, N,N′-1,2-ethanediylbis-; Octadecanamide, N,N′-ethylenebis-; Stearic acid, ethylenediamine diamide

Classification: Diamide

Empirical: C_{38}H_{76}N_{2}O_{2}

Formula:

\[ \text{C}_{38}\text{H}_{76}\text{N}_{2}\text{O}_{2} \]

Properties: Solid; insol. in water; m.w. 593.04; bulk dens. 0.6 g/ml; m.p. 143 C; flash pt. (COC) 290 C; nonionic

Toxicology: TSCA listed

Uses: Carrier for hormonal veterinary prods.
Chemical Component Cross-Reference

Environmental: VOC; BOD5 0.47; COD 1.29; ThOD 1.29
Precaution: Combustible; incompat. with strong oxidizing agents, perchloric acid, strong bases, phosphorus (V) sulfide, strong acids, silvered copper wires carrying dc current; mod. explosion hazard; violent reactions possible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
NFPA: Health 1, Flammability 1, Reactivity 0
Storage: Very hygroscopic; store in cool, dry, well-ventilated area
Uses: Solvent in pharmaceuticals, topicals, ear drops
Regulatory: FDA 21CFR §175.105, 176.300; FDA approved for topicals; SARA §313 reportable; HAP; Canada DSL

†=pharmaceutical grade

http://www.haltermann.com; Harcros
http://www.harcroschem.com
Houghton Chem.
http://www.houghtonchemical.com; Hukill
http://www.hukill.com; Huntsman
http://www.huntsman.com; Integra†
http://www.integrachem.com; Lanaetex
Prods.
MPS† http://www.mp-solutionsinc.com;
Mallinckrodt Baker†
http://www.mallbaker.com; Occidental
http://www.oxychem.com; Oxiteno
Reliance Ind. Ltd http://www.ril.com/;
Rhodia http://www.rhodia.com; Robeco
http://www.robecoinc.com; Ruger
http://www.rugerchemical.com
Sal Chem. http://www.salchem.com; Shell
http://www.shellchemicals.com;
http://www.shell-lubricants.com; Sigma
http://www.sigma-aldrich.com/belgium;
Spectrum Quality Prods.† http://www.spectrumchemical.com
Uniqema Am. http://www.uniqema.com;
Universal Preserv-A-Chem†
http://www.upichem.com

Trade Names Containing: Renex® PEG 300

Ethylene glycol bis (2-hydroxyethyl ether). See Triethylene glycol

Ethylene glycol brassylate; Ethylene glycol brassylate cyclic diester. See Ethylene brassylate

Ethylene glycol carbonate. See Ethylene carbonate

Ethylene glycol cetyl ether. See Ceteth

Ethylene glycol cyclic carbonate. See Ethylene carbonate

Ethylene glycol dihydroxydiethyl ether. See Triethylene glycol

Ethylene glycol dilaurate. See Glycol dilaurate

Ethylene glycol dimethyl ether
CAS 110-71-4; EINECS/ELINCS 203-794-9
UN 2252 (DOT)

Synonyms: Dimethoxyethane; 1,2-Dimethoxyethane; α,β-Dimethoxyethane;
Dimethylglycol; 2,5-Dioxahexane; DME; EGDME; Ethylene dimethyl ether; Glycol dimethyl ether; Glyme; Monoethylene glycol dimethyl ether; Monoglyme

Empirical: C₄H₁₀O₂
Formula: CH₃OCH₂CH₂OCH₃
Chemical Component Cross-Reference

Properties: Water-wh. liq., sharp ethereal odor; sol. in hydrocarbons, most org. solvs.; misc. with water, alcohol; m.w. 90.12; dens. 0.86285 (20/4 C); m.p. -58 C; b.p. 82-83 (760 mm); flash pt. 4.5 C; ref. index 1.3813 (20 C)

Toxicology: Experimental reproductive effects; possible teratogen; target organs: liver, kidneys; TSCA listed

Precaution: DOT: Flamm. liq.; very dangerous fire hazard exposed to heat, flames, oxidizers; readily forms explosive peroxides; mixt. with lithium tetrahydroaluminate may ignite or explode if heated

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes

NFPA: Health 2, Flammability 2, Reactivity 0

Storage: Store under nitrogen

Uses: Solvent, vehicle in pharmaceuticals

Regulatory: Canada DSL


Trade Names: Monoglyme

Ethylene glycol distearate. See Glycol distearate

Ethylene glycol ethylene ether. See 1,4-Dioxane

Ethylene glycol ethyl ether. See Ethoxyethanol

Ethylene glycol methyl ether. See Methoxyethanol

Ethylene glycol monocetyl ether. See Ceteth

Ethylene glycol monoethyl ether. See Ethoxyethanol

Ethylene glycol monohydroxystearate. See Glycol hydroxystearate

Ethylene glycol monomethyl ether. See Methoxyethanol

Ethylene glycol monophenyl ether. See Phenoxyethanol

Ethylene glycol monostearate. See Glycol stearate

Ethylene glycol monostearate SE. See Glycol stearate SE

Ethylene glycol nonyl phenyl ether. See Nonoxynol-1

Ethylene glycol octyl phenyl ether. See Octoxynol-1

†=pharmaceutical grade

Ethylene glycol phenyl ether. See Phenoxyethanol

Ethylene glycol/propylene glycol block copolymer. See EO/PO block polymer or copolymer

Ethylene glycol stearate. See Glycol stearate

Ethylene homopolymer; Ethylene latex. See Polyethylene

Ethylene/MA copolymer

CAS 9006-26-2

Synonyms: EMA; Ethylene/maleic anhydride copolymer; 2,5-Furandione, polymer with ethene; Maleic anhydride/polyethylene copolymer

Definition: Polymer of ethylene and maleic anhydride monomers

Formula: \([\text{CH}_2\text{CH}_2]_x[\text{CHC}O\text{OCH}_2\text{COOH}]_y\)

Properties: Fine powd.; water-sol.

Precaution: Reacts readily with alcohols and amines

Uses: Film-former producing water-sol. films for pharmaceutical capsules

Regulatory: FDA 21CFR §175.105, 177.1210, 177.1520; Canada DSL


Ethylene/maleic anhydride copolymer. See Ethylene/MA copolymer

Ethylene/methacrylic acid copolymer

CAS 25053-53-6

Synonyms: EMAA; Poly (ethylene-co-methacrylic acid)

Classification: Acrylic polymer

Formula: \((\text{CH}_2\text{CH}_2)_x[\text{CHC}(\text{CH}_3)(\text{CO}_2\text{H})]_y\)

Properties: Pellets; dens. 0.970; m.p. 76-83 C; tens. str. 21.4-25 MPa

Toxicology: May be harmful by inh., ing., or skin absorption; may cause eye/skin irritation; TSCA listed

Precaution: Incompat. with strong oxidizing agents

Hazardous Decomp. Prods.: Toxic fumes of CO, CO₂, acids, aldehydes, alcohols; emits toxic fumes under fire conditions

Storage: Store in cool, dry place; keep tightly closed

Uses: Medical/pharmaceutical packaging
Chemical Component Cross-Reference

Regulatory: Canada DSL
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com
Trade Names: Nucrel® 1202HC

Ethylene oxide monochloride. See Vinyl chloride

Ethylene oxide
CAS 75-21-8; EINECS/ELINCS 200-849-9
UN 1040 (DOT); FEMA 2433
Synonyms: Dihydrooxirene; Dimethylene oxide; EO; Epoxyethane; 1,2-Epoxyethane; Ethene oxide; ETO; Oxacyclopropane; Oxane; Oxidoethane; α,β-Oxidoethane; Oxirane
Classification: Ether
Empirical: C2H4O
Properties: Colorless gas or liq.; ether-like odor; very sol. in ether; sol. in org. solvs.; misc. with water, alcohol, oxygenated solvs.; m.w. 44.06; dens. 0.8711 (20/20 C); vapor pressure 1310 mm Hg; m.p. -111.3 C; b.p. 10.73 C; flash pt. -29 C; ref. index 1.359; dielec. const. 13.0
Toxicology: ACGIH TLV/TWA 1 ppm; LD50 (oral, rat) 72 mg/kg; poison by ing., IP, subcut., IV routes; mod. toxic by inh.; irritating to eyes, skin, respiratory tract; human systemic effects by inh. (convulsions, nausea, vomiting, pulmonary changes); suspected human carcinogen; experimental tumorigen, neoplasticigen, teratogen; mutagenic data; TSCA listed
Environmental: VOC; BOD5 0.06; COD 1.74; ThOD 1.82
Precaution: Flamm.; LEL 3%; UEL 100%; severe explosion hazard exposed to flame; violent polymerization on contact with ammonia, alkali hydroxides, amines, acids, etc.
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Sterilant; in ophthalmics, topicals
Regulatory: FDA 21CFR §172.710, 172.808, 175.105, 176.180, 176.210, 177.2470, 178.3520; FEMA GRAS; FDA approved for ophthalmics, topicals; Canada DSL; SARA §302a extremely hazardous, §313 reportable; CERCLA hazardous substance; Calif. Prop. 65 reportable; HAP
†=pharmaceutical grade
http://www.chemvip.com
Huntsman http://www.huntsman.com; Occidental http://www.oxychem.com
Rhodia HPCI http://www.rhodia-hpci.com;
Shell http://www.shellchemicals.com; http://www.shell-lubricants.com
Sunoco http://www.sunocochemicals.com;
Trade Names Containing: Milipol G7

Ethylene polymer; Ethylene polymers
Ethylene resin. See Polyethylene

Ethylenesuccinic acid. See Succinic acid

Ethylene terephthalate polymer. See Polyethylene terephthalate

Ethylene thioglycol. See 2-Mercaptoethanol
Ethylene trichloride. See Trichloroethylene
Ethylene undecane dicarboxylate. See Ethylene brassylate

Ethylene/VA copolymer
CAS 24937-78-8
Synonyms: Acetic acid, ethenyl ester, polymer with ethene; Ethylene vinyl acetate; Ethylene/vinyl acetate copolymer; EVA; EVA copolymer; EVM; Poly (ethylene-co-vinyl acetate); VAE; VA/ethylene copolymer; Vinyl acetate/ethylene copolymer
Classification: Elastomer
Definition: Thermoplastic copolymer of ethylene and vinyl acetate monomers
Formula: (CH2CH2)x[CH2CH(O2CCH3)]y
Properties: Dens. 0.930; m.p. 99 C
Toxicology: Suspected cancer agent, mutagen
Uses: Coating binder and saturant for medical/surgical applics.; film-former; in ophthalmics, otics, topicals, slow-release and microencapsulation prods.
Regulatory: FDA 21CFR §175.300, 177.1200, 177.1210, 177.1350, 178.1005; FDA approved for ophthalmics, otics; Canada DSL
Ethylene vinyl acetate; Ethylene/vinyl acetate copolymer. See Ethylene/VA copolymer
Ethyl-α,β-epoxyhydrocinnamate. See Ethyl phenylglycidate
Ethyl α,β-epoxy-β-methylhydrocinnamate; Ethyl 2,3-epoxy-3-methyl-3-phenylpropionate. See Ethyl methylphenylglycidate
Ethyl-α,β-epoxy-α-phenylpropionate. See Ethyl phenylglycidate
N-Ethylethanamine. See Diethylamine
Ethyl ethanoate. See Ethyl acetate
Ethyl ether
CAS 60-29-7; EINECS/ELINCS 200-467-2
UN 1155 (DOT)
Synonyms: Anesthetic ether; Diethyl ether; Diethyl oxide; Ether; Ethoxyethane; Ethyl oxide; 1,1′-Oxybisethane; Oxybis-1,1′-ethane; Solvent ether; Sulfuric ether
Classification: Sat. aliphatic ether
Empirical: C₄H₁₀O
Formula: CH₃CH₂OCH₂CH₃
Properties: Colorless clear volatile liq., sweet pungent odor; sol. in chloroform, benzene, conc. HCl; sol. 85 g/l water (15 C); misc. with alcohol, ether, most org. solvs.; m.w. 74.12; sp.gr. 0.7135 (20/4 C); vapor pressure 537 mm Hg; m.p. -116.2 C; b.p. 34.6 C; flash pt. (CC) - 45 C; autoignition temp. 160 C; surf. tens. 16.5 dynes/cm; dielec. const. 4.197
Toxicology: ACGIH TLV/TWA 400 ppm; STEL 500 ppm; LD₅₀ (oral, rat) 1215 mg/kg, (IP, mouse) 2420 mg/kg, (IV, mouse) 996 mg/kg; poison by subcut. route; mod. toxic by ing., IP, IV routes; mildly toxic by inh.; mod. toxic to humans by ing.; human systemic effects by inh.; CNS depressant; anesthetic; mod. to severe skin and eye irritant; extreme exposure may cause respiratory failure and death; mutagenic data; TSCA listed
Environmental: VOC; BOD₂₀ 0.50; ThOD 2.59
Precaution: DOT: Flamm. liq.; LEL 1.9%; UEL 36%; severe fire and explosion hazard when exposed to heat or flame; forms explosive peroxides; incompat. with sulfur compds., halogens, interhalogens, strong oxidizers; violent or explosive reactions possible
Hazardous Decomp. Prods.: Can form peroxides on prolonged exposure to air and light, in absence of inhibitors; heated to decomps., emits acrid smoke and irritating fumes
NFPA: Health 2, Flammability 4, Reactivity 1
Storage: Store in cool, dry, well-ventilated area, out of direct sunlight; hygroscopic
Uses: Solvent, antiseptic in pharms., transmucosal pharms.; anesthetic; analgesic; expectorant
Regulatory: FDA approved for transmucosal pharmaceuticals; CERCLA hazardous substance; Canada DSL
Manuf./Distrib.: AMC Chems.; Aldrich
http://www.sigma-aldrich.com; BCH Brühl
http://www.bch-bruehl.de; Degussa AG
http://www.degussa.com; Equistar
http://www.equistarchem.com
ExxonMobil
http://www.exxonmobilchemical.com; Fluka
http://www.sigma-aldrich.com; Sigma
http://www.sigma-aldrich.com/belgium;
Sigma
http://www.sigma-aldrich.com
http://www.sigmaxx.com; Spectrum Quality Prods.;
Tulstar Prods.
http://www.sigma-aldrich.com; VWR Int'l.
http://www.vwrsp.com
Trade Names Containing: Punctilious® SDA 13A 190 Proof; Punctilious® SDA 32 190 Proof; Punctilious® SDA 32 Anhydrous
Ethylethylacetaldehyde. See 2-
Chemical Component Cross-Reference

Ethylbutyraldehyde
N-Ethyl-N-[4-[4-[(ethyl [(3-sulfophenyl)methyl] amino] phenyl] (2-sulfophenyl)methylene]-2,5-cyclohexadien-1-ylidene]-3-sulfobenzzenemethanaminium, hydroxide, inner salt, aluminum salt. See FD&C Blue No. 1 Aluminum Lake

N-Ethyl-N-[4-[4-[(ethyl [(3-sulfophenyl)methyl] amino] phenyl] (2-sulfophenyl)methylene]-2,5-cyclohexadien-1-ylidene]-3-sulfobenzzenemethanaminium hydroxide inner salt, disodium salt. See FD&C Blue No. 1; Acid blue 9

Ethyl ethynyl methyl carbinol. See Methyl penty nol

Ethyl formate
CAS 109-94-4; EINECS/ELINCS 203-721-0
UN 1190 (DOT); FEMA 2434
Synonyms: Ethyl formic ester; Ethyl methanoate; Formic acid ethyl ester; Formic ether
Classification: Aliphatic organic compd.; carboxylic acid ester
Definition: Ester of ethyl alcohol and formic acid
Empirical: C₃H₆O₂
Formula: HCOOC₂H₅
Properties: Colorless liq., sharp rum-like odor; very sol. in water; sol. in acetone, alcohol, benzene, ether, fixed oils, propylene glycol; sl. sol. in min. oil; m.w. 74.09; sp.gr. 0.9236 (20/20 C); vapor pressure 100 mm Hg (5.4 C); m.p. -79 C; b.p. 54 C; flash pt. (CC) -20 C; ref. index 1.359
Toxicology: ACGIH TLV/TWA 100 ppm; LD₅₀ (oral, rat) 1850 mg/kg, (skin, rabbit) 20 g/kg; mod. toxic by ing., subcut. routes; mildly toxic by skin contact and inh.; skin and eye irritant; vapor can irritate nose, throat, lungs; high concs. may cause CNS depression, unconsciousness; severe exposure may cause potentially fatal pulmonary edema; experimental tumorigen; TSCA listed
Precaution: DOT: Flamm. liq.; dangerous fire and explosion hazard exposed to heat, flame, oxidizers; incompat. with oxidizing materials, acids (decomp. can occur), bases (vigorous decomp. can occur), moisture
Hazardous Decomp. Prods.: Ethanol, formic acid; dec. slowly in water, releasing formic acid; heated to decomp., emits acrid smoke and irritating fumes

†=pharmaceutical grade

NFPA: Health 2, Flammability 3, Reactivity 0
Storage: Store in cool, dry, well-ventilated area, out of direct sunlight; ground drums and bond transfer containers
Uses: Solvent for pharmaceuticals; pharmaceutical intermediate; synthetic flavor and adjuvant in pharmaceuticals
Features: Fruity flavor
Regulatory: FDA 21CFR §184.1295, GRAS; 193.210, insecticide residue tolerance of 250 ppm in raisins and currants; FEMA GRAS; Canada DSL

Ethylformic acid. See Propionic acid
Ethyl formic ester. See Ethyl formate

2-Ethylfuran
CAS 3208-16-0; EINECS/ELINCS 221-714-0
UN 1993; FEMA 3673
Definition: Obtained by dehydration of furyl methyl carbinol followed by reduction
Empirical: C₆H₈O
Chemical Component Cross-Reference

**Ethyl-2-furanpropionate**

**CAS**: 10031-90-0; EINECS/ELINCS 233-097-5
FEMA 2435

**Synonyms**: Emanol; Ethyl furfuralacetate; Ethyl-3-(2-furyl)-propanoate; Ethyl furylpropanoate; 2-Furan propanoic acid ethyl ester

**Empirical**: C9H12O3

**Properties**: Pale yel to cl. liq. solid; turns yel. on exposure to air; fruity odor; m.w. 168.19; m.p. 24.5 C; b.p. 234-236 C; flash pt. 226 F; ref. index 1.524-1.534

**Toxicology**: Eye, skin, respiratory system irritant

**Precaution**: Flamm. liq.; wear safety glasses, lab coat, and impervious gloves; avoid ignition sources and oxidizing agents

**Hazardous Decomp. Prods.**: Heated to decomp., emits acrid smoke and irritating vapors, COx

**HMIS**: Health 1, Flammability 1, Reactivity 1

**Storage**: Store in a tightly sealed container in a cool, dry place

**Uses**: Synthetic flavor for pharmaceuticals

**Features**: Sweet fruity pineapple balsam odor; pineapple, fruity, sweet slightly spicy, tropical, ripe and slightly jammy taste

**Regulatory**: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Manuf./Distrib.**: SAFC Specialties
http://www.safcspecialties.com

**Ethyl glycol**

See Ethoxyethanol

**Ethyl gallate**

**CAS**: 831-61-8; EINECS/ELINCS 212-608-5

**Synonyms**: Benzoic acid, 3,4,5-trihydroxy-, ethyl ester; Ethyl 3,4,5-trihydroxybenzoate; Gallic acid ethyl ester

**Empirical**: C9H10O5

**Properties**: Powd.; sl. sol. in water; m.w. 198.19; m.p. 149-153 C

**Toxicology**: LD50 (oral, mouse) 5810 mg/kg; mildly toxic by ing.; TSCA listed

**Precaution**: Wear safety glasses, lab coat, and impervious gloves; avoid ignition sources and oxidizing agents

**Hazardous Decomp. Prods.**: Heated to decomp., emits acrid smoke and irritating vapors, COx

**HMIS**: Health 1, Flammability 1, Reactivity 1

**Storage**: Keep away from heat, sparks, open flame

**Uses**: Antioxidant for preventing oxidative rancidity in pharmaceuticals

**Features**: Effective at low concs.

**Regulatory**: BP compliance

**Manuf./Distrib.**: Alfa Aesar
http://www.alfa.com

**4-Ethylguaiacol**

**CAS**: 2785-89-9; EINECS/ELINCS 220-500-4
FEMA 2436

**Synonyms**: 4-Ethyl-2-methoxyphenol; Homocreosol; 1-Hydroxy-2-methoxy-4-ethylbenzene; 2-Methoxy-2-ethylphenol

**Classification**: aromatic alcohol

**Empirical**: C9H12O2

**Properties**: Oily liq., smoky bacon-like odor; insol. in water; sol. in most org. solvs.; m.w. 152.19; dens. 1.063; vapor 5.2; m.p. 15 C; b.p. 234-236 C; flash pt. 226 F; ref. index 1.524-1.534

**Toxicology**: Eye, skin, respiratory system irritant; harmful by ing.; TSCA listed

**Storage**: Keep away from heat, sparks, open flame; keep in tightly closed container

**Uses**: Synthetic flavor for pharmaceuticals

**Regulatory**: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Manuf./Distrib.**: Advanced BioTech
http://www.adv-bio.com; Advanced Synthesis Tech.
http://www.advancedsynthesis.com; Oxford Chems. Ltd
http://www.oxfordchemicals.com; R.C. Treatt & Co. Ltd†

**SAFC Specialties**
Ethyl decanoate. See Ethyl undecanoate
Ethyl 10-hdecenoate. See Ethyl 10-undecenoate

Ethyl heptanoate
CAS 106-30-9; EINECS/ELINCS 203-382-9
FEMA 2437
Synonyms: Cognac oil; Cognac oil, synthetic; Enanthyl ether; Ethyl enanthate; Ethyl n-heptanoate; Ethyl heptanoate; Ethyl n-heptate; Ethyl heptylate; Ethyl oenanthate; Ethyl oenanthylate; Heptanoic acid ethyl ester; Oenanthic ether; Oil of grapes
Properties: Colorless oily liq., fruity wine-like odor and taste with burning aftertaste; sol. in oxygenated solvs.; misc. with alcohol, ether, chloroform; insol. in water; m.w. 146.26; dens. 0.868 (20/4 C); m.p. -66.3 C; b.p. 186-188 C; flash pt. 74 C; ref. index 1.413 (20 C)
Toxicology: LD50 (oral, rat) > 34,640 mg/kg, (skin, rabbit) > 5 g/kg; low toxicity by ingestion and skin contact; TSCA listed
Precaution: Combustible liq.
Hazardous Decomp. Prods.: Heated to decompo. emits acrid smoke and irritating fumes
Storage: Store at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air
Uses: Synthetic flavor for pharmaceuticals
Features: Berry, melon, peach, pineapple, plum-like flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Japan approved as flavoring; Canada DSL; Australia AICS

Ethyl n-heptanoate. See Ethyl heptanoate

2-Ethyl-2-heptenal
CAS 10031-88-6
FEMA 2438
Synonyms: 2-Ethyl-3-butylacrolein; α-Ethyl-β-butyl acrolein; 2-Ethyl hept-2-enal
Empirical: C9H14O
Properties: Colorless, cl. liq.; sol. in alcohol; insol. in water; m.w. 140.23
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Degussa AG/Health & Nutrition

2-Ethyl hept-2-enal. See 2-Ethyl-2-heptenal
Ethyl heptate; Ethyl n-heptate; Ethyl heptylate. See Ethyl heptanoate
Ethyl heptyl ketone. See 3-Decanone
Ethyl hexadecanoate. See Ethyl palmitate
Ethylhexadecyldimethylammonium bromide. See Cetethyldimonium bromide
Ethyl-2,4-hexadienoate. See Ethyl sorbate

Ethyl hexanediol
CAS 94-96-2; EINECS/ELINCS 202-377-9
Synonyms: Ethohexadiol; 2-Ethylhexanediol; 2-Ethyl-1,3-hexanediol; 2-Ethylhexane-1,3-diol; 2-Ethylhexanediol-1,3; Ethyl hexylene glycol; 2-Ethyl-3-propyl-1,3-propanediol; 3-Hydroxymethyl-n-heptan-4-ol; Hydroxymethyl-n-heptan-4-ol; 1,3-Octanediol; Octylene glycol; 1,3-Octylene glycol
Classification: Aliphatic alcohol
Empirical: C8H16O2
Formula: CH3CH2CH2CHOHCH2CH3CH2OH
Properties: Colorless, sl. visc. liq., odorless; sol. in alcohol, ether, acetone, toluene, benzene, CCl4; partly sol. in water; m.w. 146.26; dens. 0.9422 (20/20 C); bulk dens. 7.8 lb/gal (20 C); vapor pressure < 0.01 mm Hg (20 C); f.p. -40 C; b.p. 244 C; flash pt. 126 C; autoignition temp. 225 C; ref. index 1.4465-1.4515
Chemical Component Cross-Reference

**Toxicology:** LD₅₀ (oral, rat) 1400 mg/kg, (skin rabbit) 2000 mg/kg; moderately toxic by ingestion and skin contact; skin and severe eye irritating; TSCA listed

**Precaution:** Combustible exposed to heat or flame; can react with oxidizers

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**NFPA:** Health 2, Flammability 1, Reactivity 0

**Uses:** Solvent for pharmaceuticals, topical ointments; medicine

**Regulatory:** FDA approved for topicals; Canada DSL


2-Ethylhexanediol; 2-Ethyl-1,3-hexanediol; 2-Ethylhexane-1,3-diol; 2-Ethylhexanediol-1,3; See Ethyl hexanediol

Ethyl hexanoate. See Ethyl caproate

2-Ethylhexanoic acid, cetyl-stearyl ester. See Cetearyl octanoate

2-Ethylhexanoic acid, 2,2-dimethyl-1,3-propanediyl ester. See Neopentyl glycol dioctanoate

2-Ethylhexanoic acid, hexadecyl ester. See Cetyl octanoate

2-Ethylhexanoic acid, 1-methyl-1,2-ethanediyl ester. See Propylene glycol dioctanoate

2-Ethylhexanoic acid, octadecyl ester. See Stearyl octanoate

2-Ethylhexanol

**CAS 104-76-7; EINECS/ELINCS 203-234-3**

**FEMA 3151**

**Synonyms:** Alcohol C₈; 2-EH; 2-Ethyl-1-hexanol; 2-Ethylhexan-1-ol; 2-Ethylhexyl alcohol; 1-Hexanol, 2-ethyl

**Classification:** Alcohol

**Empirical:** C₈H₁₈O

**Formula:** CH₃(CH₂)₃CH(OH)CH₂CH₂OH

**Properties:** Colorless to pale yel. clear liq., mild oily sweet sl. rose fragrance; sol. in ethanol, ether, diethyl ether, DMSO, acetone, benzene, chloroform; misc. with most org. solvs.; sl. sol. in water; m.w. 130.26; dens. 0.83 (20 C); vapor pressure 0.05 mm Hg (20 C); f.p. -76 C; b.p. 183.5 C; flash pt. 81.1 C; ref. index 1.4300 (20 C); surf. tens. 27.6 dynes/cm (20 C)

**Toxicology:** LD₅₀ (oral, rat) 2049 mg/kg, (IP, rat) 500 mg/kg, (subcut., rat) 650 mg/kg, (skin, rabbit) 1970 mg/kg; mod. toxic by ing., skin contact, IP, subcut., parenteral routes; severe eye irritant; moderate skin irritant; experimental teratogen, reproductive effects; mutagenic data; TSCA listed

**Precaution:** Combustible; dangerous fire hazard exposed to heat or flame; can react vigorously with oxidizing materials; incompat. with strong oxidizing agents and strong acids

**Hazardous Decomp. Prods.:** CO, CO₂; heated to decomp., emits acrid smoke and fumes

**NFPA:** Health 2, Flammability 2, Reactivity 0

**Storage:** Store under ambient temps. away from oxidizing materials and acids

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Sweet flavor

**Regulatory:** FDA 21CFR §175.105, 176.180, 176.210, 177.1200, 178.3480; FEMA GRAS; Canada DSL


2-Ethyl-1-hexanol; 2-Ethylhexan-1-ol. See 2-
Chemical Component Cross-Reference

Ethylhexanol
2-Ethyl-1-hexanol, hydrogen sulfate, sodium salt; 2-Ethyl-1-hexanol sulfate sodium salt.
See Sodium 2-ethylhexyl sulfate
Ethyl hexoate. See Ethyl caproate
2-Ethylhexyl alcohol. See 2-Ethylhexanol
Ethyl hexylate. See Ethyl caproate
2-Ethylhexyl 2-cyano-3,3-diphenylacrylate; 2-Ethylhexyl 2-cyano-3,3-diphenyl-2-propenoate. See Octocrylene
2-Ethylhexyl-4 (dimethylamino) benzoate; 2-Ethylhexyl p-dimethylaminobenzoate. See Octyl dimethyl PABA
Ethyl hexylene glycol. See Ethyl hexanediol
2-Ethylhexyl-2-ethylhexanoate. See Octyl octanoate
2-Ethylhexyl hexadecanoate. See Octyl palmitate
2-Ethylhexyl 2-hydroxybenzoate. See 2-Ethylhexyl salicylate
2-Ethylhexyl 12-hydroxyoctadecanoate; 2-Ethylhexyl 12-hydroxyoctadecanoate. See Octyl hydroxystearate
Ethylhexyl hydroxystearate benzoate. See Octyl hydroxystearate benzoate
2-Ethylhexyl isononanoate. See Octyl isononanoate
2-Ethylhexyl methoxycinnamate; 2-Ethylhexyl p-methoxycinnamate; Ethylhexyl p-methoxycinnamate; 2-Ethylhexyl 3-(4-methoxyphenyl)-2-propenoate. See Octyl methoxycinnamate
2-Ethylhexyl octadecanoate. See Octyl stearate
2-Ethylhexyl 2-octadecenoate. See Octyl oleate
2-Ethylhexyl 9-octadecenoate. See 2-Ethylhexyl oleate
2-Ethylhexyl oleate
CAS 26399-02-0; EINECS/ELINCS 247-655-0
Synonyms: 2-Ethylhexyl 9-octadecenoate; 9-Octadecenoic acid (Z)-, 2-ethylhexyl ester
Empirical: C_{26}H_{50}O_2
Properties: Liq.; insol. in water; m.w. 394.69; cloud pt. -28 C
Uses: Emollient
Trade Names: M 2 Etil Esil Oleato; M 2 Etil Esil Oleato
2-Ethylhexyl oxy stearate. See Octyl hydroxystearate
2-Ethylhexyl palmitate. See Octyl palmitate
2-Ethylhexyl pelargonate. See Octyl pelargonate

†=pharmaceutical grade

2-Ethylhexyl salicylate
CAS 118-60-5; EINECS/ELINCS 204-263-4
Synonyms: Benzoic acid, 2-hydroxy-, 2-ethylhexyl ester; 2-Ethylhexyl 2-hydroxybenzoate; Salicylic acid-2-ethylhexyl ester
Classification: Aromatic ester
Definition: Ester of 2-ethylhexyl alcohol and salicylic acid
Empirical: C_{15}H_{22}O_3
Properties: Clear liq.; m.w. 250.34; sp.gr. 1.013-1.022; b.p. 189-190 (21 mm); acid no. 1; ref. index 1.4800-1.5020
Toxicology: LD50 (IP, mouse) 200 mg/kg; poison by IP route; primary skin irritant; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Storage: Heat and lt. sensitive
Uses: Fragrance
Regulatory: Canada DSL
Trade Names: HallBrite® OS
2-Ethylhexyl sodium sulfate. See Sodium 2-ethylhexyl sulfate
2-Ethylhexyl stearate. See Octyl stearate
2-Ethylhexyl sulfosuccinate sodium. See Dioctyl sodium sulfosuccinate
2-Ethylhexyl tallowate
Uses: Solubilizer, vehicle for medicines; excipient for injectable substances; emollient in antiperspirants)
Trade Names: M Kemfluid 2 Et. ES./Tallow
2-Ethylhexyl trimellitate. See Tri-2-ethylhexyl trimellitate
Ethyl hydrate. See Alcohol
Ethyl hydrocinnamate. See Ethyl-3-phenylpropionate
Ethyl hydroxide. See Alcohol
Ethyl 2-hydroxybenzoate. See Ethyl salicylate
Ethyl 4-hydroxybenzoate. See Ethylparaben
Ethyl-o-hydroxybenzoate. See Ethyl salicylate
Ethyl p-hydroxybenzoate. See Ethylparaben
Ethyl-4-hydroxybenzoate potassium salt. See
### Chemical Component Cross-Reference

**Potassium ethylparaben**  
**Ethyl 2-hydroxypropanoate**; **Ethyl 2-hydroxypropionate**; **Ethyl α-hydroxypropionate**. See **Ethyl lactate**  
**2-Ethyl-3-hydroxy-4H-pyran-4-one**. See **Ethyl maltol**  
**Ethylidene diethyl ether**. See **Acetal**  
**Ethylidenelactic acid**. See **Lactic acid**  
**Ethyl isobutanoate**. See **Ethyl isobutyrat**

**Ethyl isobutyrate**  
CAS 97-62-1; EINECS/ELINCS 202-595-4  
UN 2385 (DOT); FEMA 2428  
Synonyms: **Ethyl isobutanoate**; **Ethyl-2-methylpropanoate**; **Ethyl-2-methylpropionate**; **Isobutyric acid, ethyl ester**; **2-Methylpropanoic acid ethyl ester**; **2-Methylpropionic acid ethyl ester**

**Empirical:** C₆H₁₂O₂  
**Formula:** (CH₃)₂CHCOOC₂H₅  
**Properties:** Colorless volatile liq., aromatic fruity odor; misc. with alcohol, ether; sl. sol. in water; m.w. 116.16; dens. 0.867 (20/4 C); vapor pressure 40 mm (33.8 C); m.p. -88 C; b.p. 107-110 C; flash pt. 20 C; ref. index 1.388  
**Toxicology:** LD₅₀ (IP, mouse) 800 mg/kg; mod. toxic by IP route; skin irritant; TSCA listed  
**Precaution:** Flammable liq.; reacts with oxidizing, reducing materials  
**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes  
**Storage:** 12 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air  
**Uses:** Synthetic flavor for pharmaceuticals  
**Features:** Strawberry-like flavor  
**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan MITIT  
**Manuf./Distrib.:** Advanced BioTech  
http://www.adv-bio.com; Advanced Synthesis Tech.  
http://www.advancedsynthesis.com; Astral Extracts  
http://www.astralextracts.com; Augustus Oils Ltd http://www.augustus-oils.ltd.uk; Axxence Aromatic GmbH  
http://www.axxence.com; http://www.axxence.de  
Elan http://www.elan-chemical.com; Fleurchem http://www.fleurchem.com; Fluka http://www.sigma-aldrich.com; Grau

### Aromatics

**Aromatics**  
http://www.grau-aromatics.de; J.H. Calo  
http://www.jhcalo.com  
Lluch Essence  
http://www.lluch-essence.com; Moore Ingreds.  
http://www.safrspecialties.com  
V. Mane Fils SA  
http://www.mane.com; Xinchemt  
http://www.finechemnet.com

**Ethyl isoeugenyl**. See **Isoeugenyl ethyl ether**  
N-Ethyl-2-(isopropyl)-5-methylcyclohexane carboxamide. See **N-Ethyl-p-menthane-3-carboxamide**

**Ethyl isovalerate**  
CAS 108-64-5; EINECS/ELINCS 203-602-3  
UN 3272; FEMA 2463  
Synonyms: **Ethyl 3-methylbutyrate**; **Ethyl β-methylbutyrate**; **Isovaleric acid ethyl ester**; **3-Methylbutanoic acid ethyl ester**; **3-Methylbutyric acid, ethyl ester**

**Classification:** aliphatic compd.  
**Definition:** Obtained by esterification of isovaleric acid with ethyl alcohol in presence of conc. H₂SO₄  
**Empirical:** C₇H₁₄O₂  
**Formula:** (CH₃)₂CHCH₂COOC₂H₅  
**Properties:** Colorless oily liq., apple odor; sol. in propylene glycol; sl. sol. in water @ 135 C; misc. with alcohol, fixed oils, benzene, ether; m.w. 130.21; dens. 0.868 (20/20 C); b.p. 135-140 C; m.p. -99 C; flash pt. 77 F; ref. index 1.395-1.399  
**Toxicology:** LD₅₀ (oral, rabbit) 7031 mg/kg, (IP, rat) 1200 mg/kg; mod. toxic by IP route; mildly toxic by ing.; skin irritant; TSCA listed  
**Precaution:** Flamm. liq. when exposed to heat, flame, or sparks; wear safety glasses or goggles, rubber gloves, apron  
**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and fumes  
**Storage:** 6 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air  
**Uses:** Synthetic flavor for pharmaceuticals  
**Features:** Apple-like flavor  
**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Japan approved as flavoring; Canada DSL; Australia AICS  
**Manuf./Distrib.:** Advanced BioTech
Ethyl β-keto-β-phenylpropionate. See Ethyl benzoylaceta
t
Ethyl α-ketopropionate. See Ethyl pyruvate
Ethyl ketovalerate; Ethyl 4-ketovalerate; Ethyl γ-ketovalerate. See Ethyl levulinate
Ethyl lactate
CAS 97-64-3; EINECS/ELINCS 202-598-0
UN 1192 (DOT); FEMA 2440
Synonyms: Ethyl 2-hydroxypropanoate; Ethyl 2-
hydroxypropanoate; Ethyl α-
hydroxypropionate; 2-Hydroxypropionic
acid ethyl ester; Lactic acid ethyl ester
Classification: Lactate ester
Definition: Ethyl ester of lactic acid; commercial
prod. is a racemic mixt.
Empirical: C₇H₁₀O₃
Formula: CH₃CHOHCOOC₂H₅
Properties: Colorless liq.; mild pleasant odor;
misc. with water, alcohol, ketones, esters,
hydrocarbons, oil, oxygenated solvs.; m.w.
118.13; dens. 1.020-1.036 (20/20 C); vapor
pressure 1.2 mm Hg (20 C); m.p. -26 C; b.p.
154 C; flash pt. 46.1 C; autoignition temp. 400
C; ref. index 1.410-1.420; surf. tens. 34
dynes/cm; KB value 1000

†=pharmaceutical grade
Toxicology: LD₅₀ (oral, mouse) 2500 mg/kg,
(subcut., mouse) 2500 mg/kg, (IV, mouse)
600 mg/kg, (skin, rabbit) > 5 g/kg; mod.
toxic by IP, subcut., IV routes; low toxicity
by ing. and skin contact; TSCA listed
Environmental: VOC; BOD₅ 0.7; COD 1.62;
ThOD 1.63: 100% biodeg.: not ODC or HAP
Precaution: Flammable, or combustible; LEL 1.6%;
UEL 10.6%; can react with oxidizers; sl.
exlosion hazard in vapor form exposed to
flame
Hazardous Decomp. Prods.: Heated to
decom., emits acrid smoke and irritating
fumes
Storage: 6 mos. when stored at 40-70 F in tightly
sealed original containers with minimum head
space; avoid prolonged exposure to light, heat,
air
Uses: Synthetic flavor for pharmaceuticals
Features: Fruity flavor; non-ozone depleting
Regulatory: FDA 21CFR §172.515, 175.105;
FEMA GRAS; Australia AICS; Canada DSL;
Japan MITI; EPA approved SNAP solvent
Manuf./Distrib.: A&E Connock

http://www.connock.co.uk; Aceto
http://www.aceto.com; Advanced BioTech
http://www.adv-bio.com; Advanced
Synthesis Tech.
http://www.advancedsynthesis.com; Alfa
Chem† http://www.alfachem1.com
Axxence Aromatic GmbH
http://www.axxence.com;
http://www.axxence.de; Boith China
http://www.boith.com; Brown
http://www.brownchem.com; Ciba Spec.
Chems./Water & Paper; Fleurchem
http://www.fleurchem.com
Grau Aromatics http://www.grau-
aromatics.de; Haltermann Prods. UK
http://www.haltermann.com; J.F. Henry;
Jungbunzlauer
http://www.jungbunzlauer.com;
Kaltron/Pettibone http://www.kaltron.com
Kraft Chem.† http://www.kraftchemical.com; Lluch
Essence http://www.lluch-essence.com;
Mallinckrodt Baker†
http://www.mallbaker.com; Moore Ingreds.
Ltd http://www.oxfordchemicals.com
PURAC Am.† http://www.purac.com; Penta
Mfg.† http://www.pentamfg.com; R.C.
Treatt & Co Ltd http://www.rctreatt.com;
SAFC Specialties
Ethyl laevulinate.  See Ethyl levulinate

Ethyl laurate
CAS  106-33-2; EINECS/ELINCS 203-386-0
FEMA  2441
Synonyms:  Dodecanoic acid, ethyl ester; Ethyl dodecanoate; Ethyl dodecylate
Definition:  Ester of ethyl alcohol and lauric acid; synthesized from lauroyl chloride and ethyl alcohol in presence of Mg in ether sol'n.
Empirical:  C14H28O2
Formula:  CH3(CH2)10COOCH2CH3
Properties:  Colorless oily liq., fruity-floral odor; misc. with alcohol, chloroform, ether; insol. in water; m.w. 228.37; dens. 0.858; vapor dens. 7.8; b.p. 272-273 C; flash pt. > 212 F; ref. index 1.430
Toxicology:  Eye, skin irritant; TSCA listed
Environmental:  Keep run-off water out of sewers, water sources
Precaution:  Combustible liq.; incompat. with strong oxidizers
Hazardous Decomp. Prods.:  Heated to decomp., emits acrid smoke and irritating fumes
Storage:  12 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air
Uses:  Synthetic flavor for pharmaceuticals; emollient
Features:  Fruity flavor
Regulatory:  FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI
Manuf./Distrib.:  A&E Connock  http://www.connock.co.uk; Advanced BioTech  http://www.adv-bio.com;
http://www.axxence.de
Elan  http://www.elan-chemical.com;
Fleurchem  http://www.fleurchem.com;

Ethyl levulate.  See Ethyl levulinate

Ethyl levulinate
CAS  539-88-8; EINECS/ELINCS 208-728-2
FEMA  2442
Synonyms:  Ethyl 3-acetylpropionate; Ethyl ketovalerate; Ethyl 4-ketovalerate; Ethyl 4-oxovalerate; Ethyl laevulinate; Ethyl levulate; Ethyl-4-oxopentanoate; Ethyl-4-oxovalerate; Levulinic acid, ethyl ester; 4-Oxopentanoic acid ethyl ester; Pentanoic acid, 4-oxo-, ethyl ester
Classification:  Nonaromatic ester
Definition:  Ester of levulinic acid and ethyl alcohol
Empirical:  C7H12O3
Formula:  CH3COCH2CH2COOC2H5
Properties:  Colorless liq.; freely sol. in water; misc. with alcohol, oxygenated solvs.; m.w. 144.17; dens. 1.012 (20/4 C); b.p. 203-205 C; flash pt. 94 C; ref. index 1.423 (20 C)
Toxicology:  LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; primary skin irritant; TSCA listed
Precaution:  Combustible
Hazardous Decomp. Prods.:  Heated to decomp., emits acrid smoke and irritating fumes
Uses:  Synthetic flavor for pharmaceuticals
Features:  Apple, pineapple-like flavor
Regulatory:  FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Axxence Aromatic GmbH  http://www.axxence.com;
Penta Mfg.†  http://www.pentamfg.com
Ethyl linolate  
CAS 544-35-4; EINECS/ELINCS 208-868-4  
Synonyms: Ethyl (Z,Z)-9,12-octadecadienoate; Linoleic acid ethyl ester; 9,12-Octadecadienoic acid ethyl ester; Vitamin F  
Definition: Ester of ethyl alcohol and linoleic acid  
Empirical: C_{20}H_{36}O_2  
Toxicology: Large doses can cause nausea and vomiting; no known skin toxicity  
Uses: Emollient, humectant, consistency agent for pharmaceuticals; drug delivery; nutrition; solvent for fats  
Features: Oily  
Regulatory: Canada DSL  
Manuf./Distrib.: A&E Connock  
http://www.connock.co.uk; Aldrich†  
http://www.sigma-aldrich.com; Esperis  
http://www.esperis.it; Fluka  
http://www.sigma-aldrich.com; Lluch Essence  
http://www.lluch-essence.com  
Sigma  
http://www.sigma-aldrich.com/belgium  
Trade Names: Crossential® EL90; Linoleato Etile; Safester A-75  
Trade Names Containing: Linol Linoleato Etile  

Ethyl linolenate  
CAS 1191-41-9; EINECS/ELINCS 214-734-6  
Synonyms: Ethyl α-linolenate; Ethyl (9Z,12Z,15Z)-9,12,15-octadecatrienoate; Ethyl cis,cis,cis-9,12,15-octadecatrienoate; LAEE; Linolenic acid, ethyl ester; 9,12,15-Octadecatrienoic acid, ethyl ester; (Z,Z,Z)-9,12,15-Octadecatrienoic acid, ethyl ester  
Classification: Essential fatty acid  
Definition: Ester of ethyl alcohol and linolenic acid  
Empirical: C_{20}H_{34}O_2  
Formula: CH_{3}(CH_{2}CH=CHCH_{3})(CH_{2})_{7}CO_{2}CH_{2}CH_{3}  
Properties: Colorless clear liq.; sol. > 10% in ether, 95% ethanol; m.w. 306.49; sp.gr. 0.8919 (25/4 C); b.p. 218 C (15 mm); flash pt. > 112 C; ref. index 1.4694 (20 C)  
Toxicology: LD50 (oral, mouse) 111,250 mg/kg; may be harmful by inh., ing., or skin absorp.; may cause skin irritation; TSCA listed  
Precaution: Probably combustible; incompat. with strong oxidizers, strong acids, strong bases; sensitive to light (may dec.); very sensitive to air  
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of CO, CO_2; emits toxic fumes under fire conditions  
Storage: Handle and store under inert atmosphere only; keep container tightly closed; store in a freezer; protect from exposure to light  
Uses: Emollient  
Regulatory: Canada DSL  
Manuf./Distrib.: A&E Connock  
http://www.connock.co.uk; Aldrich†  
http://www.sigma-aldrich.com; Esperis  
http://www.esperis.it; Fluka  
http://www.sigma-aldrich.com; Indofine  
http://www.indofinechemical.com  
MP Biomedicals  
http://www.mpbio.com; Sigma  
http://www.sigma-aldrich.com/belgium  
Trade Names Containing: Linol Linoleato Etile  

Ethyl α-linolenate. See Ethyl linolenate  
Ethyl malate. See Diethyl DL-malate  
Ethyl maleate. See Diethyl maleate  
Ethyl malonate. See Diethyl malonate  

Ethyl maltol  
CAS 4940-11-8; EINECS/ELINCS 225-582-5  
FEMA 3487; INS637  
Synonyms: 2-Ethyl-3-hydroxy-4H-pyran-4-one; 2-Ethyl pyromeconic acid; 3-Hydroxy-2-ethyl-4-pyrones  
Classification: Aliphatic ketone  
Empirical: C_{7}H_{8}O_{3}  
Properties: Wh. cryst. powd.; sweet caramel odor; fruity, sweet taste; sol. in water, alcohol, propylene glycol, chloroform; m.w. 140.14; m.p. 88-92 C  
Toxicology: LD50 (oral, rat) 1150 mg/kg, (subcut., mouse) 910 mg/kg; mod. toxic by ing., subcut. routes; mutagenic data; TSCA listed  
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes  
HMIS: Health 1, Flammability 1, Reactivity 0
Chemical Component Cross-Reference

**Chemical Compound:**
N-Ethyl-p-menthane-3-carboxamide

**Uses:** Synthetic flavor, flavor enhancer, processing aid, antioxidant for pharmaceuticals, orals

**Features:** Sweet flavor

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Europe listed; UK approved; FDA approved for orals; Canada DSL

**Manuf./Distrib.:** ADA Int’l.
Acros Org.
http://www.acros.com; Bioindustria L.I.M.
http://www.bioindustria.it; Frinton Labs
http://www.frinton.com; Frutarom Ltd
http://www.frutarom.com; Givaudan
http://www.givaudan.com; Interchim
http://www.interchim.com

**Trade Names:** WS-3

**Chemical Names:**
- **Empirical:** C13H25NO
- **Synonyms:** Cyclohexanecarboxamide, N-ethyl-5-methyl-2-(1-methylethyl)-; N-Ethyl-2-(isopropyl)-5-methylcyclohexane carboxamide; Ethyl methane carboxamide (INCI); N-Ethyl-5-methyl-2-(1-methylethyl) cyclohexanecarboxamide; Menthol carboxamide

**Empirical:** C13H25NO

**Properties:** Wh. to sl. yel. cryst. solid; faintly menthonic, cooling flavor/fragrance; sol. in alcohol; sol. 0.1% max. in water; m.w. 211.34; m.p. 87 C; flash pt. (TCC) > 200 F

**Toxicology:** LD50 (oral, rat) > 5 g/kg; irritating to skin, respiratory system; TSCA listed

**Precaution:** Wear protective clothing, gloves, eye/face protection; combustible liq.; incomp. with strong oxidizers

**Health:** 2, Flammability 2, Reactivity 0

**Storage:** 6 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat,
Chemical Component Cross-Reference

Uses: Synthetic flavor for pharmaceuticals
Features: Apple, plum-like flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI
Manuf./Distrib.: Advanced BioTech
http://www.adv-bio.com; Advanced Synthesis Tech.
http://www.advancedsynthesis.com; Astral Extracts http://www.astralextracts.com;
http://www.axxence.de
Bell Flavors & Fragrances http://www.bellff.com; Citrus and Allied Essences http://www.citrusandallied.com;
De Monchy Aromatics http://www.deemonchyaromatics.com;
Epochen http://www.epochen.com;
Fleurchem http://www.fleurchem.com
Fluka http://www.sigma-aldrich.com
Frutarom Ltd http://www.frutarom.com
SAFC Specialties http://www.safcspecialties.com; V. Mane Fils SA http://www.manecom

Ethyl 3-methylbutyrate; Ethyl β-methylbutyrate. See Ethyl isovalerate
Ethylmethyl carbinol. See 2-Butanol
Ethyl α-methylcrotonate; Ethyl (E)-2-methylcrotonate. See Ethyl tiglate
1-Ethyl-7-methyl-1,4-dihydro-1,8-naphthyridine-4-one-3-carboxylic acid. See Nalidixic acid
7-Ethyl-2-methyl-4-hexadecanol sulfate sodium salt. See Sodium myristyl sulfate
Ethyl methyl ketone. See Methyl ethyl ketone
Ethyl 3-methyl mercaptopropionate; Ethyl β-

†=pharmaceutical grade
methymercapto propionate. See Ethyl 3-(methylthio) propionate
N-Ethyl-5-methyl-2-(1-methylethyl) cyclohexanecarboxamide. See N-Ethyl-p-menthane-3-carboxamide
1-Ethyl-7-methyl-1,8-naphthyridin-4-one-3-carboxylic acid; 1-Ethyl-7-methyl-4-oxo-1,4-dihydro-1,8-naphthyridine-3-carboxylic acid. See Nalidixic acid

Ethyl methylphenylglycidate
CAS 77-83-8; EINECS/ELINCS 201-061-8
FEMA 2444

Synonyms: Aldehyde C-16; Aldehyde C-16 pure; C-16 aldehyde; EMPG: α-β-Epoxy-β-methylhydrocinnamic acid, ethyl ester; Ethyl α,β-epoxy-β-methylhydrocinnamate; Ethyl 2,3-epoxy-3-methyl-3-phenylpropionate; Ethyl 3-methyl-3-phenyloxiranecarboxylate; Ethyl 3-methyl-3-phenyl glycidic acid ethyl ester; 3-Methyl-3-phenyloxiranecarboxylic acid, ethyl ester; Oxiranecarboxylic acid, 3-methyl-3-phenyl-, ethyl ester; 'Strawberry aldehyde'
Classification: Organic compd.
Definition: Commercial prod. is a mixt. of cis and trans isomers
Empirical: C₁₂H₁₄O₃
Properties: Colorless to pale yel. liq., fruity strawberry-like odor; sol. in most fixed oils, propylene glycol; sol. in 3 vols. of 60% alcohol; insol. in glycerin; m.w. 206.24; dens. 1.104-1.123; b.p. 272-275 C; flash pt. 273 F; ref. index 1.509-1.511
Toxicology: LD₅₀ (oral, rat) 5470 mg/kg, (oral, guinea pig) 4050 mg/kg; mildly toxic by ing.; mutagen; TSCA listed
Precaution: Combustible liq.
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Storage: Moisture-sensitive; refrigerate
Uses: Synthetic flavor for pharmaceuticals
Features: Sweet strawberry-like flavor
Regulatory: FDA 21CFR §182.60, GRAS; FEMA GRAS; Canada DSL
Manuf./Distrib.: Adrian Amer.
Advanced Synthesis Tech.

Handbook of Pharmaceutical Additives, Third Edition 1319
Citrus and Allied Essences  
http://www.citrusandallied.com; De Monchy Aromatics  
http://www.demonchyaromatics.com; Elan  
http://www.elan-chemical.com; Givaudan Fragrances  
http://www.givaudan.com; MelChem  
http://www.melchem.com; Penta Mfg.  
http://www.pentamfg.com; Polarome Int'l.  
http://www.polarome.com; R.C. Treatt & Co. Ltd  
http://www.rctreatt.com; SAFC Specialties  
http://www.safcspecialties.com; Spectrum  
Quality Prods.  
http://www.spectrumchemical.com  

Ethyl 3-methyl-3-phenylglycidate; Ethyl 3-methyl-3-phenyloxiranecarboxylate. See Ethyl methylphenylglycidate

Ethyl 2-methylpropanoate; Ethyl-2-methylpropionate. See Ethyl isobutyrate

Ethyl 3-(methylthio) propionate

CAS 13327-56-5; EINECS/ELINCS 236-370-7  
FEMA 3343

Synonyms: Ethyl 3-methyl mercaptopropionate; Ethyl β-methylmercaptopropionate; Ethyl β-methylthiopropionate; 3-(Methyl thio) propionic acid ethyl ester

Empirical: C₆H₁₂O₂S

Properties: Colorless to pale yel. liq.; stench; sol. in alcohol; insol. in water; m.w. 148.23; sp.gr. 1.032; vapor dens. 5.11; b.p. 197 C; flash pt. 80.55 C; ref. index 1.4600

Toxicology: May be harmful by inh., ing., skin absorp.; may cause eye/skin irritation, nausea, headache, vomiting; may cause cancer, heritable genetic damage; TSCA listed

Precaution: Combustible liq.; incompat. with strong oxidizing agents, strong acids, strong bases

Hazardous Decomp. Prods.: Toxic fumes of CO, CO₂, SOₓ; emits toxic fumes under fire conditions

NFPA: Health 1, Flammability 2, Reactivity 0

Storage: Store in cool, dry place; keep tightly closed; keep away from heat, open flame

Uses: Synthetic flavor for pharmaceuticals

Features: Citrus, pineapple flavor

Regulatory: FEMA GRAS; Canada DSL

Manuf./Distrib.: Advanced BioTech  
http://www.adv-bio.com; Citrus and Allied Essences  
http://www.citrusandallied.com; Epocchem  
http://www.epochem.com;
Ethyl nitrile. **See** Acetonitrile

**Ethyl nitrile**  
CAS **109-95-5**

**Synonyms:** Nitrosyl ethoxide; Nitrurous acid ethyl ester; Nitrurous ether; Nitrurous ethyl ether; Spirit of ethyl nitrile; Spirit of nitrurous ether; Sweet spirit of niter

**Empirical:** C₂H₅NO₂

**Properties:** Ylsh. volatile liq. or gas, ether-like odor; burning taste; dec. on standing; sol. in alcohol; misc. with ether; sl. sol. in water; m.w. 75.04; dens. 0.90; b.p. 16.4 C; flash pt. -35 C

**Toxicology:** LC₅₀ (inh., rat, 4 h) 160 ppm; poison by inh. and ing.; narcotic in high concs.; may cause methemoglobinemia and hypotension; lowers blood pressure; TSCA listed

**Precaution:** Highly flamm.; very dangerous fire hazard; explosive limits in air 3-50%; explodes; dec. spontaneously @ 90 C; explodes @ 194 F; powerful oxidizer; incompat. with acid or acid fumes

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of NOx

**Storage:** Keep tightly closed in a cool place; protect from light

**Uses:** Synthetic flavor for pharmaceuticals; prep. of spirit of nitrous ether (a diaphoretic and diuretic)

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Manuf./Distrib.:** Aldrich  [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)

2-Ethyl-2-nitropropan-1,3-diol; 2-Ethyl-2-nitro-1,3-propanediol. **See** 2-Nitro-2-ethyl-1,3-propanediol

**Ethyl nonanoate; Ethyl nonylate. **See** Ethyl pelargonate

**Ethyl nonynoate. **See** Ethyl-2-nonynoate

**Ethyl-2-nonynoate**  
CAS **10031-92-2**; EINECS/ELINCS **233-098-0**

**Synonyms:** Ethyl nonynoate; Ethyl octyne carbonate; 2-Nonynoic acid ethyl ester

**Empirical:** C₁₁H₁₈O₂

**Properties:** Oily liq., green violet-like odor; m.w. 182.26; dens. 0.9032 (25 C); b.p. 227 C; ref. index 1.4527

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Apricot, pineapple-like flavor

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Japan approved as flavoring; Canada DSL; Australia AICS

Ethyl octoate; Ethyl octylate. See Ethyl octanoate

Ethyl octyne carbonate. See Ethyl-2-nonynoate

Ethyl oenanthate. See Ethyl heptanoate

‘Ethyl oenanthate’. See Cognac oil, green or white

Ethyl oenanthylate. See Ethyl heptanoate

Ethylolamine. See Ethanolamine

Ethyl oleate

CAS 111-62-6; 85049-36-1; EINECS/ELINCS 203-889-5; 285-206-0

FEMA 2450

Synonyms: Ethyl 9-octadecenoate; 9-Octadecenoic acid ethyl ester

Definition: Ester of ethyl alcohol and oleic acid

Empirical: C_{20}H_{36}O_{2}

Formula: CH_{3}(CH_{2})_{7}CH:CH(CH_{2})_{7}COOC_{2}H_{5}

Properties: Ylsh. oily liq.; misc. with alcohol, ether, veg. oils; insol. in water; m.w. 310.52; dens. 0.870 (20/4 C); visc. 75.15 cp; m.p. -32 C; b.p. 216-218 (15 mm); acid no. 0.5 max.; iodine no. 75-85; sapon. no. 177-188; flash pt. 175 C; ref. index 1.451

Toxicology: LD_{50} (oral, rat) > 5 g/kg; TSCA listed

Precaution: Combustible

Storage: Air- and light-sensitive; freeze

Uses: Vehicle, solvent for pharmaceuticals, intramuscular injectables, parenterals, topicals; diagnostic aid

Features: Oleaginous

Regulatory: FDA 21CFR §172.225, 172.515; FEMA GRAS; NF, BP, EP compliance; Canada DSL

Manuf./Distrib.: A&E Connock†

http://www.connock.co.uk; Advanced
**Chemical Component Cross-Reference**

**Ethylparaben**

**Hazardous Decomp. Prods.:** Toxic fumes of CO, CO₂

**Storage:** Store in cool, dry place; keep tightly closed

**Uses:** Flavor for pharmaceuticals; emollient

**Regulatory:** FEMA GRAS; Canada DSL

**Manuf./Distrib.:** AB R Lundberg

- [http://www.norfoods.se/lundberg](http://www.norfoods.se/lundberg)
- AMRESCO† [http://www.amresco-inc.com](http://www.amresco-inc.com)
- Acme-Hardesty† [http://www.acme-hardesty.com](http://www.acme-hardesty.com)
- Aldrich† [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
- Alzo† [http://www.alzointernational.com](http://www.alzointernational.com)
- Ashland† [http://www.ashchem.com](http://www.ashchem.com)
- Atomergic Chemetals† [http://www.atomegic.com](http://www.atomegic.com)
- Avatar† [http://www.avatarcorp.com](http://www.avatarcorp.com)
- Boith China [http://www.boith.com](http://www.boith.com)
- Camida Ltd† [http://www.camida.com](http://www.camida.com)
- Charkit† [http://www.charkit.com](http://www.charkit.com)
- Dastech Int'l. [http://www.dastech.com](http://www.dastech.com)
- EMD Chems.† [http://www.emdchemicals.com](http://www.emdchemicals.com)
- Eigenmann & Veronelli† [http://www.eigver.it](http://www.eigver.it)
- Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
- Helm NY† [http://www.helmnewyork.com](http://www.helmnewyork.com)
- Inolex [http://www.inolex.com](http://www.inolex.com)
- Integra† [http://www.integrachem.com](http://www.integrachem.com)
- Interchem† [http://www.interchem.com](http://www.interchem.com)
- Jeen Int'l.† [http://www.jeen.com](http://www.jeen.com)
- Lipo [http://www.lipochemicals.com](http://www.lipochemicals.com)
- Magnesia GmbH† [http://www.magnesia.de](http://www.magnesia.de)
- Mallinckrodt Baker† [http://www.mallbaker.com](http://www.mallbaker.com)
- Merck KGaA† [http://www.merck.de](http://www.merck.de)
- Mutchler† [http://www.mutchlerchem.com](http://www.mutchlerchem.com)
- Napp Tech.† [http://www.napptech.com](http://www.napptech.com)
- Noveon Kalama† [http://www.pentamfg.com](http://www.pentamfg.com)
- Protameen† [http://www.protameen.com](http://www.protameen.com)
- RTD Hallstar† [http://www.rtdhallstar.com](http://www.rtdhallstar.com)
- Ruger [http://www.rugerchemical.com](http://www.rugerchemical.com)
- Sigma [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
- Spectrum Quality Prods.† [http://www.spectrumchemical.com](http://www.spectrumchemical.com)
- Synas® [http://www.synas®a.com](http://www.synas®a.com)
- Vevy† [http://www.vevy.com](http://www.vevy.com)

**Trade Names:** Nipagin A

**Trade Names Containing:** Cephalipin; Colhibin; Elhibin®; Nipasept®; Nipastat®; Phenonip®; Pronalen® Sensitive Skin; Sensiline®; Uniphen P-23
Chemical Component Cross-Reference

Ethylparaben, potassium salt.  See Potassium ethylparaben
Ethylparaben, sodium salt.  See Sodium ethylparaben
Ethyl parahydroxybenzoate.  See Ethylparaben

Ethyl pelargonate
CAS 123-29-5; EINECS/ELINCS 204-615-7
FEMA 2447
Synonyms:  Ethyl nonanoate; Ethyl nonylate; Nonanoic acid, ethyl ester; Wine ether
Definition:  Ester of ethyl alcohol and pelargonic acid
Empirical:  C_{11}H_{22}O_{2}
Formula:  CH_{3}(CH_{2})_{7}COOCH_{2}CH_{3}
Properties:  Colorless liq., fruity cognac odor; sol. in alcohol, ether; misc. with propylene glycol; insol. in water; m.w. 186.33; dens. 0.866 (18/4 C); vapor dens. 6.4; b.p. \approx 220 C; f.p. -44 C; flash pt. 185 F; ref. index 1.4220 (20 C)
Toxicology:  LD50 (oral, rat) > 43,000 mg/kg; mildly toxic by ing.; skin, eye irritant; TSCA listed

Environmental:  Keep run-off out of sewers, water sources
Precaution:  Combustible liq.; incompat. with strong oxidizers
Hazardous Decomp. Prods.:  Heated to decomps., emits acrid smoke and irritating fumes
Storage:  Keep away from heat, sparks, open flame; keep in original, tightly closed container
Uses:  Synthetic flavor for pharmaceuticals
Features:  Fruity flavor
Regulatory:  FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.:  Advanced BioTech
http://www.adv-bio.com;  Advanced Synthesis Tech.
R.C. Treatt & Co. Ltd http://www.rctreatt.com;  SAFC Specialties

p-Ethylphenol
CAS 123-07-9; EINECS/ELINCS 204-598-6
FEMA 3156
Synonyms:  EP; 4-Ethylphenol; Phenol, p-ethyl-
Empirical:  C_{8}H_{10}O
Formula:  HOC_{6}H_{4}C_{2}H_{5}
Properties:  Colorless needles; sol. in alcohol, ether; sl. sol. in water; m.w. 122.17; m.p. 42-46 C; b.p. 218-219 C; flash pt. 213 F
Toxicology:  LD50 (IP, mouse) 138 mg/kg; toxic; poison by IP route; irritating to eyes, skin, respiratory system; TSCA listed
Precaution:  DOT: Keep away from food
Hazardous Decomp. Prods.:  Heated to decomps., emits acrid smoke and irritating vapors
Uses:  Flavor for pharmaceuticals
Regulatory:  FEMA GRAS; Canada DSL
Manuf./Distrib.:  Advanced Synthesis Tech.

Ethyl phenylacetate
CAS 101-97-3; EINECS/ELINCS 202-993-8
FEMA 2452
Synonyms:  Benzeneacetic acid, ethyl ester; Ethyl benzenecetate; Ethyl phenacetate; Ethyl-2-phenylethanoate; Ethyl-α-toluate; Phenylacetic acid, ethyl ester; α-Toluic acid ethyl ester
Classification:  aromatic compd.
Definition:  Ester of ethyl alcohol and phenylacetic acid
Empirical:  C_{10}H_{12}O_{2}
Formula:  C_{6}H_{5}CH_{2}COOC_{2}H_{5}
Properties:  Colorless liq., sweet honey-like odor; sol. in fixed oils, oxygenated solvs.; insol. in glycerin, propylene glycol, water; m.w. 164.22; dens. 1.033 (20 C); vapor dens. 5.6; b.p. 227 C; flash pt. > 100 C; ref. index 1.496-1.500
Toxicology:  LD50 (oral, rat) 3300 mg/kg; mod. toxic by ing.; mutagenic data; skin, eye irritant; TSCA listed

†=pharmaceutical grade
http://www.safcspecialties.com;  Sigma http://www.sigma-aldrich.com/belgium
Ethyl pentyl carbinol.  See 3-Octanol
Ethyl pentyl ketone.  See 3-Octanone
Ethyl phenylacetate.  See Ethyl phenylacetate
4-Ethylphenol.  See p-Ethylphenol

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Ethyl phenylacrylate; Ethyl-β-phenylacrylate.  See Ethyl cinnamate

Ethyl phenylbutyrate.  See Ethyl-4-phenylbutyrate

Ethyl-4-phenylbutyrate
CAS 10031-93-3
FEMA 2453
Synonyms:  Ethyl phenylbutyrate; Ethyl-γ-phenylbutyrate; 4-Phenyl butanoic acid ethyl ester
Definition:  Ester of ethanol and γ-phenylbutyric acid
Empirical:  C₁₂H₁₆O₂
Properties:  Colorless somewhat oily liq., plum-like odor, plum-prune taste; sol. in alcohol; insol. in water; m.w. 192.26
Uses:  Synthetic flavor for pharmaceuticals

Regulatory:  FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Ethyl-γ-phenylbutyrate.  See Ethyl-4-phenylbutyrate

Ethyl phenyl carbinol.  See 1-Phenyl-1-propanol

Ethyl phenyl carbonyl butyrate.  See α-Ethylbenzyl butyrate

Ethyl 3-phenyl-2,3-epoxypropionate.  See Ethyl phenylglycidate

Ethyl-2-phenylethanoate.  See Ethyl phenylacetate

Ethyl phenylglycidate
CAS 121-39-1;  EINECS/ELINCS 204-467-3
FEMA 2454
Synonyms:  Ethyl-α,β-epoxyhydrocinnamate;  Ethyl-α,β-epoxy-α-phenylpropionate;  Ethyl 3-phenyl-2,3-epoxypropionate;  Ethyl 3-phenylglycidate;  Ethyl 3-phenylxirane-2-carboxylate
Empirical:  C₁₁H₁₂O₃
Properties:  Colorless to pale yel. liq., fruity strawberry odor; sol. in alcohol, chloroform, ether; insol. in water; m.w. 192.22; dens. 1.120; b.p. 104 C (0.04 kPa); flash pt. > 100 C; ref. index 1.5190-1.5230
Toxicology:  LD₅₀ (oral, rat) 2300 mg/kg;  mod. toxic by ing.;  irritant;  mutagenic data;  TSCA listed

Hazardous Decomp. Prods.:  Heated to decomp., emits acrid smoke and irritating fumes

Uses:  Synthetic flavor for pharmaceuticals
Features:  Caramel, strawberry-like flavor

Regulatory:  FDA 21CFR §172.515; FEMA GRAS; Canada DSL
propenoate: Ethyl (E)-3-phenylprop-2-enooate. See Ethyl cinnamate

Ethyl-3-phenylpropionate
CAS 2021-28-5; EINECS/ELINCS 217-966-6
FEMA 2455
Synonyms: Ethyl hydrocinnamate
Empirical: C11H14O2
Formula: C6H5CH2CH2COOC2H5
Properties: Colorless liq., floral odor; sol. in most org. solvs.; insol. in water; m.w. 178.23; dens. 1.013 (20/4 C); b.p. 247-249 C; flash pt. > 98 C; ref. index 1.494 (20 C)
Uses: Synthetic flavor for pharmaceuticals
Features: Fruity flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Fluka http://www.sigma-aldrich.com; SAFC Specialties http://www.safcspecialties.com; Sigma http://www.sigma-aldrich.com/belgium

Ethyl phthalate. See Diethyl phthalate
Ethyl propanoate. See Ethyl propionate
1-Ethyl-1-propanol. See 3-Pentanol
Ethyl 1-propene-1,2,3-tricarboxylate. See Ethyl aconitate, mixed esters
Ethyl propenoate; Ethyl 2-propenoate. See Ethyl acrylate

Ethyl propionate
CAS 105-37-3; EINECS/ELINCS 203-291-4
UN 1195 (DOT); FEMA 2456
Synonyms: Ethyl propanoate; Propanoic acid ethyl ester; Propionic acid, ethyl ester; Propionic ether
Classification: Carboxylic acid ester
Definition: Ester of propionic acid and ethyl alcohol
Empirical: C3H10O2
Formula: CH3CH2COOC2H5
Properties: Colorless liq., fruity rum odor; sol. in ~ 60 parts water; sol. in fixed oils, most org. solvs.; misc. with alcohol, ether; m.w. 102.14; dens. 0.890 (20/4 C); vapor pressure 40 mm (27.2 C); m.p. -73 C; b.p. 96-99 C; flash pt. (CC) 12 C; autoignition temp. 440 C; ref. index 1.384 (20 C); surf. tens. 24.27 dynes/cm; dielec. const. 5.65
Toxicology: LD50 (oral, rabbit) 3500 mg/kg, (IP, rat) 1200 mg/kg; mod. toxic by ing. and IP routes; skin and eye irritant; probable respiratory tract irritant; high concs. may cause dizziness, headache; extreme concs. may cause unconsciousness, death; ing. may cause gasping breathing, hypothermia, acidosis; TSCA listed
Environmental: VOC; ThOD 2.04
Precaution: Highly flamm. liq.; dangerous fire risk and explosion hazard; LEL 1.9; UEL 11%; reacts vigorously with oxidizing materials
Hazardous Decomp. Prods.: May hydrolyze slowly to ethanol and propionic acid if water is present; heated to decomp., emits acrid smoke and irritating fumes
NFPA: Flammability 3, Reactivity 0
Storage: Store in tightly closed electrically grounded containers in cool, well-ventilated area, separate from workplace; limit quantities in use
Uses: Synthetic flavor for pharmaceuticals
Features: Pineapple-like flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Japan approved as flavoring; Canada DSL; Australia AICS
†=pharmaceutical grade
Ethyl propyl ketone. See 3-Hexanone
2-Ethyl-3-propyl-1,3-propanediol. See Ethyl hexanediol

Ethyl protal. See Ethyl vanillin
Ethyl PTS. See Ethyl-p-toluenesulfonate
2-Ethyl pyromeconic acid. See Ethyl maltol

Ethyl pyruvate
CAS 617-35-6; EINECS/ELINCS 210-511-2
FEMA 2457

Synonyms: Ethyl α-ketopropionate; Ethyl 2-oxopropanoate; Pyruvic acid ethyl ester
Definition: Ester of pyruvic acid and absolute ethyl alcohol

Empirical: C₅H₈O₃
Formula: CH₃COCOOC₂H₅

Properties: Colorless to sl. yel.-grn. liq., vegetable caramel odor; sl. sol. in water; misc. with alcohol, ether; m.w. 116.12; dens. 1.047 (20/4 C); m.p. -50 C; b.p. 148-150 C; flash pt. 114 F; ref. index 1.405

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: Advanced BioTech
http://www.adv-bio.com; Advanced Synthesis Tech.
DSM Fine Chems. Austria
http://www.dsmfinechemicals.com;
Epochen http://www.epochen.com;
Fleurchem http://www.fleurchem.com;
Fluka http://www.sigma-aldrich.com;
Nantong ChangChem
http://www.changchem.com
http://www.sigma-aldrich.com/belgium

Ethyl salicylate
CAS 118-61-6; EINECS/ELINCS 204-265-5
FEMA 2458

Synonyms: Ethyl 2-hydroxybenzoate; Ethyl-O-hydroxybenzoate; Sal ethyl; Salicylic ether; Salicylic ethyl ester
Definition: Ester of salicylic acid and ethyl alcohol

Empirical: C₉H₁₀O₃
Formula: HO • C₆H₄ • CO₂ • C₂H₅

Properties: Colorless liq., wintergreen odor; sol. in alcohol, ether, acetic acid, fixed oils; sl. sol. in water, glycerin; m.w. 166.18; dens. 1.127; m.p. 1.3 C; b.p. 233-234 C; flash pt. 225 F; ref. index 1.520

Toxicology: LD₅₀ (oral, rat) 1320 mg/kg; LD₅₀ (subcut., guinea pig) 1500 mg/kg; mod. toxic by ing., subcut. routes; skin irritant; TSCA listed

Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals

Features: Sweet, fruity, minty flavor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL


Spectrum Quality Prods.† http://www.spectrumchemical.com; Xinchem† http://www.finechemnet.com

Ethyl sebacate. See Diethyl sebacate
Ethyl (sodium o-mercaptobenzoato) mercury. See Thimerosal

Ethyl sorbate
CAS 2396-84-1; EINECS/ELINCS 219-258-2
FEMA 2459
Chemical Component Cross-Reference

Ethyl 2,4-hexadienoate; Sorbic acid ethyl ester
†=pharmaceutical grade

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Synonyms: Ethyl-2,4-hexadienoate; Sorbic acid ethyl ester
Classification: Nonaromatic ester
Definition: Ester of sorbyl chloride and ethyl alcohol
Empirical: C₇H₁₂O₂
Properties: Liq.; warm fruity ethereal odor; m.w. 140.18; dens. 0.956; b.p. 81 C (15 mm); flash pt. 157 F; ref. index 1.502
Toxicology: LD₅₀ (oral, mouse) > 8 g/kg, (IP, mouse) 5600 mg/kg; TSCA listed
Precaution: Combustible
Uses: Synthetic flavor for pharmaceuticals
Features: Fruity flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Ethyl steareate
CAS 111-61-5; 91031-43-5; EINECS/ELINCS 203-892-4; 292-945-2
FEMA 3490

Synonyms: Ethyl octadecanoate; Ethyl n-octadecanoate; Octadecanoic acid, ethyl ester; Stearic acid, ethyl ester
Definition: Ester of ethyl alcohol and stearic acid
Empirical: C₂₀H₄₀O₂
Formula: CH₃(CH₂)₁₆COOCH₂CH₃
Properties: Wh. cryst. solid, odorless; insol. in water; sol. in alcohol, ether; m.w. 312.54; m.p. 33-35 C; b.p. 213-215 (15 mm); flash pt. 110 C
Toxicology: Skin irritant; Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating vapors
Uses: Synthetic flavor for pharmaceuticals; emollient
Regulatory: FDA 21CFR §172.225; FEMA GRAS; Canada DSL

Ethyl succinate. See Diethyl succinate

Ethyl tetradecanoate. See Ethyl myristate

Ethyl tiglate
CAS 5837-78-5; 55514-48-2; EINECS/ELINCS 227-425-6; 259-688-8
FEMA 2460

Synonyms: 2-Butenoic acid, 2-methyl-, ethyl ester, (E)-; Crotonic acid, 2-methyl-, ethyl ester, (E)-; Ethyl trans-2,3-dimethyl acrylate; Ethyl 2-methyl-2-butenate; Ethyl (E)-2-methyl-2-butenoate; Ethyl trans-2-methyl-2-butenoate; Ethyl α-methylcrotonate; Ethyl (E)-2-methylcrotonate; (E)-2-Methyl-2-butoenoic acid ethyl ester; Tigic acid, ethyl ester
Classification: Nonaromatic ester
Definition: Ester of tiglic acid and ethyl alcohol
Empirical: C₇H₁₂O₂
Formula: CH₃CH=C(CH₃)CO₂C₂H₅
Properties: Colorless liq., fruity caramel odor; sol. in most org. solvs.; insol. in water; m.w. 128.17; dens. 0.923; b.p. 112 F; ref. index 1.4347 (16.8 C)
Toxicology: LD₅₀ (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; may be harmful by inh., ing., or skin absorp.; may cause irritation; TSCA listed
Precaution: Combustible; keep away from heat and open flame; incompat. with strong oxidizing agents, strong bases
Hazardous Decomp. Prods.: Toxic fumes of CO, CO₂; heated to decomp., emits acrid smoke and irritating vapors; emits toxic fumes under fire conditions
Storage: Store in cool, dry place; keep tightly closed
Uses: Synthetic flavor for pharmaceuticals
Features: Raspberry-like flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Ethyl-α-toluate. See Ethyl phenylacetate
Ethyl 4-toluenesulfonate; Ethyl toluene-4-sulfonate. See Ethyl-p-toluenesulfonate

Ethyl-p-toluenesulfonate
CAS 80-40-0; EINECS/ELINCS 201-276-7
UN 3261
Ethyl p-methylbenzenesulfonate; Ethyl PTS; Ethyl 4-toluenesulfonate; Ethyl toluene-4-sulfonate; Ethyl tosylate; Ethyl p-tosylate

**Empirical:** C₉H₁₂O₃S

**Formula:** CH₃C₆H₄SO₃C₂H₅

**Properties:** Liq. or cryst.; sol. in oxygenated solvs.; insol. in water; m.w. 200.27; dens. 1.17; m.p. 33 C; b.p. 221 C; flash pt. (CC) 158 C; ref. index 1.5110 (20 C)

**Toxicology:** LD₅₀ (IP, mouse) 1000 mg/kg; mod. toxic by subcut. and IP routes; questionable carcinogen; experimental tumorigen; mutagenic data; TSCA listed

**Precaution:** Combustible exposed to heat or flame; can react with oxidizers

**Hazardous Decomp. Prods.:** Heated to decomp., emits highly toxic fumes of SOₓ

**Storage:** Hygroscopic

**Uses:** Ethylating agent and intermediate for use in pharmaceuticals

**Regulatory:** Canada DSL

**Manuf./Distrib.:**
- Aldrich \[http://www.sigma-aldrich.com\]
- Fluka \[http://www.sigma-aldrich.com\]
- Seal Sands Chems. Ltd† \[http://www.rutherfordchemicals.com\]

Ethyl undecanoate; Ethyl p-toluenesulfonate

**Empirical:** C₁₉H₂₄O₂

**Properties:** Colorless to pale yel. liq., wine-like odor; m.w. 324.46; dens. 0.859; b.p. 258-259 C; flash pt. > 230 F; ref. index 1.4382

**Toxicology:** LD₅₀ (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; sl. toxic by ing.; primary skin irritant; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating vapors

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Soapy waxy buttery cognac coconut odor; waxy, creamy, slight fruity with a coconut and cheesy nuance taste

**Regulatory:** Canada DSL

**Manuf./Distrib.:**
- Advanced Synthesis Tech. \[http://www.advancedsynthesis.com\]
- Grau Aromatics \[http://www.grau-aromatics.de\]
- Penta Mfg.† \[http://www.pentamfg.com\]
- SAFC Specialties

Ethyl undecylenate; Ethyl undecylenoate

**Classification:** Nonaromatic ester

**Empirical:** C₁₃H₂₄O₂

**Properties:** Colorless liq.; fruity odor; misc. with alcohol, oxygenated solvs.; insol. in water; m.w. 212.34; dens. 0.879; b.p. 258-259 C; flash pt. > 230 F; ref. index 1.4382

**Toxicology:** LD₅₀ (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; sl. toxic by ing.; primary skin irritant; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating vapors

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Fruity flavor

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Manuf./Distrib.:**
- SAFC Specialties \[http://www.safcspecialties.com\]

Ethyl undecylenoate

**Synonyms:** Ethyl 10-hendecenoate; Ethyl undecylenate; Ethyl undecylenoate; 10-Undecenoic acid, ethyl ester

**Classification:** Nonaromatic ester

**Empirical:** C₁₃H₂₄O₂

**Properties:** Colorless to pale yel. liq., wine-like odor; m.w. 212.34; dens. 0.879; b.p. 258-259 C; flash pt. > 230 F; ref. index 1.4382

**Toxicology:** LD₅₀ (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; sl. toxic by ing.; primary skin irritant; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating vapors

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Fruity flavor

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Manuf./Distrib.:**
- Advanced Synthesis Tech. \[http://www.advancedsynthesis.com\]
- Augustus Oils Ltd \[http://www.augustus-oils.ltd.uk\]

Ethyl valerate

**Synonyms:** Ethyl n-valerate

**Empirical:** C₇H₁₄O₂

**Properties:** Colorless liq.; fruity odor; misc. with alcohol, oxygenated solvs.; insol. in water; m.w. 130.19; dens. 0.877 (20/4 C); b.p. 142-146 C; flash pt. 34 C; ref. index 1.372-1.400 (20 C)

**Toxicology:** Irritant; TSCA listed

**Precaution:** Flamm.

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Apple-like flavor

**Regulatory:** USP/NF compliance; FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Manuf./Distrib.:**
- Advanced Synthesis Tech. \[http://www.advancedsynthesis.com\]
- Augustus Oils Ltd \[http://www.augustus-oils.ltd.uk\]

†=pharmaceutical grade

**http://www.safcspecialties.com; Sigma**

**http://www.sigma-aldrich.com belgium**

**Ethyl undecenoate. See Ethyl 10-undecenoate**

**Ethyl 10-undecenoate**

**CAS 692-86-4; EINECS/ELINCS 211-734-8**

**FEMA 2461**

**Synonyms:** Ethyl 10-hendecenoate; Ethyl undecenoate; Ethyl undecylenate; Ethyl undecylenoate; 10-Undecenoic acid, ethyl ester

**Classification:** Nonaromatic ester

**Empirical:** C₁₃H₂₄O₂

**Properties:** Colorless to pale yel. liq., wine-like odor; m.w. 212.34; dens. 0.879; b.p. 258-259 C; flash pt. > 230 F; ref. index 1.4382

**Toxicology:** LD₅₀ (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; sl. toxic by ing.; primary skin irritant; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating vapors

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Fruity flavor

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Manuf./Distrib.:**
- SAFC Specialties \[http://www.safcspecialties.com\]

**Ethyl undecylenoate. See Ethyl undecylenate, Ethyl undecylenoate. See Ethyl 10-undecylenoate**

**Ethyl valerate**

**CAS 539-82-2; EINECS/ELINCS 208-726-1**

**FEMA 2462**

**Synonyms:** Ethyl n-valerate

**Empirical:** C₇H₁₄O₂

**Properties:** Colorless liq.; fruity odor; misc. with alcohol, oxygenated solvs.; insol. in water; m.w. 130.19; dens. 0.877 (20/4 C); b.p. 142-146 C; flash pt. 34 C; ref. index 1.372-1.400 (20 C)

**Toxicology:** Irritant; TSCA listed

**Precaution:** Flamm.

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Apple-like flavor

**Regulatory:** USP/NF compliance; FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Manuf./Distrib.:**
- Advanced Synthesis Tech. \[http://www.advancedsynthesis.com\]
- Augustus Oils Ltd \[http://www.augustus-oils.ltd.uk\]
Ethyl n-valerate. See Ethyl valerate

Ethyl vanillin
CAS 121-32-4; EINECS/ELINCS 204-464-7
FEMA 2464
Synonyms: Benzaldehyde, 3-thoxy-4-hydroxy-; Bourbonal; Ethavan; Ethovan; 3-Ethoxy-4-hydroxybenzaldehyde; Ethylprotal; 4-Hydroxy-3-ethoxybenzaldehyde; Protocatechuic aldehyde ethyl ether; Vanillal
Classification: Substituted phenolic; aromatic organic compd.
Empirical: C₉H₉O₃
Properties: Wh. fine cryst., vanilla odor; sol in alcohol, chloroform, propylene glycol, ether, most org. solvs.; sl. sol. in water; m.w. 166.19; m.p. 76.5 °C; b.p. 285 °C; flash pt. > 212 °F
Toxicology: LD₅₀ (oral, rat) 1590 mg/kg, (IP, mouse) 750 mg/kg; LDLo (subcut., rat) 1800 mg/kg, (IV, dog) 760 mg/kg; mod. toxic by ing., IP, subcut., and IV routes; human skin irritant; mutagenic data; TSCA listed
Precaution: Flamm. liq.
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Storage: Light-sensitive
Uses: Synthetic flavor and fragrance for pharmaceuticals, orals
Features: Sweet, vanilla-like flavor
Regulatory: FDA 21 CFR §163.111, 163.112, 163.113, 163.114, 163.117, 163.123, 163.130, 163.135, 163.140, 163.145, 163.150, 163.153, 163.155, 182.60, 182.90, GRAS; FEMA GRAS; Canada DSL; Japan approved as flavoring; FDA approved for orals
Manuf./Distrib.: ADA Int'l.
http://www.joinme.net/ada/index.htm; AMC Chems.; Adrian Amer.
http://www.adrianusa.com; Advanced
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<th>Chemical Component Cross-Reference</th>
<th>CAS</th>
<th>EINECS/ELINCS</th>
<th>Trade Names</th>
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<td>[2.2.2] octane</td>
<td>220-552-8</td>
<td>207-431-5</td>
<td>Evatek™ #174</td>
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<td>Ethyl vinyl carbinol</td>
<td>2809-21-4</td>
<td>207-431-5</td>
<td>Spectrum Quality Prods.†</td>
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<td>2-Ethynyl-2-butanol</td>
<td>470-82-6</td>
<td>207-431-5</td>
<td>Virginia Dare Extract†</td>
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<td>Ethynylidimethyl carbinol</td>
<td>2809-21-4</td>
<td>207-431-5</td>
<td>Wego Chem. &amp; Min.</td>
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<tr>
<td>Etidronic acid</td>
<td>2809-21-4</td>
<td>207-431-5</td>
<td><a href="http://www.upichem.com">http://www.upichem.com</a></td>
</tr>
</tbody>
</table>

**Properties:**

- **Empirical:** C₁₀H₁₈O₂
- **Formula:** CH₃(C(OH)(PO₃H₂)₂
- **Properties:** M.w. 206.03; heated above 200 C, dec. violently emitting toxic fumes
- **Toxicology:** LD₅₀ (oral, mouse) 1800 mg/kg; mod. toxic by ingestion; TSCA listed
- **Precaution:** DOT: Corrosive; strong acid
- **Hazardous Decomp. Prods.:** Heated above 200 C, dec. violently to produce toxic fumes of phosphate, phosphoric acid, and PO₄
- **Uses:** Stabilizer, antioxidant for pharmaceutical hair/skin preps.; chelating agent, sequestrant for radioactive pharmaceuticals
- **Regulatory:** FDA 21CFR §173.310, 173.315, 178.1010; SARA immediate health hazard; Canada DSL
- **Manuf./Distrib.:** ABCR http://www.abcr.de; Biddle Sawyer

**†=pharmaceutical grade**

- **CAS:** 470-82-6; EINECS/ELINCS 207-431-5
- **FEMA:** 2465
- **Synonyms:** Cajeputol; Cineol; 1,8-Cineol; Cineole; 1,8-Cineole; 1,8-Epoxy-p-methane; Eucalyptole; Limonene oxide; p-Menthane, 1,8-epoxy; 2-Oxabicyclo (2.2.2) octane, 1,3,3-trimethyl-; 1,8-Oxido-p-methane; 1,3,3-Trimethyl-2-oxabicyclo [2.2.2] octane
- **Definition:** Constituent of oil of eucalyptus
- **Empirical:** C₁₀H₁₈O₂
- **Properties:** Colorless to ylsh. liq., camphor-like odor, spicy cooling taste; misc. with alcohol, chloroform, ether, glacial acetic acid, fixed or volatile oils; pract. insol. in water; m.w. 154.25; dens. 0.924 (20/4 C); m.p. > 1.5 C; b.p. 175-179 C; flash pt. 49 C; ref. index 1.4550-1.4600 (20 C); tenacity 24 hrs. on blotter
- **Toxicology:** LD₅₀ (oral, rat) 2480 mg/kg; subcut., mouse 1070 mg/kg; poison by subcut. and intramuscular routes; mod. toxic by ing.; experimental carcinogen, reproductive effects; mutagen; TSCA listed
- **Precaution:** Combustible liq.
- **Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and fumes
- **HMIS:** Health 1, Flammability 2, Reactivity 0
- **Storage:** Store in cool, dry place in tightly sealed containers, protected from heat, light
- **Uses:** Synthetic flavor for pharmaceuticals; cough syrups; expectorants; antiseptic in oral rinse prods.; dentals
- **Regulatory:** FDA 21CFR §172.515; 27CFR §21.65, 21.151; FEMA GRAS; Australia; Japan approved as flavoring (ENCS no. 5-684); FDA approved for dentals; Canada DSL; Philippines PICCS
- **Manuf./Distrib.:** AMC Chems.; Adrian Amer.
Eucalyptus globulus oil

**CAS** 8000-48-4; 90028-48-1
**FEMA** 2466

**Synonyms:** Dinkum oil; Eucalyptus globulus; Eucalyptus oil

**Definition:** Volatile oil obtained from leaves of *Eucalyptus globulus*, contg. eucalyptol (70-80%), plus α-pinene, phellandrene, terpineol, citronellal, geranyl acetate, pipertone, etc.

**Properties:** Colorless to pale yel. liq., char. camphoraceous odor, pungent spicy cooling taste; sol. in 5 vols 70% alcohol; misc. with abs. alcohol, oils, fats; pract. insol. in water; dens. 0.905-0.925; m.p. -15.4 C; ref. index 1.458-1.470 (20 C)

**Toxicology:** LD50 (oral, rat) 2480 mg/kg, (skin, rabbit) 2480 mg/kg; human poison and human systemic effects by ing.; skin and eye irritant; can cause allergic reaction; ing. can cause eye spasms, nausea, vomiting, respiratory depression, sweating; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**HMIS:** Health 1, Flammability 2, Reactivity 0
**Storage:** Keep cool, well closed; protect from light

**Uses:** Natural flavor in pharmaceuticals, orals; local antiseptic; antispasmodic, stimulant

**Regulatory:** FDA 21CFR §172.510, 27CFR §21.65, 21.151; FEMA GRAS; Japan approved; Europe listed, no restrictions; FDA approved for orals; BP, EP compliance; Canada DSL

<table>
<thead>
<tr>
<th>Chemical Component Cross-Reference</th>
<th>†=pharmaceutical grade</th>
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<tr>
<td><strong>Monchy Aromatics</strong></td>
<td>Phenol, 2-methoxy-4-(2-propenyl)-</td>
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<tr>
<td><a href="http://www.demonchyaromatics.com">http://www.demonchyaromatics.com</a></td>
<td>Classification: Substituted phenol</td>
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<tr>
<td><strong>Eramex Aromatics</strong></td>
<td>Empirical: C₁₀H₁₂O₂</td>
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<tr>
<td><a href="http://www.eramex.de">http://www.eramex.de</a></td>
<td>Properties: Colorless or ylsh. liq., pungent clove odor; sol. in alcohol, chloroform, ether, volatile oils, most org. solvs.; very sl. sol. in water; m.w. 164.22; dens. 1.064-1.070; m.p. 10.3 C; b.p. 253.5 C; flash pt. 219 F; ref. index 1.540</td>
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<td><strong>Essence Nat. Prods.</strong></td>
<td>Toxicology: LD₅₀ (oral, rat) 1930 mg/kg, (IP, mouse) 500 mg/kg; LD₅₀ (subcrt., rat) 5000 mg/kg; mod. toxic by ing., IP, and subcut. routes; human skin irritant; potential allergen; experimental carcinogen, tumorigen; human mutagenic data; TSCA listed</td>
</tr>
<tr>
<td><strong><a href="http://www.copelandoil.co.uk">http://www.copelandoil.co.uk</a></strong>; Fleurchem</td>
<td>Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke, irritating fumes</td>
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<tr>
<td><strong><a href="http://www.fleurchem.com">http://www.fleurchem.com</a></strong></td>
<td>HMIS: Health 1, Flammability 1, Reactivity 0</td>
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<tr>
<td><strong>Frutarom (UK) Fine Ingrds.†</strong></td>
<td>Storage: Light-sensitive</td>
</tr>
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<td><a href="http://www.frutarom.com">http://www.frutarom.com</a>; Fuerst Day</td>
<td>Uses: Synthetic flavor and adjuvant for pharmaceuticals, orals, periodontal dressings, zinc oxide cement, impression pastes; local antiseptic, anesthetic, analgesic for dentals, mouth pain and cold sore prods.</td>
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<td><strong>Lawson</strong></td>
<td>Regulatory: FDA 21CFR §177.2800, 184.1257, GRAS; 27CFR §21.65, 21.151; FEMA GRAS; Japan approved as flavoring; FDA approved for orals; BP, EP compliance; Canada DSL</td>
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<td><a href="http://www.fdl.co.uk">http://www.fdl.co.uk</a>; GR Davis</td>
<td>Manuf./Distrib.: Adrian Amer.</td>
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<td><a href="http://www.spectrumchemical.com">http://www.spectrumchemical.com</a>; Spectrum Quality Prods.†</td>
<td><a href="http://www.firmenich.com">http://www.firmenich.com</a>; Firmenich <a href="http://www.ermex.de">http://www.ermex.de</a>; F.D. Copeland</td>
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<td><a href="http://www.adrianusa.com">http://www.adrianusa.com</a>; Advanced BioTech <a href="http://www.demonchyaromatics.com">http://www.demonchyaromatics.com</a>; Doingcom† <a href="http://www.doingcom.com">http://www.doingcom.com</a></td>
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<td><a href="http://www.sarcominc.com">http://www.sarcominc.com</a>; Shanghai</td>
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<td><a href="http://www.rcr-treatt.com">http://www.rcr-treatt.com</a>; U.S. Synthetics†; Universal Preserv-A-Chem†</td>
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<td><a href="http://www.vgdlic.com">http://www.vgdlic.com</a>; Yasho Ind.</td>
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**Eucalyptus oil.** See Eucalyptus globulus oil

**Eugenia caryophyllus; Eugenia caryophyllus extract.** See Clove (Eugenia caryophyllus) extract

**Eugenia caryophyllus leaf oil.** See Clove (Eugenia caryophyllus) leaf oil

**Eugenia caryophyllus oil.** See Clove (Eugenia caryophyllus) oil

**Eugenic acid.** See Eugenol

**Eugenol**

CAS 97-53-0; EINECS/ELINCS 202-589-1

**FEMA 2467**

**Synonyms:** Allylguaiacol; 4-Allylguaiacol; 4-Allyl-1-hydroxy-2-methoxybenzene; 4-Allyl-2-methoxyphenol; Caryphyllic acid; Eugenic acid; 1-Hydroxy-2-methoxy-4-allylbenzene; 4-Hydroxy-3-methoxallylbenezene; 1-Hydroxy-2-methoxy-4-prop-2-enylbenzene; 2-Methoxy-4-allylphenol; 2-Methoxy-4-prop-2-enylphenol; 4-Allylguaiacol; 4-Allyl-1-hydroxy-2-methoxybenzene; 4-Allyl-2-methoxyphenol; Caryphylllic acid; Eugenic acid; 1-Hydroxy-2-methoxy-4-allylbenzene; 4-Hydroxy-3-methoxallylbenezene; 1-Hydroxy-2-methoxy-4-prop-2-enylbenzene; 2-Methoxy-4-allylphenol; 2-Methoxy-4-prop-2-enylphenol;
Eugenol acetate; 1,3,4-Eugenol acetate. See Eugenyl acetate

Eugenol benzoate. See Eugenyl benzoate

Eugenol formate. See Eugenyl formate

Eugenol methyl ether; 1,3,4-Eugenol methyl ether. See Methyl eugenol

Eugenyl acetate
CAS 93-28-7; EINECS/ELINCS 202-235-6
FEMA 2469

Synonyms: Acetoeugenol; 1-Acetoxy-2-methoxy-4-allylbenzene; 3-(4-Acetoxy-3-methoxyphenyl) propene; Acetyl eugenol; 4-Allyl-2-methoxyphenyl acetate; Eugenol acetate; 1,3,4-Eugenol acetate; 4-(2-Propenyl)-2-methoxyphenyl ethanoate

Empirical: C₁₂H₁₄O₃

Properties: Pale yel. liq. or semisolid mass, clove oil-like odor, burning aromatic flavor; sol. in alcohol, ether; insol. in water; m.w. 206.24; dens. 1.08 kg/l; m.p. 29-30 C; b.p. 281-282 C (752 mm); flash pt. 151 F; ref. index 1.52069

Toxicology: LD₅₀ (oral, rat) 1670 mg/kg; mod. toxic by ing.; skin irritant; TSCA listed

Precaution: Combustible liq.
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals

†=pharmaceutical grade

HMIS: Health 1, Flammability 2, Reactivity 0
Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: Adrian Amer.

Eugenyl benzoate
CAS 531-26-0; EINECS/ELINCS 208-504-4
FEMA 2471

Synonyms: 4-Allyl-2-methoxyphenyl benzoate; Benzoyl eugenol; Eugenol benzoate; 2-Methoxy-4-(2-propenyl) phenyl benzoate

Empirical: C₁₇H₁₆O₃

Properties: Colorless cryst. solid, balsamic odor; sol. in alcohol, ether; insol. in water; m.w. 268.32; m.p. 69-70 C; b.p. 360 C

Uses: Synthetic flavor for pharmaceuticals

Features: Mild balsam clove odor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: Degussa AG/Health & Nutrition

Eugenyl formate
CAS 10031-96-6; EINECS/ELINCS 233-099-6
FEMA 2473

Synonyms: 4-Allyl-2-methoxyphenyl formate; Eugenol formate; 4-(2-Propenyl)-2-methoxyphenyl formate; 4-(2-Propenyl)-2-methoxyphenyl methanoate

Empirical: C₁₁H₁₂O₃

Properties: Orris-like odor; m.w. 192.22; dens. 1.120; b.p. 270 C; flash pt. 102 C; ref. index 1.5240-1.5265

Toxicology: LD₅₀ (oral, rat) 3400 mg/kg; mod. toxic by ing.; skin irritant

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals
Chemical Component Cross-Reference

†=pharmaceutical grade

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Eugenyl methyl ether. **See** Methyl eugenol
Euphorbia cerifera wax. **See** Candelilla (Euphorbia cerifera) wax
European angelica extract. **See** Angelica (Angelica archangelica) extract
European dill seed oil. **See** Dill (Anethum graveolens) seed oil
European pennroyal extract. **See** Pennyroyal (Mentha pulegium) extract
European pennroyal oil. **See** Pennyroyal (Mentha pulegium) oil

EVA; EVA copolymer; EVM. **See** Ethylene/VA copolymer
Expanded polyvinyl chloride. **See** Polyvinyl chloride
Exsiccated ammonium alum. **See** Ammonium alum
Exsiccated ferrous sulfate. **See** Ferrous sulfate monohydrate
Exsiccated sodium phosphate. **See** Sodium phosphate dibasic anhydrous
Exsiccated sodium sulfite. **See** Sodium sulfite

Ext. D&C Yellow No. 7
CAS 846-70-8; EINECS/ELINCS 212-690-2
Synonyms: Acid yellow 1; CI 10316; 2,4-Dinitro-1-naphthol-7-sulfonic acid disodium salt; 8-Hydroxy-5,7-dinitro-2-naphthalenesulfonic acid disodium salt; Naphthol yellow S
Classification: Nitro color
Empirical: C_{10}H_{6}N_{2}Na_{2}O_{8}S
Formula: (CH_{3})_{2}CCHCH_{2}CH_{2}CCH_{2}CH_{2}CCH_{3}CH_{2}OH
Properties: Colorless to lt. yel. liq.; floral odor; insol. in water; dens. 0.8871 (20/4 C); b.p. 111 C; ref. index 1.487-1.492
Toxicology: LD_{50} (oral, rat) 6000 mg/kg, (IP, mouse) 4443 mg/kg; mod. toxic by IP route; mildly toxic by ing.; mutagenic data; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Synthetic flavor and fragrance for pharmaceuticals, topicals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Trade Names: Farnesol
Trade Names Containing: Unitrienol T-27

Farnesyl acetate
CAS 29548-30-9; EINECS/ELINCS 249-689-1
Synonyms: 2,6,10-Dodecatrien-1-ol, 3,7,11-trimethyl-, acetate; 3,7,11-Trimethyl-2,6,10-dodecatrien-1-ol, acetate; 3,7,11-Trimethyldecosa-2,6,10-trienyl acetate
### Chemical Component Cross-Reference

**Definition:** Ester of farnesol and acetic acid  
**Empirical:** C\(_{17}\)H\(_{28}\)O\(_2\)  
**Properties:** Colorless liq.; sol. in alcohol; insol. in water; sp.gr. 0.905-0.914; b.p. 162 C (10 mm); flash pt. 110 C; ref. index. 1.470-1.478  
**Uses:** Blocks cholesterol synthesis  
**Regulatory:** Canada DSL  
**Manuf./Distrib.:** Chemos GmbH  
http://www.chemos-group.com  
Fluka  
http://www.sigma-aldrich.com  
Prodasynth  
http://www.prodasynth.com  
**Trade Names Containing:** Unitrienol T-27

| Fast green FCF  
CAS 2353-45-9; EINECS/ELINCS 219-091-5  
INS143  
Synonyms: CI 42053; Dihydrogen (ethyl) [4-[4-[ethyl (3-sulfonatobenzyl) amino] (4-hydroxy-2-sulfonatobenzhydrylidene) cyclohexa-2,5-dien-1-ylidene] (3-sulfonatobenzyl) ammonium, disodium salt; FD&C Green No. 3; Food green 3  
Classification: Triphenylmethylene color  
**Empirical:** C\(_{37}\)H\(_{36}\)N\(_2\)O\(_{10}\)S\(_3\) • 2Na  
Properties: Red to brn.-violet powd. or dk. grn. cryst.; sol. in water, conc. sulfuric acid, ethanol; m.w. 810.91; m.p. 290 C (dec.)  
Toxicology: LD\(_{50}\) (oral, rat) > 2 g/kg; questionable carcinogen; experimental neoplastigen; may cause bladder tumors; mutagenic data; TSCA listed  
Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of NO\(_x\) and SO\(_x\)  
Storage: Store @ R.T.  
Uses: Colorant for pharmaceuticals, orals, topicals; reagent for staining proteins  
Regulatory: FD&C Green No. 3: FDA 21CFR §74.203, 74.1203, 74.2203, 82.203; FDA approved for orals, topicals; not permitted in food (EU)  
**Manuf./Distrib.:** AMRESCO  
http://www.amresco-inc.com  
Aldrich†  
http://www.sigma-aldrich.com  
Alfa Chem  
http://www.alfachem1.com  
Fluka  
http://www.sigma-aldrich.com  
Ruger†  
http://www.rugerchemical.com  
Sensient Tech. Colors  
http://www.triconcolors.com  
Sigma  
http://www.sigma-aldrich.com/belgium  
Spectrum Quality Prods.  
http://www.spectrumchemical.com  
TKB Trading  
http://www.wholesalecolors.com  
†=pharmaceutical grade

**See also** FD&C Green No. 3  
Fast red. See Amaranth  
Fat, lard. See Lard  
Fats and glyceridic oils, vegetable, hydrogenated. See Hydrogenated vegetable oil  
Fats, nutmeg butter. See Mace (Myristica fragrans) oil  
Fatty acid, C14-18 and C16-18, unsaturated. See Tallow acid  
Fatty acid mono/diglycerides. See Mono- and diglycerides of fatty acids  
Fatty acid mono- and diglycerides, citric acid esters. See Citric acid esters of mono- and diglycerides of fatty acids  
Fatty acids, C18-36, esters with ethylene glycol. See C18-36 acid glycol ester  
Fatty acids, coco. See Coconut acid  
Fatty acids, coco, esters with sucrose. See Sucrose cocoate  
Fatty acids, coco, methyl esters. See Methyl cocoate  
Fatty acids, coconut oil, potassium salts. See Potassium cocoate  
Fatty acids, coconut oil, sodium salts. See Sodium cocoate  
Fatty acids, coconut oil, sulfoethyl esters, sodium salts. See Sodium cocomonomoglyceride sulfonate  
Fatty acids, coco, 2-hydroxy-3-sulfopropyl esters, sodium salts. See Sodium cocooberatic acid  
Fatty acids, coco, methyl esters. See Methyl cocoate  
Fatty acids, coconut oil, potassium salts. See Potassium cocoate  
Fatty acids, coco, sodium salts. See Sodium cocoate  
Fatty acids, coco, 2-sulfoethyl esters, sodium salts. See Sodium cocooberatic acid  
Fatty acids, C6-12, triesters with trimethylolpropane. See Trimethylolpropane tricaprylate/tricaprate  
Fatty acids, lanolin. See Lanolin acid  
Fatty acids, lanolin, isopropyl esters. See Isopropyl lanolate  
Fatty acids, menhaden oil, hydrogenated. See Hydrogenated menhaden acid  
Fatty acids, montan wax. See Montan acid wax  
Fatty acids, soya. See Soy acid  
Fatty acids, tallow. See Tallow acid  
Fatty acids, tallow, methyl esters. See Methyl cocoate
FD&C Blue No. 1
CAS 3844-45-9; EINECS/ELINCS 223-339-8
INS133

Synonyms: Acid blue 9; Acid blue 9 disodium salt; Brilliant blue FCF; CI 42090; D&C Blue No. 4; N-Ethyl-N-[4-[4-[ethyl[[3-sulfophenyl]methylene]-2,5-cyclohexadien-1-ylidene]-3-sulfo-benzenemethanaminium hydroxide, inner salt, disodium salt; Food blue 2; Patent blue AC

Classification: Triphenylmethane color

Empirical: C_{37}H_{34}N_{2}O_{9}S_{3} • 2Na

Properties: Greenish-blue powd., gran.; sol. (oz/gal): 52 oz propylene glycol, 36 oz glycerin, 25 oz dist. water, 2 oz 95% ethanol; sol. in veg. oils; m.w. 792.86; m.p. 283 C (dec.)

Toxicology: LD50 (subcut., mouse) 4600 mg/kg; may cause allergic reactions; possible carcinogen; produces malignant tumors at site of injection and by ing. in rats; experimental neoplastigen; mutagenic data; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of NOx, Na2O, and SOx

Uses: Colorant for pharmaceuticals, orals, topicals, buccal, eye use

Regulatory: FDA 21CFR §74.101, 74.2101, 74.2101, 81.1, 82.50, 82.51, 82.101, 176.180; subject to certification, permanently listed; Canada DSL

Manuf./Distrib.: Noveon†
http://www.carbopol.com;
http://www.noveoncoatings.com; RTD
Hallstar http://www.rtdhallstar.com; Ruger†
http://www.rugerchemical.com

FD&C Blue No. 2
CAS 860-22-0; EINECS/ELINCS 212-728-8
E132

Synonyms: Acid blue 74; Blue X; Ceruleinum; CI 73015; 2-(1,3-Dihydro-3-oxo-5-sulfo-2H-indol-2-ylidene)-2,3-dihydro-3-oxo-1H-indole-5-sulfonic acid disodium salt; Disodium indigo-5,5-disulfonate; Food blue 1; Indigo carmine; Indigo carmine disodium salt; 5,5´-Indigotin disulfonic acid; Indigotine; Indigotine disodium salt; Sodium 5,5´-indigotidisulfonate; Soluble indigo

Classification: Indigoid color

Definition: Disodium salt of 5,5´-indigotin disulfonic acid

Empirical: C_{16}H_{32}N_{2}O_{8}S_{2} • 2Na

Properties: Blue-brn. to red-brn. powd.; sol. in

http://www.sigma-aldrich.com/belgium;
Chemical Component Cross-Reference

water, conc. sulfuric acid; sl. sol. in alcohol; m.w. 466.36

Toxicology: LD50 (oral, rat) 2 g/kg, (IV, rat) 93 mg/kg; poison by IV route; mod. toxic by ing., subcut. routes; may cause brain tumors, asthma, rashes, hyperactivity; IV use may produce severe headache, acute pulmonary edema with cardiac arrest, hypertension; questionable carcinogen; experimental neoplasticigen; mutagenic data; TSCA listed

Precaution: Sensitive to oxidizing agents

Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of SOx, NOx, Na2O

Storage: Light-sensitive

Uses: Colorant for pharmaceuticals, oral tablets and capsules, nylon surgical sutures, buccals; dye in functional kidney test

Use Level: 1% max. (sutures)

Regulatory: FDA 21CFR §74.102, 74.1102, 81.1, 82.102; FDA approved for orals, buccals, subject to certification, permanently listed


See also Acid blue 74; Cl 73015

FD&C Blue No. 2 Aluminum Lake
CAS 16521-38-3
E132

Synonyms: CI 73015
Definition: Insoluble pigment made by absorbing FD&C Blue No. 2 on an alumina substrate

Properties: Blue; water-insol.

Storage: Store in closed container @ ambient temps.; avoid high humidity

Uses: Colorant for pharmaceuticals

Regulatory: FDA 21CFR §74.1102, 74.3102, 82.203, 82.203; FDA approved for orals, topicals; subject to certification, permanently listed; Canada DSL

Manuf./Distrib.: Parchem Trading http://www.par-chem.com

FD&C Green No. 3
CAS 2353-45-9; EINECS/ELINCS 219-091-5
Synonyms: CI 42053; Fast green FCF; Food green 3
Classification: Triphenylmethane color

Empirical: C_{37}H_{36}N_{2}O_{10}S_{3} \cdot 2Na

Properties: Red to brn.-violet powd. or dk. grn. cryst.; sol. in water, conc. sulfuric acid, ethanol; m.w. 810.91; m.p. 290 C (dec.)

Toxicology: LD50 (oral, rat) > 2 g/kg; questionable carcinogen; experimental neoplasticigen; may cause bladder tumors; mutagenic data; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of NOx and SOx

Storage: Store @ R.T.

Uses: Colorant for pharmaceuticals, orals, topicals; reagent for staining proteins

Features: Exhibits bluish-grn. hue in sol'n.

Regulatory: FDA 21CFR §74.203, 74.1203, 74.2203, 82.203; FDA approved for orals, topicals, subject to certification, permanently listed; Canada DSL


See also Fast green FCF

FD&C Red No. 2. See Amaranth

FD&C Red No. 3
CAS 16423-68-0; EINECS/ELINCS 240-474-8
INS127; E127

Synonyms: Acid red 51; 9-(o-Carboxyphenyl)-6-hydroxy-2,4,5,7-tetraiodo-3-isoxanthone; CI 45430; D&C Red No. 3; 3’,6’-Dihydroxy-2’,4’,5’,7’-tetraiodoSpiro [isobenzofuran-1(3H),9´-(9H) xanthen]-3-one disodium salt; Erythrosine; Erythrosine bluish; Food red 14; 2’,4’,5’,7’-Tetraiodofluorescein disodium salt; Tetraiodofluorescein sodium salt

Classification: Xanthene color

Definition: Disodium salt of 2’,4’,5’,7’ -tetraiodofluorescein
Chemical Component Cross-Reference

Empirical: C_{20}H_{64}O_{5} • 2Na

Properties: Bluish pink to brown powd., gran.; sol. (oz/gal): 30 oz glycerin, 28 oz propylene glycol, 12 oz dist. water, 2 oz 95% ethanol; m.w. 879.84

Toxicology: LD_{50} (oral, rat) 1840 mg/kg, (IV, rat) 200 mg/kg; poison by IV route; mod. toxic by ing.; questionable carcinogen, mutagen; human mutagenic data; may cause thyroid tumors, chromosomal damage, asthma, rashes, hyperactivity; TSCA listed

Precaution: Suspected phototoxicity

Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of Na_{2}O and I_{2}

Uses: Colorant for ingested pharmaceuticals, tablets, capsules, and liq. oral formulations

Regulatory: FDA 21CFR §74.303, 74.1303, 81.1; FDA approved for foods, orals; cosmetic and external drug uses terminated; Canada DSL

Manuf./Distrib.: AB R Lundberg
http://www.norfoods.se/lundberg; Aldrich
http://www.sigma-aldrich.com; Alfa Chem
http://www.alfachem1.com; Ashland†
http://www.ashchem.com; Degussa
AG/Health & Nutrition
Fluka http://www.sigma-aldrich.com;
Noveon http://www.carbopol.com;
http://www.noveoncoatings.com; RTD
Hallstar http://www.rtdhallstar.com; Ruger
http://www.rugerchemical.com; Sensient
Tech. Colors http://www.triconcolors.com
Spectrum Quality Prods.
http://www.spectrumchemical.com

See also Acid red 51

FD&C Red No. 4
CAS 4548-53-2; EINECS/ELINCS 224-909-9

Synonyms: CI 14700, 3-[(2,4-Dimethyl-5-sulphophenyl)azo]-4-hydroxy-1- naphthalenesulfonic acid disodium salt; 4-Hydroxy-3-[(5-sulfo-2,4-xylyl)azo]-1- naphthalenesulfonic acid, disodium salt; Ponceau SX; 2-(5-Sulfo-2,4-xylylazo)-1- naphthol-4-sulfonic acid, disodium salt

Classification: Monoazo color and coal tar dye

Empirical: C_{18}H_{14}N_{2}O_{7}S_{2} • 2Na

Properties: M.w. 480.42

Toxicology: LD_{50} (oral, rat) > 2 g/kg; low toxicity by ing.; questionable carcinogen; shown to cause urinary bladder polyps and atrophy of adrenal gland in animals;

†=pharmaceutical grade
tumorigen; mutagen; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NO_{x} and SO_{x}

Uses: Colorant for external pharmaceuticals

Regulatory: FDA 21CFR §74.1304, 74.2304, 81.10, 81.30, 82.304; subject to certification, permanently listed; food and ingested drug use terminated

Manuf./Distrib.: Noveon†
http://www.carbopol.com;
http://www.noveoncoatings.com; RTD
Hallstar http://www.rtdhallstar.com

See also CI 14700

FD&C Red No. 19. See Basic violet 10; D&C Red No. 19

FD&C Red No. 40
CAS 25956-17-6
INS129; E129

Synonyms: Allura red; Allura red AC; CI 16035; Curry red; Food red 17; 6-Hydroxy-5-[(2-methoxy-5-methyl-4-sulphonyl)azo]-2- naphthalenesulfonic acid disodium salt; 2-Naphthalenesulfonic acid, 6-hydroxy-5-(6- methoxy-4-sulfo-m-tolyl) azo)-, disodium salt; NT red; Red no. 40

Classification: Monoazo color

Empirical: C_{18}H_{16}N_{2}Na_{2}O_{8}S_{2}

Properties: Ylsh.-red powd., gran.; sol. (oz/gal): 26 oz dist. water, 4 oz glycerin, 2 oz propylene glycol; m.w. 498.46

Toxicology: LD_{50} (oral, rat) > 10 g/kg; experimental reproductive effects; mutagen; may cause lymph tumors; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of NO_{x} and SO_{x}

Uses: Colorant for pharmaceuticals, orals, topicals, eye use

Features: Exhibits orange-red hue in sol'n.

Regulatory: FDA 21CFR §74.340, 74.1340, 74.2340, subject to certification, permanently listed

Manuf./Distrib.: AB R Lundberg
http://www.norfoods.se/lundberg; Ashland†
http://www.ashchem.com; Degussa
AG/Health & Nutrition; Monarch Food
Colorst†
http://www.monarchfoodcolors.com;
Noveon† http://www.carbopol.com;
http://www.noveoncoatings.com
RTD Hallstar† http://www.rtdhallstar.com;
Ruger† http://www.rugerchemical.com;
Sensient Tech. Colors†

Handbook of Pharmaceutical Additives, Third Edition 1339
Chemical Component Cross-Reference

http://www.triconcolors.com; Spectrum Quality Prods.†
http://www.spectrumchemical.com

See also Cl 16035

FD&C Red No. 40 aluminum Lake
CAS 977154-53-2

Definition: Insoluble pigment made by absorbing
FD&C Red No. 40 on an alumina substrate
Properties: Red; water-insol.
Storage: Store in closed container @ ambient
temps.; avoid high humidity
Uses: Colorant for pharmaceuticals, orals,
eye use

Regulatory: FDA 21CFR §74.340, 74.2340,
176.180
Manuf./Distrib.: Monarch Food Colors†
http://www.monarchfoodcolors.com

FD&C Violet No. 1. See Acid violet 49

FD&C Yellow No. 5
CAS 1934-21-0; EINECS/ELINCS 217-699-5
INS102

Synonyms: Acid yellow 23 (INCI); Acid yellow
23 trisodium salt; 3-Carboxy-5-hydroxy-1-p-
sulphophenyl-4-p-sulphophenylazopyrazole
trisodium salt; Cl 19140; D&C Yellow No. 5;
4,5-Dihydro-5-oxo-1-(4-sulphophenyl)-4-[(4-
sulphophenyl)azo]-1H-pyrazole-3-carboxylic
acid trisodium salt; Food Yellow 4; 1H-
Pyrazole-3-carboxylic acid, 4,5-dihydro-5-
nox-1-(4-sulphophenyl)-4-[(4-sulphophenyl)
azo]-trisodium salt; Tartrazine; Tartrazine
yellow; Trisodium-3-carboxy-5-hydroxy-1-p-
sulphophenyl-4-p-sulphophenylazopyrazole
Classification: Pyrazole color
Empirical: C16H9N4Na3O9S2
Formula: C16H9N4O9Na3S2 • 3Na
Properties: Bright orange-yel. powd., gran.;
greenish-yel. in sol'n.; sol. in water, conc.
sulfuric acid; sol. (oz/gal): 28 oz glycerin, 12 oz
propylene glycol; m.w. 534.37
Toxicology: LD50 (oral, mouse) 12,750 mg/kg,
(IP, rat) 3800 mg/kg; mildly toxic by ing.;
allergen; those allergic to aspirin are often
allergic to tartrazine; may cause urticaria,
anaphylactoid reactions, angioedema,
rhinitis, bronchial asthma, contact
dermatitis, hyperactivity, thyroid tumors;
experimental teratogen, reproductive
effects; human mutagenic data; TSCA listed
Hazardous Decomp. Prods.: Heated to
decomp., emits very toxic fumes of NOx,
SOx, and Na2O
Storage: Hygroscopic

†=pharmaceutical grade

Uses: Colorant for OTC and prescription
pharmaceuticals, eye use, orals, topicals,
buccals, nasals, vaginals, antiasthmatic and
antiasthmatic medications
Regulatory: FDA 21CFR §74.705, 74.1705,
74.2705, 82.705, 176.170, 178.1010,
178.3297; FDA approved for buccals, orals,
topicals, vaginals, subject to certification,
permanently listed; Canada DSL
Manuf./Distrib.: Aldrich† http://www.sigma-
aldrich.com; Degussa AG/Health &
Nutrition; Fluka† http://www.sigma-
aldrich.com; Monarch Food Colors†
http://www.monarchfoodcolors.com;
Noveon† http://www.carbopol.com;
http://www.noveoncoatings.com
Ruger† http://www.rugerchemical.com
Sensient Tech. Colors†
http://www.triconcolors.com; Sigma†
http://www.sigma-aldrich.com; Degussa AG/Health & Nutrition;
Spectrum Quality Prods.†
http://www.spectrumchemical.com; TKB
Trading http://www.wholesalecolors.com

See also Tartrazine

FD&C Yellow No. 5 aluminum lake
CAS 12225-21-7; 12227-69-9; 53026-63-4;
EINECS/ELINCS 235-428-9

Synonyms: Acid yellow 23 aluminum lake
(INCI); CI 19140:1

Definition: Insoluble pigment composed of the
aluminum salt of FD&C Yellow No. 5 extended
on an alumina substrate; noncertified batch
known as Acid yellow 23 aluminum lake (INCI)
Properties: Yel.; water-insol.
Storage: Store in closed container @ ambient
temps.; avoid high humidity
Uses: Colorant in pharmaceuticals, eye use
Regulatory: FDA 21CFR §74.1705, 81.1, 82.51,
82.705, 175.300, 176.180, 177.1460; subject
to certification, permanently listed
Manuf./Distrib.: Monarch Food Colors†
http://www.monarchfoodcolors.com; RTD
Hallstar† http://www.rtdhallstar.com

FD&C Yellow No. 6
CAS 2783-94-0; EINECS/ELINCS 220-491-7
INS110; E110

Synonyms: CI 15985; Food yellow 3; Food
yellow 3 disodium salt; 6-Hydroxy-5-[4-
sulphophenyl)azo]-2-naphthalenesulfonic
acid, disodium salt; 6-Hydroxy-5-[p-
sulphophenyl)azo]-2-naphthalenesulfonic
acid, disodium salt; Orange yellow S; 1p-
Sulfophenylazo-2-hydroxynaphthalene-6-
(-)-Fenchone. *See d-Fenchone*

d-Fenchone

CAS 1195-79-5; 4695-62-9; EINECS/ELINCS 214-804-6; 225-160-0

FEMA 2479

Synonyms: Bicyclo [2.2.1] heptan-2-one, 1,3,3-trimethyl-; 3,3-Dimethyl-8,9-dinorbornan-2-one; d-2-Fenchonane; Fenchone; (+)-Fenchone; 2-Norbornanone, 1,3,3-trimethyl-; 1,3,3-Trimethylbicyclo [2.2.1] heptan-2-one; (1S)-1,3,3-Trimethylbicyclo [2.2.1] heptan-2-one; 1,3,3-Trimethyl-2-norbornanone; d-1,3,3-Trimethyl-2-norbornanone; d-1,3,3-Trimethyl-2-norcamphanone; d-1,3,3-Trimethyl-2-norcamphanone

Definition: Isolated from cedarleaf oil

Empirical: C₁₀H₁₆O

Properties: Colorless oily liq., camphor-like odor; sol. in alcohol, ether; insol. in water; m.w. 152.23; dens. 0.9465 (19 C); b.p. 193 C

Toxicology: LD₅₀ (oral, rat) 6160 mg/kg; low toxicity by ing.; TSCA listed

Precaution: Combustible

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating vapors

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL


l-Fenchone

CAS 7787-20-4; EINECS/ELINCS 232-107-5

Synonyms: Bicyclo [2.2.1] heptan-2-one, 1,3,3-trimethyl-; (1R)-(-)-Fenchone; L(-)-1,3,3-Trimethylbicyclo [2.2.1] heptan-2-one; 1,3,3-TrimethylNorbornan-2-one; L(-)-1,3,3-Trimethyl-2-norbornanone

Empirical: C₁₀H₁₆O

Properties: Colorless liq.; camphoraceous odor; m.w. 152.24; dens. 0.948; m.p. 5-6 C; b.p. 192-194 C; flash pt. 52 C

HMIS: Health 2, Flammability 2, Reactivity 0

Storage: 24 mos. when stored in tight glass, aluminum, or double lined containers in a cool area away from direct heat

Uses: Synthetic flavor and fragrance for pharmaceuticals
Fennel (Foeniculum vulgare)
CAS 977001-13-0
FEMA 2481, 2482 (sweet)
Synonyms: Fennel; Fennel fruit; Fennel seed; Foeniculum; Foeniculum vulgare; Foeniculum vulgare fruit; Sweet fennel
Definition: Dried ripe fruit of cultivated varieties of Foeniculum vulgare
Storage: Protect from light
Uses: Natural flavor for pharmaceuticals, carminative; in herbal remedies for respiratory tract disorders
Regulatory: FDA 21CFR §182.10, GRAS; FEMA GRAS; JP compliance; Japan approved

Fennel oil (Foeniculum vulgare) oil
CAS 8006-84-6; EINECS/ELINCS 283-414-6
FEMA 2483
Synonyms: Bitter fennel oil; Fennel oil; Fennel oil, bitter; Fennel oil, sweet; Foeniculum vulgare; Foeniculum vulgare oil; Sweet fennel oil
Definition: Volatile oil from steam distillation of seeds of fennel, Foeniculum vulgare, contg. 50-60% anethole, 20% fenchone, pinene, limonene, dipentene, phellandrene
Properties: Colorless to pale yel. liq., fennel odor and taste; sol. in 1 vol 90% alcohol; very sol. in chloroform, ether; sl. sol. in water; dens. 0.953-0.973 (25/25 C); flash pt. (CC) 57 C; ref. index 1.5280-1.5380 (20 C); tenacity 6 hrs. on blotter
Toxicology: LD50 (oral, rat) 3120 mg/kg; mod. toxic by ing.; severe skin irritant; mutagenic data; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Storage: Keep cool, well closed; protect from light, heat
Uses: Natural flavor for pharmaceuticals;
aromatic carminative; in herbal remedies for respiratory tract disorders

**Regulatory:**
- FDA 21CFR §182.20, GRAS; FEMA GRAS; JP compliance; Australia; Canada DSL; Philippines PICCS

**Manuf./Distrib.:**
- Aldrich† [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
- Alfa Chem† [http://www.alfachem1.com](http://www.alfachem1.com)
- Berje [http://www.berjeinc.com](http://www.berjeinc.com)
- Buckton Page Ltd [http://www.bucktonpage.com](http://www.bucktonpage.com)
- Chart [http://www.chartcorp.com](http://www.chartcorp.com)
- Citrus and Allied Essences [http://www.citrusandallied.com](http://www.citrusandallied.com)
- Eramex [http://www.eramex.de](http://www.eramex.de)
- F.D. Copeland [http://www.copelandoil.co.uk](http://www.copelandoil.co.uk)
- Fleurchem [http://www.fleurchem.com](http://www.fleurchem.com)
- George Uhe [http://www.uhe.com](http://www.uhe.com)
- Lebermuth [http://www.lebermuth.com](http://www.lebermuth.com)
- Maypro Ind. [http://www.maypro.com](http://www.maypro.com)
- Polarome Int’l. [http://www.polarome.com](http://www.polarome.com)
- Spectrum Quality Prods.† [http://www.spectrumchemical.com](http://www.spectrumchemical.com)
- Takasago Int’l. [http://www.takasago.com](http://www.takasago.com)
- U.S. Synthetics† [http://www.vgdllc.com](http://www.vgdllc.com)
- Aldrich† [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
- Alfa Chem† [http://www.alfachem1.com](http://www.alfachem1.com)
- Berje [http://www.berjeinc.com](http://www.berjeinc.com)
- Buckton Page Ltd [http://www.bucktonpage.com](http://www.bucktonpage.com)
- Chart [http://www.chartcorp.com](http://www.chartcorp.com)
- Citrus and Allied Essences [http://www.citrusandallied.com](http://www.citrusandallied.com)
- Eramex [http://www.eramex.de](http://www.eramex.de)
- F.D. Copeland [http://www.copelandoil.co.uk](http://www.copelandoil.co.uk)
- Fleurchem [http://www.fleurchem.com](http://www.fleurchem.com)
- George Uhe [http://www.uhe.com](http://www.uhe.com)
- Lebermuth [http://www.lebermuth.com](http://www.lebermuth.com)
- Maypro Ind. [http://www.maypro.com](http://www.maypro.com)
- Polarome Int’l. [http://www.polarome.com](http://www.polarome.com)
- Spectrum Quality Prods.† [http://www.spectrumchemical.com](http://www.spectrumchemical.com)
- Takasago Int’l. [http://www.takasago.com](http://www.takasago.com)
- U.S. Synthetics† [http://www.vgdllc.com](http://www.vgdllc.com)

**Fennel fruit.** See Fennel (Foeniculum vulgare)

**Fennel oil:** Fennel oil, bitter; Fennel oil, sweet. See Fennel (Foeniculum vulgare) oil

**Fennel seed.** See Fennel (Foeniculum vulgare)

**Fenugreek.** See Fenugreek (Trigonella foenum-graecum)

**Fenugreek absolute; Fenugreek extract.** See Fenugreek (Trigonella foenum-graecum) extract

**Fenugreek (Trigonella foenum-graecum)**

- **CAS:** 977155-29-5
- **FEMA:** 2484
- **Synonyms:** Fenugreek; Trigonella foenum-graecum
- **Definition:** From Trigonella foenum-graecum
- **Properties:** Intensely sweet spicy protein-like aroma
- **Uses:** Natural flavor for pharmaceuticals
- **Regulatory:**
  - FDA 21CFR §101.22, 182.10, GRAS; FEMA GRAS; Japan approved

**Fenugreek (Trigonella foenum-graecum) extract**

- **CAS:** 68990-15-8; 84625-40-1; EINECS/ELINCS 283-415-1
- **FEMA:** 2485
- **Synonyms:** Fenugreek absolute; Fenugreek extract; Trigonella foenum-graecum; Trigonella foenum-graecum extract
- **Definition:** Extract derived from Trigonella foenum-graecum
- **Properties:** Very dark brown liquid; sweet, spicy, burnt sugar odor; sol. in alcohol; insol. in water, propylene glycol, mineral oil; sp.gr. 1.0029-1.1530; flash pt. (CC) 62 C; ref. index 1.462-1.472
- **Toxicology:** Primary irritant; TSCA listed
- **HMIS:** Health 1, Flammability 1, Reactivity 0
- **Storage:** 24 mos. when stored in tight glass, aluminum, or double lined containers in a cool area away from direct heat
- **Uses:** Natural flavor for pharmaceuticals
- **Regulatory:**
  - FDA 21CFR §182.20, GRAS; FEMA GRAS; Canada DSL

**Ferisan.** See Sodium ferric EDTA

**Ferrate(4-), hexakis(cyano-C)-, iron(3+) (3:4).** See Ferric ferrocyanide

**Ferric ammonium citrate; Ferric ammonium citrate, green.** See Iron ammonium citrate

**Ferric ammonium ferrocyanide**

- **CAS:** 25869-00-5; 12240-15-2; EINECS/ELINCS 247-304-1
- **Synonyms:** AFCF; Ammonium-ferric-cyanoferroferrate (II); Ammonium-ferric-ferrocyanide; CI 77520; Iron blue
- **Classification:** Inorganic salt
- **Formula:** C6FeN5 • Fe • H4N
- **Properties:** Blue; m.w. 285.87
- **Toxicology:** LD50 (unreported, mouse) > 5 g/kg; TSCA listed
- **Uses:** Colorant for external pharmaceuticals, eye use
- **Regulatory:**
  - FDA 21CFR §73.1298, 73.2298; exempt from certification, permanently listed for drug use; Canada DSL
Chemical Component Cross-Reference

**Ferric chloride**
CAS 7705-08-0; EINECS/ELINCS 231-729-4
UN 1773 (DOT); UN 2582 (DOT)
Synonyms: Ferric trichloride; Iron chloride; Iron (III) chloride; Iron chlorides; Iron trichloride
Classification: Inorganic salt
Empirical: Cl₃Fe
Formula: FeCl₃
Properties: Dk. grn. to black-brown cryst. powd.; sol. in water, alcohol, glycerol, methanol, ether, acetone; sl. sol. in CS₂; readily absorbs water in air to form hexahydrate; m.w. 162.21; dens. 2.898; vapor pressure 1 mm (194°C); m.p. 292°C; b.p. 319°C; pH 1
Toxicology: ACGIH TLV/TWA 1 mg (Fe)/m³; LD₅₀ (oral, rat) 450 mg/kg, (IV, mouse) 58 mg/kg; poison by ing., IV routes; corrosive to skin, eyes, mucous membranes; reproductive effector; mutagen; TSCA listed
Precaution: DOT: Corrosive; catalyzes potentially explosive polymerization of ethylene oxide, chlorine + monomers; violent reaction with allyl chloride; reacts violently with water to form toxic and corrosive fumes; reacts with moisture in air to form pungent hydrogen chloride
Hazardous Decomp. Prods.: Heated to decomp., emits highly toxic fumes of HCl
Storage: Deliq.; very hygroscopic; store in cool, dry place; keep well closed
Uses: Catalyst in synthesis of pharmaceuticals; flavor in pharmaceuticals; prod. of surgical cotton wool
Regulatory: FDA 21 CFR §175.105, 176.170, 184.1297, GRAS; Japan approved; Canada DSL
Manuf./Distrib.: AMRESCO†
http://www.amresco-inc.com; Aldrich†
http://www.sigma-aldrich.com; Am. Biorganics; Am. Int'l.†
http://www.aicma.com; Asahi Denka Kogyo http://www.adk.co.jp
Eaglebrook http://www.eaglebrook.com; Eka Chems. AB; Fluka http://www.sigma-aldrich.com; GFS†
http://www.gfschemicals.com; Gallard-Schlesinger Ind.† http://www.gallardschlesinger.com
Gulbransen Mfg.; Integra†
http://www.integrachem.com; Lohmann http://www.lohmann-chemikalien.de;
Mallinckrodt Baker†
http://www.mallbaker.com; PVS http://www.pvschemicals.com
Penta Mfg.† http://www.pentamfg.com;
http://www.spectrumchemical.com
Thomas Scientific†
http://www.thomassci.com; U.S. Petrochem. Ind.
http://www.uspetrochemical.com; Universal Preserv-A-Chem†
http://www.upichem.com; VWR Int'l.†
http://www.vwrsp.com

**Ferric ferrocyanide**
CAS 14038-43-8; EINECS/ELINCS 237-875-5
Synonyms: Bronze blue; Chinese blue; CI 77510; CI 77520; Ferrate(4-), hexakis(cyano-C)-, iron(3+); Iron blue; Iron ferrocyanide; Milori blue; Non-bronze blue; Pigment blue 27; Potash blue; Prussian blue; Turnbull's blue
Classification: Inorganic salt
Formula: Fe₄[Fe(CN)₆]₃
Properties: Cubic crystals; sol. in acids, decomposes in alkali; m.w. 859.25; sp. gr. 1.83
Toxicology: May cause eye, skin, digestive tract irritation; low toxicity; nonmutagenic; TSCA listed
Precaution: Can emit highly toxic hydrogen cyanide fumes if exposed to acid, high heat, or strong ultraviolet radiation
Storage: Store in a tightly closed container in a cool, dry, well-ventilated area
Uses: Colorant for external pharmaceuticals, eye use
Regulatory: FDA 21 CFR §73.1299, 73.2299; exempt from certification, permanently listed for drug use
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Noveon†
http://www.carbopol.com; http://www.noveoncoatings.com
See also CI 77510

**Ferric ferrous oxide.** See Iron oxide black
**Ferric hexacyanoferrate (II).** See CI 77510
Chemical Component Cross-Reference

Ferric hydrate; Ferric hydroxide; Ferric hydroxide oxide. See Iron (III) oxide hydrated

Ferric oxide
CAS 1309-37-1 (anhyd.); EINECS/ELINCS 215-168-2
Synonyms: Anhydrous iron oxide; CI 77491; Colloidal ferric oxide; Ferric oxide red; Iron (III) oxide; Iron oxide red; Iron sesquioxide; Natural iron oxides; Natural red oxide; Pigment brown 6; Pigment brown 7; Pigment red 101; Pigment red 102; Red iron oxide; Red iron trioxide; Yellow ferric oxide
Classification: Inorganic color; synth. iron oxide
Empirical: Fe₂O₃
Properties: Red-brown to black cryst.; sol. in acids; insol. in water, alcohol, ether; m.w. 159.69; dens. 5.240; m.p. 1538 °C (dec.)
Toxicology: ACGIH TLV/TWA 5 mg (Fe)/m³ (vapor, dust); LD50 (IP, rat) 5500 mg/kg; LDLo (subcut., dog) 30 mg/kg; irritant; poison by subcut. route; avoid inhalation; suspected human carcinogen; experimental tumorigen; TSCA listed
Precaution: Catalyzes the potentially explosive polymerization of ethylene oxide; explosive and violent reactions possible
HMIS: Health 1, Flammability 0, Reactivity 1
Storage: Preserve in well-closed containers
Uses: Colorant for ingested pharmaceuticals
Regulatory: FDA 21CFR §73.200 (limitation 0.25%), 176.170, 178.3297, 186.1300, 186.1374, 522.940, GRAS as indirect food additive; FDA approved for orals; USP/NF compliance
Trade Names Containing: Cloisonné®

Ferric oxide hydrated. See Iron (III) oxide hydrated

Ferric oxide red. See Ferric oxide

Ferric pyrophosphate
CAS 10058-44-3 (anhyd.); EINECS/ELINCS 233-190-0
Synonyms: Iron (III) pyrophosphate
Empirical: Fe₄O₂₁P₆
Formula: Fe₄(P₂O₇)₃ • xH₂O
Properties: Tan or ylsh. wh. powd.; sol. in min. acids; pract. insol. in water, acetic acid; m.w. 745.25 (anhyd.)
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of POx
Uses: Nutrient, dietary supplement, iron source in iron supplement preps., infant formulas
Regulatory: FDA 21CFR §184.1304, 582.80, GRAS; Japan approved; Canada DSL

Ferric sodium edetate; Ferric edetate
See Sodium ferric EDTA

Ferric subsulfate
CAS 1310-45-8
Synonyms: Basic ferric sulfate sol'n.; Iron hydroxide sulfate; Monsel's solution
<table>
<thead>
<tr>
<th>Empirical:</th>
<th>FeH₉O₅S₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>Properties:</td>
<td>Reddish-brn. liq.; m.w. 168.91</td>
</tr>
<tr>
<td>Toxicology:</td>
<td>May cause <strong>eye or skin irritation</strong>; prolonged contact may cause <strong>eye or skin burns</strong></td>
</tr>
<tr>
<td>Precaution:</td>
<td>Incompat. with strong bases, phosphates, strong reducing agents; may be light-sensitive</td>
</tr>
<tr>
<td>Uses:</td>
<td>Hemostatic agent in wound dressings, poultices, styptic (blood stopping) powds. for human and animal health</td>
</tr>
<tr>
<td>Regulatory:</td>
<td>USP listed; Canada DSL</td>
</tr>
</tbody>
</table>

Ferric trichloride. See Ferric chloride

Ferrihexacyanoferrate; Ferrocin. See CI 77510

Ferrosferric oxide. See Iron oxide black

Ferrosulfate. See Ferrous sulfate anhydrous

Ferrous citrate

CAS 23383-11-1 (anhyd.); 22242-53-1; EINECS/ELINCS 245-625-1

Synonyms: Iron (II) citrate

Empirical: CsH₆FeO₇

Properties: Sl. colored powd. or wh. cryst.; sol. in water; insol. in alcohol; m.w. 245.96

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Intravenous pharmaceuticals; diagnostic aid, radiopharmaceutical for iron absorption/metabolism

Regulatory: FDA 21CFR §184.1307c, GRAS; FDA approved for intravenous

Manuf./Distrib.: Degussa AG/Health & Nutrition; Lohmann [http://www.lohmann-chemikalien.de]

Ferrous-ferric oxide. See CI 77499

Ferrous fumarate

CAS 141-01-5; EINECS/ELINCS 205-447-7

Synonyms: 2-Butenedioic acid ferrous salt; Iron (II) fumarate

Definition: A salt of ferrous iron combined with fumaric acid, contg. 31.3% min. total iron, ≤ 2% ferric iron

†=pharmaceutical grade
### Ferrous gluconate

**CAS**: 299-29-6; 6047-12-7; EINECS/ELINCS 206-076-3

**Synonyms**: Bis (D-gluconato-O\(^1\),O\(^2\))-iron; Iron gluconate; Iron (II) gluconate; Nionate

**Definition**: Ferrous salt of gluconic acid

**Empirical**: C\(_{12}\)H\(_{22}\)FeO\(_{14}\)

**Formula**: Fe(C\(_6\)H\(_{11}\)O\(_7\))\(_2\)

**Properties**: Ylsh.-gray or pale grnsh.-yel. powd.; sl. odor of burnt sugar; sol. in water, glycerol; insol. in alcohol; m.w. 446.19

**Toxicology**: ACGIH TLV/TWA 1 mg(Fe)/m\(^3\); LD\(_{50}\) (oral, rat) 2237 mg/kg, (IP, mouse) 160 mg/kg; poison by IP and IV routes; mod. toxic by ing.; human systemic effects by ing.; carcinojen; experimental tumorigen and teratogen; mutagen; TSCA listed

**Precaution**: Combustible

**Hazardous Decomp. Prods.**: Heated to decomp., emits acrid smoke and irritating fumes

**Uses**: Nutrient, dietary supplement, mineral source for pharmaceuticals, vitamin tablets

**Regulatory**: FDA 21 CFR §73.160, 182.8308, 184.1308, 582.80, GRAS; Japan approved (0.15 g/kg max. as iron); BP, EP compliance; not permitted in food (EU); Canada DSL

**Manuf./Distrib.**: AAA Int'l.†

**Website**: http://www.aaainternational.com; ACTA Pharmacal†; Aastrid Int'l.†

**Website**: http://www.aastrid.com; Accurate Chem. & Scientific†

**Website**: http://www.accuratechemical.com; Aceto†

**Website**: http://www.aceto.com

**Website**: Adept Sol'ns.†; Alfa Chem†

**Website**: http://www.alfachem1.com; Am. Int'l.†

**Website**: http://www.aiema.com; Amerol

**Website**: http://www.amerolcorp.com; Ashland†

**Website**: http://www.ashchem.com

**Website**: Asiamerica Int'l.†; Barrington†

**Website**: http://www.barringtonchem.com; Both China

**Website**: http://www.boith.com; Chemacon

**Trade Names**: Descote® Ferrous Fumarate 60 Ultra

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### Ferrous gluconate dihydrate

**CAS**: 22830-45-1; EINECS/ELINCS 206-076-3

**Synonyms**: Bis (D-gluconato-O\(^1\),O\(^2\))-iron dihydrate; Gluconic acid, iron (II) salt, hydrate (2:1:2); Iron gluconate dihydrate; Iron (II) gluconate dihydrate

**Classification**: Nonaromatic acid salt

**Definition**: Ferrous salt of gluconic acid

**Empirical**: C\(_{12}\)H\(_{22}\)FeO\(_{14}\) • 2H\(_2\)O

**Formula**: Fe(C\(_6\)H\(_{11}\)O\(_7\))\(_2\) • 2H\(_2\)O

**Properties**: Ylsh.-gray or pale grnsh.-yel. powd.; sl. caramel odor; sol. in water; insol. in ethanol; m.w. 482.18; m.p. 188 C (dec.)

**Toxicology**: ACGIH TLV/TWA 1 mg(Fe)/m\(^3\); LD\(_{50}\) (oral, rat) 4500 mg/kg, (IV, mouse) 98 mg/kg; poison by IV route; mod. toxic by ing.; TSCA listed

**Precaution**: Combustible

**Hazardous Decomp. Prods.**: Heated to decomp., emits acrid smoke and irritating fumes

**Uses**: Nutrient, dietary supplement, mineral source for pharmaceuticals, vitamin tablets

**Regulatory**: FDA 21 CFR §73.160, 182.8308, 184.1308, 582.80, GRAS; Japan approved (0.15 g/kg max. as iron); BP, EP compliance; not permitted in food (EU); Canada DSL

**Manuf./Distrib.**: AAA Int'l.†

**Website**: http://www.aaainternational.com; ACTA Pharmacal†; Aastrid Int'l.†

**Website**: http://www.aastrid.com; Accurate Chem. & Scientific†

**Website**: http://www.accuratechemical.com; Aceto†

**Website**: http://www.aceto.com

**Website**: Adept Sol'ns.†; Alfa Chem†

**Website**: http://www.alfachem1.com; Am. Int'l.†

**Website**: http://www.aiema.com; Amerol

**Website**: http://www.amerolcorp.com; Ashland†

**Website**: http://www.ashchem.com

**Website**: Asiamerica Int'l.†; Barrington†

**Website**: http://www.barringtonchem.com; Both China

**Website**: http://www.boith.com; Chemacon

**Trade Names**: Gluconal® FE Pharma

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### Ferrous lactate

**CAS**: 5905-52-2; 85993-25-5; EINECS/ELINCS 227-608-0

**Synonyms**: Iron (II) lactate; Iron (2+) lactate;
Lactic acid iron (2+) salt (2:1)

**Definition:** Iron (II) salt of natural L(+)-lactic acid

**Empirical:** C₆H₁₀O₆ • Fe (anhyd.); C₆H₁₀FeO₆ • 3H₂O (trihydrate)

**Formula:** Fe(CH₃CHOHCOO)₂ • xH₂O

**Properties:** Anhyd.: m.w. 233.99; Trihydrate: Greenish-wh. powd., sl. char. odor, mild sweet ferruginous taste; deliq.; sol. in water, alkali citrates; almost insol. in alcohol; m.w. 287.97

**Toxicology:** ACGIH TLV/TWA 1 mg(Fe)/m³; LD₅₀ (oral, mouse) 147 mg/kg, (IV, rabbit) 287 mg/kg; poison by ing.; questionable carcinogen; experimental tumorigen

**Precaution:** Combustible

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Storage:** Deliq.; keep well closed and protected from light

**Uses:** Nutrient, dietary supplement in pharmaceuticals

**Regulatory:** FDA 21CFR §73.165, 182.8311, 184.1311, GRAS; not permitted in food (EU); Japan approved


**Trade Names:** Puramex® FE

Ferrous oxide

**CAS:** 1345-25-1; EINECS/ELINCS 215-721-8

**Synonyms:** CI 77489 (INCI); Iron monoxide; Iron (II) oxide; Iron oxides; Red ochre

**Classification:** Inorganic color

**Empirical:** FeO

**Properties:** Blk. powd.; sol. in acid; insol. in water; m.w. 71.85; dens. 5.7; m.p. 1420 C; flash pt. >230 C

**Toxicology:** TSCA listed

**Precaution:** May ignite on contact with arsenic trioxide + sodium nitrate; potentially explosive reaction with methyl isocyanatoacetate

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of SOx

**HMIS:** Health 2, Flammability 0, Reactivity 0

**Storage:** Hygroscopic

**Uses:** Nutrient, dietary supplement, iron source in pharmaceuticals, iron supplements; astringent; deodorant

**Regulatory:** FDA 21CFR §184.1315, GRAS; SARA reportable; Japan approved; BP compliance; Canada DSL

Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Synonyms:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ferrous sulfate monohydrate</td>
</tr>
<tr>
<td>Descont® Ferrous Sulfate 60%</td>
</tr>
<tr>
<td>Ferrous sulfate, dried. See Ferrous sulfate monohydrate</td>
</tr>
</tbody>
</table>

Properties: Grayish-wh. to wh. cryst. powd.; slowly sol. in water; m.w. 169.96; bulk dens. 30 lb/ft³ (loose); m.p. loses water @ 300 C, dec. @ 671 C; pH 2.8-5 (10%) |

Toxicology: LD50 (oral, rat) 1480 mg/kg; corrosive to eyes, by ing.; irritating to skin, mucous membranes; poisoning may affect liver, kidneys, circulatory, cardiovascular, and central nervous systems |

Precaution: Incompat. with alkalies; arsenic trioxide and sodium nitrate (spontaneously combustible mixt.); methyl isocyanoacetate (may dec. violently at 25 C) |

Hazardous Decomp. Prods.: May produce toxic sulfur oxides |

Uses: Nutrient, dietary supplement, mineral supplement for pharmaceuticals |

Trade Names Containing: Descont® Ferrous Sulfate 60% |

Fish oil glycerides |

Properties: Mixture of mono, di and triglycerides expressed or extracted from menhaden, hake or similar oil-bearing fish |

Uses: Emollient in pharmaceutical waxes |

Flax oil glycerides |

Properties: Flax oil; Fish oil|

Uses: Fish oil glycerides |

Flavaxin |

Properties: Flavaxin |

Uses: Riboflavin |

Fish glcerides |

Properties: Fish glycerides |

Uses: Fish glycerides
Flav confisc acid sodium salt. See Cl 10316
Flaxseed extract. See Linseed (Linum usitatissimum) extract
Flaxseed oil. See Linseed (Linum usitatissimum) oil
Flexible collodion. See Nitrocellulose
Flint. See Quartz
Flour, soy. See Soybean (Glycine soja) flour
Flour sulfur. See Sulfur
Flower of paradise. See Lawsonia
Flowers of sulfur. See Sulfur
Flowers of zinc. See Zinc oxide
Floxin isovalerate. See α-Amylecinnamyl isovalerate
3,6-Fluorandiol. See Fluorescein
Fluorane 114. See 1,2-Dichlorotetrafluoroethane

Fluorescein
CAS 2321-07-5; EINECS/ELINCS 219-031-8
Synonyms: 9-(o-Carboxyphenyl)-6-hydroxy-3-isoxanthone; 9-(o-Carboxyphenyl)-6-hydroxy-3H-xanthen-3-one; CI 45350; D&C Yellow No. 7; 3’,6’-Dihydroxyfluorophene; Dihydroxyfluorophene; 3’,6’-Dihydroxyspiro [isobenzofuran-1(3H),9’-[9H] xanthen]-3-one; Dioresorcinolphthalein; 3,6-Fluorandiol; Fluoresceine; Resorcinolphthalein; Solvent yellow 94
Empirical: C20H12O5
Properties: Orange-red cryst. powd.; sol. in water, ethanol; sol. in dil. alkali forming fluorescent sol’ns.; m.w. 332.32; m.p. 320°C (dec.)
Toxicology: LDLo (IP, rat) 600 mg/kg, (IV, rabbit) 300 mg/kg; poison by IV route; mod. toxic by IP route; mutagen; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Dye in medicine; diagnostic marker for viable tissue; diagnostic aid in ophthalmology; topical agent to detect corneal lacerations
Use Level: 15-30 mg/kg (IV dose)
Regulatory: BP, EP compliance

Fluoresceine. See Fluorescein

Fluorescein sodium
CAS 518-47-8; EINECS/ELINCS 208-253-0
Synonyms: Acid yellow 73 sodium salt (INCI); 9-o-Carboxyphenyl-6-hydroxy-3-isoxanthone, disodium salt; CI 45350; D&C Yellow No. 8; 3’,6’-Dihydroxyfluorophene [isobenzofuran-1(3H),9’-[9H] xanthen]-3-one; Dioresorcinolphthalein; 3,6-Fluorandiol; Fluoresceine; Resorcinolphthalein; Solvent yellow 94
Empirical: C20H10Na2O5
Formula: C20H12O5 • 2Na
Properties: Orange-red powd.; sol. in water; sl. sol. in alcohol; m.w. 376.28
Toxicology: LD50 (oral, rat) 6721 mg/kg, (IP, mouse) 1800 mg/kg; mod. toxic by IP route; mildly toxic by ing.; human systemic effects by IV route (arrhythmias, eye hemorrhage, nausea, vomiting); experimental reproductive effects, tumorigen; questionable carcinogen; mutagenic data; TSCA listed
Classification: Xanthene color
Empirical: C20H10Na2O5
Formula: C20H12O5 • 2Na
Properties: Orange-red powd.; sol. in water; sl. sol. in alcohol; m.w. 376.28
Toxicology: LD50 (oral, rat) 6721 mg/kg, (IP, mouse) 1800 mg/kg; mod. toxic by IP route; mildly toxic by ing.; human systemic effects by IV route (arrhythmias, eye hemorrhage, nausea, vomiting); experimental reproductive effects, tumorigen; questionable carcinogen; mutagenic data; TSCA listed
Storage: Hygroscopic
Uses: Colorant for external pharmaceuticals
Regulatory: BP, EP compliance; D&C Yellow No. 8: FDA 21CFR §74.1708, 74.2708,
Fluorescein sodium salt. See D&C Yellow No. 8; Fluorescein sodium
Fluorescein, 2',4',5',7'-tetraiodo-, disodium salt. See Acid red 51
Fluoristan. See Stannous fluoride
Fluoritel. See Calcium fluoride
Fluorocarbon 11. See Trichlorofluoromethane
Fluorocarbon 12. See Dichlorodifluoromethane
Fluorocarbon 21. See Dichlorofluoromethane
Fluorocarbon 113. See Trichlorotrifluoroethane
Fluorocarbon 114. See 1,2-Dichlorotetrafluoroethane
Fluorodichloromethane. See Dichlorofluoromethane
Fluoroform. See Trifluoromethane
4-Fluorophenol. See p-Fluorophenol
p-Fluorophenol
CAS 371-41-5; EINECS/ELINCS 206-736-0
UN 1759
Synonyms: 4-Fluorophenol
Classification: Halogenated phenol
Empirical: C₆H₅FO
Formula: F₃C-H₂-Ö
Properties: Wh. to pale yel./pink cryst. solid; char. phenolic odor; sol. 6 g/100 ml in water; m.w. 112.10; dens. 1.1889; m.p. 46-48 C; b.p. 185 C; flash pt. 68 C
Toxicology: LD₅₀ (oral, rat) 360 mg/kg, (IP, mouse) 312 mg/kg, (skin, rat) 1072 mg/kg; poison by IP route; harmful by ing. and skin contact; corrosive to eyes, skin, mucous membranes; causes burns; inh. may cause sore throat, coughing, shortness of breath, nasal irritation; ing. may cause nausea, vomiting, abdominal pain, diarrhea;

<table>
<thead>
<tr>
<th>Chemical Component Cross-Reference</th>
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<tbody>
<tr>
<td>Fluorescein sodium salt. See D&amp;C Yellow No. 8; Fluorescein sodium</td>
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<tr>
<td>Fluorescein, 2',4',5',7'-tetraiodo-, disodium salt. See Acid red 51</td>
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<td>Fluoristan. See Stannous fluoride</td>
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<td>Fluorocarbon 11. See Trichlorofluoromethane</td>
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<td>Fluorocarbon 12. See Dichlorodifluoromethane</td>
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<td>Fluorocarbon 114. See 1,2-Dichlorotetrafluoroethane</td>
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<tr>
<td>Fluorodichloromethane. See Dichlorofluoromethane</td>
<td></td>
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<tr>
<td>Fluoroform. See Trifluoromethane</td>
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<tr>
<td>4-Fluorophenol. See p-Fluorophenol</td>
<td></td>
</tr>
</tbody>
</table>

†=pharmaceutical grade

exposure to high concs. may affect CNS and cause methemoglobinemia; experimental carcinogen, reproductive effects; TSCA listed
Precaution: Combustible solid; corrosive solid; incomp. with acids, acid chlorides, acid anhydrides, oxidizing agents
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of F–, CO, CO₂, hydrogen fluoride
Storage: Store in cool, dry, well-ventilated area away from incomp. materials, heat, sparks, flame; keep containers tightly closed
Uses: Intermediate for pharmaceuticals

4-Fluorophenol
CAS 371-41-5; EINECS/ELINCS 206-736-0
UN 1759
Synonyms: 4-Fluorophenol
Classification: Halogenated phenol
Empirical: C₆H₅FO
Formula: F₃C-H₂-Ö
Properties: Wh. to pale yel./pink cryst. solid; char. phenolic odor; sol. 6 g/100 ml in water; m.w. 112.10; dens. 1.1889; m.p. 46-48 C; b.p. 185 C; flash pt. 68 C
Toxicology: LD₅₀ (oral, rat) 360 mg/kg, (IP, mouse) 312 mg/kg, (skin, rat) 1072 mg/kg; poison by IP route; harmful by ing. and skin contact; corrosive to eyes, skin, mucous membranes; causes burns; inh. may cause sore throat, coughing, shortness of breath, nasal irritation; ing. may cause nausea, vomiting, abdominal pain, diarrhea;
### Chemical Component Cross-Reference

<table>
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<tr>
<th>Solubility</th>
<th>Toxicology</th>
<th>Regulatory</th>
<th>Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>solns.; sl. sol. in water; insol. in lipid solvs., acetone, alcohol, ether; m.w. 441.45</td>
<td>LD50 (oral, mouse) 10 g/kg, (IP, mouse) 85 mg/kg, (IV, rat) 500 mg/kg; LDLo (subcut., mouse) 200 mg/kg; poison by IP and IV routes; experimental teratogen, reproductive effects; mutagenic data; TSCA listed</td>
<td>FDA 21CFR §101.9, 101.79, 107.100, 137.165, 137.185, 137.235, 137.260, 137.305, 137.350, 139.115, 139.122, 139.155, 139.205, 107,100, 137.165, 137.185, 137.235, 137.260, 137.305, 137.350</td>
<td>Biological additive; nutrient, dietary/vitamin supplement in pharmaceuticals; medicine (antianemic drug)</td>
</tr>
</tbody>
</table>

### Hazardous Decomp. Prods.
Heated to decomp., emits toxic fumes of NOₓ

### HMIS
Health 1, Flammability 1, Reactivity 0

### LD50/IV (subcut., mouse) 200 mg/kg, (IP, mouse) 85 mg/kg, (IV, rat) 500 mg/kg

### Toxicology

### Regulatory

### Manufact./Distrib.

#### ADA Int'l.

### Trade Names Containing

#### Folic Acid 10%

### Trituration

#### Food blue 1
See CI 73015; D&C Blue No. 4; FD&C Blue No. 2; Acid blue 74

#### Food blue 2
See FD&C Blue No. 1; Acid blue 9

#### Food dye red 104
See CI 45410

#### Food freezant 12
See Dichlorodifluoromethane

#### Food green 3
See FD&C Green No. 3; Fast green FCF

#### Food orange 4
See Acid orange 10

#### Food orange 5
See CI 40800; Carotene

#### Food orange 8
See CI 40850; Canthaxanthine

#### Food red 1
See CI 14700

#### Food red 2
See Amaranth

#### Food red 3
See Acid red 26

#### Food red 7
See Acid red 18

#### Food red 9
See Amaranth

#### Food red 12
See CI 17200

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Handbook of Pharmaceutical Additives, Third Edition 1352
Chemical Component Cross-Reference

Food red 14. See FD&C Red No. 3; Acid red 51
Food red 15. See Basic violet 10; D&C Red No. 19
Food red 17. See CI 16035; FD&C Red No. 40
Food starch, modified
CAS 53124-00-8; 65996-62-5; 65996-63-6; 977052-18-8
Synonyms: Modified food starch; Starch, food, modified
Properties: Wh. powd., odorless, tasteless; insol. in water, alcohol, ether, chloroform
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Binder, diluent, absorbent, and disintegrant in pharmaceutical tablets
Regulatory: FDA 21CFR §155.130, 169.150, 169.179, 172.892, 175.105, 178.3520, 182.90
Manuf./Distrib.: ADM
http://www.admworld.com; Ashland†
http://www.ashchem.com; Avebe BV
http://www.avebe.com; Cambrex
http://www.cambrex.com; Cerestar Int'l.
http://www.cerestar.nl
Grain Processing
http://www.nationalstarch.com; Novartis Pharma
http://www.pharma.us.novartis.com;
Primera Foods
http://www.primerafoods.com
Roquette UK; Tate & Lyle UK
http://www.tateandlyle.com
Trade Names: Capsul®; Capsul® TA; Dry-Flo®; Flojel® 60; Flojel® 65
Flojel® G; Hi-Cap™ 100; Instant Pure-Cote™ B793; Mira-Sperse® 606; Mira-Sperse® 626
Mira-Thik® 468; Mira-Thik® 469; Mira-Thik® 470; Mira-Thik® 606; Mira-Thik® 609
Pure-Cote™ B790 NF; Purity® 5; Purity® Gum 40
Trade Names Containing: Lucarotin® 10 CWD O; Lucarotin® 20 CWD/R; LycoVit® 10% DC; N-Lok®; N-Lok® 1930
Optisharp™ (Zeaxanthin) 5% CWS/S-TG; Purity® FC; Vitamin A Acetate/D2 500/50; Vitamin A Acetate/D3; Vitamin A Palmitate 500

†=pharmaceutical grade

Vitamin B12 0.1% SD; Vitamin D2 850;
Vitamin D3 100; Vitamin D3 100 HP; Vitamin D3 850
Food of the gods. See Asafetida (Ferula asafoetida) gum
Food violet 2. See Acid violet 49
Food yellow 3. See CI 15985; FD&C Yellow No. 6; Acid yellow 3
Food yellow 4. See FD&C Yellow No. 5; Tartrazine
Food yellow 13. See Acid yellow 3
Food yellow 3 disodium salt. See FD&C Yellow No. 6

Formaldehyde
CAS 50-00-0; EINECS/ELINCS 200-001-8
UN 1198 (DOT); UN 2209 (DOT); INS240
Synonyms: Aldehyde C1; Formalin; Formic aldehyde; Formol; HOCH; Methaldehyde; Methanal; Methylene oxide; Methyl aldehyde; Methylene glycol; Oxymethylene; Paraform; Polyoxymethylene glycols
Classification: Aldehyde
Empirical: CH2O
Formula: HCHO
Properties: Colorless gas; strong pungent odor; avail. commercially as aq. sol'ns. (37-50% in methanol); sol. in water, alcohol; m.w. 30.03; dens. 1.083; vapor pressure 3284 mm Hg (20 C); f.p. -118 C; b.p. -19 C; flash pt. 56 C; autoignition temp. 424 C; ref. index 1.3765
Toxicology: ACGIH TLV/TWA 1 ppm; LD50 (oral, rat) 800 mg/kg, (subcut., rat) 420 mg/kg, (IV, rat) 87 mg/kg; LC50 (inh., rat) 590 mg/m³; poison by ing., skin contact, inh., IV, IP, subcut. routes; human poison by ing., systemic effects, skin/eye irritant; vapor intensely irritating to mucous membranes; if ingested, causes violent vomiting and diarrhea and possible collapse; suspected human carcinogen; experimental tumorigen, teratogen; mutagenic data; common air contaminant; TSCA listed
Environmental: VOC; BOD5 0.74; ThOD 1.07
Precaution: Combustible when exposed to heat, or flame; mod. fire risk; mod. explosion hazard; explosive limits 7-73%; can react vigorously with oxidizers; violent reactions possible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
HMIS: Health 3, Flammability 2, Reactivity 1
Uses: Antimicrobial, preservative used in
Chemical Component Cross-Reference

pharmaceuticals, biologics, topicals, hepatitis B vaccine; sterile for kidney
dialyzer membranes

Regulatory: FDA 21 CFR §173.340 (1% of
dimethicone content), 175.105, 175.210,
175.300, 176.170, 176.180, 176.200, 176.210,
177.120, 177.2410, 177.2800, 178.3120,
573.460; Canada DSL; FDA approved for
177.1200, 177.2410, 177.2800, 178.3120,
175.300, 176.170, 176.180, 176.200, 176.210,
dimethicone content), 175.105, 175.210,
dialyzer membranes
hepatitis B vaccine
pharmaceuticals, biologics, topicals,
Mallinckrodt Baker†
Ruger†
Praxair
Lipo†

http://www.amresco-inc.com
http://www.upichem.com
Thomas Scientific†
http://www.spectrumchemical.com
http://www.ashchem.com
http://www.sigma-aldrich.com
http://www.dupont.com;
http://www.degussa.com
DuPont
Fluka http://www.sigma-aldrich.com;
Georgia-Pacific Resins
http://www.gp.com/chemical;
Hercules/Aqualon
http://www.houghtonchemical.com; ISP
http://www.ispcorp.com
Integra† http://www.integrachem.com;
Lipo† http://www.lipochemicals.com;
Mallinckrodt Baker†
http://www.mallbaker.com; Merck KGaA
http://www.merck.de; Miljac
http://www.mijjac.com
Monomer-Polymer & Dajac Labs
http://www.monomerpolymer.com; Penta
Mfg.† http://www.pentamfg.com; Perstorp
Polyols http://www.perstorpolyols.com;
Praxair http://www.praxair.com
Ruger† http://www.rugerchemical.com;
Sigma http://www.sigma-
aldrich.com/belgium; Solutia
http://www.solutia.com;
http://www.coatings-solutia.com; Spectrum
Quality Prods.†
http://www.spectrumchemical.com
Thomas Scientific†
http://www.thomassci.com
Universal Preserv-A-Chem†
http://www.upichem.com; VWR Int’l.†

†=pharmaceutical grade

http://www.vwrsp.com; Veckridge; Voigt
Global Distrib.† http://www.vgdllc.com
Wright http://www.wrightcorp.com

p-Formaldehyde. See Paraformaldehyde
Formaldehyde hydrosulfite. See Sodium
formaldehyde sulfoxylate
Formaldehyde protechualdehyde-3,4-cyclic
acetel. See Heliotropine
Formaldehyde sodium bisulfite adduct;
Formaldehyde sodium sulfoxylate. See
Sodium formaldehyde sulfoxylate
Formalin. See Formaldehyde

Formamide
CAS 75-12-7; EINECS/ELINCS 200-842-0
Synonyms: Amide C1; Carbamaldehyde;
Methanamide; Methanoic acid, amide
Classification: Amide
Empirical: CH3NO
Formula: HCONH2

Properties: Colorless clear, sl. visc. oily liq.; sol.
in water, 95% ethanol, acetone, dimethyl
sulfoxide; misc. with methanol, acetic acid,
dioxane, phenol, ethylene glycol; very sl. sol. in
ether, benzene; m.w. 45.04; dens. 1.134 (20/4
C); vapor pressure 3 mm Hg (30 C); m.p. 2.6
C; b.p. 210 C (dec.); flash pt. (OC) 154 C; ref.
index 1.44754 (20 C); pH 7.3

Toxicology: ACGIH TLV/TWA 20 ppm (skin);
LD50 (oral, rat) 5577 mg/kg, (IP, rat) 5700
mg/kg. (subcut., rat) > 4 g/kg; poison by skin
contact, subcut., IV routes; mod. toxic
by ing., IP routes; mildly toxic by inh.;
primary irritant; skin and eye irritant; inh.
may cause mod. irritation to mucous
membranes of respiratory tract; suspected
carcinogen; tumorigen; mutagen;
experimental reproductive effects; TSCA
listed

Precaution: Combustible exposed to heat or
flame; incomp. with strong oxidizers,
acids, bases, iodine, pyridine, SO3; reacts
explosively with furfuryl alcohol, H2O2,
nitromethane; attacks copper and brass;
incomp. with Karl Fischer reagent
(toluene/pyridine/sulfur trioxide); reaction may
cause explosion of closed container

Hazardous Decomp. Prods.: Heated to
decomp., emits toxic fumes of NOx
NFPA: Health 2, Flammability 1

Storage: Store in cool, dry, well-ventilated area,
out of direct sunlight; inert atm. rec.; restrict
access; protect from moisture; avoid generating mists; hygroscopic; light-sensitive
Chemical Component Cross-Reference

†=pharmaceutical grade

Formic acid
CAS 64-18-6; EINECS/ELINCS 200-579-1
UN 1779 (DOT); FEMA 2487; INS236

Synonyms: Aminic acid; Formylic acid;
Hydrogen carboxylic acid; Methanoic acid

Classification: Organic acid

Empirical: CH$_2$O$_2$
Formula: HCOOH

Properties: Colorless fuming liq.; pungent penetrating odor; sol. in water, alcohol, ether;
m.w. 46.03; dens. 1.22 (20/4 °C); vapor pressure 42.6 mm Hg; m.p. 8.3 °C; b.p. 100.8 C;
flash pt. (OC) 69 °C; autoignition temp. 539 °C; ref. index 1.3714; surf. tens. 37.58 dynes/cm;
dielec. const. 58.5

Toxicology: ACGIH TLV/TWA 5 ppm; STEL 10 ppm; LD50 (oral, rat) 1100 mg/kg, (IP, mouse) 940 mg/kg; LC50 (inh., rat, 15 min) 15 g/m$^3$; poison by inh., IV, IP routes; mod. toxic by ing.; corrosive; skin and severe eye irritant; migrates to food from pkg.; mutagenic data; TSCA listed

Environmental: VOC; BOD5 0.20; COD 0.36; ThOD 0.35

Precaution: Flamm.; DOT: corrosive material; can react vigorously with oxidizers;
explosive with furfuryl alcohol,

†=pharmaceutical grade

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 3, Flammability 2, Reactivity 0

Uses: Solvent, synthetic flavor for pharmaceuticals

Regulatory: FDA 21 CFR §172.515, 172.723, 186.1316, GRAS as indirect additive, 573.480;
FEMA GRAS; CERCLA hazardous substance; Europe listed; prohibited in UK; Canada DSL

Manuf./Distrib.: AMRESCO†
http://www.amresco-inc.com; Aldrich†
http://www.sigma-aldrich.com; Alfa Aesar
http://www.alfa.com; BASF AG
http://www.basf.de; BASF
http://www.basf.com; Fluka http://www.sigma-aldrich.com;
Integra† http://www.integrachem.com;
Mallinckrodt Baker†
http://www.mallbaker.com; Nat'l.
Diagnostics http://www.nationaldiagnostics.com;
Pechiney Chems. Div.
http://www.pechiney-chemicals.com
Research Organics http://www.resorg.com;
Roche Diagnostics† http://www.roche-applied-science.com; Sigma
http://www.sigma-aldrich.com/belgium;
Spectrum Quality Prods.†
http://www.spectrumchemical.com
Thomas Scientific†
http://www.thomassci.com; VWR Int'l.†
http://www.vwrsp.com

Use:
Solvent for pharmaceuticals

Regulatory:
FDA 21 CFR §175.105; Canada DSL

Manuf./Distrib:
AMRESCO†
http://www.amresco-inc.com; Aldrich†
http://www.sigma-aldrich.com; Alfa Aesar
http://www.alfa.com; BASF AG
http://www.basf.de; BASF
http://www.basf.com; Fluka http://www.sigma-aldrich.com;
Integra† http://www.integrachem.com;
Mallinckrodt Baker†
http://www.mallbaker.com; Nat'l.
Diagnostics http://www.nationaldiagnostics.com;
Pechiney Chems. Div.
http://www.pechiney-chemicals.com
Research Organics http://www.resorg.com;
Roche Diagnostics† http://www.roche-applied-science.com; Sigma
http://www.sigma-aldrich.com/belgium;
Spectrum Quality Prods.†
http://www.spectrumchemical.com
Thomas Scientific†
http://www.thomassci.com; VWR Int'l.†
http://www.vwrsp.com

Environmental:
VOC; BOD5 0.20; COD 0.36; ThOD 0.35

Precaution:
Flamm.; DOT: corrosive material;
can react vigorously with oxidizers;
explosive with furfuryl alcohol,
Formic ether. See Ethyl formate
Formol. See Formaldehyde
Formosa camphor. See Camphor
Formosa camphor oil; Formose oil of camphor. See Camphor (Cinnamomum camphora) oil
2-Formylbutane. See 2-Methylbutyraldehyde
N-Formyl dimethylamine. See Dimethyl formamide
α-Formylethylbenzene. See 2-Phenylpropanal
Formyl acid. See Formic acid
4-Formyl-2-methoxyphenyl acetate. See Vanillin acetate
p-Formyl nitrobenzene. See p-Nitrobenzaldehyde
2-Formylphenol. See Salicylaldehyde
4-Formyl phenol. See p-Hydroxybenzaldehyde
o-Formylphenol. See Salicylaldehyde
p-Formyl phenol. See p-Hydroxybenzaldehyde
Formyl trichloride. See Chloroform
Fossil flour. See Diatomaceous earth; Silica, fumed
Fossil wax. See Ozokerite
Fo-ti-tieng extract. See Hydrocotyl (Centella asiatica) extract
Frambinone. See 4-(p-Hydroxyphenyl)-2-butanoate
Frankincense oil. See Olibanum (Boswellia carterii) oil
Franklin. See Calcium carbonate
Free crystalline silica. See Quartz
French chalk. See Talc
Freon 11. See Trichlorofluoromethane
Freon 13. See Chlorotrifluoromethane
Freon 21. See Dichlorofluoromethane
Freon 23. See Trifluoromethane
Freon 30. See Methylene chloride
Freon 113. See Trichlorotrifluoroethane
Freon 114. See 1,2-Dichlorotetrafluoroethane
Freon 116. See Hexafluoroethane
Freon HE. See Trichlorofluoromethane
β-D-Fructofuranosyl-α-D-glucopyranoside. See Sucrose
β-D-Fructofuranosyl-α-D-glucopyranoside benzoate. See Sucrose benzoate
β-D-Fructofuranosyl-α-D-glucopyranoside monoheptadecanoate. See Sucrose palmitate
β-D-Fructofuranosyl-α-D-glucopyranoside monooctadecanoate. See Sucrose stearate
β-D-Fructofuranosyl-α-D-glucopyranoside trioctadecanoate. See Sucrose tristearate
β-D-Fructopyranose. See Fructose

Fructose

CAS 57-48-7 (D-); 7660-25-5; 30237-26-4; EINECS/ELINCS 200-333-3 (D-)

Synonyms: Arabino-2-hexulose; β-D-Fructopyranose; D-Fructose; Fruit sugar; Laevosan; Laevulose; Levulose

Classification: Aliphatic polyhydric alcohol

Definition: Sugar occurring in fruit and honey

Empirical: C6H12O6

Properties: Colorless cryst. or wh. cryst. powd.; odorless; sweet taste; sol. in methanol, ethanol, water, pyridine, ethylamine, methylamine; m.w. 180.18; dens. 1.6; m.p. 103-105 C; pH almost neutral

Toxicology: ACGIH TLV/TWA 10 mg/m³ (inhalable particulate), 3 mg/m³ (respirable particulate); pract. nontoxic by ing.; very large doses may cause abdominal pain and diarrhea; some people are fructose intolerant; nuisance dust; probably not irritating to eyes except as 'foreign object;' experimental tumorigen

Precaution: At high temps., fructose in sol’n. rapidly browns and polymerizes to dianhydrides

Hazardous Decomp. Prods.: CO, CO₂; heated to decomp., emits acrid smoke and fumes

HMIS: Health 0, Flammability 1, Reactivity 0

Storage: Hygroscopic; store @ R.T.

Uses: Humectant, sweetener, and preservative in pharmaceuticals, orals; diluent for pharmaceutical tablets and capsules; parenteral nutrient ingred.

Features: Nutritive

Regulatory: FDA 21CFR §101.9, 131.111, 131.112, 131.170, 131.200, 131.203, 131.206, 133.179, 146.132, 155.170; FDA approved for orals; USP/NF, BP, EP compliance; Canada DSL

Chemical Component Cross-Reference

95; Isosweet 5500

D-Fructose; Fruit sugar. See Fructose
Fuller's earth. See Attapulgite
Fumarate, calcium. See Calcium fumarate

Fumaric acid
CAS 110-17-8; EINECS/ELINCS 203-743-0
UN 9126 (DOT); FEMA 2488; INS 2907

Synonyms: Allomalic acid; Boletic acid; 2-
Butenedioic acid; (E)-Butenedioic acid; trans-Butenedioic acid; trans-1,2-
Ethenedicarboxylic acid; 1,2-
Ethyleneedicarboxylic acid; trans-1,2-
Ethyleneedicarboxylic acid; Lichienic acid

Classification: Unsat. aliphatic dicarboxylic acid

Empirical: C4H4O4
Formula: HOOCCH:CHCOOH

Properties: Wh. cryst. powd. or gran.; odorless; acidic taste; mod. sol. in ethanol and acetone @ 30 C; sl. sol. in water, ether, oxygenated solvs.; very sl. sol. in chloroform; m.w. 116.08; dens. 1.635 (20/4 C); vapor pressure 1.7 mm Hg; m.p. 287 C; b.p. 290 C; flash pt. 230 C

Toxicology: LD50 (oral, male rat) 10,700 mg/kg, (IP, mouse) 587 mg/kg, (dermal, rabbit) > 20,000 mg/kg; poison by IP route; mildly toxic by ing. and skin contact; skin and eye irritant; mutagenic data; TSCA listed

Precaution: Combustible exposed to heat or flame; can react vigorously with oxidizers; incompat. with bases, amines, reducing agents; can form explosive dust-air mixts.; sol'ns. react with metals (Al, Fe, Zn) releasing flamm. hydrogen gas

Hazardous Decomp. Prods.: CO, CO2; heated to decomp., emits acrid smoke and irritating fumes

HMIS: Health 1, Flammability 0, Reactivity 0

Storage: Store in a cool, dry, well-ventilated area away from heat and ignition sources

Uses: Acidifier in pharmaceuticals, orals; antidandruff ingred.; cleaning agent for dentures

Regulatory: FDA 21CFR §131.44, 146.113, 150.141, 150.161, 172.350, 172.808, 172.810, 172.822, 175.105, 175.300, 175.320, 176.170, 177.1200, 177.2420; Canada DSL; USDA 9CFR §318.7, 381.147; BATF 27CFR §240.1051, limitation 25 lb/1000 gal wine; FEMA GRAS; Japan approved; Europe listed; UK approved; FDA approved for orals; USP/NF compliance

Manuf./Distrib.: AB R Lundberg

†=pharmaceutical grade

Egger & Co.† http://www.eggar.co.uk; Ferro Pfanstiehl Labs† http://www.pfanstiehl.com; Filo http://www.filochemical.com; Fluka http://www.sigma-aldrich.com
Forum Bioscience http://www.forum.co.uk

Handbook of Pharmaceutical Additives, Third Edition 1358
### Chemical Component Cross-Reference

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<tbody>
<tr>
<td>Fumed silica; Fumed silicon dioxide. See Silica, fumed</td>
<td>Fuming liquid arsenic. See Arsenic trichloride</td>
<td>Fural; 2-Furaldehyde; Furale. See Furfural</td>
<td>Furan</td>
<td>CAS 110-00-9; EINECS/ELINCS 203-727-3</td>
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</table>

### UN 2389

**Synonyms:** Axole; Divinylene oxide; 1,4-Epoxy-1,3-butadiene; Furane; Furfuran; Oxacyclopentadiene; Oxole; Tetrole

**Classification:** 5-Membered aromatic heterocyclic compd.

**Empirical:** C₄H₄O

**Properties:** Colorless volatile liq.; strong ethereal odor; turns brn. on standing; sol. in alcohol, ether; misc. with most org. solvs.; insol. in water; m.w. 68.08; dens. 0.936 (20/4 C); vapor pressure 670 mbar (20 C); f.p. -86 C; b.p. 31-33 C; flash pt. (CC) -35 C; ref. index 1.4216 (20 C)

**Toxicology:** LD₅₀ (IP, mouse) 7 mg/kg; LD₅₀ (oral, rabbit) 234 mg/kg; LC₅₀ (inh., mouse, 1 h) 120 mg/m³; highly toxic; poison by inh., IP routes; mod. toxic by ing. and skin contact; readily absorbed through skin; narcotic; vapors are anesthetic; may cause ptosis, somnolence, dyspnea, acute pulmonary edema, nausea, vomiting, hemorrhage, convulsions, wt. loss, renal failure; carcinogen, tumorigen, mutagen, reproductive effector; target organs: GI system, liver; TSCA listed

**Precaution:** Extremely flamm.; dangerous fire risk; flamm. limits 2-24%; forms peroxides on exposure to air; can react with oxidizers, acids, peroxides, oxygen; violent exothermic reaction on contact with acids; avoid dust generation, excess heat

**Hazardous Decomp. Prods.:** CO, CO₂; heated to decomp., emits acute smoke and irritating fumes

**NFPA:** Health 1, Flammability 4, Reactivity 1

**Storage:** Sensitive to heat; photosensitive; store refrigerated; keep container tightly closed under an inert atmosphere; keep away from ignition sources

**Uses:** Pharmaceutical intermediate

**Regulatory:** Canada DSL

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**Chemical Component Cross-Reference**

Furan, 3-acetyl-2,5-dimethyl-.
See 3-Acetyl-2,5-dimethylfuran
2-Furanaldehyde.
See Furfural
2-Furan butanoic acid 3-methyl butyl ester.
See Isoamyl 4-(2-furan) butyrate
2-Furancarbinol.
See Furfuryl alcohol
2-Furancarboxaldehyde.
See Furfural
Furan-α-carboxylic acid methyl ester.
See Methyl 2-furoate
Furan-2-carboxylic acid pentyl ester.
See Amyl 2-furoate
Furan, 2,5-diethyltetrahydro-.
See 2,5-Diethyltetrahydrofuran
2,5-Furandione.
See Maleic anhydride
2,5-Furandione, polymer with ethene.
See Ethylene/MA copolymer
2,5-Furandione, polymer with methoxyethene;
2,5-Furandione, polymer with methoxylethylene.
See PVM/MA copolymer
Furane.
See Furan
Furaneol.
See 4-Hydroxy-2,5-dimethyl-3(2H) furanone
Furanidine.
See Tetrahydrofuran
Furanmethanol; 2-Furanmethanol.
See Furfuryl alcohol
2-Furanmethanol, tetrahydro-, acetate.
See Tetrahydrofurfuryl acetate
2(3H)-Furanone, dihydro-5-octyl-.
See γ-Dodecalactone
3(2H)-Furanone, 2,5-dimethyl-4-hydroxy-.
See 4-Hydroxy-2,5-dimethyl-3(2H) furanone
2(3H)-Furanone, 5-ethyldihydro-.
See γ-Hexalactone
2-Furan propanoic acid ethyl ester.
See Ethyl-2-furanpropionate
Furan, tetrahydro-.
See Tetrahydrofuran
3-(2-Furanyl)-2-furan acrylic acid propyl ester.
See Propyl 2-furanacrylate
1-(2-Furanyl)-1-hexanone.
See Pentyl 2-furyl ketone

**Furcelleran gum.**

**Furcelleran**

CAS 9800-21-9; EINECS/ELINCS 232-531-0
INS 407

**Synonyms:** Danish agar; Furcelleran gum

**Definition:** Refined hydrocolloid obtained by aq. extraction of Furcellaria fastigiata of the class of red seaweed, Rodophyceae

**Properties:** Wh. powd., odorless; sol. in warm water

**Toxicology:** LD50 (oral, rat) 5000 mg/kg, (oral, mouse) 6 mg/kg; mod. toxic by ingestion; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Emulsifier, gellant, stabilizer, thickener in toothpaste, pharmaceuticals; bacterial culture media

**Regulatory:** FDA 21CFR §172.655, 172.660, 176.170; Japan approved

**Manuf./Distrib.:** Frutarom
http://www.frutarom.com; P.L. Thomas
http://www.pthomas.com

**Furfural**

CAS 98-01-1; EINECS/ELINCS 202-627-7
UN 1199 (DOT); FEMA 2545

**Synonyms:** Artificial ant oil; Artificial oil of ants; Fural; 2-Furaldehyde; Furale; 2-Furanaldehyde; 2-Furancarbonal; 2-Furancarboxaldehyde; 2-Furfural; Furfuraldehyde; Furfurol; Furole; α-Furole; 2-Furialdehyde; Pyromucic aldehyde

**Classification:** Cyclic aldehyde

**Empirical:** C₅H₄O₂

**Formula:** C₄H₃OCHO

**Properties:** Colorless liq. (pure); reddish-brown (on exposure to air and light); almond-like odor; sol. in alcohol, ether, benzene, 8.3% in water; m.w. 96.08; dens. 1.1598 (20/4 C); f.p. -36.5 C; b.p. 161.7 C; flash pt. 60 C; ref. index 1.5260 (20 C)

**Toxicology:** ACGIH TLV/TWA 2 ppm (skin);
LD50 (oral, rat) 65 mg/kg, (IP, rat) 20 mg/kg, (subcut., rat) 148 mg/kg; LCLo (inh., rat, 4 h) 153 ppm; poison by inq., IP, subcut., IV, IM routes; mod. toxic by inq., skin contact; skin and eye irritant; irritates mucous membranes, acts on CNS; human mutagenic data; TSCA listed

**Environmental:** VOC; BOD5 0.77; ThOD 1.67

**Precaution:** Flamm. or combustible; can react with oxidizing materials; mod. explosion hazard exposed to heat or flame or by chem. reaction; incompat. with strong min. acids or alkalis; violent exothermic polymerization on contact with strong min. acids/alkalis

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**NFPA:** Health 3, Flammability 2, Reactivity 0

**Storage:** Refrigerate; light-sensitive

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Sweet flavor
### Furfuraldehyde

**Formula:** C₄H₃OCH₂OOCCH₃  
**Properties:** Colorless liq.; turns brn. on exposure to light and air; pungent odor; sol. in alcohol, ether; insol. in water; m.w. 140.14; dens. 1.118; vapor dens. 4.8; b.p. 175-177 C; flash pt. 150 F; ref. index 1.4627  
**Toxicology:** Mutagen; skin, eye, respiratory system irritant; TSCA listed  
**Environmental:** Do not contaminate water sources, sewers

### Furfural

**Classification:** FEMA GRAS; Canada DSL  
**Uses:** Synthetic flavor, flavor enhancer for pharmaceuticals

### Furfural alcohol

**Formula:** C₃H₆O₂  
**Properties:** Fruity banana-like flavor

### Furfuryl alcohol

**Formula:** C₄H₃OCH₂OOCCH₃

### Furfurole

**Formula:** C₅H₆O₂

### Properties:

- Colorless mobile liq., brn.-dk. red (air/lt. exposed), low odor, cooked sugar taste; sol. in alcohol, ether, chloroform, benzene; misc. with water but unstable; misc. with oxygenated solvs.; insol. in petrol.
- Hydrocarbons, most oils; m.w. 98.10; dens. 1.1285 (20/4 C); vapor pressure 1 mm (31.8 C); m.p. -29 C; b.p. 170 C; flash pt. (OC) 75 C; ref. index 1.485

### Toxicology:

ACGIH TLV/TWA 10 ppm (skin); STEL 15 ppm (skin); LD₅₀ (oral, rat) 275 mg/kg, (dermal, rabbit) 450 mg/kg; poison

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Furfuryl butyrate
CAS 623-21-2; EINECS/ELINCS 210-779-0
Synonyms: Butanoic acid, 2-furanylmethyl ester; 2-Furylethyl butanoate
Empirical: C₉H₁₂O₃
Properties: Yel. to amber oily liq.; green butyric rancid odor; insol. in water; misc. in ethanol; m.w. 168.19; dens. 1.053; b.p. 212 C; acid no. 1 max.; flash pt. 195 F
Uses: Synthetic flavor for pharmaceuticals
Features: Fruity grape-like flavor
Regulatory: Canada DSL
Furfuryl methyl ketone. See (2-Furyl)-2-propanone
2-Furoic acid, methyl ester. See Methyl 2-furoate
Furole; α-Furole. See Furfural
Furly acetone. See (2-Furyl)-2-propanone
Furly alcohol; 2-Furylethanol; α-Furylethanol. See Furfuryl alcohol
1-(2-Furyl) hexanone; 1-(2-Furyl)-1-hexanone. See Pentyl 2-furyl ketone
2-Furylethanol. See Furfural (2-Furyl) methanol. See Furfuryl alcohol
2-Furylethanone. See Furfuryl butyrate
1-(2-Furyl)-propan-2-one. See (2-Furyl)-2-propanone
(2-Furyl)-2-propanone
CAS 6975-60-6
FEMA 2496
Synonyms: Furfuryl methyl ketone; Furfuryl acetone; 1-(2-Furyl)-propan-2-one; Methyl furfuryl ketone
Classification: aliphatic ketone
Empirical: C₉H₁₀O₂
Properties: Liq.; radish odor; sol. in ether, triacetin; m.w. 124.14; sp. gr. 1.074-1.080; acid
Chemical Component Cross-Reference

no. 1 max.; ref. index 1.499-1.505

Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: R.C. Treatt & Co. Ltd
http://www.rctreatt.com

Fusel oil. See Fusel oil refined

Fusel oil refined
CAS 8013-75-0; EINECS/ELINCS 232-395-2
UN 1201 (DOT); FEMA 2497
Synonyms: Amyl alcohol, commercial; Amyl alcohols, mixed; Fusel oil; Whiskey fusel oil; Wine fuel oil
Definition: Mixed amyl alcohols, contg. isoamyl alcohol, methanol, ethanol, acetaldehyde, and other alcohols
Properties: Water-wh. to pale yel. oily liq.; disagreeable odor; sol. in water, alcohol, ether; dens. 0.807-0.813; b.p. 120-140 C; flash pt. 123 F; ref. index 1.405-1.410
Toxicology: Mutagenic data; suspected of containing carcinogens; experimental reproductive effects; TSCA listed
Precaution: Flamm. liq. exposed to heat or flame; reacts with oxidizing materials
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
HMIS: Health 0, Flammability 1, Reactivity 0
Storage: Hygroscopic; store @ R.T.
Uses: Sweetener in pharmaceutical orals; diagnostic aid in medicine
Regulatory: NF, BP, EP compliance; FDA approved for orals; Canada DSL
Manuf./Distrib.: AMRESCO†
http://www.amresco-inc.com; Adept Sol'n.s.; Aldrich† http://www.sigma-aldrich.com; CarboMer†
http://www.carbomer.com; Ferro Pfanstiehl Europe†
Fluka† http://www.sigma-aldrich.com; Inalco Pharmaceuticals†
http://www.inalcopharm.com; Integra†
Ruger† http://www.rugerchemical.com; Sigma http://www.sigma-aldrich.com; Spectrum Quality
Prods.† http://www.spectrumchemical.com; VWR Int'l.† http://www.vwrsp.com

β-Galactosidase
CAS 9031-11-2; EINECS/ELINCS 232-864-1
Synonyms: Lactase
Definition: Derived from E. coli
Properties: M.w. 35,000
Toxicology: LD50 (oral, rat) > 20 mg/kg, (subcut, rat) 4090 mg/kg; mod. toxic by subcut., IP routes; TSCA listed
Storage: Store frozen (-15 to -22 C); hygroscopic; keep under argon
Uses: Enzyme for hydrolyzing lactose in pharmaceuticals, digestive aids, lactose intolerant prods.; enzyme-linked immunoassay; biochemical research
Regulatory: FDA GRAS; Canada, Japan approved
Manuf./Distrib.: AMRESCO http://www.amresco-inc.com; Degussa AG/Health & Nutrition; Fluka
Galangal; Galangal root. See Galanga
Galipea officinalis; Galipea officinalis extract. See Angostura (Galipea officinalis) extract

Gallic acid
CAS 149-91-7; 5995-86-8 (monohydrate);
EINECS/ELINCS 205-749-9
Synonyms: 3,4,5-Trihydroxybenzoic acid
Empirical: C₇H₆O₅ (anhyd.); C₇H₅O₅ • H₂O
(mono hydrate)
Formula: C₆H₂(OH)₃CO₂H (anhyd.) or
C₆H₂(OH)₃CO₂H • H₂O (mono hydrate)
Properties: Wh. to pale fawn-colored crys. or
need.; odorless; sol. (1 g/ml): 87 ml water, 6 ml
alcohol, 100 ml ether, 10 ml glycerin, 5 ml
acetone; pract. insol. in benzene, chloroform,
petroleum ether; m.w. 170.12 (anhyd.), 188.14
(mono hydrate); dens. 1.694; m.p. 258-265 C
(dec.)
Toxicology: LD₅₀ (oral, rabbit) 5 g/kg, (IP,
mouse) 4300 mg/kg, (IV, mouse) 320 mg/kg;
poison by IV route; mod. toxic by IP route;
irritant; mutagenic data; experimental
reproductive effector; TSCA listed
Hazardous Decomp. Prods.: Heated to
decomp., emits acrid smoke and irritating
fumes
HMIS: Health 1, Flammability 0, Reactivity 0
Storage: Hygroscopic; protect from light
Uses: Astringent and antioxidant in
pharmaceuticals
Regulatory: Japan approved; Canada DSL
Manuf./Distrib.: Aceto† http://www.aceto.com;
Aldrich† http://www.sigma-aldrich.com;
Alfa Aesar† http://www.alfa.com; Alfa
Chem† http://www.alfachemist1.com;
Asiamerica Int'l.†

†=pharmaceutical grade

Atomergic Chemetals† http://www.atomergic.com; BCH Brühl
http://www.bch-bruehl.de; Biddle Sawyer† http://www.biddlesawyer.com; CarboMer† http://www.carbomer.com;
Fluka http://www.sigma-aldrich.com; Fuji
Chem. Ind. http://www.fujichemical.co.jp;
GFS† http://www.gfsciences.com;
Lowenstein Dyes & Cosmetics http://www.jhlowenstein.com; Mallinckrodt Baker† http://www.mallbaker.com;
Mutchler† http://www.mutchlerchem.com;
Penta Mfg.† http://www.pentamfg.com;
R.W. Greeff† http://www.pechineychemicals.com
Rochem Int'l. http://www.rochemintl.com;
Ruger† http://www.rugerchemical.com;
Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality
Prods.† http://www.spectrumchemical.com; Triple

Gallic acid, bismuth basic salt. See Bismuth
subgallate
Gallic acid dodecyl ester. See Dodecyl
gallate
Gallic acid ethyl ester. See Ethyl gallate
Gallic acid lauryl ester. See Dodecyl gallate
Gallic acid methyl ester. See Methyl
gallate
Gallic acid propyl ester. See Propyl
gallate
Gallotannic acid; Gallotannin. See Tannic
acid
Garamycin. See Gentamycin sulfate
Garden angelica extract. See Angelica
( Angelica archangelica) extract
Gardenol. See α-Methylbenzyl acetate
Garden sage. See Sage (Salvia officinalis)
Garden thyme. See Thyme (Thymus vulgaris)
Garlic (Allium sativum) oil
CAS 8000-78-0
FEMA 2503
Synonyms: Allium sativum oil; Garlic oil
Definition: Volatile oil from bulb or entire plant
Chemical Component Cross-Reference

**Allium sativum**

*Properties:* Clear to yel. liq., strong garlic odor and taste; sol. in fixed oils, min. oil; insol. in glycerin, alcohol, propylene glycol; dens. 1.046-1.057 (15/15 C); flash pt. 47.8 C; ref. index 1.5750

*Toxicology:* LD50 (oral, rat) 1360 mg/kg; may be harmful by ing., inh., skin absorp.; may be irritating to eyes, skin, mucous membranes, upper respiratory tract; TSCA listed

*Precaution:* Combustible liq.; incompat. with strong oxidizing agents

*Hazardous Decomp. Prods.:* CO, CO2; heated to decomp., emits acrid smoke and irritating fumes; emits toxic fumes under fire conditions

*Storage:* Store in cool, dry place; keep tightly closed; keep away from heat, sparks, open flame

*Uses:* Natural flavor for pharmaceuticals

*Regulatory:* FDA 21CFR §184.1317, GRAS; FEMA GRAS; Europe listed, no restrictions; Canada DSL


*Garlic oil.* See Garlic (Allium sativum) oil

*Garnet lac.* See Shellac

*Gaultheria procumbens; Gaultheria procumbens extract.* See Wintergreen (Gaultheria procumbens) extract

*Gaultheria procumbens oil.* See Wintergreen (Gaultheria procumbens) oil

*GBL.* See Butyrolactone

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GDL. See Gluconolactone

GDO. See Glyceryl dioleate

**Gelatin**

*CAS 9000-70-8; EINECS/ELINCS 232-554-6*

*Synonyms:* Gelatine; Gelatins; White gelatin

*Definition:* Complex combination of proteins obtained from partial hydrolysis of collagen derived from animal skin, connective tissues, and bones; Type A is derived from acid-treated precursor, Type B from alkali-treated precursor

*Properties:* Faint yel. or amber flake or powd., sl. char. bouillon-like odor in sol’n., tasteless; sol. in warm water, glycerol, acetic acid; insol. in org. solvs., alcohol, chloroform, ether, fixed and volatile oils; amphoteric

*Toxicology:* LD50 (oral, rat) 5 g/kg; may cause anaphylactoid reactions; experimental teratogen, reproductive effector; TSCA listed

*Precaution:* Stable in air when dry, but subject to microbial decomp. when moist or in sol’n.

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Emulsifier, vehicle, binder, suspending agent in pharmaceuticals, ointments, suppositories, dentals, inhalants, IM injectables, intravenous, orals, topicals, vaginals; tablet binder, coating agent (hard/soft capsules, microencapsulation); wound/burn healing; surgical sponges

*Regulatory:* FDA 21CFR §133.133, 133.134, 133.162, 133.178, 133.197, 172.230, 172.255, 172.280, 182.70; GRAS; Canada DSL; Japan approved; FDA approved for dentals, inhalants, intramuscular injectables, intravenous, IV (infusion), orals, topicals, USP/NF, BP, EP compliance


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<td>Degussa Texturant Systems</td>
<td>Gelatine. See Gelatin</td>
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<td><a href="http://www.cargilltexturizing.com">http://www.cargilltexturizing.com</a>; Delft</td>
<td>Gelatin hydrolysate. See Hydrolyzed gelatin</td>
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<td>Gelatin BV; Farmacapsulas†</td>
<td>Gelatins. See Gelatin</td>
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<td><a href="http://www.farmacapsulasusa.com/">http://www.farmacapsulasusa.com/</a>; Ferro</td>
<td>Gelatins, hydrolysates. See Hydrolyzed gelatin</td>
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<tr>
<td>Pfastiehl Europe†; Functional Foods†</td>
<td>Gellan gum</td>
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<td>GMI Prods.† <a href="http://www.gmi-originates.com">http://www.gmi-originates.com</a>; Gallard-Schlesinger Ind.†</td>
<td>INS418; E418</td>
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<tr>
<td><a href="http://www.gellita.com">http://www.gellita.com</a>; H&amp;A (Canada) Ind.†</td>
<td>Synonyms: Gum gellan</td>
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<tr>
<td><a href="http://www.hacanada.com">http://www.hacanada.com</a>; Hawkins Chem.†</td>
<td>Definition: High m.w. heteropolysaccharide gum</td>
</tr>
<tr>
<td><a href="http://www.hawkinschemical.com">http://www.hawkinschemical.com</a></td>
<td>produced by pure-culture fermentation of a carbohydrate with Pseudomonas elodea</td>
</tr>
<tr>
<td>Healan Ingredds. Ltd <a href="http://www.healan.com">http://www.healan.com</a>; Integra†</td>
<td>Uses: Film-former, gellant, thickener,</td>
</tr>
<tr>
<td><a href="http://www.integramef.com">http://www.integramef.com</a>; Italgelatine</td>
<td>stabilizer for pharmaceuticals</td>
</tr>
<tr>
<td>SpA† <a href="http://www.italgelatine.com">http://www.italgelatine.com</a>;</td>
<td>Regulatory: USP/NF compliance; FDA 21CFR</td>
</tr>
<tr>
<td>PB Leiner USA† <a href="http://www.gelatin.com">http://www.gelatin.com</a>;</td>
<td>Manuf./Distrib.: AB R Lundberg</td>
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<td>Penta Mfg.† <a href="http://www.pentamfg.com">http://www.pentamfg.com</a>;</td>
<td><a href="http://www.norfoods.se/lundberg">http://www.norfoods.se/lundberg</a>; Adept</td>
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<td>Pharmrite N. Am.† <a href="http://pharmrite.com/">http://pharmrite.com/</a></td>
<td>Sol’ns.†; CP Kelco†</td>
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<td>RTD Hallstar† <a href="http://www.rtdhallstar.com">http://www.rtdhallstar.com</a>;</td>
<td><a href="http://www.cpkelco.com">http://www.cpkelco.com</a>; CarboMer†</td>
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<td>Ruger† <a href="http://www.rugerchemical.com">http://www.rugerchemical.com</a></td>
<td><a href="http://www.carbomer.com">http://www.carbomer.com</a>; Pangaea Sciences†</td>
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<td>Sigma <a href="http://www.sigma-aldrich.com/belgium">http://www.sigma-aldrich.com/belgium</a>; Spectrum Quality Prods.†</td>
<td><a href="http://www.pangaeasciences.com">http://www.pangaeasciences.com</a></td>
</tr>
<tr>
<td><a href="http://www.spectrumchemical.com">http://www.spectrumchemical.com</a>; Spice King; Thew Arnott &amp; Co. Ltd <a href="http://www.thewarnott.co.uk">http://www.thewarnott.co.uk</a>; Thomas Scientific†</td>
<td><a href="http://www.sigma-aldrich.com/belgium">http://www.sigma-aldrich.com/belgium</a>; Spectrum Quality Prods.†</td>
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<td><a href="http://www.thewarnott.co.uk">http://www.thewarnott.co.uk</a>; Thomas Scientific†</td>
<td>Trade Names: Gelrite®; Kelcogel®; Kelcogel®</td>
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<td>Triple Crown Am. <a href="http://www.triplecrownama.com">http://www.triplecrownama.com</a>; VWR Int'l.†</td>
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</tr>
<tr>
<td>Trade Names: Economix Gelatin; Edible Beef Gelatin; Edible Kosher Beef Gelatin; Great Lakes Gelatin/Medical 235 USP; Protector Gelatin</td>
<td>Gentamicin sulfate. See Gentamicin sulfate</td>
</tr>
<tr>
<td>Sammi Gelatine; Spray Dried Fish Gelatin; Spray Dried Hydrolysed Fish Gelatin; Vee Gee Pharmaceutical Gelatins</td>
<td>Gentamycin sulfate</td>
</tr>
<tr>
<td>Trade Names Containing: Canthaxanthin 10% CWS/N; Dry Vitamin E 75™ HP; Lutein DC; LycoVit® 10% DC; redivivo™ (lycopene) 5% TG/P; redivivo™ (lycopene) 10% WS; Ropufa® ‘10’ n-3 INF Powder; Vitamin A Acetate/D2 500/50; Vitamin A Acetate/D3; Vitamin A Palmitate 500</td>
<td>CAS 1405-41-0; EINECS/ELINCS 215-778-9</td>
</tr>
<tr>
<td>Vitamin D2 850; Vitamin D3 100; Vitamin D3 100 HP; Vitamin D3 850</td>
<td>Synonyms: Garamycin; Gentamicin sulfate</td>
</tr>
<tr>
<td>Properties: Wh. to buff-colored powd.; odorless; sol. in water; pract. insol. in ether; insol. in alcohol, benzene, CCl₄, isooctane, most org. solvs.; m.p. 218-237 C; noncombustible</td>
<td>Toxicology: LD₅₀ (IM, rat) 384 mg/kg, (IP, mouse) 245 mg/kg, (IV, mouse) 47 mg/kg, (subcut., mouse) 352 mg/kg; highly toxic by IV, IM routes; mod. toxic by IP route; eye/skin irritant; may cause hypersensitivity, anemia, purpura, convulsions, inc. serum-bilirubin concs., alopecia, blood disorders, electrolyte disturbances, neurotoxicity, psychosis, vertigo, tinnitus, allergic reactions, fever, etc.; photosensitizer; may cause harm to unborn child; target organs: ears, kidneys, nerves</td>
</tr>
<tr>
<td>Precaution: Probably combustible; incompat. with strong oxidizing agents</td>
<td>Hazardous Decomp. Prods.: Heated to</td>
</tr>
</tbody>
</table>
**Chemical Component Cross-Reference**

decomp., emits very toxic fumes of CO, CO₂, NOx, SOx; emits toxic fumes under fire conditions

Storage: Hygroscopic; store refrigerated; protect from moisture

Uses: Antibacterial; antibiotic

Manuf./Distrib.: A.G. Scientific
  - http://www.agscientific.com
  - AMRESCO†
  - http://www.amresco-inc.com
  - Alfa Chem†
  - http://www.alfachem1.com
  - Am. Int'l.†
  - http://www.aicma.com
  - CarboMer†
  - http://www.carbomer.com
  - CoKEM Assoc.†
  - Fisher Scientific
  - Fluka
  - http://www.sigma-aldrich.com
  - Functional Foods†
  - http://www.functionalfoods.com
  - GDL Int'l.†
  - http://www.gdlinternational.com
  - George Uhe
  - http://www.uhe.com
  - Hawkins Chem.†
  - http://www.hawkinschemical.com
  - Helm NY†
  - http://www.helmnewyork.com
  - http://www.mpbio.com
  - Indofine
  - http://www.indofinechemical.com
  - Lipo†
  - http://www.lipochemicals.com
  - Napp Tech.†
  - http://www.napptech.com
  - RIA Int'l.†
  - http://www.riausa.com
  - RTD Hallstar†
  - http://www.rtdhallstar.com
  - Research Organics
  - http://www.resorg.com
  - Sigma
  - http://www.sigma-aldrich.com/belgium
  - Spectrum Quality Prods.
  - http://www.spectrumchemical.com
  - VWR Int'l.†
  - http://www.vwrsp.com

**Gentiana lutea; Gentiana lutea extract.** See Gentian (Gentiana lutea) extract

**Gentiana lutea rhizome and roots.** See Gentian (Gentiana lutea)

**Gentian extract.** See Gentian (Gentiana lutea) extract

**Gentian (Gentiana lutea)**

Synonyms: Bitter root; Gentian; Gentiana; Gentiana lutea; Gentiana lutea rhizome and roots; Gentian root

Definition: Dried rhizome and roots of Gentiana lutea

Storage: Protect from light

Uses: Bitter in pharmaceuticals, tonics, alcoholic infusions, bitter mixts., homeopathic medicine for digestive disorders


**Gentian (Gentiana lutea) extract**

CAS 72968-42-4; EINECS/ELINCS 277-139-0

FEMA 2506

Synonyms: Gentiana lutea; Gentiana lutea extract; Gentian extract; Gentian root extract

Classification: Resinoid

Definition: Extract of rhizomes and roots of Gentiana lutea

Uses: Natural flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.510; not listed as approved colorant for cosmetics under FDA 21CFR §73 and 74; FEMA GRAS; Japan approved

Manuf./Distrib.: Bio-Botanica
  - http://www.biobotanica.com
  - Carrubba
  - http://www.carrubba.com
  - Chart
  - http://www.chartcorp.com
  - Frutarom
  - http://www.frutarom.com

**Gentian root.** See Gentian (Gentiana lutea)

**Gentian root extract.** See Gentian (Gentiana lutea) extract

**Gentian violet.** See Basic violet 3

**Gentiobiose**

CAS 554-91-6

Synonyms: Amygdalose; β-Gentiobiose; 6-O-β-D-Glucopyranosyl-D-glucose

Definition: A disaccharide consisting of two molecules of glucose joined 1,6-β

Empirical: C₁₂H₂₂O₁₁

Properties: Bitter taste; sol. in water; insol. in methanol; m.w. 342.3; m.p.197 C (dec.)

Storage: Hygroscopic; keep under argon

Manuf./Distrib.: Ferro Pfanstiehl Europe; Fluka
  - http://www.sigma-aldrich.com
  - Sigma
  - http://www.sigma-aldrich.com/belgium

Trade Names Containing: Emdex®

**β-Gentiobiose.** See Gentiobiose

**Gentisate.** See Gentisic acid

**Gentisic acid**

CAS 490-79-9; EINECS/ELINCS 207-718-5

Synonyms: Benzoic acid, 2,5-dihydroxy-; 2,5-DHBA; 2,5-Dihydroxybenzoic acid; Gentisate; Hydroquinoncarboxylic acid; 5-Hydroxysalicylic acid; Salicylic acid, 5-hydroxy-
Gentisic acid ethanolamide
CAS 7491-35-2
Uses: Used in intravenous, IV (infusion)
Regulatory: FDA approved for intravenous, IV (infusion)

Geranium oil bourbon. See Geranium maculatum oil
Geraniol. See Citral

Gentisic acid ethanolamine
CAS 7491-35-2
Uses: Used in intravenous, IV (infusion)
Regulatory: FDA approved for intravenous, IV (infusion)

Geranium oil bourbon. See Geranium maculatum oil
Geraniol. See Citral
Geraniol acetate. See Geranyl acetate
Geraniol butyrate. See Geranyl butyrate
β-Geraniolene. See Myrcene
Geraniol formate. See Geranyl formate
Geraniol isobutyrate. See Geranyl isobutyrate
Geraniol isovalerate. See Geranyl isovalerate
Geraniol propionate. See Geranyl propionate
Geraniol tetrahydride. See 3,7-Dimethyl-1-octanol
Geranium crystals. See Diphenyl oxide
Geranium, East Indian, oil. See Palmarosa (Cymbopogon martini) oil
Geranium maculatum. See Geranium maculatum oil
Geranium maculatum oil
CAS 8000-46-2; EINECS/ELINCS 290-140-0
FEMA 2508
Synonyms: Algerian geranium oil; Geraniun oil bourbon; Geranium maculatum; Geranium oil; Geranium oil Algerian type
Definition: Volatile oil from Geranium maculatum; contains geraniol and geranyl tiglate
Properties: Greenish-yel. to brn. liq; rose and geraniol odor; sol. in fixed oils, min. oil, oxygenated and chlorinated solvs.; sol. sol. in water; insol. in glycerin; dens. 0.886-0.898; flash pt. 185 F; ref. index 1.454-1.472 (20 C)
Toxicology: Skin irritant; sensitizer; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Storage: Keep cool, well closed; protect from light
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §182.20, GRAS; FEMA GRAS; Canada DSL

Geranium oil; Geranium oil Algerian type. See Geranium maculatum oil
Geranium oil, East Indian; Geranium oil, Turkish. See Palmarosa (Cymbopogon martini) oil
Geranium, rose, oil. See Rose geranium (Pelargonium graveolens) oil
Geranyl acetate
CAS 105-87-3; 16409-44-2 (mixt. of isomers); EINECS/ELINCS 203-341-5; 240-458-0 (mixt. of isomers)
FEMA 2509
Synonyms: Acetic acid geraniol ester; (E)-3,7-Dimethyl-2,6-octadien-1-ol acetate; trans-3,7-Dimethyl-2,6-octadien-1-ol acetate; 3,7-Dimethyl-2-trans-6-octadienyl acetate; trans-2,6-Dimethyl-2,6-octadien-8-yl ethanoate; Geraniol acetate; 2,6-Octadien-1-ol, 3,7-dimethyl-, acetate; 2,6-Octadien-1-ol, 3,7-dimethyl-, acetate, (E)-
Geranylvl acetoacetate
CAS 10032-00-5; EINECS/ELINCS 233-101-5
FEMA 2510
Synonyms: (E)-3,7-Dimethyl-2,6-octadienyl acetoacetate; trans-3,7-Dimethyl-2,6-octadien-1-yl acetoacetate
Classification: floral ester
Empirical: C14H22O3
Properties: Liq.; m.w. 238.33; dens. 0.9625; ref. index 1.4670
Toxicology: Primary irritant
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Advanced Synthesis Tech.
http://www.advancedsynthesis.com
Geranyl acetone
CAS 689-67-8; 3796-70-1; EINECS/ELINCS 211-711-2; 223-269-8
FEMA 3542
Synonyms: Dihydrosedoionone; α,β-Dihydrosedoionone; 6,10-Dimethyl-5,9-undecadien-2-one; 6,10-Dimethyl-undeca-5,9-dien-2-one; (E)-6,10-Dimethylundeca-5,9-dien-2-one; trans-6,10-Dimethyl-5,9-undecadien-2-one; 5,9-Undecadien-2-one, 6,10-dimethyl-
Classification: Nonaromatic ketone
Empirical: C13H22O
Chemical Component Cross-Reference

†=pharmaceutical grade

Geranyl butanoate. See Geranyl butyrate

Geranyl butyrate
CAS 106-29-6; EINECS/ELINCS 203-381-3
FEMA 2512

Synonyms: Butanoic acid, 3,7-dimethyl-2,6-octadienyl ester; Butyric acid, 3,7-dimethyl-2,6-octadienyl ester; (E)-3,7-Dimethyl-2,6-octadienyl butanoate; 3,7-Dimethyl-2,6-octadien-1-yl butyrate; trans-3,7-Dimethyl-2,6-octadien-1-yl butyrate; Geraniol butyrate; Geranyl butanoate; Geranyl n-butyrate

Classification: floral ester

Empirical: \( C_{14}H_{24}O_2 \)
Formula: \( C_3H_7COOC_10H_{17} \)

Properties: Colorless liq.; char. floral odor; sol. in alcohol, ether; almost insol. in water; m.w. 224.34; dens. 0.901 (17/4 C); vapor dens. 7.7; b.p. 198 C (18 mm); flash pt. 93 C; ref. index 1.455 (20 C)

Toxicology: LD50 (oral, rat) 10,660 mg/kg, (skin, rabbit) 5 g/kg; mildly toxic by ing. and skin contact; irritating to eyes, skin, respiratory tract; TSCA listed

Precaution: Combustible; incompat. with strong oxidizers, acids

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating vapors

Uses: Synthetic flavor for pharmaceuticals

Manuf./Distrib.: Advanced BioTech [Link]
Augustus Oils Ltd [Link]
Axxence Aromatic GmbH [Link]
Bell Flavors & Fragrances [Link]
Chr. Hansen Inc [Link]
Citrus and Allied Essences [Link]
De Monchy Aromatics [Link]
Fleurchem [Link]
Grau Aromatics [Link]
Lluch Essence [Link]
Natural Advantage [Link]
Oxford Chems. Ltd [Link]
R.C. Treatt & Co. Ltd [Link]

Geranyl alcohol. See Geraniol

Geranyl benzoate
CAS 94-48-4; EINECS/ELINCS 202-337-0
FEMA 2511

Synonyms: Benzoic acid geraniol ester; Benzoic acid geranyl ester; 3,7-Dimethyl-2,6-octadien-1-yl benzoate; (E)-3,7-Dimethyl-2,6-octadienyl benzoate

Classification: floral ester

Empirical: \( C_{17}H_{22}O_2 \)

Formulas: CH3-C(CH3)=CH-[CH2]2-C(CH3)=CH-CH2-OCO-C6H5

Properties: Ylsh. oily liq.; rosy, amber, ylang-ylang-like odor; misc. with alcohol, chloroform; insol. in water; m.w. 194.32; dens. 0.869 (20/4 C); b.p. 92-93 C; flash pt. 65 C; ref. index 1.467 (20 C); tenacity > 7 days

Toxicology: LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; primary irritant; irritating to eyes, skin, and respiratory system; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21 CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: BASF AG [Link]
Elan [Link]
Fluka [Link]
Givaudan Fragrances [Link]
SAFC Specialties [Link]
Sigma [Link]

Gerany butanoate. See Geranyl butyrate

Gerany butyrate
CAS 106-29-6; EINECS/ELINCS 203-381-3
FEMA 2512

Synonyms: Butanoic acid, 3,7-dimethyl-2,6-octadienyl ester; Butyric acid, 3,7-dimethyl-2,6-octadienyl ester; (E)-3,7-Dimethyl-2,6-octadienyl butanoate; 3,7-Dimethyl-2,6-octadien-1-yl butyrate; trans-3,7-Dimethyl-2,6-octadien-1-yl butyrate; Geraniol butyrate; Geranyl butanoate; Geranyl n-butyrate

Classification: floral ester

Empirical: \( C_{14}H_{24}O_2 \)
Formula: \( C_3H_7COOC_10H_{17} \)

Properties: Colorless liq.; rose-like odor; sol. in many org. solvs.; sparingly sol. in water; m.w. 194.32; dens. 0.869 (20/4 C); b.p. 92-93 C; flash pt. 65 C; ref. index 1.467 (20 C); tenacity > 7 days

Toxicology: LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; primary irritant; irritating to eyes, skin, and respiratory system; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21 CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: BASF AG [Link]
Elan [Link]
Fluka [Link]
Givaudan Fragrances [Link]
SAFC Specialties [Link]
Sigma [Link]

Geran alcohol. See Geraniol

Geranyl butanoate
CAS 94-48-4; EINECS/ELINCS 202-337-0
FEMA 2511

Synonyms: Benzoic acid geraniol ester; Benzoic acid geranyl ester; 3,7-Dimethyl-2,6-octadien-1-yl benzoate; (E)-3,7-Dimethyl-2,6-octadienyl benzoate

Classification: floral ester

Empirical: \( C_{17}H_{22}O_2 \)

Formula: CH3-C(CH3)=CH-[CH2]2-C(CH3)=CH-CH2-OCO-C6H5

Properties: Ylsh. oily liq.; rosy, amber, ylang-ylang-like odor; misc. with alcohol, chloroform; insol. in water; m.w. 194.32; dens. 0.869 (20/4 C); b.p. 92-93 C; flash pt. 65 C; ref. index 1.467 (20 C); tenacity > 7 days

Toxicology: LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; primary irritant; irritating to eyes, skin, and respiratory system; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21 CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: BASF AG [Link]
Elan [Link]
Fluka [Link]
Givaudan Fragrances [Link]
SAFC Specialties [Link]
Sigma [Link]
Geranyl n-butyrate. See Geranyl butyrate
Geranyl caproate. See Geranyl hexanoate

Geranyl formate
CAS 105-86-2; EINECS/ELINCS 203-339-4
FEMA 2514

Synonyms: trans-3,7-Dimethyl-2,6-octadien-1-ol formate; 3,7-Dimethyl-2,6-octadien-1-yl formate; (E)-3,7-Dimethyl-2,6-octadienyl formate; trans-3,7-Dimethyl-2,6-octadien-1-yl formate; Formic acid, geraniol ester; Geraniol formate

Classification: floral ester; acrylic terpene

Empirical: C_{11}H_{18}O_{2}

Formula: HCOOC_{10}H_{17}

Properties: Colorless to sl. yel. liq. or oil; rose/green rose leaf odor; sol. in alcohol, fixed oils; pract. insol. in ether; insol. in water, glycerin, propylene glycol; m.w. 182.26; dens. 0.927 (20/4 C); b.p. 113-114 C (15 mm); flash pt. 205 F; ref. index 1.4580-1.4660

Toxicology: LD_{50} (oral, rat) > 6 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; primary skin and eye irritant; human skin irritant; TSCA listed

Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL


Geranyl hexanoate. See Geranyl hexanoate

Geranyl hexylate

Geranyl isobutyrate
CAS 2345-26-8; EINECS/ELINCS 219-062-7
FEMA 2513

Synonyms: trans-3,7-Dimethyl-2,6-octadien-1-ol isobutyrate; trans-3,7-Dimethyl-2,6-octadienyl isobutyrate; Geraniol isobutyrate

Classification: floral ester; acrylic terpene

Empirical: C_{14}H_{24}O_{2}

Properties: Colorless liq.; lt. rose odor; sweet apricot-like taste; sol. in alcohol, most org. solvs.; insol. in water; m.w. 224.34; dens. 0.8997 (15 C); ref. index 1.4576

Toxicology: LD_{50} (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; skin irritant; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: Bell Flavors & Fragrances http://www.bellff.com; Chr. Hansen Inc http://www.chr-hansen.com; Citrus and Allied Essences http://www.citrusandallied.com; Grau
Geranyl isovalerate

CAS 109-20-6; EINECS/ELINCS 203-655-2
FEMA 2518

Synonyms: trans-3,7-Dimethyl-2,6-octadienyl isopentanoate; (E)-3,7-Dimethyl-2,6-octadienyl 3-methylbutanoate; Geraniol isovalerate; (E)-Isovaleric acid-3,7-dimethyl-2,6-octadienyl ester; 3-Methylbutyric acid, 3,7-dimethyl-octa-2,6-dienyl ester; 2,6-Octadien-1-ol, 3,7-dimethyl-1, isovalerate

Classification: Nonaromatic ester; acylic terpene

Empirical: C_{15}H_{26}O

Properties: Colorless liq.; rose odor; sweet apple taste; sol. in alcohol, most org. solvs.; insol. in water; m.w. 238.37; dens. 0.890; vapor dens. 8.2; b.p. 279 C; flash pt. (CC) > 99 C; ref. index 1.4538

Toxicology: Primary skin irritant; TSCA listed

Precaution: Wear protective gloves, splash-proof goggles; incompat. with strong oxidizers

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL


Geranyl phenylacetate

CAS 105-90-8; EINECS/ELINCS 203-344-1
FEMA 2517

Synonyms: (E)-3,7-Dimethyl-2,6-octadien-1-ol propionate; (E)-3,7-Dimethyl-2,6-octadienyl propanoate; 3,7-Dimethyl-2,6-octadien-1-yl propionate; trans-3,7-Dimethyl-2,6-octadien-1-yl propionate; Geraniol propionate; 2,6-Octadien-1-ol, 3,7-dimethyl-, propionate, (E)-; Propionic acid, geranyl ester

Classification: Floral ester; acylic terpene

Definition: Ester of geraniol and propionic acid

Empirical: C_{13}H_{22}O_2

Formula: C_9H_{16}COOC_{10}H_{17}

Properties: Colorless liq.; fruity flowery odor; bitter taste; sol. in fixed oils, alcohol; insol. in water, glycerol, propylene glycol; m.w. 210.31; sp.gr. 0.896-0.913; vapor dens. 7.2; b.p. 253 C; flash pt. 99 C; ref. index 1.4570-1.4650

Toxicology: LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; TSCA listed

Precaution: Combustible liq.

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

### Geranly α-toluate

<table>
<thead>
<tr>
<th>Trade Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>See</td>
<td>Geranyl phenylacetate</td>
</tr>
</tbody>
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### German camphor oil

<table>
<thead>
<tr>
<th>Trade Name</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>See</td>
<td>Calamus oil</td>
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</table>

### Ghatti gum

<table>
<thead>
<tr>
<th>Trade Name</th>
<th>Description</th>
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<tbody>
<tr>
<td>See</td>
<td>Gum ghatti</td>
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</tbody>
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### GIE

<table>
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<tr>
<th>Trade Name</th>
<th>Description</th>
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<tbody>
<tr>
<td>See</td>
<td>2,2-Dimethyl-1,3-dioxolane-4-methanol</td>
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</table>

### Gingelly oil

<table>
<thead>
<tr>
<th>Trade Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>See</td>
<td>Sesame (Sesamum indicum)</td>
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### Ginger oil

<table>
<thead>
<tr>
<th>Trade Name</th>
<th>Description</th>
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<tbody>
<tr>
<td>See</td>
<td>Ginger (Zingiber officinale) oil</td>
</tr>
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### Ginger oleoresin

<table>
<thead>
<tr>
<th>Trade Name</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>See</td>
<td>Oleoresin ginger</td>
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### Gingerone

<table>
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<tr>
<th>Trade Name</th>
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<tbody>
<tr>
<td>See</td>
<td>Zingerone</td>
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</table>

### Ginger (Zingiber officinale) oil

<table>
<thead>
<tr>
<th>CAS</th>
<th>FEMA</th>
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<tbody>
<tr>
<td>8007-08-7; EINECS/ELINCS 283-634-2</td>
<td>2522</td>
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### Synonyms

<table>
<thead>
<tr>
<th>Trade Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ginger oil; Zingiber officinale oil;</td>
<td></td>
</tr>
</tbody>
</table>
Chemical Component Cross-Reference

†=pharmaceutical grade

oil
GLA. See γ-Linolenic acid
Glacial acetic acid. See Acetic acid, glacial
Glassy sodium. See Sodium hexametaphosphate
Glauber's salt. See Sodium sulfate
Glaze, pharmaceutical. See Pharmaceutical glaze
Glicerol. See Glycerin
Glidyl phenyl ether. See Phenyl glycidyl ether
GLn. See L-Glutamine
Glu. See L-Glutamic acid
Glucal. See Calcium gluconate
Glucan. See β-Glucan

β-Glucan
CAS 9012-72-0; 160872-27-5; EINECS/ELINCS 232-739-1
Synonyms: Betaglucan (INCI); Glucan; β-1,3-Glucan; β-d-Glucose homopolymer
Definition: Polysaccharide consisting of β(1-3) linked glucose chains carrying β(1-6) linked glucose side chains
Properties: Solid; insol. in cold water, sol. in alkaline sol'n.
Toxicology: May be harmful by inh., ing., or skin absorp.; may cause irritation
Hazardous Decomp. Prods.: Toxic fumes of CO, CO₂
Storage: Store and use with adequate ventilation
Uses: Moisturizer, emollient for pharmaceuticals; biological defense modifier that nutritionally activates immune response for therapeutic apps.; antioxidant; free radical scavenger; anti-aging supplement
Manuf./Distrib.: CarboMer
Kaden Biochems.
http://www.kadenbio.com

β-1,3-Glucan. See β-Glucan
1,4-D-Glucan glucanohydrolase. See Amylase

α-Glucan oligosaccharide
Synonyms: α-d-Glucose homopolymer
Classification: Glucose oligomer
Uses: Skin protectant
Trade Names: Bioecolia®

D-Gluconic acid, calcium salt (1:1) tetrahydrate. See Calcium saccharate
Glucosate, sodium. See Sodium

Handbook of Pharmaceutical Additives, Third Edition 1375
Gluconic acid calcium salt; D-Gluconic acid calcium salt; d-Gluconic acid, calcium salt (2:1).  See Calcium gluconate

Glucocic acid, cobalt salt.  See Cobalt gluconate

D-Gluconic acid, compd. with N,N’-bis (4-chlorophenyl)-3,12-diimino-2,4,11,13-tetraazaatetradecanediimidine (2:1).  See Chlorhexidine digluconate

D-Gluconic acid cyclic 4,5-ester with boric acid calcium salt.  See Calcium borogluconate

Gluconic acid, iron (II) salt, hydrate (2:1:2).  See Ferrous gluconate dihydrate

Gluconic acid δ-lactone; D-Gluconic acid δ-lactone.  See Gluconolactone

D-Gluconic acid magnesium salt; D-Gluconic acid, magnesium salt (2:1).  See Magnesium gluconate

Glucocic acid, manganese salt (2:1).  See Manganese gluconate

D-Gluconic acid monopotassium salt.  See Potassium D-gluconate

D-Gluconic acid monosodium salt.  See Sodium gluconate

Glucocic acid potassium salt; D-Gluconic acid potassium salt.  See Potassium D-gluconate

Glucocic acid sodium salt.  See Sodium gluconate

Gluconolactone

CAS 90-80-2; EINECS/ELINCS 202-016-5
α-D-Glucopyranose. See Glucose

α-D-Glucopyranoside, methyl octadecanoate (2:3). See Methyl glucose sesquisteareate

α-D-Glucopyranoside, 1,3,4,6-tetra-O-acetyl-β-D-fructofuranosyl-, tetraacetate. See Sucrose octaacetate

4-(α-d-Glucopyranosido)-α-glucopyranose. See Maltose

α-D-Glucopyranosiduronic acid, (3β,20β)-20-carboxy-11-oxo-30-norlean-12-en-3-yl-2-O-β-D-glucopyranuronosyl-, ammoniate. See Ammonium glycyrrhizinate

α-D-Glucopyranosiduronic acid, (3β,20β)-20-carboxy-11-oxo-30-norlean-12-en-3-yl-2-O-β-D-glucopyranuronosyl-, monoammonium salt. See Dipotassium glycyrrhizinate

7-α-D-Glucopyranosyl-9,10-dihydro-3,5,6,8-tetrahydroxy-1-methyl-9,10-dioxo-2-anthracene carboxylic acid. See Carminic acid

α-D-Glucopyranosyl β-D-fructofuranoside. See Sucrose

4-O-α-D-Glucopyranosyl-D-glucitol; 4-O-β-D-Glucopyranosyl-D-glucitol. See Maltitol

α-D-Glucopyranosyl-α-D-glucopyranoside. See Trehalose

α-D-Glucopyranosyl-1,6-α-D-glucopyranosyl-1,4-D-glucose. See D-Panose

O-α-D-Glucopyranosyl- (1→4)-O-α-D-gluco-pyranosyl-(1→4)-D-glucose. See Maltotriose

4-O-α-D-Glucopyranosyl-D-glucose. See Maltose

6-O-β-D-Glucopyranosyl-D-glucose. See Gentiobiose

4-O-α-Glucopyranosyl-D-sorbitol. See Maltitol

7-Glucopyranosyl 3,4,5,8-tetrahydroxy-1-methylantraquinone-2-carboxylic acid. See Carminic acid

Glucosaccharonic acid. See Erythorbic acid

Glucosamine

CAS 3416-24-8; EINECS/ELINCS 222-311-2

Synonyms: 2-Amino-2-deoxy-β-D-glucopyranose; 2-Amino-2-deoxyglucose; Chitosamine; D-Glucose, 2-amino-2-deoxy-

Classification: Organic compd.

Empirical: C₆H₁₃NO₅
Formula: $\text{CH}_2\text{OH}(\text{CH}_2\text{O})_3\text{CHNH}_2\text{CHO}$

Properties: Colorless needles; sol. in water; sl. sol. in methanol, ethanol; insol. in ether, chloroform; m.w. 179.20; m.p. 110 C (dec.)

Toxicology: Mutagen; TSCA listed

Uses: In treatment of rheumatic disorders, osteoarthritis, sports-related trauma; to treat joint pain, degenerative cartilage and connective tissue damage; dermatology; ophthalmology; veterinary medicine; nutritional supplements

Regulatory: Japan approved

Manuf./Distrib.: George Uhe http://www.uhe.com

Trade Names Containing: Seanamin BD LS 8460

Glucose
CAS 50-99-7 (anhyd.); 492-62-6 (anhyd.)
EINECS/ELINCS 200-075-1; 207-757-8

Synonyms: Blood sugar; Corn sugar; Dextrose; α-Dextrose; Dextrosol; Glucolin; α-D-Glucopyranose; D-Glucose; Grape sugar

Definition: Sugar obtained from the hydrolysis of starch; commercial prod. is the natural D(+) enantiomer monohydrate

Empirical: C$_6$H$_{12}$O$_6$

Formula: CHO(CH$_2$OH)$_4$CH$_2$OH

Properties: Colorless cryst. or wh. gran. powd., odorless, sweet taste; sol. in water, hot glacial acetic acid, pyridine, aniline; sl. sol. in alcohol, ether, acetone; m.w. 180.18 (anhyd.); dens. 1.544; m.p. 146-158 C

Toxicology: LD$_{50}$ (oral, rat) 25,800 mg/kg, (IV, mouse) 9 g/kg; LDLo (IP, mouse) 18 g/kg; mildly toxic by ing.; large doses can cause diabetes; experimental reproductive effects; questionable carcinogen; mutagenic data; TSCA listed

Precaution: Potentially explosive reaction with potassium nitrate + sodium peroxide on heating

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes; mixts. with alkali release CO on heating

Uses: Dietary supplement, flavor, nutritive sweetener for pharmaceuticals; excipient, sweetener, colorant, tonicity agent, tablet diluent/filler for pharmaceuticals

Regulatory: FDA 21CFR §73.85, 101.9, 133.124, 133.178, 133.179, 145.3, 145.134, 145.180, 145.181, 146.3, 146.132, 146.140,
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Chemical Component Cross-Reference</th>
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<tr>
<td><a href="http://www.mallbaker.com">http://www.mallbaker.com</a>; Merck KGaA†</td>
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<td><a href="http://www.merus.de">http://www.merus.de</a></td>
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<td>Mutchler† <a href="http://www.mutchlerchem.com">http://www.mutchlerchem.com</a>;</td>
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<td>Napier Brown Foods</td>
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<td><a href="http://www.napierbrown.co.uk">http://www.napierbrown.co.uk</a>; Penta Mfg.†</td>
</tr>
<tr>
<td><a href="http://www.pentamfg.com">http://www.pentamfg.com</a>; Peter Whiting</td>
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<td>Ltd† <a href="http://www.whiting-chemicals.co.uk">http://www.whiting-chemicals.co.uk</a>; Polysciences†</td>
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<td><a href="http://www.sigma-aldrich.com/belgium">http://www.sigma-aldrich.com/belgium</a>; Spectrum Quality Prods.†</td>
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<td>Spectrum Quality Prods.† <a href="http://www.spectrumchemical.com">http://www.spectrumchemical.com</a>; Sweeteners Plus</td>
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<td><a href="http://www.sweetenersplus.com">http://www.sweetenersplus.com</a>; Tate &amp; Lyle UK† <a href="http://www.tateandlyle.com">http://www.tateandlyle.com</a>; Thomas Scientific†</td>
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<tr>
<td><a href="http://www.thomassci.com">http://www.thomassci.com</a>; Ubicelm plc† <a href="http://www.ubicelm.com">http://www.ubicelm.com</a></td>
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<td>Univar Ltd† <a href="http://www.univar.co.uk">http://www.univar.co.uk</a>; Universal Preserv-A-Chem†</td>
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<tr>
<td><a href="http://www.upichem.com">http://www.upichem.com</a>; VWR Int'l.† <a href="http://www.vwrsp.com">http://www.vwrsp.com</a>; Varsal Instruments</td>
</tr>
<tr>
<td><a href="http://www.varsal.com">http://www.varsal.com</a>; Voigt Global</td>
</tr>
<tr>
<td>Distrib.† <a href="http://www.vgdllc.com">http://www.vgdllc.com</a></td>
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<tr>
<td>Trade Names: ADM Clintose® Dextrose A;</td>
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<td>ADM Clintose® Dextrose C; ADM Clintose® Dextrose F; ADM Clintose® Dextrose VF;</td>
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<td>Candex®; Clearsweet® 99 Refined Liquid</td>
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<td>Mushroom Extract; Reishi Mycelium Extract</td>
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### Glucose

**See D-(+)-Glucose monohydrate**

**D-Glucose. See Glucose**

**D-Glucose, 2-amino-2-deoxy-. See Glucosamine**

**α-d-Glucose homopolymer. See α-Glucan oligosaccharide**

**β-d-Glucose homopolymer. See β-Glucan**

### Glucose, liquid

**CAS 8027-56-3; 8029-43-4**

**Synonyms:** Corn syrup; Glucose syrup; Starch syrup

**Definition:** Obtained by the incomplete hydrolysis of starch, contg. principally dextrose, dextrins, maltose, and water

**Properties:** Colorless or ylsh. thick syrupy liq., odorless, sweet taste; misc. with water; sparingly sol. in alcohol

**HMIS:** Health 0, Flammability 1, Reactivity 0

**Uses:** Tablet binder, coating agent, diluent in pharmaceuticals, orals; nutrient in microbial fermentation

**Regulatory:** FDA approved for orals; NF compliance

**Manuf./Dist.:** Adept Sol'ns.; CarboMer†

**Trade Names:** Glucidex® IT21; Glucidex® IT29; Glucidex® IT33; Glucidex® IT38; Glucidex® IT47

### α-D-Glucose monohydrate

**See D-(+)-Glucose monohydrate**

### D-Glucose monohydrate

**CAS 5996-10-1; EINECS/ELINCS 200-075-1**

**Synonyms:** Bread sugar; Dextrose monohydrate

**Empirical:** C₆H₁₂O₆ • H₂O

**Properties:** Cryst.; m.w. 198.17; m.p. 83 C

**Toxicology:** LD₅₀ (IV, rabbit) 35 g/kg

**Hazardous Decomp. Prods.:** COₓ

**Storage:** Store @ R.T.

**Uses:** Sweetener, tonicity agent in pharmaceuticals, injectables (IM, IV), inhalers, orals

**Regulatory:** FDA 21CFR §184.1857, GRAS; FDA approved for injectables (IM, IV), inhalers, orals; BP, EP compliance

**Manuf./Dist.:** AMRESCO

**Trade Names:** Adept Sol'ns.; CarboMer†

**Trade Names Containing:** CarboMer†

**Pfanstiehl Europe†; Flukat†**

**Roquette† [http://www.roquette.fr](http://www.roquette.fr); Ruger†**

Chemical Component Cross-Reference

Quality Prods.†
http://www.spectrumchemical.com; Voigt
Global Distrib.† http://www.vgdllc.com

Trade Names: C*PharmDex 02010; C*PharmDex 02011; Lycadex® PF; Meritose 100; Meritose 200; Meritose 220; Meritose 300

D-(+)-Glucose monohydrate
CAS 14431-43-7
Synonyms: Dextrose monohydrate; α-D-Glucopyranose, monohydrate; Glucose; α-D-Glucose monohydrate
Definition: Sugar obtained from the hydrolysis of starch; commercial prod. is the natural D(+)-enantiomer monohydrate
Empirical: C6H12O6• H2O
Formula: CHO(CHOH)4CH2OH• H2O
Properties: Wh. cryst. powd., odorless, sweet taste; freely sol. in water; m.w. 198.17; sp. gr. 1.54; pH 5-7
Toxicology: Dust may cause eye and skin irritation; TSCA listed
Precaution: Avoid dust generation; emits toxic fumes under fire conditions
Hazardous Decomp. Prods.: COx
NFPA: Health 0, Flammability 1, Reactivity 0
Storage: Store in a cool, dry, well-ventilated area away from incompatible substances
Uses: Energy source for parenteral nutrition; osmotic agent in injectable solutions and dialysis solutions; treatment of hypoglycaemia
Regulatory: USP
Manuf./Distrib.: Aldrich† http://www.sigma-aldrich.com

Glucose oxidase
CAS 9001-37-0; EINECS/ELINCS 232-601-0
INS 1102
Synonyms: β-d-Glucose oxidase; Oxidase glucose
Definition: Enzyme which catalyzes the oxidation of glucose to gluconic acid; derived from Aspergillus niger
Properties: Amorphous powd. or crystal; sol. in water; m.w. = 186,000
Toxicology: LD50 (IP, mouse) 3 mg/kg, (IV, mouse) 13 mg/kg, (subcut., mouse) 4500 µg/kg; poison by subcut., IV, IP routes; TSCA listed
Storage: Store frozen (-15 to -22 C); hygroscopic; keep under argon
Uses: Enzyme, preservative in pharmaceuticals; stabilizer for Vitamins C and B12; mfg. of fertility and diabetic tests; ingred. in toothpaste for dental caries prophylaxis
Regulatory: FDA GRAS; Canada, UK, Japan approved
Manuf./Distrib.: AMRESCO
http://www.amresco-inc.com; Fluka
http://www.sigma-aldrich.com; Pangaea Sciences
http://www.pangaeasciences.com; Sigma
http://www.sigma-aldrich.com/belgium
Trade Names Containing: Sebomine SB12

β-d-Glucose oxidase. See Glucose oxidase
Glucose pentaacetate. See α-D-Glucose pentaacetate

α-D-Glucose pentaacetate
CAS 83-87-4; 604-68-2; EINECS/ELINCS 210-073-2
FEMA 2524
Synonyms: Glucopyranose pentaacetate; α-D-Glucopyranose, pentaacetate; Glucose pentaacetate; 1,2,3,4,6-Penta-O-acetyl-α-D-glucopyranose
Empirical: C16H22O11
Properties: M.w. 390.35; m.p. 111-113 C
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS
Manuf./Distrib.: Acros Org.
http://www.acros.com; Fluka
Indofine http://www.indofinechemical.com;
Kaden Biochems.
http://www.kadenbio.com
Lancaster Synthesis http://www.alfa.com;
SAFC Specialties http://www.safcspecialties.com;
Sigma http://www.sigma-aldrich.com/belgium;
TCI Am. http://www.tciamerica.com

Glucose syrup. See Glucose, liquid; Corn syrup
Glucose syrup solids. See Corn syrup solids
D-Glucoside, C16-C18 alkyl. See Cetearyl glucoside
Glucoside, decyl; D-Glucoside, decyl. See Decyl glucoside
D-glucoside, eicosyl. See Arachidyl glucoside
D-Glucoside, mixed octyl and decyl. See Caprylyl/capryl glucoside
(α-d-Glicosido)-β-d-fructofuranoside. See
Chemical Component Cross-Reference

**Sucrose**

4-(α-D-Glucosido)-d-glucose. See Maltose

**Glucuronic acid, sodium salt.** See Sodium glucuronate

**Glumin.** See L-Glutamine

Glusate; Glutacid; Glutamic acid; α-Glutamic acid. See L-Glutamic acid

**L-Glutamic acid**

CAS 56-86-0; EINECS/ELINCS 200-293-7

FEMA 3285; INS620; E620

**Synonyms:** α-Aminoglutaric acid; L-2-Aminoglutaric acid; 2-Aminopentanedioc acid; L-2-Aminopentanedioc acid; 1- Aminopropane-1,3-dicarboxylic acid; Glu; Glusate; Glutacid; Glutamic acid; α-Glutamic acid; Glutaminic acid; L-Glutaminic acid; Glutaminol; Glutaton

**Classification:** Amino acid

**Definition:** Commercially avail. as the naturally occurring L(+)-enantiomer in the form of the free base or hydrochloride salt

**Empirical:** C5H9NO4

**Properties:** Wh. free-flowing cryst. or cryst. powd., odorless; sl. sol. in water; m.w. 147.15; dens. 1.538 (20/4 C); m.p. 224-225 C; sublimes heated to 200 C

**Toxicology:** Human systemic effects by ing. and IV route (headache, vomiting); TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of NOx

**HMIS:** Health 0, Flammability 1, Reactivity 0

**Storage:** Store @ R.T.

**Uses:** Flavor enhancer, nutrient in pharmaceuticals; biochemical research; gastric medicine; infusion sol'ns.; diagnostic aids; raw material in peptide drugs

**Regulatory:** FDA 21CFR §172.320, 182.1047, max.), 182.1045, GRAS; FEMA GRAS; Japan approved; Europe listed; UK approved; BP, EP compliance; Canada DSL

**Manuf./Distrib.:** AMRESCO†

http://www.amresco-inc.com; Aceto†

http://www.aceto.com; Ajinomoto†

http://www.ajinomoto.co.jp; http://www.ajinomoto.com; Alfa Chem†

http://www.alfachem1.com; Am. Biorganics

Ashland† http://www.ashchem.com; Asiamerica Int'l.; Boith China†

http://www.boith.com; CarboMer†


†=pharmaceutical grade

Degussa AG/Health & Nutrition; Flamma Spa† http://www.flamma.it; Fluka http://www.sigma-aldrich.com; Fuerst Day Lawson http://www.fdl.co.uk; Integra†

http://www.integrachem.com

Kyowa Hakko USA† http://www.kyowa-usa.com; Mallinckrodt Baker†

http://www.mallbaker.com; Napp Tech.†


R.W. Greeff† http://www.pechiney-chemicals.com; RTD Hallstar†

http://www.rtdhallstar.com; Rochem Int'l.

http://www.rochemintl.com; Ruger†

http://www.rugerchemical.com; SAFC Specialties http://www.safcspecialties.com

Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality Prods.†

http://www.spectrumchemical.com; Synasia† http://www.synasia.com; Universal Preserv-A-Chem†

http://www.upichem.com


http://www.wegochem.com

Glutamic acid amide; Glutamic acid-5-amide; L-Glutamic acid 5-amide. See L-Glutamine

L-Glutamic acid, N-[4-(2-amino-1,4-dihydro-4-oxo-6-pteridinyl) methyl] amino] benzoyl]-. See Folic acid

L-Glutamic acid, N-coco acyl derivs., monosodium salts. See Sodium cocoyl glutamate

L-Glutamic acid hydrochloride

CAS 138-15-8; EINECS/ELINCS 205-315-9

**Synonyms:** L-2-Aminoglutaric acid hydrochloride; 2-Aminopentanedioic acid hydrochloride

**Empirical:** C5H9NO4 • CIH

**Formula:** HOOCCH2CH2CH(NH2)COOH • HCl

**Properties:** Orthorhombic bisphenoidal plates; m.w. 183.60; dec. 214 C

**HMIS:** Health 0, Flammability 1, Reactivity 0

**Storage:** Light-sensitive

**Uses:** Pharmaceutical injectables (IM, IV), orals; flavor; nutrient; dietary supplement

**Regulatory:** FDA 21CFR §172.320, 182.1047, GRAS; FDA approved for injectables (IM, IV), orals; Canada DSL
Chemical Component Cross-Reference


Glutamic acid, monosodium salt; Glutamic acid, sodium salt. See MSG γ-Glutamine. See L-Glutamine

L-Glutamine
CAS 56-85-9; EINECS/ELINCS 200-292-1
FEMA 3684
Synonyms: L-2-Amino-4-carboxamidebutanoic acid; 2-Amino-4-carbamoylbutanoic acid; 1-2-Amino glutaramidic acid; 2-Aminoglutaraic acid; Gln; Glumin; Glutamic acid amide; Glutamic acid-5-amide; L-Glutamic acid 5-amide; γ-Glutamine; Levoglutamid; Levoglutamide
Classification: Amino acid
Definition: Commercially avail. as the naturally occurring L(+)-enantiomer
Empirical: C5H10N2O3
Properties: Needles; sol. in water; pract. insol. in methanol, ethanol, ether, benzene, acetone, ethyl acetate, chloroform; m.w. 146.17; dec. 185-186 C
Toxicology: LD50 (oral, rat) 7500 mg/kg; mildly toxic by ing.; human systemic effects (euphoria); experimental reproductive effects
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx
Storage: Store @ R.T.
Uses: Flavor in pharmaceuticals; biochemical research; infusion solns.; diagnostic aids;
†=pharmaceutical grade

nutrient; dietary supplement; raw material in peptide drugs
Regulatory: FDA 21CFR §172.320, limitation 12.4%; FEMA GRAS; Japan approved; Canada DSL

Glutaminic acid; L-Glutaminic acid;
Glutaminol. See L-Glutamic acid
γ-Glutamylcysteineglycine. See Glutathione

Glutaral
CAS 111-30-8; EINECS/ELINCS 203-856-5
Synonyms: Glutaraldehyde; Glutaric dialdehyde; Pentanodial; 1,5-Pentanedial; Pentane-1,5-dial; 1,5-Pentanedione
Classification: Aliphatic dialdehyde
Empirical: C5H8O2
Formula: OHC(CH2)3CHO
Properties: Colorless oily liq.; pungent aldehyde odor; sol. in water, alcohol, benzene; m.w. 100.12; dens. 0.72; b.p. 188 C (dec.); f.p. -14 C; flash pt. none
Toxicology: ACGIH TLV/CL 0.2 ppm; LD50 (oral, rat) 468 mg/kg, (IP, rat) 17,900 µg/kg,
Chemical Component Cross-Reference

(subcut., rat) 2390 mg/kg, (dermal, rabbit) 795 mg/kg; poison by ing., IV, IP routes; mod. toxic by inh., skin contact, subcut. routes; severe eye and human skin irritant; experimental teratogen, reproductive effects; mutagenic data; TSCA listed

Precaution: Corrosive
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Disinfectant; sterilant for medical and dental equip., fiberoptic endoscopes; bactericidal, fungicidal, sporicidal, and virucidal activity; fixing agent in immobilization of enzyme preps.

Regulatory: FDA 21 CFR §172.230 (250 ppm max.), 173.320, 173.357, 175.105, 176.170, 176.180, 176.300; EPA reg. 10352-39; Japan MITI; Europe provisional list 0.1% max.; Canada DSL; TSCA listed

Storage: Refrigerate
Uses: Nutritional and metabolic research; pharmaceutical intramuscular injectables

Regulatory: FDA approved for intramuscular injectables; Canada DSL

Manuf./Distrib.: AMRESCO†
http://www.amresco-inc.com; Aldrich†
http://www.sigma-aldrich.com; Alfa Chem†
http://www.alfachem1.com; Allchem Ind.
http://www.allchem.com; Am. Int’l.†
http://www.aicma.com
BASF†
http://www.basf.com; Charkit
http://www.charkit.com; Dow†
http://www.dow.com; Fabrichem
http://www.fabricheminc.com; Fluka
http://www.sigma-aldrich.com
Integra†
http://www.integrachem.com;
Mallinckrodt Baker†
http://www.mallbaker.com; Sigma
http://www.sigma-aldrich.com/belgium;
Spectrum Quality Prods.†
http://www.spectrumchemical.com;
Synasia†
http://www.synasia.com
Thomas Scientific†
http://www.thomassci.com; Triple Crown
Am. http://www.triplecrownamerica.com;
VWR Int’l.†
http://www.vwrsp.com

Glutaraldehyde; Glutaric dialdehyde. See Glutaral

Glutaronitrile, 2-bromo-2-(bromomethyl). See Methyl dibromo glutaronitrile

Gluthathione
CAS 70-18-8; EINECS/ELINCS 200-725-4
Synonyms: Delthionine; γ-
Glutamylcysteinylglycine; L-Glutathione; Glutatiol; Glutatione; Glutide; Glutinal
Classification: Nonaromatic amide
Definition: A universal component of the living cell, contg. glutamic acid, cysteine, and glycine
Empirical: C_{10}H_{17}N_{3}O_{6}S
Properties: Wh. cryst. powd.; odorless; mild sour taste; sol. in water, dilute alcohol; m.w. 307.33; m.p. 192-195 C (dec.)
Toxicology: LD50 (oral, mouse) 5 g/kg, (IP, mouse) 4020 mg/kg, (subcut., mouse) 5 g/kg, (IV, mouse) 2238 mg/kg; mod. toxic by IV route; mutagen; experimental reproductive effector; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of SOx and NOx

Storage: Refrigerate
Uses: Nutritional and metabolic research; pharmaceutical intramuscular injectables

Regulatory: FDA approved for intramuscular injectables; Canada DSL

Manuf./Distrib.: AMRESCO†
http://www.amresco-inc.com; Aldrich†
http://www.sigma-aldrich.com; Alfa Chem†
http://www.alfachem1.com; Fluka
http://www.sigma-aldrich.com; Fuerst Day Lawson http://www.fdl.co.uk
GMI Prods.† http://www.gmi-originates.com; Kyowa Hakko Kogyo http://www.kyowa.co.jp; Reliable Biopharmaceutical†
http://www.reliablebiopharm.com; Sigma http://www.sigma-aldrich.com/belgium;
Spectrum Quality Prods.
http://www.spectrumchemical.com

L-Glutathione; Glutathione. See Glutathione

Glutaton. See L-Glutamic acid

Gluten. See Wheat (Triticum vulgare) gluten

Glutens, corn, hydrolyzed. See Corn gluten amino acids

Glutide; Glutinal. See Glutathione

Gly. See Glycine

Glycamil. See Ammonium glycyrrhizate

Glycyrrhiza. See Licorice (Glycyrrhiza glabra)

Glyceran esters of condensed castor oil fatty acids. See Polyglyceryl polyricinoleate

Glycereth-7
CAS 31694-55-0 (generic)
Synonyms: PEG-7 glyceryl ether; POE (7) glyceryl ether
Definition: PEG ether of glycerin with avg. ethoxylation value of 7
Properties: Nonionic
Uses: Humectant
Glycereth-26
CAS 31694-55-0 (generic)
Synonyms: PEG-26 glycercyel ether; POE (26) glycercyel ether
Definition: PEG ether of glycercin with avg. ethoxylation value of 26
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, humectant, lubricant for pharmaceuticals
Regulatory: FDA 21CFR §175.105
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com
Trade Names: DeTHOX GLG-7

Glycereth-7 triacetate
CAS 57569-76-3
Synonyms: PEG-7 glycercyel ether triacetate; POE (7) glycercyel ether triacetate
Definition: Triester of acetic acid with a PEG ether of glycercin containing an avg. 7 moles ethylene oxide
Empirical: C_{23}H_{42}O_{13}
Properties: Clear pale yel. liq., mild typ. odor; sol. in water; m.w. 526; sp.gr. 1.15; b.p. > 200 C
Toxicology: May cause mild skin and eye irritation on prolonged contact
Precaution: Incompat. with oxidizing agents
Storage: Store away from strong oxidizing agents; avoid excessive heat
Uses: Emollient
Trade Names: Pelemol® G7A

Glycerides. See Fish glycerides
Glycerides, C8-10. See Caprylic/capric glycerides
Glycerides, C18-36. See C18-36 acid triglyceride
Glycerides, coco; Glycerides, coconut, mono-, di-, and tri-. See Cocoglycerides
Glycerides, coconut oil mono-. See Glyceryl cocoate
Glycerides, cottonseed-oil, mono-, hydrogenated, acetates. See Acetylated hydrogenated cottonseed glyceride
Glycerides, hydrogenated lard mono-. See Hydrogenated lard glyceride
Glycerides, hydrogenated tallow mono-. See Hydrogenated tallow glyceride
Glycerides, lard mono-. See Lard glyceride
Glycerides, lard, mono-, di- and tri-. See Lard glycerides
Glycerides, lard mono-, di- and tri-, hydrogenated. See Hydrogenated lard glycerides
Glycerides, lard mono-, hydrogenated. See Hydrogenated lard glyceride
Glycerides, milk, hydroxylated. See Hydroxylated milk glycerides
Glycerides, mixed decanoyl and octanoyl. See Caprylic/capric triglyceride
Glycerides, palm kernel, mono-, di-, and tri-, hydrogenated. See Hydrogenated palm kernel glycerides
Chemical Component Cross-Reference

Glycerides, palm oil mono-. See Palm glyceride
Glycerides, palm oil mono-, di- and tri-. See Palm glyceride
Glycerides, palm oil mono-, di- and tri-, hydrogenated. See Hydrogenated palm glycerides
Glycerides, palm oil mono-, hydrogenated. See Hydrogenated palm glycerides
Glycerides, soya mono-, di- and tri-, hydrogenated. See Hydrogenated soya glycerides
Glycerides, soya mono-, hydrogenated; Glycerides, soybean oil, hydrogenated, mono. See Hydrogenated soya glycerides
Glycerides, sunflower oil mono-. See Sunflower seed oil glyceride
Glycerides, sunflower oil mono-, di- and tri-. See Sunflower seed oil glycerides
Glycerides, sunflower seed mono-. See Sunflower seed oil glyceride
Glycerides, sunflower seed mono-, di- and tri-. See Sunflower seed oil glycerides
Glycerides, tallow. See Oleostearine
Glycerides, tallow, hydrogenated. See Hydrogenated tallow glycerides
Glycerides, tallow mono-. See Tallow glyceride
Glycerides, tallow mono-, di- and tri-. See Tallow glycerides
Glycerides, tallow mono-, di- and tri-, hydrogenated. See Hydrogenated tallow glycerides
Glycerides, tallow mono-, hydrogenated. See Hydrogenated tallow glyceride
Glycerides, tallow mono-, hydrogenated, lactates. See Hydrogenated tallow glyceride lactate
Glycerides, wheat germ oil mono-, di- and tri-. See Wheat germ glycerides

Glycerin
CAS 56-81-5; EINECS/ELINCS 200-289-5
FEMA 2525; INS422; E422
Synonyms: Glicerol; Glycerine; Glycerol; Glycol alcohol, 1,2,3-Propanetriol; Propane-1,2,3-triol; Trihydroxypropane; 1,2,3-Trihydroxypropane; Trihydroxypropane glycerol
Classification: Polyhydric alcohol
Empirical: C3H8O3
Formula: HOCH2COHHCH2OH
Properties: Clear colorless syrupy liq., odorless, sweet taste; sol. in water, alcohol; insol. in ether, benzene, chloroform; m.w. 92.09; dens. 1.26201 (25/25 C); m.p. 17.8 C; b.p. 290 C (dec.); flash pt. (OC) 176 C; ref. index 1.4730 (25 C)

Toxicology: LD50 (oral, rat) > 20 ml/kg, (IV, rat) 4.4 ml/kg; poison by subcut. route; mildly toxic by ing.; human systemic and GI effects by ing.; skin and eye irritant; nuisance dust; human mutagenic data; TSCA listed
Precaution: Combustible liq. exposed to heat, flame, strong oxidizers; highly explosive with hydrogen peroxide; ignites on contact with calcium hypochlorite; explosive mixts. and violent reactions possible with many chems.

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
NFPA: Health 1, Flammability 1, Reactivity 0
Storage: Hygroscopic
Uses: Plasticizer, solvent, solubilizer; preservative, emollient, humectant, tonicity agent in pharmaceuticals, topicals, orals, parenterals, ophthalmics, IM injectables, rectals, dentifrices; prod. of antibiotics; ear wax softener; vehicle solvent for antimicrobials; sweetener; preservative @ > 20% conc.
Use Level: 0.2-65.7% (topicals), 1-50% (liq. orals), 50% (parenterals), 7-10% (dentifrices), 0.5-3.0% (ophthalmics)
Regulatory: FDA 21CFR §169.175, 169.176, 169.177, 169.178, 169.180, 169.181, 172.811, 172.866, 175.300, 175.320, 176.210, 177.1390, 177.2420, 177.2800, 182.90, 182.1320, GRAS; FEMA GRAS; 177.1390, 177.2420, 177.2800, 178.3500, 172.811, 172.866, 175.300, 175.320, 176.210, 177.1390, 177.2420, 177.2800, 182.90, 182.1320, GRAS; Canada DSL; FDA approved for orals, parenterals, ophthalmics, dentifrices, preservative, emollient, humectant, tonicity agent in pharmaceuticals, topicals, orals), 50% (parenterals), 7-10% (dentifrices), 0.2-65.7% (topicals), 1-50% (liq. orals), 50% (parenterals), 7-10% (dentifrices), 0.5-3.0% (ophthalmics)

Manuf./Distrib.: A&E Connock†
http://www.connock.co.uk; AAE Chemie NV† http://www.aaechemie.com; AB R Lundberg
http://www.norfoods.se/lundberg; ADA Int'l.
http://www.joinme.net/ada/index.htm; AMC Chems.†
<table>
<thead>
<tr>
<th>Chemical Component Cross-Reference</th>
<th>†=pharmaceutical grade</th>
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<tbody>
<tr>
<td>Agnique GLY96</td>
<td>Agnique GLY 99-U</td>
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### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Chemical Component</th>
<th>Synonyms or Additional Information</th>
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<tbody>
<tr>
<td>Glycon® G-100; Glycon® G-300; Kemstrene® 96.0% USP; Kemstrene® 99.7% USP; Moon™ Glycerine USP K</td>
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<tr>
<td>Moon™ Kosher Glycerine USP NK; Optim™ Glycerine 99.7; Pionier® Glycerine 86.5%; Pionier® Glycerine 99.5%; Pricerine™ 9081</td>
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</tr>
<tr>
<td>Pricerine™ 9083; Pricerine™ 9088; Pricerine™ 9091; Pricerine™ 9098; Pricerine™ 9099</td>
<td></td>
</tr>
<tr>
<td>Star™ Glycerine USP, FCC; Star™ K Glycerine USP, FCC; Star™ V Glycerine USP, FCC; Superol™ K (kosher); Superol™ NK</td>
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</tr>
<tr>
<td>Superol™ V (vegetable)</td>
<td></td>
</tr>
<tr>
<td>Trade Names Containing: Capmul® MCM8; Capmul® MCM-L; Capmul® MCM-L8; Comperlan® COD; Dermosaccharides® SEA DREWMULSE® GMC-810; Eumulgin® VL 75; GPG™ 3565; GPG™ 7030; Hispagel® 100 Hispagel® 200; Hydrapel® PL; Hydrapel® VM; Lubrajel® DV Free; Lubrajel® MS Lubrajel® RC; Lubrajel® RR; LustreClear™; Polyjel HV; STEPAN® GMS 63F</td>
<td></td>
</tr>
</tbody>
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### Glycerophosphocholine

**CAS:** 28319-77-9  
**Synonyms:** Choline alfosphcerate; D-Choline hydroxide 2,3-dihydroxypropyl hydrogen phosphate inner salt; (R)-2-[[2-(2,3-Dihydroxypropoxy)hydroxyphosphinyl]oxy]-N,N,N-trimethylthanolaminium hydroxide inner salt; L-α-Glycerophosphorylcholine; sn-Glycero-3-phosphorylcholine; L-α-Glycerylphosphorylcholine  
**Empirical:** C₃H₂₀NO₅P  
**Properties:** Wh. cryst.; sol. in water; m.w. 257.22; m.p. 142.5-143 C; sinters @ 141 C  
**Toxicology:** LD₅₀ (oral, mouse) > 13 g/kg, (IV, mouse) > 650 mg/kg  
**Storage:** Extremely hygroscopic  
**Uses:** Natural raw material for pharmaceuticals  
**Manuf./Distrib.:** Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)  
**L-α-Glycerophosphorylcholine; sn-Glycero-3-phosphorylcholine. See Glycerophosphocholine**  
**Glyceryl acrylate/acrylic acid copolymer**  
**CAS:** 9003-01-4 (generic)  
**Uses:** Ingrid. in pharmaceutical topicals  
**Trade Names Containing:** Lubrajel® DV Free; Lubrajel® MS  
**Glyceryl alginate**  
**Synonyms:** Alginic acid, glyceryl ester  
**Definition:** Ester of glycerin and alginic acid  
**Uses:** Film-former, moisturizer, carrier in
**Glyceryl behenate**

CAS: 6916-74-1; 30233-64-8; 77538-19-3
EINECS/ELINCS: 250-097-0

**Synonyms:** 2,3-Dihydroxypropyl docosanoate; Docosanoic acid, 2,3-dihydroxypropyl ester; Glyceryl monobehenate

**Definition:** Monoester of glycerin and behenic acid

**Empirical:** C_{25}H_{50}O_{4}

**Formula:** \( \text{CH}_3(\text{CH}_2)_{20}\text{COOCH}_2\text{CHOHCH}_2\text{OH} \)

**Properties:**
- Fine powd., faint odor; sol. in chloroform; pract. insol. in water and alcohol; m.p. 70 C; acid no. 4 max.; iodine no. 3 max.; sapon. no. 145-165

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Excipient, lubricant, binder for pharmaceutical tablets and capsules

**Regulatory:** FDA 21CFR §184.1328, GRAS; USP/NF compliance

**Manuf./Distrib.:** Degussa AG/Health & Nutrition; Zetapharm†

http://www.zetapharm.com

**Glyceryl caprate**

CAS: 26402-22-2; EINECS/ELINCS: 247-667-6

**Synonyms:** Decanoic acid, monoester with 1,2,3-propanetriol; Glyceryl monocaprate; Glyceryl monodecanoate

**Definition:** Monoester of glycerin and capric acid

**Empirical:** C_{11}H_{22}O_{4}

**Formula:** \( \text{CH}_3(\text{CH}_2)_{8}\text{COOCH}_2\text{COHHCH}_2\text{OH} \)

**Properties:**
- Nonionic
- Crystals; m.p. 39.5-40.5 C
- Toxology: TSCA listed
- Uses: Solubilizer, emulsifier, solvent, dispersant, solubilizer, vehicle, carrier, penetrant for pharmaceuticals; dispersant for drugs in capsules; solvent, solubilizer for active ingreds.
- Regulatory: FDA 21CFR §176.210, 177.2800

**Manuf./Distrib.:** A&E Connock
http://www.connock.co.uk; ABITEC†

http://www.abiteccorp.com

**Glyceryl caprylate/caprate**

**Synonyms:** Glyceryl mono(caprylate/caprate)

**Definition:** Mixture of monoglycerides of caprylic and capric acids

**Properties:** Nonionic

**Uses:** Emulsifier, emollient, solvent, dispersant, solubilizer, vehicle, carrier, penetrant for pharmaceuticals

**Regulatory:** FDA 21CFR §176.210, 177.2800

**Manuf./Distrib.:** A&E Connock

http://www.connock.co.uk

**Glyceryl cocoonate**

**Definition:** Monoester of glycerin and coconut fatty acids

**Formula:** \( \text{RCO–OCH}_2\text{COHHCH}_2\text{OH} \), \( \text{RCO–} \) represents the fatty acids derived from coconut oil

**Properties:** Nonionic
Glyceryl coconate. See Glyceryl cocoate

Glyceryl dicaprate
CAS 53988-07-1; EINECS/ELINCS 258-903-2
Synonyms: Decanoic acid, diester with 1,2,3-propanetriol; Dicaprin; Didecanoic acid, diester with glycerol
Classification: Saturated glyceride
Empirical: C23H44O5
Uses: Used in vitamin and mineral preps
Trade Names Containing: DREWMULSE® GMC-810

Glyceryl dicaprylate
CAS 36354-80-0; EINECS/ELINCS 252-992-1
Synonyms: Dicaprylin; Octanoic acid, diester with 1,2,3-propanetriol
Uses: Used in vitamin and mineral preps
Trade Names Containing: DREWMULSE® GMC-810

Glyceryl dilaurate
CAS 27638-00-2; EINECS/ELINCS 248-586-9
Synonyms: Dilaurin; Dodecanoic acid, diester with 1,2,3-propanetriol
Definition: Diester of glycerin and lauric acid
Empirical: C27H52O5
Formula: C11H23COOCH2CHCH2OHOCOC11H23
Properties: Wh. to off-wh. solid; sol. in min. oil, 95% ethanol, IPM, oleyl alcohol, castor oil; insol. in water, glycerin, propylene glycol; sapon. no. 219-229; ref. index 1.4520-1.4560 (35 C); nonionic
Toxicology: LD50 (oral, rat) > 5 g/kg; nonirritating to eyes and skin; TSCA listed
HMIS: Health 0, Flammability 1, Reactivity 0
Uses: Emulsifier, emollient, solubilizer, dispersant in pharmaceuticals
Features: Lipid
Regulatory: FDA 21CFR §175.105, 1876.210; Canada DSL

Glyceryl dioleate
CAS 25637-84-7; EINECS/ELINCS 247-144-2
Synonyms: GDO; Glycerol dioleate; 9-Octadecenoic acid, diester with 1,2,3-propanetriol
Definition: Diester of glycerin and oleic acid
Empirical: C39H72O5
Properties: Pale yel. liq.; HLB 1.8; nonionic
Toxicology: TSCA listed
HMIS: Health 0, Flammability 1, Reactivity 0
Uses: Surfactant, emulsifier, emollient, stabilizer, lubricant for pharmaceuticals
Regulatory: FDA 21CFR §175.105, 176.210, 177.2800; Canada DSL
Trade Names: Cithrol GDO N/E; Nofable GO-902; Nofable GO-992

Glyceryl distearate
INS471
Synonyms: Octadecanoic acid, diester with 1,2,3-propanetriol
Definition: Diester of glycerin and stearic acid
Empirical: C39H76O5
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, coemulsifier, stabilizer, wetting agent, lubricant in pharmaceuticals
Trade Names: Cithrol GDO S/E

Glyceryl dioleate SE
Properties: Anionic
Uses: W/o emulsifier, dispersant in pharmaceuticals
Trade Names: Capmul® GDL; Glicopol 2-G

Glyceryl distearate SE
EINECS/ELINCS 248-586-9
Uses: Surfactant, emulsifier, emollient, stabilizer, lubricant in pharmaceuticals
Regulatory: FDA 21CFR §175.105, 1876.210, 177.2800; Canada DSL
Trade Names: Cithrol GDO S/E

Glyceryl distearate
CAS 1323-83-7; EINECS/ELINCS 215-359-0
Synonyms: Octadecanoic acid, diester with 1,2,3-propanetriol
Definition: Diester of glycerin and stearic acid
Empirical: C39H76O5
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, coemulsifier, stabilizer, wetting agent, lubricant in pharmaceuticals, orals
Trade Names: Cithrol GDO S/E

Glyceryl distearate SE
Properties: Anionic
Uses: Emulsifier, coemulsifier, stabilizer, wetting agent, lubricant in pharmaceuticals
Trade Names: Cithrol GDO S/E
### Chemical Component Cross-Reference

**Regulatory:** USP/NF compliance; FDA 21CFR §175.105, 176.210, 177.2800; Europe listed; FDA approved for orals; Canada DSL

**Manuf./Distrib.:** A&E Connock  
[http://www.connock.co.uk](http://www.connock.co.uk); Sigma  
[http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)

**Trade Names:** Cithrol GDS N/E; Estol 3745; Estol 3748; STEPAN® GDS 386F

**Trade Names Containing:** STEPAN® GMS 63F

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### Glyceryl distearate SE

**Properties:** Anionic

**Uses:** Emulsifier, coemulsifier, stabilizer, wetting agent, lubricant for pharmaceuticals

**Trade Names:** Cithrol GDS S/E

### Glyceryl di/tripalmitostearate

**Uses:** Binder, lubricant in pharmaceutical tablets

### Glyceryl di/tristearate

**CAS:** 8067-32-1

**Synonyms:** Precirol

**Uses:** Excipient, coating agent, matrix agent for sustained-release pharmaceutical tablets

### Glyceryl formal

**CAS:** 4740-78-7; EINECS/ELINCS 225-248-9

**UN 1993**

**Synonyms:** 1,3-Dioxolane-4-methanol; Glycerin formal; Glycerol formal; 1,2-(Methylene) glycerol; Methyldinoglycerol

**Definition:** Mixt. of 5-hydroxy-1,3-dioxane and 4-hydroxymethyl-1,3-dioxolane

**Empirical:** C₄H₈O₃

**Properties:** Colorless clear liq., low odor; misc. with water; m.w. 104.11; dens. 1.218 (20/4 C); b.p. 95-97 C (20 mm); flash pt. 97 C; autoignition temp. 400 C; ref. index 1.451 (20 C); pH 4-7 (10%)

**Toxicology:** LD50 (oral, rat) 8.6 ml/kg; low toxicity

**NFPA:** Health 1, Flammability 1, Reactivity 0

**Storage:** Hygroscopic

**Uses:** Solvent for pharmaceuticals; vehicle for veterinary injectables (sulphadiazine and trimethoprin)

**Manuf./Distrib.:** DSM Chem. N. Am.; DSM Fine Chems. Austria  
[http://www.dsmfinechemicals.com](http://www.dsmfinechemicals.com); Degussa AG  
[http://www.degussa.com](http://www.degussa.com); Fluka  
[http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Haltermann GmbH†  
[http://www.haltermann.com](http://www.haltermann.com)

**Occidental**  
[http://www.oxychem.com](http://www.oxychem.com); Sigma  
[http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium); Xinchem†  
[http://www.finechemnet.com](http://www.finechemnet.com)

### Glyceryl hydroxystearate

**CAS:** 1323-42-8; EINECS/ELINCS 215-355-9

**Synonyms:** Glyceryl 12-hydroxystearate; Glyceryl mono-12-hydroxystearate; Hydroxystearic acid, monoester with glycerol

**Definition:** Monoester of glycerin and hydroxystearic acid

**Empirical:** C₂₁H₄₂O₅

**Properties:** Nonionic

**Toxicology:** TSCA listed

**Uses:** Emulsifier, emollient, opacifier, bodying agent, thickener for pharmaceuticals

**Regulatory:** FDA 21CFR §175.105, 176.170, 176.200, 177.1210, 177.2800; Canada DSL

**Manuf./Distrib.:** A&E Connock  
[http://www.connock.co.uk](http://www.connock.co.uk)

**Trade Names:** Naturechem® GMHS

### Glyceryl isostearate

**CAS:** 32057-14-0; 66085-00-5; 61332-02-3; EINECS/ELINCS 262-710-9; 266-124-4

**Synonyms:** Glycerol monoisostearate; Glyceryl monoisostearate; Isooctadecanoic acid, monoester with 1,2,3-propanetriol

**Definition:** Monoester of glycerin and isostearic acid

**Empirical:** C₂₁H₄₂O₄

**Properties:** Pale yel. paste or clear liq.; HLB 3.0; nonionic

**Toxicology:** Lethal when injected in large doses in mice; TSCA listed

**Uses:** Surfactant, emulsifier, dispersant, excipient for pharmaceuticals; emollient, lubricant, pearlescent, and w/o emulsifier for creams and lotions

**Manuf./Distrib.:** A&E Connock  
[http://www.connock.co.uk](http://www.connock.co.uk)

**Trade Names:** Emalex GWIS-100EX; Peceol Isostearique

**Trade Names Containing:** Protegin® W; Protegin® WX

### Glyceryl-lacto esters of fatty acids

**See** Lactic acid esters of mono- and diglycerides of fatty acids

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†=pharmaceutical grade
Chemical Component Cross-Reference

Glyceryl laurate
CAS 142-18-7; EINECS/ELINCS 205-526-6
Synonyms: Dodecanoic acid, 2,3-dihydroxypropyl ester; Dodecanoic acid, monoester with 1,2,3-propanetriol; Glycerol monolaurate; Glyceryl monolaurate; 1-Monolaurin
Definition: Monoester of glycerin and lauric acid
Empirical: C15H30O4
Formula: CH3(CH2)10COOCH2COHHCH2OH
Properties: Cream-colored paste, faint odor; disp. in water; sol. in methanol, ethanol, toluene, naphtha, min. oil; dens. 0.98; m.p. 23-27 C; HLB 5.2; pH 8-8.6; nonionic
Toxicology: LD50 (oral, rat) 53 g/kg; mildly toxic by ing.; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
HMIS: Health 0, Flammability 1, Reactivity 0
Uses: Emulsifier, emollient, stabilizer, solubilizer, carrier in pharmaceuticals; stabilizer, thickener, opacifier for creams and lotions
Regulatory: FDA 21CFR §175.105, 176.210, 177.2800, GRAS; Japan approved; Europe listed; Canada DSL
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk; ABITEC†
Danisco Cultor
http://ingredients.danisco.com; Degussa AG http://www.degussa.com; Gattefosse†
http://www.gattefossecorp.com; Global-Seven http://www.global-seven.com; Goldschmidt
Inolex http://www.inolex.com; Kraft Chem.†
http://www.kraftchemical.com; Lanaetex
Prods.; Lonza http://www.lonza.com; Mosselman NV http://www.mosselman.be; Mutchler† http://www.mutchlerchemistry.com;
http://www.pentamfg.com; Protameen
http://www.protameen.com; Ruger
http://www.rugerchemical.com
Sasol Germany† http://www.sasol.com; http://www.sasololefinssurfactants.com;
Stepan http://www.stepan.com; Thornley
http://www.thornleycompany.com; U.S.

†=pharmaceutical grade

Synthetics†; Uniqema Am.
http://www.uniqema.com
Universal Preserv-A-Chem†
http://www.upchem.com; VWR Int’l.†
http://www.vwr.com; Velsicol
http://www.velsicol.com
Trade Names: Aldo® MLD KFG; Colonial Lauricidin®; Colonial Monolaurin; Imwitor®
312
Trade Names Containing: Antil® HS 60; TEGO®-Betain HS

Glyceryl laurate SE
CAS 27215-38-9
Definition: Self-emulsifying grade of glyceryl laurate containing some sodium and/or potassium laurate
Uses: Emulsifier, coemulsifier, stabilizer, wetting agent, lubricant for pharmaceuticals
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk
Trade Names: Cithrol GML S/E; Lumulse® GML K

Glyceryl linoleate
CAS 2277-28-3; EINECS/ELINCS 218-901-4
Synonyms: Monolinolein; 9,12-Octadecadienoic acid, 2,3-dihydroxypropyl ester; 9,12-Octadecadienoic acid, monoester with 1,2,3-propanetriol
Definition: Monoester of glycerin and linoleic acid
Empirical: C21H38O4
Properties: Nonionic
Uses: Emollient, emulsifier in pharmaceuticals; matrix material for sustained-release formulations, gelatin capsules
Regulatory: USP/NF compliance
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk; Sigma
http://www.sigma-aldrich.com/belgium
Trade Names: Maisine® 35-1

Glyceryl monobehenate. See Glyceryl behenate
Glyceryl monocaprate. See Glyceryl caprate
Glyceryl monocaprylate. See Glyceryl caprylate
Glyceryl mono(caprylate/caprate). See Glyceryl caprate/caprylate
Glyceryl monodecanoate. See Glyceryl caprate
**Glyceryl mono/diisostearate**

CAS: 68958-48-5

**Synonyms:** Glycerol diisostearate; Isooctadecanoic acid, diester with 1,2,3-propanetriol

**Empirical:** C_{39}H_{76}O_{5}

**Properties:** M.w. 625.03

**Uses:** Surfactant for medical pharmaceuticals

**Trade Names:** Emalex GWIS-200EX

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**Glyceryl mono/dioleate**

CAS: 25496-72-4 (generic); 68424-61-3 (generic)

**Synonyms:** 9-Octadecenoic acid (Z)-, monoester with 1,2,3-propanetriol

**Empirical:** C_{21}H_{40}O_{4}

**Properties:** Yel. oil or soft solid; m.w. 356.61; dens. 0.95; m.p. 14-19 C; nonionic

**Toxicology:** Primary irritant; TSCA listed

**Precaution:** Combustible

**Uses:** Emulsifier, solubilizer for pharmaceuticals

**Regulatory:** Canada DSL

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**Glyceryl 1-mono-12-hydroxy-cis-9-octadecenoate.** See Glyceryl ricinoleate

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**Glyceryl monohydroxy stearate; Glyceryl mono-12-hydroxystearate.** See Glyceryl stearate

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**Glyceryl monooleate.** See Glyceryl oleate

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**Glyceryl monopalmitate.** See Glyceryl palmitate

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**Glyceryl monoricinoleate; Glyceryl 1-monoricinoleate.** See Glyceryl ricinoleate

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**Glyceryl monostearate SE.** See Glyceryl stearate SE

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**Glyceryl monostearate.** See Tristearin

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**Glyceryl myristate**

CAS: 589-68-4; 27214-38-6; EINECS/ELINCS 248-329-0

**Synonyms:** Glyceryl monomyristate; Monomyristin; Tetradecanoic acid, monoester with 1,2,3-propanetriol

**Definition:** Monoester of glycerin and myristic acid

**Empirical:** C_{17}H_{34}O_{4}

**Formula:** CH_{3}(CH_{2})_{12}COOCH_{2}COHHCH_{2}OH

**Properties:** Nonionic

**Toxicology:** TSCA listed
Chemical Component Cross-Reference

†=pharmaceutical grade

Nofable GO-901; Nofable GO-901P; Nofable GO-991; Nofable GO-991H; Nofable GO-991P
Pecol®; Rheodol MO-60; Tegin® O; Tilol GP-O

Trade Names Containing: Arlacel® 186; Oxynex® 2004; Oxynex® LM; Protegin®; Protegin® X

Glyceryl oleate SE
CAS 111-03-5; 25496-72-4 (generic)
FEMA 2526

Synonyms: Monoolein; Oleyl monoglyceride
Definition: Self-emulsifying grade of glyceryl oleate that contains some sodium and/or potassium oleate
Empirical: C_{21}H_{40}O_{4}
Properties: M.w. 356.61
Toxicology: Primary irritant; TSCA listed
Uses: Emulsifier, coemulsifier, stabilizer, wetting agent, lubricant for pharmaceuticals
Regulatory: Canada DSL
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk; Fluka
http://www.sigma-aldrich.com; Sigma
http://www.sigma-aldrich.com/belgium

Glyceryl palmitate
CAS 26657-96-5; EINECS/ELINCS 247-887-2

Synonyms: Glyceryl monopalmitate; Hexadecanoic acid, 2,3-dihydroxypropyl ester; Hexadecanoic acid, monoester with 1,2,3-propanetriol
Empirical: C_{19}H_{38}O_{4}
Formula: CH_{3}(CH_{2})_{14}COOCH_{2}CHOHCH_{2}OH
Properties: Nonionic
Uses: Emollient, surfactant for pharmaceuticals, rectals, topicals
Regulatory: FDA approved for rectals, topicals; Canada DSL
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk; Fluka
http://www.sigma-aldrich.com; Sigma
http://www.sigma-aldrich.com/belgium

Glyceryl palmitate/stearate
CAS 8067-32-1

Synonyms: Glyceryl palmitostearate; Glyceryl stearate palmitate
Classification: Triester
Definition: Monoester of glycerin and a blend of palmitic and stearic acids
Empirical: C_{63}H_{116}O_{12}
Properties: Nonionic
Uses: Excipient, emollient, lubricant, binder, suspending agent, thickener in
Chemical Component Cross-Reference

pharmaceuticals
Regulatory: FDA 21CFR §176.210, 177.2800, 184.1329, GRAS
Manuf./Distrib.: A&E Connock†

Gluceryl palmitostearate. See Glycerol palmitate/stearate

L-α-Glycerylphosphorylcholine. See Glycerophosphocholine

Glyceryl polyacrylate
Definition: Ester of glycerin and polyacrylic acid
Uses: Film-former in pharmaceutical topicals
Trade Names Containing: Hispagel® 100; Hispagel® 200

Glyceryl polymethacrylate
CAS 37310-95-5
Synonyms: Polyglycerylmethacrylate
Definition: Ester of glycerin and polymethacrylic acid
Uses: Autoclavable lubricant, moisturizer for medical/surgical use, for pre-lubricating catheters, thermometers, enema tips
Trade Names: Norgel
Trade Names Containing: Aloe-Moist™; Lubrajan® CG; Lubrajan® Oil; Lubrajan® TW; Lubrajan® WA; Lubrasil® DS

Glyceryl ricinoleate
CAS 141-08-2; EINECS/ELINCS 205-455-0
Synonyms: Glycerol monoricinoleate; Glycerol 1-monoricinoleate; Glycerol ricinoleate; Glycerol 1-mono-12-hydroxy-cis-9-octadecenoate; Glycerol monoricinoleate; Glycerol 1-monoricinoleate; GMRO: 12-Hydroxy-9-octadecenoic acid 2,3-dihydroxypropyl ester; 12-Hydroxy-9-octadecenoic acid, monoester with 1,2,3-propanetriol; Monoricinolein; α-Monoricinolein

GLyceryl ricinoleate SE
Synonyms: Glycerol triricinoleate SE
Properties: Anionic
Uses: Emulsifier, coemulsifier, stabilizer, wetting agent, lubricant in pharmaceuticals

Glyceryl rosinate
CAS 8050-31-5; 977035-48-5; EINECS/ELINCS 232-482-5
INS915
**Chemical Component Cross-Reference**

**Synonyms:** Glycerol ester of rosin; Glycerol ester of wood rosin; Glycerol monorosinate; Rosin, glyceryl ester; Rosin, gum, glycerol ester; Rosin gum, glyceryl ester

**Classification:** Thermoplastic resin gum

**Definition:** Monoester of glycerin and mixed long chain acids derived from rosin

**Properties:** Drop soften. pt. 88-96 C

**Hazardous Decomp. Prods.:** Heated to decox., emits acrid smoke and irritating fumes

**Uses:** Film-former in pharmaceuticals

**Regulatory:** FDA 21CFR §172.615, 172.735, limitation 100 ppm in finished beverage, 175.105, 175.300, 175.320, 178.3120, 178.3800, 178.3870; Canada DSL

**Manuf./Distrib.:** Marlin Chems. Ltd

http://www.marlinchemicals.co.uk

**Glycerol stearate**

CAS 123-94-4 (pure grade); 11099-07-3 (crude grade); 31566-31-1 (generic); 85666-92-8 (generic); 85251-77-0; EINECS/ELINCS 240-664-4; 234-325-6; 250-705-4; 286-490-9

FEMA 2527; INS471

**Synonyms:** 2,3-Dihydroxypropyl octadecanoate; Glycerin monostearate; Glycerol monostearate; Glycerol stearate; Glycerol monostearate; GMS; Monostearin; Octadecanoic acid, monoester with 1,2,3-Propanetriol; 1,2,3-Propanetriol octadecanoate; Stearic acid, monoester with glycerol; Stearic monoglyceride

**Classification:** Aliphatic carboxylic acid ester

**Definition:** Monoester of glycerin and stearic acid

**Empirical:** C21H42O4

**Formula:** CH3(CH2)16COOCH2COHHCH2OH

**Properties:** Wh. to cream wax-like flakes, sl. fatty odor and taste; sol. in hot org. solvs.; insol. in water, ethanol, glycerin, propylene glycol; disp. in min. oil; m.w. 358.57; sp.gr. 0.97; m.p. 56-59 C; b.p. 238-240 C; HLB 3.8; acid no. 6 max.; iodine no. 3 max.; sapon. no. 162-175; hyd. no. 300-330; flash pt. (OC) 230 C; pH 9.3 (3%); nonionic

**Toxicology:** ACGIH TLV/TWA 10 mg/l (stearates); LD50 (IP, mouse) 200 mg/kg; poison by IP route; TSCA listed

**Precaution:** Combustible dust; incomp. with oxidizing materials (increased risk of fire and explosion)

**Hazardous Decomp. Prods.:** Heated to decox., emits acrid smoke and irritating
Chemical Component Cross-Reference

Functional Foods†
http://www.functionalfoods.com
GMI Prods.† http://www.gmi-originates.com; Gallard-Schlesinger Ind.†
http://www.gallard-schlesinger.com; Gatetfosse†
http://www.gatetfossescorp.com;
Goldschmidt†; Hart Prods.
Honeywill & Stein†
http://www.honeywill.co.uk; Inolex†
http://www.inolex.com; Integra†
http://www.integrachem.com; Jarchem Ind.
http://www.jarchem.com; Koster Keunen
http://www.kosterkeunen.com
Kraft Chem.†
Lanaetex Prods.; Lipo
http://www.lipochemicals.com
Lonza† http://www.lonza.com; Moselmann NV http://www.moselmann.be; Mutchler†
http://www.mutchlerchem.com; Nordmann
Rassmann GmbH http://www.nrc.de;
Norman, Fox http://www.norfoxx.com
PPG Ind.† http://www.ppg.com;
http://www.ppgchloralkali.com; Penta Mfg.†
http://www.pentamfg.com; Peter Whiting Ltd http://www.whiting-chemicals.co.uk;
Phoenix Nat. Prods.
http://www.phoenixuk.com; Protameen†
http://www.protameen.com
Quest Int'l. http://www.questintl.com;
RITA† http://www.ritacorp.com; RTD
Hallstar† http://www.rtdhallstar.com;
Rhodia HPCI II http://www.rhodia-hpcii.com;
Riken Vitamin http://www.riken-vita.co.jp
Ruger http://www.rugerchemical.com;
Sasol Germany† http://www.sasol.com;
http://www.sasololefinssurfactants.com;
Seppic† http://www.seppic.com; Spectrum
Quality Prods.†
http://www.spectrumchemical.com; Stepan†
http://www.stepan.com
Total Petrochemicals Bruxelles†
http://www.totalpetrochemicals.biz; Unipex
http://www.unipex.com; Uniqema Am.†
http://www.uniqema.com; Univar Ltd†
http://www.univar.co.uk; Universal Preserv-
A-Chem† http://www.upichem.com
Van Den Burg Eiprodukten BV; Venus
Ethoxyethers http://www.venus-goa.com

†=pharmaceutical grade
Cerasynt® SD; Citrol GMS 0400; Citrol GMS N/E; Cutina® MD; Cutina® MD-A
DREWMULSE® 200K; Emalex GMS-B;
Emalex GMS-F; Geleo®; Imwitor® 191
Imwitor® 491; Imwitor® 900; Imwitor® 900 K;
Imwitor® 900 P; Lexemul® 515
Lonzest® GMS-C; Lumulse® GMS K; MGS-
AV; MGS-B; MGS-F20V
MGS-F40V; MGS-F50; MGS-F75V; Mazol®
GMS-K; Monestriol GP
Monestriol GP-40-DC; Nissan Monogly M;
Rheodol MS-50; Rheodol MS-60; Rheodol
MS-165
Sabowax GMS; STEPAN® GMS 63F;
STEPAN® GMS Pure; Tegin® 90; Tegin®
515 VA
Tegin® 4100; Tegin® M; Zohar GLST

Trade Names Containing: Aldosperse® O-20
KFG; Arlacel® 165V; Arlatone® 983S
Pharma; Cerasynt® 945; Cerasynt® WM
Emulgade® SE; Emulgade® SE-PF; Gelot
64®; Lexemul® AR; Lexemul® AS
Lumulse® GMS-A; MGS-DEXV; Mazol®
165C; Oxynex® 2004; Oxynex® LM
Pionier® OEW-11; Pionier® OW 350;
Prolipid® 141; Ria GMS-55G; Ria GMS-90
Sabowax BWS; Simulsol® 165; STEPAN®
GMS 63F; Tefose® 2561; Tegacid® Special
Teginacid®; TEGO® Care 150; Tewax TC 65

Glyceryl stearate
citrate
CAS 39175-72-9; 58840-13-6; 86418-55-5;
EINECS/ELINCS 259-855-5
Synonyms: 2-Hydroxy-1,2,3-
propanetricarboxylic acid, monoester with
1,2,3-propanetriol monoocadecanoate;
1,2,3-Propanetricarboxylic acid, 2-hydroxy-
ester with 1,2,3-propanetriol
monooctadecanoate; Stearyl glyceridyl
citrate; Stearyl monoglyceridyl citrate

Definition: Citric acid ester of glyceryl stearate
Empirical: C_{27}H_{48}O_{10}
Properties: Off-wh. to tan soft waxy solid, pract.
tasteless; sol. in chloroform, ethylene glycol;
insol. in water; acid no. 40-52; sapon. no. 215-
tasteless; sol. in chloroform, ethylene glycol;

Hazardous Decomp. Prods.: Heated to
decom., emits acrid smoke and irritating
fumes
Uses: Emollient, emulsifier, stabilizer,
consistency agent, solubilizer for
pharmaceuticals

Trade Names: Aldo® MS KFG; Animal GMS;
Capmul® GMS-50; Capmul® GMS-50K;
Cerasynt® GMS

USDA 9 CFR §318.7
Chemical Component Cross-Reference

Trade Names: Imwitor® 370; Imwitor® 372 P

Glyceryl stearate palmitate. See Glyceryl palmitate/stearate

Glyceryl stearate SE
CAS 31566-31-1 (generic); 11099-07-3; 85666-92-8 (generic); 977053-96-5; EINECS/ELINCS 234-325-6; 286-490-9

Synonyms: Glyceryl monostearate SE; GMS-SE

Definition: Self-emulsifying grade of glyceryl stearate contg. some sodium and/or potassium stearate

Empirical: C_{21}H_{42}O_{4}

Properties: Wh. to cream flakes; sol. in oleyl alcohol; partly sol. in water, veg. oil, ethanol, propylene glycol; m.w. 358.63; m.p. 57-59 C; HLB 11.0; sapon. no. 150-160; anionic

Toxicology: LD50 (IP, mouse) 200 mg/kg; TSCA listed

HMIS: Health 1, Flammability 0, Reactivity 0

Uses: Aux. emulsifier, emollient, solubilizer in pharmaceuticals, topicals

Regulatory: FDA approved for topicals; Canada DSL

Manuf./Distrib.: A&E Connock
http://www.connock.co.uk; Mosselman NV
http://www.mosselman.be; Ruger
http://www.rugerchemical.com

Trade Names: Cerasyn® Q; Cithrol GMS S/E; Cutina® KD; Emalex GMS-8C; Emalex GMS-10SE
Emalex GMS-35SE; Emalex GMS-45RT; Emalex GMS-50; Emalex GMS-55FD; Emalex GMS-66SE
Emalex GMS-195; Glicepol 560; Imwitor® 960; Imwitor® 960 Flakes; Lipo GMS-470 Pastille
MGS-ASE; Mazol® GMS-D; Polypax GMS SE; Rheodol MS-165V; Tegin®
Zohar GLST SE

Trade Names Containing: Cithrol GMS A/S; Imwitor® 960K; MGS-DEXV

Glyceryl triacetate. See Triacetin

Glyceryl tri-(12-acetylricinoleinol). See Glyceryl tricaprylate

Glyceryl tricaprylate/caprate. See Caprylic/capric triglyceride

Glyceryl triacetate. See Tributyrin

Glyceryl tricaprylate. See Tricaprin

Glyceryl tricaprylate/caprate. See Tricaprylin

Glyceryl tricapryl. See Tricaprin

Glyceryl tricaprylate/caprate. See Trilaurin

Glyceryl tri(2-ethylhexanoate). See Trioctanoin
Chemical Component Cross-Reference

Glyceryl triheptanoate
CAS 620-67-7; EINECS/ELINCS 210-647-2
Synonyms: Glycerol triheptanoate; Heptanoic acid 1,2,3-propanetriyl ester; Propane-1, 2, 3-triyl trisheptanoate; Triheptanoin
Empirical: C24H44O6
Uses: Emollient, plasticizer, solubilizer for pharmaceuticals
http://www.connock.co.uk

Glyceryl tri (12-hydroxystearate). See Trihydroxystearin

Glyceryl trilinoleate. See Trilinolein

Glyceryl trioctanoin. See Trimyristin

Glyceryl trioleate. See Triolein

Glyceryl tripalmitate. See Tripalmitin

Glyceryl tripalmitanoate. See Glyceryl tripalmitate

Glyceryl tripalmitoate
CAS 139-45-7; EINECS/ELINCS 205-365-1
FEMA 3286
Synonyms: Glycerol tripalmitoate; Glyceryl tripalmitoate; Tripalmitin
Classification: Nonaromatic ester
Empirical: C32H56O6
Formula: C3H5(OCOC2H5)3
Properties: Solid; sol. in alcohol, 0.313% in water; m.w. 260.32; dens. 1.078 (20 °C); ref. index 1.4330
Toxicology: LD50 (IV, mouse) 840 mg/kg; TSCA listed
NFPA: Health 0, Flammability 1, Reactivity 0
Uses: Flavor for pharmaceuticals
Regulatory: FEMA GRAS; Canada DSL
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: Epiol OH

Glycidyl alcohol. See Glycidol

Glycidyl phenyl ether. See Phenylglycidyl ether

Glycine
CAS 56-40-6; EINECS/ELINCS 200-272-2
FEMA 3287; INS640; E640
Synonyms: Aminoacetic acid; Gly; Glycocoll; Glycollixir
Classification: Aminoacidic acid
Empirical: C2H5NO2
Formula: H2NCH2COOH
Properties: Wh. cryst. or cryst. powd., odorless, sweet taste; sol. in water; very sl. sol. in alcohol, ether; m.w. 75.08; dens. 1.1607; m.p. 232-236°C (dec.)
Toxicology: LD50 (oral, rat) 7930 mg/kg, (subcut., rat) 5200 mg/kg, (IV, rat) 2600 mg/kg; mod. toxic
Chemical Component Cross-Reference

by IV route; mildly toxic by ing.; mutagenic data; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx

HMIS: Health 1, Flammability 0, Reactivity 0

Storage: Store @ R.T.

Uses: Nutrient, dietary supplement, buffer in pharmaceuticals, injectables (IM, IV, SC), oral, rectal; in irrigation solutions; gastric antacid; biochemical research; infusion solns.; in irrigant solutions; orals, rectals

Regulatory: FDA 21CFR §170.50, GRAS for animal feed (582.5049), 172.320, limitation 3.5%, 172.812, 0.2% in finished beverage; USDA 9CFR §318.7, 0.01% in rendered animal fat; Japan approved; FEMA GRAS; USDA 9CFR §318.50, 0.01% in rendered animal feed (582.5049), 172.320, limitation 3.5%, 172.812, 0.2% in finished beverage; FDA approved for injectables (IM, IV, SC), orals, rectals; USP/NF, BP, EP compliance


Generichem† http://www.generichem.com; Hamari Chems.†

†=pharmaceutical grade


Glycine, N-benzyol-. See Hippuric acid

Glycine betaine. See Betaine

Glycine betaine hydrochloride. See Betaine hydrochloride

Glycine, N-[2-[(2,6-bis(1-methylethyl)phenyl]amino]-2-oxoethyl]-N-(carboxymethyl)-. See Disofenin

Glycine, N,N´-1,2-ethanediylbis[N-(carboxymethyl)-], disodium salt dihydrate. See Disodium EDTA

Glycine soja; Glycine soja oil; Glycine soja (soybean) lipids. See Soybean (Glycine soja) oil

Glycine soya protein. See Soybean (Glycine soja) protein

Glycinol. See Ethanolamine

Glycoccoll. See Glycine
Glycocol betaine. See Betaine
Glycocol betain hydrochloride. See Betaine hydrochloride

Glycogen
CAS 9005-79-2; EINECS/ELINCS 232-683-8
Synonyms: Animal starch; D-Glycogen; Liver starch; Lyoglycogen; Phytoglycogen
Classification: Nonaromatic alcohol
Definition: Glycose polysaccharide found esp. in liver and rested muscle
Empirical: (C₆H₁₀O₅)ₙ
Properties: Wh. powd., sweet taste; insol. in alcohol, sol. in water with opalescence; m.w. (162.07)ₓ, m.p. 240 C
Toxicology: TDL₀ (parenteral, mouse) 160 µg/kg; experimental reproductive effector; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating vapors
Storage: Hygroscopic; refrigerate
Uses: Biochemical research
Regulatory: Canada DSL
Trade Names Containing: Dermosaccharides® SEA

D-Glycogen. See Glycogen
Glycogenase. See Amylase
Glycogenic acid. See D-Gluconic acid
Glycol (INCI); Glycol alcohol. See Ethylene glycol
Glycol bis (hydroxyethyl) ether. See Triethylene glycol
Glycol carbonate. See Ethylene carbonate
Glycol dichloride. See Ethylene dichloride

Glycol dilaurate
CAS 624-04-4; EINECS/ELINCS 210-827-0
Synonyms: Dodecanoic acid 1,2-ethanediyl ester; Ethylene glycol dilaurate; Lauric acid, 1,2-ethanediyl ester
Definition: Diester of ethylene glycol and lauric acid
Empirical: C₂₆H₅₀O₄
Formula:
CH₃(CH₂)₁₀COOCH₂CH₂O(OH)(CH₂)₁₀CH₃
Properties: Wh. to yel. powd.; m.w. 595.00; dens. 0.97; m.p. 60 C; HLB 1.6; flash pt. (COC) 171 C; nonionic
Toxicology: TSCA listed
Uses: Surfactant, emollient, emulsifier, thickener, pearlescent, opacifier, lubricant in pharmaceuticals
Regulatory: FDA 21CFR §73.1, 176.210; Canada DSL
Trade Names: Kemester® EGDS; Pegosperse® 50 DS; Sabowax EGDS; Tegin® G 1100

Glycol ether. See Diethylene glycol
Glycol ether EE. See Ethoxyethanol
Glycol ethylene ether. See 1,4-Dioxane
Glycol ethyl ether. See Diethylene glycol; Ethoxyethanol

Glycol hydroxystearate
CAS 33907-46-9; EINECS/ELINCS 251-732-4
Synonyms: Ethylene glycol monohydroxystearate; Glycol monohydroxystearate; 2-Hydroxyethyl hydroxyoctadecanoate; Hydroxyoctadecanoic acid, 2-hydroxyethyl ester
Chemical Component Cross-Reference

Definition: Ester of ethylene glycol and hydroxystearic acid
Empirical: C_{20}H_{40}O_{3}
Formula: CH_{3}(CH_{2})_{16}COOCH_{2}CH_{2}OH
Properties: Wh. to yel. waxy solid; sol. in alcohol, hot ether, toluene, acetone; insol. in water, hexane; m.w. 328.60; dens. 0.96 (25 C); m.p. 55-60 C; b.p. 149 C; HLB 2.9; nonionic

Toxicology: LD50 (IP, mouse) 200 mg/kg; poison by IP route; primary skin irritant; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
HMIS: Health 1, Flammability 0, Reactivity 0
Uses: Excipient, surfactant, opacifier, pearlescent, emollient, emulsifier, visc. control agent, solubilizer in pharmaceuticals; base in topicals
Regulatory: FDA 21CFR §176.210; FDA approved for topicals; Canada DSL

Manuf./Distrib.: A&E Connock
http://www.connock.co.uk

Glycolic acid, phenyl-.
See Mandelic acid

Glycolic acid phenyl ether.
See Phenoxyacetic acid

Glycollixir.
See Glycine

Glycolic acid phenyl ether.
See Phenoxyacetic acid

Glycol monoethyl ether.
See Ethoxyethanol

Glycol monohydroxystearate.
See Glycol hydroxystearate

Glycol monomethyl ether.
See Methoxyethanol

Glycol monophenyl ether.
See Phenoxyethanol

Glycol monostearate.
See Glycol stearate

Glycols, polyethylene, monohexadecyl ether.
See Ceteth

Glycols, polyethylene, mono-9-octadecenyl ether, (Z)-.
See Oleth

Glycols, polyethylene, monostearate.
See PEG stearate

Glycols, polytetramethylene.
See Polytetramethylene ether glycol

Glycol stearate
CAS 111-60-4; 9004-99-3 (generic); 97281-23-7
EINECS/ELINCS 203-886-9; 306-522-8

Synonyms: EGMS; Ethylene glycol monostearate; Ethylene glycol stearate; Glycol monostearate; 2-Hydroxyethyl ester stearic acid; 2-Hydroxyethyl octadecanoate; 2-Hydroxyethyl stearate; Octadecanoic acid, 2-hydroxyethyl ester; PEG-1 stearate; POE (1) stearic acid; Stearic acid, monooester with ethylene glycol

Definition: Ester of ethylene glycol and stearic acid
Empirical: C_{20}H_{40}O_{4}
Formula: CH_{3}(CH_{2})_{16}COOHCH_{2}CH_{2}OH
Properties: Wh. to yel. waxy solid; sol. in alcohol, hot ether, toluene, acetone; insol. in water, hexane; m.w. 328.60; dens. 0.96 (25 C); m.p. 55-60 C; b.p. 149 C; HLB 2.9; nonionic

†=pharmaceutical grade
### Trade Names Containing: Cerasynt® IP; Sabowax GF; Sedefos 75®; STEPANOL® PB; Tefose® 63

#### Glycol stearate SE

**Synonyms:** Ethylene glycol monostearate SE  
**Definition:** Self-emulsifying grade of glycol stearate contg. some sodium and/or potassium stearate  
**Properties:** Wh. to cream flakes; disp. in water, peanut oil, oleyl alcohol; insol. in min. oil, ethanol, glycerin, propylene glycol, IPM; m.p. 57-60°C; sapon. no. 181-191; anionic  
**Uses:** Emulsifier, visc. builder, base in topical pharmaceuticals  
**Manuf./Distrib.:** A&E Connock  
http://www.connock.co.uk  
**Trade Names:** Cerasynt® MN; Tegin® G

#### Glycyrrhetic acid

**Synonyms:** Enoxolone; Glycyrrhetic acid; 18-β-Glycyrrhetic acid; Glycyrrhetin; 18-β-Glycyrrhetic acid; 3-β-Hydroxy-11-o xoolean-12-en-30-oic acid; Olean-12-en-30-oic acid, 3-β-hydroxy-11-oxo-; Uralenic acid  
**Classification:** Steroid  
**Empirical:** C$_{30}$H$_{46}$O$_{4}$  
**Properties:** Wh. cryst. powd.; strong sweet taste; sol. in hot water, alcohol; pract. insol. in ether; m.w. 823.04; m.p. 220°C  
**Toxicology:** LDL (oral, rat) 3 g/kg, (IP, rat) 2 g/kg, (IV, mouse) 300 mg/kg; poison by IV route; mod. toxic by ing. and IP routes; human systemic effects by ing.; TSCA listed  
**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes  
**Uses:** Anti-inflammatory, anti-allergenic surfactant for pharmaceuticals  
**Manuf./Distrib.:** ADA Int’l.  
http://www.sigma-aldrich.com/belgium

#### Glycyrrhizic acid

**Synonyms:** Glycyron; Glycyrrhetic acid glycoside; Glycyrrhetic acid glycoside; 18-β-Glycyrrhizin acid; Glycyrrhizin; β-Glycyrrhizin; Glycyrrhizic acid  
**Definition:** Natural material extracted from Glycyrrhiza glabra; the active component of licorice  
**Empirical:** C$_{42}$H$_{62}$O$_{16}$  
**Properties:** Wh. cryst. powd.; strong sweet taste; sol. in hot water, alcohol; pract. insol. in ether; m.w. 823.04; m.p. 220°C  
**Toxicology:** LDL (oral, rat) 3 g/kg, (IP, rat) 2 g/kg, (IV, mouse) 300 mg/kg; poison by IV route; mod. toxic by ing. and IP routes; human systemic effects by ing.; TSCA listed  
**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes  
**Storage:** Hygroscopic  
**Uses:** Anti-inflammatory, anti-allergenic, surfactant for pharmaceuticals  
**Regulatory:** Canada DSL  
**Manuf./Distrib.:** ADA Int’l.  
http://www.sigma-aldrich.com/belgium

**Trade Names:** Nikkol Glycyrrhizic Acid

#### Glycyrrhizic acid, monoammonium salt

**Synonyms:** Glycyron; Glycyrrhetic acid glycoside; Glycyrrhetic acid glycoside; 18-β-Glycyrrhizin acid; Glycyrrhizin; β-Glycyrrhizin; Glycyrrhizic acid  
**Definition:** Natural material extracted from Glycyrrhiza glabra; the active component of licorice  
**Empirical:** C$_{42}$H$_{62}$O$_{16}$  
**Properties:** Wh. cryst. powd.; strong sweet taste; sol. in hot water, alcohol; pract. insol. in ether; m.w. 823.04; m.p. 220°C  
**Toxicology:** LDL (oral, rat) 3 g/kg, (IP, rat) 2 g/kg, (IV, mouse) 300 mg/kg; poison by IV route; mod. toxic by ing. and IP routes; human systemic effects by ing.; TSCA listed  
**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes  
**Storage:** Hygroscopic  
**Uses:** Anti-inflammatory, anti-allergenic, surfactant for pharmaceuticals  
**Regulatory:** Canada DSL  
**Manuf./Distrib.:** ADA Int’l.  
http://www.sigma-aldrich.com/belgium

**Trade Names:** Nikkol Glycyrrhizic Acid

**18-β-Glycyrrhizin acid.** See Glycyrrhizin acid

**Glycyrrhizic acid, ammonium salt.**  
Glycyrrhizic acid, monoammonium salt.  
See Ammonium glycyrrhizate  
Glycyrrhizin; β-Glycyrrhizin.  
See Glycyrrhizin
**Chemical Component Cross-Reference**

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**Glycyrrhizin, ammoniated.** See Ammonium glycyrrhizate

**Glycyrrhizic acid.** See Glycyrrhizin acid

**Glyme.** See Ethylene glycol dimethyl ether

**Glyme-3.** See PEG-3 dimethyl ether

**Glyoxaline-5-alanine.** See L-Histidine

**Glyoxaline-5-alanine monohydrochloride.** See Histidine hydrochloride monohydrate

**Glyoxyldiureide.** See Allantoin

**Glycethsilanetriol acetyl methionate.** See Polysilicone-3

**GMP; GMP disodium salt; GMP sodium salt.** See Disodium guanylate

**GMRO.** See Glyceryl ricinoleate

**GMS.** See Glyceryl stearate

**GMS-SE.** See Glyceryl stearate SE

**Gold.**

**CAS.** 7440-57-5; EINECS/ELINCS 231-165-9

**INS.** 77480; Colloidal gold; Gold flake; Gold leaf; Gold powder; Pigment metal 3

**Classification:** Metallic element

**Empirical:** Au

**Properties:** Yel. soft metal; sol. in aqua regia; insol. in acids; a.w. 196.9665; dens. 19.3; m.p. 1063 C; b.p. 2800 C; high light, infrared, and heat reflectivity

**Toxicology:** LDLo (IV, rat) 58 mg/kg; poison by IV route; metallic gold may cause hypersensitivity reactions; questionable carcinogen; experimental tumorigen; mutagenic data; TSCA listed

**Precaution:** Chemically nonreactive; attacked by chlorine and cyanide sol'ns. in presence of oxygen; tarnished by sulfur; can form explosive compds. with NH₃, NH₄OH + aqua regia, H₂O₂; incompat. with chlorides, bromides, iodides, some oxidants

**Uses:** Dental alloys; specialized medical treatments; treatment of rheumatoid arthritis; radiopharmacy

**Regulatory:** UK approved; Canada DSL


**†=pharmaceutical grade**

**http://www.spectrumchemical.com; VWR Int'l.† http://www.vwrsp.com**

**Gold bronze.** See Copper

**Gold flake; Gold leaf; Gold powder.** See Gold

**Gomenoleo oil.** See Olive (Olea europaea) oil

**Gossypium.** See Cottonseed (Gossypium) oil

**Gotu kola extract.** See Hydrocotyl (Centella asiatica) extract

**G-5´-P.** See Disodium guanylate

**Graham's salt.** See Sodium metaphosphate

**Grain alcohol.** See Alcohol

**Grains of paradise.** See Cardamom (Elettaria cardamomum)

**Granular zinc.** See Zinc

**Granulated sugar.** See Sucrose

**Grapefruit (Citrus grandis) oil.**

**CAS.** 8016-20-4

**UN.** 2319; FEMA 2530

**Synonyms:** Citrus grandis oil; Citrus paradisi peel oil; Grapefruit oil; Shaddock oil

**Definition:** Volatile oil from the fresh peel of Citrus grandis or. C. paradisi

**Properties:** Yel. liq.; sol. in fixed oils, min. oil; sl. sol. in propylene glycol; insol. in glycerin; sp.gr. 0.851-0.859; flash pt. (CC) 44 C; ref. index 1.475-1.478

**Toxicology:** TDLo (skin, mouse, 33 wks intermittent) 280 g/kg; skin irritant; questionable carcinogen; experimental tumorigen; mutagenic data; TSCA listed

**Precaution:** Flamm. liq.

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**HMIS:** Health 1, Flammability 2, Reactivity 0

**Storage:** 12 mos. when stored in tight glass, aluminum, or double lined containers in a cool area away from direct heat

**Uses:** Natural flavor for pharmaceuticals

**Regulatory:** FDA 21CFR §182.20, GRAS; FEMA GRAS; Europe listed, no restrictions; Canada DSL

Cold Pressed Grapefruit Oil

Trade Names: Cold Pressed Grapefruit Oil

Grapefruit oil. See Grapefruit (Citrus grandis) oil

Grape skin extract

CAS 11029-12-2

INS163(ii)

Synonyms: Enocianina; Enocyanin

Classification: Anthocyanin

Definition: From aq. extraction of fresh deseeded marc remaining after grapes are pressed to produce wine or juice; contains anthocyanins, tartaric acid, tannins, sugars, minerals

Properties: Deep purple; sol. in water

Uses: Colorant for pharmaceuticals

Regulatory: FDA 21CFR §73.169, 73.170; Japan restricted; not permitted in food (EU); Canada DSL

Manuf./Distrib.: Adept Sol'ns.; Alfa Chem; Amerol; Anmar Int'l.; Atomergic Chemetals; Barrington; CarboMer; Charles Bowman; Degussa AG/Health & Nutrition Functional Foods; George Uhe; H&A (Canada); Ind.†; http://www.hacanada.com; Marcor Development†; Natra US†; Penta Mfg.; Pharmrite N. Am.; RIA Int'l.†; RTD Hallstar†; Sensient Pharm. Tech.; Triple Crown Am.

Guaiac (Guaiacum officinale) extract

CAS 84650-13-5; EINECS/ELINCS 283-494-2

FEMA 2531, 2533

Synonyms: Guaiac extract; Guaiac gum extract; Guaiacum; Guaiacum officinale; Guaiacum officinale extract; Guaiacum officinalis extract; Guaiac wood extract

Definition: Extract of wood of the guaiacum tree, Guaiacum officinale

Properties: Pleasant rose-like odor

Uses: Antioxidant, natural flavor in pharmaceuticals

Regulatory: FDA 21CFR §172.510; FEMA GRAS

Guaiac gum extract. See Guaiac (Guaiacum officinale) extract

Guaiacol

CAS 90-05-1; EINECS/ELINCS 201-964-7

FEMA 2532

Synonyms: Guaiicol; 2-Hydroxyanisole; o-Hydroxyanisole; 1-Hydroxy-2-methoxybenzene; 2-Methoxyphenol; o-Methoxyphenol; Methylcatechol; o-Methylcatechol; Pyrocatechol methyl ether; Pyroguaic acid

Classification: Aromatic organic compd.

Definition: Obtained from hardwood tar

Empirical: C7H8O2

Formula: OHC6H4OCH3

Properties: Wh. to sl. yel. crystall. or colorless to ylsh. liq.; char. odor; discolored by light and air; sol. (1 g/ml): 60-70 ml water, 1 ml glycerin; misc. with alcohol, chloroform, ether, oils, glac.
acetic acid, oxygenated and chlorinated solvs.; m.w. 124.14; dens. 1.129 (cryst.), 1.112 (liq.); m.p. 26-29 C; b.p. 204-206 C

Toxicology: LD50 (oral, rat) 725 mg/kg, (IV, mouse) 170 mg/kg, (skin, rabbit) 4600 mg/kg; poison by IV route; mildly toxic by skin contact., inh.; human poison by ing.; eye and severe skin irritant; ing. causes irritation of intestinal tract and heart failure; penetrates the skin; when applied to mucous membranes, produces pain, burning, and then loss of sensitivity; human mutagenic data; TSCA listed

Precaution: Combustible; can react with oxidizers

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

HMIS: Health 2, Flammability 2, Reactivity 1

Storage: 6 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air

Uses: Synthetic flavor for pharmaceuticals; expectorant; counter-irritant in external analgesic prods.

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL; Japan MITI

Guaicol. See Guaiacol

Guanidine chloride. See Guanidine hydrochloride

†=pharmaceutical grade

Guaiacum officinale extract; Guaiacum officinalis extract; Guaiac wood extract. See Guaiac (Guaiacum officinale) extract

Guaiac acetate
CAS 613-70-7; EINECS/ELINCS 210-350-8
FEMA 3687
Synonyms: Acetyl guaiacol; Guaiacol acetate; 2-Methoxyphenyl acetate; o-Methoxyphenyl acetate
Empirical: C9H10O3
Properties: Colorless liq.; smoky taste; misc. with alcohol, ether; insol. in water; m.w. 166.18; b.p. 235-240 C; flash pt. > 230 F
Uses: Synthetic flavor and fragrance for pharmaceuticals
Features: Woody, musty, walnut
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Guaiac phenylacetate
CAS 4112-89-4; EINECS/ELINCS 223-898-8
FEMA 2535
Synonyms: Guaiacol phenylacetate; 2-Methoxyphenyl phenylacetate; o-Methoxyphenyl phenylacetate
Empirical: C15H14O3
Properties: Amber visc. liq. or off-wh. solid; woody herbaceous spicy medicinal odor; spicy flavor; sol. in alcohol, most org. solvs.; insol. in water; m.w. 242.28
Toxicology: Irritating to eyes, skin, respiratory system; defats skin; ing. may cause stomach pain, vomiting
Precaution: Incompat. with strong oxidizing agents

Guaiacol phenylacetate
CAS 613-70-7; EINECS/ELINCS 210-350-8
FEMA 3687
Synonyms: Guaiacol acetate; 2-Methoxyphenyl acetate; o-Methoxyphenyl acetate
Empirical: C9H10O3
Properties: Colorless liq.; smoky taste; misc. with alcohol, ether; insol. in water; m.w. 166.18; b.p. 235-240 C; flash pt. > 230 F
Uses: Synthetic flavor and fragrance for pharmaceuticals
Features: Woody, musty, walnut
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: Fleurchem

Guaiacum; Guaiacum officinale; Guaiacum officinale extract; Guaiac wood extract. See Guaiac (Guaiacum officinale) extract

p-Guaiacol. See Hydroquinone monomethyl ether

Guaicol. See Guaiacol

Guanidine chloride. See Guanidine hydrochloride
Guanidine hydrochloride
CAS 50-01-1; EINECS/ELINCS 200-002-3
Synonyms: Aminoformamidine hydrochloride; Aminomethanamide hydrochloride; Carbamidine hydrochloride; Guadidium chloride; Guanidine chloride; Guanidine monohydrochloride; Guanidinium chloride; Guanidinium hydrochloride; Iminourea hydrochloride
Classification: Aliphatic organic compd.
Empirical: CH6ClN3
Formula: NH2C(:NH)NH2 • HCl
Properties: Wh. powd.; sol. in water, alcohol; m.w. 95.53; dens. 1.187; m.p. 181-183 C; ref. index 1.465; pH 6.2 (10% aq.)
Toxicology: LD50 (oral, rat) 475 mg/kg, (IP, mouse) 500 mg/kg; LDLo (subcut., rat) 404 mg/kg; poison by subcut. route; mod. toxic by ing., IP route; harmful; eye and severe skin irritant; irritant to respiratory tract; can cause nausea, diarrhea, neurological disturbances; mutagen; target organs: bone marrow, nerves; TSCA listed
Hazardous Decomp. Prods.: Heated to decom., emits highly toxic fumes of HCl and NOx
NFPA: Health 2, Flammability 1, Reactivity 0
Storage: Hygroscopic; store @ R.T.
Uses: Intravenous pharmaceuticals; microbial protein extraction agent
Regulatory: FDA approved for intravenous; Canada DSL
†=pharmaceutical grade
http://www.riausa.com
Xinchem† http://www.finechemnet.com
Guanidine monohydrochloride; Guanidinium chloride; Guanidinium hydrochloride. See Guanidine hydrochloride
Guanine
CAS 73-40-5; EINECS/ELINCS 200-799-8
Synonyms: 2-Amino-1,7-dihydro-6H-purin-6-one; 2-Amino-6-hydroxypurine; 2-Aminohypoxanthine; 2-Amino-6-oxypurine; CI 75170; Natural pearl essence; Natural white 1; Pearl essence
Classification: Natural purine
Definition: Crystalline material obtained from fish scales, consisting of 75-97% guanine and 3-25% hypoxanthine (CAS 68-94-0)
Empirical: C5H5N5O
Properties: Colorless rhombic crystals; odorless; freely sol. in ammonium hydroxide, dilute acids; sparingly sol. in alcohol, ether; insol. in water; m.w. 151.15; m.p. 300 C min.; dec. > 360 C
Toxicology: TDLo (subcut., rat, 26 wks, intermittent) 1300 mg/kg; questionable carcinogen; suspected tumorigen; human mutagenic data; TSCA listed
Hazardous Decomp. Prods.: Heated to decom., emits toxic fumes of NOx
Uses: Colorant for external pharmaceuticals, eye use
Regulatory: FDA 21CFR §73.1329, 73.2329; exempt from certification, permanently listed for drug use; Canada DSL
Chemical Component Cross-Reference

Fluka http://www.sigma-aldrich.com;

†=pharmaceutical grade

Trade Names Containing: Mearlmaid® AA

Guaniol

Guanosine 5´-disodium phosphate; Guanosine monophosphate disodium salt; Guanosine 5´-monophosphate disodium salt; Guanylic acid sodium salt. See Disodium guanylate

Guar. See Guar (Cyanopsis tetragonoloba) gum

Guaramine. See Caffeine

Guaran. See Guar (Cyanopsis tetragonoloba) gum

Guar (Cyanopsis tetragonoloba) gum

CAS 9000-30-0; EINECS/ELINCS 232-536-8
FEMA 2537; INS412; E412

Synonyms: Cyanopsis gum; Cyanopsis tetragonoloba; Cyanopsis tetragonoloba gum; Galactasol; Guar; Guaran; Guar flour; Gum cyanopsis; Gum guar; Jaguar gum

Classification: Nonaromatic alcohol

Definition: Natural material derived from the ground endosperms of Cyanopsis tetragonolobus; consists of high m.w. hydrocolloidal polysaccharide composed of galactomannan units

Properties: Ylsh.-wh. free-flowing powd.; aq. sol'sns. tasteless, odorless; sol. in hot or cold water; insol. in oil, greases, hydrocarbons, ketones, esters; m.w. ≈ 220,000

Toxicology: LD50 (oral, rat) 8100 mg/kg; mildly toxic by ing.; may cause contact dermatitis; tumorigen; mutagen; experimental reproductive effects: TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

HMIS: Health 0, Flammability 1, Reactivity 0

Uses: Binder in tablets; protective colloid, stabilizer, thickener, emulsifier, suspending agent, visc. builder in pharmaceuticals, buccals, oral, lotions, creams, toothpaste; bulk laxative; appetite suppressant; treatment of peptic ulcers

Regulatory: FDA 21CFR §133.124, 133.133, 133.134, 133.162, 133.178, 133.179, 150.141, 150.161, 184.1339, GRAS; FEMA GRAS; FDA approved for buccals, orals; USP/NF, BP, EP compliance; Canada DSL; Japan approved; Europe listed; UK approved; ADI not specified (WHO)

| Delta Distributors†; Eggar & Co.† | http://www.eggar.co.uk |
| F. Gutkind & Co. Ltd | http://www.fgutkind.com; FMC Biopolymer† |
| http://www.fmcbiopolymer.com; Fabrichem | http://www.fabricheminc.com; Food Ingred. Tech. Ltd | http://www.fit-ltd.com; Frutarom† |
| http://www.frutarom.com | Functional Foods† |
| http://www.functionalfoods.com; Gallard-Schlesinger Ind.† | http://www.gallard-schlesinger.com; Gumix Int'l; H&A |
| (Canada) Ind.† | http://www.hacanada.com; Healan Ingreds. Ltd | http://www.healan.com; Helm NY† | http://www.helmenewyork.com; Hercules/Aqualon† |
| http://www.kraftchemical.com; Lucid Colloids | http://www.lucidgroup.com; MPSI† |
| http://www.questintl.com; RTD Hallstar† | http://www.rtdhallstar.com; Rhodia HPCI† | http://www.rhodia-hpci.com; Rhodia | http://www.rhodia.com; Ruger† | http://www.rugercorporate.com; Sanofi Synthelabo† | http://www.sanofisynthelabo.com; Sansho† |
| http://www.thewarnott.co.uk; Tiger Chem. | http://www.tigerch sons.com; Tomen Am. | †=pharmaceutical grade |
| Trade Names: Edicol®; Gum Guar Type M Powdered; Gum Guar Type MM Powdered (HV); Gum Guar Type MM Powdered; Jaguar® 308NB |
| Powdered Guar Gum Type A; Powdered Guar Gum Type AA; Powdered Guar Gum Type B; Powdered Guar Gum Type BB; PROVigel® DPG 1 |
| PROVigel® DPG 3; PROVigel® DPG 5; PROVigel® DPG 7; PROVigel® DPG 9; PROVigel® DPG 11 |
| PROVigel® EXG 01; PROVigel® EXG 05; PROVigel® EXG 10; PROVigel® EXG 20; PROVigel® EXG 40 |
| PROVigel® NAG 753; PROVigel® NAG 755; PROVigel® NAG 903; PROVigel® NAG 905; TIC Pretested® Gum Guar 8/22 NF (USP) Powd. |
| Trade Names Containing: Avicel® CE-15 |
| Guar flour. See Guar (Cyanopsis tetragonoloba) gum |
| Gum benzoin; Gum benzoic acid; Gum benzoin gum; Gum benzoin, gum; Gum benzoin, sodium salt; See Carboxymethyl hydroxypropyl guar |
| Gum Benjamin. See Gum benzoin |
| Gum benzoin |
| CAS 9000-05-9; EINECS/ELINCS 232-523-7 | FEMA 2133; INS906 |
| Synonyms: Benzoin; Benzoin gum; Benzoin resin; Benzoin (Styrax benzoin) gum (INCI); Gum Benjamin; Gum benzoin Siam; Gum benzoin, sumatra; Gum Styrax benzoin; Gum sumatra; Resinoid benzoin; Siam benzoin; Styrax; Styrax benzoin; Styrax benzoin gum; Sumatra benzoin |
| Definition: Balsamic resin obtained from various Styrax species |
| Toxicology: No known toxicity; TSCA listed |
| Uses: Natural flavor in pharmaceuticals; |
### Gum benzoin Siam; Gum benzoin, sumatra.

See Gum benzoin

### Gum camphor.

See Camphor

### Gum carageenan.

See Carrageenan (Chondrus crispus)

### Gum cassia.

See Cassia gum

### Gum cyanosis.

See Guar (Cyanopsis tetragonoloba) gum

### Gum dragon.

See Tragacanth (Astragalus gummifer) gum

### Gum gelllan.

See Gellan gum

### Gum guar.

See Guar (Cyanopsis tetragonoloba) gum

### Gum hashab.

See Acacia

### Gum karaya.

See Karaya (Sterculia urens) gum

### Gum lac.

See Shellac

### Gum ovaline.

See Acacia

### Gum rosin.

See Rosin

### Gum senegal.

See Acacia

### Gum sterculia.

See Karaya (Sterculia urens) gum

### Gum storax.

See Storax (Liquidambar orientalis)

### Gum Styrax benzoin; Gum sumatra.

See Gum benzoin

### Gum tara.

See Tara gum

### Gum tragacanth.

See Tragacanth (Astragalus gummifer) gum

### Gum turpentine.

See Turpentine

### Guncotton.

See Nitrocellulose

### Gutens, wheat.

See Wheat (Triticum vulgare) gluten

### Gutta percha.

CAS 9000-32-2; EINECS/ELINCS 232-537-3

### Gutta percha.

Synonyms: trans-Polyisoprene

### Gutta percha.

Definition: Geometric isomer of natural rubber; purified, coagulated, milky exudate of various trees of the genus *Palaguium*

### Gutta percha.

Properties: Brn. to gray lumps or blocks, sl. char.
Chemical Component Cross-Reference

odor; insol. in water; partly sol. in CS₂, turpentine oil, hot alcohol, petrol. ether; 90% sol. in chloroform; m.p.100 C

Precaution: On exposure to air and sunlight, absorbs oxygen and becomes brittle

Storage: Protect from light; keep under water

Uses: Film-former in pharmaceutical dressings; filling for dental impression compds.; dental cement; in orthopedics for fracture splints

Regulatory: FDA 21CFR §177.1210; Japan approved

Gypsum. See Calcium sulfate dihydrate; Calcium sulfate

Gypsum hemihydrate. See Calcium sulfate hemihydrate

Gypsum stone. See Calcium sulfate dihydrate

HA. See Hydroquinone monomethyl ether

Haematoxylon campechianum; Haematoxylon campechianum extract. See Logwood (Haematoxylon campechianum) extract

Halane. See 1,3-Dichloro-5,5-dimethyl hydantoin

Halite. See Sodium chloride

Halocarbon 11. See Trichlorofluoromethane

Halocarbon 23. See Trifluoromethane

Halocarbon 113. See Trichlorotrifluoroethane

Halocarbon 114. See 1,2-Dichlorotetrafluoroethane

Halocarbon 116. See Hexafluoroethane

Halon. See Dichlorodifluoromethane

Hamamelis; Hamamelis extract; Hamamelis virginiana. See Witch hazel (Hamamelis virginiana) extract

2-HAP. See o-Hydroxyacetophenone

Hard paraffin. See Paraffin

Hartshorn. See Ammonium carbonate

Hawthorne berries extract; Hawthorn extract. See Crataegus monogina extract

Hazel (Corylus avellana) nut oil

CAS 84012-21-5; EINECS/ELINCS 281-667-7

Synonyms: Corylus avellana; Corylus avellana nut oil; Hazel nut oil

Definition: Oil obtained from the nuts of the hazelnut tree, Corylus avellana

Properties: Amber yel. oil; dens. 0.911-0.917; iodine no. 85-100; sapon. no. 189-196; ref. index 1.4615-1.4725

Uses: Emollient in pharmaceuticals

Manuf./Distrib.: Aldivia

http://www.aldivia.com; Alzo

http://www.alzointernational.com; Anglia

†=pharmaceutical grade

Oils† http://www.angliaoil.co.uk; Arista

Ind.† http://www.aristaindustries.com; Desert Whale Jojoba

http://www.desertwhale.com

Trade Names: Lipovol HNO

Hazelnut oil. See Hazel (Corylus avellana) nut oil

HCFC 21. See Dichlorofluoromethane

HCFC 23. See Trifluoromethane

HCl. See Hydrochloric acid

HDPE. See Polyethylene, high-density

HEAR. See Rapeseed (Brassica campestris) oil

Heather (Calluna vulgaris) extract

CAS 84603-54-3; EINECS/ELINCS 283-255-2

Synonyms: Calluna vulgaris; Calluna vulgaris extract; Heather extract; Ling extract

Definition: Extract of the flowering shoots of Calluna vulgaris

Uses: Anti-inflammatory for urinary tract

Manuf./Distrib.: Carrubba

http://www.carrubba.com

Trade Names Containing: Heather Extract BG

Heather extract. See Heather (Calluna vulgaris) extract

Heavy hydrotreated naphtha (petroleum). See Naphtha, hydrotreated heavy

Heavy mineral oil. See Mineral oil

Heavy spar. See Barium sulfate

HEC, HE cellulose. See Hydroxyethylcellulose

Hectorite. See Hectorite

Hectorite

CAS 12173-47-6; EINECS/ELINCS 235-340-0

Synonyms: Hector clay; Hectorite clay

Definition: One of the montmorillonite minerals that are the principal constituent of bentonite clay

Formula: Na₀.₆₇(Mg,Li)₀.₃₃Si₈O₂₀(OH,F)₄

Toxicology: No known toxicity to skin; dust can be irritating to respiratory tract

Uses: Emulsifier, extender, absorbent, visc. control agent, stabilizer, suspending agent, thickener in pharmaceuticals

Features: VOC-free

Manuf./Distrib.: Am. Colloid†


Lipo† http://www.lipochemicals.com;

MPS† http://www.mp-solutionsinc.com

Aldivia

http://www.aldivia.com; Alzo

http://www.alzointernational.com; Anglia

†=pharmaceutical grade
Southern Clay Prods.
http://www.scprod.com

Trade Names: Bentone® MA; Hectabrite® AW; Hectabrite® DP; Hectalite® 200 S; Hectorite BC 840

Trade Names Containing: Bentone® EW

Hectorite clay. See Hectorite
HEDP; HEDPA. See Etidronic acid
HEDTAna3; HEDTA, trisodium salt; HEEDTAna3; HEEDTA, trisodium salt. See Trisodium HEDTA

Helianthus annuus; Helianthus annuus oil. See Sunflower (Helianthus annuus) seed oil
Helindone pink CN. See D&C Red No. 30; Vat red 1
Heliotropyl isobutyrate. See Piperonyl isobutyrate
Heliotropin. See Heliotropine

Heliotropine
CAS 120-57-0; EINECS/ELINCS 204-409-7
FEMA 2911

Synonyms: 1,3-Benzodioxole-5-carboxaldehyde; 3,4-Benzodioxole-5-carboxaldehyde; 3,4-Dihydroxybenzaldehyde methylene ketal; Dioxymethyleneprotocatechuic aldehyde; Formaldehyde protocatechuic acid-3,4-cyclic acetal; Heliotropin; 3,4-Methylene dihydroxybenzaldehyde; 3,4-Methylenedioxybenzaldehyde; 3,4-Methylene protocatechuic aldehyde; Piperonal; Piperonaldehyde; Piperonyl aldehyde; Protocatechuic aldehyde methylene ether

Classification: Diazio dye; organic compd.

Empirical: C₉H₉O₃

Properties: Colorless lustrous cryst., floral heliotrope odor; very sol. in alcohol, ether; sol. in propylene glycol, fixed oils, oxygenated solvs.; insol. in water, glycerin; m.w. 150.14; vapor pressure 1 mm (87 C); m.p. 37 C; b.p. 263 C; flash pt. > 230 F; tenacity 36 hrs. on blotter

Toxicology: LD50 (oral, rat) 2700 mg/kg; LDLo (IP, rat) 1500 mg/kg; mod. toxic by ing. and IP routes; can cause CNS depression; human skin irritant; may cause allergic skin reactions; mutagenic data; TSCA listed

Precaution: Combustible when exposed to heat, flame; reactive with oxidizers

HMIS: Health 1, Flammability 1, Reactivity 0

Storage: Keep in cool place; photosensitive; protect from light, heat

†=pharmaceutical grade

Uses: Synthetic flavor for pharmaceuticals, orals
Features: Cherry and vanilla flavor
Use Level: < 10%

Regulatory: FDA 21CFR §182.60, GRAS; FEMA; FDA approved for orals; Australia; Canada DSL; Japan ENCS (no. 5-514); Philippines PICCS

Manuf./Distrib.: AMC Chems.; Advanced Synthesis Tech.


Epochem http://www.epochem.com;
Fleurchem http://www.fleurchem.com;
Fluka http://www.sigma-aldrich.com

Fuerst Day Lawson http://www.fdl.co.uk;
Lluch Essence http://www.lluch-essence.com

MelChem† http://www.melchem.com;

Sarcom http://www.sarcominc.com;
Shanghai Rokem Int'l.
http://www.rockem.com; Spectrum Quality Prods."† http://www.spectrumchemical.com;
Takasago Int'l. http://www.takasago.com

Heliotropin isobutyrate. See Piperonyl isobutyrate

Heliotropine acetate. See Piperonyl acetate

Hemicellulase
CAS 9025-56-3

Toxicology: TSCA listed

Uses: Enzyme for pharmaceuticals, for extraction of essential oils and plant extracts, biomass conversion, carbohydrate research

Manuf./Distrib.: Pangaea Sciences

http://www.pangaeasciences.com; Sigma
http://www.sigma-aldrich.com/belgium

Hemlock oil. See Spruce oil

Hendecanal; Hendecanaldehyde. See Undecanal

Hendecanoic alcohol; 1-Hendecanol. See Undecyl alcohol

2-Hendecanone. See 2-Undecanone

Hendecenal. See 10-Undecenal

Hendecen-9-al. See 9-Undecenal
10-Hendecenoic acid. See Undecylenic acid
10-Hendecenyl acetate; 10-Hendecen-1-yl acetate. See Undecenyl alcohol
Hendecyl alcohol; n-Hendecenyl alcohol. See Undecylenic acid
10-Hendecenoic acid. See Undecylenic acid
Henna. See Lawsone
Hepacholine. See Choline chloride

Heparin ammonium
CAS 60800-63-7; EINECS/ELINCS 232-681-7
Synonyms: Heparin ammonium salt
Uses: Anticoagulant; laboratory reagent; forms complexes with antithrombin; stimulates cell division of cultured mammalian cells
Manuf./Distrib.: CarboMer† http://www.carbomer.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

Heparin ammonium salt. See Heparin ammonium

Heparin lithium
CAS 9045-22-1; EINECS/ELINCS 232-681-7
Definition: Lithium salt of heparinic acid
Properties: Wh. powd.; sol. in water
Uses: Anticoagulant; in medical devices; laboratory reagent
Manuf./Distrib.: CarboMer† http://www.carbomer.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

Trade Names: SPL Heparin Lithium

Heparin sodium
CAS 9041-08-1 (generic); EINECS/ELINCS 232-681-7
Synonyms: Heparin sodium salt; Sodium acid heparin; Sodium heparin (INCI); Sodium heparinate
Definition: Sodium salt of a sulfated glycosaminoglycan of mixed mucopolysaccharides
Properties: Wh. powd.; sol. in water; pH 5.0-7.5 (1%)
Toxicology: LD50 (IV, rat) 354 mg/kg; poison by IV route; human systemic effects; possible hemorrhage, irritation, mild pain; hypersensitive reactions incl. chills, fever, itching, runny nose, burning of feet, red eyes, tearing, joint pain, and hives; TSCA listed
Hazardous Decomp. Pros.: Heated to decomp., emits toxic fumes of NOx and Na2O

Storage: Hygroscopic
Uses: Pharmaceutical agent; anticoagulant to prevent and treat deep vein blood clots, and to flush and maintain catheters
Regulatory: BP, EP compliance; Canada DSL

Trade Names: SPL Heparin Sodium USP

Heparin sodium salt. See Heparin sodium

HEPPS. See 3-[4-(Hydroxyethyl)-1-piperazinyl]-propanesulfonic acid

1-Heptacosanol
CAS 2004-39-9
Classification: Fatty alcohol
Empirical: C27H56O
Properties: M.w. 396.8; m.p. 141 C; b.p. 82 C
Manuf./Distrib.: Sasol Germany http://www.sasol.com; http://www.sasololefinssurfactants.com

Trade Names Containing: Lessstanol™ Natural Policosanol 60

1-Heptadecanecarboxylic acid. See Stearic acid

Heptadecanoic acid, compd. with stearic acid
Heptadecanoic acid, 16-methyl-. See Isostearic acid
Chemical Component Cross-Reference

1,1,1,2,3,3,3-Heptafluoropropane
CAS 431-89-0
Synonyms: Apaflurane; HFC 227ea
Classification: Fluorinated hydrocarbon
Empirical: C3HF7
Formula: CF3CHFCF3
Properties: Colorless clear liq.; m.w. 170.03; dens. 1.4 g/cm³; vapor pressure 0.45 MPa; f.p. -131 °C; b.p. -16.36 °C
Environmental: Replacement for CFC but characterized as global warming gas by the Kyoto Conference on Climate Change
Uses: Propellant for pharmaceuticals (asthma sprays)
Features: Zero ODP; environmentally friendly
Manuf./Distrib.: Zhejiang Sanhuan Chems. Co. Ltd
http://www.sanhuanchemicals.com
Trade Names: Dymel® 227ea/P; Solkane® 227pharma; Solkane® 227ea
†=pharmaceutical grade

γ-Heptalactone
CAS 105-21-5; EINECS/ELINCS 203-279-9
FEMA 2539
Synonyms: Heptanolide-1,4; Heptan-4-olide; Heptanolide-4,1; 4-Hydroxyheptanoic acid lactone; 4-Hydroxyheptanoic acid, γ-lactone; γ-Propiobutyrolactone
Classification: Nonaromatic lactone
Empirical: C7H12O2
Properties: Colorless sl. oily liq., sweet nut-like caramel odor; sol. in alcohol; misc. with fixed oils; sl. sol. in water; m.w. 114.19; dens. 0.80902 (30/4 °C); visc. 0.977 cp (15 °C); m.p. -43.3 °C; b.p. 152.8 °C (760 mm); acid no. < 5; flash pt. 95 °F; ref. index 1.42571 (20 °C)
Toxicology: LD50 (oral, rat) 14 g/kg; mildly toxic by ing.; irritant; TSCA listed
Precaution: Flamm. liq.; incompat. with oxidizers, reducers
Hazardous Decomp. Prods.: Heated to decomp., emits CO, CO2, acrid smoke
Storage: Hygroscopic; store under nitrogen; 6 mos. when stored at 40-70 °F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI
Manuf./Distrib.: Advanced BioTech

Heptanal
CAS 111-71-7; EINECS/ELINCS 203-898-4
UN 3056 (DOT); FEMA 2540
Synonyms: Aldehyde C-7; Enanthal; Enanthaldehyde; Enanthic aldehyde; Enanthole; Heptaldehyde; 1-Heptaldehyde; n-Heptaldehyde; 1-Heptanal; n-Heptanal; Heptanaldehyde; Heptylaldehyde; n-Heptylaldehyde; Oenanthal; Oenanthaldehyde; Oenanthic aldehyde; Oenanthol
Classification: Nonaromatic aldehyde
Empirical: C7H12O
Formula: CH3(CH2)5CHO
Properties: Colorless oily liq., penetrating fruity odor; misc. with alcohol, ether, most org. solvs.; sl. sol. in water; m.w. 114.19; dens. 0.80902 (30/4 °C); visc. 0.977 cp (15 °C); m.p. -43.3 °C; b.p. 152.8 °C (760 mm); acid no. < 5; flash pt. 95 °F; ref. index 1.42571 (20 °C)
Toxicology: LD50 (oral, rat) 14 g/kg; mildly toxic by ing.; irritant; TSCA listed
Precaution: Flamm. liq.; incompat. with oxidizers, reducers
Hazardous Decomp. Prods.: Heated to decomp., emits CO, CO2, acrid smoke
Storage: Hygroscopic; store under nitrogen; 6 mos. when stored at 40-70 °F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI
Manuf./Distrib.: Advanced BioTech
Heptanal dimethyl acetal
CAS 10032-05-0; EINECS/ELINCS 233-103-6
FEMA 2541
Synonyms: Aldehyde C-7 dimethyl acetal; 1,1-Dimethoxy heptane
Empirical: C9H20O2
Formula: CH3(CH2)5CH(OCH3)2
Properties: Oily liq., walnut cognac odor; m.w. 160.26; dens. 0.849 (20/20 C); b.p. 164-183 C; flash pt. 136 F; ref. index 1.4130
Toxicology: Irritating to eyes, skin, mucous membranes, upper respiratory tract; may be harmful by ing., inh., skin absorp.; TSCA listed
Precaution: Combustible liq.; incompat. with strong oxidizing agents, acids
Hazardous Decomp. Prods.: CO, CO2; emits toxic fumes under fire conditons
Storage: Store in cool, dry place; keep tightly closed; keep away from heat, open flame
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Heptanal glyceryl acetal (mixed 1,2 and 1,3 acetals)
CAS 977043-66-5
FEMA 2542
Synonyms: Heptanal 1,2-glyceryl acetal
Empirical: C10H20O3
Properties: Colorless visc. liq., fungus-like sweet odor, mushroom taste; sol. in alcohol; sl. sol. in water; m.w. 188.27
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS
Manuf./Distrib.: Degussa AG/Health & Nutrition

Hep-tanal 1,2-glyceryl acetal. See Heptanal glyceryl acetal (mixed 1,2 and 1,3 acetals)
Heptanal, 2-(phenylmethylene). See α-Amylicinnamaldehyde
**n-Heptane.** See Heptane  
1-Heptanecarboxylic acid. See Caprylic acid

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<th>Chemical Component Cross-Reference</th>
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<td>Houghton Chem.</td>
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<td><a href="http://www.houghtonchemical.com">http://www.houghtonchemical.com</a></td>
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<td>Hukill</td>
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<tr>
<td><a href="http://www.hukill.com">http://www.hukill.com</a>; Romil Ltd</td>
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<td><a href="http://www.romil.com">http://www.romil.com</a>; Ruger</td>
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<tr>
<td><a href="http://www.rugerchemical.com">http://www.rugerchemical.com</a>; Sigma</td>
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<td><a href="http://www.sigma-aldrich.com/belgium">http://www.sigma-aldrich.com/belgium</a></td>
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<td>Spectrum Quality Prods.</td>
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<td><a href="http://www.spectrumchemical.com">http://www.spectrumchemical.com</a></td>
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<td>Triple Crown Am.</td>
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<td><a href="http://www.triplecrownamerica.com">http://www.triplecrownamerica.com</a></td>
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<td>Trade Names Containing:</td>
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<tr>
<td>BIO-PSA® 7-4101</td>
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<td>Silicone Adhesive; BIO-PSA® 7-4201</td>
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<td>Silicone Adhesive</td>
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**Heptanoic acid**

CAS **111-14-8**; EINECS/ELINCS **203-838-7**  
UN 3265; FEMA **3348**

**Synonyms:** Carboxylic acid C7; Enanthic acid; Enanthic anhydride; Enanthylactic acid; n-Heptanoic acid; Heptolic acid; Heptoic acid; n-Heptoic acid; Heptylic acid; n-Heptylic acid; Hexacid C-7; 1-Hexanecarboxylic acid; Oenanthonic acid; Oenanthylic acid  
**Classification:** Aliphatic carboxylic acid

**Empirical:** C7H14O2

**Formula:** [CH3(CH2)5CO]2O

**Properties:** Colorless oily liq.; disagreeable rancid odor; sol. in ether, ethanol, dimethylformamide, dimethylsulfoxide, acetone, nitric acid; sol. 0.25 g/l water; m.w. 130.19; dens. 0.918; f.p. -10.5 C; m.p. -9 C; b.p. 223 C; acid no. 427 min.; flash pt. 107 C; ref. index 1.4221

**Toxicology:** LD50 (oral, rat) 7 g/kg, (IV, mouse) 1200 mg/kg; mod. toxic by IV route; mildly toxic by ing.; may cause sore throat, abdominal pain, nausea, vomiting; corrosive; mod. to severe skin irritant; may cause skin burns; inh. of mists may cause mild to mod. irritation to nose/throat; liq. or mist may cause severe eye irritation or corrosive injury; TSCA listed  
**Precaution:** Incompat. with strong oxidizers, alkalies

**Hazardous Decomp. Prods.:** CO, CO2; heated to decom., emits acrid smoke and fumes

**Storage:** Keep away from heat, sparks, open flame; keep in original, tightly closed container

**Uses:** Synthetic flavor for pharmaceuticals  
**Regulatory:** FDA 21CFR §172.515, 173.315; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI

**Manuf./Distrib.:** Advanced BioTech  
[http://www.adv-bio.com](http://www.adv-bio.com); Arkema  
**Chemical Component Cross-Reference**

|                                          | Prodasynth http://www.prodasynth.com; |

**n-Heptanoic acid.** See Heptanoic acid

**Heptanoic acid ethyl ester.** See Ethyl heptanoate

**Heptanoic acid, isobutyl ester.** See Isobutyl heptanoate

**Heptanoic acid methyl ester.** See Methyl heptanoate

**Heptanoic acid, 3-methylpropyl ester.** See Isobutyl heptanoate

**Heptanoic acid, octadecyl ester.** See Stearyl heptanoate

**Heptanoic acid, octyl ester.** See Octyl heptanoate

**Heptanoic acid 1,2,3-propanetriyl ester.** See Glycerol triheptanoate

**1-Heptanol.** See Heptyl alcohol

**3-Heptanol**

- **CAS:** 589-82-2; EINECS/ELINCS 209-661-1
- **UN 1993; FEMA 3547**
- **Synonyms:** Butyl ethyl carbinol; Ethyl butyl carbinol; Heptan-3-ol; Heptanol, 3-Heptan-3-ol
- **Classification:** Aliphatic ketone
- **Empirical:** C\(_7\)H\(_{14}\)O
- **Formula:** CH\(_3\)(CH\(_2\))\(_3\)CO\(_2\)H
- **Properties:** Colorless liquid; powerful green fatty odor; melon banana flavor; sol. in alcohol, ether; misc. with ether; pract. insol. in water; sol. in water; m.w. 116.20; sp.gr. 0.820 (20/4 C); vapor pressure 0.5 mm Hg (20 C); m.p. -70 C; b.p. 155-157 C; flash pt. (CC) 60 C; ref. index 1.422 (20 C)
- **Toxicology:** LD\(_{50}\) (oral, rat) 1870 mg/kg, (skin, rabbit) 4360 mg/kg; mod. toxic by ing. and skin contact; skin and severe eye irritant; can be absorb through skin inh. may cause nose/throat irritation; high concs. of vapor may cause CNS depression; ing. may cause severe lung damage, respiratory arrest; possibly death if aspirated into lungs; TSCA listed
- **Environmental:** Do not discharge to lakes, streams, ponds, or public waters
- **Precaution:** Flamm. exposed to heat or flame; incompat. with oxidizing agents (increase fire/explosion risk); wear safety glasses or goggles, rubber gloves, apron

**Hazardous Decomp. Prods.:** Heated to decomp., emits CO, CO\(_2\), acrid smoke and fumes

**NFPA:** Health 0, Flammability 2, Reactivity 0

**Storage:** 6 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space in cool, dry, well-ventilated area; avoid prolonged exposure to light, heat and air

**Uses:** Synthetic flavor for pharmaceuticals

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI


**Heptan-3-ol.** See 3-Heptanol

**n-Heptanol.** See Heptyl alcohol

**Heptanol, formate.** See Heptyl formate

**Heptanolide-1,4; Heptan-4-olide; Heptanolide-4,1.** See γ-Heptalactone

**2-Heptanone; Heptan-2-one.** See Methyl n-amyl ketone

**3-Heptanone**

- **CAS:** 106-35-4; EINECS/ELINCS 203-388-1
- **FEMA 2545**
- **Synonyms:** Butyl ethyl ketone; n-Butyl ethyl ketone; Ethyl butyl ketone; Ethyl-n-butyl ketone; Heptan-3-one
- **Classification:** Aliphatic ketone
- **Empirical:** C\(_7\)H\(_8\)O
- **Formula:** CH\(_3\)(CH\(_2\))\(_3\)CO\(_2\)H
- **Properties:** Colorless liquid; powerful green fatty odor; melon banana flavor; sol. in alcohol, ether; misc. with ether; pract. insol. in water; mel. 114.19; dens. 0.818 (20/4 C); m.p. -39 C; b.p. 145-148 C; flash pt. 38 C; ref. index 1.409 (20 C)
- **Toxicology:** ACGIH TLV/TWA 50 ppm in air; LD\(_{50}\) (oral, rat) 2760 mg/kg; LCLo (inh., rat, 4 h) 2000 ppm; mod. toxic by ing. and inh.; skin and eye irritant; TSCA listed
- **Precaution:** Flamm.; mod. fire risk; can react with oxidizing materials

**Hazardous Decomp. Prods.:** CO, CO\(_2\)

**NFPA:** Health 1, Flammability 2, Reactivity 0

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Sweet, fruity flavor

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Manuf./Distrib.:** Alfa Chem† http://www.alfachem1.com; Fluka
Heptan-3-one. See 3-Heptanone

4-Heptanone
CAS 123-19-3; EINECS/ELINCS 204-608-9
UN 2710 (DOT); FEMA 2546
Synonyms: Butyron; Dipropyl ketone; Heptan-4-one; Propyl ketone
Classification: aliphatic ketone
Empirical: C7H14O
Formula: (CH3CH2CH2)2CO
Properties: Colorless liq., penetrating, fruity, pineapple-like odor, burning taste; misc. with alcohol, ether; insol. in water; m.w. 114.19; dens. 0.814 (20/4 C); vapor pressure 5.2 mm Hg (20 C); m.p. -32.6 C; b.p. 142-144 C; flash pt. 49 C; ref. index 1.4073 (22 C); surf. tens. 25.2 dynes/cm

Toxicology: ACGIH TLV/TWA 50 ppm in air; LD50 (oral, rat) 3730 mg/kg, (skin, rabbit) 5660 mg/kg; LCLo (inh., rat, 4 h) 4000 ppm; mod. toxic by ing., inh., and skin contact; skin and eye irritant; TSCA listed
Precaution: Flamm.; mod. fire risk; can react with oxidizing, reducing materials
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Synthetic flavor for pharmaceuticals
Features: Pineapple-like flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

(Z)-Hept-4-enal. See cis-4-Hepten-1-al
5-Hepten-2,6-dimethyl-. See 2,6-Dimethyl-5-hepten
5-Hepten-2-ol, 6-methyl-2-(4-methyl-3-cyclohexen-1-yl). See Bisabolol
5-Hepten-2-one, 6-methyl-. See Methyl heptenone

Heptyl acetate
CAS 112-06-1; EINECS/ELINCS 227-526-5
FEMA 2547
Synonyms: Acetate C-7; Acetic acid heptyl ester; Heptanyl acetate; 1-Heptyl acetate; n-Heptyl acetate; Heptyl ethanoate
Empirical: C9H18O2
Formula: C7H15OOCCH3
Properties: Colorless liq., pear-like odor, apricot-like taste; sol. in alcohol, ether; pract. insol. in water; m.w. 158.24; dens. 0.87505 (15 C); vapor dens. 5.5; m.p. -50 C; b.p. 192-193 C; flash pt. (CC) 67.8 C; ref. index 1.4150

Toxicology: LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and
Chemical Component Cross-Reference

**1-Heptyl alcohol**. See Heptyl alcohol

**3-Heptyl alcohol**. See 3-Heptanol

**Heptyl alcohol**

CAS 111-70-6; EINECS/ELINCS 203-897-9

FEMA 2548

**Synonyms:** Alcohol C7; Enanthic alcohol; Enanthyl alcohol; 1-Heptanol; n-Heptanol; 1-Heptyl alcohol; n-Heptyl alcohol; pri-Heptyl alcohol; Hydroxyheptane; 1-Hydroxyheptane

**Classification:** Primary aliphatic alcohol

**Empirical:** C₇H₁₆O

**Formula:** CH₃(CH₂)₆OH

**Properties:** Colorless liq.; pleasant citrus odor; sol. in oxygenated solvs.; misc. with alcohol, fixed oils, ether; sl. sol. in water @ 175 C; m.w. 116.23; dens. 0.824 (20/4 C); vapor pressure 1 mm Hg (42 C); m.p. -34.6 C; b.p. 175.8 C; flash pt. 70 C; ref. index 1.423-.1427; surf.

†=pharmaceutical grade

Toxicology: LD₅₀ (oral, rat) 500 mg/kg, (skin, rabbit) 2 g/kg; mod. toxic by ing., skin contact; mildly toxic by inh.; probably an eye irritant; inh. can probably cause nose/throat irritation; high concs. may cause headache, nausea, dizziness; ing. may cause 'alcohol' intoxication symptoms; may cause severe lung damage, respiratory failure, and death if aspirated into lungs; TSCA listed

Environmental: VOC; BOD₅ 1.63; ThOD 2.90

**Precaution:** Flamm. exposed to heat, flames; reactive with oxidizing materials

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and fumes

**Storage:** Store in cool, dry, well-ventilated area

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Citrus flavor

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL; Japan MITI


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**1-Heptyl acetate; n-Heptyl acetate.** See Heptyl acetate

**Heptyl alcohol**

CAS 111-70-6; EINECS/ELINCS 203-897-9

FEMA 2548

**Synonyms:** Enanthyl alcohol; 1-Heptanol; n-Heptanol; 1-Heptyl alcohol; n-Heptyl alcohol; pri-Heptyl alcohol; Hydroxyheptane; 1-Hydroxyheptane

**Classification:** Primary aliphatic alcohol

**Empirical:** C₇H₁₇O₂

**Formula:** CH₃(CH₂)₆CO₂H

**Properties:** Colorless liq., fruity chamomile-like odor, sweet green tea-like taste; sol. in alcohol; almost insol. in water; m.w. 186.30; m.p. -58 C;

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**1-Heptyl acetate.** See Heptyl acetate

**Heptyl alcohol.** See Heptyl alcohol

**3-Heptyl alcohol.** See 3-Heptanol

**n-Heptyl alcohol.** See Heptyl alcohol

**Heptylaldehyde.** See Heptanal

**Heptyl butanoate.** See Heptyl butanoate

**Heptyl butyrate.** See Heptyl butyrate

**Heptyl alcohol.** See Heptyl alcohol

**3-Heptyl alcohol.** See 3-Heptanol

**n-Heptyl alcohol.** See Heptyl alcohol

**Heptylaldehyde.** See Heptanal

**Heptyl butanoate.** See Heptyl butanoate

**Heptyl butyrate.** See Heptyl butyrate

**Heptyl alcohol.** See Heptyl alcohol

**3-Heptyl alcohol.** See 3-Heptanol

**n-Heptyl alcohol.** See Heptyl alcohol

**Heptylaldehyde.** See Heptanal

**Heptyl butanoate.** See Heptyl butanoate

**Heptyl butyrate.** See Heptyl butyrate

**Heptyl alcohol.** See Heptyl alcohol

**3-Heptyl alcohol.** See 3-Heptanol

**n-Heptyl alcohol.** See Heptyl alcohol

**Heptylaldehyde.** See Heptanal

**Heptyl butanoate.** See Heptyl butanoate

**Heptyl butyrate.** See Heptyl butyrate

**Heptyl alcohol.** See Heptyl alcohol

**3-Heptyl alcohol.** See 3-Heptanol

**n-Heptyl alcohol.** See Heptyl alcohol

**Heptylaldehyde.** See Heptanal

**Heptyl butanoate.** See Heptyl butanoate

**Heptyl butyrate.** See Heptyl butyrate
n-Heptyl-n-butyrate. See Heptyl butyrate
γ-Heptyl butyrolactone. See γ-Undecalactone
Heptyl caprylate. See Heptyl octanoate
Heptyl carbinol. See Caprylic alcohol

Heptyl cinnamate
CAS 10032-08-3
FEMA 2551
Synonyms: Cinnamic acid heptyl ester; n-Heptyl cinnamate; Heptyl-β-phenylacrylate; Heptyl-3-phenyl propenoate
Definition: Ester of n-heptanol with cinnamic acid
Empirical: C16H22O2
Properties: Colorless to pale straw-yel. liq., green leafy odor; sol. in alcohol; insol. in water; m.w. 246.36; ref. index 1.52900
Uses: Synthetic flavor for pharmaceuticals
Features: Green leafy hyacinth odor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Degussa AG/Health & Nutrition

n-Heptyl methanoate. See Heptyl formate
5-Heptylidihydrofuran-2-one. See γ-Undecalactone
n-Heptyl dimethylacetate. See Heptyl isobutyrate
Heptyl ethanoate. See Heptyl acetate

Heptyl formate
CAS 112-23-2; EINECS/ELINCS 203-949-0
FEMA 2552
Synonyms: Formic acid, heptyl ester; Heptanol, formate; n-Heptyl methanoate

| Chemical Component Cross-Reference | Classification: Nonaromatic ester
Empirical: C8H16O2
Formula: HCOOC7H15
Properties: Colorless liq., fruity floral odor, plum-like taste; sol. in ether; insol. in water; m.w. 144.24; dens. 0.882; b.p. 178 C; flash pt. 60 C; ref. index 1.4130
Toxicology: Primary skin irritant; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Uses: Synthetic flavor for pharmaceuticals
Features: Apple, plum-like flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

n-Heptyl isobutyrate
CAS 2349-13-5; EINECS/ELINCS 219-076-3
FEMA 2550
Synonyms: n-Heptyl dimethylacetate; n-Heptyl isobutyrate
Definition: Ester of n-heptanol and isobutyric acid
Empirical: C11H22O2
Formula: (CH3)2CHCO2(CH2)6CH3
Properties: Colorless liq., woody odor; sol. in most org. solvs.; insol. in water; m.w. 186.30; b.p. 98 C (10 mm); flash pt. 85 C; ref. index 1.4190
Toxicology: TSCA listed
Uses: Synthetic flavor for pharmaceuticals
Features: Sweet green fruity warm floral apple cherry apricot; raspberry, pineapple fruity with citrus orange and green winey nuances taste
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

n-Heptyl isobutyrate
CAS 2349-13-5; EINECS/ELINCS 219-076-3
FEMA 2550
Synonyms: n-Heptyl dimethylacetate; n-Heptyl isobutyrate
Definition: Ester of n-heptanol and isobutyric acid
Empirical: C11H22O2
Formula: (CH3)2CHCO2(CH2)6CH3
Properties: Colorless liq., woody odor; sol. in most org. solvs.; insol. in water; m.w. 186.30; b.p. 98 C (10 mm); flash pt. 85 C; ref. index 1.4190
Toxicology: TSCA listed
Uses: Synthetic flavor for pharmaceuticals
Features: Sweet green fruity warm floral apple cherry apricot; raspberry, pineapple fruity with citrus orange and green winey nuances taste
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

n-Heptyl methanoate. See Heptyl formate
n-Heptyl methyl carbinol. See 2-Nonanol
Heptyl methyl ketone. See 2-Nonanone

Heptyl octanoate
CAS 4265-97-8; EINECS/ELINCS 224-252-8
FEMA 2553
Synonyms: Heptyl caprylate; n-Heptyl octanoate; Heptyl octylate
Definition: Ester of n-heptanol and n-octanoic acid
Empirical: C\textsubscript{15}H\textsubscript{30}O\textsubscript{2}
Properties: Colorless oily liq.; waxy, oily, green odor and flavor; insol. in water; m.w. 242.41; dens. 0.8520 (30°C); m.p. 14°C; b.p. 291°C; flash pt. > 130°C; ref. index 1.4340
Uses: Synthetic flavor for pharmaceuticals
Features: Waxy oily green fresh odor; waxy, fatty with a tropical fruity nuance taste
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

n-Heptyl octanoate; Heptyl octylate. See Heptyl octanoate

Heptyl-\beta\textendash phenylacrylate; Heptyl-3-phenyl propenoate. See Heptyl cinnamate

Hetastarch. See Hydroxyethylcellulose

Hexachlorophene
2,2',3,3',5,5',6,6'-Hexachloro-6,6'-dihydroxydiphenylmethane; Hexachlorophane; Hexachlorophen. See Hexachlorophene

Hexachloro-6,6'-dihydroxydiphenylmethane; Hexachlorophane; Hexachlorophen; 2,2'-Methylenebis (3,4,6-trichlorophenol); Trichlorophene

Classification: Halogenated phenolic compd.
Empirical: C\textsubscript{13}H\textsubscript{6}Cl\textsubscript{6}O\textsubscript{2}
Formula: CH\textsubscript{2}[C\textsubscript{6}H\textsubscript{3}(Cl)\textsubscript{3}O]H\textsubscript{2}
Properties: Wh. free-flowing powd., odorless or sl. phenolic odor; sol. in acetone, alcohol,

†=pharmaceutical grade
ether, oxygenated solvs.; insol. in water; m.w. 406.91; m.p. 163-165°C
Toxicology: LD\textsubscript{50} (oral, rat) 56 mg/kg, (skin, rat) 1840 mg/kg, (IP, rat) 22 mg/kg, (IV rat) 7500 µg/kg; poison by ing., IP, IV routes; mod. toxic by skin contact; human poison by ing.; may be fatal if swallowed; human systemic effects; eye and human skin irritant; human reproductive effects; experimental teratogen; questionable carcinogen; TSCA listed
Precaution: DOT: Poisonous material
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of Cl\textsuperscript{-}
Uses: Antibacterial for pharmaceutical topicals; topical anti-infective (restricted); veterinary medicine
Features: Broad spectrum
Use Level: Up to 0.75%
Regulatory: FDA approved for topicals; SARA reportable; BP compliance; Canada DSL

Hexacid C-7. See Heptanoic acid
Hexacid C9. See Nonanoic acid
Hexacosanol. See 1-Hexacosanol

1-Hexacosanol
CAS 506-52-5
Synonyms: Ceryl alcohol; Hexacosanol
Classification: Fatty alcohol
Empirical: C\textsubscript{26}H\textsubscript{54}O
Properties: M.w. 382.71; m.p. 79-81°C; b.p. 240°C (1 mm Hg)
Trade Names Containing: Lesstanol™ Natural Octacosanol 30%; Lesstanol™ Natural Policosanol 60

Hexadecanamine hydrofluoride. See Cetylamine hydrofluoride

1-Hexadecanaminium, N-(carboxymethyl)-N,N-dimethyl-, hydroxide, inner salt. See Cetyl betaine

Hexadecanoic acid. See Palmitic acid
Hexadecanoic acid, C16-18-alkyl esters; Hexadecanoic acid, cetyl/stearoyl ether. See Cetearyl palmitate
Hexadecanoic acid, diester with N,N,N-tris (2-hydroxyethyl) methanaminium methyl sulfate. See Dipalmitoylthethyl hydroxyethylmonium methosulfate
Hexadecanoic acid, 2,3-dihydroxypropyl ester. See Glyceryl palmitate
Hexadecanoic acid, ethyl ester. See Ethyl palmitate
Hexadecanoic acid, 2-ethylhexyl ester. See Octyl palmitate
Hexadecanoic acid, hexadecyl ester. See Cetyl palmitate
Hexadecanoic acid isopropyl ester; Hexadecanoic acid, 1-methylethyl ester. See Isopropyl palmitate
Hexadecanoic acid, monoester with 1,2,3-propanetriol. See Glyceryl palmitate
Hexadecanoic acid, 1,2,3-propanetriyl ester. See Tripalmitin
Hexadecanoic acid sodium salt. See Sodium palmitate
1-Hexadecanol. See Cetyl alcohol
1-Hexadecanol, acetate. See Cetyl acetate
1-Hexadecanol, dihydrogen phosphate. See Cetyl phosphate
1-Hexadecanol, dihydrogen phosphate, monopotassium salt. See Potassium cetyl phosphate
1-Hexadecanol, hydrogen phosphate. See Diethyl phosphate
1-Hexadecanol lactate. See Cetyl lactate
1-Hexadecanol, phosphate, compd. with 2,2'-iminobis [ethanol] (1:1). See DEA-cetyl phosphate
1-Hexadecanol, phosphate, potassium salt. See Potassium cetyl phosphate
ω-6-Hexadecanolate; 6-Hexadecenolate; 6-Hexadecan-16-olide; 7-Hexadec-7-en-16-olide. See Ambretolide
n-Hexadecenoic acid. See Palmitic acid
Hexadecyl acetate. See Cetyl acetate
Hexadecyl alcohol. See Cetyl alcohol
Hexadecylamine hydrofluoride; Hexadecylammonium fluoride. See Cetylamine hydrofluoride
Hexadecylbetaeine. See Cetyl betaine
Hexadecyl dihydrogen phosphate. See Cetyl phosphate
Hexadecyl dimethylamine oxide. See Palmitamine oxide
N-Hexadecyl-N,N-
2,4-Hexadienoic acid, calcium salt. See Calcium sorbate
2,4-Hexadienoic acid potassium salt. See Potassium sorbate
Hexaethylene glycol. See PEG-6
Hexafluoroethane
CAS 76-16-4; EINECS/ELINCS 200-939-8
UN 2193 (DOT)
Synonyms: CFC-116; Ethane, hexafluoro-; F 116; Freon 116; Halocarbon 116; 1,1,2,2,2-Hexafluoroethane; Perfluoroethane; R 116; Refrigerant 116
Classification: Nonaromatic halogenated hydrocarbon
Empirical: C₂F₆
Formula: F₃CCF₃
Properties: Colorless liquefiable gas; odorless; tasteless; sl. sol. in alcohol; insol. in water; m.w. 138.02; dens. 1.59; vapor pressure 23,028 mm Hg (21 C); f.p. -94 C; m.p. -100 C; b.p. -78 C; highly stable; nonflamm.
Toxicology: LC (inh., rat, 2 h) > 20 pph
asphyxiant; inh. may cause nausea, vomiting, disorientation, narcosis, tingling, suffocation, convulsions, coma; skin exposure may cause blisters, frostbite; eye exposure may cause frostbite; target organ: heart; TSCA listed
Precaution: Fire and explosion hazard; incompat. with strong oxidizers; containers may rupture or explode if exposed to heat
Hazardous Decomp. Prods.: Thermal decomp. prods.: halogenated compds., COₓ
NFPA: Health 1, Flammability 0, Reactivity 0
Storage: Store away from heat
Uses: Aerosol propellant; refrigerant
Regulatory: Canada DSL
Trade Names Containing: KLEA 508A
1,1,2,2,2-Hexafluoroethane. See Hexafluoroethane
1,1,1,3,3,3-Hexafluoropropene
CAS 690-39-1
Synonyms: 2,2-Diiodoperfluoropropane; Hexafluoropropene HFC-236fa; Hydrochlorofluorocarbon 236
Classification: Fluorinated hydrocarbon
Empirical: C₃H₂F₆
Formula: CF₃CH₂CF₃
Properties: M.w. 152.04; f.p. -93.6 C; b.p. -1.4 C

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Handbook of Pharmaceutical Additives, Third Edition
**Chemical Component Cross-Reference**

**FEMA 2556**  
**Synonyms:** γ-Caprolactone; Ethyl butyrolactone; γ-Ethylbutyrolactone; 2(3H)-Furanone, 5-ethylidihydro-γ-Hexanolactone; Hexanolide-1,4; Hexan-4-olide; 4-Hydroxyhexanoic acid lactone; 4-Hydroxyhexanoic acid γ-lactone; Tonkalide  
**Classification:** Nonaromatic lactone  
**Empirical:** C₆H₁₀O₂  
**Properties:** Colorless liq., herbaceous sweet odor, sweet coumarin-caramel taste; sol. in alcohol, propylene glycol; sl. sol. in water; m.w. 114.15; dens. 1.023; m.p. -18 C; b.p. 220 C; flash pt. 209 F; ref. index 1.4390  
**Toxicology:** LD₅₀ (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; primary skin irritant; TSCA listed  
**Hazardous Decomp. Prods.:** Heated to decomps., emits acrid smoke and irritating vapors  
**Uses:** Synthetic flavor for pharmaceuticals  
**Features:** Sweet flavor  
**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL  
**Trade Names:** Dynasylan® HMDS; Cab-O-Sil® TS-530  
**Trade Names Containing:** Hexamethyldisilazane

**Hexamethyldisilazane**  
**CAS 999-97-3; EINECS/ELINCS 213-668-5**  
**Synonyms:** Bis (trimethylsilyl) amine; Di(trimethylsilyl) amine; Hexamethyldisilazane; HMDS; OAP; 1,1,1-Trimethyl-N-(trimethylsilyl) silanamine  
**Empirical:** C₆H₁₉NSi₂  
**Formula:** (CH₃)₃SiNHSi(CH₃)₃

†=pharmaceutical grade

**Properties:** Colorless liq.; ammonia-like odor; sol. in acetone, benzene, ethyl ether, heptane, perchloroethylene; insol. in water, reacts slowly; m.w. 161.44; dens. 0.77; vapor pressure 79 mm (50 C); b.p. 125 C; flash pt. (CC) 27 C; ref. index 1.4057; dielec. const. 2.27 (1000 Hz)  
**Toxicology:** PEL 6 mg/m³; LD₅₀ (oral, rat) 850 mg/kg, (skin, rabbit) 1350 mg/kg; LDLo (IP, mouse) 650 mg/kg; mod. toxic by ing. and IP route; corrosive; causes severe burns to eyes and irritation of skin; experimental tumorigen; questionable carcinogen; TSCA listed  
**Environmental:** VOC  
**Precaution:** Flamm.; dangerous fire hazard exposed to heat or flame; can react vigorously with oxidizers  
**Hazardous Decomp. Prods.:** Heated to decomps., emits toxic fumes of NOₓ  
**Uses:** Silylating agent in pharmaceuticals  
**Regulatory:** Canada DSL  
**Trade Names:** Dynasylan® HMDS; Cab-O-Sil® TS-530  
**Trade Names Containing:** Hexamethyldisiloxane

**Hexamethyldisiloxane**  
**CAS 107-46-0; EINECS/ELINCS 203-492-7**  
**UN UN 1993**  
**Synonyms:** Bis (trimethylsilyl) ether; Bis(trimethylsilyl) oxide; Disiloxane, hexamethyl-; HMDS; Oxybis

| Chemical Component Cross-Reference | Handbuch der pharmazeutischen Hilfsstoffe, dritte Auflage | 1423 |
**Chemical Component Cross-Reference**

(trimethylsilane); Silane, oxybis (trimethyl-
Classification: Linear siloxane
Empirical: $C_6H_{18}OSi_2$
Formula: $(CH_3)_3SiOSi(CH_3)_3$
Properties: Visc. liq.; sol. 930 ppm in water; m.w. 162.42; dens. 0.764; vapor pressure 55 mm (30 C); m.p. -68 C; b.p. 99-101 C; flash pt. -2 C; ref. index 1.3774; surf. tens. 15.9 dynes/cm; dielec. const. 2.17
Toxicology: LD50 (IP, mouse) 4500 mg/kg, (skin, rabbit) 16 ml/kg; LC50 (inh., rat, 4 h) 15,956 ppm; mildly toxic by ing., IP routes; skin/eye irritant; may cause mucous membrane/upper respiratory tract irritation; may be harmful by inh., ing., skin absorp.; prolonged/repeated exposure causes skin defatting, dermatitis; can cause dizziness; target organs: nerves; may be harmful by inh., ing., skin absorp.; prolonged/repeated exposure causes skin defatting, dermatitis; can cause dizziness; target organs: nerves; TSCA listed
Precaution: Flamm.; vapor may flash back; incompat. with strong acids/bases/oxidizers; container explosion may occur under fire conditions; may dec. to form flamm./explosive mixts. in air; generates formaldehyde in presence of air @ > 150 C
Hazardous Decomp. Prods.: CO, CO2, silicon oxide; emits toxic fumes under fire conditions
HMIS: Health 1, Flammability 4, Reactivity 0
Storage: Store under nitrogen; hygroscopic; keep tightly closed; keep away from heat, sparks, open flame
Uses: Volatile excipient in spray pump systems for pharmaceutical topicals
Regulatory: Canada DSL
Trade Names: Dytek® HMI
Hexamethylenetetramine hippurate. See Methenamine hippurate
Hexamethylenimine. See Hexamethylenimine
Hexamethylpararosaniline chloride. See Basic violet 3
1,1,5,5,5-Hexamethyl-3-phenyl-3-[(trimethylsilyl) oxy] trisiloxane. See Phenyl trimethicone
Hexamethyl p-rosaniline chloride; Hexamethyl p-rosaniline hydrochloride. See Basic violet 3
Hexamethyldisilazane. See Hexamethyldisilazane
2,6,10,15,19,23-Hexamethy1-2,6,10,14,18,22-tetracosahexaene. See Squalane
Hexamethyltetrasiloxane; 2,6,10,15,19,23-Hexamethyltetrasiloxane. See Squalane
Hexamethyl violet. See Basic violet 3
Hexamidine disethionate

CAS 659-40-5; EINECS/ELINCS 211-533-5
Synonyms: 2-Hydroxyethanesulfonic acid, compd. with 4,4'-[hexane-1,6-diylbis (oxy)] bis [benzenecarboxamidine] (2:1)
Classification: Organic salt
Formula: C$_{20}$H$_{38}$N$_4$O$_2$ • (C$_2$H$_6$O$_4$S)$_2$
Properties: {Wh. powd.}
Uses: Antimicrobial, preservative for pharmaceuticals; cutaneous asepticizer; topical antiseptic
Use Level: 0.1%
Regulatory: BP, EP compliance; USA not restricted; Europe listed; Canada DSL
Trade Names: Elestab® HP 100

Hexanal

CAS 66-25-1; EINECS/ELINCS 200-624-5
UN 1207 (DOT); FEMA 2557
Synonyms: Aldehyde C-6; Caproaldehyde; Capronic aldehyde; Capronaldehyde; n-Hexanal; n-Hexyl aldehyde
Empirical: C$_8$H$_{12}$O
Formula: CH$_3$(CH$_2$)$_4$CHO
Properties: Colorless liq., powerful fatty-green odor; sol. in alcohol, fixed oils, propylene glycol, oxygenated solvs.; very sl. sol. in water; m.w. 100.18; dens. 0.808-0.812; m.p. -56.3 C; b.p. 128.7 C; flash pt. (OC) 90 F; ref. index 1.402-1.407
Toxicology: LD$_{50}$ (oral, rat) 4890 mg/kg; LC$_{L0}$ (inh., rat, 4 h) 2000 ppm; mildly toxic by ing., inh.; skin and eye irritant; TSCA listed
Precaution: Flamm.; dangerous fire hazard exposed to heat or flame; can react vigorously with oxidizing materials
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Storage: 6 mos. when stored at 40 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air
Uses: Synthetic flavor and fragrance for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI
Manuf./Distrib.: Advanced BioTech
http://www.adv-bio.com; Alfa Aesar
http://www.alfa.com; Astral Extracts

†=pharmaceutical grade

Axxence Aromatic GmbH
http://www.axxence.com; http://www.axxence.de
http://www.kao.co.jp; Moore Ingreds.
http://www.oxfordchemicals.com

1-Hexanal; n-Hexanal. See Hexanal

Hexanaphthene. See Cyclohexane

Hexane

CAS 110-54-3; EINECS/ELINCS 203-777-6
UN 1208 (DOT)
Synonyms: Alkane C6; n-Hexane; Hexyl hydride; Normal hexane
Classification: Aliphatic hydrocarbon
Empirical: C$_6$H$_{14}$
Formula: CH$_3$(CH$_2$)$_4$CH$_3$
Properties: Colorless volatile liq., faint petrol. odor; sol. in alcohol, acetone, ether; misc. with oxygenated, chlorinated and hydrogenated solvs.; insol. in water; m.w. 86.20; dens. 0.65937 (20/4 C); m.p. -95 C; b.p. 67-70 C; flash pt. (CC) -21.7 C; ref. index 1.37486 (20 C)
Toxicology: ACGIH TLV/TWA 50 ppm; LD$_{50}$ (oral, rat) 28.710 mg/kg; sl. toxic by ing., inh.; human systemic effects by inh. (nausea, headache, dizziness, drowsiness); irritating to respiratory tract; skin and eye irritant; narcotic in high concs.; massive exposures can cause unconsciousness and death; mutagenic data; TSCA listed
Environmental: VOC; ThOD 3.53
Precaution: Flamm.; very dangerous fire/explosion hazard exposed to heat or flame; can react vigorously with oxidizers
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
**Chemical Component Cross-Reference**

† = pharmaceutical grade

**NFPA:** Health 1, Flammability 3, Reactivity 0

**Storage:** Store in cool, dry, well-ventilated area, out of direct sunlight; limit quantities in use; avoid generating mists

**Uses:** Solvent for pharmaceutical extraction

**Regulatory:** FDA 21CFR §73.30, 73.295, 73.300, 73.315, 73.345, 73.615, 172.340, 172.560, 173.270, 175.105, 175.320, 176.200, 177.1200; HAP; Japan approved with restrictions; Canada DSL

**Manuf./Distrib.:**

- AAE Chemie NV†
  [http://www.aaechemie.com](http://www.aaechemie.com)
- AMC Chems.†
  [http://www.amcchems.com](http://www.amcchems.com)
- Aldrich†
  [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
- Alfa Aesar†
  [http://www.alfaesar.com](http://www.alfaesar.com)
- Amyl
  [http://www.amyl.com](http://www.amyl.com)
- Ashland†
  [http://www.ashchem.com](http://www.ashchem.com)
- BP Chems. Ltd
  [http://www.bp.com/chemicals/](http://www.bp.com/chemicals/)
- Brenntag AG†
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- ExxonMobil
  [http://www.exxonmobilchemical.com](http://www.exxonmobilchemical.com)
- Fisher Scientific
- Fluka
  [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
- GFS†
  [http://www.gfschemicals.com](http://www.gfschemicals.com)
- Houghton Chem.
  [http://www.houghtonchemical.com](http://www.houghtonchemical.com)
- Hukill
  [http://www.hukill.com](http://www.hukill.com)
- Integra†
  [http://www.integrchem.com](http://www.integrchem.com)
- Mallinckrodt Baker†
  [http://www.mallbaker.com](http://www.mallbaker.com)
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  [http://www.shell-lubricants.com](http://www.shell-lubricants.com)
- Sigma
  [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)
- Spectrum Quality Prods.†
  [http://www.spectrumchemical.com](http://www.spectrumchemical.com)
- VWR Intl†
  [http://www.vwrsp.com](http://www.vwrsp.com)

**Trade Names Containing:**

- SBP 40/65 LNH; Shellsol® BF; Shellsol® B HT

**n-Hexane.** See Hexane

**1-Hexanecarboxylic acid.** See Heptanoic acid

**Hexane-1,6-dicarboxylic acid.** See Suberic acid

**Hexanedioic acid; 1,6-Hexanedioic acid.** See Adipic acid

**Hexanedioic acid, bis (2-ethylhexyl) ester.**

See Dioctyl adipate

Hexanedioic acid, bis (1-methylene) ester. See Diisopropyl adipate

Hexanedioic acid, dibutyl ester. See Dibutyl adipate

Hexanedioic acid, mixed diesters with decanoic acid, 12-hydroxyoctadecanoic acid, isosteareate acid, octanoic acid and oxybis (propanediol). See Bis-diglyceryl polyacryladipate-1

2,3-Hexanedione; Hexane-2,3-dione. See Acetyl butyryl

3,4-Hexanedione

CAS 4437-51-8; EINECS/ELINCS 224-651-7

FEMA 3188

**Synonyms:** Diethyl diketone; Dipropionyl; Hexane-3,4-dione

**Classification:** Aliphatic ketone

**Empirical:** C₆H₁₀O₂

**Formula:** CH₂CH(COCH₂CH₃)

**Properties:** Yel. cl. oily liq.; sol. in alcohol; sl. sol. in water; m.w. 114.15; dens. 0.946 (20/4 C); b.p. 123-125 C; flash pt. 27 C; ref. index 1.411 (20 C)

**Precaution:** Flamm.

**Uses:** Flavor and fragrance for pharmaceuticals

**Features:** Pungent, butter-like fragrance and flavor

**Regulatory:** FEMA GRAS; Canada DSL

**Manuf./Distrib.:** Advanced Synthesis Tech.
[http://www.advancedsynthesis.com](http://www.advancedsynthesis.com)

- BASF
  [http://www.basf.com](http://www.basf.com)
- Fluka
  [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
- Frutarom Ltd
  [http://www.frutarom.com](http://www.frutarom.com)
- Oxford Chems. Ltd
  [http://www.oxfordchemicals.com](http://www.oxfordchemicals.com)
- SAFCSpecialties
  [http://www.safcspecialties.com](http://www.safcspecialties.com)
- Wutong Aroma

**Hexane-3,4-dione.** See 3,4-Hexanedione

1,2,3,4,5,6-Hexanexol. See D-Mannitol

1,2,6-Hexanetriol

CAS 106-69-4; EINECS/ELINCS 203-424-6

**Synonyms:** Hexane-1,2,6-triol; 1,2,6-Trihydroxyhexane

**Classification:** Aliphatic alcohol

**Empirical:** C₆H₁₄O₃

**Formula:** HOCH₂CH(OH)CH₂CH₂CH₂CH₂OH

**Properties:** Water-wh. to pale yel. liq.; misc. with water and oxygenated solvs.; m.w. 134.20; dens. 1.1063; vapor pressure < 0.01 mm Hg (20 C); pour pt. -20 C; f.p. 32.8 C; b.p. 178 C
Hexanoic acid propyl ester. See Propyl hexanoate

Hexanol; 1-Hexanol; Hexan-1-ol. See Hexyl alcohol

3-Hexanol
CAS 623-37-0
FEMA 3351
Empirical: \( \text{C}_{6}\text{H}_{14}\text{O} \)
Properties: M.w. 102.18; dens. 0.819; b.p. 134-135 C; flash pt. 107 F
Uses: Flavor for pharmaceuticals
Regulatory: FEMA GRAS; Canada DSL

1-Hexanol, 2-ethyl. See 2-Ethylhexanol
Hexanolide-1,4; Hexan-4-olide. See \( \gamma \)-Hexalactone
1-Hexanol, 3,5,5-trimethyl-, acetate. See 3,5,5-Trimethylhexyl acetate

Hexanone. See Methyl isobutyl ketone

2-Hexanone
CAS 591-78-6; EINECS/ELINCS 209-731-1
UN 1224

Hexanoi acid 1-ethyl-1,5-dimethyl-4-hexenyl ester. See Linalyl hexanoate
Hexanoic acid, 2-ethyl-, C15-18-alkyl esters.

See Cetearsy octanoate

Hexanoic acid ethyl ester. See Ethyl caproate

Hexanoic acid, 2-ethyl-, hexadecyl ester. See Cetyl octanoate

Hexanoic acid, 2-ethyl-, octadecyl ester. See Stearyl octanoate

Hexanoic acid, hexyl ester. See Hexyl hexanoate

Hexanoic acid, isobutyl ester. See Isobutyl hexanoate

Hexanoic acid, methyl ester. See Methyl caproate

Hexanoic acid, 2-methylpropyl ester. See Isobutyl hexanoate

Hexanoic acid, pentyl ester. See Amyl hexanoate

Hexanoic acid phenethyl ester; Hexanoic acid phenyl ethyl ester. See Phenethyl hexanoate

Hexanoic acid, 2-propenyl ester. See Allyl caproate
Hexanone-2.  See 2-Hexanone

3-Hexanone
CAS 589-38-8; EINECS/ELINCS 209-645-4
UN 1224; FEMA 3290
Synonyms: Ethyl propyl ketone; Hexan-3-one
Classification: aliphatic ketone
Empirical: C₅H₁₂O
Formula: C₅H₁₀O
Properties: Colorless liq.; etheral, grape, wine-

Hexanone-2.  See 2-Hexanone

3-Hexanone
CAS 589-38-8; EINECS/ELINCS 209-645-4
UN 1224; FEMA 3290
Synonyms: Ethyl propyl ketone; Hexan-3-one
Classification: aliphatic ketone
Empirical: C₅H₁₂O
Formula: C₅H₁₀O
Properties: Colorless liq.; etheral, grape, wine-
Hex-2-en-1-ol; 2-Hexen-1-ol; 2-Hexen-1-ol, (E)-; α,β-Hexenol. See 2-Hexenol

β-γ-Hexenol. See cis-3-Hexenol
cis-3-Hexenol

<table>
<thead>
<tr>
<th>CAS</th>
<th>EINECS/ELINCS</th>
<th>UN</th>
<th>FEMA</th>
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<td>928-96-1</td>
<td>213-192-8</td>
<td>2282</td>
<td>GRAS</td>
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</tbody>
</table>

Synonyms: β-γ-Hexenol; cis-3-Hexenol-1; cis-3-Hexen-3-ol-1; Leaf alcohol

Classification: Organic compd.; aliphatic alcohol

Definition: Commercial prod. is the cis-isomer

Empirical: CsH12O

Formula: CH3CH2CH=CHCH2CH2OH

Hex-2-en-1-ol, 2-Hexen-1-ol, and cis-3-Hexenol are chemical components with various properties and uses. They are colorless liquids with strong odors and flavors, and are commonly used in the pharmaceutical and fragrance industries. The properties of these compounds include boiling points, flash points, and densities, as well as toxicological information, such as LD50 values and irritation potential. Precautions for handling these compounds include wearing protective gear and avoiding contact with strong oxidizers. They are typically stored under nitrogen and refrigerated to prevent degradation. Uses for these compounds include synthetic flavors for pharmaceuticals and other applications. Regulatory information includes listing under TSCA and FDA regulations.
Chemical Component Cross-Reference

cis-3-Hexen-1-ol; cis-Hexen-3-ol-1. See cis-3-Hexenol
trans-2-Hexenol; trans-2-Hexen-1-ol. See 2-Hexenol
2-Hexen-1-ol acetate; Hex-2-enyl acetate; 2-Hexenyl acetate; 2-Hexen-1-yl acetate; (E)-2-Hexenyl acetate. See trans-2-Hexenyl acetate

trans-2-Hexenyl acetate
CAS 2497-18-9; EINECS/ELINCS 219-680-7
UN 3272; UN 1993 (DOT; UN IATA); FEMA 2564
Synonyms: 2-Hexene-1-yl acetate; 2-Hexen-1-ol acetate; Hex-2-enyl acetate; 2-Hexenyl acetate; 2-Hexen-1-yl acetate; (E)-2-Hexenyl acetate; trans-2-Hexen-1-yl acetate
Definition: Commercial prod. is the trans-isomer
Empirical: C₈H₁₄O₂
Formula: CH₃COOCH₂CH=CH(CH₂)₂CH₃
Properties: Colorless liq., pleasant fruity odor and taste; insol. in water; sol. in most org. solvs.; m.w. 142.19; dens. 0.898; b.p. 165-166 C; flash pt. 58 C; ref. index 1.4270
Toxicology: LD₅₀ (oral, rat) > 5 g/kg, (dermal, rabbit) > 5 g/kg; eye, skin, respiratory system irritant; ing. may cause stomach pain, vomiting; TSCA listed
Precaution: Combustible liq.; incompat. with strong oxidizers, reducers
Hazardous Decomp. Prods.: CO₂; heated to decomp., emits acrid smoke and irritating fumes
HMIS: Health 1, Flammability 2, Reactivity 0
Storage: Keep away from heat, sparks, open flame; keep in original, tightly closed container
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; EINECS, AICS, Canada DSL, ECL, ENCS, PICCS listed

(Z)-3-Hexenyl phenylacetate; 3-Hexenyl α-toluate; β,γ-Hexenyl α-toluate. See cis-3-Hexenyl phenylacetate

Hexetidine
CAS 141-94-6; EINECS/ELINCS 205-513-5
Synonyms: Amino-1,3-bis (β-ethylhexyl)-5-methylhexahydropyrimidine; 5-Amino-1,3-bis (2-ethylhexyl)-5-methylhexahydropyrimidine; 1,3-Bis (2-ethylhexyl) hexahydro-5-methyl-5-pyrimidiamine; Substituted hexa hydropyrimidine
Hexyl acetate

CAS 142-92-7; EINECS/ELINCS 205-572-7
UN 1993; FEMA 2565

Synonyms: Acetic acid hexyl ester; Dihexyl ether; 1-Hexyl acetate; n-Hexyl acetate; Hexyl alcohol, acetate; Hexyl ethanoate

Empirical: C8H16O2
Formula: CH3COO(CH2)5CH3

Properties: Colorless to pale yel. oily liq., pleasant fruity odor, bittersweet taste; sol. in alcohol, ether; sl. sol. in water; m.w. 144.22; dens. 0.873 (20/4 C); vapor pressure 5 mm Hg (45 C); m.p. -81 C; b.p. 167-169 C; flash pt. (PMCC) 57 C; ref. index 1.409 (20 C); surf. tens. 26 dynes/cm

Toxicology: LD50 (oral, rat) 42 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; skin and eye irritant; TSCA listed

Environmental: ThOD 2.44

Precaution: Flamm.; wear safety glasses or goggles, rubber gloves, apron; incomapt. with strong oxidizers, reducers

Hazardous Decomp. Prods.: Heated to decomp., emits CO, CO2, acrid smoke and fumes

Storage: 12 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air

Uses: Synthetic flavor for pharmaceuticals

Features: Sweet apple, cherry, pear-like flavor

Regulatory: FDA 21CFR §172.515; FEMA
Chemical Component Cross-Reference

GRAS delisted

Hexyl alcohol
CAS 111-27-3; 68526-79-4; EINECS/ELINCS 203-852-3
UN 2282 (DOT); FEMA 2567
Synonyms: Alcohol C6; Amylcarbinol; Caproyl alcohol; Hexanol; 1-Hexanol; Hexan-1-ol; n-Hexanol; n-Hexyl alcohol; 1-Hydroxyhexane; Pentylcarbinol
Classification: Primary aliphatic alcohol
Empirical: C₆H₁₄O
Formula: CH₃(CH₂)₄CH₂OH
Properties: Colorless liq.; fruity odor, aromatic flavor; sol. in alcohol, ether, acetone, chloroform, benzene, oxygenated solvs.; sl. sol. in water; m.w. 102.20; dens. 0.8186; vapor pressure 1 mm Hg (24.4 C); f.p. -51.6 C; b.p. 157.2 C; flash pt. (TOC) 65 C; ref. index 1.4380; surf. tens. 25.73 dynes/cm
Toxicology: LD₅₀ (oral, rat) 4.59 g/kg, (skin, rabbit) 3100 mg/kg; poison by IV route; mod. toxic by ing., skin contact; skin and severe eye irritant; can be absorbed through skin; inh. may cause CNS effects, headache, nausea, dizziness, incoordination; ing. may cause 'alcohol' intoxication symptoms; may cause severe lung damage, respiratory arrest, possibly death if aspirated into lungs; TSCA listed
Environmental: VOC; BOD₅ 1.50; ThOD 2.82
Precaution: Flamm. or combustible liq.; reactive with oxidizing materials, strong acids
NFPA: Health 1, Flammability 2, Reactivity 0
Storage: Store in cool, dry area away from corrosives
Uses: Synthetic flavor for pharmaceuticals; antiseptics
Regulatory: FDA 21CFR §172.515, 172.864, 178.3480; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI
†=pharmaceutical grade

n-Hexyl alcohol. See Hexyl alcohol
Hexyl alcohol, acetate. See Hexyl acetate
n-Hexyl aldehyde. See Hexanal
4-Hexyl-1,3-benzenedioli. See 4-Hexylresorcinol
Hexyl butanoate; n-Hexyl butanoate; n-Hexyl n-butanoate. See Hexyl butyrate
Hexyl 2-butenoate
CAS 19089-92-0; EINECS/ELINCS 242-808-8
FEMA 3354
Synonyms: 2-Butenoic acid, hexyl ester; N-Hexyl 2-butenoate; Hexyl trans-2-butenoate; Hexyl crotonate
Classification: Nonaromatic ester
Empirical: C₁₀H₁₈O₂
Properties: Colorless liq.; fruity pineapple odor; sol. in alcohol, fixed oils; insol. in water, propylene glycol; m.w. 170.25; dens. 0.885; flash pt. 193 F; ref. index 1.4380
Toxicology: LD₅₀ (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; primary skin irritant; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Synthetic flavor for pharmaceuticals
Features: Pineapple-like flavor
Regulatory: FEMA GRAS; Canada DSL
N-Hexyl 2-butenoate; Hexyl trans-2-butenoate. See Hexyl 2-butenoate
Hexyl butyrate
CAS 2639-63-6; EINECS/ELINCS 220-136-6
UN 1993; FEMA 2568
Synonyms: Butyric acid, hexyl ester; Hexyl butanoate; n-Hexyl butanoate; n-Hexyl n-butyrate; 1-Hexyl butyrate; n-Hexyl butyrate
Classification: Nonaromatic ester
Empirical: C10H20O2
Formula: CH3(CH2)2COO(CH2)5CH3
Properties: Liq.; apricot-like odor; pineapple-like taste; m.w. 172.27; dens. 0.851; m.p. -78 C; b.p. 205 C; flash pt. 79 C; ref. index 1.4170
Toxicology: LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; primary skin irritant; TSCA listed
Precaution: Combustible; wear safety glasses or goggles, rubber gloves, apron; incompat. with strong oxidizers, reducers
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Storage: 12 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air
Uses: Synthetic flavor for pharmaceuticals
Features: Sweet apricot, pineapple-like
Regulatory: GRAS; Australia AICS; Canada DSL; Japan MITI
1-Hexyl butyrate; n-Hexyl butyrate. See Hexyl butyrate
γ-N-Hexyl-γ-butyrolactone. See γ-Decalactone
Hexyl caproate; Hexyl capronate. See Hexyl hexanoate
Hexyl caprylate; n-Hexyl caprylate. See Hexyl octanoate
Hexyl cinnamaldehyde. See α-Hexylcinnamaldehyde
α-Hexylcinnamaldehyde
CAS 101-86-0; EINECS/ELINCS 202-983-3
FEMA 2569
Synonyms: 2-Benzylidene-octanal; Hexyl cinnamaldehyde; Hexyl cinnamic aldehyde; α-n-Hexyl cinnamic aldehyde; α-n-Hexyl-β-phenylacrolein; 2-(Phenylmethylene) octanol
Classification: aromatic compd.
Empirical: C15H20O
Formula: C6H13C(CHO):CHC6H5
Properties: Pale yel. liq., jasmine-like odor; sol. in most fixed oils, min. oil; insol. in glycerol, propylene glycol; m.w. 216.33; dens. 0.95; m.p. 4 C; b.p. 174-176 C (15 mm); flash pt. > 230 F; ref. index 1.5480-1.5520
Toxicology: LD50 (oral, rat) 3100 mg/kg, (oral, mouse) 2300 mg/kg; mod. toxic by ing.; skin irritant; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Uses: Synthetic flavor for pharmaceuticals
Regulatory: GRAS; Australia AICS; Canada DSL
Hexyl cinnamaldehyde; α-n-Hexyl cinnamic aldehyde. See α-Hexylcinnamaldehyde
Hexyl crotonate. See Hexyl 2-butenoate
2-Hexyl decanoic acid
CAS 25354-97-6
Synonyms: 7-Pentadecanecarboxylic acid
Classification: Nonaromatic carboxylic acid
### 5-Hexyldihydro-2(3H)-furanone

**Uses:**
Ingred. in lip balms

**Trade Names Containing:**
- ISOFOL® 18E
- ISOFOL® 18T
- Jarcol™ I-18T

### Hexylene glycol

**CAS:** 107-41-5; EINECS/ELINCS 203-489-0

**Synonyms:**
- 2,4-Dihydroxy-2-methylpentane;
- 2-Methyl-2,4-pentanediol;
- 2,4-Dipentyl-4-methylpentane;
- 4-Methyl-2,4-pentanediol;
- 2,4-Pentanediol,

**Uses:**
- Colorless liq., nearly odorless; sol. in water, aliphatic and aromatic hydrocarbons, alcohols, ethers, fatty acids; m.w. 118.18;
- dens. 0.9216 (20/4 C); m.p. -50 C; sets to glass; b.p. 198.3 C; flash pt. (TCC) 98 C; ref. index 1.4276 (20 C)

**Toxicology:**
- LD50 (oral, rat): > 2,000 mg/kg; LDLo (oral, rat) 300 mg/kg; poison by IP route; noncarcinogenic; eye irritant; not significantly toxic to skin or mucous membranes; may cause gastrointestinal irritation, nausea, vomiting and diarrhea; prolonged inh. of vapors may be irritating; TSCA listed

**Properties:**
- Visc. oil; insol. in water; m.w. 256.43; d. 0.874; m.p. 18 C; b.p. 268 C; flash pt. (CC) 235 F; ref. index 1.4460

**Health and Safety:**
- COx Hazardous Decomp. Prods.: CO,
- HMIS: Health 1, Flammability 1, Reactivity 0
- CAS: 107-41-5
- NFPA: Health 0, Flammability 1, Reactivity 0
- TSCA listed
- Trade Names Containing: ISOFOL® 18E; ISOFOL® 18T; Saboderm EDL

**Precaution:**
- Combustible; can react vigorously with oxidizing materials; incompat. with strong acids (decomp. occurs)

**Environmental:**
- Accessible by IP route; mildly toxic by skin contact; skin and eye irritant; inh. may cause nose/respiratory irritation; very high concs. may cause headache, dizziness, nausea, incoordination; mutagenic data; TSCA listed

**Storage:**
- Store in cool, dry area away from heat and ignition sources; hygroscopic; avoid generating mists

**Uses:**
- Pharmaceutical aid; humectant, solvent in pharmaceuticals, topical

**Regulatory:**
- FDA 21CFR §175.105, 176.180, 176.200, 176.210, 177.1210, 177.2800; FDA approved for topicals; USP/NF compliance; Canada DSL

**Trade Names:**
- ISOFOL® 18E;
- ISOFOL® 18T;
- Saboderm EDL

**Trade Names Containing:**
- ISOFOL® 18E;
- ISOFOL® 18T; Saboderm EDL

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**Empirical:** \( \text{C}_{16}\text{H}_{32}\text{O}_2 \)

**Properties:**
- Visc. oil; insol. in water; m.w. 256.43; dens. 0.874; m.p. 18 C; b.p. 268 C; flash pt. (CC) 235 F; ref. index 1.4460

**Toxicology:**
- LD50 (acute oral, rat): > 2,000 mg/kg; LDLo (oral, rat) 300 mg/kg; poison by IP route; noncarcinogenic; eye irritant; not significantly toxic to skin; ing. may cause gastrointestinal irritation, nausea, vomiting and diarrhea; prolonged inh. of vapors may be irritating; TSCA listed

**Environmental:**
- HMIS: Health 1, Flammability 1, Reactivity 0
- CAS: 107-41-5
- NFPA: Health 0, Flammability 1, Reactivity 0
- TSCA listed
- Trade Names Containing: ISOFOL® 18E; ISOFOL® 18T; Jarcol™ I-18T

**Precaution:**
- Combustible; can react vigorously with oxidizing materials; incompat. with strong acids (decomp. occurs)

**Environmental:**
- Accessible by IP route; mildly toxic by skin contact; skin and eye irritant; inh. may cause nose/respiratory irritation; very high concs. may cause headache, dizziness, nausea, incoordination; mutagenic data; TSCA listed

**Storage:**
- Store in cool, dry area away from heat and ignition sources; hygroscopic; avoid generating mists

**Uses:**
- Pharmaceutical aid; humectant, solvent in pharmaceuticals, topical

**Regulatory:**
- FDA 21CFR §175.105, 176.180, 176.200, 176.210, 177.1210, 177.2800; FDA approved for topicals; USP/NF compliance; Canada DSL

**Trade Names:**
- ISOFOL® 18E;
- ISOFOL® 18T; Saboderm EDL

**Trade Names Containing:**
- ISOFOL® 18E;
- ISOFOL® 18T; Saboderm EDL
Hexylene glycol diacetate. See 1,3-Nonanediol acetate, mixed esters

Hexyl ethanoate. See Hexyl acetate

Hexyl formate
CAS 629-33-4; EINECS/ELINCS 211-087-1
FEMA 2570
Synonyms: Formic acid, hexyl ester; n-Hexyl formate
Classification: Nonaromatic ester
Empirical: C₇H₁₄O₂
Properties: Colorless liq.; green fruity odor; sweet taste; sl. sol. in water; misc. with alcohol, ether; m.w. 130.19; dens. 0.879; m.p. -63 C; b.p. 155-156 C; flash pt. 211 F; ref. index 1.4071
Toxicology: Primary skin irritant; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Storage: 6 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI
Manuf./Distrib.: Advanced BioTech
http://www.adv-bio.com; Axxence Aromatic GmbH http://www.axxence.com;
SAFC Specialties http://www.safcspecialties.com

n-Hexyl hexanoate; Hexyl hexoate; Hexyl hexylate. See Hexyl hexanoate

Hexyl hydride. See Hexane

2-Hexylidene cyclopentanone
CAS 17373-89-6; EINECS/ELINCS 241-411-7
FEMA 2573
Synonyms: 2-hexylidene cyclopentan-1-one; α-hexylidene cyclopentanone; Jasmalone
Classification: aliphatic ketone
Empirical: C₁₁H₁₈O
Properties: Pale yel. cl. liq.; sol. in alcohol; insol. in water; m.w. 166.26; sp. gr. 0.91100 - 0.91600
Toxicology: TSCA listed
Uses: Synthetic flavor for pharmaceuticals
Features: Warm jasmin spicy fruity odor
Use Level: 0.06% max. in finished cosmetics
Hexyl isovalerate

CAS 10032-13-0; EINECS/ELINCS 233-105-7
FEMA 3500

Synonyms: Butanoic acid, 3-methyl-, hexyl ester; n-Hexyl isopentanoate; Hexyl 3-methylbutanoate; Isovaleric acid, hexyl ester; 3-Methylbutyric acid hexyl ester

Classification: Nonaromatic ester

Definition: Ester of n-hexanol and isovaleric acid

Empirical: C₁₁H₂₂O₂

Properties: Colorless liq., pungent fruity odor; sol. in alcohol, fixed oils; insol. in water; m.w. 186.30; dens. 0.853; b.p. 215 C; flash pt. 215 C; ref. index 1.417

Toxicology: LD₅₀ (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; TSCA listed

Precaution: Combustible

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL


Hexyl laurate

CAS 34316-64-8; EINECS/ELINCS 251-932-1

Synonyms: Dodecanoic acid, hexyl ester

Definition: Ester of hexyl alcohol and lauric acid

Empirical: C₁₈H₃₆O₂

Formula: CH₃(CH₂)₁₀COO(CH₂)₅CH₃

Toxicology: TSCA listed

Uses: Emulsifier, emollient, lubricant, vehicle, spreading agent, carrier, base, dispersant in pharmaceuticals

Regulatory: Canada DSL


Trade Names: Cetiol® A

Trade Names Containing: Abil® WE 09

Hexyl 2-methylbutanoate. See Hexyl 2-methylbutyrate

Hexyl 3-methylbutanoate. See Hexyl isovalerate

Hexyl isovalerate

1-Hexyl isobutyrate; n-Hexyl isobutyrate. See Hexyl isobutyrate

n-Hexyl isopentanoate. See Hexyl isovalerate

†=pharmaceutical grade
Hexyl methylbutyrate. See Hexyl 2-methylbutyrate

Hexyl 2-methylbutyrate
CAS 10032-15-2; EINECS/ELINCS 233-106-2
FEMA 3499
Synonyms: Hexyl 2-methylbutanoate; Hexyl methylbutyrate; 2-Methylbutanoic acid n-hexyl ester
Classification: Nonaromatic ester
Definition: Ester of n-hexanol and 2-methylbutanoic acid
Empirical: C11H22O2
Properties: Colorless liq., strong green fruity odor, unripe strawberry taste; sol. in alcohol, fixed oils; insol. in water; m.w. 186.30; dens. 0.858; flash pt. 183 F; ref. index 1.4185; acid value 2.0 max.
Toxicology: LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; mildly toxic by ing. and skin contact; primary skin irritant; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating vapors
HMIS: Health 1, Flammability 1, Reactivity 0
Uses: Synthetic flavor for pharmaceuticals
Features: Apple, strawberry-like, fruity flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

n-Hexyl-n-octanoate. See Hexyl octanoate

2-Hexyl-1-octanol
CAS 19780-79-1
Synonyms: Isomyristyl alcohol; 12-Methyl-1-tridecanol
Empirical: C14H30O
Toxicology: TSCA listed
Uses: Ingred. in pharmaceuticals
Manuf./Distrib.: Chemsampco http://www.chemsampco.com
Trade Names Containing: Jarcol™ I-14T

n-Hexyl octylate. See Hexyl octanoate

Hexyl phenylacetate
CAS 5421-17-0; EINECS/ELINCS 226-537-2
FEMA 3457
Synonyms: n-Hexyl phenylacetate; Hexyl α-toluate; Phenylacetic acid hexyl ester
Classification: Aromatic ester
Empirical: C14H20O2
Properties: Colorless liq.; fruity odor; insol. in water; sol. in most org. solvs.; m.w. 220.31; dens. 0.970; vapor dens. 7.5; b.p. 264-265 C; flash pt. > 130 C; ref. index 1.4850
Toxicology: Skin, eye irritant; TSCA listed
Precaution: Incompat. with strong oxidizers
Storage: Keep away from heat, sparks, open
α-Hexyl propanoate. See Hexyl propanoate

Hexyl propanoate; 1-Hexyl propanoate; n-Hexyl propanoate. See Hexyl propanoate

Hexyl propanoate
CAS 2445-76-3; EINECS/ELINCS 219-495-1
FEMA 2576
Synonyms: Hexyl propanoate; 1-Hexyl propanoate; n-Hexyl propanoate; 1-Hexyl propionate; Propionic acid, hexyl ester; Propionic acid, hexyl ester
Classification: Nonaromatic ester
Definition: Ester of n-hexanol and propionic acid
Empirical: C9H18O2
Properties: Liq., earthy acrid odor, sweet metallic-fruity taste; sol. in alcohol, propylene glycol; insol. in water; m.w. 158.24; dens. 0.871; b.p. 180 C; flash pt. 149 F; ref. index 1.4105
Toxicology: LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating vapors
Uses: Synthetic flavor for pharmaceuticals
Features: Pear-like flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Advanced BioTech
http://www.adv-bio.com; Advanced Synthesis Tech.
http://www.advancedsynthesis.com; Bell Flavors & Fragrances
http://www.bellff.com; Grau Aromatics
http://www.grau-aromatics.de; Interchim
http://www.interchim.com

SAFC Specialties
http://www.safcspecialties.com

1-Hexyl propionate. See Hexyl propionate

4-Hexylresorcinol; Hexylresorcinol. See 4-Hexylresorcinol

4-Hexylresorcinol
CAS 136-77-6; EINECS/ELINCS 205-257-4
INS586
Synonyms: 1,3-Dihydroxy-4-hexylbenzene; 4-Hexyl-1,3-benzenediol; 4-Hexyl-1,3-dihydroxybenzene; 4-Hexylresorcinol; Hexylresorcinol; 4-n-Hexylresorcinol; p-Hexylresorcinol
Empirical: C12H18O2
Formula: C6H13C6H13(OH)2
Properties: Colorless to pale yel. heavy liq. which solidifies on standing or need.; pungent odor; sharp astringent taste; sl. sol. in water; sol. in benzene, ether, acetone, chloroform, alcohol, glycerol, veg. oils; m.w. 194.30; m.p. 67.5-69 C; b.p. 179 C
Toxicology: LD50 (oral, rat) 550 mg/kg; LDLo (IP, mouse) 50 mg/kg, (subcut., mouse) 750 mg/kg; poisonous by ing., IP routes; mod. toxic by subcut. route; may irritate eyes, skin, respiratory tract; conc. sol'ns. can burn skin and mucous membranes; questionable carcinogen with mutagenic data; experimental reproductive effects; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Uses: Anthelmintic; topical antiseptic
Regulatory: BP, EP compliance; Canada DSL
Manuf./Distrib.: Advanced Synthesis Tech.
http://www.advancedsynthesis.com;
Aldrich http://www.sigma-aldrich.com;
Fluka http://www.sigma-aldrich.com;
Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality
Prods. http://www.spectrumchemical.com

4-n-Hexylresorcinol; p-Hexylresorcinol. See 4-Hexylresorcinol

2-Hexyl-tetrahydrofuran-4-yl acetate. See 2-Hexyl-4-acetoxytetrahydrofuran

6-Hexyl-tetrahydropropyran-2-one; 6-Hexyltetrahydro-2H-pyran-2-one. See δ-Undecalactone

Hexyl α-toluate. See Hexyl phenylacetate
HFC 21. See Dichlorofluoromethane
HFC 23. See Trifluoromethane
HFC 134a. See Tetrafluoroethane
Hippuric acid, compd. with hexamethylene tetramine. See Methenamine hippurate
Hippuric acid, o-iodo-, monosodium salt. See Iodohippurate sodium

Hippuric acid, o-iodo-, monosodium salt. See L-Histidine (INCI)

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Hippuric acid, o-iodo-, monosodium salt.
Chemical Component Cross-Reference

http://www.riausa.com; Ruger†
http://www.rugerchemical.com; SAFC Specialties†
http://www.safcspecialties.com; Sigma
http://www.sigma-aldrich.com/belgium Spectrum Quality Prods.†
http://www.spectrumchemical.com; Synasia†
http://www.synasia.com; Tanabe USA http://www.tanabeusa.com; VWR
Int'l.† http://www.vwrsp.com; Varsal Instruments http://www.varsal.com
Voigt Global Distrib.†
http://www.vgdllc.com; Westco Fine Ingreds.†
http://www.westcofine.com

L-Histidine hydrochloride hydrate. See Histidine hydrochloride monohydrate

Histidine hydrochloride monohydrate
CAS 6341-24-8 (D-); 5934-29-2 (L-);
EINECS/ELINCS 228-733-3 (D-); 211-438-9 (L-)
Synonyms: 1α-Amino-4 (or 5)-imidazolepropionic acid monohydrochloride; Glyoxaline-5-alanine monohydrochloride; L-Histidine hydrochloride hydrate; Histidine monohydrochloride monohydrate
Classification: Aminic salt
Empirical: C6H12ClN3O3
Formula: C6H9N3O2 • ClH • H2O
Properties: Wat. need., plates, or cryst. powd., sl.
   bitter taste; sol. in water; insol. in alcohol, ether; m.w. 209.63; decomp. 250 C
Toxicology: LD50 (IP, mouse) > 1677 mg/kg
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx
HMIS: Health 1, Flammability 1, Reactivity 1
Uses: Flavor, nutrient, dietary supplement in pharmaceuticals
Regulatory: FDA 21 CFR §172.310, limitation
2.4%; Japan approved
Manuf./Distrib.: Ajinomoto†
http://www.ajinomoto.co.jp;
http://www.ajinomoto.com; Aldrich
http://www.sigma-aldrich.com; Degussa
http://www.degussa.com; Fluka
http://www.sigma-aldrich.com; Kyowa
Hakko Kogyo http://www.kyowa.co.jp
Mallinckrodt Baker†
http://www.mallbaker.com; Sigma
http://www.sigma-aldrich.com/belgium; Spectrum Quality Prods.

†=pharmaceutical grade

Histidine monohydrochloride monohydrate.
   See Histidine hydrochloride monohydrate
HMDS. See Hexamethyldisilazane;
   Hexamethyldisiloxane
HMI. See Hexamethylenelimine
HMP. See Sodium hexametaphosphate
Hoarhound extract. See Horehound (Marrubium vulgare) extract
HOCH. See Formaldehyde
Holy basil. See Ocimum sanctum
Homoanisic acid. See p-Methoxyphenylacetic acid
Homocinnamyl alcohol. See 4-Phenyl-3-buten-2-ol
Homocresol. See 4-Ethylguaiacol
Homo-cuminic aldehyde. See p-Isopropylphenylacetaldehyde
Homoguaic acid. See 2-Methoxy-4-methylphenol
Homopiperidine. See Hexamethylenimine

Honey
CAS 8028-66-8; EINECS/ELINCS 310-127-6
Synonyms: Clarified honey; Mel; Strained honey
Definition: Saccharic secretion gathered by honey bees, Apis mellifera
Properties: Lt. ylsh. to reddish brn. thick syrupy liq., char. odor, sweet faintly acrid taste
Uses: Sweetener, flavor in pharmaceuticals; emollient; humectant
Regulatory: BP, EP compliance (purified); Canada DSL
Manuf./Distrib.: Adept Sol’ns.†; Alfa Chem†
http://www.alfachem1.com; Alfred L. Wolff GmbH†
http://www.alwolff.de; Austin†
http://www.austinchemical.com; Functional Foods†
http://www.functionalfoods.com
Havero Hoogwet BV http://www.havero.nl

Hoplostethus; Hoplostethus atlanticus oil;
Hoplostethus oil. See Orange roughy oil
Hops extract. See Hops (Humulus lupulus) extract

Hops (Humulus lupulus) extract
CAS 8016-25-9; 8060-28-4; EINECS/ELINCS 232-504-3
FEMA 2578
Synonyms: Hops extract; Humulus lupulus; Humulus lupulus extract
Definition: Extract derived from Humulus lupulus
Properties: Bitter tonic, aromatic flavor
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Hops (Humulus lupulus) oil
CAS 8007-04-3
FEMA 2580
Synonyms: Hops oil; Humulus americanus; Humulus americanus oil; Humulus lupulus; Humulus lupulus oil
Definition: Volatile oil derived from freshly dried membranous cones of female plants of Humulus lupulus, containing lupulin, alkaloids, valerianic acid
Properties: Lt. yel. to brnsh. liq., aromatic odor; sol. in fixed oils, min. oil; sl. sol. in alcohol; insol. in glycerin, propylene glycol, water; dens. 0.855-0.880 (15/15 C); ref. index 1.1470-1.494 (20 C)
Toxicology: LD50 (oral, rat) 2700 mg/kg; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Storage: Keep cool, well closed; protect from light
Uses: Natural flavor for pharmaceuticals
Features: Sharp green spicy sweet beer herbal odor
Regulatory: FDA 21CFR §182.20, GRAS; FEMA GRAS; Japan approved; Canada DSL
Hops oil. See Hops (Humulus lupulus) oil
Hordeum distichon extract. See Barley

†=pharmaceutical grade

Horehound (Marrubium vulgare) extract
CAS 84696-20-8; EINECS/ELINCS 283-638-4
FEMA 2581
Synonyms: Hoarhound extract; Horehound extract; Marrubium vulgare; Marrubium vulgare extract
Definition: Extract of the herb of the horehound, Marrubium vulgare
Properties: Bitter tonic, balsamic
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §182.20, GRAS; FEMA GRAS
Horse chestnut (Aesculus hippocastanum) extract
CAS 8053-39-2; 90045-79-7; EINECS/ELINCS 232-497-7; 289-943-9
Synonyms: Aesculus hippocastanum; Aesculus hippocastanum extract; Horse chestnut extract
Definition: Extract of the horse chestnut, Aesculus hippocastanum
Uses: Botanical in sun care and eye care prods.
Chemical Component Cross-Reference

**Thornley**

**Horse chestnut extract.** See Horse chestnut (Aesculus hippocastanum) extract

**Horsemint extract; Horsemint leaves extract.** See Horsemint (Monarda punctata) extract

**Horsemint (Monarda punctata) extract**
CAS 8006-85-7
FEMA 2582
Synonyms: Horsemint extract; Horsemint leaves extract; Monarda; Monarda punctata; Monarda punctata extract; Wild bergamot
Definition: Extract derived from leaves of Monarda punctata or other spp.
Properties: Thymol-like odor, harsh burning aromatic flavor; dens. 0.923-0.933
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §182.20, GRAS; FEMA GRAS

**Horsetail (Equisetum arvense) extract**
CAS 71011-23-9; EINECS/ELINCS 275-123-8
Synonyms: Dutch rush extract; Equisetum arvense; Equisetum arvense extract; Horsetail extract; Scouring rush extract
Definition: Extract of the sterile caules of Equisetum arvense
Properties: Brown fine powd.; particle size < 300 µm; dens. (tapped) 0.5 g/ml
Uses: Diuretic; astringent to stop bleeding and stimulate healing; an antitubercular drug
Manuf./Distrib.: Carrubba
http://www.carrubba.com; Grau Aromatics
http://www.grau-aromatics.de
Trade Names Containing: Hair Complex Aquosum

**Horsetail extract.** See Horsetail (Equisetum arvense) extract

**HPBCD.** See Hydroxypropyl-β-cyclodextrin

**HPC.** See Hydroxypropylcellulose

**HPMC.** See Hydroxypropyl methylcellulose

**HPMCAS.** See Hydroxypropyl methylcellulose acetate succinate

**HPMCP.** See Hydroxypropyl methylcellulose phthalate

**HQ.** See Hydroquinone

**HQDME.** See p-Dimethoxybenzene

**HQMEE.** See Hydroquinone monomethyl ether

**HTAB.** See Cetrimonium bromide

**Huile de ricini.** See Castor (Ricinus communis) oil

†=pharmaceutical grade

**Human albumin; Human serum albumin.** See Albumin

**Humulus lupulus; Humulus lupulus extract.** See Hops (Humulus lupulus) extract

**Humulus lupulus oil.** See Hops (Humulus lupulus) oil

**HVP.** See Hydrolyzed vegetable protein

**Hyacinth.** See 2-Phenylpropanal

**Hyacinthin.** See Phenylacetaldehyde

**Hyaluronic acid**
CAS 9004-61-9; EINECS/ELINCS 232-678-0
Definition: Natural mucopolysaccharide formed by bonding N-acetyl-D-glucosamine with glucuronic acid
HMIS: Health 1, Flammability 1, Reactivity 0
Uses: Antistat, humectant, moisturizer, lubricant for pharmaceuticals
Regulatory: Canada DSL
Manuf./Distrib.: Active Organics
Chemical Component Cross-Reference

**Synastia†**  [http://www.synasia.com](http://www.synasia.com);
Vincience  [http://www.vincience.com](http://www.vincience.com); Worthington Biochemical  [http://www.worthington-biochem.com](http://www.worthington-biochem.com)

**Trade Names:**  HTL HYP Hyaluronic Acid 85%; HTL MYP Hyaluronic Acid 93%

**Hyaluronic acid, sodium salt.**  See Sodium hyaluronate

**Hybrid safflower (Carthamus tinctorius) oil**

**Synonyms:**  Carthamus tinctorius; Carthamus tinctorius hybrid oil; Carthamus tinctorius oil; Hybrid safflower oil; Safflower oil, hybrid

**Definition:**  Oil derived from safflower seeds of a generic strain (hybrid safflower) which contains predominantly oleic acid triglyceride

**Properties:**  Bland liq.; insol. in water; sol. in oil

**Uses:**  Solubilizer, emollient, conditioner, gloss aid, solvent for pharmaceuticals

**Hybrid safflower oil.**  See Hybrid safflower (Carthamus tinctorius) oil

**Hydantoin, 1,3-bis (hydroxymethyl)-5,5-dimethyl-.**  See DMDM hydantoin

**Hydantoin, 1,3-dichloro-5,5-dimethyl-.**  See 1,3-Dichloro-5,5-dimethyl hydantoin

**Hydargyrum.**  See Mercury

**Hydrated alumina; Hydrated aluminum oxide.**  See Aluminum hydroxide

**Hydrated aluminum silicate.**  See Pyrophyllite; Kaolin

**Hydrated amorphous silica.**  See Silica, amorphous hydrated

**Hydrated chromic sesquioxide; Hydrated chromium oxide green; Hydrated chromium sesquioxide.**  See Chromium hydroxide green

**Hydrated ferric oxide.**  See CI 77492; Iron (III) oxide hydrated; Iron oxide yellow monohydrate

**Hydrated lime.**  See Calcium hydroxide

**Hydrated silica (INCI).**  See Silica, hydrated

**Hydratropalcohol.**  See 2-Phenyl propanol-1

**Hydratropaldehyde.**  See 2-Phenylpropanal

**Hydratropaldehyde dimethyl acetal.**  See 2-Phenylpropanaldehyde dimethylacetal

**Hydratropic alcohol.**  See 2-Phenyl propanol-1

**Hydratropic aldehyde.**  See 2-Phenylpropanal

**Hydratropic aldehyde dimethyl acetal.**  See 2-Phenylpropanaldehyde dimethylacetal

†=pharmaceutical grade

**Phenylpropionaldehyde dimethylacetal**

**Hydatropyl alcohol.**  See 2-Phenyl propanol-1

**Hydatropyl butyrate.**  See 2-Phenylpropyl butyrate

**Hydatropyl isobutyrate.**  See 2-Phenylpropyl isobutyrate

**Hydriodic acid**

**CAS 10034-85-2; EINECS/ELINCS 233-109-9**

**UN 1787 (DOT); 2197 (anhyd.; UN DOT)**

**Synonyms:**  Anhydrous hydroiodic acid; Hydrogen iodide; Hydroiodic acid

**Classification:**  Acid

**Empirical:**  HI

**Properties:**  Colorless to pale yel. liq., odorless; misc. with water, alcohol; m.w. 127.91; dens. 1.7; b.p. 127 C; m.p. 133-135 C; flash pt. none

**Toxicology:**  Poison by ing. and inh.; corrosive; eye, skin, and mucous membrane irritant; TSCA listed

**Precaution:**  Explodes on contact with ethyl hydroperoxide; ignites on contact with magnesiam; perchloric acid; potassium + heat; potassium chlorate + heat; oxidants; violent reactions possible; attacks natural rubber

**Hazardous Decomp. Prods.:**  Reacts with water or steam to produce toxic and corrosive fumes; heated to decomp., emits highly toxic fumes of I–

**Storage:**  Light- and air-sensitive; refrigerate

**Uses:**  Prep. of iodine salts, org. preps.; analytical reagent; expectorant

**Regulatory:**  Canada DSL


**Hydroabietyl alcohol**

**CAS 1333-89-7; 26266-77-3; 13393-93-6;**

**EINECS/ELINCS 247-574-0**

**Synonyms:**  Dihydroabietyl alcohol; Dodecahydro-1,4a-dimethyl-7-(1-methylethyl)-1-phenanthrenemethanol; 1-Phenanthrenemethanol, tetradecahydro-1,4a-dimethyl-7-(1-methylethyl)-1-
**Definition:** Organic alcohol derived from wood rosin

**Empirical:** C_{20}H_{34}O

**Formula:** C_{19}H_{31}CH_{2}OH

**Properties:** Colorless visc. liq. to solid; insol. in water; m.w. 290.49; dens. 1.007-1.008; m.p. 32-33 C; flash pt. (COC) 185 C; ref. index 1.526 (20 C)

**Toxicology:** TSCA listed

**Precaution:** Combustible

**Uses:** Excipient in pharmaceuticals

**Regulatory:** FDA 21CFR §175.105, 176.180

**Manuf./Distrib.:** ChemService [link], Hercules [link], J.H. Calo† [link]

**Hydrobis (2-methylpropyl) aluminum. See Diisobutylaluminum hydride**

**Hydrocarbon 40**

**CAS:** 8041-63-2

**Uses:** Water repellent in pharmaceutical topicals

**Regulatory:** FDA approved for topicals

**Hydrochloric acid**

**CAS:** 7647-01-0; EINECS/ELINCS 231-595-7

**UN:** 1050 (DOT); UN 1789 (DOT); UN 2186 (DOT); INS507; E507

**Synonyms:** Aqueous hydrogen chloride; Chlorhydric acid; HCl; Hydrogen chloride; Muriatic acid; Spirits of salt

**Classification:** Inorganic acid

**Empirical:** ClH

**Formula:** HCl

**Properties:** Colorless fuming gas or liq., pungent odor; sol. in water, alcohol, ether, benzene; insol. in hydrocarbons; m.w. 36.46; dens. 1.639 g/l (gas, 0 C), 1.194 (liq., -26 C); m.p. -114.3 C; b.p. -84.8 C; pH 1.1 (0.1 N sol'n.); nonflamm. gas

**Toxicology:** ACGIH TLV/CL 5 ppm; mod. toxic by ing.; human poison; mildly toxic to humans by inh.; corrosive irritant to skin, eyes, mucous membranes; mutagenic data; experimental teratogen; 35 ppm causes throat irritation on short exposure; TSCA listed

**Precaution:** DOT: Corrosive material; explosive reaction with many chems.; potentially dangerous reaction with sulfuric acid releases HCl gas; strongly corrosive; incompat. with metals, bases, oxidizing/reducing agents, etc.

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of Cl–

**NFPA:** Health 3, Flammability 0, Reactivity 1

**Storage:** Store in cool, dry, well-ventilated area out of direct sunlight; prevent release of vapor or mist

**Uses:** Acidifier, buffer and neutralizer for pharmaceuticals, injectables, parenterals, inhalants, intravenous, ophthalmics, orals, otics, topicals; preservative for soft contact lens

**Regulatory:** FDA 21CFR §131.144, 131.129, 155.191, 155.194, 160.105, 160.185, 172, 172.560, 172.892, 182.1057, GRAS; HAP; Canada DSL; Japan restricted; Europe listed; UK approved; FDA approved for injectables, parenterals, inhalants, intravenous, ophthalmics, orals, otics, topicals; USP/NF, BP, EP, JP compliance

**Manuf./Distrib.:** AAE Chemie NV† [link], AMRESCO† [link], Albemarle [link], Albion Inorganic Chems.† [link], Aldrich† [link], Alfa Chem† [link], Amyl [link], Arch Chems. [link], Arkema† [link], Asahi Kasei Corpn. [link], Asahi Denka Kogyo [link], Ashland† [link], Aventis Pharmaceuticals† [link], Aventis Pharma-US.com [link], BASF [link], Bayer† [link], bayer.com [link], Boith China [link], Brenntag AG† [link], Brown [link], Camida Ltd† [link], Degussa AG/Health & Nutrition [link], Degussa AG/Health & Nutrition [link], Dover [link], Dow† [link], DuPont [link], EMD Chems.† [link], EMD Chemicals [link], Fabrichem [link], Finnish Chems. Oy [link], Fisher Scientific† [link], Fisher Scientific† [link], Fluka [link], Fisher Scientific† [link], GFS† [link], GFS Chemicals [link], Happy Chemicals [link], Fluka [link], Fisher Scientific† [link], Fisher Scientific† [link]
Chemical Component Cross-Reference

Galbraith Labs† http://www.galbraith.com; General Chem.
http://www.genchemcorp.com; Harcros
http://www.harcroschem.com; Hawkins
Independent Chem.
http://www.independentchemical.com; Integra† http://www.integrachem.com
Lyondell http://www.lyondell.com
Mallinckrodt Baker† http://www.mallbaker.com
http://www.merck.de
Merck KGaA† http://www.merck.de
Nissan Chem. Ind.
http://www.nissanchem.co.jp; Occidental
http://www.oxychem.com; Olin/Chlor Alkali
http://www.olinchloralkali.com; PCI Chems.
Canada http://www.piona.com; PPG Ind.
http://www.ppg.com;
http://www.ppgchloralkali.com
Polysciences† http://www.polysciences.com; Rasa Ind.
http://www.rasa.co.jp; Romil Ltd
http://www.romil.com
Ruger http://www.rugerchemical.com; Sal
Chem. http://www.salchem.com; Sasol N.
Am. http://www.sasolnorthamerica.com; Showa Denko http://www.sdk.co.jp; Sigma
http://www.sigma-alrich.com/belgium
Solvay SA† http://www.solvay.com;
Spectrum Quality Prods.† http://www.spectrumchemical.com;
Tennants Distrib. Ltd† http://www.tennantsdistribution.com;
Thomas Scientific† http://www.thomassci.com; Universal
VWR Int’l.† http://www.vwrsp.com; Vulcan

1-Hydrochloride arginine. See L-Arginine monohydrochloride
Hydrochlorofluorocarbon 236. See 1,1,1,3,3,3-Hexafluoropropane
Hydrochlorothiazide
CAS 58-93-5
Synonyms: 6-Chloro-3,4-dihydro-2H-1,2,4-
benzothiadiazine-7-sulfonamide-1,1-
dioxide; Chlorosulthiadil; Chlorzide;

†=pharmaceutical grade

Dihydrochlorothiazide
Empirical: C7H8ClN3O4S2
Properties: Wh. or pract. wh. cryst. powd., odorless; sol. in sodium hydroxide sol’n., dimethylformamide, dil. ammonia, NaOH; insol. in water, chloroform, ether, dil. min. acids; m.w. 297.75; m.p. 273-275 C
Toxicology: LD50 (oral, mouse) 2830 mg/kg; poison by IP and IV routes; mod. toxic by ing. and subcutaneous routes; mutagenic data; diuretic; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of SOx, Cl-, and NOx
Uses: Pharmaceutical orals; diuretic drug
Regulatory: FDA approved for orals; BP, Ph.Eur. compliance; Canada DSL
Cambrex Profarmaco† http://www.cambrex.com; Functional
Foodst http://www.functionalfoods.com;
RTD Hallstar† http://www.rtdhallstar.com;
Sigma http://www.sigma-alrich.com/belgium; Spectrum Quality
Prods.† http://www.spectrumchemical.com;
Synasia† http://www.synasia.com; Voigt
Global Distrib.† http://www.vgdllc.com
Zetapharm† http://www.zetapharm.com

Hydrocinnamaldehyde
CAS 104-53-0; EINECS/ELINCS 203-211-8
FEMA 2887
Synonyms: Benzenepropanal;
Benzylacetaldehyde;
Dihydrocinnamaldehyde; Dihydrocinnamic
aldehyde; Hydrocinnamic aldehyde;
Hydrocinnamide; 3-Phenylpropanal; 3-
Phenyl-1-propanal; 3-
Phenylpropionaldehyde; β-
Phenylpropionaldehyde; Phenylpropionic
aldehyde; Phenylpropyl aldehyde; 3-
Phenylpropyl aldehyde
Classification: aromatic compd.
Empirical: C9H10O
Chemical Component Cross-Reference

**Formula:** C₆H₅CH₂CH₂CHO

**Properties:** Colorless to sl. yel. liq., strong floral hyacinth odor; misc. with alcohol, ether; insol. in water; m.w. 134.19; dens. 1.010-1.020; b.p. 221-224 C; flash pt. 203 F; ref. index 1.520-1.532

**Toxicology:** LD₅₀ (IV, mouse) 56 mg/kg; poison by IV route; human skin irritant; eye irritant; TSCA listed

**Precaution:** Combustible liq.

**Hazardous Decomp. Prods.:** Heated to decomp. emits acrid smoke and irritating fumes

**Storage:** Store in tightly closed containers in dry, well-ventilated area away from direct sunlight.

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Synthetic flavor for pharmaceuticals

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL


**Hydrocinnamic acid**

**Synonyms:** Benzenepropanoic acid; 3-Benzenepropanol; Benzylethyl alcohol; Dihydrocinnamic alcohol; Dihydrocinnamyl alcohol; Hydrocinnamyl alcohol; 1-Hydroxy-3-phenylpropane; (3-Hydroxypropyl)benzene; Phenethyl carbinol; Phenethyl carbinol; Phenyl-1-propanol; 3-Phenylpropanol; 3-Phenylpropanol-1-ol; 3-Phenyl-n-propanol; γ-Phenylpropanol; Phenylpropyl alcohol; 3-Phenylpropyl alcohol; γ-Phenylpropyl alcohol; 1-Propanol, 3-phenyl-

**Classification:** Aromatic alcohol

**Empirical:** C₆H₅O

**Formula:** C₆H₅(CH₂)₃OH

**Properties:** Colorless sl. visc. oily liq., sweet hyacinth-mignonette balsamic odor; sol. in fixed oils, propylene glycol, ethanol; misc. with oxygenated solvs.; sl. sol. in water; insol. in glycerin, paraffin oil; m.w. 136.21; sp.gr. 0.998-1.002; m.p. -18 C; b.p. 235 C; flash pt. (TCC) 109 C; ref. index 1.524-1.528

**Toxicology:** LD₅₀ (oral, rat) 2300 mg/kg, (skin, rabbit) 5000 mg/kg; mod. toxic by ing.; mildly toxic by skin contact; irritating to eyes, skin, mucous membranes, upper respiratory tract; may be harmful by inh.; TSCA listed

**Environmental:** Prevent contamination of soil, ground- and surf. water; do not discharge into environment

**Precaution:** Combustible liq.; incompat. with strong oxidizing agents, strong reducing agents

**Hazardous Decomp. Prods.:** CO, CO₂; heated
Chemical Component Cross-Reference †=pharmaceutical grade

Handbook of Pharmaceutical Additives, Third Edition

Hydrocinnamic aldehyde. See Hydrocinnamaldehyde

Hydrocinnamic isobutyrate. See 3-Phenylpropyl isobutyrate

Hydrocinnamyl acetate

CAS 122-72-5; EINECS/ELINCS 204-569-8

FEMA 2890

Synonyms: Hydrocinnamic acid; 3-Phenyl-
1-propanol acetate; Phenylpropyl acetate;
3-Phenylpropyl acetate

Empirical: C_{11}H_{14}O_{2}

Formula: C_{6}H_{5}CH_{2}CH_{2}OOCCH_{3}

Properties: Colorless liq., spicy floral odor; sol. in
alcohol; insol. in water; m.w. 178.25; dens.
1.012; flash pt. > 212 F; ref. index 1.494

Toxicology: LD_{50} (oral, rat) 4700 mg/kg; mildly
toxic by ing.; TSCA listed

Precaution: Combustible liq.

Hazardous Decomp. Prods.: Heated to
decom, emits acrid smoke and fumes

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA
Chemical Component Cross-Reference

Hydrodisobutylaluminum. See Diisobutylaluminum hydride
Hydroessential anissette. See Anise (Pimpinella anisum) oil
Hydrofluorocarbon 23. See Trifluoromethane
Hydrofuran. See Tetrahydrofuran

Hydrogenated butylene/ethylene/styrene copolymer
Definition: Polymer of butylene, ethylene, and styrene that has been hydrogenated
Uses: Emollient, visc. control agent in pharmaceuticals

Hydrogenated castor oil
CAS 8001-78-3; EINECS/ELINCS 232-292-2
Synonyms: Castor oil, hydrogenated; Castorwax; Opalwax
Definition: End prod. of controlled hydrogenation of castor oil, consisting mainly of the triglyceride of hydroxystearic acid
Properties: Wh. hard wax; very insol. in water and in the more common org. solvs.; m.w. ≈ 932; m.p. 86-88 C; iodine no. 5 max.; sapon. no. 176-182; hyd. no. 154-162
Toxicology: LD50 (oral, rat) > 10 g/kg; ingestion of large amts. may cause pelvic congestion; TSCA listed
Uses: Surfactant, emollient, emulsifier, visc. control agent for pharmaceuticals, orals, topicals; stiffener, wax for ointments; lubricant, tableting aid for tablet coatings; solvent for intramuscular injectables; laxative
Regulatory: FDA 21CFR §175.105, 175.300, 176.170, 176.210, 177.1200, 177.1210, 177.2420, 177.2800, 178.3280; USP/NF compliance; Canada DSL

Hydrogenated coco-glycerides
Definition: Mixture of mono, di, and triglycerides of hydrogenated coconut oil
Uses: Emollient, ointment base, consistency agent for pharmaceuticals; suppository base
Trade Names: Akosoft 36; Massa Estarinum® 299; Massa Estarinum® B; Massa Estarinum® C; Softisan® 100; Softisan® 133; Softisan® 134; Softisan® 138; Softisan® 142; Witepsol® E76; Witepsol® E85; Witepsol® H5; Witepsol® H12; Witepsol® H15; Witepsol® H32; Witepsol® H35; Witepsol® H37; Witepsol® H185; Witepsol® W25; Witepsol® W31
Chemical Component Cross-Reference

**Witepsol® W32; Witepsol® W35; Witepsol® W45; Witocan® 42/44**

Trade Names Containing: **Massa Estarinum® BC; Massa Estarinum® E; Witepsol® E75; Witepsol® H175; Witepsol® H19 Witepsol® S51; Witepsol® S52; Witepsol® S55; Witepsol® S58**

Hydrogenated coconut acid
CAS **68938-15-8; EINECS/ELINCS 273-118-5**

Synonyms: Acids, coconut, hydrogenated; Coconut acid, hydrogenated; Coconut oil fatty acids, hydrogenated; Fatty acids, coco, hydrogenated

**Definition:** End prod. of controlled hydrogenation of coconut acid

**Uses:** Emulsifier for pharmaceuticals; pharmaceutical intermediate

**Regulatory:** FDA 21CFR §175.105, 176.210, 177.2600, 177.2800, 178.3570

Manuf./Distrib.: **Nottingham**
http://www.ppiinc.com; Rhodia HPCI1I
http://www.rhodia-hpcii.com

**Trade Names:** Hystrene® 5012; Industrene® 223

Hydrogenated coconut oil
CAS **84836-98-6; EINECS/ELINCS 284-283-8**

Synonyms: Coconut oil, hydrogenated

**Definition:** End prod. of controlled hydrogenation of coconut oil

**Uses:** Lubricant, moisturizer, base in pharmaceutical coatings, gelatin capsules, suppositories

**Regulatory:** FDA 21CFR §175.105, 176.210, 177.2600, 177.2800; Canada DSL

Manuf./Distrib.: **Aarhus Karlshamn A/S†**
http://www.aak.com; Alnor Oil
http://www.alnoroil.com; Nottingham
http://www.ppiinc.com; Sea-Land

**Trade Names:** Sabowax HCO

Hydrogenated C6-14 olefin polymers
CAS **163149-29-9 (generic)**

**Definition:** Series of low m.w. polymers of olefin monomers, each contg. 6-14 carbon atoms

**Uses:** Viscosity control agent, emollient

**Trade Names:** PureSyn™ 100

Hydrogenated corn syrup. See Hydrogenated starch hydrolysate
### Supersat

**Hydrogenated lard**

CAS: 73138-67-7

*Synonyms:* **Lard, hydrogenated**

*Definition:* End prod. of controlled hydrogenation of lard

*Uses:* **Emollient**

*Trade Names Containing:* **Fattylan**

**Hydrogenated lard glyceride**

CAS: 8040-05-9; 91744-55-7; EINECS/ELINCS 294-619-5

*Synonyms:* **Glycerides, hydrogenated lard mono-; Glycerides, lard mono-, hydrogenated**

*Definition:* End prod. of controlled hydrogenation of lard glycerides

*Properties:* Nonionic

*Uses:* **Emulsifier, stabilizer, dispersant, opacifier for pharmaceuticals**

*Regulatory:* FDA 21CFR §175.105, 176.210

*Trade Names Containing:* **Dimodan® HA**

**Hydrogenated lard mono-, di- and tri-glycerides.** See Hydrogenated lard glycerides

**Hydrogenated lecithin**

CAS: 92128-87-5; 97281-48-6; EINECS/ELINCS 295-786-7; 306-549-5

*Synonyms:* **Cholinphosphoric acid diglyceride ester; 1,2-Diacyl-sn-glycero-3-phosphocholine; Hydrogenated soya phosphatidylcholine; Lecithin, hydrogenated; (3-sn-Phosphatidyl) choline, soya, hydrogenated**

*Definition:* End prod. of controlled hydrogenation of lecithin

*Empirical:* **C₄₄H₈₂NO₉P**

*Properties:* M.w. 783; amphoteric

*Uses:* **Emulsifier, moisturizer, solubilizer, stabilizer, o/w surfactant, refatting agent for pharmaceuticals; prep. of liposomes for pharmaceuticals**

### Hydrogenated menhaden acid

*Synonyms:* **Acids, menhaden, hydrogenated; Fatty acids, menhaden oil, hydrogenated; Menhaden acid, hydrogenated**

*Definition:* End prod. of controlled hydrogenation of fatty acids obtained from menhaden oil

*Uses:* **Surfactant, emulsifier, lubricant, mold release agent for pharmaceuticals; chemical intermediate**

*Regulatory:* FDA 21CFR §175.105, 176.210, 177.2800, 178.3570

*Trade Names:* **Hystrene® 3022**

**Hydrogenated menhaden oil**

CAS: 93572-53-3; 68002-72-2; EINECS/ELINCS 297-485-6

*Synonyms:* **Menhaden oil, hydrogenated**

*Definition:* End prod. of controlled hydrogenation of menhaden oil

*Properties:* Wh. opaque solid, odorless; iodine no. 10 max.; sapon. no. 180-200

*Uses:* **Pharmaceutical intermediate**

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.210, 177.2800, 184.1472, 186.1551, GRAS

**Hydrogenated microcrystalline wax**

CAS: 92045-76-6; EINECS/ELINCS 295-458-3

*Synonyms:* **Microcrystalline wax, hydrogenated; Paraffin waxes and hydrocarbon waxes, microcrystalline, hydrotreated**

*Definition:* Complex combination of hydrocarbons obtained from residual oils by solvent crystallization, and treated with hydrogen in presence of a catalyst; consists predominantly of sat. hydrocarbons with > C25

*Uses:* **Viscosity control agent in pharmaceuticals**

*Trade Names Containing:* **Pionier® 1730; Pionier® 3476; Pionier® 17106**

**Hydrogenated palatinose.** See **Isomalt**

**Hydrogenated palm glyceride**

CAS: 67784-87-6; 91744-73-9; 97593-29-8; EINECS/ELINCS 294-638-9

*Synonyms:* **Glycerides, palm oil mono-, hydrogenated; Palm oil glyceride, hydrogenated**

*Definition:* End prod. of controlled hydrogenation of palm glyceride

*Features:* Increases skin humidity

*Trade Names: Phospholipon® 80 H; Phospholipon® 90 H; Phospholipon® 100 H*

*Trade Names Containing:* **Melarrest™ L**
Chemical Component Cross-Reference

Properties: Nonionic
Uses: Emulsifier, stabilizer, dispersant, opacifier for pharmaceuticals
Regulatory: FDA 21CFR §176.210, 177.2800
Trade Names: Monomuls® 90-35

Hydrogenated palm glycerides
CAS 91744-66-0; EINECS/ELINCS 294-631-0
Synonyms: Glycerides, palm oil mono-, di- and tri, hydrogenated; Hydrogenated palm mono-, di- and tri-glycerides
Definition: End prod. of controlled hydrogenation of palm oil glycerides
Properties: Nonionic
Uses: Emollient, emulsifier, stabilizer, dispersant, opacifier for pharmaceuticals
Trade Names: Monomuls® 90-35
Trade Names Containing: Suppocire® CM

Hydrogenated palm kernel glycerides
CAS 93334-20-4; EINECS/ELINCS 297-094-0
Synonyms: Glycerides, palm kernel, mono-, di- and tri-, hydrogenated
Definition: End prod. of controlled hydrogenation of palm kernel glycerides
Uses: Emollient, visc. control agent for pharmaceuticals
Trade Names: Monomuls® 60-35
Trade Names Containing: Suppocire® CM

Hydrogenated palm kernel oil
CAS 68990-82-9; 84540-04-5; EINECS/ELINCS 273-627-2; 283-093-2
Synonyms: Oils, palm kernel, hydrogenated; Palm kernel oil, hydrogenated
Definition: End prod. of controlled hydrogenation of palm kernel oil
Uses: Emollient, visc. control agent, fat for pharmaceutical ointments

Hydrogenated palm mono-, di- and triglycerides. See Hydrogenated palm glycerides

Hydrogenated palm oil
CAS 8033-29-2; 68514-74-9; EINECS/ELINCS 271-056-3
Synonyms: Oils, palm, hydrogenated; Palm oil, hydrogenated
Definition: End prod. of controlled hydrogenation of palm oil
Uses: Hard wax, emollient, consistency agent, crystallization promoter, m.p. modifier, bodying agent, moisturizer for pharmaceuticals; filler, binder, lubricant, disintegrant, solubilizer, carrier, emulsifier, emollient in tablets, capsules, suppositories
Regulatory: FDA 21CFR §175.105, 176.210, 177.2800
Trade Names: Dynasan® P60; Softisan® 154

Hydrogenated palm/palm kernel oil PEG-6 complex. See Hydrogenated palm/palm kernel oil PEG-6 esters

Hydrogenated palm/palm kernel oil PEG-6 esters
Synonyms: Hydrogenated palm/palm kernel oil PEG-6 complex
Definition: Complex mixture formed from transesterification of hydrog. palm kernel oil, hydrog. palm oil, and PEG-6
Uses: Emollient for pharmaceuticals; amphiphilic agent to improve drug delivery
Features: Hydrophilic
Trade Names Containing: Labrafil® M 2130 CS

Hydrogenated polybutene
CAS 68937-10-0
Synonyms: But-1-ene compd. with but-2-ene; Polybutene, hydrogenated
Classification: Polymer
Properties: Colorless, odorless, and tasteless; dens. 0.830; flash pt. 235 C; ref. index 1.4581
Toxicology: TSCA listed
Uses: Emollient and occlusivity agent in lip balms and pharmaceuticals
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com
Trade Names: Versagel™ RE 750

Hydrogenated poly-1-decen; Hydrogenated polydecene. See 1-Decene, homopolymer, hydrogenated

Hydrogenated polyisobutene
CAS 40921-86-6; 61693-08-1
Synonyms: Polyisobutane; Propane, 2-methyl-, homopolymer
Classification: Branched chain aliphatic hydrocarbon
Formula: \([\text{CH}_2\text{C(CH}_3\text{)}_2]_n\), avg. \(n = 6-8\)
Toxicology: Nonirritating to eyes and skin, noncomedogenic, nontoxic when ingested
Uses: Emollient, spreading agent, penetrant for pharmaceuticals
Chemical Component Cross-Reference

Regulatory: FDA 21CFR §175.105, 175.300, 178.3740
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; CoKEM Assoc.; Engelhard http://www.engelhard.com

Hydrogenated soya phosphatidylcholine. See Hydrogenated lecithin

Hydrogenated soybean glyceride. See Hydrogenated soy glyceride

Hydrogenated soybean glycerides. See Hydrogenated soy glycerides

Hydrogenated soybean oil
CAS 8016-70-4; EINECS/ELINCS 232-410-2
Synonyms: Soybean oil hydrogenated
Definition: End prod. of controlled hydrogenation of soybean oil
Toxicology: TSCA listed
Uses: Crystallization promoter, m.p. modifier, bodying agent, lubricant, moisturizer, diluent in pharmaceuticals; filler in capsules, tablets, suppositories; pharmaceutical intermediate
Regulatory: FDA 21CFR §175.105, 176.180, 176.210, 177.2800, 182.70, 182.170; USP/NF, BP, EP compliance; Canada DSL
Trade Names: Clarity; Dritex S; Sterotex® HM NF
Trade Names Containing: Sterotex® K, NF; Sterotex® K

Hydrogenated soybean oil glycerides;
Hydrogenated soybean oil mono-, di- and tri- glycerides. See Hydrogenated soy glycerides

Hydrogenated soybean oil monoglyceride. See Hydrogenated soy glyceride

Hydrogenated soy glyceride
CAS 61789-08-0; EINECS/ELINCS 263-030-5
Synonyms: Glycerides, soya mono-, hydrogenated; Glycerides, soybean oil hydrogenated, mono; Hydrogenated soybean glyceride; Hydrogenated soybean oil monoglyceride

†=pharmaceutical grade

Definition: End prod. of controlled hydrogenation of soybean monoglycerides
Properties: Nonionic
Uses: Emulsifier, emollient, stabilizer, dispersant, opacifier for pharmaceuticals
Regulatory: FDA 21CFR §176.210, 177.2800
Trade Names: Dimodan® H SK-A

Hydrogenated soy glycerides
CAS 68201-48-9; 91745-04-9; EINECS/ELINCS 294-672-4
Synonyms: Glycerides, soya mono-, di- and tri-, hydrogenated; Hydrogenated soybean glycerides; Hydrogenated soybean oil glycerides; Hydrogenated soybean oil mono-, di- and tri- glycerides
Definition: End prod. of controlled hydrogenation of a mixture of mono, di and triglycerides derived from soybean oil
Properties: Nonionic
Uses: Emollient, emulsifier, stabilizer, dispersant, opacifier for pharmaceuticals
Regulatory: FDA 21CFR §176.210, 177.2800

Hydrogenated starch hydrolysate
CAS 68425-17-2
Synonyms: Corn syrup, hydrogenated; Hydrogenated corn syrup; Hydrogenated starch hydrolysates
Definition: End prod. of controlled hydrogenation of corn syrup
Uses: Lubricant, humectant for dentifrices; sweetener
Regulatory: Canada DSL
Manuf./Distrib.: Lonza http://www.lonza.com
Trade Names: Hystar® 3375; Hystar® 4075; Hystar® 5875; Hystar® 6075; Hystar® CG; Hystar® HM-75; Hystar® TPF
Hydrogenated starch hydrolysates. See Hydrogenated starch hydrolysate

Hydrogenated tallow
CAS 8030-12-4; EINECS/ELINCS 232-442-7
Synonyms: Tallow, hardened; Tallow, hydrogenated
Definition: End prod. of controlled hydrogenation of tallow
Uses: Emollient, emulsifier, raw material for pharmaceuticals; hydrophobing agent
Regulatory: FDA 21CFR §173.340, 175.105, 176.170, 176.180, 176.210, 177.2800, 182.70; Canada DSL
Manuf./Distrib.: Acme-Hardesty http://www.acme-hardesty.com
Trade Names: Dervafac 3760; Special Fat
Hydrogenated tallow glyceride
CAS 61789-09-1; EINECS/ELINCS 263-031-0
Synonyms: Glycerides, hydrogenated tallow mono-; Glycerides, tallow mono-, hydrogenated; Hydrogenated tallow monoglyceride
Definition: Monoglyceride of hydrogenated tallow
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emollient, emulsifier, stabilizer, thickener, dispersant, opacifier for pharmaceuticals
Regulatory: FDA 21 CFR §176.210, 177.2800; Canada DSL
Trade Names Containing: Dimodan® HA

Hydrogenated tallow glyceride lactate
CAS 68990-06-7; EINECS/ELINCS 273-576-6
Synonyms: Glycerides, tallow mono-, hydrogenated, lactates
Definition: Lactic acid ester of hydrogenated tallow glyceride
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, emollient, plasticizer for pharmaceuticals

Hydrogenated tallow glycerides
CAS 67701-27-3; 68308-54-3; 92128-50-2; EINECS/ELINCS 266-945-8; 269-658-6; 295-745-3
Synonyms: Glycerides, tallow, hydrogenated; Glycerides, tallow mono-, di- and tri-, hydrogenated; Hydrogenated tallow mono-, di- and tri-glycerides
Definition: Mixture of mono, di and triglycerides of hydrogenated tallow acid
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emollient, emulsifier, stabilizer, dispersant, opacifier for pharmaceuticals
Regulatory: FDA 21 CFR §176.210, 177.2800; Canada DSL
Manuf./Distrib.: Anar
Trade Names: Neustrene® 060
Trade Names Containing: Ross Beeswax Substitute No. 628/5

Hydrogenated tallow mono-, di- and triglycerides. See Hydrogenated tallow glycerides

Hydrogenated tallow monoglyceride. See Hydrogenated tallow glyceride

Hydrogenated tallow trimethyl ammonium chloride. See Hydrogenated tallowtrimonium chloride
<table>
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<th>Chemical Component Cross-Reference</th>
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<tr>
<td><a href="http://www.cpichem.com">http://www.cpichem.com</a>; Charkit†</td>
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<td>Penta Mfg† <a href="http://www.pentamfg.com">http://www.pentamfg.com</a>;</td>
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<td>R.W. Greeff† <a href="http://www.pecheney-chemicals.com">http://www.pecheney-chemicals.com</a>; Ruger†</td>
</tr>
<tr>
<td><a href="http://www.rugerchemical.com">http://www.rugerchemical.com</a>; Sasol Germany‡ <a href="http://www.sasol.com">http://www.sasol.com</a>;</td>
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<td><a href="http://www.sasololelfinssurfactants.com">http://www.sasololelfinssurfactants.com</a>; Spectrum Quality Prods.†</td>
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<td><a href="http://www.spectrumchemical.com">http://www.spectrumchemical.com</a></td>
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<td>Tate &amp; Lyle UK <a href="http://www.tateandlyle.com">http://www.tateandlyle.com</a>; Univar Ltd† <a href="http://www.univar.co.uk">http://www.univar.co.uk</a>;</td>
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<td>Universal Preserv-A-Chem† <a href="http://www.upichem.com">http://www.upichem.com</a>; Welch, Holme &amp; Clark†</td>
</tr>
<tr>
<td><a href="http://www.welch-holme-clark.com">http://www.welch-holme-clark.com</a></td>
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<tr>
<td>Trade Names: Caprol® ET; Hydrokote® 112; Hydrokote® AP-5; Hydrokote® M;</td>
</tr>
<tr>
<td>Paramount H; Paramount X; Paramount XX; Pureco® HSC-1; WECOBEE® FS; WECOBEE® M;</td>
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<tr>
<td>WECOBEE® S</td>
</tr>
<tr>
<td>Trade Names Containing: Beta Carotene 1%; CWS; Hydrokote® 102</td>
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</tbody>
</table>

### Hydrogen carboxylic acid
- See Formic acid

### Hydrogen chloride
- See Hydrochloric acid

### Hydrogen dioxide
- See Hydrogen peroxide solution
- Hydroperoxide

### Hydrogen iodide
- See Hydriodic acid

### Hydrogen nitrate
- See Nitric acid

### Hydrogen peroxide
- CAS 7722-84-1; EINECS/ELINCS 231-765-0
  - UN 2014 (DOT); 2984
- Synonyms: Hydrogen dioxide; Hydrogen peroxide solution; Hydroperoxide
- Classification: Inorganic oxide
- Empirical: \( \text{H}_2\text{O}_2 \)
- Formula: HOOH
- Properties: Colorless visc. liq., cryst. solid at low temp.; sl. pungent irritating odor; bitter taste; sol. in ether, alcohol; misc. with water; dec. by many org. solvs.; m.w. 34.02; dens. (liq.) 1.450 g/cc (20 C); f.p. -0.41 C; b.p. 150.2 C; nonflamm.

### Toxicology:
- ACGIH TLV/TWA 1 ppm; LD50 (oral, mouse) 2 g/kg, (skin, rat) 4060 mg/kg; mod. toxic by inh., ing., skin contact; corrosive irritant to skin, eyes, mucous membranes; tumorigenic; human mutagenic data

### Environmental:
- LC50 (fish, 96 h) 16.4 mg/l; nonbioaccumulative

### Precaution:
- Dangerous fire hazard by chem. reaction with flamm. materials; explosion hazard; strong oxidizer; incompat. with acids, bases, metals, reducing agents, org. materials

### Uses:
- Antiseptic to cleanse wounds, skin ulcers, local infections, in topicals, in oral rinse prods.; treatment of inflammatory conditions of the external ear canal; foaming agent in dentifrices, mouthwash gargles

### Regulatory:
- FDA 21CFR §133.113, 133.118, 133.13, 133.144, 133.195, 160.105, 160.145, 160.185, 172.723, 172.814, 172.892, 173.315, 175.105, 178.1005, 178.1005 (35% sol'n. max.), 178.1010, 184.1366, GRAS; Canada DSL; BATF 27CFR §240.1051 (3 ppm max. in wine), 240.1051a (200 ppm max. in distilling materials); Japan restricted; FDA approved for topicals; BP, EP compliance (sol'n.)

### Manuf./Distrib.:
- AP Resources
  - http://www.apr.co.kr; Aldrich†
  - http://www.sigma-aldrich.com; Alzo
  - http://www.alzointernational.com; Arch Chems.
  - http://www.archchemicals.com; Arkema† http://www.total.com/
  - Ashland† http://www.ashchem.com
  - Belinka http://www.belinka.si; Brenntag
  - AG† http://www.brenntag.de; Brown
  - http://www.brownchem.com; Burlington
  - C.P. Hall† http://www.cphall.com; Coyne
  - http://www.dcchem.co.kr/english/index.asp; Degussa AG/Health & Nutrition; Degussa
  - http://www.degussa.com
  - DuPont http://www.dupont.com; Eka
  - Chems. AB; FMC Forer
  - http://www.fmcforet.com; FMC†
  - http://www.fmcchemicals.com; Fluka
  - http://www.sigma-aldrich.com
Chemical Component Cross-Reference

†=pharmaceutical grade

Definition: Hydrolysate of actin derived by acid, enzyme, or other method of hydrolysis
Toxicology: May be harmful by inh., ing., or skin absorption; may cause eye/skin irritation
Precaution: Incompat. with strong oxidizers
Storage: Store in cool, dry place; keep tightly closed
Uses: Biological additive
Regulatory: Canada DSL
Manuf./Distrib.: Somerset Cosmetic Co.
http://www.makingcosmetics.com/
Trade Names Containing: Seanamin BD LS 8460

Hydrolyzed animal protein. See Hydrolyzed collagen

Hydrolyzed casein
CAS 65072-00-6; EINECS/ELINCS 265-363-1
Synonyms: Casein hydrolysate; Proteins, milk, hydrolysates
Definition: Hydrolysate of casein derived by acid, enzyme, or other method of hydrolysis
Toxicology: TSCA listed
Uses: Binder, emulsifier, film-former, emollient, protective colloid, chelating agent in pharmaceuticals, nutritional prods.; stabilizer for colloids and emulsions
Manuf./Distrib.: Adept Sol’ns.; Alfa Chem; Am. Casein
http://www.americancasein.com; DMV Int’l.
Pharma; http://www.dmvinternational.com; Marcor Development
http://www.marcordev.com
Noveon; http://www.carbopol.com; http://www.noveoncoatings.com; Pangaea Sciences
http://www.pangaeasciences.com; RTD Hallstar
http://www.rtdhallstar.com; VWR Int’l.
http://www.vwrsp.com
Trade Names: HCA-411; Hy Case SF
See also Hydrolyzed milk protein

Hydrolyzed collagen
CAS 92113-31-0; 100085-61-8
Synonyms: Collagen hydrolysates; Hydrolyzed animal protein; Protein, animal, hydrolyzed; Protein hydrolysate; Proteins, collagen, hydrolysate
Definition: Hydrolysate of animal collagen derived by acid, enzyme or other method of hydrolysis
Properties: Brn. liq.; anionic
Toxicology: TSCA listed
Chemical Component Cross-Reference

**Uses:** Conditioner and emollient for pharmaceuticals, orals, topicals, creams and lotions

**Regulatory:** FDA 21CFR §161.190, 170.60, 176.170, 573.200; FDA approved for orals, topicals; Canada DSL


**Trade Names:** Byco M; Byco 1500; Byco A; Byco C; Byco O; Great Lakes 0-Bloom Gelatin™; Vee Gee Beef Hide Hydrolysate Gelatin; Vee Gee Bone Hydrolysate Gelatin; Vee Gee Fish Hydrolysate Gelatin; Vee Gee Porkskin Hydrolysate Gelatin

**Trade Names Containing:** Dry Vitamin E Acetate 50% SD

**Hydrolyzed milk protein**

CAS 8049-98-7; 92797-39-2; EINECS/ELINCS 296-575-2

**Synonyms:** Protein hydrolysates, milk; Proteins, milk, hydrolysate

**Definition:** Hydrolysate of milk protein derived by acid, enzyme or other method of hydrolysis

**Properties:** Sol. in water

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Binder, emulsifier, film-former in pharmaceuticals, nutritional prods.

**Regulatory:** USDA 9CFR §318.7

**Manuf./Distrib.:** Am. Casein

**Hydrolyzed protein**

CAS 73049-73-7 INS429

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*†=pharmaceutical grade*
Chemical Component Cross-Reference

Synonyms: Casamino acid; Peptone; Peptone enzymatic hydrolysate; Peptones; Protein hydrolysates; Tryptones

Definition: Mixt. of amino acids and peptides with varying composition

Properties: Amphoteric

Uses: Nutritive supplement, flavor enhancer in pharmaceuticals; surfactant aid; emulsion stabilizer; film-former

Regulatory: FDA 21CFR §184.1553, GRAS

Manufacturers/Distributors:
- Bioiberica†
  http://www.bioiberica.com
- Degussa AG/Health & Nutrition
- Indofine
  http://www.indofinechemical.com
- Sigma
  http://www.sigma-aldrich.com/belgium

Hydrolyzed rice peptides

Uses: Collagenase inhibitor

Trade Names: Colhibin

Hydrolyzed vegetable protein

CAS 100209-45-8; 977059-33-8; EINECS/ELINCS 309-353-8

Synonyms: HVP; Protein hydrolysates, vegetable; Proteins, vegetable, hydrolysate; Protein, vegetable, hydrolyzed; Vegetable protein hydrolysate; Vegetable protein, hydrolyzed

Definition: Hydrolysate of vegetable protein derived by acid, enzyme or other method of hydrolysis

Properties: Sol. in water

Hazardous Decomposition Products: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Flavor, flavor enhancer, skin protectant, film-former, moisture-binder for pharmaceuticals

Regulatory: FDA 21CFR §139.117, 155.120, 155.170, 155.130, 155.200, 155.201, 170.60; USDA 9CFR §318.7

Manufacturers/Distributors:
- Alfa Chem
  http://www.alfachem1.com
- Alzo
  http://www.alzointernational.com
- Amerol
  http://www.amerolcorpor.com
- Haco Ltd
  http://www.haco.ch
- Kingfood Australia Pty. Ltd
  http://www.kingfood.com.au

Hydrolyzed wheat protein

CAS 70084-87-6; 94350-06-8; EINECS/ELINCS 305-225-0; 309-696-3

Synonyms: Protein hydrolysates, wheat germ; Proteins, wheat, hydrolyzed; Wheat protein hydrolysate

Definition: Hydrolysate of wheat protein derived by acid, enzyme or other method of hydrolysis

Properties: Amber liq., char. proteinaceous odor; sol. in water; sp.gr. 1.1; b.p. 215-230 F

Toxicology: Nontoxic

Precaution: Avoid strong oxidizing agents; burning may produce oxides of carbon and nitrogen

Uses: Anti-irritant, moisturizer

Trade Names: Proteinvit; Protelan AG 11

Hydrolyzed wheat protein/dimethicone copolyol phosphate copolymer

Synonyms: Hydrolyzed wheat protein/polydimethylsiloxeypropyl polyethoxy phosphate

Classification: Vegetable protein/silicone compd.

Definition: Polymer of hydrolyzed wheat protein and dimethicone copolyol phosphate monomers

Properties: Amber liq.

Uses: Humectant in pharmaceutical topicals

Features: Substantive

Hydrolyzed whey protein

Uses: Binder, emulsifier, film-former for medical, pharmaceuticals, nutritional, biological applications.

Trade Names: HLA-198

Hydrolyzed yeast protein

CAS 100684-36-4; EINECS/ELINCS 309-709-2

Synonyms: Protein hydrolysate, yeast; Yeast protein hydrolysate

Definition: Hydrolysate of yeast protein, derived by acid, enzyme or other method of hydrolysis

Uses: Ingred. in sun care and eye care prods.

Hydromagnesite. See Magnesium carbonate

Hydromellose acetate succinate. See Hydroxypropyl methylcellulose acetate succinate

Hydron Pink FF. See Vat red 1

6-Hydro-2-oxo-1,3-benzoxathiole. See Tioxolone

Hydroperoxide. See Hydrogen peroxide

Hydroquinol. See Hydroquinone

Hydroquinone

CAS 123-31-9; EINECS/ELINCS 204-617-8

UN 2662 (DOT)

Synonyms: 1,4-Benzenediol; p-Benzenedioli; Benzohydroquinone; Benzoquinone; p-Benzquinone; Dihydroxybenzene; 1,4-
Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Chemical Component</th>
<th>Cross-Reference</th>
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<tbody>
<tr>
<td>Dihydroxybenzene; p-Dihydroxybenzene; HQ; Hydroquinol; p-Hydroquinone; 1,4-Hydroxybenzene; p-Hydroxyphenol; Hydroxyquinone; Paradoxybenzene; Pyrogentisic acid; Quinol</td>
<td>† = pharmaceutical grade</td>
</tr>
</tbody>
</table>

Classification: Aromatic organic compd.; aromatic alcohol

Empirical: C₆H₆O₂

Formula: C₆H₄(OH)₂

Properties: Wh., colorless, lt. tan, or gray cryst. solid; odorless; discolored by light and air; sol. in water, alcohol, ether, CCl₄, oxygenated solvs.; mod. sol. in acetone; sl. sol. in benzene; m.w. 110.11; dens. 1.330; vapor pressure 0.00018 mm Hg; m.p.170 C; b.p. 285 C; flash pt. (TCC) 165 C; autoignition temp. 516 C; pH weakly acidic

Toxicology: ACGIH TLV/TWA 2 mg/m³; PEL-TWA 2 mg/m³; LD50 (oral, rat) 320 mg/kg; toxic by ing., inh., IP, IV, subcut. routes; human poison by ing.; harmful if absorbed through skin or swallowed; human systemic effects by ing. (cyanosis, coma); lachrymator; irritant to eyes, skin, respiratory tract; severe human skin irritant; skin sensitizer; active allergen; human mutagenic data; experimental reproductive data; questionable carcinogen; TSCA listed

Environmental: ThOD 1.89

Precaution: Combustible; dust may be ignited by static discharge; incomp. with strong bases (violent reactions may occur) and strong oxidizers (increased fire/explosion risk); may corrode copper and brass

Hazardous Decomp. Prods.: CO, CO₂

NFPA: Health 2, Flammability 1, Reactivity 0

Storage: Sensitive to air and light; store in cool, dry, well-ventilated area, out of direct sunlight, away from heat and ignition sources, work areas, and incomp. materials

Uses: Antioxidant in suntan lotions

Regulatory: FDA 21CFR §175.105, 176.170, 177.2420; SARA §302a extremely hazardous, §313 reportable; CERCLA hazardous substance; HAP; Canada DSL

Manuf./Distrib.: AMC Chems.; AMRESCO†

† = pharmaceutical grade

Trade Names: Eastman® Hydroquinone USP

m-Hydroquinone. See Resorcinol
o-Hydroquinone. See Pyrocatechol
p-Hydroquinone. See Hydroquinone

Hydroquinonecarboxylic acid. See Gentisic acid

Hydroquinone dimethyl ether. See p-Dimethoxybenzene

Hydroquinone methyl ether. See Hydroquinone monomethyl ether

Hydroquinone monomethyl ether

CAS 150-76-5; EINECS/ELINCS 205-769-8

Synonyms: p-Guaiacol; HA; HQMEE;

Hydroquinone methyl ether; 4-Hydroxyanisole; p-Hydroxyanisole; MEHQ;
4-Methoxyphenol; p-Methoxyphenol; MME;

Monomethyl ether of hydroquinone; Phenol, 4-methoxy-

Classification: Aromatic ether; substituted phenolic compd.

Definition: Monomethyl ether of hydroquinone

Empirical: C₇H₈O₂

Formula: CH₃OC₆H₄OH

Properties: Colorless to wh. waxy solid or cryst. powd.; caramel/phenol odor; sol. in water,
benzene, ether, acetone, ethyl acetate, alcohol, oxygenated solvs.; m.w. 124.14; dens. 1.55 (20/20 C); vapor pressure < 0.01 mm Hg (20 C); m.p. 52.5 C; b.p. 243 C; flash pt. (COC) 132 C; pH 5.6 (aq. sol’n.)

Toxicology: ACGIH TLV/TWA 5 mg/m³; PEL-TWA 5 mg/m³; LD50 (oral, rat) 1600 mg/kg, (IP, mouse) 250 mg/kg, (dermal, rabbit) > 1000 mg/kg; poison by IP route; mildly toxic by ing.; severe skin and eye irritant; skin sensitizer; may cause allergic skin reaction; TSCA listed

Precaution: Combustible; may form explosive dust-air mixts.; incompat. with strong oxidizers (increases fire/explosion risk), strong bases, acid chlorides, and acid anhydrides (vigorous exothermic reactions possible)

Hazardous Decomp. Prods.: CO, CO₂; heated to decomp., emits acrid smoke and fumes

NFFPA: Flammability 1, Reactivity 0

Storage: Store in cool, dry, well-ventilated area, out of direct sunlight, away from heat and ignition sources and work areas; hygroscopic

Uses: Mfg. of pharmaceuticals; antioxidant for vitamins

Regulatory: FDA 21CFR §176.170, 177.1010; Canada DSL


Yasho Ind. http://www.yashoindustries.com

Trade Names: Eastman® HQMME
### 2-Hydroxy-1,1′-azonaphthalene-3,6,4′-trisulfonic acid trisodium salt

**Uses:** Abrasive; oral care agent; prosthetic aid (artificial bone and teeth)

**Regulatory:** Canada DSL

**Trade Names Containing:**
- Alcolec® PS 20 P; Alcolec® PS 40 P; Alcolec® PS 50 P

**Chemical Component Cross-Reference**

- **CAS:** 123-08-0; EINECS/ELINCS 204-599-1
- **FEMA:** 3984

**Synonyms:**
- 4-Formyl phenol; p-Formyl phenol;
- 4-Hydroxybenzaldehyde; p-Oxybenzaldehyde;
- Parahydroxybenzaldehyde

**Empirical:** C7H6O2

**Formula:** HOC6H4CHO

**Properties:** Colorless need., sl. agreeable aromatic odor; sol. in alcohol, ether, acetone, MIBK, hot water, oxygenated and aromatic solvs.; m.w. 122.12; dens. 1.129; m.p. 114-117 C; b.p. sublimes

**Toxicology:** LD50 (IP, mouse) 500 mg/kg; mod. toxic by IP route; irritant; mutagen; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Storage:** Store under nitrogen

**Uses:** Flavor for pharmaceuticals

**Features:** Sweet flavor

### L-β-Hydroxyalanine

**See L-Serine**

### Hydroxyaluminum di (acetate)

**See Aluminum acetate**

### Hydroxy aluminum diacetate

**See Aluminum diacetate**

### Hydroxyaluminum distearate

**See Aluminum distearate**

### 4-Hydroxy-m-anisaldehyde; p-Hydroxy-m-anisaldehyde

**See Vanillin**

### 2-Hydroxyanisole

**See Guaiacol**

### 4-Hydroxyanisole

**See Hydroquinone monomethyl ether**

### o-Hydroxyanisole

**See Guaiacol**

### p-Hydroxyanisole

**See Hydroquinone monomethyl ether**

### Hydroxyanisole, butylated

**See BHA**

### N-(4-Hydroxy-1-anthraquinonyl)-4-methylaniline

**See CI 60725; D&C Violet No. 2; Disperse blue 72**

### N-(4-Hydroxy-1-anthraquinonyl)-p-toluidine

**See CI 60725; D&C Violet No. 2; Disperse blue 72**

### Hydroxyapatite

**CAS:** 1306-06-5; EINECS/ELINCS 231-840-8.

**Synonyms:**
- Calcium hydroxyapatite; Calcium phosphate hydroxide; Durapatite;
- Pentacalcium phosphate hydroxide; Tricalcium phosphate

**Empirical:** Ca5(OH)13P3

**Formula:** Ca5(PO4)3

**Properties:** Fine wh. odorless powd.; m.w. 502.32; pract. insol. in water; m.p. 1670 C

**Toxicology:** Eye and skin irritant; noncarcinogenic; TSCA listed

**Precaution:** Wear goggles, shield, gloves, lab coat and apron; avoid excessive dust generation
Chemical Component Cross-Reference

- **Penta Mfg.** [http://www.pentamfg.com](http://www.pentamfg.com)
- **Prodasynth** [http://www.prodasynth.com](http://www.prodasynth.com)

2-Hydroxybenzamide; o-Hydroxybenzamide.  
See Salicylamide

Hydroxybenzene.  See Phenol

1,4-Hydroxybenzene.  See Hydroquinone

4-Hydroxybenzenecarboxylic acid.  See 4-Hydroxybenzoic acid

Hydroxybenzenesulfonic acid.  See Phenolsulfonic acid

4-Hydroxybenzenesulfonic acid: p-Hydroxybenzenesulfonic acid.  See p-Phenol sulfonic acid

Hydroxybenzenesulfonic acid, aluminum salt.  See Aluminum phenolsulfonate

4-Hydroxybenzenesulfonic acid zinc salt (2:1); p-Hydroxybenzenesulfonic acid zinc salt.  See Zinc phenolsulfonate

(2-Hydroxybenzoato-O1)-oxobismuth.  See Bismuth subsalicylate

5-Hydroxy-1,3-benzodioxole.  See Sesamol

2-Hydroxybenzoic acid.  See Isoamyl salicylate; Salicylic acid

4-Hydroxybenzoic acid

**CAS** 99-96-7; **EINECS/ELINCS** 202-804-9

**FEMA** 3986

**Synonyms:** Benzoic acid, 4-hydroxy-; Benzoic acid, p-hydroxy-; 4- Carboxyphenol; 4-Hydroxybenzenecarboxylic acid; p-Hydroxybenzoic acid; p-Salicylic acid

**Classification:** Aromatic acid

**Empirical:** C7H6O3

**Properties:** Sol. 5000 mg/l in water; m.w. 138.12; m.p. 214-217 C

**Toxicology:** LD50 (oral, rat) > 10 g/kg, (IP, rat) 340 mg/kg, (subcut., mouse) 1050 mg/kg; may be harmful by ing., inh., or skin absorp.; irritating to eyes, skin, mucous membranes, upper respiratory tract; may cause muscle weakness, dyspnea, somnolence, ataxia, liver/kidney changes, wt. loss, flaccid paralysis without anesthesia; TSCA listed

**Precaution:** Incompat. with strong oxidizing agents; capable of creating dust explosion in powd. form

**Hazardous Decomp. Prods.:** CO, CO2, phenol; emits toxic fumes under fire conditions

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**Storage:** Store in cool, dry place; keep tightly closed

**Uses:** Preservative in pharmaceuticals

**Regulatory:** FEMA GRAS; Canada DSL


**o-Hydroxybenzoic acid.** See Salicylic acid

**p-Hydroxybenzoic acid.** See 4-Hydroxybenzoic acid

2-Hydroxybenzoic acid bismuth (3+) salt basic.  See Bismuth subsalicylate

4-Hydroxybenzoic acid butyl ester; p-Hydroxybenzoic acid butyl ester.  See Butylparaben

p-Hydroxybenzoic acid, butyl ester, sodium salt.  See Sodium butylparaben

4-Hydroxybenzoic acid ethyl ester; p-Hydroxybenzoic acid ethyl ester.  See Ethylparaben

4-Hydroxybenzoic acid, ethyl ester, sodium salt.  See Sodium ethylparaben

2-Hydroxybenzoic acid, magnesium salt.  See

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<td>4-Hydroxybenzoic acid, methyl ester. See Methylparaben</td>
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<td>4-Hydroxybenzoic acid, methyl ester, potassium salt. See Potassium methylparaben</td>
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<td>o-Hydroxybenzoic acid sodium salt. See Sodium salicylate</td>
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<td>4-Hydroxybenzylacetone; p-Hydroxybenzylacetone. See 4-(p-Hydroxyphenyl)-2-butane</td>
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<td>α-Hydroxyphenyl ketone. See Benzoin</td>
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<td>3-[[2-Hydroxy-1,1-bis (hydroxymethyl) ethyl] amino]-1-propanesulfonic acid. See 3-[Tris-(hydroxymethyl)-methylamino]-</td>
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<td>2-Hydroxybutane. See 2-Butanol</td>
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<tr>
<td>Hydroxybutanedioic acid. See N-Hydroxy succinic acid</td>
<td></td>
</tr>
<tr>
<td>Hydroxybutanedioic acid, dioctyl ester. See Dioctyl malate</td>
<td></td>
</tr>
<tr>
<td>4-Hydroxybutanoic acid lactone. See Butyro lactone</td>
<td></td>
</tr>
<tr>
<td>3-Hydroxy-2-butane. See Acetyl methyl carbinol</td>
<td></td>
</tr>
<tr>
<td>1-Hydroxy-s-butylamine. See 2-Aminobutanol</td>
<td></td>
</tr>
<tr>
<td>Hydroxybutylin oxide</td>
<td></td>
</tr>
<tr>
<td>CAS 2273-43-0</td>
<td></td>
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<tr>
<td>UN 3146</td>
<td></td>
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<tr>
<td>Synonyms: 1-Butanestannonic acid; Butylhydroxytin oxide; Butylstannoic acid; Butyltin hydroxide oxide; Stannane, butylhydroxyxo-</td>
<td></td>
</tr>
<tr>
<td>Classification: Organotin</td>
<td></td>
</tr>
<tr>
<td>Empirical: C₄H₁₀O₂Sn</td>
<td></td>
</tr>
<tr>
<td>Formula: CH₃CH₂CH₂CH₂SnOOH</td>
<td></td>
</tr>
<tr>
<td>Properties: Wh. powd.; characteristic odor; m.w. 208.83</td>
<td></td>
</tr>
<tr>
<td>Toxicology: ACGIH TLV/TWA 0.1 mg(Sn)/m³; STEL 0.2 mg/m³ (skin); LD50 (IV, mouse) 180 mg/kg; TSCA listed</td>
<td></td>
</tr>
<tr>
<td>Uses: Esterification, transesterification, and polycondensation catalyst for mfg. of prods. intended for pharmaceutical apps. (e.g., coatings, epoxies, hybrid resins)</td>
<td></td>
</tr>
<tr>
<td>Regulatory: FDA 21CFR §177.2420; Canada DSL</td>
<td></td>
</tr>
<tr>
<td>Trade Names: Fascat® 9100</td>
<td></td>
</tr>
<tr>
<td>γ-Hydroxybutyric acid cyclic ester; 4-Hydroxybutyric acid γ-lactone; γ-Hydroxybutyric acid lactone; γ-Hydroxybutyrolactone. See Butyro lactone</td>
<td></td>
</tr>
<tr>
<td>2-Hydroxycamphane. See DL-Born eol</td>
<td></td>
</tr>
<tr>
<td>Hydroxycellulose. See Cellulose</td>
<td></td>
</tr>
<tr>
<td>Hydroxycetyl phosphate</td>
<td></td>
</tr>
<tr>
<td>CAS 84753-03-7; EINECS/ELINCS 283-849-1</td>
<td></td>
</tr>
<tr>
<td>Synonyms: 2-Hydroxyhexadecyl dihydrogen phosphate; Phosphoric acid, hydroxycetyl ester</td>
<td></td>
</tr>
<tr>
<td>Definition: Complex mixts. of esters of phosphoric acid and hydroxycetyl alcohol</td>
<td></td>
</tr>
</tbody>
</table>
Chemical Component Cross-Reference

Uses: O/w emulsifier, stabilizer, surfactant for pharmaceutical emulsions

3-β-Hydroxycholest-5-ene. See Cholesterol o-Hydroxycinnamic acid lactone; o-
Hydroxycinnamic acid δ-lactone; o-
Hydroxycinnamic lactone. See Coumarin

Hydroxycitronellal
CAS 107-75-5; EINECS/ELINCS 203-518-7
FEMA 2583

Synonyms: Citronellal hydrate; Citronellal, hydroxy-; 3,7-Dimethyl-7-hydroxoyoctanal; 3,7-Dimethyl-7-hydroxy-octane-1-al; 7-
Hydroxycitronellal; Hydroxydihydrocitronellal; 7-
Hydroxydihydrocitronellal; 7-Hyrox-3,7-
dimethyloctanal; 7-Hydroxy-3,7-
dimethyloctan-1-al; Lily aldehyde; Musuet synthetic; Musuettine principle; 1-Octanal-
3,7-dimethyl-7-hydroxy; Octanal, 7-hydroxy-
3,7-dimethyl-
Classification: acrylic terpene aldehyde
Empirical: C10H20O2
Formula: CH3CH3OHCCH2CH2CH2CH3CHCH2CHO
Properties: Colorless to pale yel. visc. liq., sweet
floral, lily odor; sol. in alcohol, fixed oils, propylene glycol; sl. sol. in water; insol. in glycerin; m.w. 172.30; dens. 0.918-0.923; b.p.
94-96 C (1 mm); flash pt. > 212 F; ref. index 1.447-1.450

Toxicology: Skin irritant; allergen; TSCA listed
Precaution: Combustible liq.
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
NFPA: Flammability 1, Reactivity 0
Uses: Synthetic flavor and fragrance for pharmaceuticals
Use Level: < 20%; 1% max. in finished cosmetics
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia; Japan approved as flavoring (ENCS no. 2-532); Canada DSL; Philippines PICCS

Manuf./Distrib.: Acros Org.
http://www.acros.com; Augustus Oils Ltd
http://www.augustus-oils.ltd.uk; BASF AG
http://www.basf.de; BASF
http://www.basf.com; Firmenich
http://www.firmenich.com
Hunan Xinyu http://www.hunanxinyu.com; Int'l. Flavors & Fragrances US

†=pharmaceutical grade

http://www.iff.com; J.H. Calo
http://www.jhcalo.com; Lluch Essence
http://www.luch-essence.com; MP Biomedicals http://www.mpbio.com
Millennium/F&F
http://www.aromachem.com; Millennium
SAFC Specialties
http://www.safcspecialties.com
Spectrum Quality Prods.
http://www.spectrumchemical.com;

7-Hydroxycitronellal. See Hydroxycitronellal

Hydroxycitronellal diethyl acetal
CAS 7779-94-4; EINECS/ELINCS 231-945-9
FEMA 2584

Synonyms: 8,8-Diethoxy-2,6-dimethyl-octanol-
2; 2-Octanol, 8,8-diethoxy-2,6-dimethyl-
Empirical: C14H30O3
Properties: Colorless sl. oily liq.; floral lily, muguet odor; delicate green-floral taste; sol. in alcohol; insol. in water; m.w. 246.39; sp.gr. 0.898-0.908; b.p. 260 C; flash pt. (CC) 110 C; ref. index 1.435-1.442 (20 C)

Toxicology: May be irritating to eyes and skin; TSCA listed
Environmental: Prevent contamination of soil, ground- and surf.-water
Precaution: Incompat. with strong oxidizing agents
 Hazardous Decomp. Prods.: CO, CO2, water
NFPA: Health 1, Flammability 1, Reactivity 0
Storage: Store in cool, well-ventilated area away from ignition sources and open flame
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; DOT nonregulated; Canada DSL

Manuf./Distrib.: Bedoukian Research http://www.bedoukian.com; Lluch Essence
http://www.luch-essence.com

Hydroxycitronellal dimethyl acetal
CAS 141-92-4; EINECS/ELINCS 205-510-9
FEMA 2585

Synonyms: 1,1-Dimethoxy-3,7-dimethyl-7-octanol; 8,8-Dimethoxy-2,6-dimethyl-
tocanol-2; 8,8-Dimethoxy-2,6-dimethyl-2-
tocanol; Hydroxyacetal; Hydroxycitronellal dimethylacetyl; Hydroxycitronellal DMS; Hydroxydihydrocitronellal dimethyl acetal; 7-Hydroxy-3,7-dimethyl octanal:acetal; 7-
Hydroxy-3,7-dimethyl octanal dimethyl
Chemical Component Cross-Reference

acetal; Laurine dimethyl acetal; Octanal, 7-hydroxy-3,7-dimethyl-; dimethyl acetal; 2-Octanol, 8,8-dimethoxy-2,6-dimethyl-
Classification: acrylic terpene aldehyde
Empirical: C_{12}H_{26}O_{3}
Properties: Colorless liq., lt. green flowery odor; sol. in alcohol, most fixed oils, min. oil, propylene glycol; insol. in glycerol; m.w. 218.34; dens. 0.925-0.930; flash pt. > 100 C; ref. index 1.4410-1.4440
Toxicology: Primary irritant; severe skin irritant; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Japan approved as flavoring; Canada DSL
Manuf./Distrib.: SAFC Specialties
http://www.safcspecialties.com

Hydroxycitronellal dimethylacetyl; Hydroxycitronellal DMA. See Hydroxycitronellal dimethyl acetal

Hydroxycitronellol
CAS 107-74-4; EINECS/ELINCS 203-517-1
FEMA 2586
Synonyms: Citronellol, hydroxy-; 3,7-Dimethyl-7-hydroxy-1-octanol; 3,7-Dimethyloctane-1,7-diol; 3,7-Dimethyl-1,7-octanediol; 7-Hydroxy-3,7-dimethyloctan-1-ol; 1,2-Octanediol, 3,7-dimethyl-; 1-Octanol, 3,7-dimethyl-7-hydroxy-
Empirical: C_{10}H_{22}O_{2}
Properties: Colorless visc. liq., rosy grape odor; sl. sol. in toluene, benzene; m.w. 174.29; dens. 0.935; b.p. 156 C (15 mm); flash pt. > 100 C; ref. index 1.4550-1.4600
Toxicology: LD_{50} (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; primary skin irritant; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Synthetic flavor and fragrance for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Augustus Oils Ltd
http://www.augustus-oils.ltd.uk; BASF AG
http://www.basf.de; BASF

†=pharmaceutical grade

http://www.basf.com
2-Hydroxycumene. See o-Isopropylphenol
4-Hydroxycumene. See p-Isopropylphenol
3-Hydroxycyclohexadien-1-one. See Resorcinol
2-Hydroxy-p-cymene. See Carvacrol
3-Hydroxy-p-cymene. See Thymol
1-Hydroxydecane. See Decyl alcohol
4-Hydroxydecanoic acid lactone; 4-Hydroxydecanoic acid, γ-lactone; Hydroxydecanoic acid-γ-lactone. See γ-Decalactone
3-Hydroxy-3,5-dichlorophenylsulfide. See 2,2′-Thiobis (4,6-dichlorophenol)
Hydroxydihydrocitronellal; 7-Hydroxydihydrocitronellal. See Hydroxycitronellal
Hydroxydihydrocitronellal dimethyl acetal. See Hydroxycitronellal dimethyl acetal
3-Hydroxy-4,5-dihydroxymethyl-2-methylpyridine HCl. See Pyridoxine HCl
N-(2-Hydroxy-1,1-dimethylethyl)octadecanamide. See Stearamide AMP
4-Hydroxy-2,5-dimethyl-3(2H) furanone
CAS 3658-77-3; EINECS/ELINCS 222-908-8
FEMA 3174
Synonyms: Alletone; Alnose; Dimethyldihydro furanone; 2,5-Dimethyl-4-hydroxy-3-furanone; 2,5-Dimethyl-4-hydroxy-3-(2H)-furanone; Furaneol; 3(2H)-Furanone, 2,5-dimethyl-4-hydroxy-; Pineapple ketone; Strawberry furanone
Classification: Nonaromatic ketone
Empirical: C_{6}H_{10}O_{3}
Properties: Colorless cryst.; pineapple-like odor; 8-18% sol. in water; m.w. 128.13; dens. 1.049; m.p. 78-80 C; b.p. 188 C; flash pt. (TCC) > 100 C; ref. index 1.4390
Toxicology: LD_{50} (oral, mouse) 1608 mg/kg; mod. toxic by ing.; mutagen; TSCA listed
Precaution: Flamm.; wear protective clothing; incompat. with strong oxidizers, reducers
Hazardous Decomp. Prods.: Heated to decomp., emits CO, CO_{2}, acrid smoke and irritating vapors
Storage: Air-sensitive; refrigerate; handle and store under nitrogen
Uses: Synthetic flavor for pharmaceuticals
Features: Strawberry-like flavor
Regulatory: FEMA GRAS; Australia AICS; Canada DSL; Japan MITI
Manuf./Distrib.: Advanced BioTech
http://www.adv-bio.com; Augustus Oils Ltd
Chemical Component Cross-Reference

†=pharmaceutical grade

N-Hydroxysuccinic acid
Hydroxyethanedisphosphonic acid. See Etidronic acid
2-Hydroxyethanesulfonic acid, compd. with 4,4′-[hexane-1,6-diylbis (oxy)] bis [benzenecarboxamide] (2:1). See Hexamidine diisethionate
2-Hydroxy-1-ethanethiol. See 2-Mercaptoethanol
Hydroxy ether. See Ethoxyethanol
4-Hydroxy-3-ethoxybenzaldehyde. See Ethyl vanillin
2-[2-[2-(2-Hydroxyethoxy) ethoxy] ethoxy] ethanol. See PEG-4
2-[2-[2-(2-Hydroxyethoxy) ethoxy] ethoxy] ethyl dodecanoate. See PEG-4 laurate
2-[2-[2-(2-Hydroxyethoxy) ethoxy] ethoxy] ethyl octadecanoate. See PEG-4 stearate
2-(2-Hydroxyethoxy) ethyl ester stearic acid. See PEG-2 stearate
2-(2-Hydroxyethoxy) ethyl oleate. See PEG-2 oleate
2-(2-Hydroxyethoxy) ethyl stearate. See PEG-2 stearate
Hydroxyethyl acetamide; β-Hydroxyethylacetamide; N-(2-Hydroxyethyl) acetamide; N-β-Hydroxyethylacetamide. See Acetamide MEA
2-Hydroxyethylamine; β-Hydroxyethylamine. See Ethanolamine
2-(2-Hydroxyethylamino) ethanol. See Diethanolamine
β-Hydroxyethylbenzene. See Phenethyl alcohol
1-(2-Hydroxyethyl)carbamoyl methyl pyridinium chloride laurate. See Lapyrium chloride

Hydroxyethylcellulose CAS 9004-62-0

Synonyms: Cellulose hydroxyethylate; Cellulose hydroxyethyl ether; Cellulose, 2-hydroxyethyl ether; HEC; HE cellulose; Hetastarch; 2-Hydroxyethyl cellulose; Hydroxyethyl cellulose ether; Hydroxyethyl ether cellulose; Hydroxyethyl starch

Definition: Partially substituted poly(hydroxyethyl) ether of cellulose

Empirical: C₈H₁₄O₆
Formula: C₈H₁₄O₂(OH)₂OCH₂CH₂OH
Properties: Wh. free-flowing powd., odorless, tasteless; nonionic; insol. in org. solvs.; sol. in hot or cold water; grease and oil resistant; bulk

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**Chemical Component Cross-Reference**

dens. 0.7 kg/l; m.p. 288-290 C (dec.); ref. index 1.336; pH 6.0-8.5 (1%)

**Toxicology:**  
LDLo (IV, human female, 6 days intermittent) 5100 mg/kg; human systemic effects (change in plasma or blood volume, intracranial pressure inc., somnolence); eye and respiratory system irritant; target organs: blood, nerves; experimental reproductive effects; TSCA listed

**Precaution:**  
Combustible

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating vapors

**Storage:** Hygroscopic

**Uses:** Thickener, suspending agent, protective colloid, binder, stabilizer in pharmaceuticals, ophthalmics, orals, otics, topicals; visc. control agent in eye lens prods.; toothpaste ingred.

**Regulatory:**  
FDA 21CFR §175.105, 175.300, 177.1200, 177.1400; FDA approved for ophthalmics, orals, otics, topicals; USP/NF, BP, EP compliance; Canada DSL

**Manuf./Distrib.:**  
Ajinomoto
http://www.ajinomoto.co.jp
http://www.ajinomoto.com; Aldrich
http://www.sigma-aldrich.com; Allchem Ind.
http://www.allchem.com; Allchem Int'l. Ltd†
http://www.allchem.co.uk; Amerchol
Europe†
Amerchol†
http://www.dow.com/ucc/amerchol/index.htm; Ashland† http://www.ashchem.com;
Asiamerica Int'l.†; CarboMer†
http://www.carbomer.com; Chesham
Chems. Ltd†
http://www.cheshamchemicals.co.uk
Cornelius Chem. Co. Ltd†
http://www.cornelius.co.uk; Dow†
http://www.dow.com; Hercules/Aqualon†
http://www.aqualon.com; Kraft Chem.†
http://www.kraftchemical.com; Lowenstein
Dyes & Cosmetics
http://www.jhlowenstein.com
MPSI† http://www.mp-solutionsinc.com;
Mutchler† http://www.mutchlerchem.com;
Polysciences†
http://www.polysciences.com; Sansho†
http://www.sansho.co.jp; Spectrum Quality
Prods.;† http://www.spectrumchemical.com
Synasia† http://www.synasia.com; Vevy†
http://www.vevy.com; Whyte Chems. Ltd
http://www.whytechemicals.co.uk

**Trade Names Containing:**  
Natrosol® 250 HX
Natrosol® 250 HR CS
Natrosol® 250 HX
Natrosol® 250 MX
Natrosol® 250 M Pharm
Tylose® H 20 P2 PHA
Tylose® H 300 G4 PHA
Tylose® H 4000 G4 PHA
Tylose® H 30000 P2 PHA
Tylose® H 100000 P2 PHA

**Trade Names Containing:**  
Bentone® EW
Natrosol® 250 HHX Pharm;
Natrosol® 250 HX
Natrosol® 250 M Pharm
Tylose® H 20 P2 PHA
Tylose® H 300 G4 PHA
Tylose® H 4000 G4 PHA
Tylose® H 30000 P2 PHA
Tylose® H 100000 P2 PHA

**Trade Names Containing:**  
Bentone® EW

**Trade Names Containing:**  
Natrosol® 250 H; Natrosol® 250

†=pharmaceutical grade

2-Hydroxyethyl cellulose; Hydroxyethyl cellulose ether: 2-Hydroxyethyl cellulose ether. See Hydroxyethylcellulose

N-(2-Hydroxyethyl) coco fatty acid amide. See Cocamide MEA

β-Hydroxyethylidimethylamine. See Dimethylethanolamine

N-(2-Hydroxyethyl) dodecanamide. See Lauramide MEA

2-Hydroxyethyl ester stearic acid. See Glycol stearate

Hydroxyethyl ether cellulose. See Hydroxyethylcellulose

Hydroxyethylcellulose

Hydroxyethylcellulose, trisodium salt. See Trisodium HEDTA

2-Hydroxyethyl hydroxyoctadecanoate. See Glycol hydroxysestearate

(1-Hydroxyethylidene) bisphosphonic acid. See Etidronic acid

(1-Hydroxyethylidene) bisphosphonic acid, tetrasodium salt. See Tetrasodium etidronate

(1-Hydroxyethylidene) diposphonic acid; 1-Hydroxyethylidene-1,1-diposphonic acid. See Etidronic acid

(1-Hydroxyethylidene) diposphonic acid, tetrasodium salt; 1-Hydroxyethylidene-1,1-diposphonic acid, tetrasodium salt. See Tetrasodium etidronate

3-(1-Hydroxyethylidene)-6-methyl-2H-pyran-2,4(3H)-dione sodium salt. See Sodium dehydroacetate

β-Hydroxyethyl isobornyl ether. See (exo)-2-Camphanyl-β-hydroxyethyl ether

N-2-Hydroxyethyl lactamide. See Lactamide MEA

Hydroxyethylmercaptop; 2-Hydroxyethylmercapan. See 2-Mercaptoethanol

Hydroxyethylmethylcellulose. See Methyl hydroxyethylcellulose

1-Hydroxyethyl methyl ketone. See Acetyl methyl carbinol

N-(2-Hydroxyethyl) myristamide. See Myristamide MEA

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<table>
<thead>
<tr>
<th>Chemical Component Cross-Reference</th>
<th>†=pharmaceutical grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-(2-Hydroxyethyl) octadecanamide. See</td>
<td>pyrrolidin-2-one; N-(2-Hydroxyethyl)-2-pyrrolidone; 2-Pyrrolidinone, 1-(2-hydroxyethyl)-</td>
</tr>
<tr>
<td>Stearamide MEA</td>
<td>Classification: Nonaromatic amide</td>
</tr>
<tr>
<td>2-Hydroxyethyl octadecanoate. See Glycol stearate</td>
<td>Empirical: C₆H₁₄NO₂</td>
</tr>
<tr>
<td>N-(2-Hydroxyethyl)-9-octadecenamide. See Oleamide MEA</td>
<td>Properties: M.w. 129.18; dens. 1.143; b.p. 140-142 C (3 mm); ref. index 1.4960</td>
</tr>
<tr>
<td>2,2'-[3-[(2-Hydroxyethyl) octadecylamino] propyl] imino diethanol dihydrofluoride. See Olafur</td>
<td>Toxicology: LD₅₀ (oral, rat) 14,430 mg/kg; low toxicity by ing.; primary eye irritant; TSCA listed</td>
</tr>
<tr>
<td>N-(2-Hydroxyethyl) oleamide. See Oleamide MEA</td>
<td>Hazardous Decomp. Prods.: Heated to decomp., emits toxic vapors of NOₓ</td>
</tr>
<tr>
<td>β-Hydroxyethyl phenyl ether. See Phenoxyethanol</td>
<td>Uses: Reaction solvent for prep. of retinoid esters for skin treatment; solvent in aq. veterinary tetracycline antibiotic</td>
</tr>
<tr>
<td>4-(2-Hydroxyethyl)-1-piperazinopropanesulfonic acid; 4-(2-Hydroxyethyl) piperazine-1-propanesulfonic acid; N-[2-Hydroxyethyl] piperazine-N'-[3-propanesulfonic acid]. See 3-[4-(Hydroxyethyl)-1-piperazinyl]-propanesulfonic acid</td>
<td>Manuf./Distrib.: Aldrich <a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a>; Fluka <a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a></td>
</tr>
<tr>
<td>3-[4-(Hydroxyethyl)-1-piperazinyl]-propanesulfonic acid</td>
<td>Trade Names: HEP®</td>
</tr>
<tr>
<td>CAS 16052-06-5; EINECS/ELINCS 240-198-8</td>
<td>N-(2-Hydroxyethyl)-2-pyrrolidone. See N-Hydroxyethylpyrrolidone</td>
</tr>
<tr>
<td>Synonyms: EPPS; HEPPS; 4-(2-Hydroxyethyl)-1-piperazinopropanesulfonic acid; 4-(2-Hydroxyethyl) piperazine-1-propanesulfonic acid; N-[2-Hydroxyethyl] piperazine-N'-[3-propanesulfonic acid].</td>
<td>Hydroxyethyl starch. See Hydroxyethylcellulose</td>
</tr>
<tr>
<td>Classification: Sulfonic acid</td>
<td>N-(2-Hydroxyethyl) stearamide. See Stearamide MEA</td>
</tr>
<tr>
<td>Empirical: C₉H₂₀N₂O₄S</td>
<td>2-Hydroxyethyl stearate. See Glycol stearate</td>
</tr>
<tr>
<td>Properties: Wh. cryst. powd.; m.w. 252.33; m.p. 231 C</td>
<td>N-(2-Hydroxyethyl) tetradecanamide. See Myristamide MEA</td>
</tr>
<tr>
<td>Toxicology: Irritating to eyes, skin, respiratory system; TSCA listed</td>
<td>(2-Hydroxyethyl) trimethyl ammonium bitartrate. See Choline bitartrate</td>
</tr>
<tr>
<td>Storage: Store in cool, dry place; keep container closed when not in use</td>
<td>(2-Hydroxyethyl) trimethylammonium chloride. See Choline chloride</td>
</tr>
<tr>
<td>Uses: Biological buffer for cell cultures, biological productions, electrophoresis, diagnostics, tissue studies</td>
<td>(2-Hydroxyethyl) trimethylammonium citrate. See Choline dihydrogen citrate</td>
</tr>
<tr>
<td>Trade Names: HEP®</td>
<td>3-Hydroxyheptane. See 3-Heptanol</td>
</tr>
<tr>
<td>3-Hydroxy-2-ethyl-4-pyrone. See Ethyl maltol</td>
<td>4-Hydroxyheptanoic acid lactone; 4-Hydroxyheptanoic acid, γ-lactone. See γ-Heptalactone</td>
</tr>
<tr>
<td>1-(2-Hydroxyethyl)-2-pyrrolidinone; 1-(2-Hydroxyethyl) pyrrolidin-2-one. See N-Hydroxyethylpyrrolidone</td>
<td>23-Hydroxy-3,6,9,12,15,18,21-heptaoxatricos-1-yl dodecanoate. See PEG-8 laurate</td>
</tr>
<tr>
<td>N-Hydroxyethylpyrrolidone</td>
<td>23-Hydroxy-3,6,9,12,15,18,21-heptaoxatricos-1-yl octadecanoate. See PEG-8 stearate</td>
</tr>
<tr>
<td>CAS 3445-11-2; EINECS/ELINCS 222-359-4</td>
<td>16-Hydroxy-6-hexadecenoic acid, ω-lactone. See Ambrettolide</td>
</tr>
<tr>
<td>Synonyms: 1-(2-Hydroxyethyl)-2-pyrrlolidone; 1-(2-Hydroxyethyl)</td>
<td>2-Hydroxyhexadecyl dihydrogen phosphate. See Hydroxyethyl phosphate</td>
</tr>
<tr>
<td></td>
<td>1-Hydroxyhexane. See Hexyl alcohol</td>
</tr>
<tr>
<td></td>
<td>4-Hydroxyhexanoic acid lactone; 4-Hydroxyhexanoic acid, γ-lactone. See γ-Hexalactone</td>
</tr>
</tbody>
</table>
| | o-Hydroxyhydrocinnamonic acid-Δ-lactone. See
Chemical Component Cross-Reference

**DIHYDROCOUMARIN**
2-Hydroxy-N-(2-hydroxyethyl) propanamide.  
See Lactamide MEA

3-Hydroxy-2-(hydroxymethyl)-2-methylpropanoic acid.  
See Dimethylolpropanionic acid

α-Hydroxy-o-hydroxypoly (oxy-1,2-ethanediyl).  
See Polyethylene glycol

**HYDROXYLATED LANOLIN**
CAS 68424-66-8; EINECS/ELINCS 270-315-8
Synonyms: Lanolin, hydroxylated
Definition: Prod. obtained by the controlled hydroxylation of lanolin
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emollient, emulsifier, film-former, stabilizer, pigment wetting agent/dispersant, conditioner in pharmaceuticals, topicals
Regulatory: Canada DSL
Trade Names: OHlan®; Ritahydrox

**HYDROXYLATED LECITHIN**
CAS 8029-76-3; EINECS/ELINCS 232-440-6
Synonyms: Lecithin, hydroxylated
Definition: Prod. obtained by the controlled hydroxylation of lecithin
Properties: Lt. yel. liq. to paste, char. odor; mod. sol. in water
Toxicology: Nontoxic; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Wetting agent, emulsifier, suspending agent for pharmaceuticals, topicals
Manuf./Distrib.: Barnet Prods.  
http://www.barnetproducts.com; Cargill Texturizing Solutions Deutschland  
http://www.cargilltexturizing.com; Fanning  
http://www.fanncorp.com; Solae  
http://www.solaecom
Trade Names: Alcolec® Z-3

**HYDROXYLATED MILK GLYCERIDES**
CAS 144635-07-4
Synonyms: Glycerides, milk, hydroxylated
Definition: Prod. obtained by controlled hydroxylation of the glycerides isolated from milk
Uses: Emollient, aux. emulsifier, moisturizer for pharmaceuticals, topicals

†=pharmaceutical grade
3-Hydroxymalic acid.  See L-Tartaric acid
4-Hydroxy-meta-anisaldehyde isobutyrate.  
See Vanillin isobutyrate

Hydroxymethanesulfinic acid monosodium salt; Hydroxymethanesulfinic acid sodium salt.  
See Sodium formaldehyde sulfoxylate
1-Hydroxy-2-methoxy-4-allylbenzene; 4-Hydroxy-3-methoxyallylbenzene.  
See Eugenol
4-Hydroxy-3-methoxybenzaldehyde.  See Vanillin
4-Hydroxy-3-methoxybenzaldehyde 2-methyl propionate.  
See Vanillin isobutyrate
1-Hydroxy-2-methoxybenzene.  See Guaiacol
4-Hydroxy-3-methoxybenzene methanol.  See Vanillyl alcohol
2-Hydroxy-4-methoxybenzophenone.  See Benzophenone-3
2-Hydroxy-4-methoxybenzophenone-5-sulfonic acid.  
See Benzophenone-4
4-Hydroxy-3-methoxybenzyl alcohol.  See Vanillyl alcohol
N-(4-Hydroxy-3-methoxybenzyl) nonanamide.  
See Pelargonyl vanillylamide
1-Hydroxy-2-methoxy-4-ethylbenzene.  See 4-Ethylguaiacol
4-Hydroxy-3-methoxy-1-methylbenzene.  See 2-Methoxy-4-methylphenol
6-Hydroxy-5-[(2-methoxy-5-methyl-4-sulfophenyl) azo]-2-naphthalenesulfonic acid disodium salt.  
See CI 16035; FD&C Red No. 40
4-(4-Hydroxy-3-methoxyphenyl)-2-butanone; (4-Hydroxy-3-methoxyphenyl) ethyl methyl ketone.  
See Zingerone
4-Hydroxy-3-methoxyphenyl methanol.  See Vanillyl alcohol
(2-Hydroxy-4-methoxyphenyl) phenylmethanone.  See Benzophenone-3
1-(4-Hydroxy-3-methoxyphenyl) propylene; 1-Hydroxy-2-methoxy-4-propenylbenzene.  
See Isoeugenol
1-Hydroxy-2-methoxy-4-prop-2-enylbenzene.  
See Eugenol
4-Hydroxy-3-methoxystyrene.  See 2-Methoxy-4-vinylphenol
2-Hydroxy-4-methoxy-5-sulfo benzophenone.  
See Benzophenone-4
4-Hydroxy-3-methoxyltoluene.  See 2-Methoxy-4-methylphenol
Hydroxymethyl anethole; Hydroxymethyl anethol.  See Propenylguaethol
2-Hydroxy-5-methylanisole.  See 2-Methoxy-4-methylphenol
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Component</th>
<th>Note</th>
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<tbody>
<tr>
<td>(Hydroxymethyl) benzene</td>
<td>See Benzyl alcohol</td>
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<tr>
<td>1-Hydroxy-2-methylbenzene</td>
<td>See o-Cresol</td>
</tr>
<tr>
<td>1-Hydroxy-3-methylbenzene</td>
<td>See m-Cresol</td>
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<tr>
<td>1-Hydroxy-4-methylbenzene</td>
<td>See p-Cresol</td>
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<tr>
<td>2-Hydroxy-2-methyl-3-butyne</td>
<td>See Methyl butynol</td>
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<tr>
<td>2-Hydroxy-3-methyl-2-cyclopenten-1-one</td>
<td>See Methyl cyclopentenolone</td>
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<td>N-(Hydroxymethyl)-N-(1,3-dihydroxymethyl)-2,5-dioxo-4-imidazolidinyl-N'- (hydroxymethyl) urea</td>
<td>See Diazolidinyl urea</td>
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<tr>
<td>1-(Hydroxymethyl)-5,5-dimethyl hydantoin; 1- (Hydroxymethyl)-5,5-dimethyl-2,4-imidazolidinedione</td>
<td>See MDM hydantoin</td>
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<tr>
<td>2-Hydroxy-1-methylethanol</td>
<td>See Isopropanolamine</td>
</tr>
<tr>
<td>2-Hydroxymethylfuran</td>
<td>See Furfuryl alcohol</td>
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<tr>
<td>3-Hydroxymethyl-n-heptan-4-ol; Hydroxymethyl-n-heptan-4-ol</td>
<td>See Ethyl hexanediol</td>
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<tr>
<td>3-(Hydroxymethyl) heptan-2-one</td>
<td>See 3-Octanone-1-ol</td>
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<tr>
<td>1-Hydroxymethyl-4-isopropenyl-1-cyclohexene</td>
<td>See Perillyl alcohol</td>
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<tr>
<td>3-Hydroxy-1-methyl-4-isopropylbenzene</td>
<td>See Thymol</td>
</tr>
<tr>
<td>4-(Hydroxymethyl)-2-methoxyphenol</td>
<td>See Vanillyl alcohol</td>
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<tr>
<td>4-Hydroxy-3-methyl-1-methylbenzene</td>
<td>See 2-Methoxy-4-methylphenol</td>
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<td>(2-Hydroxymethyl)-2-nitro-1,3-propanediol</td>
<td>See Tris (hydroxymethyl) nitromethane</td>
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<tr>
<td>1-Hydroxy-4-[(4-methylphenyl) amino]-9,10-anthracenedione</td>
<td>See Cl 60725; D&amp;C Violet No. 2; Disperse blue 72</td>
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<tr>
<td>1-Hydroxymethylpropane</td>
<td>See Isobutyl alcohol</td>
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<tr>
<td>3-Hydroxy-2-methyl-4H-pyran-4-one</td>
<td>See Maltol</td>
</tr>
<tr>
<td>5-Hydroxy-6-methyl-3,4-pyrindenedicarbinol hydrochloride</td>
<td>See Pyridoxine HCl</td>
</tr>
<tr>
<td>5-Hydroxy-6-methyl-3,4-pyrindinedimethanol</td>
<td>See Pyridoxine</td>
</tr>
<tr>
<td>5-Hydroxy-6-methyl-3,4-pyrindinedimethanol hydrochloride</td>
<td>See Pyridoxine HCl</td>
</tr>
<tr>
<td>3-Hydroxy-2-methyl-4-pyrene; 3-Hydroxy-2-methyl-γ-pyrene</td>
<td>See Maltol</td>
</tr>
<tr>
<td>3-Hydroxy-4-[(4-methyl-2-sulfophenyl) azo]-2-naphthalene carboxylic acid calcium salt</td>
<td>See D&amp;C Red No. 7</td>
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<tr>
<td>3-Hydroxy-4-[(4-methyl-2-sulfophenyl) azo]-2-naphthalene carboxylic acid disodium salt</td>
<td>See Piroctone olamine</td>
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<tr>
<td>5-(Hydroxymethyl) undecane</td>
<td>See Butyloctanol</td>
</tr>
<tr>
<td>2-Hydroxynaphthalene; β-Hydroxynaphthalene</td>
<td>See β-Naphthol</td>
</tr>
<tr>
<td>2-Hydroxy-1,4-naphthaledenedione</td>
<td>See Lawsone</td>
</tr>
<tr>
<td>4-[2-Hydroxy-1-naphthalenyl] azo benzensulfonic acid monosodium salt</td>
<td>See D&amp;C Orange No. 4; Acid orange 7</td>
</tr>
<tr>
<td>2-Hydroxynaphthoquinone; 2-Hydroxy-1,4-napthoquinone</td>
<td>See Lawsone</td>
</tr>
<tr>
<td>4-(2-Hydroxy-1-naphthylazo) benzenesulfonic acid sodium salt</td>
<td>See D&amp;C Orange No. 4; Acid orange 7</td>
</tr>
<tr>
<td>p-(2-Hydroxy-1-naphthylazo) benzenesulfonic acid sodium salt</td>
<td>See D&amp;C Orange No. 4; Acid orange 7</td>
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<tr>
<td>4-Hydroxynonanoic acid lactone; 4-Hydroxynonanoic acid, γ-lactone</td>
<td>See γ-Nonalactone</td>
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<tr>
<td>1-Hydroxy-3-nonanone acetate</td>
<td>See 3-Nonanone-1-yl acetate</td>
</tr>
<tr>
<td>12-Hydroxyoctadecanoic acid, 2-ethylhexyl ester</td>
<td>See Octyl hydroxystearate</td>
</tr>
<tr>
<td>Hydroxyoctadecanoic acid, 2-hydroxyethyl ester</td>
<td>See Glycol hydroxystearate</td>
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<tr>
<td>12-Hydroxyoctadecanoic acid, 1,2,3-propanetriyl ester</td>
<td>See Trihydroxystearin</td>
</tr>
<tr>
<td>12-Hydroxy-9-octadecenoic acid; 12-Hydroxycis-9-octadecenoic acid; cis-12-Hydroxyoctadec-9-enoic acid</td>
<td>See Ricinoleic acid</td>
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<tr>
<td>12-Hydroxy-9-octadecenoic acid 2,3-dihydroxypropyl ester</td>
<td>See Glyceryl ricinoleate</td>
</tr>
<tr>
<td>12-Hydroxy-9-octadecenoic acid ester</td>
<td>See Cetyl ricinoleate</td>
</tr>
<tr>
<td>12-Hydroxy-9-octadecenoic acid, monoester with 1,2-propanediol</td>
<td>See Propylene glycol ricinoleate</td>
</tr>
<tr>
<td>12-Hydroxy-9-octadecenoic acid, monoester with 1,2,3-propanetriol</td>
<td>See Glyceryl ricinoleate</td>
</tr>
<tr>
<td>1-Hydroxyoctane</td>
<td>See Caprylic alcohol</td>
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<tr>
<td>2-Hydroxyoctane</td>
<td>See 2-Octanol</td>
</tr>
<tr>
<td>4-Hydroxyoctanoic acid lactone</td>
<td>See 4-Hydroxyoctanoic acid lactone</td>
</tr>
</tbody>
</table>

†=pharmaceutical grade
Chemical Component Cross-Reference

Hydroxyoctanoic acid, \( \gamma \)-lactone. See \( \gamma \)-Octalactone

5-Hydroxy-4-octanone
CAS 496-77-5; EINECS/ELINCS 207-830-4
FEMA 2587
Synonyms: Butyroin; 5-Octanol-4-one; 4-Octanone, 5-hydroxy-
Classification: Aliphatic ketone
Empirical: \( \text{C}_{10}\text{H}_{12}\text{O}_2 \)
Formula: \( \text{CH}_3\text{CH}_2\text{CH}_2\text{CH(OH)}\text{COCH}_2\text{CH}_2\text{CH}_3 \)
Properties: Ylsh. liq., buttery nut-like odor, sweet buttery oily taste; m.w. 144.21; dens. 0.9231; b.p. 182 C; flash pt. 79.4 C; ref. index 1.4290
Toxicology: May be harmful by inh., ing., or skin absorb.; may cause eye/skin irritation
Precaution: Combustible liq.; incompat. with strong oxidizing agents
Hazardous Decomp. Prods.: Toxic fumes of CO, CO_2
Storage: Store in cool, dry place; keep tightly closed
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Hydroxyoctanoic acid, \( \gamma \)-lactone. See \( \gamma \)-Octalactone

5-Hydroxy-4-octanone
CAS 496-77-5; EINECS/ELINCS 207-830-4
FEMA 2587
Synonyms: Butyroin; 5-Octanol-4-one; 4-Octanone, 5-hydroxy-
Classification: Aliphatic ketone
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Formula: \( \text{CH}_3\text{CH}_2\text{CH}_2\text{CH(OH)}\text{COCH}_2\text{CH}_2\text{CH}_3 \)
Properties: Ylsh. liq., buttery nut-like odor, sweet buttery oily taste; m.w. 144.21; dens. 0.9231; b.p. 182 C; flash pt. 79.4 C; ref. index 1.4290
Toxicology: May be harmful by inh., ing., or skin absorb.; may cause eye/skin irritation
Precaution: Combustible liq.; incompat. with strong oxidizing agents
Hazardous Decomp. Prods.: Toxic fumes of CO, CO_2
Storage: Store in cool, dry place; keep tightly closed
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

26-Hydroxy-3,6,9,12,15,18,21,24-octaoxahexacos-1-yl octadeccanoate. See PEG-9 stearate
12-Hydroxyoleic acid; d-12-Hydroxyoleic acid. See Ricinoleic acid
(R)-12-Hydroxyoleic acid, monooester with 1,2-propanediol. See Propylene glycol ricinoleate
\( \gamma \)-Hydroxy-\( \beta \)-oxobutane. See Acetyl methyl carbinol
1-[(12-Hydroxy-1-oxo-9-octadecenyl) amino] ethyl] ester of sulfobutaneodic acid, disodium salt. See Disodium ricinoleamido MEA-sulfosuccinate
3-\( \beta \)-Hydroxy-11-oxoolean-12-en-30-oic acid. See Glycyrrhetinic acid
15-Hydroxypentadecanoic acid lactone; 15-Hydroxypentadecanoic acid, \( \omega \)-lactone. See Pentadecalactone
2-Hydroxypentane. See s-Amyl alcohol
4-Hydroxypentanoic acid lactone. See \( \gamma \)-Valerolactone
17-Hydroxy-3,6,9,12,15-pentaoxaheptadec-1-yl dodecanoate. See PEG-6 laurate
17-Hydroxy-3,6,9,12,15-pentaoxaheptadec-1-yl octadecanoate. See PEG-6 stearate
2-Hydroxyphenol. See Pyrocatechol
3-Hydroxyphenol; m-Hydroxyphenol. See Resorcinol
o-Hydroxyphenol. See Pyrocatechol
p-Hydroxyphenol. See Hydroquinone
1-Hydroxy-2-phenoxyethane. See Phenoxyethanol
\( \alpha \)-Hydroxyphenylacetic acid. See Mandelic acid
2-Hydroxy-2-phenylacetophenone; \( \alpha \)-Hydroxy-\( \alpha \)-phenylacetophenone. See Benzoin
3-(4-Hydroxyphenyl) alanine; l-\( \beta \)-(p-Hydroxyphenyl) alanine. See L-Tyrosine
3-Hydroxy-4-(phenylazo)-2-naphthalene-carboxylic acid calcium salt. See D&C Red No. 31
7-Hydroxy-8-(phenylazo)-1,3-naphthalenedisulfonic acid, disodium salt. See Acid orange 10
2-Hydroxy-4-phenyl butane. See 4-Phenyl-2-butanol
1-(p-Hydroxyphenyl)-3-butanone; 4-(4-Hydroxyphenyl)-2-butanone. See 4-(p-Hydroxyphenyl)-2-butanone
4-(p-Hydroxyphenyl)-2-butanone
CAS 5471-51-2; EINECS/ELINCS 226-806-4
FEMA 2588
Synonyms: 2-Butanone, 4-(4-hydroxyphenyl)--; Framinone; 4-Hydroxybenzylacetone; p-Hydroxybenzylacetone; 1-(p-Hydroxyphenyl)-3-butanone; 4-(4-Hydroxyphenyl)-2-butanone; p-Hydroxyphenyl butanone; 2-(4-Hydroxyphenyl) ethyl methyl ketone; Oxyphenalon; Oxyphenylon; Raspberry ketone
Classification: Ketone; aromatic alcohol
Empirical: \( \text{C}_{16}\text{H}_{20}\text{O}_2 \)
Properties: Wh. cryst. solid; sweet, warm, fruit, raspberry odor; sol. in alcohol, ether; < 1% sol. in water; m.w. 164.22; m.p. 81-86 C; flash pt. > 212 F; tenacity > 1 wk. on blotter
Toxicology: LD50 (oral, rat) 1320 mg/kg, (IP, rat) 350 mg/kg; poison by IP route; mod. toxic by ing.; irritating to eyes, respiratory system, skin; may cause skin sensitization; TSCA listed
Precaution: Combustible liq.; wear suitable gloves, eye/face protection; incompat. with strong oxidizers, reducers
Hazardous Decomp. Prods.: Heated to decomp., emits CO, CO_2, acrid smoke and
Chemical Component Cross-Reference

irritating fumes
HMIS: Health 1, Flammability 1, Reactivity 0
Storage: 12 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, cold, air
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; FCC; Australia AICS; Canada DSL; Japan ENCS (3-2930); Japan MITI: Philippines PICCS
Manuf./Distrib.: ADA Int'l.
http://www.joinme.net/ada/index.htm;
Axence Aromatic GmbH http://www.axxence.com;
http://www.axxence.de
Fleurchem http://www.fleurchem.com;
Fuerst Day Lawson http://www.fdl.co.uk;
MelChem http://www.melchem.com
SAFC Specialties http://www.safcspecialties.com
Sarcom http://www.sarcominc.com;
Takasago Int'l. http://www.takasago.com

p-Hydroxy phenyl butanone. See 4-(p-Hydroxyphenyl)-2-butanone
5-Hydroxy-2-phenyl-1,3-dioxane. See Benzaldehyde glyceryl acetal
2-(4-Hydroxyphenyl) ethyl methyl ketone. See 4-(p-Hydroxyphenyl)-2-butanone
Hydroxyphenyl-mercury compd. with nitrophenylmercury (1:1). See Phenylmercuric nitrate, basic
o-Hydroxyphenyl methyl ketone. See o-Hydroxyacetophenone

†=pharmaceutical grade
1-Hydroxy-3-phenylpropane. See Hydrocinnamic alcohol
4-Hydroxyphenyl sulfonyl acid. See p-Phenol sulfonyl acid
3-Hydroxy-2-picoline-4,5-dimethanol. See Pyridoxine
1-Hydroxypropane. See Propyl alcohol
2-Hydroxypropane. See Isopropyl alcohol
2-Hydroxy-2-propane sulfonyl acid sodium salt acetone sulfite. See Acetone sodium bisulfite
2-Hydroxy-1,2,3-propanetricarboxylic acid: 2-Hydroxypropane-1,2,3-tricarboxylic acid. See Citric acid
2-Hydroxy-1,2,3-propanetricarboxylic acid monoester with 1,2,3-propanetriol monoacetadecanoate. See Glycerol stearate
2-Hydroxy-1,2,3-propanetricarboxylic acid monohydrate. See Citric acid monohydrate
2-Hydroxy-1,2,3-propanetricarboxylic acid, monooctadecyl ester. See Stearyl citrate
2-Hydroxy-1,2,3-propanetricarboxylic acid, monosodium salt. See Sodium citrate
2-Hydroxy-1,2,3-propanetricarboxylic acid, tributyl ester. See Tributyl citrate
2-Hydroxy-1,2,3-propanetricarboxylic acid, triethyl ester. See Triethyl citrate
2-Hydroxy-1,2,3-propanetricarboxylic acid trilithium salt. See Lithium citrate
2-Hydroxy-1,2,3-propanetricarboxylic acid, tripotassium salt. See Potassium citrate
2-Hydroxy-1,2,3-propanetricarboxylic acid, tris (2-octyldodecyl) ester. See Triocylldodecyl citrate
2-Hydroxy-1,2,3-propanetricarboxylic acid, zinc salt. See Zinc citrate
2-Hydroxypropanoic acid. See Lactic acid
2-Hydroxypropanoic acid butyl ester. See Butyl lactate
2-Hydroxypropanoic acid, calcium salt; 2-Hydroxypropanoic acid, calcium salt (2:1). See Calcium lactate
2-Hydroxypropanoic acid, dodecyl ester. See Lauryl lactate
2-Hydroxypropanoic acid hexadecyl ester. See Cetyl lactate
2-Hydroxypropanoic acid, isostearyl ester. See Isostearyl lactate
2-Hydroxypropanoic acid, 5-methyl-2-(1-methylethyl) cyclohexyl ester. See Mentyl lactate
2-Hydroxypropanoic acid monosodium salt. See Sodium lactate
Handbook of Pharmaceutical Additives, Third Edition

2-Hydroxypropanoic acid, tetradecyl ester.  
See Myristyl lactate
2-Hydroxypropanol.  See Propylene glycol
2-Hydroxy-5-propenylanisole.  See Isoeugenol
2-Hydroxypropionic acid; α-Hydroxypropionic acid.  See Lactic acid
2-Hydroxypropionic acid ethyl ester.  See Ethyl lactate
(S)-2-Hydroxypropionic acid sodium salt.  See Sodium L-lactate
2-(2-Hydroxypropoxy) propoxy)-1-propanol; 3-[3-(3-Hydroxypropoxy) propoxy] propan-1-ol.  See Tripropylene glycol
Hydroxypropyl alginate.  See Propylene glycol alginate
2-Hydroxypropylamine; 2-Hydroxy-1-propylamine.  See Isopropanolamine
(3-Hydroxypropyl) benzene.  See Hydrocinnamic alcohol
α-Hydroxypropylbenzene.  See 1-Phenyl-1-propanol
p-Hydroxypropyl benzoate.  See Propylparaben
Hydroxypropylcellulose
CAS 9004-64-2
INS463; E463
Synonyms:  Cellulose, 2-hydroxypropyl ether; HPC; Hydroxypropyl ether of cellulose; Hyprolose; Oxypropylated cellulose
Definition:  Partially substituted poly(hydroxypropyl) ether of cellulose
Properties:  Off-wh. gran. powd., odorless, tasteless; sol. in cold water, methanol, ethanol, many polar org. solvs.; insol. in water > 37.7 C; m.w. 80,000-1,150,000; thermoplastic; can be extruded and molded; softens at 130 C; visc. various; ref. index 1.337; pH 5-8.5 (1%); nonionic
Toxicology:  LD50 (oral, rat) 10,200 mg/kg, (IV, rat) 250 mg/kg; poison by IV route; sl. toxic by ingestion; TSCA listed
Precaution:  Combustible
Hazardous Decomp. Prods.:  Heated to decom., emits acrid smoke and fumes
Uses:  Binder, emulsion stabilizer, visc. control agent, emulsifier, film-former, protective colloid, stabilizer, thickener, suspending agent in pharmaceuticals, orals; protectant in topicals; tablet coating agent, granulation agent
Regulatory:  FDA 21CFR §73.1001, 172.870,
†=pharmaceutical grade
177.1200; Europe listed; UK approved; FDA approved for orals, topicals; USP/NF, BP, EP compliance; Canada DSL
Manuf./Distrib.:  AB R Lundberg
http://www.norfoods.se/lundberg; Aldrich†
http://www.sigma-aldrich.com; Alfa Chem†
http://www.alfachem1.com; Allchem Int'l.
Ltd† http://www.allchem.co.uk; Ashland†
http://www.ashchem.com
Asiamerica Int'l.; Barrington†
http://www.barringtonchem.com; Biddle
Sawyer† http://www.biddlesawyer.com;
CarboMer† http://www.carbomer.com;
Colorcon† http://www.colorcon.com
Dow† http://www.dow.com;
Hercules/Aqualon†
http://www.aqualon.com; Honeywill &
Stein† http://www.honeywill.co.uk;
Mutchler† http://www.mutchlerchem.com;
Polysciences†
http://www.polysciences.com
Sansho† http://www.sansho.co.jp; Shin-
Etsu† http://www.silicone.jp/e/; Spectrum
Quality Prods.†
http://www.spectrumchemical.com; Whyte
Chems. Ltd
http://www.whytechemicals.co.uk
Trade Names:  Klucel® EF Pharm; Klucel® E Pharm; Klucel® EXF Pharm; Klucel® EX Pharm; Klucel® 'F' Grades Klucel® G CS; Klucel® GF; Klucel® G Pharm; Klucel® H CS; Klucel® HF Klucel® H Pharm; Klucel® HXF; Klucel® HX Pharm; Klucel® J CS; Klucel® JF Klucel® J Pharm; Klucel® LF Pharm; Klucel® L Pharm; Klucel® M CS; Klucel® MF
Klucel® M Pharm
Trade Names Containing:  ReadyPress® C;
ReadyPress® C w/RH
2-hydroxypropyl-β-cyclodextrin.  See Hydroxypropyl-β-cyclodextrin
Hydroxypropyl-α-cyclodextrin
CAS 99241-24-4; 128446-33-3
Properties:  M.p. 245 C
Uses:  Bioavailability enhancer, solubilizer, odor/taste masking agent, stabilizer, antioxidant in pharmaceuticals; turns liqs. or volatiles into stable solid powds.
Features:  Stabilizes against light, oxidation, heat, and hydrolysis
Manuf./Distrib.:  Aldrich http://www.sigma-
aldrich.com; CarboMer†
Chemical Component Cross-Reference

Hydroxypropyl-β-cyclodextrin
CAS 94035-02-6; 128446-35-5
Synonyms: HPBCD; 2-hydroxypropyl-β-cyclodextrin
Formula: (C₃H₇O)n
Properties: M.p. 278°C
Storage: Store in a dry and cool place @ ≈4°C
Uses: Bioavailability enhancer, solubilizer, odor/taste masking agent, stabilizer, antioxidant in pharmaceuticals; turns liq.s. or volatiles into stable solid powds.
Features: Stabilizes against light, oxidation, heat, and hydrolysis
Manuf./Distrib.: Acros Org.
Trade Names: Cavasol® W6 HP TL

Hydroxypropyl-γ-cyclodextrin
CAS 99241-25-5; 128446-34-4
Properties: M.p. 250°C
Uses: Bioavailability enhancer, solubilizer, odor/taste masking agent, stabilizer, antioxidant in pharmaceuticals; turns liq.s. or volatiles into stable solid powds.; drug delivery system
Features: Stabilizes against light, oxidation, heat, and hydrolysis
Manuf./Distrib.: Acros Org.
http://www.acros.com; Aldrich† http://www.sigma-aldrich.com
Trade Names: Cavasol® W7 HP; Cavasol® W7 HP Pharma; C*Cavitron 82003; C*Cavitron 82004; C*Cavitron 82005
Kleptose® HPB
Trade Names Containing: Lipo CD™-TC

2-Hydroxypropyl dodecanoate. See Propylene glycol laurate
Hydroxypropyl ether of cellulose. See Hydroxypropylcellulose
2-Hydroxypropyl laurate. See Propylene glycol laurate

Hydroxypropyl cellulose
CAS 9004-65-3
INS464; E464

†=pharmaceutical grade

Synonyms: Carbohydrate gum; Cellulose hydroxypropyl methyl ether; Cellulose 2-hydroxypropyl methyl ether; HPMC; Hypromellose; Methyl hydroxypropyl cellulose; MHPC
Definition: Propylene glycol ether of methyl cellulose
Properties: Wh. to off-wh. gran. powd.; sol. in most polar solvs., cold water; swells in water to produce a clear to opalescent visc. colloidal sol’n.; insol. in hot water and in anhyd. alcohol, ether, chloroform; nonionic
Toxicology: LD50 (IP, rat) 5200 mg/kg; mildly toxic by IP route; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decom., emits acrid smoke and fumes
Uses: Binder, emulsion stabilizer, film-former, visc. control agent, thickener, dispersant, suspending agent in pharmaceuticals, ophthalmics, orals, topicals; tablet excipient, binder, coating agent
Regulatory: FDA 21CFR §172.874, 175.105, 175.300, 177.1960; Europe listed; FDA approved for ophthalmics, orals, topicals; USP/NF compliance; Canada DSL
### Chemical Component Cross-Reference

**Trade Names:**

- **Benecel®**
- **Hydroxypropyl Methylcellulose; Benecel® MP; Culmin® MHPC 5; Culmin® MHPC 25; Culmin® MHPC 50**
- **Culmin® MHPC 100; Culmin® MHPC 400; Culmin® MHPC 500 PF; Culmin® MHPC 3000 P1R; Culmin® MHPC 6000 R**

**Synonyms:**

- **Cellulose, 2-hydroxypropyl methyl ether, acetate hydrogen butanedioate; HPMCAS; Hydrogel acetate succinate**

**Properties:**

- Wh. to ylsh. powd.; faint acetic acid odor; tasteless; sol. in acetone and methanol; insol. in ethanol, purified water, and diethyl ether; m.w. (avg.) 18,000

**Uses:**

- Pharmaceuticals (in enteric polymer matrix for controlled-release tablets of amoxicillin trihydrate)

**Regulatory:**

- JPE

**Manuf./Distrib.:**

- **Alfa Chem**
- **http://www.alfachem1.com; Asiamerica Int'l.†; Biddle Sawyer**
- **http://www.biddlesawyer.com; CarboMer†; http://www.carbomer.com; Shin-Etsu†; http://www.silicone.jp/e/**

### Hydroxypropyl methylcellulose phthalate

**CAS:** 9004-38-0

**Synonyms:**

- **Cellulose acetate hydrogen 1,2-benzenedicarboxylate; Cellulose acetate hydrogen phthalate; Cellulose acetate monophthalate; Cellulose acetylphtalate; HPMC; Hypermellose phthalate**

**Definition:** A monophthalic acid ester of hydroxypropyl methylcellulose

**Properties:** Wh. powd., odorless, tasteless; swells in water to form viscosity colloidal solution; m.w. 80,000-140,000

**NFPA:** Health 1, Flammability 0, Reactivity 0

**Storage:** 3 yr. shelf life if stored in tightly closed original containers

**Uses:** Enteric film-former, coating agent,
Chemical Component Cross-Reference

excipient, matrix binder for pharmaceutical solid dosage forms, orals
Features: Stable under ordinary conditions
Regulatory: FDA approved for orals; USP/NF, EP, JP compliance
Manuf./Distrib.: Allchem Int'l. Ltd†
   http://www.allchem.co.uk; Asiameca Int'l.; Biddle Sawyer†
   http://www.biddlesawyer.com; CarboMer†
   http://www.carbomer.com; Colorcon†
   http://www.colorcon.com; Honeywill & Stein†
   http://www.honeywill.co.uk; Shin-Etsu†
   http://www.silicone.jp/e/
2-(2-Hydroxypropyl)-1-methylethyl salicylate.
   See Dipropylene glycol salicylate
N-(2-Hydroxypropyl)-9-octadecenamide; N-(2-Hydroxypropyl) oleamide. See Oleamide MIPA
Hydroxypropyltrimonium hyaluronate
Definition: Deriv. of high m.w. sodium hyaluronate
Properties: Cationic
Uses: Rheology control agent, skin moisturizer
Trade Names: HA-Quat™
8-Hydroxy-1,3,6-pyrenetrisulfonic acid trisodium salt. See CI 59040; D&C Green No. 8
8-Hydroxyquinoline
CAS 148-24-3; EINECS/ELINCS 205-711-1
Synonyms: Bioquin; Hydroxybenzopyridine; Oxine; Oxybenzopyridine; Oxychinolin; Oxyquinoline (INCI); 8-Oxyquinoline; Phenopyridine; 8-Quinol; 8-Quinolinol; Quinolin-8-ol; Quinopenol
Classification: Heterocyclic compd.
Empirical: C9H7NO
Formula: C9H7NOH
Properties: Wh. cryst. or powd.; sol. in alcohol, acetone, chloroform, benzene, chlorinated and aromatic solvs.; insol. in water; m.w. 145.16; m.p. 73-75 C; b.p. 267 C
Toxicology: LD50 (oral, rat) 1200 mg/kg, (IP, mouse) 43 mg/kg, (subcut., mouse) 83,600 µg/kg; poison by IP and subcut. routes; mod. toxic by ing.; harmful solid; irritant; CNS stimulant; questionable carcinogen; experimental neoplastagen, tumorigen, reproductive effector; mutagen; target organ: nerves; TSCA listed
Precaution: Combustible exposed to heat or flame
Hazardous Decomp. Prods.: Heated to decomp., emits highly toxic fumes of NOx
HMIS: Health 2, Flammability 1, Reactivity 0
Storage: Light-sensitive; store @ R.T.
Uses: Antifungal in pharmaceutical topical anti-infective prods.; anti-septic; nontherapeutic preservative; in intravenous
Regulatory: FDA approved for intravenous; Canada DSL
Manuf./Distrib.: AMRESCO
   http://www.amresco-inc.com; Aldrich
   http://www.sigma-aldrich.com; Fluka
   http://www.sigma-aldrich.com; Napp Tech.
   http://www.napptech.com; Penta Mfg.
   http://www.pentamfg.com
   R.W. Greeff† http://www.pechney-chemicals.com; RTD Hallstar
   http://www.rtdhallstar.com; Ruger†
   http://www.rugerchemical.com; Sigma
   http://www.sigma-aldrich.com/belgium; Spectrum Quality Prods.
   http://www.spectrumchemical.com
   Tanabe USA http://www.tanabeusa.com
8-Hydroxyquinoline benzoate
CAS 7091-57-8; EINECS/ELINCS 230-395-7
Synonyms: Benzoic acid, compd. with 8-quinolinol (1:1); 8-Hydroxyquinoline benzoate (salt); Oxine benzoate; Oxyquinoline benzoate (INCI); 8-Quinolinol benzoate; 8-Quinolinol benzoate (salt); 8-Quinolinol compd. with benzoic acid (1:1); 8-Quinolinol monobenzoate
Definition: Salt of oxyquinoline and benzoic acid
Empirical: C16H13NO3
Formula: C9H7NO • C7H6O2
Properties: M.w. 267.30
Uses: Antimicrobial in pharmaceuticals
Manuf./Distrib.: Alfa Chem†
   http://www.alfachem1.com; Clariant†
   http://www.clariant.com
8-Hydroxyquinoline benzoate (salt). See 8-Hydroxyquinoline benzoate
8-Hydroxyquinoline sulfate
CAS 134-31-6; EINECS/ELINCS 205-137-1
Synonyms: Bis (8-hydroxyquinolinium) sulfate; Chinosol; Oxine sulfate; Oxyquinoline sulfate (INCI); 8-Quinolinol sulfate
†=pharmaceutical grade
### Chemical Component Cross-Reference

**hydrogen sulfate (2:1); 8-Quinolinol sulfate; 8-Quinolinol sulfate (2:1) (salt)**

**Definition:** Salt of oxyquinoline and sulfuric acid

**Empirical:** C_{18}H_{14}N_{2}O_{2} • H_{2}SO_{4}

**Formula:** (C_{9}H_{7}NO)_{2} • H_{2}SO_{4}

**Properties:** Yel. powd.; very sol. in water; freely sol. in methanol; sl. sol. in alcohol; pract. insol. in acetone, ether; m.w. 388.40; m.p. ≈ 185 C

**Toxicology:** LD_{50} (oral, rat) 2038 mg/kg; poison by ing.; human mutagenic data; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits very toxic fumes of SO_{x} and NO_{x}

**HMIS: Health 1, Flammability 0, Reactivity 1**

**Uses:** Complexing agent, antimicrobial in pharmaceuticals, wet dressings; antiperspirant

**Regulatory:** USP/NF compliance; Canada DSL

**Manuf./Distrib.:** AMRESCO†

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<td>GFS†</td>
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**Hydroxyquinone.** See Hydroquinone

**5-Hydroxyresorcinol.** See 1,3,5-

**Trihydroxybenzene**

**5-Hydroxysalicylic acid.** See Gentisic acid

**Hydroxystearic acid, monoester with glycerol.** See Glyceryl hydroxystearate

**12-Hydroxystearyl alcohol**

**CAS 2726-73-0; EINECS/ELINCS 220-342-6**

**Synonyms:** 1,12-Octadecanediol

**Classification:** Aliphatic diol

**Empirical:** C_{18}H_{36}O_{2}

**Properties:** Wh. flakes; m.p. 61-65 C; acid no. < 1; hyd. no. 345-360

**Toxicology:** May cause eye/skin irritation; may be harmful by ing., inh., skin absorp.

**Precaution:** Incompat. with strong oxidizing agents; avoid raising dust

**Hazardous Decomp. Prods.:** CO, CO_{2}; emits toxic fumes under fire conditions

†=pharmaceutical grade

**Storage:** Store in cool, dry place @ R.T.; keep tightly closed

**Uses:** Pharmaceuticals

**Manuf./Distrib.:** Sigma http://www.sigma-aldrich.com/belgium

**Trade Names:** Speziol C 18/2

### Hydroxysuccinic acid; α-Hydroxysuccinic acid. See N-Hydroxysuccinic acid

#### N-Hydroxysuccinic acid

**CAS 6915-15-7 (±); 97-67-6 (L); 617-48-1 (DL); 636-61-3 (D+); EINECS/ELINCS 202-601-5 (L); 230-022-8 (DL)**

**FEMA 2655; INS296; E296**

**Synonyms:** Apple acid; Butanedioic acid, hydroxy-; Deoxytetraric acid; Hydroxysuccinic acid; 1-Hydroxy-1,2-ethanedicarboxylic acid; Hydroxysuccinic acid; α-Hydroxysuccinic acid; Malic acid (INCI); Succinic acid, hydroxy-

**Empirical:** C_{4}H_{6}O_{5}

**Formula:** COOHCH_{2}CH(OH)COOH

**Properties:** Wh. or colorless cryst. powd. or gran., strongly acid taste; dl, i, and d isomeric forms; very sol. in water, alcohol; sl. sol. in ether; m.w. 134.09; dens. 1.595 (20/40 C, d or l), 1.601 (dl); m.p. 100 C (d or l), 128 C (dl); b.p. 140 C (dec.)

**Toxicology:** LD_{50} (IP, rat) 100 mg/kg; LD_{Lo} (oral, rat) 1600 mg/kg; poison by IP route; mod. toxic by ing.; skin and severe eye irritant; dust and aq. sol'ns. may irritate skin, eyes, mucous membranes; TSCA listed

**Precaution:** Combustible

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**HMIS: Health 1, Flammability 0, Reactivity 0**

**Storage:** Store @ R.T.

**Uses:** Acidifier, flavor, flavor enhancer, pH control agent, preservative for pharmaceuticals, toothpaste, mouthwashes, germicidal prods.; taste/odor masking agent for medicines (throat lozenges, cough syrups, effervescent powds.); pH control agent in nutritional supplements; rejuvenates skin in facial prods.

**Regulatory:** FDA 21CFR §131.111, 131.136, 131.144, 146.113, 150.141, 150.161, 169.115, 169.140, 169.150, 184.1069, 582.60, 582.1069, GRAS; USDA 9CFR §318.7, 0.01% max.; BATF 27CFR §240.1051, GRAS; not for use in baby foods; FEMA GRAS; Japan

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**Handbook of Pharmaceutical Additives, Third Edition**

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<th>Chemical Component Cross-Reference</th>
<th>†=pharmaceutical grade</th>
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Chemical Component Cross-Reference

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Hypromellose. See Hydroxypropylcellulose

Hydroxypropylcellulose. See Hydroxypropyl methylcellulose

Hydroxypropylphthalate. See Hydroxypropyl methylcellulose phthalate

Hyoscyamus extract. See Hyoscyamus (Hyoscyamus officinalis) extract

Hyoscyamus (Hyoscyamus officinalis) extract

CAS 84603-66-7; EINECS/ELINCS 283-266-2

FEMA 2590

Synonyms: Hyoscyamus extract; Hyoscyamus officinalis; Hyoscyamus officinalis extract

Definition: Extract of the leaves of the hyoscyamus, Hyoscyamus officinalis

Properties: Warm aromatic camphor-like odor, warm sweet sl. burning flavor

Toxicology: No known toxicity

Uses: Natural flavor for pharmaceuticals;
Hyssopus officinalis; Hyssopus officinalis extract. See Hyssop (Hyssopus officinalis) extract

Hyssus officinalis; Hyssopus officinalis extract. See Hyssop (Hyssopus officinalis) extract

Hyssopus officinalis; Hyssopus officinalis extract. See Hyssop (Hyssopus officinalis) extract

IBA. See Isobutyl alcohol
IBIB. See Isobutyl isobutyrate
iBuH. See 2-Methylpropanal
Icosanyl propionate. See Arachidyl propionate
Illicium verum; Illicium verum fruit oil; Illicium verum oil. See Star anise (Illicium verum) oil
L-α-(or 5)-Imidazolepropionic acid. See L-Histidine
Imidazolidinedione, 1,3-bis (hydroxymethyl)-5,5-dimethyl-; 2,4-imidazolidinedione, 1,3-bis (hydroxymethyl)-5,5-dimethyl-. See DMDM hydantoin
2,4-Imidazolidinedione, 5,5-dimethyl-. See DM hydantoin
Imidazolidinyl urea
CAS 39236-46-9; EINECS/ELINCS 254-372-6
Synonyms: Imidurea; Methanebis (N,N´-(5-ureido-2,4-diketotetrahydroimidazole)-N,N-dimethylol); N,N´´-Methylenebis [N´-[1-(hydroxymethyl)-2,5-dioxo-4-imidazolidinyl]urea]; N,N´´-Methylenebis [N´-[3-(hydroxymethyl)-2,5-dioxoimidazolidin-4-yl]urea]
Classification: Heterocyclic substituted urea
Empirical: C_{11}H_{16}N_{8}O_{8}
Properties: Wh. powd., odorless, tasteless; very water-sol.; sol. in gycerin; sl. sol. in propylene glycol; insol. in most org. solvs.; m.w. 388.30 pH 6.0-7.5 (1%) Toxicology: LD50 (oral, rat) 11,300 mg/kg; LDLo (IP, rat) 4000 mg/kg; mod. toxic by IP route; low systemic toxicity by ing. or on applic. to abraded skin; may cause contact dermatitis Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx Uses: Antimicrobial, preservative for topical pharmaceuticals, esp. water-sol. creams and lotions; keratin softener for dry skin prods. Features: Formaldehyde-releasing

Imidazolidinyl urea 11. See Diazolidinyl urea 1H-Imidazolidinum, 1-[2-(carboxymethoxy)ethyl]-1-carboxymethyl]-4,5-dihydro-2-undecyl-, hydroxide, disodium salt. See Disodium lauroamphodiacetate
Imidazolidinum compds., 1-[2-(2-carboxyethoxy)ethyl]-1(or 3)-[2-carboxyethyl]-4,5-dihydro-2-norcoco alkyl, hydroxides, disodium salts. See Disodium cocoamphopropionate
Imidazolidinum compds., 1-(2-carboxyethyl)-4,5-dihydro-3-(hydroxyethyl)-2-norcoco alkyl, hydroxides, monosodium salts. See Sodium cocoamphopropionate
Imidazolidinum compds., 1-(2-carboxymethoxy)ethyl]-1-(carboxymethyl)-4,5-dihydro-2-norcoco alkyl, hydroxides, sodium salts. See Disodium cocoamphodiacetate
Imidole. See Pyrrole
Imidurea. See Imidazolidinyl urea 2,2´-Iminobisethanol. See Diethanolamine

†=pharmaceutical grade
Use Level: 0.2-0.6%
Regulatory: USA CIR approved; Europe listed 0.6% max.; FDA approved for topicals; NF compliance; Canada DSL
Trade Names: Germall® 115; Nipa Biopure® 100; Unicide U-13
Trade Names Containing: Lubrasil® DS
Imidazolidinyl urea 11. See Diazolidinyl urea 1H-Imidazolidinum, 1-[2-(carboxymethoxy)ethyl]-1-carboxymethyl]-4,5-dihydro-2-undecyl-, hydroxide, disodium salt. See Disodium lauroamphodiacetate
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Imidazolidinum compds., 1-(2-carboxymethoxy)ethyl]-1-(carboxymethyl)-4,5-dihydro-2-norcoco alkyl, hydroxides, sodium salts. See Disodium cocoamphodiacetate
Imidole. See Pyrrole
Imidurea. See Imidazolidinyl urea 2,2´-Iminobisethanol. See Diethanolamine
1,1’-Iminobis-2-propanol; 1,1’-iminobis (propan-2-ol); 1,1’-iminobis-2-propanol.
See Diisopropanolamine

2,2’-Iminodienethanol. See Diethanolamine

1,1’-Iminodi-2-propanol; 1,1’-iminodipropan-2-ol. See Diisopropanolamine

Iminodisuccinate tetrasodium salt. See Tetrasodium iminosuccinate

2-Imino-1-methyimidazolidin-4-one. See Creatinine

Iminourea hydrochloride. See Guanidine hydrochloride

IMP. See Disodium inosinate; Sodium metaphosphate

IMP disodium salt; IMP sodium salt. See Disodium inosinate

IMS. See Alcohol

Inactive limonene. See dl-Limonene

Indanthrene blue. See Indanthrone

Indanthrene brown BR. See Vat brown 1

1H-Indene-1,3(2H)-dione, 2-(2-quinolinyl)-, sulfonated, sodium salts. See CI 47005; 

†=pharmaceutical grade

Acid yellow 3

Indian balsam. See Balsam Peru (Myroxylon pereirae)

Indian gum. See Gum ghatti; Acacia

Indian tragacanth; India tragacanth. See Karaya (Sterculia urens) gum

Indigenous peanut oil. See Peanut (Arachis hypogaea) oil

Indigo

CAS 482-89-3; EINECS/ELINCS 207-586-9

Synonyms: 1H,1-H-[2,2’-Bindolylidene-3,3’-dione; CI 73000; D&C Blue No. 6; 2-(1,3-Dihydro-3-oxo-2H-indol-2-ylidine)-1,2-dihydro-3H-indol-3-one; Indigotin; Pigment blue 66; Synthetic indigo blue; Vat blue 1

Classification: Indigoid color

Empirical: C_{16}H_{10}N_{2}O

Properties: Dk. blue cryst. solid; sol. in chlorinated and aromatic solvs., aniline, nitrobenzene, chlorobenzene, chloroform, glacial acetic acid, and conc. sulfuric acid; insol. in water, ether, alcohol; m.w. 246.28

Toxicology: LD50 (oral, mouse) > 32 g/kg, (IP, mouse) 2200 mg/kg; irritant; mutagen; TSCA listed

Uses: Colorant for sutures incl. ophthalmic surgical use, implants, orals

Regulatory: D&C Blue No. 6: FDA delisted

Manuf./Distrib.: Aldrich† http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Pangaea Sciences† http://www.pangaeasciences.com; Ruger† http://www.rugerchemical.com; Sigma http://www.sigma-aldrich.com/belgium

See also D&C Blue No. 6

Indigo carmine. See CI 73015; FD&C Blue No. 2; Acid blue 74

Indigo carmine disodium salt. See FD&C Blue No. 2; Acid blue 74

Indigotin. See Indigo

Indigotindisulfonate sodium. See CI 73015

5,5’-Indigotin disulfonic acid. See FD&C Blue No. 2; Acid blue 74

Indigotine. See CI 73015; FD&C Blue No. 2; Acid blue 74

Indigotine disodium salt. See FD&C Blue No. 2; Acid blue 74

Indole

CAS 120-72-9; EINECS/ELINCS 204-420-7

FEMA 2593

Synonyms: 1-Azaindene; 1-Benzazole; Benzopyrrole; 1H-Benzo[b]pyrrole; 2,3-Benzopyrrole; Ketole
Chemical Component Cross-Reference

\( \text{Empirical: } C_8H_7N \)

\( \text{Properties: } \) Wh. to ylsh. scales; turns red on exposure to light and air; floral, animal, jasmine, earthy odor; intense fecal odor in high concs.; sol. in hot water, hot alcohol, ether, benzene, oxygenated solvs.; insol. in min. oil, glycerol; m.w. 117.15; m.p. 52-53 C; b.p. 253 C; flash pt. 121 C; ref. index 1.609; tenacity > 1 wk. on blotter

\( \text{Toxicology: } \) LD50 (oral, rat) 1 g/kg, (IP, mouse) 117 mg/kg, (subcut., mouse) 225 mg/kg, (skin, rabbit) 790 mg/kg; poison by IP, subcut. routes; mod. toxic by ing. and skin contact; primary irritant; severe eye irritant; readily absorbed through skin; carcinogen; experimental tumorigen; TSCA listed

\( \text{Precaution: } \) Volatile with steam

\( \text{Hazardous Decomp. Prods.: Heated to comp., emits toxic fumes of } NO_x \)

\( \text{NFPA: Health 1, Flammability 1, Reactivity 0} \)

\( \text{Storage: Photosensitive; air-sensitive; store in cool, dry place in tightly sealed containers, protected from heat, light} \)

\( \text{Uses: Synthetic flavor for pharmaceuticals} \)

\( \text{Use Level: } < 0.1\% \)

\( \text{Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia; Japan approved as flavoring (ENCS no. 5-130); Canada DSL; Philippines PICCS} \)

\( \text{Manuf./Distrib.: Advanced BioTech} \)

\( \text{http://www.adv-bio.com} \)

\( \text{Advanced Synthesis Tech.} \)

\( \text{http://www.advancedsynthesis.com} \)

\( \text{Augustus Oils Ltd} \)

\( \text{http://www.augustus-oils.ltd.uk} \)

\( \text{Chemtex International} \)

\( \text{http://www.chemtexinternational.com} \)

\( \text{Fluka} \)

\( \text{http://www.sigma-aldrich.com} \)

\( \text{Lluch Essence} \)

\( \text{http://www.lluch-essence.com} \)

\( \text{Morata Global Private} \)

\( \text{http://www.morayaglobal.com} \)

\( \text{SAFC Specialties} \)

\( \text{http://www.safcspecialties.com} \)

\( \text{Sigma} \)

\( \text{http://www.sigma-aldrich.com/belgium} \)

\( \text{Takasago Int'l.} \)

\( \text{http://www.takasago.com} \)

\( \text{United Pharma Ltd} \)

\( \text{http://www.upltd.com} \)

\( \text{Xinchem} \)

\( \text{http://www.finechemnet.com} \)

\( \text{1H-Indole-2,3-dione; Indoline-2,3-dione; 2,3-Indoline dione. See Isatin} \)

\( \text{Industrial methylated spirit. See Alcohol} \)

\( \text{Industrial talc. See Talc} \)

\( \text{Infusorial earth. See Diatomaceous earth, amorphous; Diatomaceous earth Inosine 5´-disodium phosphate; Inosine-5´-} \)

†=pharmaceutical grade

\( \text{monophosphate disodium. See Disodium inosinate} \)

\( \text{Inositol} \)

\( \text{CAS 87-89-8; EINECS/ELINCS 201-781-2} \)

\( \text{Synonyms: cis-1,2,3,5-trans-4,6- Cyclohexanecarboxaldehyde; Hexahydroxytetrahydrofuran; i-Inositol; meso-Inositol; myo-Inositol} \)

\( \text{Classification: Cyclic polyol} \)

\( \text{Definition: Constituent of body tissue; commercial prod. is cis-1,2,3,5-trans-4,6-cyclohexanecarboxaldehyde, the main isomer found in nature} \)

\( \text{Empirical: } C_6H_{12}O_6 \)

\( \text{Formula: } C_6H_{6}(OH)_6 \cdot 2HOH \)

\( \text{Properties: } \) Wh. cryst. solid; odorless; sweet taste; sol. in water; insol. in abs. alcohol and ether; m.w. 180.16; dens. 1.524; m.p. 215-227 C

\( \text{Toxicology: LD50 (oral, mouse) 10 g/kg; no toxic effects with high dosages; TSCA listed} \)

\( \text{Hazardous Decomp. Prods.: Heated to comp., emits acrid smoke and irritating fumes} \)

\( \text{HMIS: Health 1, Flammability 1, Reactivity 0} \)

\( \text{Uses: Humectant for pharmaceuticals; nutrient, dietary supplement in medicine} \)

\( \text{Features: Lipotropic} \)

\( \text{Regulatory: FDA 21CFR §107.100, 184.1370, GRAS; Japan approved; Canada DSL} \)

\( \text{Manuf./Distrib.: ADA Int'l.} \)

\( \text{http://www.joinme.net/ada/index.htm} \)

\( \text{AMC Chems.; Adept Sol'ns.; Aldrich;} \)

\( \text{http://www.sigma-aldrich.com} \)

\( \text{Alfa Chem;} \)

\( \text{http://www.alfachem1.com} \)

\( \text{Allichem Ind.} \)

\( \text{http://www.allichem.com} \)

\( \text{Amerol} \)

\( \text{http://www.amerolcorp.com} \)

\( \text{Anmar Int'l.} \)

\( \text{http://www.anmarinternational.com} \)

\( \text{Asiamec Int'l.; Barnet Prods.} \)

\( \text{http://www.barnetproducts.com} \)

\( \text{Barrington;} \)

\( \text{http://www.barringtonchem.com} \)

\( \text{China; Boith;} \)

\( \text{http://www.boith.com} \)

\( \text{Buckton Page Ltd} \)

\( \text{http://www.bucktonpage.com} \)

\( \text{Burlington Bio-Medical; CarboMet;} \)

\( \text{http://www.carbomer.com} \)

\( \text{Charkit;} \)

\( \text{http://www.charkit.com} \)

\( \text{Charles Bowman;} \)

\( \text{http://www.charlesbowman.com} \)

\( \text{CoKEM Assoc.; Dastech Int'l.} \)

\( \text{http://www.dastech.com} \)

\( \text{Degussa; AG/Health & Nutrition} \)
Chemical Component Cross-Reference

EMD Chems.†
http://www.emdchemicals.com; Fabrichem
http://www.fabricheminc.com; Fluka
http://www.sigma-aldrich.com; Fortitech†
http://www.fortitech.com; Fuerst Day
http://www.fdl.co.uk
Lawson

Functional Foods†
http://www.functionalfoods.com; Helm NY†
http://www.helmnewyork.com; Integra†
http://www.integrachem.com; Jarchem Ind.
http://www.jarchem.com; Penta Mfg.†
http://www.pentamfg.com
Premium Ingreds.
http://www.premiumingredients.com; R.W.
Greeff† http://www.pechiney-chemicals.com
http://www.riausa.com; RTD Hallstar†
http://www.rtdhallstar.com; Rochem Int'l.
http://www.rochemintl.com
Ruger http://www.rugerchemical.com;
Sigma http://www.sigma-aldrich.com/belgium; Sinochem Tianjin
http://www.sinochemtianjin.com; Spectrum
Quality Prods.†
http://www.spectrumchemical.com; United
Pharma Ltd http://www.upldt.com
Universal Preserv-A-Chem†
http://www.upichem.com; VWR Int'l.†
http://www.vwrsp.com; Vernon Walden†
http://www.vernonwalden.com; Voigt
Wego Chem. & Min.
http://www.wegochem.com

Trade Names Containing: Hair Complex
Aquosum
i-Inositol. See Inositol
Insoluble metaphosphate. See Sodium
metaphosphate
Insoluble polyvidone; Insoluble PVP. See
Crospovidone
Insoluble sodium metaphosphate. See
Sodium metaphosphate
Integral rose. See Rose oil

Invert sugar
CAS 8013-17-0

Synonyms: Invert sugar syrup; Invert syrup
Definition: Aq. sol'n. of inverted/partly inverted
refined/partly refined sucrose; mixt. of approx.
50% dextrose and 50% fructose
Empirical: C12H22O11
Properties: Colorless sol'n., odorless, sweet
flavor; m.w. 180.16
Uses: Sweetener in pharmaceuticals, orals;
parenteral nutrient ingred.

Regulatory: FDA 21CFR §73.85, 131.112,
131.170, 131.200, 131.203, 131.206, 146.140,
146.141, 146.145, 146.146, 169.175,
184.1859, GRAS; FDA approved for orals
Manuf./Distrib.: AMINO GmbH
http://www.aminaoactivities.com; Ashland†
http://www.ashchem.com; Degussa
AG/Health & Nutrition; MLG Enterprises
Trade Names Containing: Nu-Tab™ 4001; Nu-
Tab™ 4003; Sugartab®

Invert sugar syrup; Invert syrup. See Invert
sugar

Iodamide
CAS 440-58-4
Synonyms: 3-Acetamido-5-(acetamidomethyl)-
2,4,6-triiodobenzoic acid; 3-(Acetylamino)-
5-((acetylamino)methyl)-2,4,6-
triiodobenzoic acid; Ametridinic acid; α-5-
Diacetamido-2,4,6-triido-m-toluic acid
Definition: Crystals from acetic acid
Empirical: C12H11I3N2O4
Properties: Sol. in water; m.w. 627.95; m.p. 255-
257 C
Toxicology: LD50 (IP, rat) 17,900 mg/kg, (IV,
rat) 11,400 mg/kg, (IP, guinea pig) 15 g/kg;
mildly toxic by IP and IV routes
Hazardous Decomp. Prods.: Heated to
decomp., emits very toxic fumes of NOx
and HI
Uses: Pharmaceuticals (parenterals,
intravenous, IV infusion)
Regulatory: FDA approved for intravenous, IV
(infusion)
Manuf./Distrib.: Chemos GmbH
http://www.chemos-group.com

Iode. See Iodine
Iodic acid, calcium salt. See Calcium iodate
Iodic acioidic acid, potassium salt. See
Potassium iodate

Iodine
CAS 7553-56-2; EINECS/ELINCS 231-442-4
UN 1759 (DOT)
Synonyms: Elemental iodine; Iode
Classification: Nonmetallic halogen element
Empirical: I2
Properties: Bluish-black scales or plates,
metallic luster, char. odor, sharp acrid taste;
sol. (g/100 g): 14.09 benzene, 16.47 CS2,
21.43 ethanol; sol. in chloroform, CCl4, glacial
acetic acid, alkaline iodide sol'n., oxygenated
and chlorinated solvs.; very sl. sol. in water;

Chemical Component Cross-Reference

at.wt. 126.9045; m.w. 253.81; dens. 4.98; vapor pressure 1 mm Hg (38.7 C), 0.030 mm Hg (solid, 0 C); m.p. 113.6 C; b.p. 185 C

Toxicology: LD50 (oral, rat) 14 g/kg, (subcut., rat) 10,500 mg/kg; very toxic material; human poison by ing.; experimental poison by IV and subcut. routes; mod. toxic by inh.; human ing. of large quantities causes abdominal pain, nausea, vomiting, diarrhea, asthma, anaphylactic shock; 2-4 g have been fatal; experimental reproductive effector; mutagenic data; TSCA listed

Precaution: DOT: Corrosive material; incompat. with alkaloids, starch, tannins; reacts vigorously with reducing materials; explosive reactions possible

Hazardous Decomp. Pros.: Heated to decomp., emits toxic fumes of I– and various iodine compds.

Iodipamide
CAS 606-17-7
Synonyms: Adipiodone; 3,3´-(Adipoyldimino) bis [2,4,6-triiodobenzoic acid]; 3,3´-(Adipoyldiimino) bis (2,4,6-triodobenzoic acid)

Empirical: C20H14I6N2O6
Formula: (CH2)4(CONHC6HI3COOH)2

Properties: Wh. cryst. powd., nearly odorless; sl. sol. in alcohol, chloroform, ether; insol. in water; m.w. 1139.81; pH 3.5-3.9 (sat. sol'n.)

Toxicology: LD50 (IV, mouse) 2440 mg/kg; toxic by ingestion; TSCA listed

Uses: Medicine (x-ray contrast medium); parenteral pharmaceuticals

Regulatory: FDA approved for parenterals

Manuf./Distrib.: Sigma http://www.sigma-aldrich.com/belgium

Iodohippurate sodium
CAS 133-17-5
Synonyms: Hippuric acid, o-iodo-, monosodium salt

Empirical: C9H7INO3 • Na
Formula: (CH2)4(CONHC6HI3COOH)2

Properties: Cryst.; sol. in water, alcohol; m.w. 327.05

Toxicology: LD50 (IV, rat) 4 g/kg

Uses: Pharmaceuticals (intravenous)

Regulatory: FDA approved for intravenous

Manuf./Distrib.: Chemos GmbH http://www.chemo-group.com

Iodopropynyl butylcarbamate
CAS 55406-53-6; EINECS/ELINCS 259-627-5
Synonyms: Butyl-3-iodo-2-propynylcarbamate; Carbamic acid, butyl-3-iodo-2-propynyl ester; 3-
Chemical Component Cross-Reference

**Iodopropynylbutylcarbamate; 3-iodo-2-propynyl butyl carbamate; 3-iodo-2-propynyl-N-butyl carbamate; IPBC**

**Classification:** Organic compd.
**Empirical:** C\(_8\)H\(_{12}\)INO\(_2\)
**Formula:** \(\text{IC}_2\text{CH}_2\text{OCONH(CH}_2\text{)}_3\text{CH}_3\)
**Properties:** Wh. to off-wh. powd.; m.w. 281.1; m.p. 65-67 C
**Toxicology:** Possible allergen; TSCA listed
**Uses:** Preservative

**Regulatory:**
- FDA 21CFR §175.105;
- USA EPA registered;
- Japan approved;
- Europe listed;
- Canada DSL

**Manuf./Distrib.:**
- Arch Chems. [http://www.archchemicals.com](http://www.archchemicals.com);
- Jan Dekker BV [http://www.jandekker.com](http://www.jandekker.com);
- Troy [http://www.troycorp.com](http://www.troycorp.com)

**Trade Names Containing:**
- Dantogard® Plus Liq.; Germall® Plus; Liquid Germall® Plus
- 3-Iodopropynylbutylcarbamate; 3-Iodo-2-propynyl butyl carbamate; 3-Iodo-2-propynyl-N-butyl carbamate. See iodopropynyl butylcarbamate

**Iofetamine hydrochloride**

**Definition:** Amphetamine analog that is rapidly taken up by the lungs and from there redistributed primarily to the brain and liver

**Uses:** Pharmaceuticals (intravenous); used in brain radionuclide scanning with I-123

**Regulatory:** FDA approved for intravenous

**α-Ionone**

**CAS** 127-41-3; EINECS/ELINCS 204-841-6

**FEMA** 2594

**Synonyms:** α-Cyclocitrylidene acetone; 4-(2,6,6-Trimethyl-2-cyclohexene-1-yl)-3-buten-2-one; 4-(2,6,6-Trimethyl-2-cyclohexen-1-yl)-3-buten-2-one

**Empirical:** C\(_{13}\)H\(_{20}\)O

**Properties:** Colorless oil, woody odor; sol. in alcohol, fixed oils, propylene glycol; sl. sol. in water; misc. with ether; insol. in glycerin; m.w. 192.33; dens. 0.930; b.p. 136 C; flash pt. 118 C; ref. index 1.497-1.502; tenacity 48 hrs. on blotter

**Toxicology:** LD\(_{50}\) (oral, rat) 4590 mg/kg; mildly toxic by ingestion; TSCA listed

**Precaution:** Combustible liq.; incompat. with strong oxidizing agents, iron, iron salts

**Hazardous Decomp. Pros.:** Burning may produce CO, CO\(_2\), NO\(_x\); heated to decomp., emits acrid smoke and fumes

**NFPA:** Health 1, Flammability 1, Reactivity 0

**β-Ionone**

**CAS** 79-77-6; 14901-07-6; EINECS/ELINCS 201-224-3; 238-969-9

**FEMA** 2595

**Synonyms:** β-Cyclocitrylideneacetone; 4-(2,6,6-Trimethyl-1-cyclohexene-1-yl)-3-buten-2-one; 4-(2,6,6-Trimethyl-1-cyclohexen-1-yl)-3-buten-2-one

**Empirical:** C\(_{13}\)H\(_{20}\)O

**Properties:** Colorless oil, woody odor; sol. in alcohol, fixed oils, propylene glycol; sl. sol. in water; misc. with ether; insol. in glycerin; m.w. 192.33; dens. 0.944; b.p. > 234 F; ref. index 1.517-1.522; tenacity 48 hrs. on blotter

**Toxicology:** LD\(_{50}\) (oral, rat) 4590 mg/kg, (IP, mouse) 2277 mg/kg; mod. toxic by IP route; mildly toxic by ing.; TSCA listed

**Precaution:** Combustible liq.; incompat. with...
strong oxidizers, iron, iron salts

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes

NFPA: Health 1, Flammability 1, Reactivity 0

Storage: Store in cool, dry place in tightly sealed containers, protected from heat, light

Uses: Synthetic flavor and fragrance for pharmaceuticals; vitamin A prod.

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia; Canada DSL; Japan ENCS (no. 3-2387); Philippines PICCS

Manuf./Distrib.: Advanced BioTech

α-ionone, isomethyl-. See α-Isomethyliononone

β-ionone, methyl-. See Methyl β-ionone

Ioxaglic acid

CAS 59017-64-0

Definition: Mixt. of ioxaglate meglumine and ioxaglate sodium

Empirical: C24H21I6N5O8

Properties: M.w. 558.87; dens. 1.97 (20 C); m.p. 1536 C; b.p. 300 C; highly reactive chemically; strong reducing agent

Toxicology: LD50 (oral, rat) 30 g/kg; TDLQ (oral, human) 77 mg/kg; poison by IP route; potentially toxic by all forms and routes; human systemic effects (irritability, nausea, vomiting, normocytic anemia); inh. of lg. quantities of dust causes iron pneumoconiosis; chronic exposure can cause fibrosis of the pancreas, diabetes mellitus, liver cirrhosis; questionable carcinogen; experimental tumorigen; TSCA listed

Precaution: Ultrafine powd. is potentially explosive; flamm. solid; explosive and violent reactions possible

HMIS: Health 2, Flammability 3, Reactivity 0

Uses: Nutrient, dietary supplement in pharmaceuticals

Regulatory: FDA 21CFR §111.50, 184.1375, 582.80, 582.5375, GRAS; Japan restricted; Canada DSL

### Chemical Component Cross-Reference

**Handbook of Pharmaceutical Additives, Third Edition**

<table>
<thead>
<tr>
<th>Trade Names</th>
<th>Ferronyl®</th>
</tr>
</thead>
</table>

**Iron ammonium citrate**

- **CAS**: 1185-57-5 (green); 1185-57-6 (brown); 1333-00-2 (green); 1332-98-5 (brown); EINECS/ELINCS 214-686-6
- **INS381**
- **Synonyms**: Ammonium ferric citrate; Citric acid, ammonium iron (3+) salt; FAC; Ferric ammonium citrate; Ferric ammonium citrate, green; Iron (III) ammonium citrate
- **Classification**: A complex salt of undetermined structure
- **Formula**: C₆H₈O₇ • xFe • xH₄N
- **Properties**: Green solid, garnet-red scales, or brownish-yel. powd.; mild ammoniacal odor; mild iron-metallic taste; sol. in water; insol. in alcohol; m.w. 709.44
- **Toxicology**: ACGIH TLV/TWA 1 mg(Fe)/m³; irritant; TSCA listed
- **Precaution**: Combustible
- **Hazardous Decomp. Prods.**: Heated to decomp., emits acrid smoke and irritating fumes
- **HMIS**: Health 1, Flammability 0, Reactivity 1
- **Storage**: Deliq.; hygroscopic; light-sensitive
- **Uses**: Colorant (with pyrogallol) for plain or chromic catgut sutures; medicine
- **Use Level**: 3% max. total citrate-pyrogallol complex (sutures)
- **Regulatory**: FDA 21CFR §73.1025, 172.430, 25 ppm max. in finished salt, 184.1296, 573.560, 582.80, GRAS, exempt from certification, permanently listed for use in medical devices; Japan approved; Europe listed; UK approved;

<table>
<thead>
<tr>
<th>Canada DSL</th>
<th>Manuf./Distrib.: AMRESCO†</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CAS</strong>: 79-69-6; EINECS/ELINCS 201-219-6</td>
<td></td>
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<tr>
<td><strong>FEMA 2597</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Synonyms</strong>: 3-Buten-2-one, 4-(2,4,6,6-Tetramethyl-2-cyclohexen-1-yl)-; 5-Methyl-α-ionone; 6-Methylionone; 6-Methyl-α-ionone; 4-(2,5,6,6-Tetramethyl-2-cyclohexene-1-yl)-3-buten-2-one</td>
<td></td>
</tr>
<tr>
<td><strong>Definition</strong>: The fragrant principle of violets</td>
<td></td>
</tr>
<tr>
<td><strong>Empirical</strong>: C₁₄H₂₂O</td>
<td></td>
</tr>
<tr>
<td><strong>Properties</strong>: Ylsh. visc. liq., char. odor of violets; sol. in alcohol; m.w. 206.32; dens. 0.934 (20/4 C); b.p. 146 C; ref. index 1.492 (20 C)</td>
<td></td>
</tr>
<tr>
<td><strong>Toxicology</strong>: TDLo (IP, mouse, 8 wks)</td>
<td></td>
</tr>
</tbody>
</table>
Iron, elemental. See Iron
Iron ferrocyanide. See Ferric ferrocyanide
Iron (III) ferrocyanide; Iron (3+) ferrocyanide. See Cl 77510
Iron (II) fumarate. See Ferrous fumarate
Iron gluconate; Iron (II) gluconate. See Ferrous gluconate
Iron gluconate dihydrate; Iron (II) gluconate dihydrate. See Ferrous gluconate dihydrate
Iron (III) hexacyanoferrate (4). See Cl 77510
Iron hydrate; Iron hydroxide (INCI). See Iron (III) oxide hydrated
Iron hydroxide oxide. See Cl 77492; Iron (III) oxide hydrated
Iron hydroxide sulfate. See Ferric subsulfate
Iron (II) lactate; Iron (2+) lactate. See Ferrous lactate
Iron monosulfate. See Ferrous sulfate anhydrous
Iron monoxide. See Ferrous oxide
Iron oxide. See Iron oxide black
Iron (II) oxide. See Ferrous oxide
Iron (III) oxide. See Iron oxide black; Ferric oxide
Iron oxide black
CAS 1317-61-9; EINECS/ELINCS 215-277-5
INS 172(i); E172
Synonyms: Black magnetic oxide; Black oxide, precipitated; Black rouge; Cl 77499; Ethiopis iron; Ferric ferrous oxide; Ferrosoferric oxide; Iron oxide; Iron (II, III) oxide; Iron (III) oxide; Iron (II) oxide, black; Iron (II, III) oxide, black; Iron oxide magnetic; Iron oxides (Fe3O4); Magnetite; Pigment black 11; Triairon tetraoxide
Classification: Syn. iron oxide
Empirical: Fe3O4
Properties: Blk. powd.; sol. in acids; insol. in water, alcohol, ether, oils, solvs.; m.w. 231.54;
†=pharmaceutical grade
dens. 4.7 kg/l; m.p. 1538 C (dec.); oxidized to Fe2O3 on heating in air
Toxicology: Harmful by inh., ing., skin contact; irritating to eyes, skin, respiratory system
Uses: Colorant in pharmaceuticals
Regulatory: Colorant in foods, {pharmaceuticals, food-grade polymers}; Canada DSL
Iron (II) oxide, black; Iron (II, III) oxide, black. See Iron oxide black
Iron oxide hydrated. See Iron (III) oxide hydrated
Iron (III) oxide hydrated
CAS 20344-49-4; EINECS/ELINCS 243-746-4; E172
Synonyms: Cl 77492; Ferric hydrate; Ferric hydroxide; Ferric hydroxide oxide; Ferric oxide hydrated; Hydrated ferric oxide; Iron hydrate; Iron hydroxide (INCI); Iron hydroxide oxide; Iron oxide hydrated
Classification: Inorganic compd.
Empirical: FeHO2
Formula: HFeO2
Properties: Red to brn. powd. or cryst.; sol. in min. acids; pract. insol. in water, alcohol; m.w. 88.85; loses H2O to form Fe2O3; noncombustible
Toxicology: May be harmful by inh., ing., or skin absorp.; may cause eye/skin irritation; overdose of iron compds. may have corrosive effect on GI mucosa; complications can lead to acute liver necrosis that can be fatal; TSCA listed
Precaution: Incompat. with strong oxidizing agents
Hazardous Decomp. Prods.: Emits toxic fumes under fire conditions
Storage: Store in cool, dry place; keep tightly closed
Uses: Colorant for pharmaceuticals
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com
See also Cl 77492
Iron oxide black. See Iron oxide magnetic.

Iron (III) oxide monohydrate, yellow. See Iron oxide yellow monohydrate

Iron oxide red. See Ferric oxide

Iron oxides
CAS 1309-37-1 (Fe2O3); 1345-25-1 (FeO); 1317-61-9 (Fe3O4); EINECS/ELINCS 215-168-2 (Fe2O3); 215-721-8 (FeO); 215-277-5 (Fe3O4) INS172; E172

Synonyms: CI 77489; CI 77491; CI 77492; CI 77499

Definition: Inorganic compd. consisting of any one or combinations of synthetically prepared iron oxides incl. the hydrated forms

Toxicology: TSCA listed

Uses: Colorant for pharmaceuticals, ingested drugs, contact lenses

Use Level: ≤ 5 mg elemental Fe/day (ingested drugs)

Regulatory: FDA 21 CFR §73.200, 73.1200, 73.2250, 73.3125, 175.300, 176.170, 177.1460, 177.2600, 178.3297, 182.90, 175.300, 176.170, 186.1300, 186.1374, 522.940, GRAS; exempt from certification, permanently listed for drugs and medical devices; Canada DSL


See also CI 77492; CI 77499; Ferric oxide; Ferrous oxide; Iron oxide black; Iron oxide yellow monohydrate

Iron oxides (Fe3O4). See Iron oxide black

Iron oxide yellow monohydrate
CAS 51274-00-1; EINECS/ELINCS 257-098-5

Synonyms: Hydrated ferric oxide; Iron (III) oxide monohydrate, yellow; Pigment yellow
Isoamyl acetate
CAS 123-92-2; EINECS/ELINCS 204-662-3
UN 1104; FEMA 2055
Synonyms: Acetic acid isopentyl ester; Banana oil; Isoamyl ethanoate; Isoamyl acetate; Isopentyl alcohol acetate; 3-Methyl-1-butanol acetate; 3-Methylbutyl acetate; 3-Methyl-1-butyl acetate; β-Methylbutyl acetate; 3-Methylbutyl ethanoate; Pear oil
Classification: Carboxylic acid ester
Definition: Ester of isoamyl alcohol and acetic acid
Empirical: C7H14O2
Formula: CH3COOCH2CH2CH(CH3)2
Properties: Colorless liq., sweet winey odor, sl. sol. in water; misc. with alcohol, ether, ethyl acetate, fixed oils; insol. in glycerin, propylene glycol; m.w. 130.21; sp.gr. 0.876 (20 C); m.p. -78.5 C; b.p. 142 C; flash pt. (CC) 25 C; ref. index 1.400
Toxicology: ACGIH TLV/TWA 100 ppm; LD50 (oral, rat) 16,600 mg/kg; mildly toxic by ing., inh., subcut. routes; eye and mild skin irritant; inh. can cause nose/throat irritation, CNS depression; ing. may cause mouth/throat irritation, increased heart rate, CNS depression; severe exposure may cause unconsciousness; TSCA listed
Precaution: Highly flamm.; dangerous fire hazard exposed to heat or flame; can react vigorously with reducing materials; also incompat. with oxidizing agents (increases fire/explosion risk), strong acids, strong bases (decomp. can occur)
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
NFPA: Health 1, Flammability 3, Reactivity 0
Storage: Store in cool, dry, well-ventilated area, out of direct sunlight; ground drums and bond transfer containers
Uses: Synthetic flavor for pharmaceuticals; masking agent for undesirable odors
Features: Banana, pear-like flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Japan approved as flavoring; Canada DSL
Axxence Aromatic GmbH
Axxence Aromatic GmbH
Isoamyl acetoacetate
CAS 2308-18-1; EINECS/ELINCS 218-991-5; FEMA 3551
Synonyms: Isoamyl β-ketobutyrate; Isoamyl 3-oxobutanoate; 3-Oxobutyric acid 3-methylbutyl ester
Classification: Nonaromatic ester
Empirical: C9H16O3
Properties: Colorless liq., sweet winey odor, green-apple flavor; sol. in alcohol; insol. in water; m.w. 172.23; dens. 0.954 (10 C); b.p.

Handbook of Pharmaceutical Additives, Third Edition 1489
Isoamyl alcohol
CAS 123-51-3; EINECS/ELINCS 204-633-5
UN 1105; FEMA 2057
Synonyms: Isoamylol; Isobutyl carbinol; Isopentanol; Isopentyl alcohol; 2-Methyl-4-butanol; 3-Methylbutanol; 3-Methyl-1-butanol; 3-Methylbutan-1-ol; Primary isoamyl alcohol
Classification: Primary aliphatic alcohol
Empirical: C₆H₁₂O
Formula: (CH₃)₂CHCH₂CH₂OH
Properties: Colorless liq.; disagreeable sweet odor; pungent taste; sl. sol. in water; sol. in alcohol, ether, acetone, many org. solvs.; m.w. 88.15; sp.gr. 0.813 (15/4 C); f.p. -117.2 C; b.p. 132 C; flash pt. (CC) 42.7 C; ref. index 1.407 (20 C)
Toxicology: ACGIH TLV/TWA 100 ppm; STEL 125 ppm; LD₅₀ (oral, rat) 1300 mg/kg, (IV, mouse) 234 mg/kg; highly toxic; poison by IP, IV routes; mod. toxic by ing., skin contact; ing. has caused human deaths from respiratory failure; may cause heart, lung, kidney damage; CNS depressant; vapor exposure has caused marked irritation of eyes, nose, throat, and headache; may cause sl. to mild skin irritation; questionable carcinogen; TSCA listed
Precaution: DOT: Flamm. liq.; explosive limits in air 1.2-9%; incomp. with strong oxidizing agents, reducing agents, strong acids, alkalis, hydrogen trisulfide; potential explosive hazard
Hazardous Decomp. Prods.: None known
NFPA: Health 1, Flammability 2, Reactivity 0
Storage: Store in cool, dry, well-ventilated area away from heat/ignition sources
Uses: Solvent, synthetic flavor for pharmaceuticals
Regulatory: FDA 21 CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI
Manuf./Distrib.: AMRESCO†
†=pharmaceutical grade
Isoamyl aldehyde. See Isovaleraldehyde
**Isoamyl benzoate**

CAS 94-46-2; EINECS/ELINCS 202-334-4

FEMA 2058

Synonyms: Benzoic acid, 1-(3-methyl) butyl ester; Isopentyl benzoate; 1-(3-Methyl) butyl benzoate; 3-Methylbutyl benzoate

Empirical: C₁₂H₁₈O₂

Formula: C₆H₅COOC₅H₁₁

Properties: Colorless liq., fruity od.; sol. in alcohol; insol. in water; m.w. 192.26; b.p. 261-262°C; flash pt. > 100°C; ref. index 1.492-1.495

Toxicology: LD₅₀ (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; mildly toxic by ing.; primary skin irritant; TSCA listed

Precaution: Combustible liq.; wear safety glasses or goggles, rubber gloves, apron; incompat. with strong oxidizers, reducers

Hazardous Decomp. Prods.: Heated to decomp., emits CO, CO₂, acrid smoke and irritating fumes

HMIS: Health 2, Flammability 2, Reactivity 0

Uses: Synthetic flavor for pharmaceuticals

Features: Apricot, banana, pineapple-like flavor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Japan approved as flavoring; Canada DSL; Australia AICS

Manuf./Distrib.: A&E Connock


See Isoamyl butylate

**Isoamyl butyrate**

CAS 106-27-4; EINECS/ELINCS 203-380-8

UN 2620; FEMA 2060

Synonyms: Amyl butyrate; Butanoic acid, 3-methylbutyl ester; Butyric acid isoamyl ester; Isoamyl butanoate; Isoamyl butylate; Isoamyl n-butyrate; Isopentyl butanoate; Isopentyl butyrate; 3-Methylbutyl butyrate

Definition: Ester of isoamyl alcohol and butyric acid

Empirical: C₉H₁₈O₂

Formula: CH₃(CH₂)₂COOCH₂CH₂CH(CH₃)₂

Properties: Colorless liq., strong fruity pear-like odor; sol. in alcohol, fixed oils, most org. solvs.; sl. sol. in water; insol. in glycerin, propylene glycol; m.w. 158.24; dens. 0.860; b.p. 184-185°C; flash pt. 149°F; ref. index 1.409-1.414

Toxicology: LD₅₀ (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; primary skin irritant; TSCA listed

Precaution: Combustible liq.; wear safety glasses or goggles, rubber gloves, apron; incompat. with strong oxidizers, reducers

Hazardous Decomp. Prods.: Heated to decomp., emits CO, CO₂, acrid smoke and irritating fumes

HMIS: Health 2, Flammability 2, Reactivity 0

Uses: Synthetic flavor for pharmaceuticals

Features: Apricot, banana, pineapple-like flavor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Japan approved as flavoring; Canada DSL; Australia AICS

Manuf./Distrib.: Chr. Hansen Inc


See Isoamyl butylate

**Isoamyl butylate**

See Isoamyl butyrate

**Isoamyl caproate**

See Isoamyl hexanoate

**Isoamyl caprylate**

See Isoamyl octanoate

**Isoamyl cinnamate**

CAS 7779-65-9; EINECS/ELINCS 231-931-2

FEMA 2063

Synonyms: Cinnamic acid, isopentyl ester; Isoamyl β-phenylacrylate; Isoamyl 3-phenyl propenoate; Isoamyl 3-phenylpropenoate; Isopentyl alcohol, cinnamate; Isopentyl acrylate
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS Number</th>
<th>EINECS/ELINCS</th>
<th>FEMA No.</th>
<th>Synonyms</th>
</tr>
</thead>
<tbody>
<tr>
<td>cinnamate; Isopentyl 3-phenyl propenoate; Iso-pentyl 3-phenyl-2-propenoate</td>
<td>110-45-2; 203-769-2</td>
<td>7779-66-0; 231-932-8</td>
<td>1190; 2070</td>
<td>Amyl formate; Formic acid, isopentyl ester; Isoamyl methanoate; Iso-pentyl alcohol, formate; Isopentyl formate; 3-Methylbutyl formate; 3-Methylbutyl methanoate; 2-Furan butanoic acid 3-methyl butyl ester; Isoamyl 2-furanbutyrate; α-Isoamyl furfurylpropionate; Iso-pentyl-2-furanbutyrate; 3-Methyl butyl 2-furan butanoate</td>
</tr>
</tbody>
</table>

**Definition:**

Ester of cinnamic acid and commercial isoamyl alcohols

**Empirical:** $C_{14}H_{18}O_2$

**Formula:** \(C_6H_5CH=CHC(O)OCH_2CH_2CH(CH_3)2\)

**Properties:** Colorless to pale yellow liquid, balsamic odor; soluble in most fixed oils; soluble in alcohol; soluble (mg/ml): $\geq 100$ mg DMSO (20°C), 10-50 mg in 95% ethanol, acetone (20°C), $< 1$ mg water (20°C); m.w. 218.29; density 1.003 g/cm$^3$ (18.6°C); flash point $> 100$°C; refractive index 1.535-1.539

**Precaution:** Combustible liquid

**Hazardous Decomps. Prods.:** Heated to decompose, emits acrid smoke and fumes

**Uses:** Synthetic flavor for pharmaceuticals

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Japan approved as flavoring; Canada DSL


### Toxicology

**LD$_{50}$ (oral, rat):** 9840 mg/kg, (oral, rabbit) 3020 mg/kg; moderately toxic by ingestion; skin irritant; strong irritant; can cause narcosis; TSCA listed

**Precaution:** Flammable liquid; can react with oxidizing materials

**Hazardous Decomps. Prods.:** Heated to decompose, emits acrid smoke and fumes

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Plum-like flavor

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Japan approved as flavoring; Canada DSL


### Toxicology

**LD$_{50}$ (oral, rat):** 9840 mg/kg, (oral, rabbit) 3020 mg/kg; moderately toxic by ingestion; skin irritant; strong irritant; can cause narcosis; TSCA listed

**Precaution:** Flammable liquid; can react with oxidizing materials

**Hazardous Decomps. Prods.:** Heated to decompose, emits acrid smoke and fumes

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Plum-like flavor

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Japan approved as flavoring; Canada DSL

### Isoamyl Furfurylacetate

- **Synonyms:** Amyl hexanoate; Isoamyl caproate; Isopentyl hexanoate; Isopentyl-n-hexanoate
- **Definition:** Ester of caproic acid and isomeric amyl alcohols
- **Properties:** Colorless liq., fruity odor; sol. in alcohol, fixed oils; insol. in water, glycerin, propylene glycol; m.w. 186.30; dens. 0.8627; b.p. 94-96 C (10 mm); flash pt. 53 C; ref. index 1.405-1.409
- **Toxicology:** LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; primary skin irritant; TSCA listed
- **Environmental:** Do not discharge into lakes, streams, ponds, public waters
- **Precaution:** Flammable liq.; wear safety glasses or goggles, rubber gloves, apron; incompat. with strong oxidizers, reducers
- **Hazardous Decomp. Prods.:** Heated to decomp., emits CO, CO2, acrid smoke and irritating fumes
- **Storage:** 6 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air
- **Uses:** Synthetic flavor for pharmaceuticals
- **Features:** Apricot, grape, pineapple, honey-like

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### Isoamyl 2-Hydroxybenzoate

- **Synonyms:** Isoamyl 2-methylpropanoate; Isopentyl isobutyrate; 3-Methylbutyl 2-methylpropanoate
- **Empirical:** C9H18O2
- **Properties:** Colorless to pale yel. liq.; fruity, apricot/pineapple odor; m.w. 158.24; dens. 0.8627; b.p. 170 C; flash pt. 53 C; ref. index 1.405-1.409
- **Toxicology:** TSCA listed
- **Environmental:** Do not discharge into lakes, streams, ponds, public waters
- **Precaution:** Flammable liq.; wear safety glasses or goggles, rubber gloves, apron; incompat. with strong oxidizers, reducers
- **Hazardous Decomp. Prods.:** CO, CO2, acrid fumes
- **Storage:** 6 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air
- **Uses:** Synthetic flavor for pharmaceuticals
- **Features:** Sweet apple, pineapple-like flavor

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### Isoamyl Hexanoate

- **CAS:** 2198-61-0; EINECS/ELINCS 218-600-8
- **FEMA:** 2075
- **Synonyms:** Amyl hexanoate; Isoamyl caproate; Isopentyl hexanoate; Isopentyl-n-hexanoate
- **Definition:** Ester of caproic acid and isomeric amyl alcohols
- **Properties:** Colorless liq., fruity odor; sol. in alcohol, fixed oils; insol. in water, glycerin, propylene glycol; m.w. 186.30; dens. 0.860; b.p. 94-96 C (10 mm); flash pt. 88 C; ref. index 1.4200
- **Toxicology:** LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; primary skin irritant; TSCA listed
- **Environmental:** Do not discharge into lakes, streams, ponds, public waters
- **Precaution:** Combustible; wear safety glasses or goggles, rubber gloves, apron; incompat. with strong oxidizers, reducers
- **Hazardous Decomp. Prods.:** Heated to decomp., emits CO, CO2, acrid smoke and irritating fumes
- **Storage:** 6 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air
- **Uses:** Synthetic flavor for pharmaceuticals
- **Features:** Sweet apple, pineapple-like flavor

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### Isoamyl Isobutyrate

- **CAS:** 2050-01-3; EINECS/ELINCS 218-078-1
- **UN:** 1993; FEMA 3507
- **Synonyms:** Isoamyl 2-methylpropanoate; Isopentyl isobutyrate; 3-Methylbutyl 2-methylpropanoate
- **Empirical:** C9H18O2
- **Properties:** Colorless to pale yel. liq.; fruity, apricot/pineapple odor; m.w. 158.24; dens. 0.8627; b.p. 170 C; flash pt. 53 C; ref. index 1.405-1.409
- **Toxicology:** TSCA listed
- **Environmental:** Do not discharge into lakes, streams, ponds, public waters
- **Precaution:** Flammable liq.; wear safety glasses or goggles, rubber gloves, apron; incompat. with strong oxidizers, reducers
- **Hazardous Decomp. Prods.:** CO, CO2, acrid fumes
- **Storage:** 6 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air
- **Uses:** Synthetic flavor for pharmaceuticals
- **Features:** Sweet apple, pineapple-like flavor

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### References

- **Handbook of Pharmaceutical Additives, Third Edition**
- [http://www.adv-bio.com](http://www.adv-bio.com)
- [http://www.augustus-oils.ltd.uk](http://www.augustus-oils.ltd.uk)
- [http://www.axxence.de](http://www.axxence.de)
- [http://www.chemical.com](http://www.chemical.com)
- [http://www.fleurchem.com](http://www.fleurchem.com)
- [http://www.grau-aromatics.de](http://www.grau-aromatics.de)
- [http://www.interchim.com](http://www.interchim.com)
- [http://www.jhcalo.com](http://www.jhcalo.com)
- [http://www.moorelab.com](http://www.moorelab.com)
- [http://www.oxfordchemicals.com](http://www.oxfordchemicals.com)
- [http://www.rctreatt.com](http://www.rctreatt.com)
- [http://www.safcspecialties.com](http://www.safcspecialties.com)
- [http://www.upltd.com](http://www.upltd.com)
- [http://www.finechemnet.com](http://www.finechemnet.com)
- [http://www.flavors-fruit-systems.com](http://www.flavors-fruit-systems.com)
- [http://www.elan-chemical.com](http://www.elan-chemical.com)

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†=pharmaceutical grade
Chemical Component Cross-Reference

flavor

†=pharmaceutical grade

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI

Manuf./Distrib.: Advanced BioTech  
http://www.adv-bio.com; Advanced Synthesis Tech.  
http://www.advancedsynthesis.com; Astral Extracts  
http://www.astralextracts.com; Axxence Aromatic GmbH  
http://www.axxence.com; http://www.axxence.de; Bell Flavors & Fragrances  
http://www.bellff.com Elan  
http://www.elan-chemical.com; Eramex Aromatics  
http://www.aramex.de; Fleurchem  
http://www.fleurchem.com; Grau Aromatics  
http://www.mpbio.com Interchim  
http://www.interchim.com; J.H. Calo  
http://www.jhcalo.com; Moore Ingreds.  
http://www.moorelab.com; Oxford Chems. Ltd  
http://www.oxfordchemicals.com; R.C. Treatt & Co. Ltd  
http://www.rc-treatt.com; SAFC Specialties  
http://www.safcspecialties.com; TCI Am.  
http://www.tciamerica.com; United Pharma Ltd  
http://www.upltd.com

Isoamyl isovalerate

CAS 659-70-1; EINECS/ELINCS 211-536-1

FEMA 2085

Synonyms: Apple essence; Apple oil; Isoamyl isovalerianate; Isoamyl 3-methylbutanoate; Isopentyl isopentanoate; Isoamyl isovalerate; Isovaleric acid, isopentyl ester

Empirical: C\textsubscript{10}H\textsubscript{20}O\textsubscript{2}

Formula: C\textsubscript{4}H\textsubscript{9}CO\textsubscript{2}C\textsubscript{5}H\textsubscript{1}

Properties: Colorless clear liq., fruity odor, apple-like flavor; sol. in most org. solvs., alcohol, ether, paraffin oil, fixed oils; sl. sol. in propylene glycol; insol. in water; m.w. 172.27; dens. 0.854-0.8583; b.p. 193 °C; flash pt. 72 °C; ref. index 1.4125-1.4135

Toxicology: LD\textsubscript{50} (oral, rabbit) 13,956 mg/kg; mildly toxic by ing.; primary skin irritant; TSCA listed

Precaution: Combustible liq.; wear safety glasses or goggles, rubber gloves, apron; incompat. with strong oxidizers, reducers

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes

Storage: 6 mos. when stored at 40 °F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air

Uses: Synthetic flavor for pharmaceuticals

Features: Apple-like flavor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Japan approved as flavoring; Canada DSL; Australia AICS

Manuf./Distrib.: Advanced BioTech  
http://www.adv-bio.com; Advanced Synthesis Tech.  
http://www.advancedsynthesis.com; Astral Extracts  
http://www.astralextracts.com; Axxence Aromatic GmbH  
http://www.axxence.com; http://www.axxence.de; Bell Flavors & Fragrances  
http://www.bellff.com Elan  
http://www.elan-chemical.com; Eramex Aromatics  
http://www.aramex.de; Fleurchem  
http://www.fleurchem.com; Grau Aromatics  
http://www.mpbio.com Interchim  
http://www.interchim.com; J.H. Calo  
http://www.jhcalo.com; Moore Ingreds.  
http://www.moorelab.com; Oxford Chems. Ltd  
http://www.oxfordchemicals.com; R.C. Treatt & Co. Ltd  
http://www.rc-treatt.com; SAFC Specialties  
http://www.safcspecialties.com; TCI Am.  
http://www.tciamerica.com; United Pharma Ltd  
http://www.upltd.com; V. Mane Fils SA  
http://www.mane.com; Xinchem†  
http://www.finechemnet.com

Isoamyl isovalerianate. See Isoamyl isovalerate

Isoamyl β-ketobutyrate. See Isoamyl acetoacetate

Isoamyl α-ketopropionate. See Isoamyl pyruvate

Isoamyl laurate

CAS 6309-51-9; EINECS/ELINCS 228-626-1

FEMA 2077

Synonyms: Dodecanoic acid, 3-methylbutyl ester; Isoamyl dodecanoate; Isoamyl dodecylate; Isopentyl laurate; 3-Methylbutyl dodecanoate

Definition: Ester of isoamyl alcohol and lauric acid

Empirical: C\textsubscript{17}H\textsubscript{34}O\textsubscript{2}

Formula: CH\textsubscript{3}(CH\textsubscript{2})\textsubscript{10}COOCH\textsubscript{2}CH\textsubscript{2}CH(CH\textsubscript{3})\textsubscript{2}

Properties: Colorless oily liq., fatty odor and flavor; sol. in alcohol; insol. in water; m.w. 270.46

Uses: Synthetic flavor for pharmaceuticals; emollient

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: Advanced Synthesis Tech.  
http://www.advancedsynthesis.com; Fleurchem  
http://www.fleurchem.com; Indofine Chemicals & Dyes  
http://www.indofinechemicals.com; Roux & Co. Ltd  
http://www.rouxgroup.com; Xixiang Bio-Technology  
http://www.xixiangbio.com; Xinchem†  
http://www.finechemnet.com

†=pharmaceutical grade
Chemical Component Cross-Reference

SAFC Specialties
http://www.safcspecialties.com

†=pharmaceutical grade

Isoamyl methanoate. See Isoamyl formate

Isoamyl 2-methylbutanoate. See Isoamyl-2-methylbutyrate

Isoamyl 3-methylbutanoate. See Isoamyl isovalerate

Isoamyl-2-methylbutyrate
CAS 27625-35-0; EINECS/ELINCS 248-581-1
FEMA 3505

Synonyms:
Cherry butyate; Isoamyl 2-methylbutanoate; Isopentyl 2-methylbutanoate; Isopentyl-2-methylbutyrate; 3-Methylbutyl 2-methylbutanoate

Empirical: C₁₀H₂₀O₂

Properties:
Fruity, citrus pear odor; m.w. 172.27; dens. 0.857; b.p. 186 °C; flash pt. 64 °C; ref. index 1.413

Toxicology:
TSCA listed

Uses:
Synthetic flavor for pharmaceuticals

Features:
Fruity, citrus, strawberry, sherry flavor

Regulatory:
FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: Grau Aromatics

Isoamyl nonylate. See Isoamyl nonanoate

Isoamyl octanoate
CAS 2035-99-6; EINECS/ELINCS 218-004-8
FEMA 2080

Synonyms:
Isoamyl caprylate; Isopentyl octanoate; 3-Methylbutyl octanoate; Octanoic acid, isopentyl ester; Octanoic acid, 3-methylbutyl ester

Classification: Nonaromatic ester

Empirical: C₁₃H₂₆O₂

Properties:
Colorless to pale yel. liq.; oily-fruity, sl. animal, orris odor; sol. in alcohol; insol. in water; m.w. 214.35; dens. 0.861; b.p. 267-268 °C; flash pt. > 230 °F; ref. index 1.4219-1.4299

Toxicology:
LD₅₀ (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; primary skin irritant; irritating to respiratory system, eyes; TSCA listed

Precaution:
Wear safety glasses or goggles, rubber gloves, apron; incompat. with strong oxidizers, reducers

Hazardous Decomp. Prods.:
Heated to decomp., emits CO, CO₂, acrid smoke and irritating fumes

Storage:
6 mos. when stored at 40 °F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air

Uses:
Synthetic flavor for pharmaceuticals

Regulatory:
FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI

**Isoamylol**  
See Isoamyl alcohol  
Isoamyl 3-oxobutanoate. See Isoamyl acetoacetate  
Isoamyl pelargonate. See Isoamyl nonanoate

**Isoamyl phenylacetate**  
CAS **102-19-2**; EINECS/ELINCS **203-012-6**  
FEMA **2081**  

**Synonyms:** Benzeneacetic acid, 3-methylbutyl ester; Isoamyl α-toluate; Isopentyl phenylacetate  

**Definition:** Ester of phenylacetic acid and isoamyl alcohol  
**Empirical:** C\textsubscript{13}H\textsubscript{18}O\textsubscript{2}  

**Properties:** Colorless Liq., cocoa-like odor; m.w. 206.28; dens. 0.982; b.p. 265-266 C (723 mm); flash pt. > 100 C; ref. index 1.4850-1.4870  

**Toxicology:** Skin irritant; mutagenic data; TSCA listed  

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and fumes  

**Uses:** Synthetic flavor for pharmaceuticals  

**Features:** Apricot, pineapple-like flavor  

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Japan approved as flavoring; Canada DSL; Australia AICS  

**Manuf./Distrib.:** Advanced BioTech  
http://www.adv-bio.com; Advanced Synthesis Tech.  
http://www.advancedsynthesis.com;  
Augustus Oils Ltd  
http://www.augustus-oils.ltd.uk; Chr. Hansen Inc  
http://www.chr-hansen.com; Elan  
http://www.elan-chemical.com  
Fleurchem  
http://www.fleurchem.com;  
Grau Aromatics  
http://www.grau-aromatics.de; Int'l. Flavors & Fragrances US  
http://www.iff.com; Oxford Chems. Ltd  
http://www.oxfordchemicals.com; Penta Mfg.  
http://www.pentamfg.com  
R.C. Treatt & Co. Ltd  
http://www.rctreatt.com; SAFC Specialties  
http://www.safcspecialties.com; United Pharma Ltd  
http://www.upltd.com

**Isoamyl β-phenylacrylate; Isoamyl 3-phenyl propenate; Isoamyl 3-phenylpropenoate.** See Isoamyl cinnamate

**Isoamyl propionate**  
CAS **105-68-0**; EINECS/ELINCS **203-322-1**  
FEMA **2082**  

**Synonyms:** Isopentyl alcohol, propionate;
Isoamyl pyruvate
CAS 7779-72-8; EINECS/ELINCS 231-934-9
FEMA 2083
Synonyms: Isoamyl α-ketopropionate; Isopentyl pyruvate
Classification: Nonaromatic ester
Empirical: C8H14O3
Properties: Colorless to pale yel. liq.; m.w. 158.20; dens. 0.978 (17 C); b.p. 185 C
Precaution: Combustible
Uses: Synthetic flavor for pharmaceuticals
Features: Balsam rum arrack odor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: SAFC Specialties
http://www.safcspecialties.com

Isoamyl salicylate
CAS 87-20-7; EINECS/ELINCS 201-730-4
FEMA 2084
Synonyms: 2-Hydroxybenzoic acid; Isoamyl 2-hydroxybenzoate; Isoamyl o-hydroxybenzoate; Isopentyl salicylate; 3-Methylbutyl ester; 3-Methylbutyl salicylate; Orchidee
Classification: Aromatic ester
Empirical: C12H16O3
Properties: Colorless liq.; pleasant sweet odor; sol. in alcohol and chlorinated solvs.; misc. with ether; pract. insol. in water; m.w. 208.26; dens. 1.050; b.p. 277-278 C; flash pt. > 230 F; ref. index 1.5070
Toxicology: LD50 (oral, mouse) 9 g/kg; TSCA listed
Precaution: Combustible liq.
Uses: Synthetic flavor for pharmaceuticals
Features: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Advanced BioTech
http://www.adv-bio.com; Augustus Oils Ltd
http://www.augustus-oils.ltd.uk; Elan
http://www.elan-chemical.com; J.H. Calo
http://www.jhcalo.com; MelChem†
http://www.melchem.com
R.C. Treatt & Co. Ltd
http://www.rctreatt.com; SAFC Specialties
http://www.safcspecialties.com; United Pharma Ltd
http://www.upltd.com

Isoamyl α-toluate. See Isoamyl phenylacetate
Isoanethole. See Estragole
Isoarachidyl alcohol. See Octyldodecanol
Isoascorbic acid; D-Isoascorbic acid. See Erythorbic acid

Isoamyl pyruvate
†=pharmaceutical grade

Isobornanol
CAS 124-76-5; EINECS/ELINCS 204-712-4
FEMA 2158
Synonyms: dl-Isoborneol; Isobornyl alcohol; Isocamphol; exo-1,7,7-Trimethylbicyclo [2.2.1] heptan-2-ol
Definition: A geometrical isomer of borneol
Empirical: C10H18O
Formula: C10H17OH
Properties: Wh. cryst. solid, piney camphoraceous odor; m.w. 154.24; m.p. 212-213 C
Toxicology: LD50 (oral, rat) 5200 mg/kg, (IV, mouse) 56 mg/kg; poison by IV route; mildly toxic by ing.; primary skin irritant; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Adrian Amer.
dl-Isoborneol. See Isoborneol

Isobornyl acetate
CAS 125-12-2; EINECS/ELINCS 204-727-6
UN NA 1993; FEMA 2160
Synonyms: 2-Camphanyl acetate; exo-1,7,7-Trimethylbicyclo [2.2.1] heptan-2-yl acetate; exo-1,7,7-Trimethylbicyclo [2.2.1] hept-2-yl ethanoate
Definition: Exo-isomer of bornyl acetate; commercial prod. is usually a mixt. of optical isomers
Empirical: C12H20O2
Properties: Colorless clear liq., camphor-like odor, fresh burning taste; sol. in most org. solvs., alcohol, most fixed oils, min. oil; sl. sol. in propylene glycol; insol. in glycerol and water; m.w. 196.29; dens. 0.978 (20 C); b.p. 102-103 C (12 mm); ref. index 1.4620-1.4650
Toxicology: LD50 (oral, mouse) 9 g/kg; TSCA listed
Precaution: Combustible liq.
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA
Isobornyl alcohol. See Isoborneol

Isobornyl formate
CAS 1200-67-5; EINECS/ELINCS 214-853-3
FEMA 2162
Synonyms: exo-1,7,7-Trimethylbicyclo [2.2.1] hept-2-yl formate; exo-1,7,7-Trimethylbicyclo [2.2.1] hept-2-yl methanoate

Empirical: C_{11}H_{18}O_{2}

Properties: Liq., aromatic pine needles odor; sol. in most org. solvs.; insol. in water; m.w. 182.26; dens. 1.000 (18 C); b.p. 110 C (20 mm); ref. index 1.4717

Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Penta Mfg.
http://www.pentamfg.com

Isobornyl isovalerate
CAS 2756-56-1; EINECS/ELINCS 220-410-5
FEMA 2163
Synonyms: exo-1,7,7-Trimethylbicyclo [2.2.1] hept-2-yl propanoate; exo-1,7,7-Trimethylbicyclo [2.2.1] hept-2-yl propionate

Empirical: C_{13}H_{22}O_{2}

Properties: Colorless oily liq.; pine, herbal, fruity, woody odor; sol. in alcohol; insol. in water; m.w. 210.31; sp.gr. 0.9720-0.9770; b.p. 254 C; flash pt. (CC) 98 C; ref. index 1.4640; tenacity 8 hrs. on blotter

Toxicology: TSCA listed

Storage: Store in cool, dry place in tightly sealed containers, protected from heat, light

Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia; Canada DSL; Japan ENCS (no. 4-626); Philippines PICCS

Isobutanol. See 2-Methylpropanal

Isobutandiol-2-amine. See Aminomethyl propanediol

Isobutane
CAS 75-28-5; EINECS/ELINCS 200-857-2
UN 1076 (DOT); UN 1969 (DOT); INS943b; E943b
Synonyms: 2-Methylpropane; Trimethylmethane

Classification: Hydrocarbon gas

Definition: A constituent of natural gas and illuminating gas

Empirical: C_{4}H_{10}

Formula: CH(CH_{3})_{3}

Properties: Colorless gas, odorless; easily liquefied under pressure at R.T.; sol. in oxygenated and hydrocarbon solvs.; insol. in water; m.w. 58.12; dens. 0.5572; vapor pressure 2950 mm Hg (31 psig, 21 C); f.p. -159 C; b.p. -11.73 C; flash pt. -83 C

Toxicology: Asphyxiant; narcotic at high concs.; TSCA listed

Precaution: Highly flamm. gas; explosive; very dangerous fire and explosion hazard exposed to heat, flame, or oxidizers

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating
Isobutanoic acid. See Isobutyric acid
Isobutanol. See Isobutyl alcohol
Isobutanolamine; isobutanol-2 amine. See Aminomethyl propanol
Isobutene homopolymer; isobutene polymer. See Polyisobutene
Isobutyl acetate
CAS 110-19-0; EINECS/ELINCS 203-745-1
UN 1123 (DOT); UN 1213 (DOT); FEMA 2175
Synonyms: Acetic acid isobutyl ester; Acetic acid 2-methylpropyl ester; 2-Methylpropyl acetate; 2-Methyl-1-propyl acetate; 2-Methylpropyl ethanoate; β-Methylpropyl ethanoate
Classification: Carboxylic acid ester
Definition: Ester of isobutyl alcohol and acetic acid
Empirical: C₆H₁₂O₂
Formula: CH₃COOCH₂CH(CH₃)₂
Properties: Colorless clear liq., fruit-like odor; very sol. in alcohol, fixed oils, propylene glycol; sol. in ether, hydrocarbons; sl. sol. in water; m.w. 116.18; sp.gr. 0.8685 (15 C); m.p. -98.9 C; b.p. 118 C; flash pt. (TCC) 18 C; ref. index 1.389
Toxicology: ACGIH TLV/TWA 150 ppm; LD₅₀ (oral, rat) 13,400 mg/kg; mildly toxic by ing. and inh.; vapors can probably irritate nose and throat; high concs. may cause CNS depression; ing. may cause CNS mouth/throat irritation, CNS depression, headache, weakness, dizziness, nausea; higher concs. may cause unconsciousness; skin and eye irritant; TSCA listed
Precaution: Highly flamm.; very dangerous fire and mod. explosion hazard on exposure to heat, flame, oxidizers; incompat. with strong oxidizers, strong bases, strong acids; increased risk of fire/explosion; decom. (hydrolysis) can occur
Hazardous Decomp. Prods.: Heated to decom., emits acrid smoke and fumes
NFPA: Health 1, Flammability 3, Reactivity 0
Storage: Store in cool, dry, well-ventilated area, out of direct sunlight; ground drums and bond transfer containers
Uses: Solvent, synthetic flavor for pharmaceuticals; mfg. of pharmaceuticals; defoamer in acute pulmonary edema extractants
Features: Sweet apple, banana-like flavor
Regulatory: FDA 21 CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI
Isobutyl acetate

CAS 7779-75-1; EINECS/ELINCS 231-937-5

FEMA 2177

Synonyms: Acetoacetic acid isobutyl ester; Isobutyl β-ketobutyrate; Isobutyl-3-oxobutanoate; 2-Methyl-1-propyl acetacetate

Empirical: C₈H₁₄O₃

Properties: Colorless liq., brandy-like odor, sweet sl. fruity flavor; sol. in alcohol; insol. in water; m.w. 158.20; dens. 0.9697; b.p. 84.5 C (11 mm); flash pt. 173 F; ref. index 1.4219

Uses: Synthetic flavor for pharmaceuticals

Features: Fruity flavor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL


Isobutyl alcohol

CAS 78-83-1; EINECS/ELINCS 201-148-0

UN 1212 (DOT); UN 1213; FEMA 2179

Synonyms: 1-Hydroxymethylpropane; IBA; Isobutanol; Isopropylcarbinol; 2-Methylpropanol; 2-Methyl-1-propanol; 2-Methylpropan-1-ol; 2-Methylpropyl alcohol

Classification: Primary aliphatic alcohol

Empirical: C₄H₁₀O

Formula: (CH₃)₂CHCH₂OH

Properties: Colorless liq.; sweet musty odor; sol. in alcohol, ether; misc. with most org. solvs.; partly sol. in water; m.w. 74.12; dens. 0.806 (15 C); vapor pressure 10.4 mm Hg; f.p. -108 C; b.p. 106-109 C; flash pt. (TCC) 29 C; autoignition temp. 415 C; ref. index 1.396; surf. tens. 22.98 dynes/cm; dielec. const. 17.93

Toxicology: ACGIH TLV/TWA 50 ppm; LD₅₀ (oral, rat) 2460 mg/kg; poison by IV, IP route; mod. toxic by ing., skin contact; severe skin/eye irritant; inh. of high concs. or ing. may cause CNS depression effects; collapse, coma, or death possible at higher doses; liver/kidney damage possible; experimental carcinogen, tumorigen; mutagenic data; TSCA listed

Environmental: VOC; BOD₅ 0.41; COD 2.46; ThOD 2.59

Precaution: Flamm.; dangerous fire hazard with heat, flame; mod. explosive as vapor with heat, flame, oxidizers; also incompat. with chromium trioxide; explosion potential with various chems.

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes

NFPA: Health 1, Flammability 3, Reactivity 0

Storage: Store in cool, dry, well-ventilated area, out of direct sunlight, away from heat/ignition sources

Uses: Solvent, synthetic flavor and fragrance for pharmaceuticals

Features: Fruity flavor

Regulatory: FDA 21CFR §73.1, 172.515, 172.859, 175.105, 176.200, 176.210, 177.120, 177.2800; FEMA GRAS; Australia AICS; Canada DLS; Japan MITI; CERCLA hazardous substance

Isobutyl aldehyde. See 2-Methylpropanal
Isobutyl 2-aminobenzoate; Isobutyl o-aminobenzoate. See Isobutyl anthranilate

Isobutyl angelate
CAS 7779-81-9; EINECS/ELINCS 231-941-7
FEMA 2180
Synonyms: Isobutyl cis-2-methyl-2-butenoate;
Isobutyl cis-α-methylcrotonate; 2-Methylpropyl (Z)-2-methyl-2-butenoate;
Methylpropyl 2-methylisocrotonate
Definition: Ester of isobutyl alcohol and angelic acid
Empirical: C₉H₁₆O₂
Properties: Colorless liq., chamomile-like odor; sol. in alcohol; insol. in water; m.w. 156.23;
sp.gr. 0.877; b.p. 176-177 C; flash pt. 140 F
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: SAFC Specialties http://www.safcspecialties.com
Thomas Scientific† http://www.thomassci.com
United Pharma Ltd http://www.upltd.com
Wutong Aroma http://www.wu-tong.com
Xinchem† http://www.finechemnet.com

p-Isobutylibenzaldehyde
CAS 40150-98-9
Empirical: C₁₁H₁₄O
Properties: Colorless cl. liq.; sol. in ethanol, ether, toluene; insol. in water; m.w. 162.2;
sp.gr. 0.960 (20 C); b.p. 240 C; flash pt. (COC) 122 C
Toxicology: LD₅₀ (oral, rat) 1000-5000 mg/kg; eye and skin irritant
Storage: Store in cool, dry place
Uses: Intermediate for pharmaceuticals
Manuf./Distrib.: Mitsubishi Gas http://www.mgc-a.com

Isobutyl benzoate
CAS 120-50-3; EINECS/ELINCS 204-401-3
FEMA 2185
Synonyms: Benzoic acid, isobutyl ester;
Benzoic acid, 2-methylpropyl ester;
Eglantine; 2-Methylpropyl benzoate
Definition: Ester of butyl alcohol and benzoic acid
Empirical: C₁₁H₁₄O₂
Formula: C₆H₅CO₂CH₂CH(CH₃)₂
Properties: Colorless liq., floral-leafy odor; misc. with alcohol, ether; insol. in water; m.w. 178.23;
dens. 1.002; b.p. 237 C; flash pt. 96 C; ref. index 1.493-1.496
Toxicology: LD₅₀ (oral, rat) 5600 mg/kg, (oral, mouse) 4800 mg/kg; TSCA listed
Precaution: Combustible
Uses: Synthetic flavor for pharmaceuticals
Use Level: 0.5% max. as benzoic acid in finished cosmetics
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: ABCR http://www.abcr.de;
Isobutylic carbinol. See α-Isobutylphenethyl alcohol

Isobutyl-2-butenoate
CAS 589-66-2; EINECS/ELINCS 209-658-5
UN 3272; FEMA 2187

Synonyms: 2-Butenoic acid, 2-methylpropyl ester; Isobutyl trans-2-butenoate; Isobutyl crotonate

Empirical: C₈H₁₄O₂

Properties: Colorless liq.; fruity rum-like odor; fruity taste; sol. in alcohol; insol. in water; m.w. 142.19; sp.gr. 0.883-0.891; b.p. 171 °C; flash pt. (CC) 56 °C; ref. index 1.428 (20 °C)

Toxicology: Irritating to eyes, skin, respiratory system; lachrymator; harmful by ing., inh., skin absorp.; vapor/mist irritating to eyes, mucous membranes, upper respiratory tract; may cause burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, vomiting; TSCA listed

Environmental: Prevent contamination of soil, ground- and surf. water

Precaution: Flamm. liq.; incompat. with strong oxidizing agents

Hazardous Decomp. Prods.: Toxic fumes of CO, CO₂; emits toxic fumes under fire conditions

HMIS: Health 1, Flammability 2, Reactivity 0

Storage: Sensitive to light; store in cool, well-ventilated area away from naked flame, ignition sources; refrigerate; keep tightly closed

Uses: Synthetic flavor for pharmaceuticals

Features: Fruity flavor

Regulatory: DOT nonregulated; FEMA GRAS; AICS, China, Canada DSL, ECL, EINECS, ENCS, PICCS listed

Manuf./Distrib.: Advanced BioTech
http://www.adv-bio.com; Axxence Aromatic
GmbH http://www.axxence.com;
http://www.axxence.de; Elan
http://www.elan-chemical.com; Epochen
http://www.epochem.com; Fleurchem
http://www.fleurchem.com
Grau Aromatics http://www.grau-aromatics.de; J.H. Calo
http://www.jhcalo.com; Moore Ingreds.
Ltd http://www.oxfordchemicals.com; R.C.
Treatt & Co. Ltd http://www.rctreatt.com
SAFC Specialties
http://www.safcspecialties.com; V. Mane
Fils SA http://www.mane.com; Xinchem
http://www.finechemnet.com

Isobutylic n-butyrte. See Isobutyl butyrate

Isobutyl caproate; Isobutyl capronate. See

†=pharmaceutical grade
Isobutyl hexanoate  

Isobutyl carbinol.  See Isoamyl alcohol

Isobutyl cinnamate  
CAS 122-67-8; EINECS/ELINCS 204-564-0  
FEMA 2193

Synonyms:  Cinnamic acid, isobutyl ester;  
Isobutyl-β-phenylacrylate; Isobutyl-3-phenylpropenoate; 2-Methylpropyl 3-phenyl-2-propenoate; 3-Phenyl-2-propenoic acid, 2-methylpropyl ester

Empirical:  C_{13}H_{16}O_{2}

Formula:  C_{4}H_{9}OOCCH:CHC_{6}H_{5}

Properties:
Colorless oily liq., sweet fruity balsamic odor, sweet taste; sol. in 2 vols. 7% alcohol; m.w. 204.27; dens. 1.003; b.p. 287 °C; flash pt. > 230 °F; ref. index 1.541

Toxicology:  Primary skin irritant;  TSCA listed

Precaution:  Combustible

Hazardous Decomp. Prods.:  Heated to decomp., emits acrid smoke and fumes

Uses:  Synthetic flavor for pharmaceuticals

Features:  Sweet, fruity flavor

Regulatory:
FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.:  Advanced Synthesis Tech.  
http://www.advancedsynthesis.com; Oxford Chems. Ltd  
http://www.oxfordchemicals.com; SAFC Specialties  
http://www.safcspecialties.com

Isobutyl crotonate.  See Isobutyl-2-butenoate

Isobutyl 2-cyanoacrylate.  See Bucrylate

Isobutylenic homopolymer; Isobutylenic polymer; Isobutylene resin.  See Polyisobutene

Isobutyl formate  
CAS 542-55-2; EINECS/ELINCS 208-818-1  
UN 2393 (DOT); FEMA 2197

Synonyms:  Formic acid isobutyl ester; Tetryl formate

Empirical:  C_{5}H_{10}O_{2}

Formula:  HCOOCH_{2}CH(\text{CH}_{3})_{2}

Properties:
Liq., fruity ether-like odor, rum-like taste; sol. in 100 parts water; misc. with alcohol, ether; m.w. 102.13; dens. 0.885 (20/4 °C); m.p. -95 °C; b.p. 98-99 °C; flash pt. 50 °F; ref. index 1.3858 (20 °C)

Toxicology:  LD50 (oral, rat) 1950 mg/kg, (skin, rabbit) 2000 mg/kg; mod. toxic by ing. and skin contact; skin irritant; TSCA listed

Hazardous Decomp. Prods.:  Heated to decomp., emits acrid smoke and fumes

Uses:  Synthetic flavor for pharmaceuticals

Features:  Sweet, fruity flavor

Regulatory:
FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.:  Advanced Synthesis Tech.  
http://www.advancedsynthesis.com; Oxford Chems. Ltd  
http://www.oxfordchemicals.com; SAFC Specialties  
http://www.safcspecialties.com; United Pharma Ltd  
http://www.upltd.com

Isobutyl furfurylacetate; Isobutyl furylpropionate; 2-Methylpropyl furan-2-propionate

Definition:  Ester of 2-furanpropionic acid and isobutanol

Empirical:  C_{11}H_{16}O_{3}

Properties:
Colorless to pale straw-yel. liq., fruity winey brandy-like odor; sol. in alcohol; insol. in water; m.w. 196.25

Toxicology:  LD50 (oral, rat) 1950 mg/kg, (skin, rabbit) 2000 mg/kg; mod. toxic by ing. and skin contact; skin irritant; TSCA listed

Hazardous Decomp. Prods.:  Heated to decomp., emits acrid smoke and fumes

Uses:  Synthetic flavor for pharmaceuticals

Features:  Sweet, fruity flavor

Regulatory:
FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.:  Advanced Synthesis Tech.  
http://www.advancedsynthesis.com; Oxford Chems. Ltd  
http://www.oxfordchemicals.com; SAFC Specialties  
http://www.safcspecialties.com; Penta Mfg.  
http://www.pentamfg.com

Isobutyl furfurylacetate; Isobutyl furylpropionate

Isobutyl heptanoate.  See Isobutyl-2-furanpropionate

Isobutyl heptanoate  
CAS 7779-80-8; EINECS/ELINCS 231-940-1  
FEMA 2200

Synonyms:  Heptanoic acid, isobutyl ester;  
Heptanoic acid, 3-methylpropyl ester;  
Isobutyl heptoate; Isobutyl heptylate; 2-Methylpropyl heptanoate

Definition:  Ester of heptanoic acid and isobutyl alcohol

Empirical:  C_{11}H_{22}O_{2}

Properties:
Colorless liq., green odor; sol. in most org. solvs.; m.w. 186.30; dens. 0.8593; b.p. 209 °C; flash pt. 86 °C

Toxicology:  Skin irritant; TSCA listed
Chemical Component Cross-Reference

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Isobutyl heptanoate; Isobutyl heptylate. See Isobutyl heptanoate

Isobutyl hexanoate
CAS 105-79-3; EINECS/ELINCS 203-332-6
FEMA 2202
Synonyms: Hexanoic acid, isobutyl ester; Hexanoic acid, 2-methylpropyl ester; Isobutyl caproate; Isobutyl capronate; Isobutyl hexylate; 2-Methylpropyl hexanoate
Empirical: \( \text{C}_{10}\text{H}_{20}\text{O}_2 \)
Properties: Colorless liq., fruity apple-like odor; m.w. 172.27; dens. 0.856; vapor dens. 5.9; b.p. 348-350 °C; flash pt. 169 °F; ref. index 1.412-1.416
Toxicology: Primary skin irritant; TSCA listed
Precaution: Combustible

Hazardous Decomp. Prods.: Heated to decomp., emits CO, CO₂, acrid smoke and fumes
Storage: Store under nitrogen; refrigerate; store at 40-70 °F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air
Uses: Synthetic flavor for pharmaceuticals
Features: Chocolate, apple-like flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI

Isobutyl hexylate. See Isobutyl hexanoate

Isobutyl 4-hydroxybenzoate. See

†=pharmaceutical grade

Isobutylparaben
Isobutyl o-hydroxybenzoate. See Isobutyl salicylate
Isobutyl p-hydroxybenzoate. See Isobutylparaben

Isobutyl isobutyrate
CAS 97-85-8; EINECS/ELINCS 202-612-5
UN 2528 (DOT); FEMA 2189
Synonyms: IBIB; Isobutyric acid, isobutyl ester; 2-Methylpropanoic acid 2-methylpropyl ester; 2-Methylpropyl isobutyrate; 2-Methylpropyl 2-methylpropanoate
Empirical: \( \text{C}_8\text{H}_{16}\text{O}_2 \)
Formula: \((\text{CH}_3)\text{C}\text{HCOOCH}_2\text{CH(CH}_3\text{)}_2\)
Properties: Colorless liq., fruity odor; sol. in alcohol, ether; insol. in water; m.w. 144.22; dens. 0.854 (20/4 °C); m.p. -81 °C; b.p. 149-151 °C; flash pt. 40 °C; ref. index 1.399 (20 °C)
Toxicology: LD50 (oral, rat) 12,800 mg/kg; LC50 (inh., rat, 6 h) 5000 ppm; mildly toxic by ing. and inh.; irritant; TSCA listed
Precaution: Flamm.; can react with oxidizers

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Uses: Synthetic flavor for pharmaceuticals
Features: Grape-like flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Isobutyl β-ketobutyrate. See Isobutyl acetoacetate
Isobutyl ketone. See Diisobutyl ketone
Isobutyl lignate. See Vanillin isobutyrate
Isobutyl methoxypyrazine. See 2-Isobutyl-3-methoxy-pyrazine

2-Isobutyl-3-methoxy-pyrazine
CAS 24683-00-9; EINECS/ELINCS 246-402-1
FEMA 3132
Synonyms: Isobutyl methoxypyrazine; 2-Isobutyl-3(5/6)-methoxy-pyrazine; 2-Methoxy-3-isobutylpyrazine; 2-2-Methylpropyl-3-methoxy-pyrazine
Classification: pyrazine
Empirical: C9H14N2O
Properties: Colorless liq.; green pepper odor; sol. in water; sol. in most org. solvs.; m.w. 166.22; dens. 0.990; vapor dens. 5.7; flash pt. 80 C; ref. index 1.488-1.492
Toxicology: Skin, eye, respiratory system irritant
Precaution: Incompat. with strong oxidizers, acids
HMIS: Health 1, Flammability 1, Reactivity 0
Storage: Keep in original, rightly closed container; keep away from heat, sparks, open flame
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FEMA GRAS; Canada DSL

α-Isobutylphenethyl alcohol
CAS 7779-78-4; EINECS/ELINCS 231-939-6
FEMA 2208
Synonyms: Benzyl isoamyl alcohol; Benzyl isobutyl carbinol; Isobutyl benzyl carbinol; 4-Methyl-1-phenyl-2-pentanol; 4-Methyl-1-phenylpentan-2-ol
Classification: aromatic alcohol
Empirical: C12H18O
Properties: Colorless sl. oily liq., green floral herbaceous straw-like odor, buttery oily caramelic flavor; sol. in alcohol; insol. in water;
Isobutyl phenylacetate

**CAS**: 102-13-6; EINECS/ELINCS 203-007-9

**FEMA**: 2210

**Synonyms**: Acetic acid, phenyl-, isobutyl ester; Benzeneacetic acid, 2-methylpropyl ester; Butyl isophenyl acetate; Isobutyl phenylethanoate; Isobutyl α-toluate; 2-Methylpropyl benzeneacetate; Methyl propyl phenyl acetate; 2-Methyl propyl phenyl acetate; Phenylacetic acid, isobutyl ester

**Definition**: Ester of phenylacetic acid and isobutyl alcohol

**Empirical**: C_{12}H_{16}O_{2}

**Formula**: (CH_{3})_{2}CHCH_{2}OOCCH_{2}C_{6}H_{5}

**Properties**: Colorless liq., sweet musk-like fragrance, sweet honey-like flavor; sol. in alcohol, most fixed oils, oxygenated solvs.; insol. in glycerol, propylene glycol, water; m.w. 192.26; dens. 0.984-0.988; b.p. 253 C; flash pt. 116 C; ref. index 1.4860-1.4880

**Precaution**: Combustible

**Hazardous Decomp. Prods.**: Heated to decomp., emits acrid smoke and irritating fumes

**Uses**: Synthetic flavor for pharmaceuticals

**Regulatory**: FDA 21CFR §172.515; FEMA GRAS; Japan approved as flavoring; Canada DSL

**Manuf./Distrib.**: 
- ABCR [http://www.abcr.de]
- Chr. Hansen Inc [http://www.chr-hansen.com]
- Elan [http://www.elan-chemical.com]
- Eramax Aromatics [http://www.eramax.de]
- Leprino Foods† [http://www.leprinofoods.com]
- Mutcher† [http://www.mutcherchem.com]
- Penta Mfg.† [http://www.pentamfg.com]
- SAFC Specialties [http://www.safcspecialties.com]
- United Pharma Ltd [http://www.upltd.com]
- Wutong Aroma [http://www.wu-tong.com]

**†=pharmaceutical grade**

**Isobutyl-β-phenylacrylate. See Isobutyl cinnamate**

**Isobutyl phenylethanoate. See Isobutyl phenylacetate**

**Isobutyl-3-phenylpropenoate. See Isobutyl cinnamate**

**Isobutyl propionate**

**CAS**: 540-42-1; EINECS/ELINCS 208-746-0

**UN**: 2394 (DOT); FEMA 2212

**Synonyms**: 2-Methylpropyl propanoate; 2-Methylpropyl propionate; Propanoic acid, 2-methylpropyl ester; Propionic acid, isobutyl ester

**Empirical**: C_{7}H_{14}O_{2}

**Formula**: CH_{3}CH_{2}COOCH_{2}CH(CH_{3})_{2}

**Properties**: Water-wh. liq., agreeable ethereal odor; very sol. in alcohol, ether; insol. in water; m.w. 130.18; dens. 0.888 (0/4 C); m.p. -71 C; b.p. 137 C; flash pt. 33 C; ref. index 1.3975 (20 C)

**Toxicology**: LD50 (oral, rabbit) 5599 mg/kg; mildly toxic by ing.; irritant; TSCA listed

**Precaution**: Flamm. liq.; vigorous reactions with oxidizing materials

**Hazardous Decomp. Prods.**: Heated to decomp., emits acrid smoke and irritating fumes

**Uses**: Synthetic flavor for pharmaceuticals

**Regulatory**: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Manuf./Distrib.**: 
- Axxence Aromatic GmbH [http://www.axxence.com]
- Elan [http://www.elan-chemical.com]
- Epochem [http://www.epochem.com]
- Fleurchem [http://www.fleurchem.com]
- Grau Aromatics [http://www.grau-aromatics.de]
- SAFC Specialties [http://www.safcspecialties.com]
- United Pharma Ltd [http://www.upltd.com]
- V. Mane Fils SA [http://www.mane.com]
- Xinchem† [http://www.finechemnet.com]

**Isobutyl salicylate**

**CAS**: 87-19-4; EINECS/ELINCS 201-729-9

**FEMA**: 2213
Chemical Component Cross-Reference

†=pharmaceutical grade

http://www.inolex.com; Mosselman NV
http://www.mosselman.be; St. Lawrence
http://www.stlawrencechem.com
Trade Names: Pelemol® IBS; Saboderm IBS

Isobutylthiazole. See 2-Isobutylthiazole

2-Isobutylthiazole
CAS 18640-74-9; EINECS/ELINCS 242-470-1
FEMA 3134
Synonyms: Isobutylthiazole; Thiazole, 2-isobutyl-; Thiazole, 2-(2-methylpropyl)-

Empirical: C_7H_11NS
Formula: CH_3(CH_2)_16COOCH_2CH(CH_3)_2
Properties: Colorless liq.; unpleasant green tomato leaf fine-like odor; sl. sol. in water; sl. in most org. solvs.; m.w. 141.24; dens. 0.995; vapor dens. 4.8; b.p. 172-180 C; flash pt. 57.8 C; ref. index 1.4950

Toxicology: Irritating to eyes, skin, respiratory system; TSCA listed

Precaution: Combustible liq.; incompat. with strong oxidizing agents

Hazardous Decomp. Prods.: CO, CO_2, NO_x, SO_x; emits toxic fumes under fire conditions

Storage: Store in cool, dry place; keep tightly closed

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: A&BCR http://www.abcr.de;
http://www.advancedsynthesis.com; Alfa Aesar http://www.alfa.com
Beyo Chem. Co. Ltd http://www.beyochem.com; Chunking
http://www.chunkingchem.com; Epochem http://www.epochem.com; Givaudan
http://www.mpbio.com
Indofine http://www.indofinechemical.com;
Lancaster Synthesis http://www.alfa.com;
Natural Advantage http://www.natural-advantage.net; Oxford Chems. Ltd

Isobutyl α-toluate. See Isobutyl phenylacetate

http://www.connock.co.uk; ChemService http://www.chemservice.com; Inolex

Isobutyl α-toluate
Isobutyaldehyde. See 2-Methylpropanal

Isobutyric acid
CAS 79-31-2; EINECS/ELINCS 201-195-7
UN 2529 (DOT); FEMA 2222

Synonyms: Acetic acid, dimethyl-
Dimethylacetic acid; Isobutanoic acid;
Isopropylfumaric acid; 2-Methylpropanoic acid;
Methylpropionic acid; 2-
Methylpropionic acid; α-Methylpropionic acid; MPA;
Propionic acid, 2-methyl-

Classification: Organic acid

Empirical: C₄H₈O₂
Formula: (CH₃)₂CHCOOH

Properties: Colorless liq., pungent odor of rancid butter; sol. in 6 parts of water; misc. with alcohol, ether, chloroform, oxygenated and chlorinated solvs.; m.w. 88.11; dens. 0.946-0.950 (20/20 C); m.p. -46 C; b.p. 154.4 C; flash point (TOC) 76.6 C; ref. index 1.393 (20 C)

Toxicology: LD50 (oral, rat) 280 mg/kg, (skin, rabbit) 500 mg/kg; poison by ing.; mod. toxic by skin contact; corrosive irritant to eyes and tissue; TSCA listed

Precaution: Flamm., corrosive; reactive with oxidizing materials

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes

Storage: 6 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515, 573.914; FEMA GRAS; SARA reportable; Australia AICS; Canada DSL; Japan MITI

Manuf./Distrib.: Advanced BioTech
http://www.adv-bio.com; Advanced Synthesis Tech.
http://www.advancedsynthesis.com; Astral Extracts http://www.astralextacts.com;
Axxence Aromatic GmbH
http://www.axxence.com; http://www.axxence.de; BASF
http://www.basf.com
Celaneese
http://www.celaneschemicals.com;
http://www.chemvip.com; Eastman
http://www.eastman.com; Elan
http://www.elan-chemical.com; Fleurchem
http://www.fleurchem.com; Fluka
http://www.sigma-aldrich.com
Grau Aromatics http://www.grau-aromatics.de; Moore Ingreds.

†=pharmaceutical grade

Prodasynth http://www.prodasynth.com
R.C. Treatt & Co. Ltd
http://www.rctreatt.com; SAFC Specialties http://www.safcspecialties.com; Sigma
V. Mane Fils SA http://www.manee.com
Whyte Chems. Ltd
http://www.whytechemicals.co.uk;
Xinchem† http://www.finechemnet.com

Isobutyric acid benzyl ester. See Benzyl isobutyrate

Isobutyric acid, cinnamyl ester. See Cinnamyl isobutyrate

Isobutyric acid, 3,7-dimethyl-octa-2,6-dienyl ester; Isobutyric acid, 3,7-dimethyl-2,6-octadienyl ester, (Z). See Neryl isobutyrate

Isobutyric acid ester with vanillin. See Vanillin isobutyrate

Isobutyric acid, ethyl ester. See Ethyl isobutyrate

Isobutyric acid, hexyl ester. See Hexyl isobutyrate

Isobutyric acid, isobutyl ester. See Isobutyl isobutyrate

Isobutyric acid isopropyl ester. See Isopropyl isobutyrate; Isopropyl isovalerate

Isobutyric acid methyl ester. See Methyl isobutyrate

Isobutyric acid phenethyl ester. See Phenethyl isobutyrate

Isobutyric acid 2-phenoxyethyl ester. See Phenoxyethyl isobutyrate

Isobutyric acid 3-phenylpropyl ester. See 3-Phenylpropyl isobutyrate

Isobutyric acid propyl ester. See Propyl isobutyrate

Isobutyric acid, p-tolyl ester. See p-Tolyl isobutyrate

Isobutyric aldehyde. See 2-Methylpropanal

Isocamphol. See Isoborneol

Isocaproic acid. See 4-Methylpentanoic acid

Isoceteth-20
CAS 69364-63-2

Synonyms: PEG-20 isocetyl ether; PEG 1000 isocetyl ether; POE(20) C16 fatty alcohol;
POE (20) isohexadecyl ether

Definition: A synthetic compound derived from fatty acids and oxirane (ethylene oxide)
Chemical Component Cross-Reference

Isoceteth-30

Synonyms: PEG-30 isocetyl ether; POE (30) isocetyl ether
Definition: A synthetic compound derived from fatty acids and oxirane (ethylene oxide).

Properties: Nonionic
Uses: Emulsifier, solubilizer for pharmaceuticals

Isocetyl alcohol

CAS 36311-34-9; EINECS/ELINCS 252-964-9
Synonyms: 2-Hexyl-1-decanol; Isohexadecanol; Isohexadecyl alcohol; Isopalmityl alcohol
Definition: Mixture of branched chain C16 aliphatic alcohols
Empirical: C16H34O

Isocetyl behenate

CAS 94247-28-6; EINECS/ELINCS 304-205-9
Synonyms: Behenic acid, isocetyl ester; Behenic acid, isohexadecyl ester; Docosanoic acid, isocetyl ester; Isohexadecyl docosanoate
Definition: Ester of isocetyl alcohol and behenic acid

Isocetyl isostearate

CAS 52006-45-8; EINECS/ELINCS 257-598-3
Definition: Ester of isocetyl alcohol and isostearic acid
Empirical: C34H68O2
Properties: Colorless nonoily liq.; m.w. 508.91; congeal pt. -19.5 C; low viscosity; hydrolysis and oxidation stability
Uses: Emollient for pharmaceutical topicals
Manuf./Distrib.: Chempri
Trade Names: Isostriol IC

Isocetyl laurate

Empirical: C28H56O2
Formula: C11H23COOC16H33
Properties: Oily liq.; almost odorless; sol. in org. solvs.; insol. in water; m.w. 424.7; f.p. -65 C
Precaution: Combustible
Uses: Lubricant, fixing agent, and solvent in pharmaceuticals, topicals
Manuf./Distrib.: Sigma http://www.sigma-aldrich.com/belgium
Trade Names: Pelemol® ICLA

Isocetyl myristate

CAS 83708-66-1
Synonyms: Myristic acid, isocetyl ester; Tetradecanoic acid, isocetyl ester; Tetradecanoic acid, isohexadecyl ester
Definition: Ester of isocetyl alcohol and myristic acid
Empirical: C30H60O2
Formula: CH3(CH2)12COOC16H33
Properties: Oily liq.; pract. odorless; sol. in most org. solvs.; insol. in water; dens. 0.857; f.p. -39 C
Precaution: Combustible
Uses: Emollient, lubricant, fixing agent, and solvent in pharmaceuticals
Manuf./Distrib.: Somerset Cosmetic Co. http://www.makingcosmetics.com/
Trade Names: Ceraphyl® ICA

Isocetyl octanoate

CAS 125804-19-5
Synonyms: Isohexadecyl octanoate
Uses: Emollient for pharmaceutical topicals
Trade Names: Pelemol® ICO

†=pharmaceutical grade

††=pharmaceutical grade
Isocetyl stearate
CAS 25339-09-7; EINECS/ELINCS 246-868-6
Synonyms: Isohexadecyl stearate; Octadecanoic acid, isocetyl ester; Octadecanoic acid, isohexadecyl ester; Stearic acid, isocetyl ester; Stearic acid, isohexadecyl ester
Definition: Ester of isocetyl alcohol and stearic acid
Empirical: C_{34}H_{68}O_{2}
Formula: CH_{3}(CH_{2})_{16}COOC_{16}H_{33}
Properties: Oily liq., pract. odorless; insol. in water; sol. in most org. solvs.; dens. 0.862; f.p. 57 C; visc. 29 cp (25 C); ref. index 1.446-1.456
Toxicology: LD_{50} (oral, rabbit) > 5 g/kg; LD_{Lo} (oral, rat) 5 g/kg; low toxicity by ing.; skin and eye irritant; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating vapors
Uses: Lubricant, fixing agent, solvent, emollient, thickener, pigment dispersant in pharmaceutical topicals, creams and lotions
Regulatory: Canada DSL
Trade Names: Ceraphyl® 494; Liponate ICS; Monestriol IC; Pelemol® ICS; Schercemol ICS

Isocetyl stearoyl stearate
CAS 97338-28-8; EINECS/ELINCS 306-621-6
Synonyms: Isohexadecyl 12-[(1-oxooctadecyl)oxy] octadecanoate
Classification: Ester
Empirical: C_{52}H_{102}O_{4}
Formula: CH_{3}(CH_{2})_{5}CHOCO(CH_{2})_{16}CH_{3}(CH_{2})_{10}COOC_{16}H_{33}
Properties: Lt. to straw liq., char. mild odor; sol. in min. oil, IPP, IPM, oleyl alcohol; insol. in propylene glycol, glycerin; sp.gr. 0.858-0.864; ref. index 1.4540-1.4560; nonionic
Toxicology: Nonirritating, nonsensitizing
Uses: Emollient, cosolvent, solubilizer for pharmaceutical topicals
Regulatory: Canada DSL
Manuf./Distrib.: A&E Connock http://www.connock.co.uk
Trade Names: Ceraphyl® 140-A; Pelemol® IDO; Schercemol IDO

Isodecyl stearate
CAS 31565-38-5; EINECS/ELINCS 250-704-9
Synonyms: Isodecyl octadecanoate; Octadecanoic acid, isodecyl ester
Definition: Ester of branched chain decyl alcohols and stearic acid
Empirical: C_{28}H_{56}O_{2}
Formula: CH_{3}(CH_{2})_{16}COOC_{10}H_{21}
Properties: Wh. to straw liq., char. mild odor; sol. in peanut oil, 95% ethanol, IPM, oleyl alcohol; insol. in water, glycerin, propylene glycol; sp.gr. 0.858-0.864; ref. index 1.4540-1.4560; nonionic
Toxicology: LD_{50} (oral, rat) > 40 ml/kg; nonirritating to eyes; mildly irritating to skin; TSCA listed
Uses: Emollient, cosolvent, solubilizer for pharmaceutical topicals
Regulatory: Canada DSL
Manuf./Distrib.: A&E Connock http://www.connock.co.uk
Trade Names: M Kemfluid 217

Isodulcit. See Rhamnose
Isoeicosanol; Isoeicosyl alcohol. See Octyldodecanol
Isoeestragole. See Anethole

Isoeugenol
CAS 97-54-1; EINECS/ELINCS 202-590-7
FEMA 2468
Synonyms: 1-(4-Hydroxy-3-methoxyphenyl)propylene; 1-Hydroxy-2-methoxy-4-propenylbenzene; 2-Hydroxy-5-propenylanisole; 2-Methoxy-4-propenylphenol; 2-Methoxy-4-(prop-1-enyl)phenol; Phenol, 2-methoxy-4-(1-propenyl)-;
Propenylguaiacol; 4-Propenylguaiacol

Classification: Substituted phenol; aromatic alcohol

Definition: Commercial grades are a mixt. of cis- and trans-isomers

Empirical: C_{10}H_{12}O_{2}

Formula: (\text{CH}_3\text{CHCH})\text{C}_6\text{H}_3\text{OHOCH}_3

Properties: Pale yel. visc. oil; carnation odor; sol. in fixed oils, propylene glycol, most org. solvs.; misc. with alcohol, ether; very sl. sol. in water; insol. in glycerin; m.w. 164.22; dens. 1.079-1.085; m.p. -10 C; b.p. 266 C; flash pt. > 230 F; ref. index 1.572-1.577

Toxicology: LD_{50} (oral, rat) 1560 mg/kg; mod. toxic by ing.; mod. human skin irritant; allergen; sensitizer; human mutagenic data; TSCA listed

Precaution: Combustible

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes

Uses: Synthetic flavor for pharmaceuticals

Features: Sweet flavor

Use Level: 0.02% max. in finished cosmetics

Regulatory: FDA 21CFR §172.515, 182.60; GRAS; FEMA GRAS; Japan approved as flavoring; Canada DSL


Isoeugenol acetate. See Acetisoeugenol

Isoeugenol, benzyl ether; trans-Isoeugenol benzyl ether. See Isoeugenyl benzyl ether

Isoeugenol methyl ether; 1,3,4-Isoeugenol methyl ether. See Methyl isoeugenol

Isoeugenol acetate. See Acetisoeugenol

Isoeugenyl benzyl ether

CAS 120-11-6; 92666-21-2; EINECS/ELINCS 204-370-6

FEMA 3698

Synonyms: Benzene, 1-(benzylxy)-2-methoxy-4-propenyl-; Benzene, 2-methoxy-
1,3-Isoindolinedione. See Phthalimide

Isojasomone
CAS 11050-62-7; EINECS/ELINCS 234-273-4
FEMA 3552
Classification: aliphatic ketone
Definition: Mixt. of 2-hexylidencyclopentanone and 2-hexyl-2-cyclopenten-1-one

Empirical: C_{11}H_{16}O
Properties: Yel. to yel.-brn. liq.; jasmine-like odor; m.w. 164.27; dens. 0.911; m.p. 144 C (10 mm); flash pt. > 100 C; ref. index 1.4750-1.4800

Toxicology: Skin irritant; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Uses: Synthetic flavor for pharmaceuticals
Use Level: 0.06% max. in finished cosmetics
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Isolated soy protein. See Soybean (Glycine soja) protein

Isoleucine (INCI). See L-Isoleucine

DL-Isoleucine
CAS 443-79-8; EINECS/ELINCS 207-139-8
FEMA 3295
Synonyms: DL-allo-Isoleucine; DL-2-Amino-3-methylvaleric acid
Empirical: C_{6}H_{13}NO_{2}
Properties: Wh. cryst. powd., odorless, sl. bitter taste; sol. in water; insol. in alcohol, ether; m.w. 131.17; m.p. 292 C (with dec.)
Uses: Flavor for pharmaceuticals; nutrient; dietary supplement
Regulatory: BP, EP compliance; FEMA GRAS; Canada DSL
L-Isoleucine

CAS 73-32-5; EINECS/ELINCS 200-798-2

Synonyms: Acetic acid, amino-s-butyl-; 2-Amino-3-methylpentanoic acid; L-2-Amino-3-methylpentanoic acid; 2-Amino-3-methylvaleric acid; α-Amino-β-methylvaleric acid; Isoleucine (INCI); Norvaline, 3-methyl-; Valeric acid, 2-amino-3-methyl

Classification: Natural protein amino acid

Definition: Commercial prod. is the naturally occurring L(+)-enantiomer

Empirical: C6H13NO2

Formula: CH3CH2CH(CH3)CH(NH2)COOH

Properties: Wh. cryst. powd., bitter taste; sl. sol. in water; pract. insol. in alcohol; insol. in ether; m.w. 131.17; m.p. 283-284 C (dec.)

Toxicology: LD50 (IP, rat) 6822 mg/kg; mildly toxic by IP route; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx

Uses: Diagnostic aid; raw material for peptide drugs

Regulatory: BP, EP compliance; FDA 21CFR §172.320, 6.6% max.; Japan approved; Canada DSL


†=pharmaceutical grade

Isomalt

CAS 64519-82-0
INS953; E953

Synonyms: Hydrogenated isomaltulose; Hydrogenated palatinose; Isomaltitol

Definition: A polyol derived exclusively from sugar; mixt. of two components: 6-O-D-glucopyranosyl-D-sorbitol and 1-O-D-glycopyranosyl-D-mannitol-dihydrate

Toxicology: 50% metabolized in humans; breaks down to form sorbitol, mannitol, and glucose; short-term animal studies show increase in bilirubin levels

Uses: Sweetener, sugar substitute in pharmaceuticals; base for medicated hard boiled candies

Features: Nutritive; noncariogenic; nonhygroscopic

Regulatory: BP, EP compliance

Manuf./Distrib.: AB R Lundberg http://www.norfoods.se/lundberg; Cerestar† http://www.cerestar.com; Palatinol

Süßungsmittel† http://www.isomalt.de

Trade Names: C*PharmIsomaltidex 16540

Trade Names Containing: Lucarotin® 20 CWD/R; Pharmagum™ M

Isomaltitol. See Isomalt

Isomaltose

CAS 499-40-1

Empirical: C12H22O11

Properties: M.w. 342.30
α-Isomethy lionone

CAS 127-51-5; EINECS/ELINCS 204-846-3
FEMA 2714

Synonyms: 3-Buten-2-one, 3-methyl-4-(2,6,6-trimethyl-2-cyclohexen-1-yl)-; α-Cetone; α-Cyclocitrylidene butanone; α-Ionone, isomethyl-; Isomethyl-α-ionone; Iso-α-methyl ionone; γ-Methyl ionone; 3-Methyl-4-(2,6,6-trimethyl-2-cyclohex-1-yl)-1-buten-2-one; 4-(2,6,6-Trimethyl-2-cyclohexen-1-yl)-3-methyl-3-buten-2-one

Empirical: C14H22O

Properties: Colorless to ylsh. liq.; flowery, violet, woody, fruity, orris-like odor; sol. in 5 parts 70% alcohol; insol. in water; m.w. 206.30; dens. 0.9304; b.p. 93 C (31 mm); flash pt. 120 C; ref. index 1.5000-1.5020

Toxicology: TSCA listed

Precaution: Combustible; incompat. with strong oxidizers, iron, iron salts

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Fragrance in pharmaceuticals

Regulatory: Canada DSL


Isononyl isononanoate

CAS 42131-25-9; 59219-71-5; EINECS/ELINCS 261-665-2

Synonyms: Isononanoic acid isononyl ester; 3,5,5-Trimethylhexanoic acid, 3,5,5-trimethylhexyl ester; 3,5,5-Trimethylhexyl 3,5,5-trimethylhexanoate

Definition: Ester of a branched chain nonyl alcohol with a branched chain nonanoic acid

Empirical: C18H36O2

Properties: Sol. in alcohol, animal and vegetable oils, min. oil; insol. in water, glycerin, propylene glycol

Toxicology: No known toxicity; TSCA listed

Uses: Emollient for pharmaceutical topicals, mouthwashes


Isomethyl-α-ionone; Iso-α-methyl ionone.

See α-Isomethylionone

Isomyristyl alcohol. See 2-Hexyl-1-octanol

Isonaphthol. See β-Naphthol
Chemical Component Cross-Reference

propanetriol trimer; Isooctadecanoic acid, diester with triglycerol. See Polyglyceryl-3 diisostearate
Isooctadecanoic acid, isoctadecyl ester. See Isostearyl isostearate
Isooctadecanoic acid, monoester with decaglycerol. See Polyglyceryl-10 isostearate
Isooctadecanoic acid, monoester with hexaglycerol. See Polyglyceryl-6 isostearate
Isooctadecanoic acid, monoester with 1,2-propanediol. See Propylene glycol isostearate
Isooctadecanoic acid, monoester with 1,2,3-propanetriol. See Glyceryl isostearate
Isooctadecanoic acid, monoester with triglycerol. See Polyglyceryl-3 isostearate
Isooctadecanoic acid, sesquiester with diglycerol. See Polyglyceryl-2 sesquiosistearate
Isooctadecanol; Isooctadecan-1-ol. See Isostearyl alcohol
Isooctadecyl 2-hydroxypropanoate. See Isostearyl lactate
Isooctadecyl isoctadecanoate. See Isostearyl isostearate
Isooctadecyl pivalate. See Isostearyl neopentanoate
Isooctanoic acid, monoester with tetraglycerol. See Polyglyceryl-4 isostearate
Isooctaophorone. See Isophorone
Isooctyl acrylate
CAS 29590-42-9; EINECS/ELINCS 249-707-8
Synonyms: Acrylic acid 6-methylheptyl ester; 6-Methylheptyl acrylate
Classification: Nonaromatic ester
Empirical: C_{11}H_{20}O_2
Properties: Liq.; m.w. 184.25; b.p. 125 C (20 mm); ref. index 1.4370
Toxicology: TSCA listed
Precaution: Combustible
Storage: Heat and light sensitive
Uses: Pharmaceutical topicals
Regulatory: FDA approved for topicals; Canada DSL
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Kuraray† http://www.kuraray.co.jp; Robeco† http://www.robecoinc.com

†=pharmaceutical grade
formaldehyde polymer. See Tyloxapol
Isopalmitoyl alcohol. See Isocetyl alcohol
Isopentaldehyde. See Isovaleraldehyde
Isopentanoic acid. See Isovaleric acid
Isopentanoic acid, phenylmethyl ester. See Benzyl isovalerate
Isopentanol. See Isoamyl alcohol
Isopentyl acetate. See Isoamyl acetate
Isopentyl alcohol. See Isoamyl alcohol
Isopentyl alcohol acetate. See Isoamyl acetate
Isopentyl alcohol, cinnamate. See Isoamyl cinnamate
Isopentyl alcohol, formate. See Isoamyl formate
Isopentyl alcohol, propionate. See Isoamyl propionate
Isopentyl benzoate. See Isoamyl benzoate
Isopentyl butanoate; Isopentyl butyrate. See Isoamyl butyrate
Isopentyl cinnamate. See Isoamyl cinnamate

Isopentylidiol
CAS 2568-33-4; 50468-22-9; EINECS/ELINCS 256-597-5
Synonyms: IPG; Isoprene glycol; 3-Methylbutane-1,2-diol; 3-Methyl-1,3-butanediol
Classification: Diol
Empirical: C_{5}H_{12}O_2
Uses: Humectant, moisturizer for pharmaceuticals, skin care prods.
Manuf./Distrib.: Fluka http://www.sigma-aldrich.com; Kuraray† http://www.kuraray.co.jp; Robeco† http://www.robecoinc.com

Isopentyl formate. See Isoamyl formate
Isopentyl-2-furanbutyrate. See Isoamyl 4-(2-furan) butyrate
Isopentyl 2-furanpropionate. See Isoamyl 3-(2-furan) propionate
Isopentyl hexanoate; Isopentyl-n-hexanoate. See Isoamyl hexanoate
Isopentyl isobutyrate. See Isoamyl isobutyrate
Isopentyl isopentanoate; Isopentyl isovalerate
Isopentyl laurate. See Isoamyl laurate
Isopentyl 2-methylbutanoate; Isopentyl-2-methylbutyrate. See Isoamyl-2-methylbutyrate
Isopentyl nonanoate. See Isoamyl nonanoate
Isopentyl octanoate. See Isoamyl octanoate
Isopentyl phenylacetate. See Isoamyl phenylacetate
Isopentyl propionate. See Isoamyl propionate
Isopentyl sesquiisostearate
Isopentyl sesquioleate
Isopentyl sesquiisocitrate
Isopentyl sesquioleate
Isopentyl sesquiterpene lactone

p-Isooctylpolyoxyethylene phenol

1515
Handbook of Pharmaceutical Additives, Third Edition
Handbook of Pharmaceutical Additives, Third Edition

Chemical Component Cross-Reference

- phenylacetate
- Isopentyl 3-phenyl propenoate; Isopentyl 3-phenyl-2-propenoate. See Isoamyl cinnamate
- Isopentyl propenoate; Isopentyl propionate. See Isoamyl propionate
- Isopentyl pyruvate. See Isoamyl pyruvate
- Isopentyl salicylate. See Isoamyl salicylate

Isophorone
CAS 78-59-1; EINECS/ELINCS 201-126-0
UN 1638; FEMA 3553

Synonyms: Isoacetophorone; Isoforon; Isooctaphorone; α-Isophorone; 1,1,3-Trimethyl-3-cyclohexene-5-one; 3,3,5-Trimethyl-2-cyclohexene-1-one; 3,3,5-Trimethylcyclohexenone; 3,3,5-Trimethyl-2-cyclohexen-1-one

Classification: Cyclic aliphatic ketone

Empirical: C9H14O
Formula: OCHC:C(CH3)CH2C(CH3)2CH2

Properties: Colorless to pale yel. liq.; peppermint or camphor-like odor; sol. in alcohol, ether, acetone, oxygenated solvs.; misc. with org. solvs.; insol. in water; m.w. 138.20; sp.gr. 0.922 (20/20 C); vapor pressure 1 mm (38 C); b.p. 159 C; flash pt. (CC) 84 C; autoignition temp. 380 C; ref. index 1.4781 (20 C)

Toxicology: ACGIH TLV/CL 5 ppm; LD50 (oral, rat) 2330 mg/kg; LCLo (inh., rat, 4 h) 1840 ppm; mod. toxic by ing.; mildly toxic by inh.; irritating to eyes, skin, respiratory system; human systemic effects by inh.; human irritant at 25 ppm; may cause narcosis, lung irritation, death; questionable carcinogen; mutagenic; target organ: kidneys; TSCA listed

Precaution: Combustible; incompat. with strong oxidizing agents such as peroxides, nitrates, and perchlorates

NFPA: Health 2, Flammability 2, Reactivity 0

Storage: Store in tightly closed containers in cool, dry, well-ventilated area, separate from workplace

Uses: Synthetic flavor for pharmaceuticals

Features: Sweet flavor

Regulatory: FDA 21CFR §175.105; FEMA GRAS; SARA reportable; HAP; Canada DSL


†=pharmaceutical grade

Chemcentral http://www.chemcentral.com;
Coyne http://www.coynechemical.com;
Degussa AG http://www.degussa.com;
Degussa http://www.degussa.com; Dow http://www.dow.com
ExxonMobil http://www.exxonmobilchemical.com;
Fabrichem http://www.fabricheminc.com;
Fallek http://www.iccchem.com/fallchem.htm;
Fluka http://www.sigma-aldrich.com;
Whyte Chems. Ltd http://www.whytechemicals.co.uk

α-Isophorone. See Isophorone

Isoprene glycol. See Isopentylidiol

Isoprene rubber. See Polysoprene

Isopropanol. See Isopropyl alcohol

Isopropanolamine
CAS 78-96-6; EINECS/ELINCS 201-162-7
FEMA 3965

Synonyms: 1-Amino-2-hydroxypropane; α-Aminoisopropyl alcohol; 1-Amino-2-propanol; 1-Aminopropan-2-ol; 2-Hydroxy-1-methylethanol; 2-Hydroxypropylamine; 2-Hydroxy-1-propylamine; 1-Methyl-2-aminoethanol; MIPA; Monoisopropanolamine

Classification: Aliphatic amine

Empirical: C3H7NO
Formula: H2NCH2CHOHCH3

Properties: Colorless liq.; sl. ammonia odor; sol. in water; completely misc. with oxygenated solvs.; m.w. 75.13; dens. 0.969; m.p. 1.4 C; b.p. 159 C; flash pt. 171 F

Toxicology: LD50 (oral, rat) 1715 mg/kg, (skin, rabbit) 1640 mg/kg; poison by intraperitoneal route; moderately toxic by ingestion and skin contact; skin and severe eye irritant; TSCA listed

Precaution: Combustible; mod. flamm. with heat, flame, strong oxidizers; ignites in contact with cellulose nitrate of high surf. area; catalyzes explosive polymerization of 2,4-hexadienal
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Hazardous Decomp. Prods.:</th>
<th>Heated to decomp., emits toxic fumes of NOx</th>
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<tr>
<td>Uses</td>
<td>Emulsifier in pharmaceuticals, orals; solubilizer; neutralizer; buffer</td>
</tr>
<tr>
<td>Regulatory</td>
<td>FDA 21CFR §175.105, 175.210; FDA approved for orals; FEMA GRAS; Canada DSL</td>
</tr>
<tr>
<td>Manuf./Distrib.</td>
<td>Ashland ✧, BASF †, Dow, Fluka, Sigma †, SAFC Specialties ✧</td>
</tr>
</tbody>
</table>

**Isopropenyl carbinyl-n-butyrate.** See 2-Methylallyl butyrate

**4-Isopropenylcyclohex-1-enecarbaldehyde.** See Perillaldehyde

**4-Isopropenyl-1-cyclohexene carbinol acetate.** See Perillyl acetate

**4-Isopropenyl-1-cyclohexene-1-carboxaldehyde.** See Perillyl alcohol

**2-Isopropenyl-5-methylcyclohexanol.** See Isopulegol

**4-Isopropenyl-1-methylcyclohexene.** See d-Limonene

**4-Isopropenyl-1-methyl-1-cyclohexene.** See d-Limonene

(R)-4-Isopropenyl-1-methyl-1-cyclohexene. See d-Limonene

**Isopropyl acetate**

CAS: **108-21-4**; EINECS/ELINCS: **203-561-1**

**UN 1220 (DOT); FEMA 2926**

**Synonyms:** Acetic acid isopropyl ester; Acetic acid 1-methylethyl ester; 2-Acetoxypropane; Isopropyl ethanoate; 2Methylethanoate; 1-Methylethyl acetate; 2-Propyl acetate; 2-Propyl ethanoate

**Classification:** Sat. aliphatic carboxylic acid ester

**Empirical:** C₅H₁₀O₂

**Formula:** CH₃COOCH(CH₃)₂

**Properties:** Colorless clear aromatic liq., fruity odor; sol. in acetone, most org. solvs.; mod. sol. in water; misc. with alcohol, ether, fixed oils; m.w. 102.15; dens. 0.874 (20/20 C); vapor pressure 59.2 mm Hg; f.p. -73 C; b.p. 88.4 C; flash pt. 2 C; autoignition temp. 460 C; ref. index 1.377; surf. tens. 26 dynes/cm (20 C)

**Toxicology:** ACGIH TLV/TWA 250 ppm; STEL 310 ppm; LD50 (oral, rat) 3000 mg/kg; mod. toxic by ing.; mildly toxic by inh.; high concs. of vapor irritating to nose and throat; human systemic effects on inh.; narcotic in high conc.; chronic exposure can cause liver damage; TSCA listed

**Environmental:** VOC; BOD5 1.07; COD 1.67; ThOD 2.04

**Precaution:** Highly flamm.; UEL 8%; dangerous fire hazard with heat, flame, oxidizers; mod. explosive with heat or flame; incompat. with strong oxidizers, strong acids, bases, potassium t-butoxide

**Manuf./Distrib.:** AMC Chems. †, Allchem Ind. ▼, ASH/Ltd; BP Chemicals †, BASF †, BP Chems. Ltd ▼, Brenntag AG ▼, Celanese ▲, Houghton ▼, Harcros ▼, Indofine ▼, Mallinckrodt Baker ▼, Oxford Chems. Ltd ▼, Penta Mfg. †, Spectrum ▼, SAFC Specialties ▼

**Quality Prods. ▼:** **Ashland †**; **BASF †**; **Dow †**; **Eastman †**; **Fluka **; **HARCROS ▼**; **Houghton ▼**; **Indofine ▼**; **Integra ▼**; **Oxford Chems. ▼**; **Penta Mfg. ▼**; **Spectrum ▼**; **SAFC Specialties ▼**

**Specialties**

- **Cohort Chemicals:** **ASH/Ltd**; **BASF †**; **Dow †**; **Eastman †**; **Fluka**; **HARCROS ▼**; **Houghton ▼**; **Indofine ▼**; **Integra ▼**; **Oxford Chems. ▼**; **Penta Mfg. ▼**; **Spectrum ▼**; **SAFC Specialties ▼**

**Sources**

- **Fluka**
- **BP Chemicals †**
- **Houghton ▼**
- **Harcros ▼**
- **Indofine ▼**
- **Mallinckrodt Baker ▼**
- **Oxford Chems. ▼**
- **Penta Mfg. ▼**
- **Spectrum ▼**
- **SAFC Specialties ▼**

**Manuf./Distrib.:** **ASH/Ltd**; **BASF †**; **Dow †**; **Eastman †**; **Fluka ▼**; **HARCROS ▼**; **Houghton ▼**; **Indofine ▼**; **Mallinckrodt Baker ▼**; **Oxford Chems. ▼**; **Penta Mfg. ▼**; **Spectrum ▼**; **SAFC Specialties ▼**

**Quality Prods. ▼:** **ASH/Ltd**; **BASF †**; **Dow †**; **Eastman †**; **Fluka ▼**; **HARCROS ▼**; **Houghton ▼**; **Indofine ▼**; **Mallinckrodt Baker ▼**; **Oxford Chems. ▼**; **Penta Mfg. ▼**; **Spectrum ▼**; **SAFC Specialties ▼**

**Sources**

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- **BP Chemicals †**
- **Houghton ▼**
- **Harcros ▼**
- **Indofine ▼**
- **Mallinckrodt Baker ▼**
- **Oxford Chems. ▼**
- **Penta Mfg. ▼**
- **Spectrum ▼**
- **SAFC Specialties ▼**
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Thomas Scientific†</th>
<th><a href="http://www.thomassci.com">http://www.thomassci.com</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropylacetic acid. See Isovaleric acid</td>
<td></td>
</tr>
<tr>
<td>Isopropyl acetic acid, benzyl ester. See Benzyl isovalerate</td>
<td></td>
</tr>
<tr>
<td>Isopropylacetone. See Methyl isobutyl ketone</td>
<td></td>
</tr>
<tr>
<td>4’-Isopropylacetophenone. See p-Isopropylacetophenone</td>
<td></td>
</tr>
<tr>
<td>p-Isopropylacetophenone</td>
<td></td>
</tr>
<tr>
<td>CAS 645-13-6; EINECS/ELINCS 211-433-1</td>
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<tr>
<td>FEMA 2927</td>
<td></td>
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<tr>
<td>Synonyms: Acetocumenel; Acetophenone, 4’-isopropyl-; p-Acetyl cumol; 1,4-Acetyl-isopropyl benzol; Cuminol; Ethanone, 1-[4-(1-methylethyl) phenyl]-; 4’-Isopropylacetophenone; 1-(4-Isopropylphenyl) ethanone; (4-Isopropylphenyl) ethanone</td>
<td></td>
</tr>
<tr>
<td>Classification: aromatic ketone</td>
<td></td>
</tr>
<tr>
<td>Empirical: C₁₁H₁₄O</td>
<td></td>
</tr>
<tr>
<td>Properties: Colorless liq.; sol. in alcohol; sol. 190.6 mg/l in water; m.w. 162.13; dens. 0.975; vapor pressure 0.057 mm Hg; b.p. 252-254 C; 190.6 mg/l in water; m.w. 162.23; dens. 0.975; vapor pressure 0.057 mm Hg; b.p. 252-254 C</td>
<td></td>
</tr>
<tr>
<td>Uses: Synthetic flavor for pharmaceuticals</td>
<td></td>
</tr>
<tr>
<td>Features: Orris basil odor</td>
<td></td>
</tr>
<tr>
<td>Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL</td>
<td></td>
</tr>
<tr>
<td>Isopropyl adipate. See Diisopropyl adipate</td>
<td></td>
</tr>
<tr>
<td>Isopropyl alcohol</td>
<td></td>
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<tr>
<td>CAS 67-63-0; EINECS/ELINCS 200-661-7</td>
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<tr>
<td>UN 1219 (DOT); FEMA 2929</td>
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<tr>
<td>Synonyms: Dimethyl carbinol; 2-Hydroxypropane; IPA; Isopropanol; 1-Methylethanol; 1-Methylethyl alcohol; Petrohol; 2-Propanol; Propan-2-ol; 2-Propyl alcohol; s-Propyl alcohol; Rubbing alcohol; Secondary propyl propyl alcohol</td>
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<tr>
<td>Classification: Aliphatic alcohol</td>
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<tr>
<td>Empirical: C₃H₈O</td>
<td></td>
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<tr>
<td>Formula: (CH₃)₂CHOH</td>
<td></td>
</tr>
<tr>
<td>Properties: Colorless volatile clear liq.; pleasant alcohol-like odor, sl. bitter taste; sol. in water, alcohol, ether, chloroform, most org. solvs.; insol. in salt sol'ns.; m.w. 60.11; sp.gr. 0.7863 (20/20 C); f.p. -86 C; b.p. 82.4 C; flash pt. (TOC) 11.7 C; ref. index 1.3756 (20 C)</td>
<td></td>
</tr>
</tbody>
</table>

### Toxicology:

- **ACGIH TLV/TWA**: 400 ppm; STEL 500 ppm; LD₅₀ (oral, rat) 5045 mg/kg, (IP, rat) 2735 mg/kg, (IV, rat) 1099 mg/kg; poison by ing., subcut. routes; mod. toxic by IV and IP routes; mildly toxic by skin contact; skin and eye irritant; human systemic effects by ing./inh. (headache, nausea, vomiting, narcosis); 100 ml can be fatal; may cause dry cracking skin; experimental teratogen, reproductive effector; mutagenic data; questionable carcinogen; TSCA listed

**Environmental:** VOC; BOD₅ 1.53; COD 2.23; ThOD 2.40

**Precaution:** DOT: Flamm. liq.; very dangerous fire hazard with heat, flame, oxidizers; reacts with air to form dangerous peroxides; incompat. with strong oxidizers, phosgene, iron salts, hydrogen-palladium, potassium t-butoxide, nitroform

**NFPA:** Health 1; Flammability 3; Reactivity 0

**Storage:** Store in tightly closed electrically grounded containers in a cool area separate from workplace; use in minimal quantities

**Uses:** Solvent, synthetic flavor, color diluent in pharmaceuticals, orals, topicals; antiseptic in topical anti-infective prods.; externally as 'rubbing alcohol' for topical sterilization, cooling and soothing props.

**Regulatory:** FDA 21CFR §73.1 (no residue), 73.30, 73.315, 73.345, 73.615, 73.1001, 172.385, 172.515, 172.560, 172.665, 172.695, 172.712, 173.240, 173.340; 176.180, 176.200, 176.210, 177.1200, 177.2800, 178.1010, 178.3910; Canada DSL; 27CFR §21.112; use in bread is permitted in Ireland and Japan; FEMA GRAS; FDA approved for orals, topicals; USP/NF, BP, EP compliance; SARA §31/312 acute health/chronic health/fire hazard, §313 reportable

Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Trade Name</th>
<th>Formulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropylamine</td>
<td>Tennants Distrib. Ltd†</td>
<td>Controlled/Sustained Release</td>
</tr>
<tr>
<td></td>
<td>Thomas Scientific†</td>
<td></td>
</tr>
</tbody>
</table>

†=pharmaceutical grade

Trade Names: Eastman® Isopropanol

Synonyms: 2-Aminopropane; 1-Methylethylamine; MIPA; Monoisopropylamine; 2-Propanamine; 2-Propanamine; 2-Propylamine; s-Propylamine

Classification: Sat. aliphatic amine

Empirical: C₃H₇N

Formula: (CH₃)₂CHNH₂

Properties: Colorless liq.; ammonia-like odor; very sol. in acetone; sol. in water, ethanol, ether, benzene, chloroform, many org. solvs.; misc. with oxygenated solvs.; m.w. 59.11; dens. 0.6870 (20/20 C); vapor pressure 472 mm Hg (20 C); m.p. -101 C; b.p. 32. 4 C; flash pt. (CC) -37 C; pH 11.8 (0.1M aq. sol'n.)

Isopropylamine

CAS 75-31-0; EINECS/ELINCS 200-860-9

UN 1221 (DOT)

Toxicology: ACGIH TLV/TWA 5 ppm; STEL 10 ppm; LD₅₀ (oral, rat) 820 mg/kg, (skin, rabbit) 550 mg/kg; corrosive, very toxic; can be absorbed through skin in toxic amts.; mod. toxic by ing.; mildly toxic by inh.; severe skin and eye irritant; possible permanent eye injury; inh. can cause
Chemical Component Cross-Reference

nose/throat/lung irritation; narcotic in high concs.; high concs. can cause potentially fatal pulmonary edema; ing. may cause burning of mouth, throat, digestive tract; TSCA listed

Precaution: Flamm.; incompat. with oxidizers, acids, halogenated hydrocarbons, nitroparaffins, nitromethane, calcium or sodium hypochlorite, nitrosyl perchlorate, chloromethylxirane, mercury, perchloryl fluoride; violent/explosive reactions possible

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx

NFPA: Health 3, Flammability 4, Reactivity 0

Storage: Store in cool, dry, well-ventilated areas, out of direct sunlight

Uses: Solvent for pharmaceuticals; pharmaceutical intermediate

Regulatory: Canada DSL

Manuf./Distrib.: Air Prods.†
http://www.airproducts.com; Aldrich†
http://www.sigma-aldrich.com; Arkema
http://www.total.com; Ashland†
http://www.ashchem.com; Brenntag
Southeast†
Celane
http://www.celanesechemicals.com;
http://www.chemvip.com; ChemTech
Specialties†
http://www.chemtechspecialties.com; Delta Distributors†; Dow http://www.dow.com;
Fluka http://www.sigma-aldrich.com
MPSI†
http://www.mp-solutionsinc.com;
Penta Mfg.†
http://www.pentamfg.com;
Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality
Prods.†
http://www.spectrumchemical.com; United Pharma Ltd http://www.upltld.com

1-Isopropylaminopropane-2,3-diol. See 3-Isopropylaminopropane-1,2-diol

3-Isopropylaminopropane-1,2-diol
CAS 6452-57-9; EINECS/ELINCS 229-255-8
UN 2735
Synonyms: IPAPD; 1-Isopropylaminopropane-2,3-diol; 3-[(1-methyl)ethylamino]-1,2-propanediol
Properties: Cl. colorless to pale yel. liq.; sol. in protic solvents; b.p. 106-110 C (3 Torr)
Uses: Intermediate in the synthesis of pharmaceuticals such as the beta-blocker Bisoprolol

†=pharmaceutical grade

Manuf./Distrib.: Seal Sands Chems. Ltd†
http://www.rutherfordchemicals.com

4-Isopropylbenzaldehyde; p-Isopropylbenzaldehyde. See Cuminaldehyde

Isopropylbenzene. See Cumene

p-Isopropylbenzenecarboxaldehyde. See Cuminaldehyde

Isopropyl benzoate
CAS 939-48-0; EINECS/ELINCS 213-361-6
FEMA 2932
Synonyms: Benzoic acid, isopropyl ester; Benzoic acid, 1-methylethyl ester; 1-Methylethyl benzoate; Propan-2-yl benzoate
Definition: Ester of isopropyl alcohol and benzoic acid
Empirical: C10H12O2
Properties: Colorless cl. liq.; sol. in alcohol, ether; insol. in water; m.w. 164.21; dens. 1.0263 (4 C); vapor pressure 0.12 mm (20 C); m.p. -26.4 C; b.p. 218-219 C; flash pt. (OC) 210 F
Toxicology: LD50 (oral, rat) 3730 mg/kg, (skin, rabbit) 20 g/kg; mod. toxic by ing.; mildly toxic by skin contact; irritating to eyes and skin; TSCA listed

Precaution: Combustible; can react with oxidizers
Uses: Synthetic flavor for pharmaceuticals
Features: Sweet fruity floral odor
Use Level: 0.5% max. as benzoic acid in finished cosmetics
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Isopropyl benzol. See Cumene

4-Isopropylbenzyl alcohol, p-Isopropylbenzyl alcohol. See Cuminic alcohol

Isopropyl butanoate. See Isopropyl butyrate

Isopropyl butyrate
CAS 638-11-9; EINECS/ELINCS 211-320-7
FEMA 2935
Synonyms: Butanoic acid 1-methyl ethyl ester; Butyric acid isopropyl ester; Isopropyl butanoate; 1-Methyl ethyl butanoate
Empirical: C7H14O2
Formula: (CH3)2CHOOCCH3H7
Properties: Colorless liq., fruity odor; m.w. 130.19; dens. 0.859; b.p. 130-131 C; flash pt. 86 F; ref. index 1.3936
Toxicology: TSCA listed
Uses: Synthetic flavor for pharmaceuticals
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Chemical Component</th>
<th>CAS</th>
<th>EINECS/ELINCS</th>
<th>FEMA</th>
<th>Uses</th>
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<td>Isopropyl caproate</td>
<td>2311-46-8</td>
<td>219-000-9</td>
<td>2950</td>
<td>Synthetic flavor for pharmaceuticals</td>
</tr>
<tr>
<td>Isopropyl capronate</td>
<td>2311-46-8</td>
<td>219-000-9</td>
<td>2950</td>
<td>Synthetic flavor for pharmaceuticals</td>
</tr>
<tr>
<td>Isopropyl hexanoate</td>
<td>2311-46-8</td>
<td>219-000-9</td>
<td>2950</td>
<td>Synthetic flavor for pharmaceuticals</td>
</tr>
</tbody>
</table>

### Isopropyl caproate

**CAS:** 2311-46-8; EINECS/ELINCS 219-000-9  
**FEMA:** 2950  
**Synonyms:** N-Caproic acid isopropyl ester; Isopropyl caproate; Isopropyl n-caproate; Isopropyl capronate; Isopropyl hexanoate  
**Empirical:** C9H18O2  
**Properties:** Colorless liq., pineapple-like odor, fresh sweet berry-like taste; sol. in alcohol; insol. in water; m.w. 158.24; dens. 0.8570; b.p. 176 C; flash pt. 26 C  
**Toxicology:** TSCA listed  
**Uses:** Synthetic flavor for pharmaceuticals  
**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL  
**Manuf./Distrib.:** Degussa  
  [http://www.degussa.com](http://www.degussa.com); Grau Aromatics  
  [http://www.grau-aromatics.de](http://www.grau-aromatics.de); Oxford Chems. Ltd  
  [http://www.oxfordchemicals.com](http://www.oxfordchemicals.com); TCI Am.  
  [http://www.tciamerica.com](http://www.tciamerica.com); United Pharma Ltd  
  [http://www.upltd.com](http://www.upltd.com)  

### Isopropyl capronate

**CAS:** 2311-46-8; EINECS/ELINCS 219-000-9  
**FEMA:** 2950  
**Synonyms:** N-Caproic acid isopropyl ester; Isopropyl caproate; Isopropyl n-caproate; Isopropyl capronate; Isopropyl hexanoate  
**Empirical:** C9H18O2  
**Properties:** Colorless liq., pineapple-like odor, fresh sweet berry-like taste; sol. in alcohol; insol. in water; m.w. 158.24; dens. 0.8570; b.p. 176 C; flash pt. 26 C  
**Toxicology:** TSCA listed  
**Uses:** Synthetic flavor for pharmaceuticals  
**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL  
**Manuf./Distrib.:** Degussa  
  [http://www.degussa.com](http://www.degussa.com); Grau Aromatics  
  [http://www.grau-aromatics.de](http://www.grau-aromatics.de); Oxford Chems. Ltd  
  [http://www.oxfordchemicals.com](http://www.oxfordchemicals.com); TCI Am.  
  [http://www.tciamerica.com](http://www.tciamerica.com); United Pharma Ltd  
  [http://www.upltd.com](http://www.upltd.com)  

### Isopropyl hexanoate

**CAS:** 2311-46-8; EINECS/ELINCS 219-000-9  
**FEMA:** 2950  
**Synonyms:** N-Caproic acid isopropyl ester; Isopropyl caproate; Isopropyl n-caproate; Isopropyl capronate; Isopropyl hexanoate  
**Empirical:** C9H18O2  
**Properties:** Colorless liq., pineapple-like odor, fresh sweet berry-like taste; sol. in alcohol; insol. in water; m.w. 158.24; dens. 0.8570; b.p. 176 C; flash pt. 26 C  
**Toxicology:** TSCA listed  
**Uses:** Synthetic flavor for pharmaceuticals  
**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL  
**Manuf./Distrib.:** Degussa  
  [http://www.degussa.com](http://www.degussa.com); Grau Aromatics  
  [http://www.grau-aromatics.de](http://www.grau-aromatics.de); Oxford Chems. Ltd  
  [http://www.oxfordchemicals.com](http://www.oxfordchemicals.com); TCI Am.  
  [http://www.tciamerica.com](http://www.tciamerica.com); United Pharma Ltd  
  [http://www.upltd.com](http://www.upltd.com)  

### Isopropyl formate

**CAS:** 625-55-8; EINECS/ELINCS 210-901-2  
**FEMA:** 2944  
**Synonyms:** Formic acid isopropyl ester; Formic acid 1-methyl ethyl ester; 1-Methyl formate  
**Empirical:** C4H8O2  
**Properties:** Colorless visc. liq., balsamic sweet dry amber-like odor, fresh fruity flavor; sol. in alcohol; insol. in water; m.w. 190.24; dens. 1.03; b.p. 268-270 C  
**Toxicology:** LD50 (oral, guinea pig) 2700 mg/kg; mod. toxic by ing.; TSCA listed  
**Uses:** Synthetic flavor for pharmaceuticals  
**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL  
**Manuf./Distrib.:** Advanced Synthesis Tech.  
  [http://www.advancedsynthesis.com](http://www.advancedsynthesis.com); Pentamfg.  
  [http://www.pentamfg.com](http://www.pentamfg.com)  

### Isopropyl cresol

**CAS:** 628-07-4; EINECS/ELINCS 210-901-2  
**FEMA:** 2944  
**Synonyms:** Isopropyl phenyl methyl ether; Isopropyl cresol  
**Empirical:** C12H14O2  
**Properties:** Colorless visc. liq., balsamic sweet dry amber-like odor, fresh fruity flavor; sol. in alcohol; insol. in water; m.w. 190.24; dens. 1.03; b.p. 268-270 C  
**Toxicology:** LD50 (oral, guinea pig) 2700 mg/kg; mod. toxic by ing.; TSCA listed  
**Uses:** Synthetic flavor for pharmaceuticals  
**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL  
**Manuf./Distrib.:** Advanced Synthesis Tech.  
  [http://www.advancedsynthesis.com](http://www.advancedsynthesis.com); Pentamfg.  
  [http://www.pentamfg.com](http://www.pentamfg.com)  

### Isopropyl cinnamyl alcohol

**CAS:** 2950  
**Synonyms:** Isopropyl cinnamaldehyde; Isopropyl cinnamyl alcohol  
**Empirical:** C10H16O2  
**Properties:** Odor: Sweet, fruity lift odor; sol. in alcohol, ether; insol. in water; m.w. 158.24; dens. 0.8774; vapor pressure 100 mm (17.8 C); b.p. 67-68 C; flash pt. (CC) 22 F; ref. index 1.3678  
**Toxicology:** LD50 (oral, guinea pig) 1400 µg/kg; poison by ing.; TSCA listed  
**Precaution:** Very dangerous fire hazard; can react vigorously with oxidizers  
**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and fumes  
**Uses:** Synthetic flavor for pharmaceuticals  
**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL  
**Manuf./Distrib.:** Grau Aromatics  
  [http://www.grau-aromatics.de](http://www.grau-aromatics.de); Oxford Chems. Ltd  
  [http://www.oxfordchemicals.com](http://www.oxfordchemicals.com); TCI Am.  
  [http://www.tciamerica.com](http://www.tciamerica.com); United Pharma Ltd  
  [http://www.upltd.com](http://www.upltd.com)  

### Isopropyl formate

**CAS:** 625-55-8; EINECS/ELINCS 210-901-2  
**FEMA:** 2944  
**Synonyms:** Formic acid isopropyl ester; Formic acid 1-methyl ethyl ester; 1-Methyl formate  
**Empirical:** C4H8O2  
**Properties:** Colorless liq., fruity ether-like odor, plum-like taste; sl. sol. in water; misc. with alcohol, ether; m.w. 88.10; dens. 0.8774; vapor pressure 100 mm (17.8 C); b.p. 67-68 C; flash pt. (CC) 22 F; ref. index 1.3678  
**Toxicology:** LD50 (oral, guinea pig) 1400 µg/kg; poison by ing.; TSCA listed  
**Precaution:** Very dangerous fire hazard; can react vigorously with oxidizers  
**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and fumes  
**Uses:** Synthetic flavor for pharmaceuticals  
**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL  
**Manuf./Distrib.:** Grau Aromatics  
  [http://www.grau-aromatics.de](http://www.grau-aromatics.de); Oxford Chems. Ltd  
  [http://www.oxfordchemicals.com](http://www.oxfordchemicals.com); TCI Am.  
  [http://www.tciamerica.com](http://www.tciamerica.com); United Pharma Ltd  
  [http://www.upltd.com](http://www.upltd.com)
Chemical Component Cross-Reference

hydroxybenzoate. See Isopropylparaben
1-Isopropylidene-4-methyl-2-cyclohexanone. See Pulegone
(R)-2-Isopropylidene-5-methylcyclohexanone. See d-Pulegone
4-Isopropylidene-1-methylcyclohexene. See Terpinolene

Isopropyl isobutyrate
CAS 617-50-5; EINECS/ELINCS 210-517-5
FEMA 2937
Synonyms: Isobutyric acid isopropyl ester; Isopropyl 2-methyl propanoate; 1-Methyl ethyl 2-methyl propanoate; 2-Methyl propanoic acid 1-methyl ethyl ester
Classification: Nonaromatic ester
Empirical: C7H14O2
Properties: Liq., intense fruity ether-like odor; sol. in most org. solvs.; insol. in water; m.w. 130.18; dens. 0.8687 (0 C); b.p. 121 C; flash pt. 18 C; ref. index 1.3880
Precaution: Flamm. liq.
Uses: Synthetic flavor for pharmaceuticals
Features: Pear, pineapple-like flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Isopropyl isopentanoate: Isopropyl isovaleerianate. See Isopropyl isovalerate

Isopropyl isovalerate
CAS 32665-23-9; EINECS/ELINCS 251-145-3
FEMA 2961
Synonyms: Isobutyric acid isopropyl ester; Isopropyl isopentanoate; Isopropyl isovaleerianate; Isopropyl 3-methylbutanoate; 2-Methyl propanoic acid 1-methyl ethyl ester; 2-Methyl propanoic acid 1-methyl ethyl ester
Empirical: C8H16O2
Formula: (CH3)2CHCO2CH(CH3)2
Properties: Liq., ether-like odor, sweet apple-like taste; sol. in most org. solvs.; insol. in water; m.w. 144.21; b.p. 68-70 C (55 mm); flash pt. 30 C; ref. index 1.3960
Toxicology: TSCA listed
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Degussa http://www.degussa.com; Good Scents http://www.thegoodscentscompany.com

†=pharmaceutical grade


Isopropyl lanolate
CAS 63393-93-1; EINECS/ELINCS 264-119-1
Synonyms: Fatty acids, lanolin, isopropyl esters; IPL; Lanolin fatty acids, isopropyl esters
Definition: Ester of isopropyl alcohol and lanolin acid
Properties: Pale yel. liq. or paste; HLB 9.0; nonionic
Toxicology: Eye and skin irritant; may cause skin sensitization; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Uses: Conditioner, penetrant, lubricant, moisturizer, emollient, w/o emulsifier, stabilizer, opacifier for pharmaceuticals
Regulatory: Canada DSL
Trade Names: Ritasol

Isopropyl laurate
CAS 10233-13-3; EINECS/ELINCS 233-560-1
Synonyms: Dodecanoic acid, 1-methylethyl ester; Isopropyl dodecanoate; 1-Methyl ethyl dodecanoate
Definition: Ester of isopropyl alcohol and lauric acid
Empirical: C15H30O2
Formula: CH3(CH2)10COOCH(CH3)2
Properties: M.w. 242.4
Toxicology: TSCA listed
Uses: Emollient, lubricant, plasticizer, and cosolvent for pharmaceuticals
Regulatory: FDA 21CFR §176.210, 177.2800; Canada DSL
Manuf./Distrib.: A&E Connock http://www.connock.co.uk

Isopropyl metacresol. See Thymol
1-Isopropyl-4-methylbenzene; 4-Isopropyl-1-methylbenzene. See p-Cymene
Isopropyl 3-methylbutanoate.  See Isopropyl isovalerate
Isopropyl 2-methyl-2-butanoate; Isopropyl 2-methyloctanoate; Isopropyl α-methyl crotonate; Isopropyl α-methyl crotonic acid.  See Isopropyl tiglate
1-Isopropyl-4-methyl-1,4-cyclohexadiene.  See γ-Terpinene
4-Isopropyl-1-methyl-1,5-cyclohexadiene; 5-Isopropyl-2-methyl-1,3-cyclohexadiene.  See α-Phellandrene
2-Isopropyl-5-methylcyclohexanol.  See d-Neomenthol; Menthol
1-Isopropyl-4-methyl-2-cyclohexanone.  See Isopulegone
4-Isopropyl-1-methyl-3-cyclohexen-1-ol.  See p-Menth-3-en-1-ol (S)-1-Isopropyl-4-methyl-3-cyclohexen-1-ol.  See 4-Carvomenthol
4-Isopropyl-1-methyl-1-cyclohexen-3-one; 6-Isopropyl-3-methylcyclohex-2-enone.  See d-Piperitone
Isopropyl methyl diketone.  See 4-Methyl-2,3-pentanedione
6-Isopropyl-9-methyl-1,4-dioxaspiro-[4,5]-decan-2-methanol.  See Menthone glycerin acetal
5-Isopropyl-2-methylethoxybenzene.  See Carvacryl ethyl ether
p-Isopropyl-α-methylhydrocinnamic aldehyde.  See Cyclamen aldehyde
Isopropyl methyl phenetole.  See Carvacryl ethyl ether
2-Isopropyl-5-methylphenol.  See Thymol
5-Isopropyl-2-methylphenol.  See Carvacrol
p-Isopropyl-α-methylphenylpropyl aldehyde.  See Cyclamen aldehyde
Isopropyl 2-methyl propanoate.  See Isopropyl isobutyrate
Isopropyl myristate.  See Isopropyl isovalerate

**Properties**: Colorless to pale yel. oily low-visc. liq., odorless; sol. in most org. solvs., acetone, chloroform, ethyl acetate, ethanol, min. oil, veg. oil; dissolves waxes; insol. in water, glycerol; m.w. 270.44; dens. 0.850-0.860; f.p. 3 C; b.p. 192.6 C (20 mm); dec. 208 C; acid no. 1 max.; iodine no. 1 max.; sapon. no. 202-212; cloud pt. -3 to 5 C; ref. index 1.432-1.436 (20 C)

**Toxicology**: LD50 (oral, mouse) 49,700 mg/kg, (skin, rabbit) 5 g/kg; low toxicity by ing. and skin contact; human skin irritant; causes blackheads; suspected tumorigen; TSCA listed

**Uses**: Emulsifier, emollient, lubricant, vehicle, solvent, solubilizer, spreading agent in topical medicinals

**Features**: Oleaginous

**Regulatory**: FDA 21CFR §176.210, 177.2800; FEMA GRAS; FDA approved for topicals; NF, BP, EP compliance; Canada DSL

**Manuf./Distrib.**: A&E Connock†
http://www.connock.co.uk; AMC Chems.;
AXO Chem.† http://www.axochemical.com;
Akzo Nobel† http://www.akzonobel.com;
Allan http://www.allanchem.com
Allichem Int’l. Ltd†
http://www.allichem.co.uk; Alzo
Ashland† http://www.ashchem.com
Augustus Oils Ltd http://www.augustus-oils.ltd.uk; Berje http://www.berjeinc.com;
Blagden Spec. Chems. Ltd†
http://www.blagdenspecchem.co.uk;
Burdick & Jackson http://www.bandj.com;
C.P. Hall http://www.cphall.com
CasChem†
http://www.rutherfordchemicals.com/caschem.html; Charkit† http://www.charkit.com;
ChemService
http://www.chemservice.com; Chemacon GmbH† http://www.chemacon.de; Chempri
Chesham Chems. Ltd†
http://www.chemschemicals.co.uk;
CoKEM Assoc.†; Cognis/Chems. Group†
http://www.cognis-us.com; Cornelius
Chem. Co. Ltd† http://www.cornelius.co.uk;
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<th>Chemical Component Cross-Reference</th>
<th>†=pharmaceutical grade</th>
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<td>Univar Ltd† <a href="http://www.univar.co.uk">http://www.univar.co.uk</a>;</td>
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### Isopropyl oleate

**CAS**: 112-11-8; 85116-87-6; EINECS/ELINCS 203-935-4; 285-540-7

**Synonyms**: 1-Methyl-9-octadecenoate; 9-Octadecenoic acid, 1-methylethyl ester

**Definition**: Ester of isopropyl alcohol and oleic acid

**Empirical**: C_{18}H_{36}O_2

**Formula**: CH_3(CH_2)_7CH=CH(CH_2)_7COOCH(CH_3)_2

**Properties**: Colorless liq.; odorless; misc. with paraffin oil; insol. in water; m.w. 324.55; dens. 0.87 kg/l (20°C); pour pt. -21°C; flash pt. (COC) 185°C

**HMIS**: Health 1, Flammability 0, Reactivity 0

**Uses**: Emollient, emulsifier, bodying agent, and spreading agent

**Regulatory**: FDA 21CFR §176.210, 177.2800, 178.3570, 178.3910; Canada DSL


**Trade Names**: Tilol IS

### Isopropyl palmitate

**CAS**: 142-91-6; EINECS/ELINCS 205-571-1

**Synonyms**: Hexadecanoic acid isopropyl ester; Hexadecanoic acid, 1-methylethyl ester; IPP; Isopropyl hexadecanoate; Isopropyl n-hexadecanoate; 1-Methylhexadecaneoate

**Definition**: Ester of isopropyl alcohol and palmitic acid

**Empirical**: C_{18}H_{36}O_2

**Formula**: CH_3(CH_2)_14COOCH(CH_3)_2

**Properties**: Colorless mobile liq., very slight odor; sol. in 4 parts 90% alcohol, min. oil, fixed oils, acetone, castor oil, chloroform, cottonseed oil,
### Chemical Component Cross-Reference

ethyl acetate, oxygenated solvs.; insol. in water, glycerin, propylene glycol; m.w. 298.57; dens. 0.850-0.855; m.p. 14°C; acid no. 1 max.; iodine no. 1 max.; sapon. no. 183-193; cloud pt. 12-14°C; flash pt. > 230°F; ref. index 1.4350-1.4390 (20°C)

**Toxicology:** LD50 (IP, mouse) 100 mg/kg; poison by IP route; human skin irritant; TSCA listed

**Precaution:** Combustible

**Regulatory:**
- FDA 21CFR §176.210, 177.2800; FDA approved for topicals; NF, BP, EP compliance; Canada DSL
- International Ltd†
- AKZO Nobel†
- Alfa Chem†
- Allschwil Chemicals; Allchem Int’l Ltd†
- AlzChem http://www.alzinternational.com; Am.
- Ashland† http://www.ashchem.com; Berje http://www.berjeinc.com; CasChem†
- Chempri; Chesham Chems. Ltd†
- http://www.cheshamchemicals.co.uk;
- Cognis/Chems. Group† http://www.cognis-us.com
- Croda Inc† http://www.croda.com;
- Goldschmied†
- Inolex† http://www.inolex.com; Integra†

**Hazardous Decomp. Prods.:** Heated to decomps., emits acrid smoke and fumes

**HMIS:** Health 1, Flammability 0, Reactivity 0

**Storage:** Light-sensitive

**Uses:** Binder, emollient, lubricant, emulsifier, vehicle, solvent, stabilizer in pharmaceuticals, topicals

**Features:** Oleaginous

**Trade Names:**
- Exceparl IPP: Lexol® IPP; Palmil IS; Pionier® IPP; Polypax IPP
- RITA IPP NF; Tegosoft® P

**Trade Names Containing:**
- Lexol® 3975;
- Pionier® 1533; Pionier® 5300; Pionier® Cold; Pionier® KW 2020
- Pionier® KW 2020 AP; Pionier® KW 2020 Pharma; Pionier® KWH-AP; Pionier® KWH-Pharma; Pionier® KWH-Soft
- Pionier® L-15; Pionier® OEWA-II; Pionier® OW 350; Pionier® PIAH; Pionier® SVE
- Pionier® SVE Soft; Pionier® T-0145;
- Pionier® T-0150; Pionier® WWH-N;
- Pionier® WWH-Soft

**Isopropylparaben**

CAS 4191-73-5; EINECS/ELINCS 224-069-3
**Chemical Component Cross-Reference**

**Synonyms:** Benzoic acid, p-hydroxy-, isopropyl ester; 4-Hydroxybenzoic acid, 1-methylethyl ester; Isopropyl 4-hydroxybenzoate; Isopropyl p-hydroxybenzoate; 1-Methylethyl-4-hydroxybenzoate

**Definition:** Ester of isopropyl alcohol and p-hydroxybenzoic acid

**Empirical:** C\(_{10}\)H\(_{12}\)O\(_3\)

**Properties:** M.w. 180.22

**Toxicology:** LD50 (subcut., mouse) 1900 mg/kg

**Uses:** Preservative for topical pharmaceuticals

**Regulatory:** Foods (0.012-1 g/kg as p-hydroxybenzoic acid); Japan approved; Canada DSL

**Manuf./Distrib.:** Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)

**Trade Names Containing:** LiquaPar® Oil; LiquaPar® PE

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**2-Isopropylphenol.** See o-Isopropylphenol

**4-Isopropylphenol.** See p-Isopropylphenol

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**o-Isopropylphenol**

CAS 88-69-7; EINECS/ELINCS 201-852-8

**FEMA:** 3461

**Synonyms:** o-Cumenol; 2-Hydroxycumene; 2-Isopropylphenol; 2-(1-Methylethyl) phenol; OIP; OIPP; Phenol, o-isopropyl-; Phenol, 2-(1-methylethyl)-

**Classification:** aromatic alcohol

**Empirical:** C\(_9\)H\(_{12}\)O

**Formula:** (CH\(_3\))\(_2\)CHC\(_6\)H\(_4\)OH

**Properties:** Lt. yel. liq. or solid; medicinal, creosote odor; sol. in isopentane, toluene, ethanol, 10% NaOH, oxygenated solvs.; insol. in water; m.w. 136.19; dens. 1.012; m.p. 15-16 C; b.p. 212-213 C; flash pt. 88 C; ref. index 1.5620 (20 C)

**Toxicology:** LD50 (oral, mouse) 875 mg/kg, (IV, mouse) 40 mg/kg; LDLo (IP, mouse) 250 mg/kg; poison by IP and IV routes; mod. toxic by ing.; corrosive; avoid skin contact; TSCA listed

**Precaution:** Combustible

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and fumes

**Uses:** Flavor for pharmaceuticals

**Regulatory:** Canada DSL


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**4-Isopropyl phenylacetaldehyde.** See p-Isopropylphenylacetaldehyde

**α-Isopropyl phenylacetaldehyde.** See 3-Methyl-2-phenylbutyraldehyde

**p-Isopropylphenylacetaldehyde**

CAS 4395-92-0; EINECS/ELINCS 224-522-5

**FEMA:** 2954

**Synonyms:** Benzeneacetaldehyde, 4-(1-methylethyl); Cuminc acetaldehyde; Cumyl acetaldehyde; p-Cymen-7-carboxaldehyde; p-Cymene-7-carboxaldehyde; Homocuminic aldehyde; 4-Isopropyl phenylacetaldehyde

**Empirical:** C\(_{11}\)H\(_{14}\)O

**Properties:** Colorless liq., char. bark odor, citrus bittersweet fruity flavor; m.w. 162.23; dens. 0.0955; b.p. 230 C; ref. index 1.5200

**Toxicology:** LD50 (oral, rat) 4100 mg/kg; mildly toxic by ing.; severe skin irritant; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and fumes

**Uses:** Synthetic flavor for pharmaceuticals
Isopropyl phenylacetate

**CAS**: 4861-85-2; **EINECS/ELINCS**: 225-468-5; **FEMA**: 2956

**Synonyms**: Benzene acetic acid 1-methyl ethyl ester; Isopropyl α-toluate; 1-Methyl ethyl benzene acetate; Phenyl acetic acid isopropyl ester

**Empirical**: C11H14O2

**Formula**: C6H5CH2CO2CH(CH3)2

**Properties**: Liq., fragrant rose-like scent, honey-like flavor; m.w. 178.23; dens. 1.0096; b.p. 253 C; flash pt. 103 C

**Toxicology**: TSCA listed

**Uses**: Synthetic flavor for pharmaceuticals

**Features**: Honey-like flavor

**Regulatory**: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Manuf./Distrib.**: Grau Aromatics [http://www.grau-aromatics.de]; SAFC Specialties [http://www.safcspecialties.com]

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Isopropyl β-phenylacrylate. See Isopropyl cinnamate

1-(4-Isopropylphenyl) ethanone; (4-Isopropylphenyl) ethanone. See p-Isopropylacetophenone

3-(p-Isopropylphenyl) propanal. See 3-(p-Isopropylphenyl) propionaldehyde

Isopropyl 3-phenylpropenoate. See Isopropyl cinnamate

3-(p-Isopropylphenyl) propionaldehyde

**CAS**: 7775-00-0; **EINECS/ELINCS**: 231-885-3; **FEMA**: 2957

**Synonyms**: 3-(p-Cumenyl) propionaldehyde; Cuminyl acetaldehyde; p-Cymyl propanal; p-Isopropylhydrocinnamaldehyde; 3-(p-Isopropylphenyl) propanal

**Empirical**: C12H16O

**Properties**: Colorless visc. liq., powerful sweet green floral odor, sweet green fruity flavor; sol. in alcohol; insol. in water; m.w. 176.26

**Uses**: Synthetic flavor for pharmaceuticals

**Regulatory**: FDA 21CFR §172.515; FEMA GRAS; Canada DSL


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Isopropyl steareate

**CAS**: 112-10-7; **EINECS/ELINCS**: 203-934-9

**Synonyms**: 1-Methylethyl octadecanoate; Octadecanoic acid, 1-methylethyl ester; Stearic acid, isopropyl ester

**Definition**: Ester of isopropyl alcohol and stearic acid

**Empirical**: C21H42O2

**Formula**: CH3(CH2)16COOCH(CH3)2

**Properties**: Pale yel. liq.; m.w. 326.63; m.p. 16-20 C

**Toxicology**: LDLo (oral, rat) 8 g/kg; mildly toxic by ing.; primary skin irritant; TSCA listed

**Hazardous Decomp. Prods.**: Heated to decomp., emits acrid smoke and irritating vapors

**Uses**: Binder, emollient, cosolvent, and lubricant for pharmaceuticals, topicals

**Regulatory**: FDA 21CFR §176.210, 177.2800; FDA approved for topicals


**Trade Names**: Monestriel IS-C; Tegosoft® S

**Trade Names Containing**: Lexol® 3975

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Isopropyl tetradecanoate. See Isopropyl
### Isopropyl Tiglate

**CAS:** 1733-25-1; 6284-46-4; EINECS/ELINCS 217-067-9

**Synonyms:** 2-Butenoic acid, 2-methyl-, 1-isopropyl ester, (E)-; Isopropyl 2-methyl-2-butenoate; Isopropyl 2-methylcrotonate; Isopropyl α-methyl crotonate; Isopropyl α-methyl crotonic acid; 2-Methyl-but-2-enio acid isopropyl ester; 1-Methylethyl (E)-2-methyl-2-butenoate; Tiglic acid isopropyl ester

**Classification:** Nonaromatic ester

**Empirical:** C₈H₁₄O₂

**Properties:** Liq.; m.w. 142.20; dens. 0.896; flash pt. 123 F; ref. index 1.4310

**Toxicology:** LD₅₀ (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; primary skin irritant; TSCA listed

**Precaution:** Combustible

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Minty flavor

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Manuf./Distrib.:** SAFC Specialties [http://www.safcspecialties.com](http://www.safcspecialties.com)

### Isopulegol

**CAS:** 29606-79-9; EINECS/ELINCS 249-725-6

**Synonyms:** 1-Isopropyl-4-methyl-2-cyclohexanone; δ-8,9-para-menthen-3-one; p-Menth-8-en-3-one; 1-Methyl-4-isopropenyl cyclohexan-3-one; trans-5-Methyl-2-(1-methyl vinyl) cyclohexan-1-one

**Empirical:** C₁₀H₁₈O

**Properties:** Colorless liq.; sol. in alcohol; insol. in water; m.w. 152.23; dens. 0.92177; b.p. 101-102 C (17 mm); ref. index 1.46787

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Peppermint fresh herbal odor

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL

### Isopulegone

**CAS:** 29664

**Synonyms:** Cyclohexanol, 5-methyl-2-(1-methylethenyl)-, acetate, [(R)-(1α,2β,5α)]; Isopulegyl acetate, mixed isomers; p-Menth-8-en-3-yl acetate; 1-Methyl-4-isopropenylcyclohexan-3-yl acetate

**Empirical:** C₁₂H₂₀O₂

**Properties:** Colorless liq.; sweet mint-like odor; m.w. 196.29; dens. 0.932-0.936; b.p. 232 C; flash pt. 87 C; ref. index 1.4572

**Toxicology:** May be harmful by inh., ing., or skin absorp.; may cause eye/skin irritation

**Precaution:** Combustible liq.; incompat. with strong oxidizing agents, strong acids, strong bases, strong reducing agents

**Hazardous Decomp. Prods.:** Toxic fumes of CO, CO₂

**Storage:** Store in cool, dry place; keep tightly closed; keep away from heat and open flame

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Minty flavor

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS

**Manuf./Distrib.:** Acros Org.
Chemical Component Cross-Reference

Indofine http://www.indofinechemical.com;
SAFC Specialties http://www.safcspecialties.com

Isopulegyl acetate, mixed isomers. See Isopulegyl acetate

Isoquinoline
CAS 119-65-3; EINECS/ELINCS 204-341-8
FEMA 2978
Synonyms: 2-Azanaphthalene; 2-Benzazine; Benzo(c)pyridine; Leucoline
Empirical: C₉H₇N
Properties: Colorless plates or liq.; pungent odor; sol. in most org. solvs.; misc. with oxygenated solvs.; sl. sol. in water; m.w. 129.16; dens. 1.09 (20/4 C); m.p. 23-25 C; b.p. 243 C; flash pt. 102 C; ref. index 1.615
Toxicology: LD₅₀ (oral, rat) 360 mg/kg, (skin, rabbit) 590 mg/kg; toxic by ing.; mod. toxic by skin contact; severe skin and eye irritant; readily absorbed through skin; mutagen; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOₓ
Uses: Synthetic flavor for pharmaceuticals; mfg. of pharmaceuticals (nicotinic acid)
Features: Sweet flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Acros Org.

Isosafrole
CAS 120-58-1; EINECS/ELINCS 264-410-2
Synonyms: Benzene, 1,2-(methylenedioxy)-4-propylenyl; 1,2-Methylenedioxy-4-propenylbenzene; 3,4-Methylenedioxy-1-propenylbenzene; 5-(1-Propenyl)-1,3-benzodioxole; 4-Propenylcatechol methylene ether; 4-Propenyl--1,2-methylenedioxybenzene
Classification: Aromatic ether
Empirical: C₁₀H₁₀O₂
Properties: Colorless liq.; anise-like odor; misc. with oxygenated and aromatic solvs.; insol. in water; m.w. 162.19; dens. 1.12 kg/l (20 C); b.p. 253 C; flash pt. 110 C; ref. index 1.5730
Toxicology: LD₅₀ (oral, rat) 1340 mg/kg, (IP, mouse) 324 mg/kg; LDLo (subcut., cat) 2 g/kg, (IV, rabbit) 300 mg/kg; poison by IP and IV routes; mod. toxic by ing., subcut. routes; harmful by ing., inh., skin contact; irritating to skin, eyes, respiratory system; may cause hallucinations, toxic psychosis in humans; questionable carcinogen; experimental tumorigen; mutagen; TSCA listed
Precaution: Flammable
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOₓ
Uses: Preservative for pharmaceuticals; antianginal drug; coronary vasodilator
Regulatory: BP, EP compliance; Canada DSL
Manuf./Distrib.: Aastrid Int'l.† http://www.aastrid.com; Adept Sol'ns.† Clariant/Functional Chems.

Isosorbide dimethyl ether. See Dimethylisosorbide

Isosorbide dinitrate
CAS 87-33-2
UN 2907
Synonyms: Cardis; 1,4:3,6-Dianhydroinositol 2,5-dinitrate; Dinitrosorbide; ISDN; Isotrate; Nitrosorbide; Sorbide nitrile; Sorbidinitrate
Empirical: C₆H₁₂N₂O₈
Properties: Colorless cryst.; sol. in org. solvs. (acetone, alcohol, ether); sparingly sol. in water; m.w. 236.16; m.p. 71 C
Toxicology: LD₅₀ (oral, rat) 747 mg/kg, (IP, rat) 620 mg/kg, (subcut., rat) 1237 mg/kg; mod. toxic by ing., IP, intramuscular, subcut. routes; primary irritant; mutagen; experimental reproductive effects; TSCA listed
Precaution: Flammable
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOₓ
Uses: Preservative for pharmaceuticals; antianginal drug; coronary vasodilator
Regulatory: BP, EP compliance; Canada DSL
Manuf./Distrib.: Aastrid Int'l.† http://www.aastrid.com; Adept Sol'ns.†
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Chemical Component Cross-Reference</th>
</tr>
</thead>
</table>
Chemical Component Cross-Reference

- **isostearyl alcohol and a glycerin polymer contg. an avg. of 2 units**
- **Properties:** Nonionic
- **Uses:** \textit{W/o emulsifier for pharmaceuticals}
- **Trade Names:** Imwitor® 780 K

**Isostearyl isostearate**

- **CAS:** 41669-30-1; EINECS/ELINCS 255-485-3
- **Synonyms:** Isooctadecanoic acid, isooctadecyl ester; Isooctadecanol; 16-Methylheptadecanoic acid, 16-methylheptadecyl ester; 16-Methylheptadecanol 16-methylheptadecanoate

**Definition:** Ester of isostearyl alcohol and isostearic acid

**Empirical:** C$_{36}$H$_{72}$O$_2$

**Properties:** Pale yel. liq.; sol. in hydrocarbons; insol. in water; m.w. 536.98; sapon. no. 95-110; nonionic

**Toxicology:** No known toxicity; TSCA listed

**Uses:** Emollient, lubricant for pharmaceuticals

**Regulatory:** Canada DSL

**Manuf./Distrib.:** A&E Connock

**Trade Names:** Isostearate Isostearyle; Saboderm IS

**Isostearyl lactate**

- **CAS:** 42131-28-2; EINECS/ELINCS 255-674-0
- **Synonyms:** 2-Hydroxypropanoic acid, isostearyl ester; Isooctadecyl 2-hydroxypropanoate

**Definition:** Ester of isostearyl alcohol and lactic acid

**Empirical:** C$_{21}$H$_{42}$O$_3$

**Formula:** CH$_3$CHOHCOOC$_{18}$H$_{37}$

**Properties:** Pale yel. liq.; sol. in IPM, oleyl alcohol, 95% ethanol, min. oil; insol. in glycerin, propylene glycol; m.w. 354.69; sp.gr. 0.850-0.870; sapon. no. 135-155; ref. index 1.4450-1.4497

**Toxicology:** LD$_{50}$ (oral, rat) > 40 ml/kg; eye irritant; nonirritating to skin

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Emollient, spreading agent for pharmaceutical topicals; antitackifier for antiperspirants

**Regulatory:** Canada DSL

**Manuf./Distrib.:** A&E Connock

**Trade Names:** Ceraphyl® 375

**Isostearyl pivalate.** See Isostearyl neopentanoate

**Isotactic polypropylene.** See Polypropylene

**Isotetracosanol; Isotetracosyl alcohol.** See 2-Decyl-1-tetradecanol

**4-Isothiazolin-3-one, 5-chloro-2-methyl-.** See Methylichloroisothiazolinone

**3(2H)-Isothiazolone, 2-methyl-.** See Methylisothiazolinone

**3-Isothiocyanato-1-propene; Isothiocyanic acid allyl ester.** See Allyl isothiocyanate

**Isothiourea.** See Thiourea

**Isothymol.** See Carvacrol

**Isotonic sodium chloride solution**

- **CAS:** 8028-77-1
- **Uses:** Pharmaceutical vehicle for injectables, parenterals, ophthalmics, orals
- **Regulatory:** FDA approved for injectables, parenterals, ophthalmics, orals

**Isotrate.** See Isosorbide dinitrate

**Isotridecanol ethoxylates.** See Trideceth

**Isotridecyl laurate**

- **CAS:** 94134-83-5; EINECS/ELINCS 302-853-7
- **Synonyms:** Dodecanolic acid, 11-methyldodecyl ester; Lauric acid, isotridecyl ester; 11-Methyldodecyl dodecanoate

**Definition:** Ester of isotridecyl alcohol and lauric acid

**Empirical:** C$_{25}$H$_{50}$O$_2$

**Formula:** CH$_3$(CH$_2$)$_{10}$COOC$_{13}$H$_{27}$
Chemical Component Cross-Reference

†=pharmaceutical grade

Uses: Coemulsifier, diluents, lubricant in ointments
Trade Names: Saboderm ITL

Isotridecyl octadecanoate. See Isotridecyl stearate

Isotridecyl stearate
CAS 31565-37-4; EINECS/ELINCS 250-703-3
Synonyms: Isotridecyl octadecanoate
Definition: Ester of isotridecyl alcohol and stearic acid
Empirical: C₃₁H₆₂O₂
Toxicology: TSCA listed
Uses: Solubilizer, vehicle for medicines; excipient for injectable substances; emollient in antiperspirants
Regulatory: Canada DSL
Trade Names: Exceparl TD-S; M Kemfluid TR/S

Isourea. See Urea
 Isovaleral. See Isovaleraldehyde

Isovaleraldehyde
CAS 590-86-3; EINECS/ELINCS 209-691-5
UN 2058; FEMA 2692
Synonyms: 1-Butanal, 3-methyl-; Isoamyl aldehyde; Isopentaldehyde; Isovaleral; Isovaleric aldehyde; 2-Methylbutanal-4; 3-Methylbutanal; 3-Methylbutyraldehyde
Empirical: C₅H₁₀O
Formula: (CH₃)₂CHCH₂CHO
Properties: Colorless liq., pungent apple-like odor; misc. with alcohol, ether, oxygenated solvs.; sparingly sol. in water; m.w. 86.14; dens. 0.797 (20/4 C); m.p. -51 C; b.p. 91-93 C; flash pt. -5 C; ref. index 1.388 (20 C)
Toxicology: LD₅₀ (oral, rat) 5600 mg/kg, (skin, rabbit) 3180 mg/kg; LC₅₀ (inh., mouse) 50,770 mg/m³; mod. toxic by skin contact; mildly toxic by ing., subcut., inh. routes; irritating to eyes, respiratory tract; TSCA listed
Precaution: Highlly flamm.; dangerous fire hazard exposed to heat or flame; incompat. with strong oxidizers, reducers
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Storage: 6 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air
Uses: Synthetic flavor for pharmaceuticals
Features: Peach-like flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI

Isovaleric acid. See Isovaleric acid

Isovaleric acid
CAS 503-74-2; EINECS/ELINCS 207-975-3
UN 1760; FEMA 3102
Synonyms: Delphinic acid; Isobutyl formic acid; Isopentanoic acid; Isopropylacetic acid; Isovaleric acid; 3-Methylbutanoic acid; 3-Methylbutyric acid; β-Methylbutyric acid
Empirical: C₅H₁₀O₂
Formula: (CH₃)₂CHCH₂COOH
Properties: Colorless liq. or oil, disagreeable rancid cheese odor, acid taste; sol. in oxygenated and chlorinated solvs.; sol. in water @ 16 C; misc. with alcohol, chloroform, ether; m.w. 102.15; dens. 0.931 (20/4 C); solid. pt. -37 C; m.p. -34.5 C; b.p. 175-177 C; flash pt. (TCC) 70.55 C; ref. index 1.403
Toxicology: LD₅₀ (oral, rat) 2000 mg/kg, (IV,
Chemical Component Cross-Reference

†=pharmaceutical grade

Isovaleric acid butyl ester.  See n-Butyl isovalerate
Isovaleric acid, cinnamyl ester.  See Cinnamyl isovalerate
Isovaleric acid, (4,7-dimethyl-1,6-octadien-3-yl) ester.  See Linalyl isovalerate
(E)-Isovaleric acid-3,7-dimethyl-2,6-octadienyl ester.  See Geranyl isovalerate
Isovaleric acid ethyl ester.  See Ethyl isovalerate
Isovaleric acid, hexyl ester.  See Hexyl isovalerate
Isovaleric acid, isopentyl ester.  See Isoamyl isovalerate
Isovaleric acid para-methyl-1-en-8-yl ester.  See Terpinyl isovalerate
Isovaleric acid p-methyl-3-yl ester.  See Methyl isovalerate
Isovaleric acid, methyl ester.  See Methyl isovalerate
Isovaleric acid octyl ester.  See Octyl isovalerate
Isovaleric acid propyl ester.  See Propyl isovalerate
Isovaleric aldehyde.  See Isovaleraldehyde
Isovalerone.  See Diisobutyl ketone
Isovitamin C.  See Erythorbic acid
Jackbean urease.  See Urease
Jaguar gum.  See Guar (Cyanopsis tetragonoloba) gum
Japan agar.  See Agar
Japan camphor.  See Camphor
Japanese camphor oil.  See Camphor (Cinnamomum camphora) oil
Japan isinglass.  See Agar
Japan (Rhus succedanea) wax
CAS 8001-39-6; 103798-70-5; EINECS/ELINCS 310-125-5
Synonyms: Japan tallow; Japan wax; Rhus succedanea; Rhus succedanea cera; Rhus succedanea wax; Sumac wax
Definition: Fat expressed from the mesocarp of the fruit of Rhus succedanea, contg. 10-15% palmitin, stearin, olein, 1% japoanic acid
Properties: Pale yel. solid, greasy feel; tallow-like rancid odor and taste; sol. in benzene, naphtha, CS₂, ether, hot alcohol, alkalis; insol. in water, cold alcohol; dens. 0.97-0.98; m.p. 53.5-55 C; acid no. 22-23; iodine no. 10-15; sapon. no. 217-237
Toxicology: TSCA listed
Precaution: Combustible
Uses: Wax for pharmaceuticals, ointments;

Handbook of Pharmaceutical Additives, Third Edition 1533
Chemical Component Cross-Reference

plasticizer in dental impression compds.

Regulatory: FDA 21CFR §73.1, 175.105, 175.350, 176.170, 182.70, 186.1555, GRAS

Manuf./Distrib.: Alfa Chem
http://www.alfachem1.com; Barnet Prods.
Koster Keulen http://www.kosterkeunen.com; Kowa Am.
http://www.kowa.com
Pangaea Sciences† http://www.pangaeasciences.com; Robeco
http://www.robecoinc.com; Stevenson Cooper http://www.stevensoncooper.com;
Strahl & Pitsch http://www.strahlpitsch.com

Trade Names: Japan Wax SP 69; Ross Japan Wax

Japan tallow; Japan wax. See Japan (Rhus succedanea) wax

Japan wax, synthetic
Synonyms: Synthetic Japan wax (INCI)
Definition: Synthetic wax intended to be generally indistinguishable from natural Japan wax
Uses: Gellant, thickener, emulsifier for pharmaceuticals

Trade Names: Cerabel L132; Koster Keulen Synthetic Japan Wax

Jasmalone. See 2-Hexylidene cyclopentanone

Jasmin acetate. See 1,3-Nonanediol acetate, mixed esters

Jasminaldehyde; Jasmine aldehyde. See α- Amylcinnamaldehyde

Jasmine. See cis-Jasmone

cis-Jasmone
CAS 488-10-8; EINECS/ELINCS 207-668-4
FEMA 3196
Synonyms: 2-Cyclopenten-1-one, 3-methyl-2-(2-pentenyl)-(Z); Jasnone; (Z)-Jasnone; 3-Methyl-2-pent-2-enylcyclopent-2-enone; 3-Methyl-2-(2-pentenyl)-2-cyclopenten-1-one; 3-Methyl-2-(cis-2-penten-1-yl)-2-cyclopenten-1-one
Classification: aliphatic ketone
Empirical: C11H16O
Properties: Colorless to pale yel. liq.; jasmine odor; m.w. 164.25; dens. 0.940; b.p. 134-135 C (12 mm), 78-79 C (1.6 kPa); flash pt. 225 F; ref. index 1.4980; tenacity 24 hrs. on blotter
Toxicology: LD50 (oral, rat) 5 g/kg; mildly toxic

†=pharmaceutical grade
by ing.: primary skin irritant; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating vapors

HMIS: Health 1, Flammability 1, Reactivity 0
Storage: Store in cool, dry place in tightly sealed containers, protected from heat, light
Uses: Synthetic flavor for pharmaceuticals
Features: Fruity flavor
Use Level: < 3%

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia; Canada DSL; Japan ENCS (no. 3-2394); Philippines PICCS


(Z)-Jasnone. See cis-Jasnone

Jasmonyl. See 1,3-Nonanediol acetate, mixed esters

Java pepper. See Cubeb (Piper cubeba) oil

Jerusalem artichoke flour
Definition: Flour from the tuber of Helianthus tuberosus
Uses: Bulking agent, nutraceutical ingred. for health food tablets/capsules, gastric upset prods.

Manuf./Distrib.: Garuda Int'l.† http://www.garudaint.com

Jojoba (Buxus chinensis) oil
CAS 61789-91-1
Synonyms: Buxus chinensis; Jojoba liquid wax; Jojoba oil; Oils, jojoba; Simmondsia Chinensis (Jojoba) Seed Oil
Classification: wax ester
Definition: Oil from the seeds of the Jojoba desert shrub (Buxus chinensis)
Properties: Colorless waxy liq.; odorless; dens. 0.86 kg/l; m.p. 6.8-7 C; b.p. 400 C; cloud pt. 4-9 C
Toxicology: TDLo (oral, rat, 4 wk continuous) 151 g/kg; low toxicity by ing.; may cause allergic reaction; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating vapors
Uses: Lubricant used in sunscreens; skin protectant; antifoam in antibiotic
Chemical Component Cross-Reference

fermentation; coating material, carrier

Regulatory: Canada DSL

Manuf./Distrib.: Adept Sol’ns.†; Alfa Chem†

http://www.alfachem1.com; Alzo
http://www.alzointernational.com; Amerol
http://www.amerolcorp.com; Arista Ind.†
http://www.aristaindustries.com
Charkit http://www.charkit.com; Cosmetic
Supplies USA
http://www.cosmeticsuppliesusa.com;
Desert King http://www.desertking.com;
Floratech Am. http://www.floratech.com;
http://www.mpbio.com; Jeen Int’l.
http://www.jeen.com; Lipo
http://www.lipochemicals.com; Mosselman
NV http://www.mosselman.be; Pangaea
Sciences†
http://www.pangaeasciences.com
Parchem Trading† http://www.par-
chem.com; Protameen
http://www.protameen.com; R.W. Greeff
http://www.pechiney-chemicals.com;
Sea-Land http://www.sealandchem.com; Sigma
http://www.sigma-aldrich.com/belgium
Spectrum Quality Prods.
http://www.spectrumchemical.com;
Supelco http://www.sigma-aldrich.com;

Trade Names: Simchin® Natural; Simchin®
Reﬁned

Jojoba liquid wax; Jojoba oil. See Jojoba
(Buxus chinensis) oil

Juglans regia. See Walnut (Juglans regia) extract; Walnut (Juglans regia) oil

Juglans regia extract. See Walnut (Juglans regia) extract

Juglans regia oil. See Walnut (Juglans regia) oil

Juniper berry essential oil. See Juniperus
communis oil

Juniper berry extract. See Juniperus
communis extract

Juniper berry oil. See Juniperus communis oil

Juniper extract. See Juniperus communis extract

Juniper oil. See Juniperus communis oil

Juniperus communis. See Juniperus
communis extract; Juniperus communis oil

†=pharmaceutical grade

Juniperus communis extract
CAS 84603-69-0; EINECS/ELINCS 283-268-3
FEMA 2603

Synonyms: Juniper berry extract; Juniper
extract; Juniperus communis

Definition: Extract of ripe fruits of Juniperus
communis

Toxicology: LD50 (IP, mouse) 100 mg/kg;
poison by IP route; experimental
reproductive effector

Hazardous Decomp. Prods.: Heated to
decom., emits acrid smoke and irritating
fumes

Uses: Natural flavor for pharmaceuticals

Regulatory: FDA 21CFR §182.20, GRAS; FEMA

Manuf./Distrib.: Adept Sol’ns.†; Alfa Chem†

http://www.alfachem1.com; Bio-Botanica
http://www.bio-botanica.com; Biolandes
http://www.biolandes.com; Chart
http://www.chartcorp.com
Grau Aromatics http://www.grau-
aromatics.de; Penta Mfg.†
http://www.pentamfg.com; RIA Int’l.†
http://www.riausa.com; RTD Hallstar†
http://www.rtdhallstar.com; Spectrum
Quality Prods.†
http://www.spectrumchemical.com

Juniperus communis oil
CAS 8002-68-4; 8012-91-7; 73049-62-4
FEMA 2604

Synonyms: Juniper berry essential oil;

Juniper berry oil; Juniper oil; Juniperus
communis

Definition: Volatile oil obtained from the berries of Juniperus communis, contg. pinene,
cadinene, camphene, terpineol, juniper

Properties: Colorless to pale grnsh.-yel. liq.,
aromatic bitter taste; sol. in fixed oils, min. oil,
ethanol; pract. insol. in water; insol. in glycerin,
propylene glycol; dens. 0.854-0.879 (25/25 C);
vapor dens. 4.2; vapor pressure 3.5 mm Hg;
flash pt. 105 F; ref. index 1.4780-1.4840 (20 C)

Toxicology: LD50 (oral, rat) 6280 mg/kg;
mildly toxic by ing.; human skin and systemic
irritant; allergen; taken internally may cause
severe kidney irritation; TSCA listed

Hazardous Decomp. Prods.: Heated to
decom., emits acrid smoke and fumes

Storage: Keep cool, well closed; protect from
light

Uses: Natural flavor for pharmaceuticals;
**Chemical Component Cross-Reference**

<table>
<thead>
<tr>
<th>Chemical Component</th>
<th>CAS</th>
<th>EINECS/ELINCS</th>
<th>Properties</th>
<th>Toxicology</th>
<th>Uses</th>
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</thead>
<tbody>
<tr>
<td>Aluminum silicate dehydrate</td>
<td>1332-58-7</td>
<td>296-473-8</td>
<td>Wh. to yel. or grayish fine powd., clay-like odor when moist, earthy taste; insol. in water, dilute acids, alkali hydroxides; dens. 1.8-2.6; m.p. 0 C; high lubricity.</td>
<td>Harmful by inh., ing., skin contact; nuisance dust; large doses may cause obstructions, perforations, or granuloma (tumor)</td>
<td>Tablet and/or capsule diluent, adsorbent in antidiarrheal prods., medicinal to treat intestinal disorders, pharmaceutical oral.</td>
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<tr>
<td>Aluminum silicate</td>
<td>310-127-6</td>
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<tr>
<td>Aluminum silicate hydrd.</td>
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<td>Aluminum silicate hydroxide</td>
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<td>Bentonite</td>
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<td>Bolus alba</td>
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<tr>
<td>China clay</td>
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<td>Cl 77004</td>
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<tr>
<td>Hydrated aluminum silicate</td>
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<td>Pigment white 19</td>
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<tr>
<td>Porcelain clay</td>
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</tbody>
</table>

**Regulatory:**
- **FDA 21CFR §182.20, GRAS; FEMA GRAS; Japan approved; Canada DSL**
- **EINECS/ELINCS:**
- **Regulatory:**
- **Uses:** Tablet and/or capsule diluent, adsorbent in antidiarrheal prods., medicinal to treat intestinal disorders, pharmaceutical oral.
- **Precaution:** Noncombustible; incompat. with strong oxidizers.
- **Hazardous Decomp. Prods.: CO, CO2, irritating and toxic fumes and gases**
- **Storage:** Store in cool, dry place; keep containers closed when not in use.

**Manuf./Distrib.:**
- **Acme-Hardesty**
- **Astral Extracts**
- **Buckton Page Ltd**
- **Chart**
- **Chemtex International**
- **Citrus and Allied Essences**
- **Danisco**
- **Eramex**
- **Fleurchem**
- **George Uhe**
- **Gelembuch**
- **Penta Mfg.**
- **Polarome Int'l.**
- **SAFC Specialties**
- **Seillans**
- **Chart**
- **Fumarome Int'l.**
- **Greek Uhe**
- **Hammill & Landers-Segal Color**
- **Kadaya gum. See Karaya (Sterculia urens) gum**
- **Kafar copper. See Copper**
- **Kalinite. See Potassium alum dodecahydrate**
- **Kaolin**
- **Aluminum silicate dihydrate; Aluminum silicate hydrated; Aluminum silicate hydrd.; Aluminum silicate hydroxide; Bentone; Bolus alba; China clay; CI 77004; Hydrated aluminum silicate; Pigment white 19; Porcelain clay**

**Synonyms:**

- **Definition:** Native hydrated aluminum silicate
- **Formula:** $\text{Al}_2\text{O}_3 \cdot 2\text{SiO}_2 \cdot 2\text{H}_2\text{O}$
- **Properties:** Wh. to yel. or grayish fine powd., clay-like odor when moist, earthy taste; insol. in water, dilute acids, alkali hydroxides; dens. 1.8-2.6; m.p. 0 C; high lubricity
- **Toxicology:** ACGIH TLV/TWA 2 mg/m$^3$ (respirable fraction); TDLo (oral, female rat, 37 days prior to copulation) 590 g/kg; harmful by inh., ing., skin contact; nuisance dust; large doses may cause obstructions, perforations, or granuloma (tumor)
Kaolinite

CAS 1318-74-7

Definition: Clay (an aluminum silicate) mineral; main constituent of kaolin

Formula: 1: $\text{Al}_4(\text{Si}_4\text{O}_{10})(\text{OH})_8$; 2: $\text{Al}_2[(\text{OH})_2|\text{Si}_2\text{O}_5]$ 

Properties: Wh., pink, and grey

Uses: In pharmaceutical formulations

Trade Names Containing: Sillitin Z 86 Puriss

Karaya; Karaya gum. See Karaya (Sterculia urens) gum

Karaya (Sterculia urens) gum

CAS 9000-36-6; EINECS/ELINCS 232-539-4

FEMA 2605; INS 416

Synonyms: Gum karaya; Gum sterculia; Indian tragacanth; India tragacanth; Kadaya gum; Karaya; Karaya gum; Sterculia gum; Sterculia urens; Sterculia urens gum

Definition: Dried exudate from the tree, Sterculia urens

Properties: Wh. fine powd., sl. acetic acid odor; insol. in alcohol; swells in water to a gel; produces highly stable emulsions, resist. to acids

Toxicology: LD50 (oral, rat) 9100 mg/kg; very mildly toxic by ing.; mild allergen causing hay fever, dermatitis, gastrointestinal diseases, and asthma; may cause intolerance; laxative effect, may reduce nutrient intake; TSCA listed

Uses: Protective colloid, stabilizer, thickener, emulsifier, suspending agent for pharmaceuticals; tablet excipient; bulk laxative; denture adhesive; consistency agent for troches and emulsions

Regulatory: FDA 21CFR §133.133, 133.134, 133.162, 133.178, 133.179, 150.141, 150.161, 184.1349, GRAS; FEMA GRAS; Japan approved; Europe listed; UK approved; BP compliance; Canada DSL

Manuf./Distrib.: AB R Lundberg

CarboMer† http://www.carbomer.com; Colloides Naturels; Degussa AG/Health & Nutrition; Frutarom


Importers Service http://www.iscgums.com; Integra† http://www.integramex.com; P.L. Thomas

Pangaea Sciences† http://www.pangaeasciences.com; Penta

Mfg.† http://www.pentamfg.com; Ruger† http://www.rugerchemical.com; Sarcom

Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality Prods.† http://www.spectrumchemical.com; TIC

Gums† http://www.ticgums.com; Thew Arnott & Co. Ltd

Premium Powdered Gum Karaya No. 1

Special

Premium Powdered Gum Karaya No. 2

Premium Powdered Gum Karaya No. 2 HV

Premium Powdered Gum Karaya No. 3
Karite butter. See Shea butter (Butyrospermum parkii)
Katchung oil. See Peanut (Arachis hypogaea) oil
Katemfe. See Thaumatín
Kautschin. See d-Limonene
Kelp
CAS 977001-75-4
FEMA 2606
Synonyms: Macrocystis pyriferae
Definition: Dehydrated seaweed from the giant Pacific kelp, Macrocystis pyriferae
Properties: Dk. grn. to olive-brn. color, salty char. taste
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Natural flavor, iodine source, dietary supplement for pharmaceuticals, herbal preps.
Kentonarome. See Methyl cyclopentenolone
Keratin
CAS 68238-35-7; EINECS/ELINCS 269-409-1
Synonyms: Animal keratin; Detoxin
Definition: Natural fibrous protein derived from hair, wool, horn, nails, epidermis, etc. in animals
Properties: Insol. in org. solvs.; absorbs and holds water; dens. 1.00; amphoteric
Toxicology: LD50 (IV, rat) 45 mg/kg; may cause acute pulmonary edema; TSCA listed
Uses: Coating enteric pills not affected in stomach but dissolved by alkaline intestinal secretions
β-Ketopropane. See Acetone
1-Ketopropionaldehyde; 2-Ketopropionaldehyde; α-Ketopropionaldehyde. See Pyruvaldehyde
2-Ketopropionic acid; α-Ketopropionic acid. See Pyruvic acid
1-3-Ketothreohexuronic acid lactone. See L-Ascorbic acid
2-Keto-1,7,7-trimethylnorcamphane. See Camphor
4-Ketovaleric acid; γ-Ketovaleric acid. See Levulinic acid
Kieselguhr. See Diatomaceous earth, amorphous; Diatomaceous earth
KMS. See Potassium metabisulfite
Knee pine oil. See Pine (Pinus pumilio) needle oil
Kola (Cola acuminata) extract
CAS 68916-19-8; 89997-82-0; EINECS/ELINCS 289-720-6
FEMA 2607
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Chemical Component</th>
<th>Synonyms</th>
<th>Definition</th>
<th>Uses</th>
<th>Regulatory</th>
<th>Manufacturer/Distributor</th>
<th>Trade Names Containing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labdanum (Cistus labdaniferus)</td>
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<tr>
<td>CAS 8016-26-0; 84775-64-4; EINECS/ELINCS 283-893-1</td>
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<td></td>
<td>FDA 21CFR §182.20, GRAS; FEMA GRAS</td>
<td>Frutarom, <a href="http://www.frutarom.com">http://www.frutarom.com</a></td>
<td>Anti-Irritant, Liposomes</td>
</tr>
<tr>
<td>Synonyms: Cistus absolute; Cistus absolute decol; Cistus essential oil; Cistus labdaniferus; Labdanum; Labdanum oil; Labdanum resinoid</td>
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<tr>
<td>Definition: Resinous exudation of Cistus labdaniferus; mainly acetophenone, 1,5,5-trimethyl-6-cyclohexanone, and ladanol</td>
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<td>Properties: Yel. visc. liq.; strong balsamic odor; sol. in fixed oils, min. oil; insol. in glycerin, propylene glycol; dens. 0.905-0.993; flash pt. 187 F; ref. index 1.492-1.507 (20 C); substanitivity 400 hrs. on smelling strip</td>
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<td>Toxicology: LD50 (oral, rat) 8980 mg/kg; mildly toxic by ing.; primary skin irritant; TSCA listed</td>
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<td>Precaution: Combustible liq.</td>
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<tr>
<td>Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes</td>
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<td>Uses: Natural flavor for pharmaceuticals</td>
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<tr>
<td>Regulatory: FDA 21CFR §172.510; FEMA GRAS; Canada DSL</td>
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<tr>
<td>Labdanum oil; Labdanum resinoid. See Labdanum (Cistus labdaniferus)</td>
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<tr>
<td>Lac; Lacca. See Shellac</td>
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<td>Lacceryl alcohol. See 1-Dotriacontanol</td>
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<td>Lacolin. See Sodium lactate</td>
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<td>Lac resin. See Shellac</td>
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<tr>
<td>Lac resin wax. See Shellac wax</td>
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<tr>
<td>Lactamide MEA</td>
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<tr>
<td>CAS 5422-34-4; EINECS/ELINCS 226-546-1</td>
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<tr>
<td>Synonyms: N-2-Hydroxyethyl lactamide; 2-Hydroxy-N-(2-hydroxyethyl) propanamide; Lactic acid monoethanolamide; Monoethanolamine lactic acid amide</td>
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<tr>
<td>Definition: Mixture of ethanalamides of lactic acid</td>
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<tr>
<td>Empirical: C_{5}H_{11}NO_{3}</td>
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<tr>
<td>Formula: CH_{3}COHHCONHCH_{2}CH_{2}OH</td>
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</tbody>
</table>

### Handbook of Pharmaceutical Additives, Third Edition

1539
Chemical Component Cross-Reference

Properties: M.w. 133.17; nonionic
Toxicology: LD50 (subcut., rat) 24 g/kg, (IP, mouse) 16,300 mg/kg; mutagen; TSCA listed
Uses: Humectant, lubricant in creams and lotions
Manuf./Distrib.: Sigma http://www.sigma-aldrich.com/belgium
Trade Names Containing: Lipomectant AL
Lactase. See β-Galactosidase
Lactated pepsin. See Pepsin
Lactem. See Lactic acid esters of mono- and diglycerides of fatty acids
Lactic acid
CAS 50-21-5; 598-82-3 (DL); 79-33-4 (L); 10326-41-7 (D); EINECS/ELINCS 200-018-0; 209-954-4 (DL); 201-296-2 (L); 233-713-2 (D)
UN 1760; FEMA 2611; INS 270; E270
Synonyms: Acetonic acid; Ethylenelactic acid; 1-Hydroxyethanecarboxylic acid; 1-Hydroxyethane 1-carboxylic acid; 2-Hydroxypropionic acid; 2-Hydroxypropionic acid; α-Hydroxypropionic acid; Milk acid; Propanoic acid, 2-hydroxy-; Propionic acid, 2-hydroxy-
Classification: Organic acid
Definition: Prod. of the metabolism of glucose and glycogen
Empirical: C3H6O3
Formula: CH3CHOHCOOH
Properties: Colorless to ylsh. cryst. or syrupy liq., nearly odorless; misc. with water, alcohol, glycerol, furfural; insol. in chloroform; m.w. 90.09; dens. 1.249; m.p. 18 C; b.p. 122 C (15 mm); flash pt. 110 C; ref. index 1.4251; anionic
Toxicology: LD50 (oral, rat) 3730 mg/kg, (subcut., mouse) 4500 mg/kg; LDLo (rectal, rabbit) 1200 mg/kg; mod. toxic by ing., rectal routes; corrosive; severe skin and eye irritant; mutagenic data; TSCA listed
Environmental: VOC; ThOD 0.53
Precaution: DOT: Corrosive material; mixts. with nitric acid + hydrofluoric acid may react vigorously
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
HMIS: Health 3, Flammability 1, Reactivity 0
Storage: Hygroscopic
Uses: Acidulant, buffer, antimicrobial, preservative, flavor in pharmaceuticals, injectables, parenterals, orals, topicals,
†=pharmaceutical grade
vaginals, digestive aids; treatment of dermatological problems, e.g., warts; treatment of infective skin and vaginal disorders; keratin softener for skin care prods.
Use Level: Up to 10%
Regulatory: FDA 21CFR §131.144, 133.123, 133.124, 133.129, 133.169, 133.173, 133.178, 133.179, 150.141, 150.161, 172.814, 178.1010, 184.1061, GRAS; USDA 9CFR §318.7, 381.147; BATF 27CFR §240.1051, GRAS; not for use in infant foods; Canada DSL; FEMA GRAS; Japan approved; Europe listed; UK approved; FDA approved for injectables, parenterals, orals, topicals, vaginals; USP/NF, BP, EP, JP compliance
Lactic acid, ammonium salt. See Ammonium lactate

Lactic acid, bimol. ester, stearate, sodium salt. See Sodium stearoyl lactylate

Lactic acid butyl ester. See Butyl lactate; Butyl-(S)-lactate

Lactic acid, butyl ester, butyrate. See Butyl butyryl lactate

Lactic acid esters of mono- and diglycerides of fatty acids

INS472b; E472b

Synonyms: Glyceryl-lacto esters of fatty acids; Lactem; Lactoglycerides; Mono- and diglycerides, lactic acid esters

Definition: Esters of glycerol with lactic acid and fatty acids

Properties: Lt. yel. to amber oily to waxy material; sol. in edible oils and fats; disp. in hot water; insol. in cold water; HLB 3-4; nonionic; HLB 3.0-4.0

Uses: Stabilizer, emulsifier, sequestrant, plasticizer, aerating agent
Chemical Component Cross-Reference

Regulatory: FDA 21CFR §172.852; Europe listed; UK approved
Manuf./Distrib.: AB R Lundberg
   http://www.norfoods.se/undberg
Trade Names Containing: Imwitor® 377; Imwitor® 380

Lactic acid ethyl ester. See Ethyl lactate
Lactic acid iron (2+) salt (2:1). See Ferrous lactate
Lactic acid, magnesium salt. See Magnesium lactate
Lactic acid menthyl ester. See Menthyl lactate
Lactic acid monoethanolamide. See Lactamide MEA
Lactic acid, monopotassium salt. See Potassium lactate
Lactic acid, monosodium salt. See Sodium lactate
Lactic acid, 1,2,3-propanetriyl ester. See Trilactin
Lactic acid, sodium salt. See Sodium lactate
L-Lactic acid sodium salt. See Sodium L-lactate
Lactitol
   CAS 585-86-4; EINECS/ELINCS 209-566-6
   INSINS 966; E966
   Synonyms: 4-O-β-D-Galactopyranosyl-D-glucitol
   Classification: Dimeric polyol
   Definition: Disaccharide polyol obtained by controlled hydrogenation of lactose
   Empirical: C12H24O11
   Properties: Wh. cryst.; odorless; mild sweet taste, no aftertaste; m.w. 344.32
   Uses: Sweetener
   Manuf./Distrib.: AB R Lundberg
      http://www.norfoods.se/undberg
      Danisco Sweeteners
      http://www.daniscosweeteners.com
      Indofine http://www.indofinechemical.com
   Trade Names: Finlac™ DC; Lactitol AC

Lactitol monohydrate
   CAS 81025-04-9; EINECS/ELINCS 209-566-5
   Synonyms: 4-O-β-D-Galactopyranosyl-D-glucitol
   Classification: Disaccharide sugar alcohol
   Empirical: C12H24O11 • H2O
   Properties: M.w. 362.37; m.p. 95-98°C

†=pharmaceutical grade

Toxicology: LD50 (oral, rat) > 30 g/kg, (oral, mouse) 23 g/kg; large doses may cause diarrhea
Uses: Sweetener, bulking agent for pharmaceuticals; laxative; treatment of hepatic encephalopathy
Features: Nutritive
Regulatory: USP/NF, BP, EP compliance
Manuf./Distrib.: Adept Sol’ns,†; Aldrich http://www.sigma-aldrich.com
   Int*l,†; CarboMer† http://www.carbomer.com; Danisco Cultor† http://ingredients.danisco.com
   Trade Names: Lactitol MC; Lacty® M

Lactobiose. See Lactose

Lactoferrin
   Synonyms: Glycoproteins, iron-binding, milk, lactoferrin; Lactotransferrin
   Classification: Polypeptide
   Definition: Iron-binding glycoprotein component of mammalian milk
   Uses: Antiinflammatory factor; dietary supplement for inhibiting bone breakdown and boosting bone growth
   Manuf./Distrib.: Adept Sol’ns,†; Chemetall Chem. Prods,† http://www.chemetall.com
   DMV Int*l Pharma† http://www.dmviinternational.com; Friesland Foods Domo† http://www.domo.nl; Pangaea Sciences† http://www.pangaeasciences.com
   RIA Int*l,† http://www.riausa.com
   Trade Names Containing: Sebomine SB12

Lactoflavin. See Riboflavin

Lactoglucersides. See Lactic acid esters of mono- and diglycerides of fatty acids

Lactol spirits. See Naphtha, light aliphatic

Lactoperoxidase
   CAS 9003-99-0; EINECS/ELINCS 232-668-6
   Synonyms: Peroxidase
   Classification: Peroxidase
   Definition: Enzyme obtained from milk
   Properties: Light brown powd.; m.w. ≈ 77,500
   Storage: Sensitive to humidity; keep under argon
   Uses: Preservative in pharmaceuticals
   Regulatory: Canada DSL
   Manuf./Distrib.: Chemetall Chem. Prods,† http://www.chemetall.com; DMV Int*l
Chemical Component Cross-Reference

**Pharma**† [http://www.dmv-international.com](http://www.dmv-international.com); Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Friesland Foods Domo† [http://www.domo.nl](http://www.domo.nl); Pangaea Sciences† [http://www.pangaeasciences.com](http://www.pangaeasciences.com); Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)

**Trade Names Containing:** Sebomine SB12

**Lactose**

**CAS** 63-42-3; EINECS/ELINCS 200-559-2

**Synonyms:** 4-O-β-Galactopyranosyl D-glucose; Lactin; Lactobiose; Lactose; Lactosum; Milk sugar; Saccharum lactin; Saccharum lactis

**Classification:** Disaccharide

**Definition:** Commercial prod. is the monohydrate

**Empirical:** C₁₂H₂₂O₁₁

**Formula:** C₆H₇O(OH)₄OC₆H₇O(OH)₄

**Properties:** Wh. hard cryst. mass or wh. powd., odorless to sl. char. odor but readily absorbs odors, mildly sweet taste, odorless; sol. in water, alcohol, ether; sl. sol. in alcohol; m.w. 342.34; dens. 1.525 (20 C); m.p. 203.5 C (dec.); b.p. (dec.); loses water of cryst. @ 120 C; stable in air

**Toxicology:** LDLo (IV, dog) 1500 mg/kg; mod. toxic by IV route; found to cause tumors when injected under skin of mice; derivs. can be irritating to the colon; questionable carcinogen; experimental tumorigen, teratogen; TSCA listed

**Precaution:** Mixts. with oxidizers may be explosion hazards

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Tablet/capsule diluent, filler; sweetener in solid oral dosage forms; injectables; inhalation capsules; rectal tablets; topical creams, ointments, powds.; vaginal creams, suppositories; transdermal ointments and patches; eye lotion base; mfg. of penicillin, riboflavin; culture medium; microbial fermentation nutrient

**Regulatory:** FDA 21CFR §131.112, 131.170, 131.200, 131.203, 131.206, 133.124, 133.178, 133.179, 168.122, 169.179, 169.182, GRAS; FDA approved for orals, buccals, inhalants, rectals, topicals, vaginals, transdermals; Canada DSL; USP/NF, BP, EP, JP compliance

α Lactose. See Lactose monohydrate
d-Lactose. See Lactose

Lactose monohydrate
CAS 10039-26-6; 64044-51-5
Synonyms: α Lactose; Milk sugar
Definition: A natural disaccharide consisting of one glucose and one galactose moiety (obtained from milk)
Empirical: C12H22O11 • H2O
Properties: Wh. fine cryst. powd.; sol. in water; insol. in alcohol; m.w. 360.31
Toxicology: May cause eye, skin, and respiratory tract irritation, GI discomfort
Precaution: Avoid breathing dust
NFPA: Health 0, Flammability 1, Reactivity 0
Storage: Store @ ambient temps., in a dry place away from direct sunlight, heat and incompatible materials
Uses: Tablet/capsule diluent; pharmaceutical parenterals, oralss
Regulatory: FDA approved for parenterals, oralss; USP/NF, BP, EP, JP
Manuf./Distrib.: Aastrid Int'l.†
http://www.aastrid.com; Aldrich†
http://www.sigma-aldrich.com; Chemacon GmbH†
http://www.chemacon.de; DMV Int'l. Pharma†
http://www.dmv-international.com; EMD Chems.†

†=pharmaceutical grade

http://www.emdchemicals.com
Ferro Pfanstiehl Europe†; Fluka
http://www.sigma-aldrich.com; Kerry Bio-
Science/Sheffield Prods.†
http://www.sheffield-products.com;
http://www.kerrygroup.com; Mallinckrodt
Baker† http://www.mallbaker.com; Ruger
http://www.rugerchemical.com
Sigma http://www.sigma-
aldrich.com/belgium; Spectrum Quality
Prods.†
http://www.spectrumchemical.com; Voigt

Trade Names: Foremost® NF Lactose 310;
Foremost® NF Lactose 312; Foremost® NF
Lactose 313; Lactochem®; Lactopress®
Spray-Dried
Pharmatose® 50 M; Pharmatose® 80 M;
Pharmatose® 90 M; Pharmatose® 100 M;
Pharmatose® 110 M
Pharmatose® 125 M; Pharmatose® 150 M;
Pharmatose® 200 M; Pharmatose® 350 M;
Pharmatose® 450 M
Pharmatose® DCL 11; Pharmatose® DCL
15; Pharmatose® DCL 21; Pharmatose®
DCL 22; Sheffield Brand Lactose
Monohydrate NF
Trade Names Containing: Ludipress®;
Ludipress® LCE; Pharmatose® DCL 14;
StarLac™

Lactosum. See Lactose
Lactotransferrin. See Lactoferrin
Lactoyl methylsilanol elastinate
Definition: Ester of lactic acid and methylsilanol elastinate
Uses: Conditioner
Trade Names: Lasilium® C

Lady’s thistle extract. See Lady’s thistle
(Silybum marianum) extract

Lady’s thistle (Silybum marianum) extract
CAS 84604-20-6; EINECS/ELINCS 283-298-7
Synonyms: Lady’s thistle extract; Silybum
marianum; Silybum marianum extract
Definition: Extract of the lady’s thistle, Silybum
marianum
Uses: Botanical
Manuf./Distrib.: Carrubba
http://www.carrubba.com
Trade Names Containing: Pronalen® Sensitive
Skin

LAEE. See Ethyl linolenate
Laevosan. See Fructose
Laevulose. See Fructose
LAH. See Lithium aluminum hydride
Lake bordeaux B. See D&C Red No. 34
Lake red C. See D&C Red No. 8; D&C Red No. 9
LAM. See 2-Pyrrrolidone
Landalgin. See Alginic acid
Land plaster. See Calcium sulfate dihydrate

### Laneth
CAS 61791-20-6 (generic)
Synonyms: Lanolin alcohol ethoxylates; Lanolin ethoxylates
Definition: PEG ether of lanolin alcohol
Properties: Yel. to amber solid; nonionic
Uses: Emollient for pharmaceuticals

### Laneth-5
CAS 61790-91-8; 61791-20-6 (generic)
Synonyms: PEG-5 lanolin alcohol; PEG-5 lanolin ether; POE (5) lanolin alcohol; POE (5) lanolin ether
Definition: PEG ether of lanolin alcohol with avg. ethoxylation value of 5
Properties: HLB 7.7; nonionic
Toxicology: TSCA listed
Uses: Emulsifier, emollient, stabilizer, solubilizer, cosolvent, wetting agent, dispersant, conditioner, visc. control agent for pharmaceuticals, creams and lotions

### Laneth-10
CAS 61791-20-6 (generic)
Synonyms: PEG-10 lanolin ether; PEG 500 lanolin ether; POE (10) lanolin ether
Definition: PEG ether of lanolin alcohol with avg. ethoxylation value of 10
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, emollient, stabilizer, solubilizer, cosolvent, wetting agent, dispersant, conditioner, visc. control agent for pharmaceuticals, creams and lotions

### Laneth-15
CAS 61791-20-6 (generic); 84650-19-1
Synonyms: PEG-15 lanolin ether; POE (15) lanolin ether
Definition: PEG ether of lanolin alcohol with avg. ethoxylation value of 15
Properties: Nonionic
Toxicology: TSCA listed

### Laneth-20
CAS 61791-20-6 (generic)
Synonyms: PEG-20 lanolin ether; PEG 1000 lanolin ether; POE (20) lanolin ether
Definition: PEG ether of lanolin alcohol with avg. ethoxylation value of 20
Properties: HLB 11.0; nonionic
Toxicology: TSCA listed
Uses: Emollient, emulsifier, visc. control agent, thickener for pharmaceuticals; plasticizer and solubilizer for hydrophobic substances

### Laneth-25
CAS 61791-20-6 (generic)
Synonyms: PEG-25 lanolin ether; POE (25) lanolin ether
Definition: PEG ether of lanolin alcohol with avg. ethoxylation value of 25
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier for pharmaceuticals

### Laneth-40
CAS 61791-20-6 (generic)
Synonyms: PEG-40 lanolin ether; PEG 2000 lanolin ether; POE (40) lanolin ether
Definition: PEG ether of lanolin alcohol with avg. ethoxylation value of 40
Properties: Nonionic
Toxicology: TSCA listed
Uses: Surfactant, emulsifier, emollient, stabilizer, solubilizer, wetting agent, dispersant, conditioner for pharmaceuticals, creams and lotions

### Laneth-10 acetate
CAS 65071-98-9 (generic)
Synonyms: Acetylated POE (10) lanolin

†=pharmaceutical grade

**Uses:** Emulsifier, emollient, stabilizer, solubilizer, wetting agent, dispersant, conditioner, visc. control agent for pharmaceuticals, topicalcs, creams and lotions

**Trade Names:** Fancol™ LA-15; Polychol 15

**Laneth-16**
CAS 61791-20-6 (generic)
Synonyms: PEG-16 lanolin ether; POE (16) lanolin alcohol; POE (16) lanolin ether
Definition: PEG ether of lanolin alcohol with avg. ethoxylation value of 16
Properties: HLB 13.2-15.0; nonionic
Toxicology: TSCA listed
Uses: Emulsifier for pharmaceuticals
Trade Names: Fancol™ LA-15; Polychol 15

**Laneth-20**
CAS 61791-20-6 (generic)
Synonyms: PEG-20 lanolin ether; PEG 1000 lanolin ether; POE (20) lanolin ether
Definition: PEG ether of lanolin alcohol with avg. ethoxylation value of 20
Properties: HLB 11.0; nonionic
Toxicology: TSCA listed
Uses: Emollient, emulsifier, visc. control agent, thickener for pharmaceuticals; plasticizer and solubilizer for hydrophobic substances

**Laneth-25**
CAS 61791-20-6 (generic)
Synonyms: PEG-25 lanolin ether; POE (25) lanolin ether
Definition: PEG ether of lanolin alcohol with avg. ethoxylation value of 25
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier for pharmaceuticals

**Laneth-40**
CAS 61791-20-6 (generic)
Synonyms: PEG-40 lanolin ether; PEG 2000 lanolin ether; POE (40) lanolin ether
Definition: PEG ether of lanolin alcohol with avg. ethoxylation value of 40
Properties: Nonionic
Toxicology: TSCA listed
Uses: Surfactant, emulsifier, emollient, stabilizer, solubilizer, wetting agent, dispersant, conditioner for pharmaceuticals, creams and lotions

**Laneth-10 acetate**
CAS 65071-98-9 (generic)
Synonyms: Acetylated POE (10) lanolin
**Chemical Component Cross-Reference**

- alcohol; PEG 500 lanolin ether acetate; PEG-10 lanolin ether, acetylated; POE (10) lanolin ether, acetylated
- Definition: Acetylated ester of an ethoxylated ether of lanolin alcohol with avg. ethoxylation value of 10
- Properties: HLB 13.0; nonionic
- Toxicology: May cause allergic contact skin rashes
- Uses: Surfactant, emollient, emulsifier for pharmaceutical topicals
- Regulatory: Canada DSL
- Trade Names: Lipolan 98

**Lanolic acids. See Lanolin acid**

**Lanolin**

- CAS: 8006-54-0 (anhyd.); 8020-84-6 (hyd.); EINECS/ELINCS: 232-348-6
- INS913
- Synonyms: Adeps lanae; Anhydrous lanolin; Degras; Wool fat; Wool grease; Wool wax
- Definition: Deriv. of unctuous fatty sebaceous secretion of sheep, Ovis aries, consisting of complex mixt. of esters of high m.w. aliphatic, steroid, or triterpenoid alcohol and fatty acids
- Properties: Yel.-wh. semisolid to paste; sl. odor; sol. in chloroform, ether; insol. in water; m.p. 38-42 C; iodine no. 18-36; flash pt. > 230 F; nonionic
- Toxicology: Can cause allergic reactions, contact dermatitis; TSCA listed
- Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
- NFPA: Health 0, Flammability 1, Reactivity 0
- Uses: Emollient, ointment base, filler, emulsifier, vehicle in pharmaceuticals, ophthalmics, topicals, suppositories; protectant in diaper rash, hemorrhoidal, and antibiotic ointments
- Regulatory: FDA 21CFR §172.615, 175.300, 176.170, 176.210, 177.1200, 177.2600, 178.3910; Japan approved; FDA approved for ophthalmics, topicals; anhyd.: USP/NF, BP compliance; Canada DSL
- Manuf./Distrib.: AXO Chem.†
  - http://www.axochemical.com; Aldrich†
  - http://www.sigma-aldrich.com; Alfa Chem†
  - http://www.aicma.com; Amerchol†
  - Arch Personal Care Prods.†
  - http://www.archchemicals.com; Ashland†
  - http://www.ashchem.com; Asiamerica
  - http://www.camida.com; Charkit†
  - http://www.charlesbowman.com;
  - Chemacon GmbH†
  - http://www.chemacon.de; Chemetall Chem. Prods.†
  - http://www.chertools.com; CoKEM
  - http://www.cognis-us.com
  - Cornelius Chem. Co. Ltd†
  - http://www.cornelius.co.uk
  - Croda Chem. Europe Ltd http://www.croda.co.uk
  - Croda Inc†
  - http://www.crodausa.com
  - Dow†
  - http://www.dow.com; Fabrichem
  - http://www.fabricheminc.com
  - Fanning† http://www.fanncorp.com; Fluka
  - http://www.sigma-aldrich.com; GMI Prods.†
  - http://www.gmi-originates.com; Gallard-Schlesinger Ind.†
  - http://www.gallardschlesinger.com; Integra†
  - http://www.integrachem.com
  - Kraft Chem.†
  - http://www.kraftchemical.com; Lanaetex
  - Prods.†; Mallinckrodt Baker†
  - http://www.mallbaker.com; Mosselman NV
  - http://www.mosselman.be; Mutchler†
  - http://www.mutchlerchem.com
  - Norman, Fox http://www.norfoxx.com; O.C. Lugo http://www.oclugo.com; Parchem
  - Trading† http://www.par-chem.com; Penta
  - Mfg.† http://www.pentamfg.com;
  - Protameen† http://www.protameen.com
  - RITA† http://www.ritacorp.com; RTD
  - Hallstar† http://www.rtdhallstar.com;
  - Robeco http://www.robecoinc.com; Ruger†
  - http://www.rugerchemical.com; Sea-Land
  - http://www.sealandchem.com
  - Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality
  - Prods.†
  - http://www.spectrumchemical.com;
  - Stevenson Cooper
  - http://www.stevensoncooper.com;
  - Takasago Int'l.† http://www.takasago.com;
  - Thornley http://www.thornleycompany.com
  - Uniqema† http://www.uniqema.com;
  - Universal Preserv-A-Chem†
  - http://www.upichem.com; VWR Int'l.†
  - http://www.vwrsp.com; Voigt Global
  - Distrib.† http://www.vgdllc.com

**Trade Names:** Anhydrous Lanolin Grade 1
Chemical Component Cross-Reference

Anhydrous Lanolin Grade 2; Anhydrous Lanolin P.80; Anhydrous Lanolin P95; Anhydrous Lanolin P95 RA Anhydrous Lanolin Superfine; Anhydrous Lanolin USP Cosmetic; Corona Lanolin; Coronet Lanolin; Emery® 1650 Lanolin USP AAA; Lanolin USP Superfine; Lanolin USP Ultrafine; Lanolin USP; Lanolin USP Cosmetic Grade
Lanolin USP Extra Deodorized; Lanolin USP Pharmaceutical Grade; Lanolin USP Pharmaceutical; Medilan™; Medilan™ Ultra
Pharmalan Ph Eur; Pharmalan USP; Puralan Pure New Lanolin EP/USP; Super Corona Lanolin; Superfine Lanolin
White Swan
Trade Names Containing: Emery® 1740; Forlan 300; Lipowax R2; Vilvanolin® C
See also Lanolin alcohol

Lanolin, acetate; Lanolin, acetates. See Acetylated lanolin

Lanolin acid
CAS 68424-43-1; EINECS/ELINCS 270-302-7
Synonyms: Acids, lanolin; Fatty acids, lanolin; Lanolic acids; Lanolin fatty acids
Definition: Mixture of organic acids obtained from hydrolysis of lanolin
Properties: Pale yel. to brn. waxy solid
Toxicology: TSCA listed
Uses: Emollient, emulsifier, stabilizer for pharmaceuticals
Regulatory: Canada DSL
Manuf./Distrib.: Alfa Chem†
http://www.alfachem1.com; Charles Bowman† http://www.charlesbowman.com; Chemetall Chem. Prods.†
http://www.chemetall.com; CoKEM Assoc.†
http://www.cokem.com; Croda Inc http://www.croda.com;
http://www.crodausa.com
RITA† http://www.ritacorp.com; RTD Hallstar† http://www.rtdhallstar.com;
Universal Preserv-A-Chem†
http://www.upichem.com

Lanolin alcohol
CAS 8027-33-6; EINECS/ELINCS 232-430-1
Synonyms: Alcohols, lanolin; Lanolin; Lanolin alcohols; Wool alcohol; Wool wax alcohol
Definition: Mixture of organic alcohols obtained from hydrolysis of lanolin; main constituents are cholesterol, lanosterol, dehydrolanosterol, various aliphatic alcohols
Properties: Amber hard waxy solid, char. odor; sol. in ether, chloroform; sl. sol. in alcohol; insol. in water; m.p. 56 C; acid no. 2 max.; sapon. no. 12 max.; nonionic
Toxicology: Less likely to cause allergic reaction than lanolin; TSCA listed
Uses: Emulsifier, solubilizer in pharmaceuticals, ophthalmics, topicals
Regulatory: FDA approved for ophthalmics, topicals; USP/NF compliance; Canada DSL
Manuf./Distrib.: Alfa Chem†
http://www.alfachem1.com; Amerchol†
http://www.dow.com/ucc/amerchol/index.htm; Arch Personal Care Prods.
http://www.archchemicals.com; Asiland† http://www.ashchem.com; Asiamerica Int'l.†
Charkit† http://www.charkit.com; Charles Bowman http://www.charlesbowman.com;
Chemacon GmbH†
http://www.chemacon.de; Chemetall Chem. Prods.† http://www.chemetall.com; CoKEM Assoc.†
Cognis/Chems. Group† http://www.cognius.com; Cornelius Chem. Co. Ltd†
http://www.cornelius.co.uk; Croda Inc†
http://www.croda.com;
http://www.crodausa.com; Gallard-Schlesinger Ind.† http://www.gallard-schlesinger.com; Global-Seven
http://www.global-seven.com
Kraft Chem.†
http://www.kraftchemical.com; RITA†
http://www.ritacorp.com; RTD Hallstar†
http://www.rtdhallstar.com; Solvay SA†

Trade Names: Ceralan®; Fancol™ LA; Hartolan; Ritawax; Ritawax Super
Super Hartolan

Trade Names Containing: Amerchol® L-99; Argobase 125T; Argobase EST; Argobase EU; Argobase EUC 2
Colonial LAO; Fancol™ LAO; Forlan 200; Forlan 300; Lexate® PX
Liquid Absorption Base A; Liquid Absorption Base T; Pionier® MAA; Pionier® MAA Weich; Protegin®
Protegin® X; Ritachol®; Vilvanolin® C;
Vilvanolin® CAB; Vilvanolin L-101®

Lanolin alcohol ethoxylates. See Laneth
Lanolin alcohols. See Lanolin alcohol
Lanolin, alcohols, acetates. See Acetylated lanolin alcohol
Lanolin cera. See Lanolin wax
Lanolin ethoxylates. See Laneth
<table>
<thead>
<tr>
<th>Chemical Component Cross-Reference</th>
<th>†=pharmaceutical grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lanolin fatty acids. See <strong>Lanolin acid</strong></td>
<td>Uses: <strong>Water repellent, humectant, conditioner, emollient, emulsifier, lubricant, film-former, pigment dispersant for pharmaceuticals; visc. stabilizer in creams and lotions</strong></td>
</tr>
<tr>
<td>Lanolin fatty acids, isopropyl esters. See <strong>Isopropyl lanolate</strong></td>
<td>Regulatory: Canada DSL</td>
</tr>
<tr>
<td>Lanolin, hydrogenated, acetylated. See <strong>Acetylated hydrogenated lanolin</strong></td>
<td>Trade Names: <strong>Fancor® Lanwax; Natralube™ 120</strong></td>
</tr>
<tr>
<td>Lanolin, hydroxylated. See <strong>Hydroxylated lanolin</strong></td>
<td>**Lanosta-8,24-dien-3-ol, (3β)-. See <strong>Lanosterol</strong></td>
</tr>
<tr>
<td><strong>Lanolin oil</strong></td>
<td><strong>Lanosterol</strong></td>
</tr>
<tr>
<td>CAS 8038-43-5; 70321-63-0; EINECS/ELINCS 274-559-6</td>
<td>CAS 79-63-0; EINECS/ELINCS 201-214-9</td>
</tr>
<tr>
<td>Synonyms: Dewaxed lanolin; Oils, lanolin</td>
<td>Synonyms: Isocholesterol; Kryptosterol; <strong>Lanosta-8,24-dien-3-ol, (3β)-</strong></td>
</tr>
<tr>
<td>Definition: Liq. fraction of lanolin obtained by physical means from whole lanolin</td>
<td>Classification: Sterol</td>
</tr>
<tr>
<td>Properties: Nonionic</td>
<td><strong>Empirical: C₃₀H₅₀O</strong></td>
</tr>
<tr>
<td>Toxicology: LD₅₀ (oral, rat) &gt; 20 g/kg; may cause allergic reactions, contact skin rashes; TSCA listed</td>
<td><strong>Properties:</strong> Wh. cryst. solid; sol. in oxygenated and chlorinated solvs.; insol. in water; m.w. 426.70; m.p. 139-140 C; nonionic</td>
</tr>
<tr>
<td>Uses: Ointment base, emollient, solvent, conditioner, emulsifier, lubricant, moisturizer, penetrant, superfatting agent for pharmaceuticals, topicals, ointments, creams, lotions</td>
<td><strong>Toxicology:</strong> TDLo (parenteral, mammal) 1819 µg/kg</td>
</tr>
<tr>
<td><strong>Trade Names:</strong> Fluiian; Lanogene®; Lipolan R; Liquid Medilan™; Liquid Medilan™ Ultra Ritalan®; Vigilan™; Vigilan™ Super</td>
<td><strong>Uses:</strong> Emollient, emulsifier, gellant for pharmaceutical topicals</td>
</tr>
<tr>
<td><strong>Trade Names Containing:</strong> Emery® 1740</td>
<td><strong>Regulatory:</strong> FDA approved for topicals; Canada DSL</td>
</tr>
<tr>
<td><strong>Manuf./Distrib.:</strong> Croda Chem. Europe Ltd; Sigma <a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a>; Solvay Pharmaceuticals BV <a href="http://www.solvayvitamins.nl/">http://www.solvayvitamins.nl/</a></td>
<td><strong>Manuf./Distrib.:</strong> Croda Inc† <a href="http://www.croda.com">http://www.croda.com</a>; Croda Chem. Europe Ltd; Sigma <a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a>; Solvay Pharmaceuticals BV <a href="http://www.solvayvitamins.nl/">http://www.solvayvitamins.nl/</a></td>
</tr>
<tr>
<td><strong>Lanolin wax</strong></td>
<td><strong>Lapyrus chloride</strong></td>
</tr>
<tr>
<td>CAS 68201-49-0; EINECS/ELINCS 269-220-4</td>
<td>CAS 6272-74-8; EINECS/ELINCS 228-464-1</td>
</tr>
<tr>
<td>Synonyms: Adeps solidus; Deoiled lanolin; <strong>Lanolin cera</strong></td>
<td>Synonyms: N-(Acylcolaminoformulmethyl) pyridinium chloride; 1-(2-Hydroxyethyl)carbamoyl methyl pyridinium chloride laurate; N-(Lauryl colamino formyl methyl) pyridinium chloride; 1-[2-Oxo-2-[[1-oxododecyl oxy] ethyl] amino] ethyl] pyridinium chloride; Pyridinium, 1-(2-hydroxyethylcarbamoylmethyl)-, chloride, dodecanoate; Pyridinium, 1-(2-oxo-2-((2-(1-oxododecyl oxy) ethyl) amino) ethyl)-,</td>
</tr>
<tr>
<td><strong>Definition:</strong> Semisolid fraction of lanolin obtained by physical means from whole lanolin</td>
<td><strong>Empirical:</strong> C₃₀H₅₀O</td>
</tr>
<tr>
<td>Properties: Nonionic</td>
<td><strong>Properties:</strong> Wh. cryst. solid; sol. in oxygenated and chlorinated solvs.; insol. in water; m.w. 426.70; m.p. 139-140 C; nonionic</td>
</tr>
<tr>
<td>Toxicology: <strong>TSCA listed</strong></td>
<td><strong>Toxicology:</strong> TDLo (parenteral, mammal) 1819 µg/kg</td>
</tr>
<tr>
<td><strong>Trade Names:</strong> Fluiian; Lanogene®; Lipolan R; Liquid Medilan™; Liquid Medilan™ Ultra Ritalan®; Vigilan™; Vigilan™ Super</td>
<td><strong>HMIS:</strong> Health 1, Flammability 0, Reactivity 0</td>
</tr>
<tr>
<td><strong>Trade Names Containing:</strong> Emery® 1740</td>
<td><strong>Uses:</strong> Emollient, emulsifier, gellant for pharmaceutical topicals</td>
</tr>
<tr>
<td><strong>Regulatory:</strong> FDA approved for topicals; Canada DSL</td>
<td><strong>Regulatory:</strong> FDA approved for topicals; Canada DSL</td>
</tr>
<tr>
<td><strong>Manuf./Distrib.:</strong> Croda Inc† <a href="http://www.croda.com">http://www.croda.com</a>; Croda Chem. Europe Ltd; Sigma <a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a>; Solvay Pharmaceuticals BV <a href="http://www.solvayvitamins.nl/">http://www.solvayvitamins.nl/</a></td>
<td><strong>Manuf./Distrib.:</strong> Croda Inc† <a href="http://www.croda.com">http://www.croda.com</a>; Croda Chem. Europe Ltd; Sigma <a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a>; Solvay Pharmaceuticals BV <a href="http://www.solvayvitamins.nl/">http://www.solvayvitamins.nl/</a></td>
</tr>
</tbody>
</table>
chloride
Classification: Quaternary ammonium salt
Empirical: C21H35ClN2O3
Properties: Powd.; m.w. 398.97; cationic
Toxicology: LD50 (IV, mouse) 18 mg/kg; poison by IV route; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits toxic vapors of NOx and Cl−
Uses: Pharmaceutic acid; surfactant, antimicrobial, emollient, emulsifier, foaming agent for pharmaceuticals
Regulatory: Canada DSL
Manuf./Distrib.: Somerset Cosmetic Co. http://www.makingcosmetics.com/
Larch gum; Larch turpentine. See Arabinogalactan
Lard
CAS 61789-99-9; EINECS/ELINCS 263-100-5
Synonyms: Adeps suillus; Bleached lard; Fat, lard; Unhydrogenated lard
Definition: Purified fat from abdomen of the hog
Properties: Whits. soft unctuous mass; insol. in water; nonionic
Toxicology: LD50 (oral, rat) > 90 ml/kg; TSCA listed
Precaution: Combustible; subject to spontaneous heating
Uses: Emollient, emulsifier, stabilizer, dispersant, opacifier for pharmaceuticals
Regulatory: FDA 21CFR §176.210, 182.70; Canada DSL
Lard glyceride
CAS 61789-10-4; EINECS/ELINCS 263-032-6
Synonyms: Glycerides, lard mono-; Lard monoglyceride
Definition: Monoglyceride derived from lard
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, stabilizer, dispersant for pharmaceuticals
Lard glycerides
CAS 68953-43-5; 91744-46-6; EINECS/ELINCS 294-609-0
Synonyms: Animal oil, monoglycerides, †=pharmaceutical grade
diglycerides; Glycerides, lard, mono-, di- and tri-; Lard mono-, di- and tri-glycerides
Definition: Mixture of mono-, di-, and triglycerides derived from lard
Properties: Wh. soft unctuous mass; insol. in water; nonionic
Toxicology: LD50 (oral, rat) > 90 ml/kg; TSCA listed
Uses: Emollient, emulsifier, stabilizer, dispersant, opacifier for pharmaceuticals
Lard, hydrogenated. See Hydrogenated lard
Lard mono-, di- and tri-glycerides. See Lard glycerides
Lard monoglyceride. See Lard glyceride
Lard oil
CAS 8016-28-2
Properties: Colorless or ylsh. liq., peculiar odor, bland taste; sol. in benzene, ether, chloroform, carbon disulfide, min. oil; sl. sol. in alcohol; insol. in water; dens. 0.915; m.p. -2 C; pour pt. 0-15 C; iodine no. 65-80; sapon. no. 190-205; flash pt. 215 C; ref. index 1.470
Precaution: Combustible
Uses: Antibiotic fermentation
Regulatory: FDA 21CFR §176.210, 182.70; Canada DSL
Larixic acid; Larixinic acid. See Maltol
Laughing gas. See Nitrous oxide
Lauraldehyde. See Lauric aldehyde
Lauralkonium chloride
CAS 139-07-1; EINECS/ELINCS 205-351-5
Synonyms: Benzododecinium chloride; Benzylidyldimethyldodecylammonium chloride; N,N-Dimethyl-N-dodecylbenzenemethanaminium chloride; Dimethyl dodecyl benzyl ammonium chloride; Dimethyl lauril benzyl ammonium chloride; Dodecyl dimethyl benzyl ammonium chloride; Lauryl dimethyl benzyl
Chemical Component Cross-Reference

ammonium chloride

Classification: Quaternary ammonium salt
Empirical: $\text{C}_2\text{H}_3\text{N} \cdot \text{Cl}$
Properties: Solid; m.w. 339.99; m.p. 31-32 C; cationic
Toxicology: LD50 (oral, rat) 400 mg/kg, (IP, rat) 100 mg/kg; poison by ing. and IP routes; skin and eye irritant; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of NOx, NH3, and Cl-
Uses: Preservative, germicide, disinfectant for medical/pharmaceutical apps.
Regulatory: FDA 21CFR §172.165 (limitation 0.25-1.0 ppm), 173.320 (0.05 ± 0.005 ppm), 175.105; Canada DSL
Trade Names: Catinal MB-50A; GEM

†=pharmaceutical grade


Trade Names: NINOL® 30-LL; NINOL® 55-LL; NINOL® 70-SL; NINOL® 96-SL; Schercomid SL-Extra

Trade Names Containing: BIO-TERGE® 804; NINOL® L-9; Schercomid SLM-S; STEPANOL® 360; STEPANOL® ABHS-15C

Lauramide MEA
CAS 142-78-9; EINECS/ELINCS 205-560-1
Synonyms: N-(2-Hydroxyethyl) dodecanamide; Lauric acid monoethanolamide; Lauric monoethanolamide; LMMEA; Monoethanolamine lauric acid amide
Classification: Alkanolamide
Definition: Mixture of ethanolamides of lauric acid
Empirical: $\text{C}_{16}\text{H}_{29}\text{NO}_2$
Formula: $\text{CH}_3(\text{CH}_2)_{10}\text{CONHCH}_2\text{CH}_2\text{OH}$
Properties: Cream wax; m.w. 243.39; bulk dens. 0.4 kg/l; m.p. 85 C; nonionic
Toxicology: TSCA listed
Uses: Foam booster/stabilizer, thickener, emollient, conditioner, detergent for pharmaceuticals
Regulatory: Canada DSL
Trade Names: NINOL® C12 LMP; NINOL® LMP

Lauramide/myristamide DEA
CAS 97926-10-8; EINECS/ELINCS 308-224-3
Synonyms: Amides, C12-14, N,N-bis (hydroxyethyl); Lauric/myristic DEA; Lauric/myristic diethanolamide
Definition: Mixture of ethanolamides of a blend

†=pharmaceutical grade


Trade Names: NINOL® 30-LL; NINOL® 55-LL; NINOL® 70-SL; NINOL® 96-SL; Schercomid SL-Extra

Trade Names Containing: BIO-TERGE® 804; NINOL® L-9; Schercomid SLM-S; STEPANOL® 360; STEPANOL® ABHS-15C

Lauramide DEA
CAS 120-40-1; 52725-64-1; 61971-31-9; EINECS/ELINCS 204-393-1
Synonyms: N,N-Bis (2-hydroxyethyl) dodecanamide; Bis (2-hydroxyethyl) lauramide; N,N-Bis (2-hydroxyethyl) lauramide; N,N-Bis (β-hydroxyethyl) lauramide; Diethanolamine lauric acid amide; N,N-Diethanol lauramide; Lauric acid diethanolamide; Lauric acid polydiethanolamide (2:1); Lauric acid superamide (1:1); Lauric diethanolamide; Lauroyl diethanolamide; Lauryl diethanolamide
Definition: Mixture of ethanolamides of lauric acid
Empirical: $\text{C}_{16}\text{H}_{33}\text{NO}_3$
Formula: $\text{CH}_3(\text{CH}_2)_{10}\text{CON}\left(\text{CH}_2\text{CH}_2\text{OH}\right)_2$
Properties: M.w. 287.50; 1:1 type: wh. cryst. solid; nonionic
Toxicology: LD50 (oral, rat) 2700 mg/kg; mod. toxic by ing.; may produce contact sensitivity; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx
Uses: Emulsifier, visc. control agent in topical dermatological prods.
Regulatory: FDA 21CFR §172.710, 173.315, 175.105, 176.120, 176.210, 177.2260, 177.2800, 178.3130; FDA approved for topicals; Canada DSL
Manuf./Distrib.: ABITEC†
Chemical Component Cross-Reference

of lauric and myristic acids
Formula: \( RCO-N(CH_2CH_2OH)_2 \), \( RCO \) represents the lauric/myristic acid radical
Uses: Surfactant for pharmaceuticals, topicals
Regulatory: FDA approved for topicals

Lauramide/myristamide MEA
Synonyms: Lauric/myristic MEA; Lauric/myristic monoethanolamide
Definition: Mixture of ethanolamides of a blend of lauric and myristic acids
Uses: Surfactant for pharmaceuticals, topicals
Regulatory: FDA approved for topicals

Lauramidopropyl betaine
CAS 4292-10-8; 86438-78-0; EINECS/ELINCS 224-292-6
Synonyms: \( N(\text{Carboxymethyl})-N,N\text{-dimethyl-3-}[(1\text{-oxododecyl}) \text{ amino}]\text{propylammonium hydroxide; Inner salt; (Carboxymethyl)dimethyl-3-}[(1\text{-oxododecyl}) \text{ amino}]\text{lauramidopropyl dimethyl glycine; Lauroylaminopropyldimethyl aminoacetate}
Classification: Zwitterion (inner salt)
Empirical: \( C_{19}H_{38}N_2O_3 \)
Formula: \( CH_3(CH_2)_{10}CONH(CH_2)_{3}N^{+}(CH_3)_{2}CH_2COO^- \)
Properties: Cl. to pale yel liq.; sol. in water; sp. gr. 1.043; visc. 3,000-4,000 cps; m.p. -3 C; b.p. 100 C; pH 8 (10% sol'n.); amphoteric
Toxicology: LD50 (oral, rat) 5000mg/kg; TSCA listed
NFPA: Health 1, Flammability 1, Reactivity 0
Uses: Surfactant for pharmaceuticals
Regulatory: Canada DSL

Lauramidopropyl dimethyl glycine. See Lauramidopropyl betaine

Lauramidopropyl PEG-dimonium chloride phosphate
CAS 83682-78-4
Properties: Cationic
Uses: Bactericide, conditioner, detergent, foaming agent, emulsifier, solubilizer, dispersant, thickener, wetting agent for pharmaceuticals, veterinary prods.

Lauramine oxide
CAS 1643-20-5; 70592-80-2; EINECS/ELINCS 216-700-6; 274-687-2
Synonyms: DDAO; N,N-Dimethyl-1-dodecanamine-N-oxide; Dimethyldodecylamine-N-oxide; N,N-†=pharmaceutical grade

Dimethyldodecylamine oxide; N,N-Dimethyldodecylamine-N-oxide; Dimethyl lauramine oxide; Dimethyl lauramidine oxide; Dodecylmethyamine oxide; N-Dodecylmethyamine oxide; Lauryl dimethyamine oxide; Lauryl dimethyamine-N-oxide; LDAO
Classification: Tertiary amine oxide
Empirical: \( C_{14}H_{31}NO \)
Formula: \( CH_3(CH_2)_{11}NO(CH_3)_2 \)
Properties: Liq.; m.w. 229.41; dens. 0.966 (20/4 C); ref. index 1.379 (20 C)
Toxicology: Severe skin and eye irritant; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx
Uses: Thickener, emollient in pharmaceuticals, topicals; foaming agent for surgical scrubs
Regulatory: FDA approved for topicals; Canada DSL
Trade Names: AMMONYX® DMCD-40; AMMONYX® LO; Empigen® OB; Foamox DML

Laurdimonium hydroxypropyl hydrolyzed collagen. See Lauryldimonium hydroxypropyl hydrolyzed collagen

Laurdimonium hydroxypropyl hydrolyzed wheat protein
CAS 130381-06-5
Synonyms: Dodecanaminium, N,N-dimethyl-N-[3-(wheat-protein-hydrolysate) propyl]-chloride; Lauryl dimonium hydroxypropyl hydrolyzed wheat protein; Protein hydrolysates, wheat germ, [3-(dodecyl(dimethylammonio)-2-hydroxypropyl], chlorides
Classification: Quaternary ammonium chloride
Formula: \([CH_3(CH_2)_{11}N(CH_3)_2CH_2CHOHCH_2R]^+Cl^-\)
where \( R \) rep. hydrolyzed wheat protein moiety
Properties: Clear liq., mild char. odor; sp.gr. 1.05; b.p. > 300 F
Toxicology: May be a skin and eye irritant
Precaution: Avoid strong oxidizing agents; may release oxides of carbon and nitrogen, and ammonia
Uses: Conditioner
Chemical Component Cross-Reference

Trade Names: Hydrotriticum™ QL

Laurel berries. See Laurel (Laurus nobilis) berries

Laurel camphor. See Camphor

Laurel (Laurus nobilis) berries
CAS 977051-01-6; 8007-48-5
FEMA 2612
Synonyms: Laurel berries; Laurus nobilis; Laurus nobilis berries
Definition: Berries of Laurus nobilis
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §182.20, GRAS; FEMA GRAS

Laureth
CAS 9002-92-0 (generic)
Synonyms: C12 fatty alcohol ethoxylate; Lauryl alcohol ethoxylates; PEG lauryl alcohol; POE lauryl alcohol
Definition: PEG ether of lauryl alcohol
Formula: CH₃(CH₂)₁₁(OCH₂CH₂)nOH, n = 2-23
Properties: Liq. to wax; HLB 9.5-17.0 (4-23 EO); nonionic
Uses: Emulsifier for pharmaceuticals; surfactant, wetting agent, foaming agent, bacteriostat, and fungistat for antidandruff shampoos
Trade Names: Emulgen 123P; Nissan Nonion DN-202; Nissan Nonion DN-203; Nissan Nonion DN-209

Laureth-2
CAS 3055-93-4 (generic); 9002-92-0 (generic); 68002-97-1 (generic); EINECS/ELINCS 221-279-7
Synonyms: Diethylene glycol dodecyl ether; 2-[2-(Dodecyloxy) ethoxy] ethanol; PEG-2 lauryl ether
Definition: PEG ether of lauryl alcohol
Empirical: C₁₈H₃₄O₃
Formula: CH₃(CH₂)₁₀CH₂(OCH₂CH₂)ₙOH, avg. n = 2
Properties: Nonionic
Toxicology: TSCA listed
Uses: Thickener, emulsifier, solubilizer for pharmaceuticals
Trade Names: Arlypon® F; Synperonic® L2

Laureth-3
CAS 3055-94-5; 9002-92-0 (generic); 68002-97-1 (generic); EINECS/ELINCS 221-280-2

Laureth-4
CAS 5274-68-0; 9002-92-0 (generic); 68002-97-1 (generic); EINECS/ELINCS 226-097-1
Synonyms: PEG-4 lauryl ether; PEG 200 lauryl ether; POE (4) lauryl alcohol; POE (4) lauryl ether; 3,6,9,12-Tetraoxatetracosan-1-ol
Definition: PEG ether of lauryl alcohol
Empirical: C₂₀H₄₂O₅
Formula: CH₃(CH₂)₁₀CH₂(OCH₂CH₂)ₙOH, avg. n = 4
Properties: HLB 9.5; nonionic
Toxicology: LD₅₀ (oral, rat) 8600 mg/kg, (IV, rat) 27 mg/kg, (IP, mouse) 160 mg/kg; mildly toxic by ing., IV, IP routes; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Surfactant, emulsifier, solubilizer, lubricant, emollient in pharmaceutical topicals
Regulatory: FDA 21CFR §178.3520; FDA approved for topicals
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: Brij® 30; Ethosperse® LA-4; Lipocol L-4; Rhodasurf® L-4; Simulsol® P4; TEGO® Alkanol L 4

Laureth-6
CAS 3055-96-7; EINECS/ELINCS 221-282-3
Synonyms: 3,6,9,12,15,18-Hexaoxatriacontan-1-ol; PEG-6 lauryl ether
Definition: PEG ether of lauryl alcohol
Laureth-7

**CAS**: 3055-97-8; 9002-92-0 (generic); EINECS/ELINCS 221-283-9

**Synonyms**: 3,6,9,12,15,18,21,24,27-Heptaoxatritriacontan-1-ol; PEG-7 lauryl ether; POE (7) lauryl ether

**Definition**: PEG ether of lauryl alcohol

**Empirical**: \( C_{26}H_{54}O_8 \)

**Formula**: \( CH_3(CH_2)_{10}CH_2(OCH_2CH_2)_nOH, \text{avg. } n = 7 \)

**Properties**: Nonionic

**Toxicology**: LD50 (oral, rat) 4150 mg/kg, (IV, rat) 390 mg/kg; poison by IV route; mod. toxic by ing.; irritating to skin and eyes; TSCA listed

**Hazardous Decomp. Prods.**: Heated to decomp., emits acrid smoke and irritating fumes

**Uses**: Emulsifier for antibiotic gels

**Manuf./Distrib.**: Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Fluka [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)

**Trade Names Containing**: Sepigel™ 305

Laureth-9

**CAS**: 3055-99-0; 9002-92-0 (generic); EINECS/ELINCS 221-284-4

**Synonyms**: 3,6,9,12,15,18,21,24,27-Nonaoxanonatriacontan-1-ol; PEG-9 lauryl ether; PEG-9 monododecyl ether; POE (9) lauryl ether

**Definition**: PEG ether of lauryl alcohol

**Empirical**: \( C_{30}H_{62}O_{10} \)

**Formula**: \( CH_3(CH_2)_{10}CH_2(OCH_2CH_2)_nOH, \text{avg. } n = 9 \)

**Properties**: M.w. \( \approx \) 600; sol. in water, ethanol, toluene; misc. with fats, fatty alcohols, and hot min., nat. and syn. oils; nonionic

**Toxicology**: LD50 (oral, mouse) 1170 mg/kg, (IV, mouse) 125 mg/kg; TSCA listed

**Uses**: Pharmaceutical aid; surfactant; spermicide

**Manuf./Distrib.**: Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)

**Trade Names**: Synperonic® L11
Chemical Component Cross-Reference

†=pharmaceutical grade

Sodium laureth-5 carboxylate
Laureth-6 carboxylic acid, sodium salt. See Sodium laureth-6 carboxylate

Lauric acid
CAS 143-07-7; EINECS/ELINCS 205-582-1
FEMA 2614; INS570; E570

Synonyms: Dodecanolic acid; n-Dodecanolic acid; Dodecic acid; Duodecyl acid; Laurostearic acid; 1-Undecanecarboxylic acid

Classification: Fatty acid

Empirical: C_{12}H_{24}O_2

Formula: CH_3(CH_2)_{10}COOH

Properties: Colorless needles; sl. bay oil odor; sol. in benzene, chloroform, alcohol, ether, petrol. ether; insol. in water; m.w. 200.36; dens. 0.833; vapor pressure 1 mm (121 C); m.p. 44 C; b.p. 225 C (100 mm); ref. index 1.4323 (45 C)

Toxicology: LD_{50} (oral, rat) 12 g/kg, (IV, mouse) 131 mg/kg; poison by IV route; mildly toxic by ing.; skin and eye irritant; questionable carcinogen; mutagenic data; TSCA listed

Precaution: Combustible when exposed to heat or flame; reactive with oxidizing materials

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Lubricant, emulsifier in pharmaceuticals; pharmaceutical intermediate


Manuf./Distrib.: Acme-Hardesty
Fleurchem http://www.fleurchem.com;
Fluka http://www.sigma-aldrich.com; Grau
Chemical Component Cross-Reference

Chemical Component Cross-Reference

Aromatics http://www.grau-aromatics.de;
Imperial-OEL-Import http://www.imperial-
oel-import.de; Jarchem Ind.
http://www.jarchem.com
KIC Chems.† http://www.kicchemicals.com;
http://www.kicgroup.com; Kraft Chem.
http://www.kraftchemical.com; Lluch
Essence http://www.lluch-essence.com;
Mallinckrodt Baker† http://www.mallbaker.com;
Mosselman NV http://www.mosselman.be
Parchem Trading† http://www.parchem.com;
Penta Mfg.†
MelChem† http://www.melchem.com; Penta
Mfg. http://www.pentamfg.com; Polarame
Co. Ltd http://www.rctreatt.com
R.C. Treatt & Co. Ltd http://www.rctreatt.com
Robeco http://www.robecoinc.com; SAFC
Specialties
http://www.safcspecialties.com; Sea-Land
http://www.sealandchem.com; Sigma
http://www.sigma-aldrich.com/belgium;
Sigma Specialties
http://www.sigma-aldrich.com/belgium
St. Lawrence
http://www.stlawrencechem.com; Uniqema
Am. http://www.uniqema.com; Universal
Preserv-A-Chem†
http://www.upichem.com; Welch, Holme &
Clark http://www.welch-holme-clark.com
Trade Names: Edenor® C 12 70; Edenor® C
12 98-100; Hystrene® 9512; Laurico 70%;
Laurico 95%
NAA-122; NAA-312; NAA-312S; NAA-415;
Philacid 1200
Lauric acid butyl ester. See Butyl laurate
Lauric acid diethanolamide. See Lauramide
DEA
Lauric acid, 1,2-ethanediyl ester. See Glycol
dilaurate
Lauric acid, isotridecyl ester. See Isotridecyl
laurate
Lauric acid methyl ester. See Methyl laurate
Lauric acid, monoester with 1,2-propanediol. 
See Propylene glycol laurate
Lauric acid monoethanolamide. See 
Lauramide MEA
Lauric acid polydiethanolamide (2:1); Lauric 
acid superamide (1:1). See Lauramide DEA 
Lauric acid p-tolyl ester. See p-Tolyl laurate 
Lauric acid triglyceride. See Trilaurin 
Lauric alcohol. See Lauryl alcohol

†=pharmaceutical grade

Lauric aldehyde
CAS 112-54-9; EINECS/ELINCS 203-983-6
FEMA 2615
Synonyms: Aldehyde C-12; Aldehyde C-12
lauric; Aldehyde C-12 lauryl; C-12 aldehyde,
lauric; Dodecanal; 1-Dodecanal; n-
Dodecanal; 1-Dodecyl aldehyde; n-Dodecyl
aldehyde; Duodecyl aldehyde;
Lauraldehyde; Lauraldehyde; Lauryl
aldehyde
Empirical: C12H24O
Formula: CH3(CH2)10CHO
Properties: Colorless to yel. liq. or cryst. solid,
char. fatty floral odor; sol. in 90% alcohol, fixed
oils, propylene glycol; insol. in water, glycerin;
m.w. 184.32; dens. 0.830 (20/4 C); m.p. 44 C;
b.p. 237 C; flash pt. 101 C; ref. index 1.435 (20
C)
Toxicology: LD50 (oral, rat) 23 g/kg; mildly
toxic by ing.; human skin irritant; TSCA
listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to
decomp., emits acrid smoke and irritating
fumes
Storage: Store under nitrogen
Uses: Synthetic flavor for pharmaceuticals
Features: Sweet flavor
Regulatory: FDA 21CFR §172.515; FEMA
GRAS; Canada DSL
Manuf./Distrib.: Aceto http://www.aceto.com;
Advanced BioTech http://www.adv-
bio.com; Alfa Aesar http://www.alfa.com;
Augustus Oils Ltd http://www.augustus-
oils.ltd.uk; Axxence Aromatic GmbH
http://www.axxence.com;
http://www.axxence.de
Cargill Flavors & Fruit Systems USA
http://www.flavors-fruit-systems.com;
Fleurechem http://www.fleurechem.com;
Fluka http://www.sigma-aldrich.com;
Givaudan Fragrances
http://www.givaudan.com; Kao Corp.
http://www.kao.co.jp
MelChem† http://www.melchem.com; Penta
Mfg. http://www.pentamfg.com; Polarame
Co. Ltd http://www.rctreatt.com; SAFC
Specialties http://www.safcspecialties.com
Sigma http://www.sigma-
aldrich.com/belgium; Supelco
http://www.sigma-aldrich.com

Lauric diethanolamide. See Lauramide DEA
Chemical Component Cross-Reference

Lauric monoethanolamide. See Lauramide MEA
Lauric/myristic DEA; Lauric/myristic diethanolamide. See Lauramide/myristamide DEA
Lauric/myristic MEA; Lauric/myristic monoethanolamide. See Lauramide/myristamide MEA
Laurinaldehyde. See Lauric aldehyde
Laurine dimethyl acetal. See Hydroxycitronellal dimethyl acetal
Laurinic alcohol. See Lauryl alcohol
Lauroamphocarboxyglycinate; Lauroamphodiacetate. See Disodium lauroamphodiacetate
Lauroampho PEG-glucinate phosphate

CAS 83682-77-3
Properties: Cationic
Uses: Detergent, bactericide, conditioner, foaming agent, emulsifier, solubilizer, dispersant, thickener, and wetting agent for pharmaceuticals, veterinary products.

Laurostearic acid. See Lauric acid
Lauroylaminopropyldimethyl aminoacetate. See Lauramidopropyl betaine
Lauroyl diethanolamide. See Lauramide DEA

Lauroyl lysine
CAS 52315-75-0; EINECS/ELINCS 257-843-4
Synonyms: Lauroyl-1-lysine; Lauroyl-L-lysine
Definition: Lauroyl deriv. of lysine
Empirical: C_{18}H_{36}N_{2}O_{3}
Formula: CH_{3}(CH_{2})_{10}CONH(CH_{2})_{4}CHNH_{2}COOH
Properties: Wh. cryst. powd.; insol. in almost all solvs. except strong acidic and alkaline solns.; sol. in water @ pH < 1 and > 12; amphoteric
Toxicology: LD_{50} (oral, mouse) > 5.0 g/kg; nonirritating and nonsensitizing to skin, nonirritating to eyes
Uses: Visc. control agent, surface modifier, coemulsifier, cosurfactant in pharmaceuticals
Trade Names: Amihope LL
Trade Names Containing: Liponyl 20LL

Lauroyl sarcosine; Lauroyl-L-sarcosine. See Lauryl sarcosine

CAS 97-78-9; EINECS/ELINCS 202-608-3
Synonyms: N-Lauroylsarcosine; N-Methyl-N-(1-oxododecyl) glycine
Definition: N-lauryl deriv. of N-methylglycine
Empirical: C_{15}H_{34}N • Cl
Formula: CH_{3}(CH_{2})_{11}N(CH_{3})_{3}Cl
Properties: Wh. liq.; sol. in water and alcohol; m.w. 263.89; surf. tens. 33 dynes/cm (0.1% aq.); cationic
Toxicology: TSCA listed
Precaution: Nonflammable
Uses: Bactericide for antiseptics
Regulatory: USA permitted; JSCI, Europe listed; Canada DLS
Manuf./Distrib.: AMRESCO

Lauroyl sarcosine, sodium salt. See Sodium lauroyl sarcosinate

Laurtrimonium chloride
CAS 112-00-5; EINECS/ELINCS 203-927-0
Synonyms: Dodecyl trimethyl ammonium chloride; Lauryl trimethyl ammonium chloride; LTAC, N,N,N-Trimethyl-1-dodecanaminium chloride
Classification: Quaternary ammonium salt
Empirical: C_{15}H_{34}N • Cl
Formula: CH_{3}(CH_{2})_{11}N(CH_{3})_{3}Cl
Properties: Wh. liq.; sol. in water and alcohol; m.w. 263.89; surf. tens. 33 dynes/cm (0.1% aq.); cationic
Toxicology: TSCA listed
Precaution: Nonflammable
Uses: Bactericide for antiseptics
Regulatory: USA permitted; JSCI, Europe listed; Canada DLS
Manuf./Distrib.: AMRESCO

Laurus nobilis; Laurus nobilis berries. See Laurel (Laurus nobilis) berries

Lauryl acetate
CAS 112-66-3; EINECS/ELINCS 203-995-1
FEMA 2616
### Chemical Component Cross-Reference

**Synonyms:** Acetate C-12; Acetic acid, dodecyl ester; Dodecanol acetate; 1-Dodecanol acetate; Dodecan-1-ol acetate; Dodecyl acetate; Dodecyl alcohol acetate

**Empirical:** C₁₄H₂₆O₂
**Formula:** C₁₂H₂₅OOCCH₃

**Properties:** Colorless liq., citrus-rose odor; sol. in most org. solvs.; m.w. 228.38; dens. 0.865; b.p. 150 C 915 mm; flash pt. > 230 F; ref. index 1.430-1.433

**Toxicology:** Primary skin irritant; TSCA listed

**Precaution:** Combustible

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Citrus flavor

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Manuf./Distrib.:**
- Fleurchem
  - [http://www.fleurchem.com](http://www.fleurchem.com)
- Grau Aromatics
  - [http://www.grau-aromatics.de](http://www.grau-aromatics.de)
- Prodasynth
  - [http://www.prodasynth.com](http://www.prodasynth.com)
- SAFC Specialties
  - [http://www.safcspecialties.com](http://www.safcspecialties.com)
- Sigma
  - [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)

**Lauryl alcohol**

**CAS:** 112-53-8; 27342-88-7; EINECS/ELINCS 203-982-0

**FEMA:** 2617

**Synonyms:** Alcohol C12; C12 linear primary alcohol; 1-Dodecanol; Dodecan-1-ol; n-Dodecanol; n-Dodecan-1-ol; Dodecyl alcohol; 1-Dodecyl alcohol; n-Dodecyl alcohol; Dodecyl alcohol; 1-Hydroxydodecane; Lauric alcohol; Laurinic alcohol; n-Lauryl alcohol; Lauryl alcohol, narrow-cut

**Classification:** Primary aliphatic alcohol; fatty alcohol

**Empirical:** C₁₂H₂₆O
**Formula:** CH₃(CH₂)₁₀CH₂OH

**Properties:** Colorless leaflets, liq. above 21 C, floral odor; sol. in alcohol, ether, oxygenated solvs.; insol. in water; m.w. 186.33; dens. 0.8309 (24/4 C); m.p. 24 C; b.p. 259 C; flash pt. (CC) 127 C; ref. index 1.440-1.444

**Toxicology:** LD₅₀ (oral, rat) 12,800 mg/kg, (dermal, guinea pig) > 8310 mg/kg; mod. toxic by IP route; mildly toxic by ing.; severe human skin irritant; weak to mod. carcinogen; experimental tumorigen; TSCA listed

<table>
<thead>
<tr>
<th>Precaution</th>
<th>Combustible; reactive with oxidizing materials; incompat. with acetaldehyde, acids, and chlorine (vigorous or violent reactions possible)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazardous Decomp. Prods.</td>
<td>CO, CO₂; heated to decomp., emits acrid smoke and irritating fumes</td>
</tr>
<tr>
<td>NFPA</td>
<td>Health 0, Flammability 1, Reactivity 0</td>
</tr>
<tr>
<td>Storage</td>
<td>Store in suitable labeled containers, protected from damage</td>
</tr>
<tr>
<td>Uses</td>
<td>Synthetic flavor for pharmaceuticals; mfg. of surfactants used in pharmaceuticals</td>
</tr>
<tr>
<td>Features</td>
<td>Honey, coconut-like flavor</td>
</tr>
<tr>
<td>Regulatory</td>
<td>FDA 21CFR §172.515, 172.864, 175.105, 175.300, 177.1010, 177.1200, 177.1390, 177.2800, 178.3480, 178.3910; FEMA GRAS; Canada DSL</td>
</tr>
<tr>
<td>Manuf./Distrib.</td>
<td>Albemarle; Fleurchem; Gras Chemical; Prodasynth; SAFC Specialties; Sigma; <a href="http://www.sigma-aldrich.com/belgium">http://www.sigma-aldrich.com/belgium</a></td>
</tr>
<tr>
<td><strong>Lauryl alcohol</strong></td>
<td><a href="http://www.mallbaker.com">http://www.mallbaker.com</a>; Mosselman NV; <a href="http://www.mosselman.be">http://www.mosselman.be</a>; Multi-Kem; <a href="http://www.multikem.com">http://www.multikem.com</a>; Penta Mfg.; <a href="http://www.pentamfg.com">http://www.pentamfg.com</a>; Procter &amp; Gamble; <a href="http://pgchemicals.com">http://pgchemicals.com</a></td>
</tr>
<tr>
<td><strong>Lauryl alcohol</strong></td>
<td><a href="http://www.symrise.com">http://www.symrise.com</a>; Protameen; <a href="http://www.protameen.com">http://www.protameen.com</a>; SAFC Specialties</td>
</tr>
</tbody>
</table>
Chemical Component Cross-Reference

United Coconut Chem.
http://www.cocochem.ph
Universal Preserv-A-Chem†
http://www.upichem.com; VWR Int’l.†
http://www.vwrsp.com; Whyte Chems. Ltd
http://www.hytechchemicals.co.uk

Trade Names: Cachalot® L-90; NAA-42;
Nacol® 12-96; Nacol® 12-99
Trade Names Containing: Prolipid® 141

†=pharmaceutical grade

Lauryl dimonium hydroxypropyl hydrolyzed wheat protein. See Laurdimonium hydroxypropyl hydrolyzed wheat protein
Lauryl gallate. See Dodecyl gallate

Lauryl glucoside
CAS 110615-47-9; 113976-90-2
Synonyms: Dodecyl glucoside; Lauryl polyglucose

Lauryl lactate
CAS 6283-92-7; EINECS/ELINCS 228-504-8
Synonyms: Dodecyl 2-hydroxypropanoate; Dodecyl lactate; 2-Hydroxypropionic acid, dodecyl ester

Lauryl methyl gluceth-10
hydroxypropylidonium chloride
CAS 123005-57-2
UN 3082

Definition: Quaternary ammonium salt prepared by reaction of methyl gluceth-10 with a dimethyl dodecylammonium substituted epoxide

Properties: Yel. liq.; sol. in water

Toxicology: LD50 (oral, rat) > 5000 mg/kg; nonirritating to eyes, mildly irritating to skin; TSCA listed

Uses: Emollient, lubricant for topical pharmaceuticals; antitackifier in antiperspirants

Regulatory: Canada DSL

Manuf./Distrib.: A&E Connock
http://www.connock.co.uk

Trade Names: Ceraphyl® 31

Lauryl methyl gluceth-10 hydroxypropylidonium chloride

Lauryl dimonium hydroxypropyl hydrolyzed collagen

CAS 118441-80-8

Synonyms: Laurdimonium hydroxypropyl hydrolyzed collagen; Laurydimonium hydroxypropyl amino hydrolyzed animal protein

Classification: Quaternary ammonium chloride

Formula: [CH3(CH2)11N(CH3)2CH2CHOHCH2R]+Cl–
where R rep. hydrolyzed collagen moiety

Uses: Emollient in pharmaceutical topicals
Trade Names: Croquat L
Lauryl oleate  
CAS 36078-10-1; EINECS/ELINCS 252-862-4  
Synonyms: Dodecyl oleate; Oleic acid, lauryl ester  
Definition: Ester of lauryl alcohol and oleic acid  
Emulsion: C₃₀H₅₈O₂  
Uses: Emollient  
Manuf./Distrib.: Sigma  
Trade Names: Glucquat® 125, Lauryl oleate

Lauryl polyglucose  
CAS 1559  
Synonyms: Dodecyl oleate; Oleic acid, lauryl ester

Lauryl pyrrolidone  
CAS 2687-96-9; 55257-88-0; EINECS/ELINCS 403-730-1  
Synonyms: 1-Dodecyl-2-pyrrolidinone; N-Dodecylpyrrolidinone; N-Dodecyl-2-pyrrolidone; 1-Lauryl-2-pyrrolidone; 2-Pyrrolidinone, 1-dodecyl-  
Classification: Substituted heterocyclic compd.; nonaromatic amide  
Empirical: C₁₆H₃₁NO  
Properties: M.w. 253.48; dens. 0.890; b.p. 202-205 (11 mm); flash pt. > 230 F; ref. index 1.4660; nonionic  
Toxicology: LD₅₀ (oral, rat) 1300 mg/kg; mod. toxic by in.; TSCA listed  
Precaution: Combustible  
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOₓ  
Uses: Absorption enhancer in pharmaceuticals; drug  
Features: VOC replacement  
Regulatory: Canada DSL  
Manuf./Distrib.: Aldrich  
Trade Names: Surfadone® LP-300

1-Lauryl-2-pyrrolidone  
Definition: Essential oil from flowers of lavandin, Lavandula hybrida; main constituent: linalool
Lavandin oil. See Lavandin (Lavandula hybrida) oil

Lavandula angustifolia; Lavandula angustifolia oil. See Lavender oil

Lavandula hybrida; Lavandula hybrida oil. See Lavandin (Lavandula hybrida) oil

Lavandula officinalis; Lavandula officinalis oil; Lavender flowers oil. See Lavender oil

Lavender oil
CAS 8000-28-0
FEMA 2622

Synonyms: Lavandula angustifolia; Lavandula angustifolia oil; Lavandula officinalis; Lavandula officinalis oil; Lavender flowers oil

Definition: Volatile oil obtained from flowers of Lavandula angustifolia or L. officinalis, contg. linalyl acetate, linalool, pinene, limonene, geraniol, etc.

Properties: Colorless to yel. liq., camphor-lavender odor; sol. in 4 vols 70% alcohol; misc.

†=pharmaceutical grade

with abs. alcohol, CS₂; sl. sol. in water; dens. 0.875-0.888; flash pt. 166 F; ref. index 1.459-1.470 (20 C)

Toxicology: LD₅₀ (oral, rat) 9040 mg/kg; mildly toxic by ing.; skin irritant; may cause adverse skin reactions when the skin is exposed to sunlight; can cause allergic reaction; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Storage: Keep cool, well closed; protect from light

Uses: Colorant, natural flavor for pharmaceuticals, topical, mouthwashes, dentifrices; odor masking agent for unpleasant odors in ointments; carminative

Use Level: 0.5 mg/kg considered safe oral dose

Regulatory: FDA 21 CFR §182.20, GRAS; 27 CFR §21.65, 21.151; FEMA GRAS; Japan approved; FDA approved for topicals; BP, EP compliance; Canada DSL

Chemical Component Cross-Reference

http://www.janousek.com; MelChem†
http://www.melchem.com
Millennium†
http://www.millenniumchem.com; Penta
Mfg.† http://www.pentamfg.com; Polarome
Int'l. http://www.polarome.com; Ruger†
http://www.rugerc hemical.com; SAFC
Specialties http://www.safcspecialties.com
Sarcom http://www.sarcominc.com;
Spectrum Quality Prods.†
http://www.spectrumchemical.com; Treatt
USA http://www.rcrteatt.com; U.S.
Synthetics; Ultra Int'l.
http://www.ultrainternational.com
Universal Preserv-A-Chem†
http://www.upic hem.com; Voigt Global
Trade Names: Custosense LAV

Lawson
CAS 83-72-7; EINECS/ELINCS 201-496-3
Synonyms: CI 75480; Flower of paradise;
Henna; 2-Hydroxy-1,4-naphthalenedione; 2-
Hydroxynaphthoquinone; 2-Hydroxy-1,4-
naphthoquinone; 1,4-Naphthalenedione, 2-
hydroxy-; 1,4-Naphthoquinone, 2-hydroxy-;
Natural orange 6
Classification: Substituted naphthoquinone
Definition: Chemical present in henna
Empirical: C₁₀H₆O₃
Properties: Yel. prisms or powd.; sol. in DMSO,
acetic acid, CCl₄; sol. < 1 mg/ml in water, 95%
ethanol, acetone; insol. in ether, benzene;
m.w. 174.16; m.p. 192°C (dec.); UV
wavelength 452 nm max.
Toxicology: LD₅₀ (IP, mouse) 100 mg/kg;
poison by IP route; may be harmful by inh.,
ing., or skin absorp.; an allergen; makes
hair brittle; absorbed by the skin; irritating
to eyes, skin, mucous membranes, upper
respiratory tract; tumorigenic (active as anti-
cancer agent); mutagenic data; TSCA listed
Precaution: Probably combustible; incompat.
with strong oxidizing agents
Hazardous Decomp. Prods.: Toxic fumes of
CO, CO₂; heated to decomp., emits acid
smoke and irritating vapors; emits toxic
fumes under fire conditions
Storage: Store refrigerated; keep tightly closed
Uses: Pharmaceutic aid; antifungal
Manuf./Distrib.: Acros Org.
http://www.acros.com; Aldrich
http://www.sigma-aldrich.com; Alfa Aesar
http://www.alfa.com; CMS Chems. Ltd
†=pharmaceutical grade
LDAO See Lauramine oxide

Lead
CAS 7439-92-1; EINECS/ELINCS 231-100-4
Synonyms: CI 77575; Lead flake; Pigment
metal 4
Classification: Metallic element
Empirical: Pb
Properties: Metallic, heavy ductile soft gray solid;
tarnishes readily in the atmosphere; sol. in
dilute nitric acid; insol. in water; at.wt. 207.19;
dens. 11.35; m.p. 327.4°C; b.p. 1755°C
Toxicology: ACGIH TLV/TWA 0.15 mg(Pb)/m³;
TCLo (inh., human) 10 µg/m³; LDLo (IP, rat)
1000 mg/kg; poison by ing.; mod. toxic by
IP route; toxic by inh. of dust or fume;
cumulative poison; human systemic effects;
affects nervous, renal, reproductive, blood,
and GI systems; blood levels in children <
10 µg/dL can decrease IQ scores;
questionable carcinogen; experimental
reproductive effector; human mutagenic
data; common air contaminant; TSCA listed
Precaution: Noncombustible; dust can be
flamm. and moderately explosive when
exposed to heat or flame; violent reactions
possible; can react vigorously with oxidizers
Hazardous Decomp. Prods.: Heated to
decomp., emits highly toxic fumes of Pb
Uses: Colorant in trace amounts for topical
pharmaceuticals
Regulatory: Canada DSL
Manuf./Distrib.: Aldrich http://www.sigma-
aldrich.com; Asarco
http://www.asarco.com; Atlantic Equip.
Belmont Metals
http://www.belmontmetals.com; Cerac
http://www.cerac.com
Fluka http://www.sigma-aldrich.com; Noah
http://www.noahitech.com; Sigma
http://www.sigma-aldrich.com/belgium
Indofine http://www.indofinechemical.com
Lancaster Synthesis http://www.alfa.com;
Pfaltz & Bauer
http://www.pfaltzandbauer.com; Sigma
http://www.sigma-aldrich.com/belgium; TCI
Am. http://www.tciamerica.com

Lead flake. See Lead
Leaf alcohol.  See cis-3-Hexenol
Leaf green.  See Chromium oxide (ic)
LEAR.  See Rapeseed (Brassica campestris) oil

Lecithin
CAS 8002-43-5; 8030-76-0; 93685-90-6; 97281-47-5; EINECS/ELINCS 232-307-2; 310-129-7
INS322; E322
Synonyms:  Phosphatidylcholine; Soya lecithin
Definition:  Mixture of the diglycerides of stearic, palmitic and oleic acids linked to the choline ester of phosphoric acid; found in plants and animals
Formula:  C₈H₁₇O₅NRR’, R and R’ are fatty acid groups
Properties:  Nearly wh. to yel. or brn. waxy mass or thick fluid, nutlike odor, bland taste; sol. in chloroform, ether, petrol. ether, min. oils, fatty acids, hydrocarbon and chlorinated solvs.; insol. but swells in water and salt sol’ns.; insol. in veg. oils; dens. 1.0305 (24/4 C); HLB 8.0; acid no. 15-30; iodine no. 95; sapon. no. 196; nonionic
Toxicology:  May cause bronchoconstriction in people with asthma; TSCA listed
Hazardous Decomp. Prods.:  Heated to decomp., emits acrid smoke and irritating fumes
Storage:  Refrigerate
Uses:  Surfactant, emulsifier, solubilizer, dispersant, wetting agent, stabilizer, emollient for pharmaceuticals, liposome technology, orals, topicals; nutrient in gel capsules and tablets; binder in tabletting; choline source in dementia
Features:  Edible
Regulatory:  FDA 21CFR §133.169, 133.173, 133.179, 136.110, 136.115, 136.130, 137.160, 136.165, 136.180, 163.123, 163.130, 163.135, 163.140, 163.145, 163.150, 163.155, 166.40, 166.110, 169.115, 169.140, 169.150, 175.300, 176.170, 184.1400; Canada DSL; GRAS; USDA 9CFR §318.7, 0.5% max. in oleomargarine, 381.147; Japan approved; Europe listed; UK approved; FDA approved for orals, topicals; USP/NF compliance
Manuf./Distrib.:  A&E Connock† http://www.connock.co.uk; AB R Lundberg http://www.norfoods.se/lundberg; ADM Lecithin† http://www.admworld.com; AMRESCO† http://www.amresco-inc.com; Aarhus Karlishamn A/S†

†=pharmaceutical grade

http://www.aak.com/
Lemon balm distillate; Lemon balm extract.
See Balm mint (Melissa officinalis) extract

Lemon (Citrus medica limonum) extract
CAS 84929-31-7; EINECS/ELINCS 284-515-8
FEMA 2623; 2625

Synonyms: Citrus limon extract; Citrus medica limonum; Citrus medica limonum extract; Lemon extract

Definition: Extract of the lemon, Citrus medica var. limonum

Properties: Char. lemon-leaf odor, sour bitter taste; insol. in water; sol. in most fixed oils; sp.gr. 0.8730-0.8790; flash pt. 54 C; ref. index 1.476-1.483

Toxicology: TSCA listed

Storage: 18 mos. when stored in tight glass, aluminum, or double lined containers in a cool area away from direct heat

Uses: Natural flavor for pharmaceuticals; ingred. in sun protection prods.

Reg.: FDA 21CFR §182.20, GRAS; FEMA GRAS; Japan approved (lemon)

Manuf./Distrib.: Carrubba
http://www.carrubba.com; Citrus and Allied Essences http://www.citrusandallied.com; Destilerias Munoz Galve
http://www.dmg.es; Freeman Ind.
http://www.freemanllc.com; Grau Aromatics http://www.grau-aromatics.de; Virginia Dare
http://www.virginiadare.com

Trade Names Containing: Uninontan U 34

Lemon (Citrus medica limonum) juice
CAS 68916-88-1

Synonyms: Citrus limonum; Citrus medica limonum juice; Lemon juice

Definition: Liq. expressed from the fresh pulp of Citrus medica limonum

Toxicology: Can cause allergic reactions

Uses: Natural flavor for pharmaceuticals, orals; tonic; refrigerant; antiscorbutic

Reg.: FDA 21CFR §145.115, 145.125, 145.130, 145.134, 145.135, 145.140, 145.145, 145.170, 145.175, 145.185, 145.190, 146.114, 146.120, 146.187, 150.121, 155.120, 155.130, 155.170, 155.191, 155.194, 155.200, 169.115, 169.140, 169.150, 182.20, GRAS; FDA approved for orals

Manuf./Distrib.: Vicente Trapani
http://www.vicentetrapani.com

Lemon (Citrus medica limonum) oil
CAS 8008-56-8; EINECS/ELINCS 284-515-8
### Chemical Component Cross-Reference

#### FEMA 2625

**Synonyms:** Cedro oil; Citrus limon oil; Citrus limonum; Citrus medica limonum; Citrus medica limonum oil; Lemon oil; Lemon oil, coldpressed; Lemon oil, expressed; Lemon peel oil

**Definition:** Volatile oil expressed from the fresh peel of fruit of *Citrus limon*, contg. limonene, terpinene, phellandrene, pinene

**Properties:** Pale yel. to greenish-yel. liq., lemon peel odor and taste; misc. with dehydrated alcohol, CS₂, glac. acetic acid; sl. sol. in water; dens. 0.849-0.855 (25/25 C); ref. index 1.4742-1.4755 (20 C)

**Toxicology:** 

**LD50** (oral, rat) 2840 mg/kg; mod. toxic by ing.; skin irritant; questionable carcinogen; experimental tumorigen; TSCA listed

**Precaution:** Do not use if terebinthine odor can be detected

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Storage:** Keep cool, well closed; protect from light

**Uses:** Natural flavor for pharmaceuticals, orals; topicals; mfg. of terpeneless lemon oil

**Use Level:** ADI 500 µg/kg (WHO)

**Regulatory:** FDA 21 CFR §146.114, 146.120, 146.121, 146.126, 146.190, 172.230, 173.240, 182.20, GRAS; FEMA GRAS; Europe listed, no restrictions; FDA approved for orals, topicals; BP, EP compliance; Canada DSL

**Manuf./Distrib.:** Advanced Synthesis Tech.


#### FEMA 2624

**Synonyms:** Andropogon nardus; Andropogon nardus oil; Cochin; Cymbopogon flexuosus; Cymbopogon flexuosus oil; East Indian lemongrass oil

**Definition:** Oil from steam distillation of grasses of *Cymbopogon flexuosus* and *Andropogon nardus*, contg. citral

**Properties:** Dk. yel. to brn.-red liq., heavy lemon odor; sol. in min. oil, propylene glycol, alcohol; insol. in water, glycerin; dens. 0.894-0.902; ref. index 1.483

**Toxicology:** 

**LD50** (oral, rat) 5600 mg/kg; mildly toxic by ing.; skin irritant

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Storage:** Protect from light

**Uses:** Natural flavor for pharmaceuticals; carminative

**Regulatory:** FDA 21 CFR §182.20, GRAS; FEMA GRAS; Europe listed, no restrictions

Lemongrass oil West Indian

CAS 8007-02-1
FEMA 2624

Synonyms: Cymbopogon citratus; Cymbopogon citratus oil; Guatemala lemongrass oil; Lemongrass oil; Madagascar lemongrass oil; Verbena oil, Indian; West Indian lemongrass oil

Definition: Volatile oil from steam distillation of fresh Cymbopogon citratus grasses contg. mainly citral

Properties: Lt. yel. to brn. liq., it. lemon odor; sol. in alcohol, min. oil, propylene glycol, chlorinated solvs.; sl. sol. in glycerol; insol. in water; dens. 0.869-0.894; ref. index 1.483

Toxicology: LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; skin irritant; TSCA listed

Precaution: Combustible

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Storage: Keep cool, well closed; protect from light

Uses: Natural flavor for pharmaceuticals; carminative

Regulatory: FDA 21CFR §182.20, GRAS; FEMA GRAS; Canada DSL


Lemon juice. See Lemon (Citrus medica limonum) juice

Lemon oil; Lemon oil, coldpressed; Lemon oil, expressed; Lemon peel oil. See Lemon (Citrus medica limonum) oil

Lepidine

CAS 491-35-0; EINECS/ELINCS 207-734-2

FEMA 2744

Synonyms: Cincholepidine; 4-Methylquinoline; γ-Methylquinoline; p-Methylquinoline

Empirical: C10H8N

Properties: Colorless oily liq., quinoline odor; turns reddish-brn. in light; sl. sol. in water; misc. with alcohol, benzene, ether; m.w. 143.19; dens. 1.083 (20/4 C); m.p. 9-10 C; b.p. 260-263 C; congeal pt. 0 C; ref. index 1.620 (20 C)

Toxicology: Irritant; mutagen; TSCA listed

Storage: Photosensitive; protect from light

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

Leu; Leucine (INCI). See L-Leucine

L-Leucine

CAS 61-90-5; EINECS/ELINCS 200-522-0

FEMA 3297; INS641

Synonyms: L-α-Aminoisocaproic acid; α-Aminoisocaproic acid; 2-Amino-4-methylpentanoic acid; 1,2-Amino-4-methylvaleric acid; 2-Amino-4-methylvaleric acid; α-Amino-γ-methylvaleric acid; Leu; Leucine (INCI); 4-Methylnorvaline; Norvaline, 4-methyl-; Valeric acid, 2-amino-4-methyl-

Classification: Essential amino acid

Definition: Avail. commercially as the naturally occurring L(+)-enantiomer

Empirical: C6H13NO2

Properties: Wh. cryst.; sol. in water, dil. HCl; sl. sol. in alcohol; insol. in ether; m.w. 131.20; dens. 1.291 (18 C); m.p. 295 C; subl. @ 145-148 C

Toxicology: LD50 (IP, rat) 5379 mg/kg; LDLo (subcut., rabbit) 2620 mg/kg; mod. toxic by subcut. route; experimental teratogen, reproductive effects; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx

Uses: Nutrient; dietary supplement; biochemical research; infusion sofs.; diagnostic aids; raw material in peptide drugs; flavor for pharmaceuticals

Regulatory: BP, EP compliance; FDA 21CFR §172.320, 8.8% max., 172.804; FEMA GRAS; Japan approved; Canada DSL
Levomenol

CAS 23089-26-1

Synonyms: (-)-α-Bisabolol; (-)-6-Methyl-2-(4-methyl-3-cyclohexen-1-yl)-5-hepten-2-ol

Definition: Natural monocyclic sesquiterpene alcohol

Empirical: C_{15}H_{26}O

Properties: Colorless, visc. oil; m.w. 222.37; dens. 0.927-0.935 (20/4 C); b.p. 153 C; ref. index 1.493-1.499 (20 C)

Uses: Transepidermal penetration enhancer for pharmaceutical topicals, skin care prods.; anti-inflammatory, antimicrobial
Chemical Component Cross-Reference

†=pharmaceutical grade

Chemical Component Cross-Reference

http://www.spectrumchemical.com;
Universal Preserv-A-Chem†
http://www.upichem.com

Levulinic acid, butyl ester. See Butyl levulinate
Levulinic acid, ethyl ester. See Ethyl levulinate
Levulose. See Fructose
Licareol. See Linalool
Licareol acetate. See Linalyl acetate
Lichen extract. See Lichen (Usnea barbata) extract
Lichenic acid. See Fumaric acid
Lichen (Usnea barbata) extract
CAS 84696-53-7; EINECS/ELINCS 283-658-3
Synonyms: Lichen extract; Usnea barbata; Usnea barbata extract
Definition: Extract of the lichen, Usnea barbata
Uses: Preservative, natural bactericide, fungicide in creams and lotions
Regulatory: USA not restricted; Europe listed
Manuf./Distrib.: Carrubba
http://www.carrubba.com
Trade Names Containing: Anti-Dandruff; Usnate AO

Licorice (Glycyrhriza glabra) extract
CAS 84775-66-6; 97676-23-8; EINECS/ELINCS 238-895-2
FEMA 2628
Synonyms: Glycyrrhiza extract; Glycyrhriza glabra; Glycyrrhiza glabra extract; Licorice extract; Licorice root extract; Liquorice extract
Definition: Extract of roots of licorice, Glycyrrhiza glabra
Uses: Natural flavor, flavor enhancer for pharmaceuticals; expectorant/anti-inflammatory in cough medicines; anti-inflammatory for irritated skin treatments, sun care, eye care prods.
Regulatory: FDA 21CFR §184.1408, GRAS; FEMA GRAS; Japan approved
Trade Names Containing: Melarrest™ L; Phytoderm Complex G; Pronalen® Licorice HSC

Licorice root. See Licorice (Glycyrhriza glabra)

Licorice root extract. See Licorice (Glycyrhriza glabra) extract

Lidocaine
CAS 137-58-6
Synonyms: α-Diethylaminoaceto-2,6-xyldide
Empirical: C14H22N2O
Formula: C6H3(CH3)2NHCOCH2N(C2H5)2
Properties: Wh. or sl. yel. cryst. powd.; char. odor; sol. in alcohol, ether, chloroform; insol. in
Lidofenin
CAS 59160-29-1
Synonyms: N-(Carboxymethyl)-N-((2,6-dimethylphenyl) amino)-2-oxoethylglycine; HIDA; ((2,6-Xylylcarbamoyl) methyl) imino) diacetic acid
Empirical: C14H18N2O5
Properties: Solid; m.w. 294.34; m.p. 215-216 C
Toxicology: LD50 (IV, rat) 88 mg/kg, (IP, mouse) 1100 mg/kg; poison by IV route; mod. toxic by IP route; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx
Uses: Pharmaceutical (injectables)
Regulatory: FDA approved for injectables

Manuf./Distrib.: Astral Extracts

http://www.astralextracts.com; Chart
http://www.chartcorp.com; Citrus and Allied Essences http://www.citrusandallied.com; Danisco Seillans http://www.danisco.com; De Monchy Aromatics

†=pharmaceutical grade

solvent naphtha (petroleum). See Naphtha, light aliphatic
Light camphor oil. See Camphor
(Cinnamomum camphora) oil
Light hydrotreated naphtha. See Naphtha, hydrotreated light
Light magnesium carbonate. See Magnesium carbonate
Light mineral oil. See Mineral oil
Light spar. See Calcium sulfate dihydrate
Lignin liquor. See Tall oil
Lignocaine benzyl benzoate. See Denatonium benzoate
Lignoceryl alcohol. See 1-Tetracosanol
Ligroin; Ligroine. See VM&P naphtha
Lilalyde. See Hydroxycitronellal
Lime. See Calcium oxide
Lime acetate. See Calcium acetate
Lime citrate. See Calcium citrate
Lime (Citrus aurantifolia) oil
CAS 8008-26-2; EINECS/ELINCS 290-010-3
FEMA 2631
Synonyms: Citrus aurantifolia; Citrus aurantifolia oil; Distilled lime oil; Lime oil; Lime oil, distilled; Lime oil, expressed (natural); West Indian lime oil
Definition: Volatile oil from fruits of Citrus aurantifolia
Properties: Colorless to greenish-yel. volatile oil; intensely fresh citrus aroma, astringent sour flavor; sol. in most fixed oils, mi. oil; insol. in glycerol, propylene glycol; dens. 0.855-0.863; ref. index 1.475-1.4770 (20 C)
Toxicology: TDLo (oral, mouse, 39 wks intermittent) 67 g/kg; primary skin irritant; questionable carcinogen; experimental tumorigen; mutagenic data; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Natural flavor for pharmaceuticals, orals
Regulatory: FDA 21CFR §172.230, 182.20, GRAS; FEMA GRAS; Japan approved (lime); Europe listed, no restrictions; FDA approved for orals; Canada DSL
Manuf./Distrib.: Astral Extracts

http://www.astralextracts.com; Chart
http://www.chartcorp.com; Citrus and Allied Essences http://www.citrusandallied.com; Danisco Seillans http://www.danisco.com; De Monchy Aromatics
Lime p (+)-Limonene
Lime oil
Lime, slaked
Lime-tree extract
Limestone
(-)-Limonene
(+)-1,8-p-Mentha-1,8-diene
(+)-Limonene
(±)-Limonene
(d,L)-Limonene
;

Chemical Component Cross-Reference

http://www.demonchyaromatics.com
Eramex Aromatics http://www.eramex.de;
F.D. Copeland
http://www.copelandoil.co.uk; Fleurchem
http://www.fleurchem.com; Fuerst Day
Lawson http://www.fdl.co.uk; George Uhe
http://www.heu.com
Givaudan Fragrances
http://www.givaudan.com; J.H. Calo†
http://www.jhcalo.com; SAFC Specialties
http://www.safcspecialties.com; Spectrum
Quality Prods.
http://www.spectrumchemical.com; Treatt
USA http://www.rectreatt.com

Lime, hydrated; Lime milk. See Calcium hydroxide
Lime oil; Lime oil, distilled; Lime oil, expressed (natural). See Lime (Citrus aurantifolia) oil
Lime pyrolignite. See Calcium hydroxide
Lime, slaked. See Calcium hydroxide
Limestone. See Calcium carbonate
Lime-tree extract. See Linden (Tilia americana) extract; Linden (Tilia cordata) extract; Linden (Tilia vulgaris) extract
Lime water. See Calcium hydroxide
Limnanthes alba. See Meadowfoam
(Limnanthes alba) seed oil
(+)-Limonene. See d-Limonene
d-Limonene
CAS 5989-27-5; 68647-72-3; EINECS/ELINCS 227-813-5
UN 1993 (DOT); FEMA 2633
Synonyms: Cajepetene; (+)-Carvene; Cinene;
Dextro-limonene; 4-Isopropenyl-1-
methylcyclohexene; (R)-4-Isopropenyl-1-
methyl-1-cyclohexene; Kautschin; (+)-Limonene; (D)-Limonene; D-(+)-Limonene;
D+ Limonene; R(+)-Limonene; (+)-1,8-p-
Menthadiene; d-p-Menta-1,8-diene; p-
Menta-1,8-diene; (R)-p-Menta-1,8-diene;
(R)-1-Methyl-4-(1-methylene)-
cyclohexene; Orange oil terpenes ex-5-fold;
Orange terpenes
Classification: Unsat. alicyclic hydrocarbon;
terpene
Definition: Naturally occurring C10 cycloolefinic
hydrocarbon; major component in citrus oils
Empirical: C_{10}H_{16}
Formula: CH_{3}C_{6}H_{4}C(CH_{3})=CH_{2}
Properties: Colorless to pale yel. liq., citrus odor;
sol. in alcohol, ether; insol. in water, propylene

†=pharmaceutical grade
glycol; m.w. 136.26; dens. 0.8411 (20 C);
vapor pressure 20 mm Hg (68 C); m.p. -74 C;
b.p. 176-176.4 C; flash pt. (CC) 48 C; ref.
index 1.471; surf. tens. 26.87 dynes/cm; KB value 63 (tech.); VOC 837 g/l; dielec.
const. 2.375; tenacity 1 hr. on blotter
Toxicology: LD50 (oral, rat) 4400 mg/kg, (IV,
rat) 110 mg/kg; poison by IV route; mod.
toxic by IP route; mildly toxic by ing.; skin
irritant; inh. of vapor may cause nose/throat
irritation; target organs: eyes, skin,
respiratory system, kidney; cancer suspect
agent; experimental tumorigen, reproductive
effects; TSCA listed
Environmental: Fully biodeg.; VOC; ThOD 2.35
Precaution: Combustible; incompat. with
strong oxidizers, iodine pentafluoride,
tetrafluoroethylene; explosive reactions
possible
Hazardous Decomp. Prods.: Thermal decomp.
prods.: CO, CO_{2}; heated to decomp., emits
acid smoke and irritating fumes
NFPA: Health 0, Flammability 2, Reactivity 0
Storage: Store in cool, dry, well-ventilated area
out of direct sunlight
Uses: Synthetic flavor for pharmaceuticals;
gallstone solubilizer
Features: Citrus flavor
Use Level: < 50%
Regulatory: FDA 21CFR §182.60, GRAS; FEMA
GRAS; Australia; Canada DSL; Japan ENCS
(no. 3-2245); Philippines PICCS
Manuf./Distrib.: Adrian Amer.
http://www.adrianusa.com; Alchem Ind.
http://www.allchem.com; Astral Extracts
http://www.astralextracts.com; Augustus
Oils Ltd http://www.augustus-oils.ltd.uk; B
D Aromatics http://www.bdaromatics.com
BFA Labs http://www.bfa-lab.com; Cargill
Ind. Oils & Lubes
http://www.techoils.cargill.com; Charkit
http://www.charkit.com; Citrus and Allied
Essences http://www.citrusandallied.com;
Coyne http://www.coynechemical.com
F.D. Copeland
http://www.copelandoil.co.uk; Fleurchem
http://www.fleurchem.com; Florida Chem.
http://www.floridachemical.com; Fluka
http://www.sigma-aldrich.com; Fuerst Day
Lawson http://www.fdl.co.uk
Flavors & Fragrances http://www.iff.com;
J.H. Calo† http://www.jhcalo.com; Langley-
Smith Ltd http://www.langley-smith.co.uk;
Chemical Component Cross-Reference

Millennium/F&F  
http://www.aromachem.com
Mosselman NV  http://www.mosselman.be;
Parchem Trading†  http://www.parchem.com;  Penta Mfg.  
http://www.pentamfg.com;  SAFC  
Specialties  http://www.safcspecialties.com;  Sarcom  
http://www.sarcominc.com  
Sea-Land  http://www.sealandchem.com;  Sigma  
http://www.sigma-aldrich.com/belgium;  Spectrum Quality  
http://www.takasago.com;  Vliengenthart BV  
http://www.vliegenthart.com;  Whyte Chems. Ltd  
http://www.whytechemicals.co.uk

†=pharmaceutical grade

Handbook of Pharmaceutical Additives, Third Edition

[D]-Limonene;  D-(-)-Limonene;  D+ Limonene.  See d-Limonene

dl-Limonene
CAS  138-86-3;  7705-14-8 (±);  EINECS/ELINCS  
205-341-0
UN 2052 (DOT)
Synonyms:  Cajeputene;  Cinene;  Cyclohexene,  
1-methyl-4-(1-methyleneyl);  Dipanol;  
Dipentene (INCI);  Inactive limonene;  4-  
Isopropenyl-1-methyl-1-cyclohexene;  (±)-  
Limonene;  1,8(9)-p-Menthadiene;  dl-p-  
Mentha-1,8-diene;  p-Mentha-1,8-diene;  (±)-  
1,8-p-Menthadiene;  1-Methyl-4-  
isopropenylcyclohexene;  1-Methyl-4-  
isopropenyl-1-cyclohexene;  1-Methyl-4 (1-  
methyleneyl) cyclohexene;  Racemic  
limonene
Classification:  Unsat. aliphatic hydrocarbon;  
cyclic terpene hydrocarbon
Empirical:  C_{10}H_{16}
Properties:  Colorless liq., pleasant lemon-like  
odor; sol. in alcohol, ether; pract. insol. in  
water; m.w. 136.23; dens. 0.847 (15.5/15.5 C);  
vapor pressure 20 mm Hg (68 C); m.p. -96.9  
C; b.p. 175-176 C (763 mm); flash pt. (CC) 45  
C; autoignition temp. 237 C; ref. index 1.4744;  
dielec. const. 2.3
Toxicology:  LD50 (oral, rat) 5000 mg/kg; skin  
irritant and sensitzer; inh. of vapor may  
cause nose and throat irritation; probable  
eye irritant; not very toxic by ing.; target  
organs: CNS, skin, kidney; TSCA listed
Environmental:  VOC; ThOD 3.29
Precaution:  DOT: Flamm. liq.; can react  
vigorously with oxidizers; also incompat.

[D]-Limonene;  D-(-)-Limonene;  D+ Limonene.  See d-Limonene

[D]-Limonene;  D-(-)-Limonene;  D+ Limonene.  See d-Limonene

[R(+)-Limonene.  See d-Limonene

(R)-Limonene.  See d-Limonene

Linaloe (Bersera delpechiana) wood oil
CAS  977051-12-9
FEMA 2634
Synonyms:  Bersera delpechiana;  Bersera  
delpechiana wood oil;  Linaloe wood oil
Definition:  Volatile oil distilled from a Mexican  
wood, Bersera delpechiana and other species,  
contg. linalool, geraniol, methylheptenone
Properties:  Colorless to pale yel. liq.; pleasant  
floral woody odor; sol. in 2 vols 70% alcohol;  
sol. in ether, chloroform; sl. sol. in water; dens.  
0.875-0.890 (15/15 C); ref. index 1.4638 (20 C)
Storage:  Keep cool, well closed; protect from  
light
Uses:  Natural flavor for pharmaceuticals  
Regulatory:  FDA 21CFR §172.510; FEMA  
GRAS
Manuf./Distrib.:  Fleurchem  
http://www.fleurchem.com

Linaloe (Bersera delpechiana) wood oil
CAS  977051-12-9
FEMA 2634
Synonyms:  Bersera delpechiana;  Bersera  
delpechiana wood oil;  Linaloe wood oil
Definition:  Volatile oil distilled from a Mexican  
wood, Bersera delpechiana and other species,  
contg. linalool, geraniol, methylheptenone
Properties:  Colorless to pale yel. liq.; pleasant  
floral woody odor; sol. in 2 vols 70% alcohol;  
sol. in ether, chloroform; sl. sol. in water; dens.  
0.875-0.890 (15/15 C); ref. index 1.4638 (20 C)
Storage:  Keep cool, well closed; protect from  
light
Uses:  Natural flavor for pharmaceuticals  
Regulatory:  FDA 21CFR §172.510; FEMA  
GRAS
Manuf./Distrib.:  Fleurchem  
http://www.fleurchem.com

Linaloe wood oil.  See Linaloe (Bersera  
delpechiana) wood oil
Linalol.  See Linalool
Linalol acetate.  See Linalyl acetate
### Linalool

**CAS:** 78-70-6; EINECS/ELINCS 201-134-4  
**FEMA:** 2635  
**Synonyms:** 2,6-Dimethyl-2,7-octadien-6-ol; 3,7-Dimethyl-1,6-octadien-3-ol; Licareol; Linalol; Linalyl alcohol  
**Classification:** Terpene  
**Empirical:** C10H18O  
**Formula:** (CH3)2C:CHCH2CH2C(CH3)OHCH:CH2  
**Properties:** Colorless liq., odor similar to Bergamot oil, French lavender; sol. in alcohol, ether, fixed oils, propylene glycol; insol. in water, glycerin; m.w. 154.28; dens. 0.858-0.868; b.p. 195-199 C; flash pt. 172 F; ref. index 1.461; tenacity 12 hrs. on blotter  
**Toxicology:** LD50 (oral, rat) 2790 mg/kg, (skin, rabbit) 5610 mg/kg; mod. toxic by ing.; mildly toxic by skin contact; skin irritant; mutagen; TSCA listed  
**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes  
**Storage:** Store in cool, dry place in tightly sealed containers, protected from heat and light  
**Uses:** Synthetic flavor and fragrance for pharmaceuticals; raw material in synthesis of isophytol and vitamin E  
**Features:** Citrus flavor  
**Use Level:** < 5%  
**Regulatory:** FDA 21CFR §182.60, GRAS; FEMA GRAS; Japan approved as flavoring (ENCS; Canada DSL; Japan ENCS (no. 2-249); Philippines PICCS  
**Trade Names:** Linalool 95  
**Linalool acetate.** See Linalyl acetate  
**Linalool butyrate.** See Linalyl butyrate  
**Linalool isobutyrate.** See Linalyl isobutyrate  
**Linalool oxide.** See Linalyl oxide  
**Linalool oxide**  
**CAS:** 60047-17-8; 5989-33-3 (cis); 34995-77-2 (trans); 1365-19-1; EINECS/ELINCS 262-038-6; 215-723-9  
**FEMA:** 3746  
**Synonyms:** Epoxylinalool; 5 Ethenyl tetrahydro-α,α-5 trimethyl 2 furan methanol; 2-Methyl-2-vinyl-5-(α-hydroxyisopropyl) tetrahydrofuran; 2-Methyl-2-vinyl-5-(2-hydroxy-2-propyl) tetrahydrofuran; 2- (Tetrahydro-5-methyl-5-vinyl-2-furyl) propan-2-ol; Tetrahydro-α,α-5-trimethyl-5-vinylfurfuryl alcohol; α,α,5-Trimethyl-5-ethenyltetrahydro-2-furanmethanol; cis-and trans-2-Vinyl-2-methyl-5-(1´-hydroxy-1´-methylene) tetrahydrofuran  
**Definition:** Commercial prod. is a mixt. of cis and trans-isomers  
**Empirical:** C10H18O2  
**Properties:** Colorless to sl. yel. oily liq.; sweet lemon cineol flavor; sol. in alcohol, most common org. solvs.; insol. in water; m.w. 170.25; dens. 0.94 kg/l (20 C); b.p. 188 C; flash pt. 63 C; ref. index 1.4523; substantivity 12 hrs. on smelling strip  
**Toxicology:** TSCA listed
Chemical Component Cross-Reference

†=pharmaceutical grade

Linalool tetrahydrodride. See Tetrahydrolinalool

Linalyl acetate

CAS 115-95-7; EINECS/ELINCS 204-116-4

Syntones: Acetic acid, linalool ester;
Bergamol; Bergamol; 3,7-Dimethyl-1,6-octadien-3-ol acetate; 3,7-Dimethyl-1,6-octadien-3-yl acetate; Licareol acetate;
Linalol acetate; Linalool acetate

Classification: floral ester; acyclic terpene ester

Definition: Ester of linalool and acetic acid; avail. commercially as a racemic mixt.

Empirical: C_{12}H_{20}O_{2}

Formula: CH_{3}COOC_{10}H_{17}

Properties: Colorless clear oily liq.; bergamot odor; sol. in alcohol, ether, diethyl phthalate, benzyl benzoate, min. oil, fixed oils; sl. sol. in propylene glycol; insol. in water; m.w. 196.32; dens. 0.898-0.914; b.p. 108-110 C; flash pt. 185 F; ref. index 1.4500

Toxicology: LD_{50} (oral, rat) 14,550 mg/kg; mildly toxic by ing.; severe skin irritant; TSCA listed

Precaution: DOT: Combustible liq.

HArdous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Storage: 6 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air

Uses: Synthetic flavor and fragrance for pharmaceuticals

Features: Pear-like flavor

Regulatory: FDA 21CFR §182.60, GRAS; FEMA GRAS; Japan approved as flavoring; Australia AICS; Canada DSL

Manuf./Distrib.: Adrian Amer.
**Chemical Component Cross-Reference**

rabbit) > 5 g/kg; mildly toxic by ing.; irritating to eyes, skin, respiratory tract; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of NOx

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Fresh linalool orange blossom woody odor

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Manuf./Distrib.:** Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)

**Linalyl benzoate**

CAS 126-64-7; EINECS/ELINCS 204-796-2

FEMA 2638

**Synonyms:** 3,7-Dimethyl-1,6-octadien-3-ol benzoate; 3,7-Dimethyl-1,6-octadien-3-yl benzoate; 1,5-Dimethyl-1-vinyl-4-hexen-1-ol benzoate; 1,5-Dimethyl-1-vinylhex-4-enyl benzoate; 1,5-Dimethyl-1-vinyl-4-hexen-1-yl benzoate

**Classification:** floral ester

**Empirical:** C17H22O2

**Properties:** Yel. or ylsh.-brn. liq.; tuberose odor; sol. in chloroform, alcohol, ether; insol. in water; m.w. 258.37; b.p. 263 C; flash pt. 98 C; ref. index 1.505-1.520

**Toxicology:** LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; skin irritant; TSCA listed

**Precaution:** Combustible

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Synthetic flavor for pharmaceuticals

**Use Level:** 0.5% max. as benzoic acid in finished cosmetics

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Manuf./Distrib.:** A&E Connock [http://www.connock.co.uk](http://www.connock.co.uk); Fleurchem [http://www.fleurchem.com](http://www.fleurchem.com); SAFC Specialties [http://www.safcspecialties.com](http://www.safcspecialties.com)

**Linalyl n-butyrate. See Linalyl butyrate**

**Linalyl caproate. See Linalyl hexanoate**

**Linalyl cinnamate**

CAS 78-37-5; EINECS/ELINCS 201-110-3

FEMA 2641

**Synonyms:** Cinnamic acid-1,5-dimethyl-1-vinyl-4-hexenyl ester; Cinnamic acid-1,5-dimethyl-1-vinyl-4-hexen-1-yl ester; Cinnamic acid, linalyl ester; 3,7-Dimethyl-1,6-octadien-3-ol cinnamate; 1,5-Dimethyl-1-vinylhex-4-enyl 3-phenyl-2-propenoate; Linalyl 3-phenylpropenoate; 3-Phenyl-2-propenoic acid-1,5-dimethyl-1-vinyl-4-hexen-1-yl ester; 1,5-Dimethyl-1-vinylhex-4-enyl 3-phenyl-2-propenoate

**Classification:** floral ester

**Empirical:** C19H24O2

**Properties:** Colorless liq., soft floral odor, fruity flavor; sol. in alcohol; insol. in water; m.w. 284.40

**Toxicology:** LD50 (oral, rat) 9960 mg/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; skin irritant; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Synthetic flavor for pharmaceuticals

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL

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**Handbook of Pharmaceutical Additives, Third Edition**

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### Linalyl formate

**CAS**: 115-99-1; EINECS/ELINCS 204-120-6

**Empirical**: C\(_{11}\)H\(_{18}\)O\(_2\)

**Formula**: C\(_{10}\)H\(_{17}\)OOCH

**Properties**: Colorless liq.; citrus herbaceous odor; sol. in alcohol, fixed oils; sl. sol. in propylene glycol, water; insol. in glycerin; m.w. 182.27; dens. 0.914; b.p. 100-103 \(^\circ\)C (10 mm); flash pt. 186 \(^\circ\)F; ref. index 1.456-1.457 (20 \(^\circ\)C)

**Precaution**:
- Combustible liq.
- Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

**Uses**: Synthetic flavor for pharmaceuticals

**Features**: Citrus flavor

**Regulatory**: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Manuf./Distrib.**:
- Givaudan Fragrances
- http://www.givaudan.com
- Lluch Essence
- http://www.lluch-essence.com
- Penta Mfg.
- http://www.pentamfg.com
- R.C. Treatt & Co. Ltd
- http://www.rctreatt.com

### Linalyl hexanoate

**CAS**: 7779-23-9; EINECS/ELINCS 231-922-3

**Empirical**: C\(_{16}\)H\(_{28}\)O\(_2\)

**Properties**: Colorless cl. oily liq.; sol. in alcohol; insol. in water; m.w. 252.39; sp. gr. 0.90; b.p. 252.00 \(^\circ\)C @ 760.00 mm

**Uses**: Synthetic flavor for pharmaceuticals

**Features**: Green, fruity odor; pineapple, pear taste

**Regulatory**: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Manuf./Distrib.**:
- A&E Connock
- http://www.connock.co.uk
- Bell Flavors & Fragrances
- http://www.bellff.com
- Givaudan Fragrances
- http://www.givaudan.com
- Lluch Essence
- http://www.lluch-essence.com
- Oxford Chems. Ltd
- http://www.oxfordchemicals.com
- Penta Mfg.
- http://www.pentamfg.com
- Polarome Int’l.
- http://www.polarome.com
- R.C. Treatt & Co. Ltd
- http://www.rctreatt.com

### Linalyl isobutyrate

**CAS**: 78-35-3; EINECS/ELINCS 201-108-2

**Empirical**: C\(_{10}\)H\(_{17}\)OOC(CH\(_3\))\(_2\)

**Properties**: Colorless liq.; rosy odor; misc. with alcohol, ether, chloroform; insol. in water; m.w. 224.38; dens. 0.890; flash pt. 212 \(^\circ\)F; ref. index 1.4490

**Toxicology**: LD\(_{50}\) (oral, rat) > 36,300 mg/kg, (oral, mouse) 15,100 mg/kg; mildly toxic by ing.; TSCA listed

**Precaution**:
- Combustible

**Hazardous Decomp. Prods.**: Heated to decomp., emits acrid smoke and irritating fumes

**Uses**: Synthetic flavor for pharmaceuticals

**Regulatory**: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Manuf./Distrib.**:
- A&E Connock
- http://www.connock.co.uk
- Bell Flavors & Fragrances
- http://www.bellff.com
- Givaudan Fragrances
- http://www.givaudan.com
- Lluch Essence
- http://www.lluch-essence.com
- Oxford Chems. Ltd
- http://www.oxfordchemicals.com
- Penta Mfg.
- http://www.pentamfg.com
- Polarome Int’l.
- http://www.polarome.com
- R.C. Treatt & Co. Ltd
- http://www.rctreatt.com

### Linalyl isovalerate

**CAS**: 1118-27-0; EINECS/ELINCS 214-259-4

**Empirical**: C\(_{15}\)H\(_{26}\)O\(_2\)

**Properties**: M.w. 238.37; b.p. 188 \(^\circ\)C; ref. index 1.4510
Linalyl octanoate
CAS 10024-64-3; EINECS/ELINCS 233-026-8
FEMA 2644
Synonyms: 3,7-Dimethyl-1,6-octadien-3-yl octanoate; 1,5-Dimethyl-1-vinyl-4-hexenyl octanoate; Linalyl octoate; Octanoic acid 1-ethenyl-1,5-dimethyl-4-hexenyl ester
Classification: floral ester
Empirical: C_{18}H_{32}O_{2}
Properties: Colorless to pale yel. cl. oily liq.; sol. in alcohol and paraffin oil; insol. in water; m.w. 280.445; sp. gr. 0.875 -0.885; ref. index 1.454-1.457
Uses: Synthetic flavor for pharmaceuticals
Features: Dry fruity herbal sweet green natural odor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Penta Mfg.
http://www.pentamfg.com

Linalyl octoate. See Linalyl octanoate
Linalyl 3-phenylpropenoate. See Linalyl cinnamate

Linalyl propionate
CAS 144-39-8; EINECS/ELINCS 205-627-5
FEMA 2645
Synonyms: 3,7-Dimethyl-1,6-octadien-3-ol propanoate; 3,7-Dimethyl-2,6-octadien-3-yl propionate; 1,5-Dimethyl-1-vinylhex-4-enyl propionate
Classification: acyclic terpene ester
Empirical: C_{13}H_{22}O_{2}
Formula: C_{10}H_{17}OOC\textsubscript{2}H_{5}
Properties: Colorless liq.; floral odor similar to bergamot oil; sol. in alcohol, most fixed oils, min. oils; sl. sol. in propylene glycol; insol. in glycerol; m.w. 210.32; dens. 0.895-0.902; b.p. 226 C; ref. index 1.4500-1.4550
Precaution: Combustible liq.
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Synthetic flavor for pharmaceuticals
Features: Pear-like flavor
Regulatory: FDA 21CFR §172.510, GRAS; Japan approved
Manuf./Distrib.: Bell Flavors & Fragrances
http://www.bellff.com; Fleurchem

Linden extract. See Linden (Tilia americana) extract; Linden (Tilia cordata) extract; Linden (Tilia vulgaris) extract

Linden flowers
CAS 977009-77-0
FEMA 2647
Synonyms: Lime-tree extract; Linden extract; Linden flowers extract; Tilia americana; Tilia americana extract
Definition: Extract of the flowers of the linden tree, Tilia americana
Toxicology: No known toxicity
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.510, 182.20, GRAS; Japan approved

Linden (Tilia americana) extract
CAS 90063-53-9; EINECS/ELINCS 290-011-9
FEMA 2647
Synonyms: Lime-tree extract; Linden extract; Linden flowers extract; Tilia americana; Tilia americana extract
Definition: Extract of the flowers of the linden tree, Tilia americana
Toxicology: No known toxicity
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.510, 182.20, GRAS; Japan approved

Linden (Tilia cordata) extract
CAS 84929-52-2; EINECS/ELINCS 284-536-2
Synonyms: Lime-tree extract; Linden extract; Linden flowers extract; Tilia cordata; Tilia cordata extract
Definition: Extract of the flowers of the linden tree, Tilia cordata
Toxicology: No known toxicity
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.510, 182.20, GRAS; Japan approved
Linden (Tilia vulgaris) extract  
CAS 90063-56-2; EINECS/ELINCS 290-015-0  
Synonyms: Lime-tree extract; Linden extract; Linden flowers extract; Tilia vulgaris; Tilia vulgaris extract  
Definition: Extract of the flowers of the linden tree, Tilia vulgaris  
Toxicology: No known toxicity  
Uses: Natural flavor for pharmaceuticals  
Regulatory: FDA 21CFR §172.510, 182.20; GRAS; Japan approved

Linear C10 alpha olefin. See Decene-1  
Linoleamide DEA  
CAS 27883-12-1; 56863-02-6; EINECS/ELINCS 260-410-2  
Synonyms: (9Z,12Z)-N,N-Bis(2-hydroxyethyl)octadeca-9,12-dien-1-amide; N,N-Bis(2-hydroxyethyl)-9,12-octadecadienamide; Diethanolamine linoleic acid amide; Linoleic acid diethanolamide; Linoleic diethanolamide; 9,12-Octadecadienamide, N,N-bis(2-hydroxyethyl)  
Classification: Fatty acid alkanolamide  
Definition: Mixt. of ethanolamides of linoleic acid  
Empirical: C22H41NO3  
Formula: \( CH_3(CH_2)4CH=CHCH_2CH=CH(CH_2)7CON(CH_2CH_2OH)_2 \)  
Properties: Amber liq.; sol. in peanut oil, ethanol, propylene glycol, IPM, oleyl alcohol; gels in water; m.w. 367.58; dens. 0.972-0.982; nonionic  
Toxicology: TSCA listed  
Uses: Solubilizer, thickener, w/o emulsifier, conditioner, and emollient for topical pharmaceuticals; emulsion stabilizer for o/w emulsions  
Regulatory: Canada DSL  
Manuf./Distrib.: Cosmetic Supplies USA  
http://www.cosmeticsuppliesusa.com  
Trade Names: Schercomid SLE  
Linoleamidopropyl PG-dimonium chloride phosphate  
Synonyms: Linoleamidopropyl phosphatidyl PG-dimonium chloride; 1-Propanaminium, 2,3-dihydroxy-N,N-dimethyl-N-[3-(1-oxo-9,12-octadecadienylamino) propyl]-, 3-
Chemical Component Cross-Reference

http://www.rutherfordchemicals.com/caschem.html; Cognis/Chems. Group
http://www.cognis-us.com
Croda Inc† http://www.croda.com;
http://www.crodausa.com; Degussa
AG/Health & Nutrition; Fluka
http://www.sigma-aldrich.com; Hercules
http://www.herc.com; Kraft Chem.†
http://www.kraftchemical.com
Langley-Smith Ltd http://www.langley-smith.co.uk; Lluch Essence
http://www.pennnbio.com; Penta Mfg.† http://www.pentamfg.com; Research Organics http://www.resorg.com
Rhodia HPCII http://www.rhodia-hpcii.com; SAFC Specialties
http://www.safcspecialties.com; Sigma
http://www.sigma-aldrich.com/belgium; Spectrum Quality Prods.†
http://www.spectrumchemical.com; St. Lawrence http://www.stlawrencechem.com
Synasia† http://www.synasia.com;

Trade Names: Crossential® EPO TG25; Crossential® L90
Trade Names Containing: Vitamin F Water-Soluble CLR
9,12-Linoleic acid. See Linoleic acid
Linoleic acid diethanolamide. See Linoleamide DEA
Linoleic acid ethyl ester. See Ethyl linoleate
Linoleic acid methyl ester. See Methyl linoleate
Linoleic diethanolamide. See Linoleamide DEA

Linolenic acid
CAS 463-40-1; EINECS/ELINCS 207-334-8
Synonyms: α-Linolenic acid; 9,12,15-Octadecatrienoic acid; all cis-9,12,15-Octadecatrienoic acid; (Z,Z,Z)-9,12,15-Octadecatrienoic acid
Classification: Unsaturated fatty acid
Empirical: C_{18}H_{30}O_{2}

Formula:
CH_{3}CH_{2}CHCH_{2}CHCHCH_{2}CHCH(CH_{2})_{7}CO
OH

Properties: Colorless liq.; sol. in most org. solvs.; insol. in water; m.w. 278.44; dens. 0.916 (20/4 C); f.p. -11 C; b.p. 230 C (17 mm); ref. index 1.480
Toxicology: Sl. irritating to mucous

†=pharmaceutical grade

Precaution: Combustible; mixt. with cobalt napthenate forms explosive peroxides in air

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Storage: Photosensitive; refrigerate
Uses: Nutrient; drug delivery; biochemical research
Regulatory: Canada DSL
Manuf./Distrib.: AMRESCO
Tomen Am. http://www.tomenamerica.com

Trade Names: Crossential® GLA TG40; Crossential® LN80
Trade Names Containing: Vitamin F Water-Soluble CLR
α-Linolenic acid. See Linolenic acid

γ-Linolenic acid
CAS 506-26-3
Synonyms: GLA; 6,9,12-Octadecatrienoic acid
Classification: Omega-6 fatty acids
Empirical: C_{18}H_{30}O_{2}

Properties: M.w. 278.4; flash pt. > 110 C; ref. index 1.471 (20 C)

Storage: Photosensitive; oxygen-sensitive
Uses: Drug delivery; oral and topical pharmaceuticals; nutritional apps.
Regulatory: Canada DSL

Trade Names: Crossential® GLA E95 SR
Chemical Component Cross-Reference

Trade Names Containing:  **Ropufa® ’10’ n-6 Oil**

Linolenic acid, ethyl ester.  See Ethyl linolenate

Linolic acid.  See Linoleic acid

Linseed (Linum usitatissimum) extract

**Synonyms:** Flaxseed extract; Linum usitatissimum; Linum usitatissimum extract

**Definition:** Extract of seeds of the linseed, *Linum usitatissimum*

**Uses:** Emollient

**Trade Names:** Sensiline®

Linseed (Linum usitatissimum) oil

**CAS:** 8001-26-1; EINECS/ELINCS 232-278-6

**Synonyms:** Flaxseed oil; Linseed oil; Linseed oil, raw; Linum usitatissimum; Linum usitatissimum oil; Raw linseed oil; Varnish linseed oil; VLO

**Definition:** Fixed oil expressed from the dried ripe seed of *Linum usitatissimum*

**Properties:** Golden-yel., amber, or brown drying oil, peculiar odor, bland taste; sol. in ether, chloroform, carbon disulfide, turpentine; sl. sol. in alcohol; insol. in water; dens. 0.921-0.936; m.p. -19 C; b.p. 343 C; iodine no. 160-200; sapon. no. 188-195; flash pt. 222 C

**Toxicology:** Allergen and skin irritant to humans; TSCA listed

**Precaution:** Combustible liq. exposed to heat or flame; can react with oxidizers; subject to spontaneous heating; violent reaction with Cl₂

**Uses:** Demulcent, emollient in pharmaceuticals, medicinal soaps; soothing to skin; pectoral; cough medicines; purgative in veterinary medicine

**Regulatory:** FDA 21CFR §175.105, 175.300, 176.200, 176.210, 181.22, 181.26; BP, EP compliance; Canada DSL

**Manuf./Distrib.:** ADM


†=pharmaceutical grade

Degen
[http://www.degenoil.com/contact.htm](http://www.degenoil.com/contact.htm); Ferro/Polymer Addit. [http://www.ferro.com](http://www.ferro.com); John L Seaton Ltd [http://www.seatons-uk.co.uk](http://www.seatons-uk.co.uk)


Linseed oil; Linseed oil, raw.  See Linseed (Linum usitatissimum) oil

Linum usitatissimum.  See Linseed (Linum usitatissimum) extract; Linseed (Linum usitatissimum) oil

Linum usitatissimum extract.  See Linseed (Linum usitatissimum) extract

Linum usitatissimum oil.  See Linseed (Linum usitatissimum) oil

**Lipase**

**CAS:** 9001-62-1; EINECS/ELINCS 232-619-9

**INS1104**

**Synonyms:** Glycerol ester hydrolase; Triacetinase; Triacyl glycerol lipase; Tributyrase; Tributyrinase; Tributyrin esterase; Triglyceride hydrolase; Triglyceride lipase; Triolein hydrolase

**Definition:** Digestive enzyme that hydrolyzes triglycerides

**Toxicology:** LD (oral, rat) > 10,400 mg/kg; LD50 (IP, rat) 634 mg/kg; mod. toxic by subcut. route; experimental reproductive effects; TSCA listed

**Uses:** Fat-splitting enzyme for pharmaceuticals; ingred. for vitamin-mineral mixes

**Regulatory:** FDA GRAS; Canada approved

**Manuf./Distrib.:** AMRESCO†


Chemical Component Cross-Reference

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<td>Lithium aluminohydride</td>
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</table>

†=pharmaceutical grade

**UN 1415 (DOT); UN 1760**

**Synonyms:** Lithium metal

**Definition:** Metallic element

**Empirical:** Li

**Properties:** Silvery very soft light metal; sol. in liq. ammonia; at.wt. 6.941; dens. 0.534 (20 C); m.p. 179 C; b.p. 1317 C; hardness (Mohs) 0.6

**Toxicology:** Toxic to CNS (sol'n.); TSCA listed

**Precaution:** Ignites in air near its m.p.; dangerous fire/explosive risk exposed to water, acids, or oxidizing agents

**Hazardous Decomp. Prods.:** When burned, emits toxic fumes of LiO₂ and hydroxide

**Uses:** Pharmaceuticals

**Regulatory:** Canada DSL

**Manuf./Distrib.:** Acros Org.

**Trade Names:** ChiroCLEC™-CR; Lipase 8; Lipase 16; Lipase 24; Lipase 30; Lipase AP6; Lipase AP12

**Trade Names Containing:** Newlase; Pancreatin 3X USP Powder; Pancreatin 4X USP; Granular; Pancreatin 4X USP Powder; Pancreatin 5X USP Powder; Pancreatin 6X USP Powder; Pancreatin 8X USP Powder; Pancreatin BP 98; Pancreatin USP 23; Pancreatin USP Powder; Pancrelipase USP Powder; SPL High Lipase; Pancreatic Enzyme Conc. (PEC); SPL Pancreatin 4X USP; SPL Pancreatin 6X USP; SPL Pancreatin 8X USP; SPL Pancrelipase USP

**Lippia.** See Oregano

**Liquefied petroleum gas.** See Butane; Propane

**Liquidambar orientalis.** See Storax (Liquidambar orientalis)

**Liquid bleach.** See Sodium hypochlorite

**Liquid camphor.** See Camphor (Cinnamomum camphora) oil

**Liquid paraffin; Liquid petrolatum.** See Mineral oil

**Liquid phenol.** See Phenol

**Liquid rosin.** See Tall oil

**Liquid silver.** See Mercury

**'Liquid smoke.** See Pyroligneous acid extract

**Liquid storax.** See Storax (Liquidambar orientalis)

**Liquorice.** See Licorice (Glycyrrhiza glabra)

**Liquorice extract.** See Licorice (Glycyrrhiza glabra) extract

**Lithium**

**CAS:** 7439-93-2; EINECS/ELINCS 231-102-5

**Formula:** LiAlH₄

**Properties:** Wh. (pure) to lt. gray (Al impurity) powd.; odorless; sol. in diethyl ether,
tetrahydrofuran, dimethyl Cellosolve; sl. sol. in dioxane; reacts with alcohols; m.w. 37.94; dens. 0.92; m.p. dec. above 125 C without melting

Toxicology: ACGIH TLV/TWA 2 mg(Al)/m3; corrosive; reacts with moisture in the body to form a corrosive sol’n. (lithium hydroxide) which can cause severe irritation, tissue damage; ing. can cause severe burns, dizziness, nausea, vomiting, diarrhea; severe exposure can cause collapse, death; severe inh. exposure can cause pulmonary edema; can cause severe skin and eye irritation or tissue destruction (chemical burns); TSCA listed

Precaution: Flamm. solid; reacts violently with water, air, acids, alcohols, benzoyl peroxide, etc.; dec. when exposed to moist air or water; incompat. with CO2, BF3, ethyl acetate, tetrahydrofuran

Hazardous Decomp. Prods.: Dec. above 125 C to lithium hydride, aluminum metal, and hydrogen gas; fire can produce aluminum oxide

NFPA: Health 3, Flammability 2, Reactivity 2

Storage: Stable under cool, dry conditions

Uses: Reducing agent in pharmaceuticals

Regulatory: Canada DSL


Lithium citrate

CAS 919-16-4; EINECS/ELINCS 213-045-8

Synonyms: 2-Hydroxy-1,2,3-propanetricarboxylic acid trilithium salt; Trilithium citrate

Empirical: C6H5O7 • 3Li

Formula: Li3C6H5O7 • 4H2O

Properties: Wh. powd. or granules; sol. in water; sl. sol. in alcohol; m.w. 209.93; m.p. (dec.)

Toxicology: Mutagen; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Storage: Hygroscopic

Uses: Pharmaceuticals

Regulatory: BP, EP compliance
<table>
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**Lithium magnesium sodium silicate (INCI).**  
See Smectite

**Lithium magnesium sodium silicate.** See Sodium magnesium silicate

**Lithium metal.** See Lithium

**Lithium monobromide.** See Lithium bromide

**Lithium tetrahydroaluminate.** See Lithium aluminum hydride

**Lithographic stone.** See Calcium carbonate

**Lithol rubin B.** See D&C Red No. 6

**Lithol rubin B Ca.** See D&C Red No. 7

**Lithol rubine Na.** See CI 15850

**Liver starch.** See Glycogen

**Liver of sulfur.** See Sulfurated potash

**LLDPE.** See Polyethylene, linear low density

**LMMEA.** See Lauramid MEA

**Locust bean (Ceratonia siliqua) gum**  
CAS 9000-40-2; EINECS/ELINCS 232-541-5  
FEMA 2648; INS410; E410

**Synonyms:** Algaroba; Carob bean gum; Carob flour; Carob gum; Ceratonia; Ceratonia siliqua; Ceratonia siliqua gum; Locust bean gum; Locust gum; St. John's bread

**Classification:** Polysaccharide plant mucilage

**Definition:** Ground seed of the ripe fruit of St. John's Bread (Ceratonia siliqua)

**Properties:** Yel.-grn. powd., odorless, tasteless; swells in cold water; insol. in org. solvs.; visc. increases when heated; m.w. ≈ 310,000

**Toxicology:** LD50 (oral, rat) 13 g/kg; mildly toxic by ingestion; TSCA listed

**Precaution:** Combustible

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Stabilizer, thickener, emulsifier, suspending agent, water-binder for pharmaceuticals (lotions, creams, toothpaste); excipient for tablets

**Regulatory:** FDA 21CFR §133.133, 133.134, 133.162, 133.178, 133.179, 150.141, 150.161, 182.20, 184.1343, 186.1343, 240.1051, GRAS; FEMA GRAS; Japan approved; Canada DSL; Europe listed; UK approved; ADI not specified (JECFA)

**Manuf./Distrib.:** AB R Lundberg

†=pharmaceutical grade

- http://www.norfoods.se/lundberg; AEP
- Colloids [http://www.aepcolloids.com]; Adept Sol'sns.; Agrisales Ltd

**Trade Names:** Locust Bean Gum Speckless Type D-200; Locust Bean Gum Type A-100; Locust Bean Gum Type A-250; Locust Bean
Chemical Component Cross-Reference

Gum Type A-270; Powdered Locust Bean Gum Type D-200
PROVigel® DPC 6; PROVigel® DPC 15;
PROVigel® EXC 30; Seagel; TIC Pretested®
Locust Bean Gum Clarified Powder
TIC Pretested® Locust Bean Gum USP
Powd.; TIC Pretested® Pre-Hydrated®
Locust Bean Gum Powd.

Locust bean gum; Locust gum. See Locust bean (Ceratonia siliqua) gum
Locust tree extract. See Carob (Ceratonia siliqua) extract
Logwood extract. See Logwood (Haematoxylon campechianum) extract
Logwood (Haematoxylon campechianum) extract
CAS 8005-33-2; EINECS/ELINCS 232-337-6
Synonyms: CI 75290; Haematoxylon campechianum; Haematoxylon campechianum extract; Logwood extract
Definition: Extract of the heartwood of Haematoxylon campechianum contg. active colorant substance hematein
Properties: Reddish brn. to blk. liq. or solid extract
Toxicology: May cause allergic reaction in hypersensitive persons
Uses: Colorant for nylon 6 and 6/6 and silk nonabsorbable sutures for general and ophthalmic surgery; mild astringent
Use Level: 1.0% max. (sutures)
Regulatory: FDA §74.1410, exempt from certification, permanently listed for use in medical devices; not listed as approved colorant for cosmetics under FDA 21CFR §73 and 74

Lovage (Levisticum officinale) oil
CAS 8016-31-7
FEMA 2651
Synonyms: Levisticum officinale; Levisticum officinale oil; Lovage oil; Lovage root oil; Smallage oil; Smellage oil
Definition: Volatile oil from steam distillation of fresh root of Levisticum officinale; contains d-α-terpineol, butyl dihydrophtalides, butyl tetrahydroptalides, coumarin, aldehydes, acetic acid, isovaleric acid
Properties: Yel.-green-brn. liq., strong odor and taste; sol. in fixed oils; sl. sol. in min. oil; insol. in glycerin, propylene glycol; dens. 1.034-1.057; ref. index 1.536-1.554 (20 C)
Toxicology: LD50 (oral, mouse) 3400 mg/kg; mod. toxic by ing.; skin irritant; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.510; FEMA GRAS; Canada DSL
Manuf./Distrib.: Buckton Page Ltd
http://www.bucktonpage.com; Danisco
Seillans http://www.danisco.com; Eramex
Aromatics http://www.eralMex.de; F.D.
Copeland http://www.copelandoil.co.uk;
Fleurchem http://www.fleurchem.com
SAFC Specialties http://www.safcspecialties.com; Voigt

Lovage oil; Lovage root oil. See Lovage (Levisticum officinale) oil
Low-erucic acid rapeseed oil. See Rapeseed (Brassica campestris) oil
LTAC. See Laurtrimonium chloride
LTDP. See Dilauryl thiodipropionate
Lucerne. See Alfalfa (Medicago sativa)
Lucerne extract. See Alfalfa (Medicago sativa) extract
Lurk-in-the-Ditch. See Pennyroyal (Mentha pulegium) extract
Lutein. See Xanthophyll

2,6-Lutidine
CAS 108-48-5; EINECS/ELINCS 203-587-3
UN 1993; FEMA 3540
Synonyms: 2,6-Dimethylpyridine; α-α’ Dimethylpyridine; 2,6-Dimethylpyridine; α-α’-Lutidine; Pyridine, 2,6-dimethyl-
Empirical: C7H9N
Properties: Colorless to pale yel. liq., peppermint odor; sol. in water, alcohol, ether; m.w. 107.16; dens. 0.920; f.p. -6 C; b.p. 143-145 C; flash pt. 33 C; ref. index 1.4970
Toxicology: LD50 (oral, rat) 400 mg/kg, (skin, guinea pig) 2500 mg/kg; LCLo (inh., rat, 1 h) 7500 ppm; poison by ing.; mod. toxic by skin contact; mildly toxic by inh.; mutagenic data; TSCA listed
Precaution: DOT: Flamm. liq.
Hazardous Decomp. Prods.: Heated to decomp., emits toxic vapors of NOx
Storage: Hygroscopic
Uses: Synthetic flavor for pharmaceuticals; reagent for pharmaceutical mfg.
Regulatory: FEMA GRAS; Canada DSL
Manuf./Distrib.: Biddle Sawyer†
http://www.biddlesewyer.com; Fluka
http://www.sigma-aldrich.com; Koei Chem.

†=pharmaceutical grade

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.510; FEMA GRAS; Canada DSL
Manuf./Distrib.: Buckton Page Ltd
http://www.bucktonpage.com; Danisco
Seillans http://www.danisco.com; Eramex
Aromatics http://www.eralMex.de; F.D.
Copeland http://www.copelandoil.co.uk;
Fleurchem http://www.fleurchem.com
SAFC Specialties http://www.safcspecialties.com; Voigt

Lovage oil; Lovage root oil. See Lovage (Levisticum officinale) oil
Low-erucic acid rapeseed oil. See Rapeseed (Brassica campestris) oil
LTAC. See Laurtrimonium chloride
LTDP. See Dilauryl thiodipropionate
Lucerne. See Alfalfa (Medicago sativa)
Lucerne extract. See Alfalfa (Medicago sativa) extract
Lurk-in-the-Ditch. See Pennyroyal (Mentha pulegium) extract
Lutein. See Xanthophyll

2,6-Lutidine
CAS 108-48-5; EINECS/ELINCS 203-587-3
UN 1993; FEMA 3540
Synonyms: 2,6-Dimethylpyridine; α-α’ Dimethylpyridine; 2,6-Dimethylpyridine; α-α’-Lutidine; Pyridine, 2,6-dimethyl-
Empirical: C7H9N
Properties: Colorless to pale yel. liq., peppermint odor; sol. in water, alcohol, ether; m.w. 107.16; dens. 0.920; f.p. -6 C; b.p. 143-145 C; flash pt. 33 C; ref. index 1.4970
Toxicology: LD50 (oral, rat) 400 mg/kg, (skin, guinea pig) 2500 mg/kg; LCLo (inh., rat, 1 h) 7500 ppm; poison by ing.; mod. toxic by skin contact; mildly toxic by inh.; mutagenic data; TSCA listed
Precaution: DOT: Flamm. liq.
Hazardous Decomp. Prods.: Heated to decomp., emits toxic vapors of NOx
Storage: Hygroscopic
Uses: Synthetic flavor for pharmaceuticals; reagent for pharmaceutical mfg.
Regulatory: FEMA GRAS; Canada DSL
Manuf./Distrib.: Biddle Sawyer†
http://www.biddlesewyer.com; Fluka
http://www.sigma-aldrich.com; Koei Chem.
α-α´-Lutidine. See 2,6-Lutidine

Lycopene
CAS 502-65-8; EINECS/ELINCS 207-949-1

Synonyms: CI 75125; 2,6,10,14,19,23,27,31-octamethyltetraconta-2,6,8,10,12,14,16,18,20,22,24,26,30-tridecaene

Classification: Carotene

Definition: The red pigment of the tomato

Empirical: C40H56

Properties: Reddish pigment; water-insol.; sparingly sol. in ethanol; sol. in ether and acetone; freely sol. in chloroform and benzene; m.w. 536.88; m.p. 172-173 C

Toxicology: Very toxic by inh., ing., skin contact; severe eye irritant; risk of serious damage to eyes; target organs: liver, kidneys

Hazardous Decomp. Prods.: Emits toxic fumes under fire conditions

Storage: Store below 0 C

Uses: Phytochemical and nutraceutical; antioxidant micronutrient

Manuf./Distrib.: Sigma http://www.sigma-aldrich.com/belgium

Trade Names: Lycobeads® 5%; Lyc-O-Mato® 6%; Lyc-O-Mato® 7%; Lyc-O-Mato® 10%; Lyc-O-Mato® 15%

Trade Names Containing: LycoVit® Dispersion 10%; LycoVit® 10% DC; redivivo™ (lycopene) 10% FS; redivivo™ (lycopene) 5% TG/P; redivivo™ (lycopene) 10% WS

Lye. See Potassium hydroxide; Sodium hydroxide

Lyoglycogen. See Glycogen

Lys; Lysine (INCI). See L-Lysine

L-Lysine
CAS 56-87-1; EINECS/ELINCS 200-294-2

Synonyms: α,ε-Diaminocaproic acid; L-α,ε-Diaminocaproic acid; 2,6-Diaminohecanoic acid; Lysine (INCI)

Classification: Amino acid

Definition: Essential amino acid isolated from casein, fibrin, or blood; avail. commercially as the naturally occurring L(+)-enantiomer

Empirical: C6H12N2O2

Properties: Wh. need. or hexagonal plates; very sol. in water; very sl. sol. in alcohol; pract. insol. in ether; m.w. 146.19; dens. 1.12; m.p. 215 C (dec.)

Toxicology: Mutagen; TSCA listed

Uses: Pharmaceutical parenterals; nutrient supplement; biochemical and nutritional research; culture media; diagnostic aids; raw material for peptide drugs

Regulatory: FDA 21CFR §172.320; Japan approved; FDA approved for parenterals; Canada DSL

L-Lysine acetate

**CAS:** 57282-49-2

**Synonyms:** L-Lysine Acetate

**Classification:** Amino acid

**Empirical:** C₈H₁₈N₂O₄

**Formula:** C₆H₁₄N₂O₂•C₂H₄O₂

**Properties:** Wh. crystals or crystalline powd.; m.w. 206.24; sol. in water

**Storage:** Store @ R.T.

**Uses:** Amino acid source for use in IV applics.

**Regulatory:** USP, BP, EP compliance; FDA Inactive Ingredients Guide listed

**Manuf./Distrib.:** Sigma-Aldrich†

http://www.sigma-aldrich.com

**L-Lysine Acetate.** See Lysine acetate

**L-Lysine carbocysteinate.** See Lysine carboxymethyl cysteinate

**L-Lysine carboxymethyl cysteinate**

**CAS:** 79458-68-7; EINECS/ELINCS 279-164-2

**Synonyms:** Lysine carboxylycisteinate; DL-Lysine, compd. with S-(carboxymethyl)-L-cysteine (1:1)

**Definition:** Synthetic substance obtained via the reaction of cystine with monochloroacetic acid and subsequent salification with lysine

**Empirical:** C₆H₁₄N₂O₂ • C₅H₉NO₄S

**Properties:** Cl. pale yel. to brn. liq.; faint characteristic odor; very sol. in water; fat-insol.; sp. gr. 1.090-1.130; b.p. 90-110 C; pH (1% aq. sol'n.)

**Environmental:** Harmless

**Uses:** Biological additive

**Trade Names Containing:** Tiolisina Complex®

**DL-Lysine, compd. with S-(carboxymethyl)-L-cysteine (1:1).** See Lysine carboxymethyl cysteinate

**L-Lysine, compd. with 5-oxo-L-proline (1:1).** See Lysine PCA

**Lysine hydrochloride (INCI).** See L-Lysine hydrochloride

**L-Lysine hydrochloride**

**CAS:** 657-27-2; EINECS/ELINCS 211-519-9

**FEMA:** 3847; INS642

**Synonyms:** 2,6-Diaminoheptanoic acid hydrochloride; Lysine hydrochloride (INCI); Lysine monohydrochloride; L-Lysine monohydrochloride

**Classification:** Amine salt

**Empirical:** C₆H₁₄N₂O₂ • CIH
### Chemical Component Cross-Reference

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<th>Chemical Component Cross-Reference</th>
<th>CAS</th>
<th>EINECS/ELINCS</th>
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<tbody>
<tr>
<td>Lysine monohydrochloride; L-Lysine monohydrochloride. <strong>See</strong> L-Lysine hydrochloride</td>
<td>30657-38-6; 85153-23-7; 97635-56-8; 97635-57-9</td>
<td>250-275-8; 285-802-0; 307-418-5; 307-419-0</td>
</tr>
<tr>
<td>Lysine, mono-4-thiazolidinecarboxylate. <strong>See</strong> Lysine thiazolidine carboxylate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lysine 5-oxo-proline. <strong>See</strong> Lysine PCA</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lysine PCA</strong></td>
<td>CAS</td>
<td>30657-38-6; 85153-23-7; 97635-56-8; 97635-57-9; EINECS/ELINCS 250-275-8; 285-802-0; 307-418-5; 307-419-0</td>
</tr>
<tr>
<td><strong>Synonyms:</strong></td>
<td>L-Lysine, compd. with 5-oxo-L-proline (1:1); Lysine 5-oxo-proline; Lysine pyroglutamate; 5-Oxoproline, compd. with lysine (1:1); 5-Oxo-DL-proline, compd. with DL-lysine (1:1); 5-Oxo-DL-proline, compd. with L-lysine (1:1); 5-Oxo-DL-proline, compd. with DL-lysine (1:1); Proline, 5-oxo-, compd. with lysine (1:1)</td>
<td><strong>Definition:</strong> Lysine salt of 2-pyrrolidone-5-carboxylic acid</td>
</tr>
<tr>
<td><strong>Empirical:</strong></td>
<td>C₁₁H₂₅N₃O₅</td>
<td><strong>Formula:</strong> C₆H₁₄N₂O₂ • C₅H₇NO₃</td>
</tr>
<tr>
<td><strong>Uses:</strong></td>
<td>Moisturizer, cellular regenerative agent, antioxidant, free radical scavenger in pharmaceuticals</td>
<td></td>
</tr>
<tr>
<td><strong>Trade Names:</strong></td>
<td>Lysidone®</td>
<td></td>
</tr>
<tr>
<td>Lysine pyroglutamate. <strong>See</strong> Lysine PCA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lysine thiazolidine carboxylate</td>
<td>CAS</td>
<td>444-27-9; EINECS/ELINCS 279-164-2</td>
</tr>
<tr>
<td><strong>Synonyms:</strong></td>
<td>Lysine, mono-4-thiazolidinecarboxylate</td>
<td><strong>Definition:</strong> Lysine salt of thiazolidine carboxylic acid</td>
</tr>
<tr>
<td><strong>Empirical:</strong></td>
<td>C₁₀H₂₀N₃O₄S</td>
<td><strong>Formula:</strong> C₆H₁₄N₂O₂ • C₄H₆NO₂S</td>
</tr>
<tr>
<td><strong>Uses:</strong></td>
<td>Surfactant</td>
<td></td>
</tr>
<tr>
<td><strong>Trade Names Containing:</strong></td>
<td>Tiolisina Complex®</td>
<td></td>
</tr>
<tr>
<td>L-Lyxoascorbic acid. <strong>See</strong> L-Ascorbic acid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAA. <strong>See</strong> Maleic anhydride; Methyl acetacete; Methacrylic acid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Macadamia nut oil; Macadamia ternifolia. <strong>See</strong> Macadamia ternifolia nut oil</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Macadamia ternifolia nut oil</strong></td>
<td>CAS</td>
<td>128497-20-1; 129811-19-4; 273-313-5</td>
</tr>
<tr>
<td><strong>Synonyms:</strong></td>
<td>Macadamia nut oil; Macadamia ternifolia; Macadamia ternifolia oil</td>
<td><strong>Definition:</strong> Fixed oil obtained from the nuts of Macadamia ternifolia</td>
</tr>
<tr>
<td><strong>Properties:</strong></td>
<td>Colorless to lt. yel. clear oil, bland to sl. nutty flavor; sp.gr. 0.910-0.929; iodine no. 70-80; sapon. no. 190-200; ref. index 1.460-1.479</td>
<td><strong>Uses:</strong> Emollient, moisturizer, lubricant, conditioner for pharmaceuticals</td>
</tr>
<tr>
<td>Macadamia ternifolia oil. <strong>See</strong> Macadamia ternifolia nut oil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mace. <strong>See</strong> Chloroacetophenone; Mace (Myristica fragrans)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mace (Myristica fragrans)</strong></td>
<td>CAS</td>
<td>977051-14-1</td>
</tr>
<tr>
<td><strong>FEMA</strong></td>
<td>2652</td>
<td><strong>Synonyms:</strong> Mace; Myristica fragrans</td>
</tr>
<tr>
<td><strong>Definition:</strong></td>
<td>From Myristica fragrans</td>
<td><strong>Uses:</strong> Natural flavor for pharmaceuticals</td>
</tr>
<tr>
<td><strong>Regulatory:</strong></td>
<td>FDA 21CFR §101.22, 182.10, GRAS; FEMA GRAS</td>
<td></td>
</tr>
<tr>
<td>Mace (Myristica fragrans) oil</td>
<td>CAS</td>
<td>8007-12-3; 977051-15-2</td>
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<tr>
<td><strong>FEMA</strong></td>
<td>2653</td>
<td><strong>Synonyms:</strong> Fats, nutmeg butter; Mace oil; Mace oleoresin; Macis oil; Myristica fragrans; Myristica fragrans oil; Myristica fragrans oleoresin; Nutmeg oil, expressed</td>
</tr>
<tr>
<td><strong>Definition:</strong></td>
<td>Volatile oil from steam distillation of dried aril of ripe seed of Myristica fragrans</td>
<td></td>
</tr>
<tr>
<td><strong>Empirical:</strong></td>
<td>C₇H₅ClO</td>
<td><strong>Uses:</strong></td>
</tr>
<tr>
<td><strong>Properties:</strong></td>
<td>Colorless to pale yel. liq., nutmeg odor and taste; sol. in fixed oils, min. oil; very sol. in hot alcohol, chloroform, ether; m.w. 140.57; dens. 0.89; ref. index 1.474; E. Indian: dens. 0.880-0.930; ref. index 1.474-1.488; W. Indian: dens. 0.854-0.880; ref. index 1.469-1.480</td>
<td></td>
</tr>
<tr>
<td><strong>Toxicology:</strong></td>
<td>LD₅₀ (oral, rat) 3640 mg/kg; mod. toxic by ing.; skin irritant; human systemic effects (arrhythmia, hallucinations, toxic psychosis, flushing of skin, contact dermatitis); large doses may cause epileptiform convulsions</td>
<td></td>
</tr>
</tbody>
</table>
**Chemical Component Cross-Reference**

<table>
<thead>
<tr>
<th>Chemical Component</th>
<th>Cross-Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Macrogol 1</td>
<td>See Macrogol 2</td>
</tr>
<tr>
<td>Macrogol 2</td>
<td>See Macrogol 3</td>
</tr>
<tr>
<td>Macrogol 3</td>
<td>See Macrogol 4</td>
</tr>
<tr>
<td>Macrogol 4</td>
<td>See Macrogol 5</td>
</tr>
</tbody>
</table>

**Formula:**

- Macrogol 1: C₈H₁₆O₆
- Macrogol 2: C₁₀H₂₀O₁₀
- Macrogol 3: C₁₂H₂₄O₁₄
- Macrogol 4: C₁₆H₃₂O₂₄

**Empirical:**

- Macrogol 1: C₈H₁₆O₆
- Macrogol 2: C₁₀H₂₀O₁₀
- Macrogol 3: C₁₂H₂₄O₁₄
- Macrogol 4: C₁₆H₃₂O₂₄

**Properties:**

- Macrogol 1: Wh. or colorless cryst.; sl. vinegar odor; very sol. in water; m.w. 142.41 (anhyd.), 214.45 (tetrahydrate); dens. 1.42; m.p. 323°C
- Macrogol 2: Odorless, colorless cryst., anhydrous; m.w. 214.45, m.p. 323°C
- Macrogol 3: Odorless, colorless cryst., anhydrous; m.w. 269.55, m.p. 323°C
- Macrogol 4: Odorless, colorless cryst., anhydrous; m.w. 437.09, m.p. 323°C

**Storage:**

- Macrogol 1: Protect from light
- Macrogol 2: Protect from light
- Macrogol 3: Protect from light
- Macrogol 4: Protect from light

**Uses:**

- Macrogol 1: Natural flavor for pharmaceuticals, orals, inhalants; rubefacient; carminative; in herbal preps. for treatment of respiratory tract disorders
- Macrogol 2: Natural flavor for pharmaceuticals, orals, inhalants; rubefacient; carminative; in herbal preps. for treatment of respiratory tract disorders
- Macrogol 3: Natural flavor for pharmaceuticals, orals, inhalants; rubefacient; carminative; in herbal preps. for treatment of respiratory tract disorders
- Macrogol 4: Natural flavor for pharmaceuticals, orals, inhalants; rubefacient; carminative; in herbal preps. for treatment of respiratory tract disorders

**Regulatory:**

- Macrogol 1: BP compliance
- Macrogol 2: BP compliance
- Macrogol 3: BP compliance
- Macrogol 4: BP compliance
Magnesium alginate

Definition: The magnesium salt of alginic acid

Properties: Water-sol.

Uses: **Pharmaceutical antacids for treatment of esophageal reflux** (forms thick layer on surf. of stomach contents, providing mech. barrier)

Magnesium aluminometasilicate

CAS 12408-47-8; 12511-31-8

**Synonyms:** Simaldrate

**Classification:** Inorganic base

**Formula:** $\text{Al}_2\text{O}_3 \cdot \text{MgO} \cdot 2\text{SiO}_2 \cdot x\text{H}_2\text{O}$

**Properties:** Wh. powd.; odorless; tasteless; pract. insol. in water and ethanol; noncombustible

**Toxicology:** May cause respiratory irritation, cough, eye irritation; if ingested, reacts with gastric acid to give antacid buffering effect; ing. of lg. amts. may cause GI irritation, nausea, vomiting, constipation

**Precaution:** Incompat. with strong oxidizing agents; may absorb moisture; may cause coloring

**Storage:** Avoid high temp., high humidity

**Uses:** **Excipient for pharmaceuticals; antacid**

**Manuf./Distrib.:** Fuji Chem. Ind. USA†

**Trade Names:** Neusilin FH2; Neusilin S1; Neusilin UFL2; Neusilin US2

Magnesium aluminum silicate

CAS 1327-43-1; 12199-37-0; EINECS/ELINCS 215-478-8; 235-374-6

**Synonyms:** Aluminosilicic acid, magnesium salt; Aluminum magnesium silicate; Silicic acid, aluminum magnesium salt

**Definition:** Complex silicate refined from naturally occurring minerals (colerainite, leuchtenbergite, pyrope, saponite, sapphirine, sheridanite, zebedassite); blend of colloidal montmorillonite and saponite

**Empirical:** $\text{Al}_2\text{MgO}_8\text{Si}_2$

**Properties:** Fine powd. or sm. flakes, odorless, tasteless; swells in water or glycerin; insol. in water or alcohol; m.w. 262.45; visc. 100-2200 cps; pH 9-10 (5% susp.)

**Toxicology:** Not harmful at presently used levels; WHO recommends further studies because of kidney damage in dogs that ingested it; TSCA listed

**HMIS:** Health 1, Flammability 0, Reactivity 0

**Uses:** Absorbent, opacifier, visc. control agent, thixotrope, thickener, visc. modifier, emulsifier, suspending agent, binder, stabilizer, emulsion stabilizer for pharmaceuticals, toothpaste, dentals, orals, rectals, topicals, vaginals, medicated jellies, ointments; spreading agent for creams, lotions, ointments; disintegrant, binder for tablets; antacid

**Regulatory:** FDA approved for dentals, orals, rectals, topicals, vaginals; NF, BP, EP compliance; Canada DSL

**Manuf./Distrib.:** Am. Colloid†

**Trade Names:** DHT-4A; Neusilin FH2; Neusilin S1; Neusilin UFL2; Neusilin US2

Magnesium aluminum hydroxide/hydrotalcite

CAS 11097-59-9; 85585-93-9; EINECS/ELINCS 234-319-3; 287-796-5

**Synonyms:** Aluminum magnesium carbonate hydroxide; Aluminum magnesium hydroxide carbonate; [Carbonato(2-)] hexadecahydroxybis (aluminum) hexamagnesium; Magnesium aluminum hydroxide; Magnesium, carbonate hydroxy aluminum complexes; Magnesium [carbonato(2-)] hexadecahydroxybis (aluminum) hexa-

**Classification:** Inorg. carbonate

**Formula:** $\text{Mg}_6\text{Al}(\text{OH})_{16}\text{CO}_3 \cdot \text{H}_2\text{O}$

**Uses:** **Visc. control agent**

**Regulatory:** Canada DSL

**Trade Names:** DHT-4A
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Trade Names</th>
<th>†=pharmaceutical grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>VC-PMG</td>
<td>Magnesium, bis (lactato).</td>
</tr>
<tr>
<td>Magnesium carbonate CAS 546-93-0 (anhdy.); 23389-33-5 (hydrate); EINECS/ELINCS 208-915-9 INS504(i); E504 Synonyms: Carbonate magnesium; Carbonic acid magnesium salt; Carbonic acid magnesium salt (1:1); Carbonic acid magnesium salt (2:1); CI 77713; Hydromagnesite; Light magnesium carbonate; Magnesia alba; Magnesite; Magnesium (II) carbonate (1:1); Magnesium carbonate precipitated Classification: Crystalline salt Definition: Basic dehydrated magnesium carbonate or normal hydrated magnesium carbonate; the naturally occurring mineral is magnesite Empirical: CO₃ • Mg Properties: Light bulky wh. powd., odorless; sol. in acids; insol. in alcohol, water, NH₃; m.w. 84.32; dens. 3.04; bulking value 0.055 gal/lb; oil absorp. 80; dec. 350 C; ref. index 1.52; noncombustible Toxicology: ACGIH TLV/TWA 10 mg/m³ (total dust); nuisance particulate; TSCA listed Precaution: Incompat. with formaldehyde Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes Uses: Anticaking agent, colorant, buffer in pharmaceuticals, orals; abrasive in dentifrices; antacid in medicine Regulatory: FDA 21CFR §133.102, 133.106, 133.111, 133.141, 133.165, 133.181, 133.183, 133.195, 137.105, 137.155 137.160, 137.165, 137.170, 137.175, 137.180, 137.185, 163.110, 177.2600, 184.1425, GRAS; Japan approved (0.5% max.); Canada DSL; Europe listed; UK approved; FDA approved for orals; BP, EP compliance Manuf./Distrib.: AB R Lundberg <a href="http://www.norfoods.se/lundberg">http://www.norfoods.se/lundberg</a>; AMRESCO† <a href="http://www.amresco-inc.com">http://www.amresco-inc.com</a>; Advance Research Chems. <a href="http://www.fluoridearc.com">http://www.fluoridearc.com</a>; Alfa Aesar† <a href="http://www.alfa.com">http://www.alfa.com</a>; Alfa Chem <a href="http://www.alfachem1.com">http://www.alfachem1.com</a> Allan <a href="http://www.allanchem.com">http://www.allanchem.com</a>; Allchem Ind. <a href="http://www.allchem.com">http://www.allchem.com</a>; Am. Int’l.†</td>
<td></td>
</tr>
</tbody>
</table>
Magnesium chloride
CAS 7786-30-3; EINECS/ELINCS 232-094-6
INS 511; E 511
Synonyms: Magnesium chloride anhydrous
Classification: Inorganic salt
Empirical: $\text{Cl}_2\text{Mg}$
Formula: $\text{MgCl}_2$
Properties: Wh. to opaque gray gran. or flakes; odorless; sol. in water evolving heat; sol. in alcohol; m.w. 95.21; dens. 2.325; m.p. 708°C; b.p. 1412°C
Toxicology: LD50 (oral, rat) 2800 mg/kg, (IV, mouse) 14 mg/kg; LDLo (IP, rat) 225 mg/kg, (subcut., rat) 900 mg/kg; poison by IP and IV routes; mod. toxic by ing., subcut. routes; irritating to eyes, skin, respiratory system; target organs: nerves, kidneys; human mutagenic data; TSCA listed
Precaution: Causes steel to rust very rapidly in humid environments
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of Cl-
HMIS: Health 1, Flammability 0, Reactivity 0
Storage: Deliq., very hygroscopic; store under nitrogen
Chemical Component Cross-Reference

Uses: Electrolyte replenisher in pharmaceuticals, intramuscular injectables, intraocular injectables, ophthalmics

Regulatory: FDA 21 CFR §172.560, 177.1650, 184.1426, GRAS; USDA 9 CFR §318.7, 381.147, limitation ≤ 3% of 0.8 molar sol’n.; Japan approved; Canada DSL; FDA approved for intramuscular injectables, intraocular injectables, ophthalmics; BP, EP compliance


†=pharmaceutical grade

Magnesium chloride anhydrous. See Magnesium chloride

Magnesium chloride hexahydrate
CAS 7791-18-6; EINECS/ELINCS 232-094-6

Formula: MgCl₂ • 6H₂O

Properties: Colorless cryst.; very sol. in water; sol. in ethanol; m.w. 203.31; dens. 1.569; m.p. 118 C (dec.)

Toxicology: LD₅₀ (oral, rat) 8.1 g/kg, (IP, mouse) 775 mg/kg; LDLo (IV, rat) 176 mg/kg; poison by IV route; mod. toxic by IP route; mildly toxic by ing.; irritant; mutagen; target organs: nerves, kidneys

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of Cl⁻

HMIS: Health 1, Flammability 0, Reactivity 0

Storage: Deliq.; hygroscopic; keep well closed; store @ R.T.

Uses: Flavor, adjuvant, nutrient supplement in pharmaceuticals

Regulatory: BP, EP compliance; FDA 21 CFR §184.1426, GRAS


Magnesium diacetate. See Magnesium acetate

Magnesium digluconate. See Magnesium gluconate

Magnesium disalicylate. See Magnesium salicylate

Magnesium distearate. See Magnesium
Magnesium gluconate

CAS 3632-91-5 (anhyd.); 59625-89-7 (dihydrate); EINECS/ELINCS 222-848-2

INS580

Synonyms: D-Gluconic acid magnesium salt; D-Gluconic acid, magnesium salt (2:1); Magnesium digluconate; Magnesium D-gluconate

Classification: Inorganic salt

Definition: Magnesium salt of gluconic acid

Empirical: C_{12}H_{22}MgO_{14}

Formula: (C_6H_{11}O_7)_{2}Mg

Properties: Wh. powd. or fine need., odorless; almost tasteless; sol. in water; sl. sol. in alcohol; insol. in ether; m.w. 414.61 (anhyd.), 450.64 (dihydrate); flash pt. > 100 C

Toxicology: LD50 (IV, mouse) 321 mg/kg; poison by IV route; TSCA listed

Precaution: Combustible

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Mineral source, dietary supplement for pharmaceuticals, vitamin tablets

Regulatory: Canada DSL


Trade Names: Gluconal® MG-P

†=pharmaceutical grade

Chemical Component Cross-Reference

Magnesium D-gluconate. See Magnesium gluconate

Magnesium hydrogen metasilicate. See Talc

Magnesium hydrogen phosphate dibasic

Magnesium hydroxide

CAS 1309-42-8; EINECS/ELINCS 215-170-3

INS528; E528

Synonyms: Brucite; Magnesia magma; Magnesium hydroxide; Milk of magnesia

Classification: Inorganic base

Empirical: H_{2}MgO_{2}

Formula: Mg(OH)_{2}

Properties: Wh. amorphous powd. or colorless hexagonal cryst., odorless; sol. in sol’n. of ammonium salts and dilute acids; almost insol. in water and alcohol; m.w. 58.33; dens. 2.36; m.p. 350 C (dec.)

Toxicology: LD50 (oral, rat) 8500 mg/kg, (IP, rat) 2780 mg/kg; mod. toxic by IP route; human systemic effects (general depressed activity, coma); toxic when inhaled; harmless to skin; TSCA listed

Precaution: Noncombustible; incompat. with maleic anhydride

HMIS: Health 2, Flammability 0, Reactivity 0

Uses: Alkali in dentifrices; emollient in skin creams; pharmaceutical orals; medicine (antacid, laxative); milk of magnesia

Regulatory: FDA 21CFR §155.170, 176.180, 176.210, 184.1428, GRAS; Europe listed; UK approved; FDA approved for orals; BP, EP compliance; Canada DSL

Manuf./Distrib.: AB R Lundberg http://www.norfoods.se/lundberg; AMRESCO; Aldrich; Alfa Chem; Ria Int’l.

†=pharmaceutical grade

Handbook of Pharmaceutical Additives, Third Edition 1591
Chemical Component Cross-Reference

†=pharmaceutical grade

<table>
<thead>
<tr>
<th>Chemical Component</th>
<th>CAS Number</th>
<th>Synonyms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnesium lauryl sulfate</td>
<td>3097-08-3, 68081-97-0</td>
<td>Magnesium dodecyl sulfate; Magnesium monododecyl sulfate; Sulfuric acid, monododecyl ester, magnesium salt</td>
</tr>
</tbody>
</table>

Definition: Magnesium salt of lauryl sulfate

Empirical: C_{24}H_{50}MgO_{8}S_{2}
Chemical Component Cross-Reference

†=pharmaceutical grade

Uses: Alkaline buffer, mineral supplement in pharmaceuticals, orals; antacid, mild laxative

Regulatory: FDA 21CFR §155.170, 163.110, 163.111, 163.112, 175.300, 176.170, 177.1460, 177.1680, 177.2260, 177.2400, 177.2600, 178.1010, 178.3297, 184.1431, GRAS; Canada DSL; Japan restricted; Europe listed; FDA approved for orals; BP, EP compliance

Manuf./Distrib.: AB R Lundberg http://www.norfoods.se/lundberg;
AMRESCO† http://www.amresco-inc.com;
Aldrich† http://www.sigma-aldrich.com;
Alfa Aesar† http://www.alfa.com;
Alfa Chem http://www.alfachem1.com;
Allan http://www.allanchem.com;
AluChem http://www.aluchem.com;
Am. Int’l.† http://www.aicma.com;
Ashland† http://www.ashchem.com;
Atlantic Equip. Engrs.
http://www.micronmetals.com;
Atomeric Chemetals† http://www.atomerigic.com;
Aventis Pharmaceuticals† http://www.aventispharma-us.com;
Barrington† http://www.barringtonchem.com;
Baymag http://www.baymag.com;
Camida Ltd† http://www.camida.com;
Cerac http://www.cerac.com;
Chemaco GmbH† http://www.chemacon.de;
Chemco France† http://www.chemco-france.com;
Chemisphere http://www.chemispherecorp.com;
Cornelius Chem. Co. Ltd† http://www.cornelius.co.uk;
Crystran Ltd http://www.crystran.co.uk;
Dastech Int'l.† http://www.dastech.com;
Degussa AG/Health & Nutrition;
EMD Chems.† http://www.emdchemicals.com;
Fluka http://www.sigma-aldrich.com;
Fortitech† http://www.fortitech.com;
Functional Foods† http://www.functionalfoods.com;
GDL Int'l.† http://www.gdlinternational.com;
Galbraith Labs† http://www.galbraith.com;
Gallard-Schlesinger Ind.† http://www.gallard-schlesinger.com;
Generichem http://www.generichem.com;
Honeywill & Stein† http://www.honeywill.co.uk;
Integra†

Chemical Component Cross-Reference

Formula: $[\text{CH}_3(\text{CH}_2)_{10}\text{CH}_2\text{OSO}_3\text{Mg}^2]^{2-}$

Properties: Pale yel. liq., mild odor; sol. in methanol, acetone, water; insol. in kerosene; m.w. 555.09; anionic

Toxicology: TSCA listed

Precaution: Combustible

Uses: Surfactant, detergent, foaming agent, wetting agent, and emulsifier for toothpaste, pharmaceuticals

Regulatory: FDA 21CFR §175.105, 176.170, 177.1200; Canada DSL

Manuf./Distrib.: Ashland http://www.ashchem.com;
Rhodia HPCII http://www.rhodia-hpcii.com

Trade Names: STEPANOL® MG

Magnesium lithium sodium silicate. See Smectite

Magnesium monododecyl sulfate. See Magnesium lauryl sulfate

Magnesium octadecanoate. See Magnesium stearate

Magnesium oxide

CAS 1309-48-4; EINECS/ELINCS 215-171-9
INS 530; E 530

Synonyms: Calcined magnesia; Calcined magnesite; Deadburned magnesite; Magnesia; Magnesia, calcined; Magnesia, caustic-calcined; Magnesia clinker; Magnesia, dead-burned; Magnesia, fused; Magnesia oxide fume; Magnesia, sintered; Magnesia usta; Magnesite, caustic-calcined; Magnesium oxide fume; Periclase; Seawater magnesia; White charcoal

Classification: Inorganic oxide

Definition: Inorganic salt of magnesium

Empirical: MgO

Properties: Wh. powd. or cryst., odorless; sol. in dil. acids, ammonium salt sol’ns.; very sl. sol. in water; insol. in alcohol; m.w. 40.31; dens. 3.65-3.75; bulking value 0.034 gal/lb; oil absorp. 70; m.p. 2800 C; b.p. 3600 C

Toxicology: ACGIH TLV/TWA (as magnesium) 10 mg/m$^3$ (fume); TEL (inh., human) 400 mg/m$^3$; toxic by inhalation of fume; can cause febrile reaction and leukocytosis in humans; irritating to eyes and respiratory system; equivocal tumorigen; questionable carcinogen; TSCA listed

Precaution: Noncombustible; violent reaction or ignition with interhalogens; incandescent reaction with phosphorus pentachloride

Storage: Moisture-sensitive

Alkaline buffer, mineral supplement in pharmaceuticals, orals; antacid, mild laxative

Regulatory: FDA 21CFR §155.170, 163.110, 163.111, 163.112, 175.300, 176.170, 177.1460, 177.1680, 177.2260, 177.2400, 177.2600, 178.1010, 178.3297, 184.1431, GRAS; Canada DSL; Japan restricted; Europe listed; FDA approved for orals; BP, EP compliance

Manuf./Distrib.: AB R Lundberg http://www.norfoods.se/lundberg;
AMRESCO† http://www.amresco-inc.com;
Aldrich† http://www.sigma-aldrich.com;
Alfa Aesar† http://www.alfa.com;
Alfa Chem http://www.alfachem1.com;
Allan http://www.allanchem.com;
AluChem http://www.aluchem.com;
Am. Int’l.† http://www.aicma.com;
Ashland† http://www.ashchem.com;
Atlantic Equip. Engrs.
http://www.micronmetals.com;
Atomerigic Chemetals† http://www.atomerigic.com;
Aventis Pharmaceuticals† http://www.aventispharma-us.com;
Barrington† http://www.barringtonchem.com;
Baymag http://www.baymag.com;
Camida Ltd† http://www.camida.com;
Cerac http://www.cerac.com;
Chemaco GmbH† http://www.chemacon.de;
Chemco France† http://www.chemco-france.com;
Chemisphere http://www.chemispherecorp.com;
Cornelius Chem. Co. Ltd† http://www.cornelius.co.uk;
Crystran Ltd http://www.crystran.co.uk;
Dastech Int’l.† http://www.dastech.com;
Degussa AG/Health & Nutrition;
EMD Chems.† http://www.emdchemicals.com;
Fluka http://www.sigma-aldrich.com;
Fortitech† http://www.fortitech.com;
Functional Foods† http://www.functionalfoods.com;
GDL Int’l.† http://www.gdlinternational.com;
Galbraith Labs† http://www.galbraith.com;
Gallard-Schlesinger Ind.† http://www.gallard-schlesinger.com;
Generichem http://www.generichem.com;
Honeywill & Stein† http://www.honeywill.co.uk;
Integra†
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Chemical Component</th>
<th>Synonyms</th>
<th>Classification</th>
<th>Empirical</th>
<th>Properties</th>
<th>Toxicology</th>
<th>Precaution</th>
<th>Hazardous Decomp. Prods.</th>
<th>Uses</th>
<th>Regulatory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnesium oxide</td>
<td></td>
<td>Inorganic oxide</td>
<td>M$\text{gO}_2$</td>
<td>Wh. to cream powd.; odorless; tasteless; sol. in dil. acids; insol. in water, slowly decomposing evolving O$_2$; m.w. 56.31</td>
<td>Probably a severe irritant to eyes, skin, and mucous membranes; TSCA listed</td>
<td>Oxidizer; flamm. by chem. reaction with acidic materials and moisture; reacts vigorously with reducing agents; will dec. violently in or near fire</td>
<td>Heated to decomp., emits acrid smoke and irritating fumes</td>
<td>Medicine (laxative)</td>
<td>FDA 21CFR §175.300, 181.27,</td>
</tr>
</tbody>
</table>

#### Magnesium phosphate dibasic

<table>
<thead>
<tr>
<th>CAS</th>
<th>EINECS/ELINCS</th>
<th>Trade Names</th>
</tr>
</thead>
<tbody>
<tr>
<td>7757-86-0</td>
<td>231-823-5</td>
<td>Dimagnesium monohydrogen monophosphate; Dimagnesium orthophosphate; Dimagnesium phosphate; DMP/T; Magnesium hydrogen phosphate; Magnesium phosphate secondary; Secondary magnesium phosphate</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Formula</th>
<th>Properties</th>
<th>Toxicology</th>
<th>Precaution</th>
</tr>
</thead>
<tbody>
<tr>
<td>MgHPO$_4$ (anhyd.), MgHPO$_4$ • 3H$_2$O (trihydrate)</td>
<td>Anhyd.: m.w. 120.29; Trihydrate: Wh. cryst. powd.; odorless; sol. in dil. acid; sl. sol. in water; insol. in alcohol; m.w. 174.33; dens. 2.13; dec. 550-650 C</td>
<td>Nuisance dust</td>
<td>Nonflamm.</td>
</tr>
</tbody>
</table>

#### Magnesium phosphate secondary

<table>
<thead>
<tr>
<th>CAS</th>
<th>EINECS/ELINCS</th>
<th>Trade Names</th>
</tr>
</thead>
<tbody>
<tr>
<td>7782-75-4</td>
<td>INS343(ii)</td>
<td>Dimagnesium orthophosphate; DMP/T; Magnesium hydrogen phosphate; Magnesium phosphate secondary</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Formula</th>
<th>Properties</th>
<th>Toxicology</th>
<th>Precaution</th>
</tr>
</thead>
<tbody>
<tr>
<td>MgHPO$_4$ • nH$_2$O (n = 0-3)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Magnesium peroxide

<table>
<thead>
<tr>
<th>CAS</th>
<th>EINECS/ELINCS</th>
<th>Trade Names</th>
</tr>
</thead>
<tbody>
<tr>
<td>1335-26-8</td>
<td>14452-57-4</td>
<td>Magnesium peroxide, solid</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Formula</th>
<th>Properties</th>
<th>Toxicology</th>
<th>Precaution</th>
</tr>
</thead>
<tbody>
<tr>
<td>M$\text{gO}_2$</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Magnesium phosphate secondary. See Magnesium phosphate dibasic

**Magnesium salicylate**

CAS 18917-89-0; EINECS/ELINCS 242-669-3

Synonyms: 2-Hydroxybenzoic acid, magnesium salt; 2-Hydroxybenzoic acid monomagnesium salt; Magnesium disalicylate; Magnesium 2-hydroxybenzoate; Salicylic acid, magnesium salt

**Definition:** Magnesium salt of salicylic acid

**Empirical:** C14H10MgO6 • 4H2O

**Properties:** Wh. solid cryst. powd.; odorless; tasteless; m.w. 370.60 (2)

**Toxicology:** TSCA listed

**Precaution:** Avoid strong oxidizing agents, heat and sources of ignition; do not breathe dust; wear protective gloves, lab coat, and dust respirator

**HMIS:** Health 1, Flammability 1, Reactivity 0

**Storage:** Store in a tightly sealed container in a cool, well-ventilated place

**Uses:** Preservative for pharmaceuticals

**Regulatory:** FDA 21CFR §178.2010; Canada DSL


**Magnesium silicate**

CAS 1343-88-0; EINECS/ELINCS 215-681-1

INS553(i); E553a

**Synonyms:** Silicic acid, magnesium salt (1:1)

**Classification:** Inorganic salt of variable composition

**Definition:** Compd. of magnesium oxide and silicon dioxide with molar ratio approx. 2:5

**Empirical:** MgO • SiO2 • xH2O

**Properties:** Wh. fine effervescent powd., odorless, tasteless; insol. in water, alcohol; decomp. by acids; pH 7-10.8 (10% aq. susp.)

**Toxicology:** Toxic by inhalation; use in foods restricted to 2%

**Precaution:** Noncombustible

**Uses:** Glidant, anticaking agent in pharmaceuticals, orals; medicine (neutralizer to reduce stomach acidity)

**Regulatory:** FDA 21CFR §169.179, 169.182, 182.2437 (2% max.), GRAS; Europe listed; UK approved; FDA approved for orals; USP/NF compliance; Canada DSL

**Magnesium stearate**

CAS: 557-04-0; EINECS/ELINCS: 209-190-3

**Empirical:** \( \text{C}_{36}\text{H}_{70}\text{MgO}_4 \)

**Formula:** \([\text{CH}_3(\text{CH}_2)_16\text{COO}]_2\text{Mg}\)

**Properties:** Wh. soft oily powd., tasteless, odorless; insol. in water, alcohol, ether; dec. by dilute acids; m.w. 591.27; dens. 1.028; m.p. 88.5°C (pure)

**Toxicology:** ACGIH TLV/TWA 10 mg/m³; LD50 (oral, rat) > 10 g/kg (@ 25%); sl. toxic by ing.; ing. may cause vomiting; inh. of high concs. of dust may cause coughing and mild temporary irritation; TSCA listed

**Precaution:** Combustible dust; may form explosive dust-air mixts.; incompat. with acids (reacts vigorously)

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and toxic fumes

**Storage:** Store in cool area away from ignition sources

**Uses:** Colorant, tablet/capsule lubricant in pharmaceuticals, buccals, parenterals, orals, vaginals; anticaking agent; stabilizer

**Regulatory:** FDA 21CFR §172.863, 173.340; 175.105, 175.300, 175.320, 176.170, 176.200, 176.210, 177.1200, 177.2260, 178.3910, 179.45, 181.22, 181.29, 184.1440, GRAS; Canada DSL; must conform to FDA specs for salts of fats or fatty acids derived from edible oils; Europe listed; UK approved; FDA approved for buccals, parenterals, orals, vaginals; USP/NF, BP, EP, JP compliance

**Manuf./Distrib.:** Aceto†; http://www.aceto.com; Aldrich; http://www.sigma-aldrich.com; Alfa Aesar†; http://www.sigma-aldrich.com; Alfa Chem†

**Classification:** Sat. aliphatic carboxylic acid salt

**Definition:** Magnesium salt of stearic acid

**CAS:** 557-04-0; EINECS/ELINCS 209-190-3

**Empirical:** \( \text{C}_{36}\text{H}_{70}\text{MgO}_4 \)

**Formula:** \([\text{CH}_3(\text{CH}_2)_16\text{COO}]_2\text{Mg}\)

**Properties:** Wh. soft oily powd., tasteless, odorless; insol. in water, alcohol, ether; dec. by dilute acids; m.w. 591.27; dens. 1.028; m.p. 88.5°C (pure)

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**Precaution:** Combustible dust; may form explosive dust-air mixts.; incompat. with acids (reacts vigorously)

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and toxic fumes

**Storage:** Store in cool area away from ignition sources

**Uses:** Colorant, tablet/capsule lubricant in pharmaceuticals, buccals, parenterals, orals, vaginals; anticaking agent; stabilizer

**Regulatory:** FDA 21CFR §172.863, 173.340; 175.105, 175.300, 175.320, 176.170, 176.200, 176.210, 177.1200, 177.2260, 178.3910, 179.45, 181.22, 181.29, 184.1440, GRAS; Canada DSL; must conform to FDA specs for salts of fats or fatty acids derived from edible oils; Europe listed; UK approved; FDA approved for buccals, parenterals, orals, vaginals; USP/NF, BP, EP, JP compliance

**Manuf./Distrib.:** Aceto†; http://www.aceto.com; Aldrich; http://www.sigma-aldrich.com; Alfa Aesar†; http://www.sigma-aldrich.com; Alfa Chem†
Magnesium sulfate (1:1). See Magnesium sulfate anhydrous

Magnesium sulfate anhydrous
CAS 7487-88-9; EINECS/ELINCS 231-298-2
INS518
Synonyms: Epsom salts; Magnesium sulfate (1:1); Magnesium sulphate; Sulfuric acid magnesium salt (1:1)
Classification: Inorganic salt
Empirical: O$_4$S • Mg
Formula: MgSO$_4$
Properties: Colorless crystals, odorless, saline bitter taste; sol. in water; slowly sol. in glycerin; sl. sol. in alcohol; m.w. 120.37; dens. 2.65; dec. at 1124 C
Toxicology: LDLo (oral, mouse) 5 g/kg, (IV, mouse) 48 mg/kg; LD50 (subcut., rat) 1200 mg/kg; poison by IV route; mod. toxic by ing., IP, subcut. routes; human systemic effects; potential adverse reactions incl. drowsiness, depressed reflexes, paralysis, low blood pressure, circulatory collapse; experimental teratogen; mutagenic data; TSCA listed

**Precaution:** Noncombustible; potentially explosive when heated with ethoxyethynyl alcohols

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of SOX
HMIS: Health 1, Flammability 0, Reactivity 0
Storage: Hygroscopic
Uses: Pharmaceutical orals; medicine (laxative, local painkiller, antidote)

**Regulatory:** FDA 21CFR §184.1443, GRAS; Japan approved; Europe listed; UK approved; FDA approved for orals; BP, EP compliance; Canada DSL
Manuf./Distrib.: Adheswara Chems. Pvt. Ltd.; Aldrich† http://www.sigma-aldrich.com; Alfa Aesar† http://www.alfa.com; Alfa Chem http://www.alfachem1.com; Allan Pionier® WWH-N; Pionier® SVE; Pionier® Tow; Pionier® T-0145; Pionier® T-0150; Nu-Tab™ 4001; Nu-Tab™ 4003; Pionier® L-15; Pionier® PIAH; Pionier® SVE; Pionier® T-0145; Pionier® T-0150; Pionier® WWH-N; Pionier® WWH-Soft; ReadyPress® C; ReadyPress® C w/RH; Voigt Global Distrib. http://www.vgdllc.com; Zetapharm† http://www.zetapharm.com
Trade Names: Cecavon® MG 51; Kemilub EM-F; Magnesium Stearate 905-G; Magnesium Stearate 2311-G; Synpro® Magnesium Stearate NF; Synpro® Magnesium Stearate NF Veg.
Trade Names Containing: Candex® Plus; DSS Tablet Grade; Nu-Tab™ 4001; Nu-Tab™ 4003; Pionier® L-15; Pionier® PIAH; Pionier® SVE; Pionier® T-0145; Pionier® T-0150; Pionier® WWH-N; Pionier® WWH-Soft; ReadyPress® C; ReadyPress® C w/RH

MgSO$_4$
**Magnesium sulfate heptahydrate**

CAS 10034-99-8; EINECS/ELINCS 231-298-8

**Synonyms:** Bitter salts; Epsom salts; Sulfuric acid, magnesium salt (1:1) heptahydrate

**Empirical:** MgO₄S • 7H₂O

**Formula:** MgSO₄ • 7H₂O

**Properties:** Efflorescent cryst. or powd., bitter saline cooling taste; sol. 71 g/100 ml in water (20 C); sl. sol. in alcohol; m.w. 246.48; dens. 1.670; pH 6-7; loses water of cryst. above 150 C

**Toxicology:** TDL0 (oral, man, 4 h intermittent) 183 mg/kg; mod. toxic by several routes; parenteral use or use in presence of renal insufficiency, may lead to magnesium intoxication; target organs: nerves, GI system

**HMIS:** Health 1, Flammability 0, Reactivity 0

**Storage:** Keep well closed; store @ R.T.

**Uses:** Mfg. of Epsom salts; micronutrient in biosynthesis; anticonvulsant; cathartic; purgative

**Regulatory:** BP, EP compliance; FDA 21CFR §184.1443, GRAS; Europe listed; UK approved; Canada DSL

**Manuf./Distrib.:** AMRESCO†

http://www.amresco-inc.com; Aldrich

http://www.sigma-aldrich.com; Allan

http://www.allanchem.com; Barrington†

http://www.barringtonchem.com; Boith

China http://www.boith.com

C.P. Hall† http://www.cphall.com;

Chemacon GmbH†

http://www.chemacon.de; EMD Chems.†

http://www.emdchemicals.com; Fluka

http://www.sigma-aldrich.com; Giles

http://www.gileschemical.com

Lohmann http://www.lohmann-chemikalien.de; Mallinckrodt Baker†

http://www.mallbaker.com; Ruger†

http://www.rugerchemical.com; Sigma

http://www.sigma-aldrich.com/belgium;

†=pharmaceutical grade

**Magnesium sulphate. See Magnesium sulfate anhydrous**

**Magnesium trisilicate**

CAS 14987-04-3 (anhyd.); EINECS/ELINCS 239-076-7

INS553(ii); E553a

**Synonyms:** Dimagnesium trisilicate; Silicic acid, magnesium salt (1:2)

**Classification:** Inorg. compd.

**Empirical:** H₄O₁₈Si₃ • 2Mg

**Formula:** 2MgO • 3SiO₂ • xH₂O

**Properties:** Wh. fine powd., odorless, tasteless; insol. in water, alcohol; readily dec. by min. acids; m.w. 260.86 (anhyd.). noncombustible

**Toxicology:** TSCA listed

**Storage:** Hygroscopic

**Uses:** Colorant in pharmaceuticals, orals; medicine (antacid)

**Regulatory:** FDA approved for orals; BP, EP compliance; Canada DSL

**Manuf./Distrib.:** AMRESCO†

http://www.amresco-inc.com; Am. Int'l.†

http://www.aicma.com; Austin†

http://www.austinchemical.com;

Barrington†

http://www.barringtonchem.com; Cambrex

Charles City†

http://www.cambrex.com/Content/About/Locations.class

EMD Chems.†

http://www.emdchemicals.com; Fluka

http://www.sigma-aldrich.com; Functional Foodst†

http://www.functionalfoods.com;

Gallard-Schlesinger Ind.†

http://www.gallard-schlesinger.com;

Generichem† http://www.generichem.com

INEOS Silicas Am.†

http://www.ineossilicas.com; Lohmann†

http://www.lohmann-chemikalien.de;

Magnesia GmbH† http://www.magnesia.de;

Merck KGaA† http://www.merck.de;

Mutchler† http://www.mutchlerchem.com

Penta Mfg.† http://www.pentamfg.com;

Ruger† http://www.rugerchemical.com;

Spectrum Quality Prods.†

http://www.spectrumchemical.com;

Universal Preserv-A-Chem†
Chemical Component Cross-Reference


Magnetite. See Iron oxide black
Maize gluten amino acids. See Corn gluten amino acids
Maize oil. See Corn (Zea mays) oil
Maize starch. See Corn (Zea mays) starch
Maize starch, pregelatinized. See Corn starch, pregelatinized
MAK. See Methyl n-amyl ketone
MALA. See Maleic anhydride
Malaleuca alternifolia leaf oil; Malaleuca alternifolia oil. See Tea tree (Malaleuca alternifolia) oil

Maleated soybean oil
CAS 68648-66-8; EINECS/ELINCS 272-000-0
Synonyms: Oils, soybean, maleated; Soybean oil, maleated
Definition: Modified soybean oil where some of the unsaturation is converted to a cyclic dicarboxylic acid
Properties: Amber-yel. visc. oily liq., mild char. odor; sol. in castor oil, IPM, dioctyl maleate, lauramide DEA (1:1), cocamide DEA (2:1); insol. in water, glycerin, propylene glycol, 90% ethanol; sapon. no. 230-250; ref. index 1.4750-1.4850
Toxicology: LD50 (oral, rat) > 5 g/kg; nonirritating to eyes; mildly irritating to skin; TSCA listed
Uses: Emollient, softener, moisturizer for topical pharmaceuticals, water-resist. sunscreens, creams, lotions
Regulatory: Canada DSL
Trade Names Containing: Ceraphyl® GA-D

Maleic acid
CAS 110-16-7; EINECS/ELINCS 203-742-5
UN NA 2215 (DOT)
Synonyms: cis-Butenedioic acid; (Z)-Butenedioic acid; Ethylenedicarboxylic acid; cis-1,2-Ethylenedicarboxylic acid; Maleinic acid; Maleic acid; Toxilic acid
Classification: Cis unsaturated organic acid
Empirical: C4H4O4
Formula: HOOCCH:CHCOOH
Properties: Wh. cryst. powd., odorless; sol. in water, alcohol, acetone, glacial acetic acid; sl. sol. in ether; pract. insol. in benzene; insol. in chloroform; m.w. 116.07; dens. 1.590; m.p. 132-140 C; flash pt. 100 C; rearranges partially to fumaric acid when heated above m.p.; strong acid
Toxicology: LD50 (oral, rat) 708 mg/kg, †=pharmaceutical grade (dermal, rabbit) 1560 mg/kg; mod. toxic by ing. and skin contact; corrosive; skin and severe eye irritant; passes through intact skin; inh. can cause mild to severe irritation or tissue damage, sore throat, coughing, pulmonary edema; ing. of conc. sol’ns. can probably cause severe burns to lips/mouth/throat, vomiting, diarrhea, permanent tissue damage; TSCA listed
Precaution: DOT: Corrosive material; combustible when exposed to heat or flame
Hazardous Decomp. Prods.: CO, CO2; heated to decomps., emits acid smoke and irritating fumes; maleic anhydride may form in fire
Uses: Rancidity retardant, preservative in pharmaceuticals, intramuscular injectables, orals; pharmaceutical intermediate (antihistamines)
Regulatory: FDA 21CFR §175.105, 177.1200; FDA approved for intramuscular injectables, orals; BP, EP compliance; Canada DSL
Chemical Component Cross-Reference

http://www.upicchem.com; VWR Int’l.
http://www.vwrsp.com

Maleic acid anhydride. See Maleic anhydride
Maleic acid diallyl ester. See Diallyl maleate
Maleic acid, diethyl ester. See Diethyl maleate
Maleic acid, dioctyl ester. See Dioctyl maleate
Maleic anhydride
CAS 108-31-6; EINECS/ELINCS 203-571-6
UN 2215 (DOT)
Synonyms: cis-Butenedioic anhydride;
Dihydro-2,5-dioxofuran; 2,5-Dihydrofuran-2,5-dione; 2,5-Furandione; MA; MAA; MALA; Maleic anhydride; MAN; Toxilic anhydride
Classification: Aliphatic carboxylic acid anhydride
Empirical: \( \text{C}_4\text{H}_2\text{O}_3 \)
Properties: Colorless needles; irritating, acrid odor; sol. in water forming maleic acid; sol. in acetone, ethyl acetate, hydrocarbons, alcohol, dioxane, oxygenated solvs.; partly sol. in chloroform, benzene; m.w. 98.06; dens. 0.934 (20/4 C); m.p. 53 C; b.p. 200 C; flash pt. (CC) 102 C
Toxicology: ACGIH TLV/TWA 0.25 ppm; LD50 (oral, rat) 481 mg/kg, (IP, rat) 97 mg/kg, (skin, rabbit) 2620 mg/kg; poison by ing., IP routes; mod. toxic by skin contact; corrosive irritant to tissues, eyes, skin; can cause pulmonary edema; may cause asthmatic reaction in sensitized individuals; questionable carcinogen; experimental tumorigen; mutagenic data; TSCA listed
Precaution: DOT: Corrosive material;
combustible exposed to heat or flame; can react vigorously with oxidizing materials;
explosive as vapor exposed to heat or flame; violent reaction with bases; reacts with water
Hazardous Decomp. Prods.: Combustion prods.: CO, CO₂; heated to decomp., emits acrid smoke, irritating fumes
NFPA: Health 3, Flammability 1, Reactivity 1
Uses: Preservative for pharmaceuticals
Regulatory: SARA reportable; HAP; Canada DSL
Manuf./Distrib.: Aastrid Int’l.
http://www.aastrid.com; Aldrich
http://www.sigma-aldrich.com; Allchem Ind.
http://www.allchem.com; Arkema
http://www.total.com/; Ashland

†=pharmaceutical grade

http://www.ashchem.com
BCH Brühl http://www.bch-bruehl.de; BP Chemicals† http://www.bcp.com; Baychem;
Bayer http://www.bayerus.com; Brown
http://www.brownchem.com
Changzhou Changmao Biochem. Eng.† http://www.ccbec.com; Chemical
http://www.thechemco.com; DSM Fine
Chems. Austria
http://www.dsmfinechemicals.com;
Degussa AG http://www.degussa.com; Filo
http://www.filochemical.com
Fluka http://www.sigma-aldrich.com;
Huntsman http://www.huntsman.com;
Lonza† http://www.lonza.com; Mallinckrodt
Baker http://www.mallbaker.com; Miljac
http://www.miljac.com
NOF http://www.nof.co.jp; Occidental
http://www.oxychem.com; Parchem
Trading† http://www.par-chem.com;
Primachem
Punda Mercantile http://www.punda.com;
Royale Pigments & Chems.
http://www.royalpigments-chem.com;
Sigma http://www.sigma-
aldrich.com/belgium; Sparkford Chems. Ltd
http://www.sparkford.co.uk; Spectrum
Quality Prods.
http://www.spectrumchemical.com
Sunoco http://www.sunocochem.com; U.S.
United Min. & Chem.
http://www.umccorp.com; Whyte Chems.
Ltd http://www.whytechemicals.co.uk

Maleic anhydride/polyethylene copolymer. See Ethylene/MA copolymer
Maleinic acid; Malenic acid. See Maleic acid
Malic acid (INCI). See N-Hydroxysuccinic acid
DL-Malic acid diethyl ester. See Diethyl DL-
maleate
Malic acid, 3-hydroxy-. See L-Tartaric acid

Malonic acid
CAS 141-82-2; EINECS/ELINCS 205-503-0
Synonyms: Carboxyacetic acid; Dicarboxylic acid C3; Dicarboxymethane;
Methanedicarboxylic acid;
Methanedicarboxylic acid; Propanedioic acid
Empirical: \( \text{C}_3\text{H}_4\text{O}_4 \)
Formula: \( \text{CH}_2(\text{COOH})_2 \)
Properties: Wh. cryst. solid; sol. in water, alcohol, ether; m.w. 104.06; dens. 1.63; m.p.
Chemical Component Cross-Reference

†=pharmaceutical grade

Malonic acid buty l ethyl ester. See Butyl ethyl malonate
Malonic acid, t-buty l ethyl ester. See t-Butyl ethyl malonate
Malonic acid, diethyl ester; Malonic ester. See Diethyl malonate
Malonic methyl ester nitrile. See Methyl cyanoacetate

Malt extract
CAS 8002-48-0; EINECS/ELINCS 232-310-9
Synonyms: Maltine; Malt syrup
Definition: Dark syrup obtained by evaporating an aq. extract of partially germinated and dried barley seeds; derived from Hordeum vulgare; contains dextrin, maltose, a little glucose, and an amylolytic enzyme
Properties: Lt. brown, visc. liq.; sweet; sol. in cold water; dens. 1.35-1.43
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Nutritive sweetener, emulsifier, flavor, adjuvant, colorant, enzyme, humectant, stabilizer, thickener, texturizer in pharmaceuticals
Regulatory: FDA 21 CFR §73.85, 131.112, 131.170, 131.200, 131.203, 131.206, 131.124, 131.111, 133.124, 133.178, 133.179, 184.1445, GRAS; USDA 9 CFR §318.7,

†=pharmaceutical grade

limitation 2.5% in cured meats, 381.147; FDA approved for orals
Manuf./Distrib.: Briess Malting
http://www.briess.com; Chart
http://www.chartcorp.com; Cognis
http://www.cognis.de; Danisco USA
http://www.danisco.com; Degussa
AG/Health & Nutrition
http://www.glorybee.com; J.W. Pike Ltd; Lambent Tech.
http://www.lambentcorp.com; MLG Enterprises; Malt Prods.
http://www.maltproducts.com
Novartis Pharma
http://www.vgdllc.com
Trade Names: Non-Diastatic Malt Syrup #40600

Maltine. See Malt extract

Maltitol
CAS 585-88-6; EINECS/ELINCS 209-567-0
INS965; E965i
Synonyms: 4-O-α-D-Glucopyranosyl-D-glucitol; 4-O-β-D-Glucopyranosyl-D-glucitol; 4-O-α-D-Glucopyranosyl-D-sorbitol
Definition: Disaccharide polyol obtained by hydrogenation of maltose
Empirical: C12H24O11
Properties: Liq., cryst.; easily sol. in water; m.w. 344.32; m.p. 149-152 C; very stable at different pH conditions and temps.
Toxicology: LD50 (oral) > 24 g/kg; low acute toxicity; nonmutagenic; nonteratogenic
Uses: Nutritive sweetener in pharmaceuticals; crystallization inhibitor in pharmaceutical liq. dosage forms; hemolysis preventer in blood preservatives; base for medicated hard boiled candies and chewing gums; plasticizer in gelatin capsules; base for dental care prods.
Features: Noncariogenic
Regulatory: BP, EP compliance
Manuf./Distrib.: AB R Lundberg
http://www.norfoods.se/lundberg; Adept Sol'n's†; Aldrich† http://www.sigma-aldrich.com; Amalgamet† http://www.amalgamet.com; Ashland† http://www.ashchem.com

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Chemical Component Cross-Reference

CarboMer† http://www.carbomer.com;
Cerestar† http://www.cerestar.com;
Trade Names: Amalty®; C*Maltidex CH 16385; C*Maltidex L 16303; C*Maltidex M 16311; Finmalt L
Lycasin®; Lycasin® HBC; Maltisorb® 75/75; Maltisorb® P 200; Maltisorb® P 90
Mannogem™
Trade Names Containing: Compressol™ S Co-Processed Polyol
Maltobiose. See Maltose
Maltodextrin
CAS 9050-36-6; EINECS/ELINCS 232-940-4
Classification: Saccharide
Definition: Saccharide material obtained by hydrolysis of starch; consists of D-glucose units with a DE < 20
Empirical: (C6H10O5)n
Properties: Wh. powd. or sol'n.; sol. in water; pract. insol. in anhyd. alcohol; m.p. 240 C (dec.); pH 4-7 (20%)
Toxicology: TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Storage: Hygroscopic
Uses: Nutritive polymer, carrier, bulking agent, absorbent for pharmaceuticals; tablet/capsule diluent, coating agent, binder, visc. builder; coating and spray drying aid
Features: Nonsweet
Regulatory: BP, EP compliance; FDA 21CFR §184.144, GRAS; Canada DSL
†=pharmaceutical grade
Avebe UK Ltd; Aventis Pharmaceuticals† http://www.aventispharma-us.com;
Brenntag Southeaster; CarboMer† http://www.carbomer.com; Cerestar Int'l.† http://www.cerestar.nl
ChemTech Specialties† http://www.chemtechspecialties.com;
Chemco France† http://www.chemco-france.com/chemco/chemco.nsf/HTML/0E5A87A7C8BCC90C12570E0040301E;
Primera Foods† http://www.primerafoods.com; Roquette UK; Roquette† http://www.roquette.fr; Spectrum Quality Prods.† http://www.spectrumchemical.com;
Sweeteners Plus http://www.sweethenersplus.com
Tate & Lyle UK† http://www.tateandlyle.com; Univar Ltd† http://www.univar.co.uk; Voigt Global Distrib. http://www.vgdllc.com
Trade Names: ADM Clintose® CR 10; ADM Clintose® CR 15; ADM Clintose® CR 18; Glucidex® IT6; Glucidex® IT8
Glucidex® IT12; Glucidex® IT19; Lycatab® DSH; Maldex 180; Maldex G 180
Maltrin® M040; Maltrin® M050; Maltrin® M100; Maltrin® M150; Maltrin® M180
Maltrin® M510; Maltrin® M700; Maltrin® QD M440; Maltrin® QD M500; Maltrin® QD M550; Maltrin® QD M580
Trade Names Containing: Cal-Carb® 4450 PG; Calci-Press™ MD; Di-Pac®; HuberCal CCG 4000 USP; HuberCal CCG 4100 USP
Nu-Tab™ 440; Terra-Spray™ Spray Dried Aloe Vera Powder 100X Regular; Terra-Spray™ Spray Dried Aloe Vera Powder 100X

Handbook of Pharmaceutical Additives, Third Edition 1602
### Maltol

**CAS**: 118-71-8; EINECS/ELINCS 204-271-8  
**FEMA**: 2656; INS 636

**Synonyms**: 3-Hydroxy-2-methyl-4H-pyran-4-one; 3-Hydroxy-2-methyl-4-pyrene; 3-Hydroxy-2-methyl-γ-pyryone; Larixic acid; Larixinic acid; 2-Methyl-3-hydroxy-4-pyrones; 2-Methyl-3-oxy-γ-pyryone; 2-Methylpyroneconic acid

**Classification**: Empirical: C₈H₁₀O₃; Chemical Component Cross-Reference †= pharmaceutical grade

<table>
<thead>
<tr>
<th>Chemical Component</th>
<th>Cross-Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maltonic acid</td>
<td><a href="http://www.axxence.de">http://www.axxence.de</a>; Belmont Chem.</td>
</tr>
<tr>
<td>Maltose</td>
<td><a href="http://www.belmontchemicals.com">http://www.belmontchemicals.com</a>; Berje</td>
</tr>
<tr>
<td>Maltol</td>
<td><a href="http://www.berjeinc.com">http://www.berjeinc.com</a>; Camida Ltd†</td>
</tr>
<tr>
<td>Maltose</td>
<td><a href="http://www.citrusandallied.com">http://www.citrusandallied.com</a></td>
</tr>
<tr>
<td>Maltobiose</td>
<td>Danisco Cultor†</td>
</tr>
<tr>
<td>Malteose</td>
<td><a href="http://ingredients.danisco.com">http://ingredients.danisco.com</a>; Dastech</td>
</tr>
<tr>
<td>Malto-β-D-Glucopyranoside</td>
<td>Int'l. <a href="http://www.dastech.com">http://www.dastech.com</a>; Fleurchem</td>
</tr>
<tr>
<td>Malto-β-D-Glucopyranoside</td>
<td><a href="http://www.fleurchem.com">http://www.fleurchem.com</a>; Fluka</td>
</tr>
<tr>
<td>Maltoo</td>
<td><a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a>; Forum</td>
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<tr>
<td>Maltoo</td>
<td>BioScience† <a href="http://www.forum.co.uk">http://www.forum.co.uk</a></td>
</tr>
<tr>
<td>Maltoo</td>
<td>Fuerst Day Lawson <a href="http://www.fdl.co.uk">http://www.fdl.co.uk</a>; George Uhe <a href="http://www.uhe.com">http://www.uhe.com</a>; Interchim</td>
</tr>
<tr>
<td>Maltoo</td>
<td>Treatt &amp; Co Ltd <a href="http://www.rctrett.com">http://www.rctrett.com</a>; AFIC Specialties <a href="http://www.saefcspecialties.com">http://www.saefcspecialties.com</a>; Sigma</td>
</tr>
<tr>
<td>Maltoo</td>
<td><a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a>; Spectrum Quality Prods.† <a href="http://www.spectrumchemical.com">http://www.spectrumchemical.com</a>;</td>
</tr>
</tbody>
</table>

**Toxicology**: LD₅₀ (oral, rat) 2330 mg/kg, (subcut., mouse) 820 mg/kg; mod. toxic by ing., IP, and subcut. routes; skin irritant; human mutagenic data; TSCA listed

**Properties**: Wr. cryst. powd., fragrant caramel-like odor; sol. 1 g/85 ml water; freely sol. in hot water, chloroform; sol. in alcohol; sparingly sol. in benzene, ether, petroleum ether; m.w. 126.11; m.p. 160-162 °C; flash pt. (TCC) > 140 F; begins to sublime @ 93 °C; pH 5.3 (0.5% aq.)

**Formula**: CH₃C₅H₂O(O)(OH)

**Precaution**: Volatile with steam

**Hazardous Decomp. Prods.**: Heated to decomp., emits acrid smoke and irritating fumes

**HMIS**: Health 1, Flammability 1, Reactivity 0

**Storage**: 6 mos. when stored at 40-70 °F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air

**Uses**: Synthetic flavor, flavor enhancer for pharmaceuticals, oils, oral; antioxidant

**Features**: Chocolate flavor

**Regulatory**: FDA 21CFR §172.515; FEMA GRAS; Japan approved as flavoring; Europe listed; UK approved; FDA approved for oils; Canada DSL; Australia AICS

**Manuf./Distrib.**: ADA Int’l.  
http://www.joinme.net/ada/index.htm; AMC Chems.;† Abaco; Aceto†  
http://www.aceto.com; Adrian Amer.  
http://www.adrianusa.com  
Ashland† http://www.ashchem.com; Astral Extracts http://www.astralextracts.com;  
Augustus Oils Ltd http://www.augustus-oils.ltd.uk;  
Axxence Aromatic GmbH  
http://www.axxence.com;  
Bioscience† http://www.bioscience.com;  
Bermuda Chems.†  
http://www.belmontchemicals.com  
Berje http://www.berjeinc.com; Camida Ltd†  
http://www.camida.com; Citrus and Allied Essences http://www.citrusandallied.com  
Danisco Cultor†  
Maltol http://www.fleurchem.com; Fluka  

### Maltol isobutyrate

See Maltol isobutyrate

### Maltonic acid

See D-Gluconic acid

**Maltose**

**CAS**: 69-79-4 (anhyd.); 6363-53-7 (monohydrate); EINECS/ELINCS 200-716-5

**Synonyms**: 4-(α-d-Glucopyranosido)-α-glucopyranose; 4-O-α-D-Glucopyranosyl-D-glucose; 4-(α-d-Glucosido)d-glucose; Maltobiose; d-Maltose; Malt sugar; α-Malt sugar

**Classification**: Malt sugar, an isomer of cellobiose

**Definition**: Avail. commercially as the monohydrate

**Properties**: Anhyd.: Colorless crys.; very sol. in water; very sl. sol. in cold alcohol; insol. in ether; m.w. 342.31; dens. 1.540 (17 °C); m.p. 102-103 C (dec.); Monohydrate: Colorless crys.; hygroscopic; sol. in water, sl. sol. in alcohol; pract. insol. in ether; m.w. 360.32; m.p. 102-103 C; about one-third as sweet as sucrose

**Toxicology**: LD₅₀ (oral, rat) 34,800 mg/kg, (iP,
Chemical Component Cross-Reference

†=pharmaceutical grade

D-Maltose. See Maltose

Maltotriose
CAS 1109-28-0; EINECS/ELINCS 214-174-2
Synonyms: Amylotriose; O-α-D-Glucopyranosyl-(1→4)-O-α-D-glucopyranosyl-(1→4)-D-glucose
Empirical: C_{18}H_{32}O_{16}
Properties: M.w. 504.45; m.p. 132-135°C
Storage: Keep under argon
Manuf./Distrib.: Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium; Supelco http://www.sigma-aldrich.com
Trade Names Containing: Emdex®

Malt sugar; α-Malt sugar.  See Maltose
Malt syrup.  See Malt extract

Maltotriose
CAS 65416-14-0; EINECS/ELINCS 265-755-2
FEMA 3462
Synonyms: Maltol isobutyrate
Empirical: C_{10}H_{12}O_{4}
Properties: Pale yel. liq.; m.w. 196.20; dens. 1.149; b.p. 176.00°C @ 7.00 mm; flash pt. > 230°F
Toxicology: TSCA listed
Uses: Synthetic flavor for pharmaceuticals
Features: Sweet, strawberry-like flavor
Regulatory: FEMA GRAS; Canada DSL

MAN. See Maleic anhydride

Mandarin oil; Mandarin oil, coldpressed; Mandarin oil, expressed.  See Mandarin orange oil

Mandarin orange oil
CAS 8008-31-9; 84696-35-5
FEMA 2657
Synonyms: Citrus nobilis; Citrus nobilis oil; Citrus reticulata; Mandarin oil; Mandarin oil, coldpressed; Mandarin oil, expressed; Orange mandarin oil; Tangerine oil
Definition: Oil expressed from the peel of the mandarin Orange, Citrus reticulata or C. nobilis
Properties: Clear orange to brn.-orange liq.,
Manganese chloride (INCI); Manganese (II) chloride (1:2). See Manganese chloride (ous), anhydrous

Manganese chloride (ous), anhydrous
CAS 7773-01-5; EINECS/ELINCS 231-869-6
Synonyms: Manganese chloride (INCI); Manganese (II) chloride (1:2); Manganese dichloride; Manganese chloride
Classification: Inorganic salt
Empirical: Cl$_2$Mn
Formula: MnCl$_2$
Properties: Rose-colored cryst.; very sol. in water; sol. in alcohol; insol. in ether; m.w. 125.84; dens. 2.98; m.p. 650 C; b.p. 1190 C; noncombustible
Toxicology: ACGIH TLV/TWA 5 mg(Mn)/m$^3$; LD50 (oral, mouse) 1715 mg/kg, (IM, rat) 700 mg/kg, (IP, mouse) 121 mg/kg, (IV, dog) 202 mg/kg; poison by IP, subcut., IM, IV, parenteral routes; mod. toxic by ing.;
Chemical Component Cross-Reference

†=pharmaceutical grade

experimental carcinogen, teratogen, reproductive effects; mutagenic data; TSCA listed

Precaution: Explosive reaction when heated with zinc foil; reacts violently with potassium or sodium

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of Cl-

Storage: Deliq.

Uses: Pharmaceuticals; dietary supplement

Regulatory: Canada DSL


Manganese chloride (ous), tetrahydrate
CAS 13446-34-9; EINECS/ELINCS 231-869-6

Synonyms: Manganese chloride tetrahydrate; Manganese (II) chloride tetrahydrate; Manganese dichloride tetrahydrate; Manganous chloride tetrahydrate

Empirical: Cl₂Mn • 4H₂O

Formula: MnCl₂ • 4H₂O

Properties: Pink translucent cryst.; sol. in 0.7 part water, sol. in alcohol; insol. in ether; m.w. 197.91; dens. 2.01; m.p. 58 C; pH 5.5 (0.2 molar aq.); noncombustible

Toxicology: LD₅₀ (oral, rat) 1484 mg/kg, (IP, rat) 138 mg/kg; toxic; poison by IP and parenteral routes; mod. toxic by ing.; irritant; mutagen; experimental reproductive effector; target organs: nerves, lungs; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of Cl-

Storage: Hygroscopic; sl. deliq.; keep well closed; refrigerate

Uses: Nutrient, dietary supplement in pharmaceuticals

Regulatory: FDA 21CFR §184.1446, 582.80, GRAS


Manganese chloride tetrahydrate. Manganese (II) chloride tetrahydrate. See Manganese chloride (ous), tetrahydrate

Manganous citrate. See Manganese citrate (ous)

Manganese citrate (ous)
CAS 10024-66-5

Synonyms: Manganese citrate; Manganous citrate

Empirical: C₁₂H₁₀Mn₃O₁₄

Formula: Mn₃(C₆H₅O₇)₂

Properties: Pale orange or pinkish wh. powd.; sol. in water in presence of sodium citrate; m.w. 543.02

Precaution: Combustible

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Nutrient, dietary supplement in pharmaceuticals

Regulatory: FDA 21CFR §184.1449, GRAS

Manuf./Distrib.: Degussa AG/Health & Nutrition; Lohmann http://www.lohmann-chemikalien.de

Manganese dichloride. See Manganese chloride (ous), anhydrous

Manganese dichloride tetrahydrate. See Manganese chloride (ous), tetrahydrate

Manganese gluconate
CAS 6485-39-8; EINECS/ELINCS 229-350-4

Synonyms: Bis (D-gluconato-O₁,O₂) manganese; Gluconic acid, manganese salt (2:1); Manganese (II) gluconate

Definition: Manganese salt of gluconic acid

Empirical: C₁₂H₂₂MnO₁₄ • 2H₂O

Formula: Mn(C₆H₁₁O₇)₂ • 2H₂O

Properties: Lt. pinkish powd. or gran.; sol. in water; insol. in alcohol and benzene; m.w. 481.27 (dihydrate)

Precaution: Combustible

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of manganese

†=pharmaceutical grade

Regulatory: FDA 21CFR §184.1446, 582.80, GRAS


Manganese chloride tetrahydrate. Manganese (II) chloride tetrahydrate. See Manganese chloride (ous), tetrahydrate

Manganous citrate. See Manganese citrate (ous)

Manganese citrate (ous)
CAS 10024-66-5

Synonyms: Manganese citrate; Manganous citrate

Empirical: C₁₂H₁₀Mn₃O₁₄

Formula: Mn₃(C₆H₅O₇)₂

Properties: Pale orange or pinkish wh. powd.; sol. in water in presence of sodium citrate; m.w. 543.02

Precaution: Combustible

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Nutrient, dietary supplement in pharmaceuticals

Regulatory: FDA 21CFR §184.1449, GRAS

Manuf./Distrib.: Degussa AG/Health & Nutrition; Lohmann http://www.lohmann-chemikalien.de

Manganese dichloride. See Manganese chloride (ous), anhydrous

Manganese dichloride tetrahydrate. See Manganese chloride (ous), tetrahydrate

Manganese gluconate
CAS 6485-39-8; EINECS/ELINCS 229-350-4

Synonyms: Bis (D-gluconato-O₁,O₂) manganese; Gluconic acid, manganese salt (2:1); Manganese (II) gluconate

Definition: Manganese salt of gluconic acid

Empirical: C₁₂H₂₂MnO₁₄ • 2H₂O

Formula: Mn(C₆H₁₁O₇)₂ • 2H₂O

Properties: Lt. pinkish powd. or gran.; sol. in water; insol. in alcohol and benzene; m.w. 481.27 (dihydrate)

Precaution: Combustible

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of manganese
Chemical Component Cross-Reference

Uses: Mineral source for pharmaceuticals, vitamin tablets
Regulatory: FDA 21 CFR §184.1452, 582.80, GRAS; Canada DSL
Trade Names: Gluconal® MN-P

Manganese (II) gluconate. See Manganese gluconate

Manganese glycerophosphate
CAS 1320-46-3; EINECS/ELINCS 215-301-4
Synonyms: Manganese (II) glycerophosphate
Empirical: C₃H₇MnO₆P • xH₂O
Formula: CH₂OHCH₂OCH₂OP(O)O₂Mn
Properties: Wh. or pinkish powd., odorless, nearly tasteless; sol. in citric acid sol’n.; sl. sol. in water; insol. in alcohol; m.w. 224.91 (anhyd.)
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of manganese
HMIS: Health 1, Flammability 0, Reactivity 0
Uses: Dietary supplement, nutrient for pharmaceuticals
Regulatory: FDA 21 CFR §184.1452, 582.5455, GRAS; Canada DSL

†=pharmaceutical grade

Manganese lactate
CAS 16039-56-8
Synonyms: Manganese-L-2-hydroxy propionate
Formula: Mn(CH₃CHOHCOO)₂ • 2H₂O
Properties: Pink powd.; sol. 10 g/100 ml water; m.w. 233 (anhyd.)
Uses: Manganese source, nutrient supplement in pharmaceuticals
Trade Names: Puramex® MN

Manganese sulfate; Manganese (II) sulfate (1:1). See Manganese sulfate (ous)

Manganese sulfate (ous)
CAS 7785-87-7 (anhyd.); 10034-96-5 (monohydrate); EINECS/ELINCS 232-089-9
Synonyms: Manganese sulfate; Manganese (II) sulfate (1:1); Manganeseous sulfate; Sulfuric acid, manganese (2+) salt
Empirical: MnO₄S (anhyd.); MnO₄S • H₂O (monohydrate)
Formula: MnSO₄ (anhyd.), MnSO₄ • H₂O (monohydrate)
Properties: Anhyd.: Pink gran. powd., odorless; very sol. in water; insol. in alcohol; m.w. 151.00; dens. 3.25; m.p. 700 C; b.p. 850 C (dec.); Monohydrate: Pale red, sl. efflorescent cryst.; sol. in 1 part water; insol. in alcohol; m.w. 169.00
Toxicology: ACGIH TLV/TWA 5 mg(Mn)/m³; LD50 (IP, mouse) 332 mg/kg; poison by IP
Mango seed oil. See Mango (Mangifera indica) seed oil

Manna sugar. See D-Mannitol

Mannide monooleate
CAS 9049-98-3; 25339-93-9

Synonyms: (Z)-Dianhydro-D-mannitol, mono-9-octadecenoate; Dianhydromannitol monooleate; D-Dianhydromannitol monooleate; Mannide oleate; D-Mannitol, dihydro-, mono-9-octadecenoate, (Z)-; D-Mannitol, dihydro-, monooleate

Empirical: C₂₄H₄₂O₅

Properties: Yel. to brn. liq.; sol. in DMSO, 95% ethanol, acetone; sol. 50-100 mg/ml in water; m.w. 410.60; sp.gr. 1.05 (23 C); flash pt. > 100 C; ref. index 1.477 (23 C); Nonionic

Toxicology: May be harmful by inh., ing., or skin absorp.; may be irritating to eyes, skin, mucous membranes, upper respiratory tract; intradermal injection in guinea pigs produced severe inflammatory reaction, local tissue necrosis, lesions which healed leaving noticeable scars; can cause abscesses; very strong promoter of carcinogenesis in all strains of mice

Precaution: Probably combustible; incompat. with strong oxidizers; readily hydrolyzed in presence of UV lt./air, when refluxed with sodium hydroxide; readily hydrolyzed by pancreatic lipase; auto-oxidizes on storage in presence of light/air

Hazardous Decomp. Prods.: Toxic fumes of CO, CO₂

Storage: Store under ambient temps. in tightly closed container under inert atmosphere; protect from light

Uses: Surfactant for prep. of w/o injectable pharmaceuticals; emulsifier; active for cattle medicine

Mannide oleate. See Mannide monooleate

Mannite; Mannitol (INCI). See D-Mannitol

D-Mannitol
CAS 69-65-8; EINECS/ELINCS 200-711-8

Synonyms: Cordycepic acid; 1,2,3,4,5,6-Hexanehexol; Manna sugar; Mannite; Mannitol (INCI); Mannose sugar

Classification: Hexahydric alcohol
Empirical: C₆H₁₄O₆
Formula: HOCH₂(CHOH)₄CH₂C
Properties: Wh. orthorhombic need. or powd.,
Chemical Component Cross-Reference
 odorless, sweetish taste; sol. 1 g/5.5 ml water, 1 g/18 ml glycerol; 1 g/83 ml alcohol; sol. in pyridine, aniline, aq. sol. of alkalis; sl. sol. in oxygenated solvs.; insol. in veg. and min. oils; m.w. 182.18; dens. 1.52 (20 C); m.p. 165-167 C; b.p. 290-295 C (3.5 mm)

Toxicology: LD50 (oral, rat) 13,500 mg/kg, (IV, rat) 9690 mg/kg, (IP, mouse) 14 g/kg, (IV, mouse) 7470 mg/kg; mildly toxic by ing., IP, IV routes; human systemic effects by IV route (raised blood pressure, bladder tube changes, nausea, vomiting); excess consumption may have a laxative effect; may cause diarrhea and flatulence; human mutagenic data; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes

Storage: Hygroscopic; store @ R.T.

Uses: Anticaking agent, humectant, sweetener, toxicity agent, stabilizer, thickener, processing aid for pharmaceuticals, parenterals, injectables (IM, IP, intrapleural), intravenous, ophthalmics, orals; bulking agent for freeze-drying; tablet inert base/diluent; parenteral nutrition

Regulatory: FDA 21CFR §100.130, 101.9, 101.80, 175.300, 175.320, 177.1390, 177.2420, 180.25; GRAS; Japan approved; Europe listed; UK approved; Canada DSL; FDA approved for parenterals, intramuscular injectables, intraperitoneal injectables, intrathecal injectables, intravenous, ophthalmics, orals; USP/NF, BP, EP compliance


D-Mannitol, dianhydro-, mono-9-octadecenoate, (Z)-; D-Mannitol, dianhydro-, monoooleate. See Mannide monooleate
L-Mannomethyllose. See Rhamnose

D-Mannose
CAS 530-26-7; 3458-28-4
Definition: A carbohydrate occurring in some plant polysaccharides
Empirical: C6H12O6
Properties: Cryst.; sweet taste; bitter aftertaste; m.w. 180.16; m.p. 132 C (dec.)
Uses: Pharmaceutical orals; biochemical research
Regulatory: FDA approved for orals


Mannose sugar. See D-Mannitol
MAP. See Ammonium phosphate
Marble. See Calcium carbonate

Marigold extract; Marigold flower extract. See Calendula officinalis extract
Marigold, pot. See Calendula officinalis
Marjoram hortensis oleoresin; Marjoram oleoresin. See Oleoresin marjoram

†=pharmaceutical grade

Marrubium vulgare; Marrubium vulgare extract. See Horehound (Marrubium vulgare) extract
Marshmallow. See Althea (Althea officinalis) root
Marshmallow root extract. See Althea officinalis extract
Mascagnite. See Ammonium sulfate
Matricaria chamomilla extract. See Matricaria (Chamomilla recutita) extract
Matricaria (Chamomilla recutita) extract
CAS 84082-60-0; EINECS/ELINCS 282-006-5
Synonyms: Camomile extract; Chamomile extract, German; Chamomile extract Hungarian; Chamomilla recutita; Chamomilla recutita extract; Matricaria chamomilla extract; Matricaria extract; Wild chamomile extract

Definition: Extract of flowerheads of the matricaria, Chamomilla recutita
Regulatory: BP, EP compliance; FDA 21CFR §182.20, GRAS
Trade Names Containing: Cremogen® Camomile Forte 728790; Crodarom Chamomile O

Matricaria extract. See Matricaria (Chamomilla recutita) extract

Matting acid. See Sulfuric acid
Maw oil. See Poppyseed oil

Maxatase. See Protease
Mayalan camphor. See DL-Borneol
MBK. See 2-Hexanone
MBY. See Methyl butynol
MC. See Methylcellulose
6-MC. See 6-Methylcoumarin
MCB. See Chlorobenzene
MCC. See Microcrystalline cellulose
MCF. See 1,1,1-Trichloroethane
MCP. See Methyl cyclopentenolone
MCP/A. See Calcium phosphate monobasic anhydrous
MDB. See 1,2-Methylenedioxybenzene
MDC. See Methylene chloride
MDG. See Mono- and diglycerides of fatty acids

MDMH. See MDM hydantoin

MDM hydantoin
CAS 116-25-6; EINECS/ELINCS 204-132-1
Synonyms: 1-(Hydroxymethyl)-5,5-dimethyl hydantoin; 1-(Hydroxymethyl)-5,5-dimethyl-2,4-imidazolidinedione; MDMH; Monomethylol dimethyl hydantoin
Chemical Component Cross-Reference

Classification: Organic compd.
Empirical: C₆H₁₀N₂O₃
Properties: Wh. to off-wh. cryst. powd.; sol. in water; m.w. 158.16
Toxicology: TSCA listed
NFPA: Health 1, Flammability 0, Reactivity 0
Uses: Used in the manufacture of anticonvulsant drugs such as phenytoin, ethotoin, and methyphenytoin
Features: Stable under ordinary conditions; moisture sensitive
Regulatory: USA not restricted; Japan not approved; Canada DSL
Trade Names Containing: Dantogard® Plus Liq.

MDS. See Methyl disulfide
2-ME. See 2-Mercaptoethanol; Methoxyethanol
MEA. See Ethanolamine

Meadowfoam amidopropyldimethyl betaine
CAS 412328-58-6
Classification: High molecular weight betaine
Uses: Conditioner
Trade Names Containing: Fancor® Uni-enbase

Meadowfoam (Limnanthes alba) seed oil
CAS 153065-40-8
Synonyms: Limnanthes alba; Meadowfoam seed oil
Definition: Oil extracted from the seeds of the meadowfoam plant, Limnanthes alba
Uses: Emollient, conditioner, color enhancer, gloss aid, bodying agent, moisturizer, lubricant, superfatting agent for pharmaceuticals
Manuf./Distrib.: Anglia Oils† http://www.angliaoils.co.uk; Charkit http://www.charkit.com
Trade Names Containing: Fancol™ VB

Meadowfoam seed oil. See Meadowfoam (Limnanthes alba) seed oil
Meadowsweet extract. See Meadowsweet (Spiraea ulmaria) extract

Meadowsweet (Spiraea ulmaria) extract
CAS 84775-57-5; EINECS/ELINCS 283-886-3
Synonyms: Drupwort extract; Filipendula ulmaria extract; Meadowsweet extract; Queen of the meadow extract; Spiraea extract; Spiraea ulmaria; Spiraea ulmaria extract
Definition: Extract of Spiraea ulmaria

†=pharmaceutical grade

Uses: Antidote for infections, externally for wounds and eye inflammations
Trade Names: Actiphyte® of Queen-of-the-Meadow conc.

Medicago sativa; Medicago sativa extract.
See Alfalfa (Medicago sativa) extract
Medium aliphatic solvent naphtha; Medium aliphatic solvent naphtha (petroleum). See Naphtha, medium aliphatic
Medium chain triglycerides. See Caprylic/capric triglyceride

Medronate disodium
CAS 25681-89-4
Uses: Excipient for intravenous pharmaceuticals
Regulatory: BP, EP compliance; FDA approved for intravenous
Manuf./Distrib.: Vioryl http://www.vioryl.gr

Medronic acid
CAS 1984-15-2
Synonyms: Methylene diphosphonic acid
Properties: Freeze-dried wh. powd.
Uses: Imaging agent (radiotracer) to form an image of the skeleton
Regulatory: FDA approved for intravenous
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

MEG. See Ethylene glycol

Meglumine
CAS 6284-40-8; EINECS/ELINCS 228-506-9
Synonyms: 1-Deoxy-1-(methylamino)-D-glucitol; D-Glucitol, 1-deoxy-1-(methylamino); 1-Methylamino-1-deoxy-D-glucitol; Methylglucamine (INCI); N-Methylglucamine
Empirical: C₇H₁₇NO₅
Formula: CH₂NHCH₃(CHOH)₄CH₂OH
Properties: Wh. to faintly ylsh. cryst. or powd., odorless; sol. in water; sl. sol. in alcohol; pract. insol. in chloroform, ether; m.w. 195.21; m.p. 128-132 C
Uses: Pharmaceutical aid; base for preps. of salts of org. acids incl. many used as contrast media; pharmaceutical injectables, intravenous
Regulatory: FDA approved for injectables,
Chemical Component Cross-Reference

intravenous; USP/NF, BP, JP compliance; Canada DSL

MEHQ. See Hydroquinone monomethyl ether
MEK (INCI). See Methyl ethyl ketone
Mel. See Honey
MELA. See Ethanolamine
Melaleuca alternifolia. See Tea tree (Melaleuca alternifolia) oil
Melaleuca leucadendron; Melaleuca leucadendron oil. See Cajeput (Melaleuca leucadendron) oil
Melanin
CAS 8049-97-6; 77465-45-3; EINECS/ELINCS 232-473-6
Classification: Polymer
Definition: Pigment responsible for color of animal skin, hair, feathers, and fur; not listed as approved colorant for cosmetics under FDA 21CFR § 73 and 74
Properties: Brownish-blk.
Uses: Pharmaceutical raw material; chelating agent; free radical scavenger; UV light absorber; biological additive
Regulatory: Use prohibited in U.S.
Trade Names: Lipo Melanin 10%
Melilotin. See Dihydrocoumarin
Melissa officinalis; Melissa officinalis extract.
See Balm mint (Melissa officinalis) extract
Melissa officinalis oil; Melissa oil. See Balm mint (Melissa officinalis) oil
Melissyl alcohol. See Myricyl alcohol
Melomor; Melonal; Melonyl. See 2,6-Dimethyl-5-heptenal
Menhaden acid, hydrogenated. See Hydrogenated menhaden acid
Menhaden oil
CAS 8002-50-4; EINECS/ELINCS 232-311-4
Synonyms: Brevoortia; Brevoortia tyrannus oil; Mossbunker oil; Pogy oil
Definition: Oil obtained from the small North Atlantic fish, Brevoortia tyrannus
Properties: Ylsh.-brown or reddish-brown oil, char. fishy odor and taste; sol. in ether, benzene, petrol. ether, naphtha, kerosene, CS₂; dens. 0.925-0.933; m.p. 38.5-47.2 C; iodine no. 115-160; sapon. no. 191-200; ref. index 1.480 (20 C)
Toxicology: No known toxicity; TSCA listed
Precaution: Combustible
Uses: Nutritional supplement in pharmaceuticals, therapeutic uses
Regulatory: FDA 21CFR §175.300, 176.200, 176.210, 177.2800, 184.1472; Canada DSL
Menhaden oil, hydrogenated. See Hydrogenated menhaden oil

Mentha arvensis oil
CAS 68917-18-0
FEMA 3501
Synonyms: Cornmint oil, partially demetholized; Mentha arvensis oil, partially demetholized; Mint oil; Wild pennyroyal
Definition: Oil from Mentha arvensis
Properties: Colorless to yel. liq., minty odor; sol. in fixed oils, min. oil, propylene glycol; insol. in water, glycerin; dens. 0.888-0.908; flash pt. 167 F; ref. index 1.458 (20 C)
Toxicology: Experimental reproductive effects
Precaution: Combustible liq.
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Flavor for pharmaceuticals
Regulatory: Europe listed; Canada DSL
Manuf./Distrib.: Acme-Hardesty http://www.acme-hardesty.com; Chemtex International
Mentha arvensis oil, partially demethanolized.

See Mentha arvensis oil

p-Mentha-1,8-dien-7-al. See Perillaldehyde
Menthadien-7-carbinyl acetate. See Perillyl acetate

(+)-1,8-p-Menthadiene. See d-Limonene
1,4-(8)-p-Menthadiene. See Terpinolene
1,4-p-Menthadiene. See γ-Terpipnine
1,8(9)-p-Menthadiene; dl-p-Mentha-1,8-diene. See d-Limonene

d-p-Mentha-1,8-diene. See d-Limonene
p-Mentha-1,3-diene. See α-Terpipnine
p-Mentha-1,4-diene. See γ-Terpipnine
p-Mentha-1,5-diene. See α-Phellandrene
p-Mentha-1,8-diene. See d-Limonene; dl-Limonene

(R)-p-Mentha-1,8-diene. See d-Limonene
(±)-1,8-p-Menthadiene. See dl-Limonene
p-Mentha-1,8-dien-7-ol. See Perillyl alcohol
p-Mentha-6,8-dien-2-ol. See Carveol
p-Mentha-6,8-dien-2-ol, acetate. See Carvyl acetate
p-Mentha-6,8-dien-2-ol, propionate. See Carvyl propionate

1,6,8(9)-p-Menthadien-2-one; (-)-1,8-p-Menthadien-6-one. See L-Carvone
6,8(9)-p-Menthadien-2-one. See Carvone
d-p-Mentha-6,8,(9)-dien-2-one. See d-Carvone
L-p-Mentha-1(6),8-dien-2-one. See L-Carvone
1,8-p-Menthadien-7-yl acetate. See Perillyl acetate
1-p-Mentha-6(8,9)-dien-2-yl acetate. See Carvyl acetate
p-Mentha-1,8-dien-7-yl acetate. See Perillyl acetate
1-p-Mentha-6,8(9)-dien-2-yl propionate; l-p-Mentha-6,8-dien-2-yl propionate. See Carvyl propionate
p-Mentha-1-en-8-ol propionate. See Terpinyl propionate

Menthalactone

CAS 13341-72-5; EINECS/ELINCS 236-390-6
FEMA 3764

Synonyms: Dehydroxymenthofuro lactone; 3,6-Dimethyl-5,6,7,7a-tetrahydro-2(4H)-benzofuranone; Mintlactone; Tetrahydrodimethyl benzofuran-2-one; 5,6,7,7a-Tetrahydro-3,6-trimethyl-2(4H)-benzofuranone

Classification: aliphatic ketone

Empirical: C10H14O2

Properties: Colorless liq.; sol. in alcohol; insol. in water; m.w. 166.22; dens. 1.058; b.p. 87-89 C (25 mm); flash pt. 176 F

Uses: Flavor for pharmaceuticals; used in antiseptics

Features: Sweet creamy coumarin coconut powdery tobacco spearmint odor; creamy, coconut, sweet, vanilla and coumarin taste

Regulatory: FEMA GRAS; Canada DSL

Manuf./Distrib.: SAFC Specialties

http://www.safcspecialties.com

p-Menthane, 1,4-epoxy-. See 1,4-Cineole

p-Menthan-3-one. See 1,4-Cineole

3-p-Menthanol; p-Menthan-3-ol. See Menthol (1R,4S)-(−)-p-Menthan-3-one; L-Menthan-3-one; l-p-Menthan-3-one; p-Menthan-3-one. See l-Menthone

dl-p-Menthan-3-yl acetate. See dl-Menthyl acetate

p-Menthan-3-yl isovalerate. See Menthyl isovalerate

L-p-Menthan-3-yl lactate. See Menthyl lactate

Mentha piperita. See Peppermint (Mentha piperita) leaves; Peppermint (Mentha piperita) oil

Mentha piperita leaf; Mentha piperita leaves. See Peppermint (Mentha piperita) leaves

Mentha piperita oil. See Peppermint (Mentha piperita) oil

Mentha pulegium. See Pennyroyal (Mentha pulegium) extract; Pennyroyal (Mentha pulegium) oil

Mentha pulegium extract. See Pennyroyal (Mentha pulegium) extract

Mentha pulegium oil. See Pennyroyal (Mentha pulegium) oil

Mentha spicata; Mentha spicata oil. See Spearmint (Mentha viridis) oil

p-Menthan-8-thiol-3-one

CAS 38462-22-5; EINECS/ELINCS 253-953-1
FEMA 3177
Chemical Component Cross-Reference

Synonyms: 8-Mercapto-p-menthane-3-one; 2-(1-Mercapto-1-methylethyl)-5-methylocyclohexanone; Thiomenthone
Empirical: C₁₀H₁₈OS
Properties: Yel. liq.; pungent, green grassy, fruity ester-like, blackcurrant odor; m.w. 186.32; dens. 1.00; vapor dens. 6.4; b.p. 56 C (0.1 mm); flash pt. 227 F; ref. index 1.493-1.497
Toxicology: Skin, eye irritant; harmful by ing.; TSCA listed
Environmental: Keep run-off water out of sewers, water sources
Precaution: Wear safety glasses, goggles and rubber gloves, apron; incomapt. with strong oxidizers, acids, alkalies, reducers
Hazardous Decomp. Prods.: CO, CO₂, acrid fumes
Storage: Keep in original, tightly closed container; keep away from heat, sparks, open flame
Uses: Synthetic flavor for pharmaceuticals
Features: Berry-like flavor
Regulatory: FEMA GRAS; Australia AICS; Canada DSL; Japan MFI
Manuf./Distrib.: Degussa AG/Health & Nutrition

Mentha viridis; Mentha viridis oil. See Spearmint (Mentha viridis) oil
1,8-p-Menthndien-7-ol. See Perillaldehyde
p-Menth-1,4(8)-diene. See Terpinolene
p-Menth-1-en-8-ol. See α-Terpineol
1-p-Menth-4-ol. See 4-Carvomenthenol
1-p-Menth-8-ol. See α-Terpineol
8(9)-p-Menth-3-ol. See Isopulegol
8-p-Menth-2-ol. See Dihydrocarveol
8-p-Menth-3-ol. See Isopulegol
p-Menth-1-en-8-ol. See Terpineol anhyd.; α-Terpineol
p-Menth-3-en-1-ol
CAS 586-82-3; EINECS/ELINCS 209-585-9
FEMA 3563

†=pharmaceutical grade

Synonyms: 4-Isopropyl-1-methyl-3-cyclohexen-1-ol; 1-Methyl-4-isopropyl-3-cyclohexen-1-ol; 1-Methyl-4-(1-methyl ethyl)-3-cyclohexen-1-ol; 1-Terpinenol; Terpinen-1-ol; 3-Terpinen-1-ol
Empirical: C₁₀H₁₈O
Properties: Colorless oily liq., dry woody somewhat musty odor; sol. in alcohols, oils; sl. sol. in water; m.w. 154.24; dens. 0.9210; b.p. 210 C; ref. index 1.478
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Augusus Oils Ltd 17916-91-5; EINECS/ELINCS 28839-13-6; 17916-91-5; EINECS/ELINCS 249-266-1
FEMA 3566
Synonyms: 9-Acetoxy-1-para-menthene; β-4-Dimethyl-3-cyclohexene-1-ethanol acetate; p-Menth-1-en-9-ol acetate; 1-p-Menth-9-yl acetate
Empirical: C₁₂H₂₀O₂
Properties: Colorless cl. liq.; sol. in alcohol; insolv. in water
**Chemical Component Cross-Reference**

*Definition:* 

*Classification:* Diterpene alcohol

*Empirical:* C₁₀H₂₀O

*Formula:* CH₃C₆H₉(C₃H₇)OH

*Properties:* Wh. cryst., cooling peppermint-like odor and taste; very sol. in alcohol, light petrol. solv., glacial acetic acid, min. oil, fixed/volatile oils; sl. sol. in water; m.w. 156.26; dens. 0.89;

†=pharmaceutical grade

**Menthol**

m.p. 42.5 C; b.p. 215 C; flash pt. 200 F; ref. index 1.461; tenacity 2 hrs. on blotter

**Toxicology:** LD₅₀ (oral, rat) 3180 mg/kg, (IM, rat) 10 g/kg; LD₅₀ (IP, mouse) 1800 mg/kg, (IV, cat) 37 mg/kg; poison by IV route; mod. toxic by ing., IP routes; severe eye irritant; irritating to mucous membranes on inh.; may cause human intolerance reaction; TSCA listed

**Precaution:** Combustible; incompat. with phenol, β-naphthol, others

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**HMIS:** Health 1, Flammability 0, Reactivity 0

**Uses:** Synthetic flavor, fragrance, cooling agent in pharmaceuticals, buccals, dentals, inhalants, orals, topicals, liniments, cough drops, in formulations for bronchitis and sinusitis, esp. for localized pain, veterinary medicated shampoos/ointments; fragrance, cooling agent in chest rubs

**Features:** Minty flavor

**Use Level:** < 3%

**Regulatory:** FDA 21CFR §172.515, 182.20, GRAS; 27CFR §21.65, 21.151; FEMA GRAS; Japan approved as flavoring (ENCS no. 3-233); FDA approved for buccals, dentals, inhalants, orals, topicals; USP/NF compliance; Australia; Canada DSL; Philippines PICCS

**Manuf./Distrib.:** A&E Connock†
http://www.connock.co.uk; ADA Int'l.
http://www.joinme.net/ada/index.htm; AMC Chems;†; Aastrid Int'l.†
http://www.aastrid.com; Acme-Hardesty†
http://www.acme-hardesty.com
Adrian Amer. http://www.adrianusa.com;
Alfa Chem† http://www.alfachem1.com;
Alichem Int'l. Ltd†
http://www.allchem.co.uk; Am. Fruit
Processors http://www.americanfruit.com;
Amalgamet† http://www.amalgamet.com
Anmar Int'l.†
http://www.anmarinternational.com;
Ashland† http://www.ashchem.com;
Asiamerica Int'l.†; B D Aromatics
http://www.bdaromatics.com; BCH Brühl
http://www.bch-bruehl.de
Berje† http://www.berjeinc.com; Biddle
Sawyer http://www.biddlesawyer.com;
Camida Ltd† http://www.camida.com;
CarboMer† http://www.carbomer.com;
Charabot USA† http://www.charabot.com

**Sources:** In water; sp. gr. 0.931-0.937; b.p. 228-232 C; acid no. 1.0 max.; ref. index 1.441-1.448

**Uses:** Synthetic flavoring agent

**Features:** Warm fruity herbal spicy odor

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS

**Synthetic flavors:** p-Menth-8-en-2-yl acetate. See Dihydrocarvyl acetate
p-Menth-8-en-3-yl acetate. See Isopulegyl acetate
p-Menth-1-en-8-yl anthranilate. See Terpinyl anthranilate
p-Menth-1-en-8-yl butyrate. See Terpinyl butyrate
p-Menth-1-en-8-yl cinnamate. See Terpinyl cinnamate
p-Menth-1-en-8-yl formate. See Terpinyl formate
p-Menth-1-en-8-yl isobutyrate. See Terpinyl isobutyrate
p-Menth-1-en-8-yl isovalerate; p-Menth-1-en-8-yl 3-methyl butanoate. See Terpinyl isovalerate
Menthen-1-yl 8 propionate; p-Menth-1-en-8-yl propionate. See Terpinyl propionate
Menthofuran. See 4,5,6,7-Tetrahydro-3,6-dimethylbenzofuran

**Menthol**

CAS 89-78-1 (DL); 1490-04-6; 2216-51-5 (L, -); 15356-60-2 (+); 15356-70-4 (D, ±); EINECS/ELINCS 201-939-0 (DL); 216-074-4; 218-690-9 (L); 239-388-3 (D)

**FEMA:** 2665

**Synonyms:** Cyclohexanol, 2-isopropyl-5-methyl-; Cyclohexanol, 5-methyl-2-(1-methylthyl)-; Hexahydrothymol; 2-Isopropyl-5-methylcylohexanol; 3-p-Menthanol; p-Menth-3-ol; DL-Menthol; 5-Methyl-2-isopropylcylohexanol; 5-Methyl-2-isopropyl hexahydrophenol; 5-Methyl-2-(1-methylthyl) cylohexanol; Peppermint camphor; Racemic menthol
Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Manufacturer</th>
<th>Website</th>
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<tbody>
<tr>
<td>Menthol</td>
<td>Reindeer</td>
<td><a href="http://www.reindeerchemical.com">http://www.reindeerchemical.com</a></td>
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References:
- FEMA 2667
- Colorless oily liq.
- peppermint/geranium odor; bitter taste; sol. in org. solvs.; sl. sol. in water; m.w. 154.25; dens. 0.893; m.p. -6 C; b.p. 207-210 C; flash pt. 72 C; ref. index 1.4502 (20 C)
- Most frequently occurring in nature of four optically active isomers of menthene; found in oils such as pennyroyal, peppermint, geranium
Chemical Component Cross-Reference

**Precaution:** Combustible liq.; incompat. with strong oxidizing agents, strong reducing agents

**Hazardous Decomp. Prods.:** Irritating and toxic fumes and gases

**Storage:** Store in cool, dry place; keep container closed when not in use

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Minty flavor

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL


**Menthone glycerin acetal**

**CAS:** 63187-91-7

**Synonyms:** 6-Isopropyl-9-methyl-1,4-dioxaspiro-[4,5]-decane-2-methanol; Menthone 1,2-glycerol ketal

**Empirical:** C_{13}H_{24}O_{3}

**Properties:** Colorless liq.; fruity, berry, minty, woody odor; misc. with alcohol, fixed oils, ether, propylene glycol; sl. sol. in water, glycerin; m.w. 198.31; sp.gr. 0.922; b.p. 228-229 C; flash pt. 92 C; ref. index 1.4450

**Toxicology:** LD50 (oral, rat) 7620 mg/kg, (skin, rabbit) > 5 g/kg; mildly toxic by ing.; may be harmful by ing., inh., skin absorp.; may cause irritation; primary skin irritant

**Precaution:** Combustible liq.; vapor may flash back; incompat. with strong oxidizing agents, strong bases

**Hazardous Decomp. Prods.:** CO, CO_{2}; heated to decomp., emits acrid smoke and irritating fumes; emits toxic fumes under fire conditions

**HMIS:** Health 1, Flammability 1, Reactivity 0

**Storage:** 6 mos. when stored in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, cold, air

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Berry-like, minty flavor

**Regulatory:** FEMA GRAS; Australia AICS; Canada DSL; Japan MITI


**Menthyl acetate racemic.** See dl-Menthyl acetate

**Menthyl o-aminobenzoate.** See Menthyl anthranilate

**Menthyl anthranilate**

**CAS:** 134-09-8; EINECS/ELINCS 205-129-8

**Synonyms:** Menthyl o-aminobenzoate; 5-Methyl-2(1-methylthethyl) cyclohexanol-2-aminobenzoate

**Definition:** Ester of menthol and o-anthranilic acid

**Empirical:** C_{17}H_{25}NO_{2}

**Properties:** Colorless liq.; fruity, berry, minty, woody odor; misc. with alcohol, fixed oils, ether, propylene glycol; sl. sol. in water, glycerin; m.w. 275.38; sp.gr. 0.998; b.p. 228-229 C; flash pt. 84.5 C; ref. index 1.4450

**Toxicology:** Mildly irritating to skin and eyes on prolonged contact; TSCA listed

**Precaution:** Incompat. with oxidizing agents

**Storage:** Store away from strong oxidizing agents

**Uses:** UV-A absorber for sunscreens; OTC drug active

**Regulatory:** Canada DSL

**Manuf./Distrib.:** Aldrich [http://www.sigma-
Chemical Component Cross-Reference

†=pharmaceutical grade

Handbook of Pharmaceutical Additives, Third Edition

p-Menth-3-yl ester-dl-acetic acid. See dl-Menthy acetate

Menthy isovalerate
CAS 89-47-4; 16409-46-4; EINECS/ELINCS 240-460-1
FEMA 2669
Synonyms: Isovaleric acid p-menth-3-yl ester; p-Menthan-3-yl isovalerate; Menthol valerate; p-Menth-3-yl isovalerate; Menthy isovalerianate; Menthyl valerate; (1α,2β,5α)-3-Methylbutanoic acid 5-methyl-2-(-1-methylthyl) cyclohexyl ester; 5-Methyl-2-(1-methylthyl) cyclohexyl 3-methylbutanoate; Validol
Empirical: C15H28O2
Formula: (CH3)2CHCH2COOC10H19
Properties: Colorless liq.; mild odor; cooling, faintly bitter taste; sol. in alcohol, chloroform, ether, and oils; insol. in water; m.w. 240.39; dens. 0.907 (15.4 C)
Toxicology: TSCA listed
Uses: Synthetic flavor for pharmaceuticals; medicine (sedative)
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Advanced Synthesis Tech.
http://www.advancedsynthesis.com; Bell Flavors & Fragrances
http://www.bellff.com; SAFC Specialties
http://www.safcspecialties.com

Menthyl lactate
CAS 59259-38-0; EINECS/ELINCS 261-678-3
FEMA 3748
Synonyms: 2-Hydroxypropanoic acid, 5-methyl-2-(1-methylethyl) cyclohexyl ester; Lactic acid menthyl ester; L-p-Menthan-3-yl lactate; L-Menthyl lactate; 5-Methyl-2-(1-methylthyl) cyclohexyl α-hydroxypropanoate; (1R-(1α(R),2β,5α))5-Methyl-2-(1-methylthyl) cyclohexyl lactate
Definition: Ester of menthol and lactic acid
Empirical: C13H24O3
Formula: HSCH2CH2OH

Uses: Synthetic flavor, cooling agent for pharmaceuticals
Regulatory: FEMA GRAS; Canada DSL
Manuf./Distrib.: SAFC Specialties
http://www.safcspecialties.com

See also Menthyl lactate

Menthol valerate. See Menthyl isovalerate
Meparfynol. See Methyl pentynol
Mercaptan C1. See Methyl mercaptan
Mercaptoacetic acid, sodium salt. See Sodium thioglycolate
β-Mercaptoalanine; L-β-Mercaptaoalanine. See L-Cysteine
Mercaptobenzene. See Thiophenol
Mercaptoethanol. See 2-Mercaptoethanol

2-Mercaptoethanol
CAS 60-24-2; EINECS/ELINCS 200-464-6
UN 2966 (DOT)
Synonyms: BME; 1-Ethanol-2-thiol; Ethylene thioglycol; 2-Hydroxy-1-ethanethiol; Hydroxyethylmercaptan; 2-Hydroxyethylmercaptan; 2-ME; Mercaptoethanol; β-Mercaptoethanol; Monothioethyleneglycol; 2-Thioethanol; Thioethylene glycol; Thioglycol; Thiomonoglycol
Classification: Aliphatic organic compd.; alkyl mercapto alcohol
Empirical: C2H6OS
Formula: HSCH2CH2OH
Chemical Component Cross-Reference

Properties: Water-wh. mobile liq.; disagreeable odor; sol. in water, most org. solvs. incl. alcohol, benzene, ether; misc. with oxygenated and aromatic solvs.; m.w. 78.13; dens. 1.114; m.p. < -100 C; b.p. 157 C; flash pt. 74 C; ref. index 1.5006

Toxicology: LD50 (oral, rat) 244 mg/kg, (skin, rabbit) 150 mg/kg; poison by ing., skin contact, IP routes; mod. toxic by IV route; severely irritating to eyes, skin, nose; massive exposures can be fatal; ing. may irritate GI tract; human mutagenic data; TSCA listed

Precaution: Combustible; flamm. exposed to heat, flame, oxidizers; incomp. with oxidizers, reducing agents, strong acids, nitric acid, strong bases, alkali metals, moisture; vigorous or explosive reactions possible; can produce toxic fumes

Hazardous Decomp. Prods.: Heated to decomp., emits highly toxic fumes of SOx

NFPA: Health 2, Flammability 2

Storage: Store in cool, dry, well-ventilated area, out of direct sunlight

Uses: Intermediate for pharmaceuticals

Regulatory: FDA 21CFR §177.1020, 177.1030; Canada DSL

Manuf./Distrib.: AMRESCO
http://www.amresco-inc.com; Aldrich†
http://www.sigma-aldrich.com; Arkema
http://www.total.com; BASF AG
http://www.basf.de; BASF
http://www.basf.com
ChevronPhillips http://www.cpchem.com;
Fluka http://www.sigma-aldrich.com;
http://www.rohmhaas.com; Pechiney
Chems. Div. http://www.pechiney-chemicals.com; Reagens Comiel SpA
http://www.reagens.it
Research Organics http://www.resorg.com;
Rhodia HPCI http://www.rhodia-hpcli.com;
Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality
Prods. http://www.spectrumchemical.com;
Toray Thiokol http://www.toray.com/

β-Mercaptoethanol. See 2-Mercaptoethanol
8-Mercapto-p-methane-3-one. See p-Mentha-8-thiol-3-one
Mercaptomethane. See Methyl mercaptan
(Mercaptomethyl) benzene. See Benzyl mercaptan
2-(1-Mercapto-1-methylethyl)-5-

†=pharmaceutical grade

methylcyclohexanone. See p-Mentha-8-thiol-3-one
3-Mercapto-1,2-propanediol. See Thioglycerin
2-Mercaptopropanoic acid; α-Mercaptopropanoic acid. See 2-Mercaptopropanoic acid

2-Mercaptopropanoic acid
CAS 79-42-5; EINECS/ELINCS 201-206-5
UN 2936 (DOT); FEMA 3180
Synonyms: 2-Mercaptopropanoic acid; α-Mercaptopropanoic acid; β-Mercaptopropanoic acid; Propanoic acid, 2-mercapto-; Thiolactic acid (INCI); 2-Thiolactic acid; TLA
Classification: Nonaromatic carboxylic acid

Empirical: C₃H₆O₂S

Formula: CH₃CHSHCOOH

Properties: Colorless to pale-yel. oily liq.; roasted, meaty odor; misc. in water, alcohol, ether, and acetone; m.w. 106.16; dens. 1.196; m.p. 10-14 C; b.p. 102 C (16 mm); flash pt. 190 F; ref. index 1.4809

Toxicology: LC50 (inh., rat) 700 ppm; poison by ing.; mod. toxic by inh.; corrosive; causes burns; lachrymator; stench; TSCA listed

Precaution: Combustible liq.

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of SOx

Uses: Flavor for pharmaceuticals

Regulatory: FEMA GRAS; Canada DSL

Manuf./Distrib.: Acros Org.
http://www.acros.com; Bruno Bock
http://www.bock-thiochemicals.com; Fluka
http://www.sigma-aldrich.com; Hampshire
http://www.hampshire-chemical.com; ICN
http://www.mpbio.com
Lancaster Synthesis http://www.alfa.com;
R.C. Treatt & Co. Ltd
http://www.rctreatt.com; SAFC Specialties
http://www.safcspecialties.com; Sigma
http://www.sigma-aldrich.com/belgium; TCI
Am. http://www.tciamerica.com

α-Mercaptopropionic acid; β-Mercaptopropionic acid. See 2-Mercaptopropionic acid

2-Mercaptothiophene. See 2-Thienyl mercaptan

α-Mercaptotoluene. See Benzyl mercaptan
Mercurate(2-), [orthoboroato(3-)O] phenyl,
### Chemical Component Cross-Reference

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<th>Chemical Component</th>
<th>Synonyms</th>
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Mercury-amide-chloride; Mercury (II) amidochloride; Mercury amine chloride; Mercury ammoniated.  See Mercury ammonium chloride

Mercury ammonium chloride
CAS 10124-48-8; EINECS/ELINCS 233-335-8
UN 1630
Synonyms: Aminomercuric chloride; Ammoniated mercury; Mercuric ammonium chloride; Mercuric ammonium chloride, solid; Mercuric chloride, ammoniated; Mercury-amide-chloride; Mercury (II) amidochloride; Mercury amine chloride; Mercury ammoniated; White mercury precipitated; White precipitate
Empirical: ClH2HgN
Formula: Hg(NH2)Cl
Properties: Wh. tasteless, odorless powdered solid; insol. in cold water; m.w. 252.07; sp. gr. 5.1
Toxicology: Toxic
Precaution: Do not breathe dust
Storage: Keep container tightly closed and in a cool, well-ventilated area
Uses: Oral homeopathic drugs
Manuf./Distrib.: GFS
Research Prods. http://www.mpbio.com; Noah http://www.noahtech.com; Riedel-deHaën†; Ruger†
http://www.rugerchemical.com
Spectrum Quality Prods.
http://www.spectrumchemical.com
Mercury chloride; Mercury (I) chloride.  See Dimercury dichloride
Mercury diacetate.  See Mercury acetate (ic)
Mercury, ethyl(2-mercaptobenzoato-S)-, sodium salt.  See Thimerosal
Mercuryl acetate.  See Mercury acetate (ic)
Mercury, metallic.  See Mercury
Mercury oxide.  See Mercury oxide (ic), red
Mercury (II) oxide.  See Mercury oxide (ic), yellow; Mercury oxide (ic), red
Mercury oxide (ic), red
CAS 21908-53-2; EINECS/ELINCS 244-654-7
UN 1641 (DOT)
Synonyms: CI 77760; Mercuric oxide (INCI); Mercuric oxide, red; Mercury oxide; Mercury (II) oxide; Mercury oxide, red; Red precipitate
Classification: Inorganic oxide
Empirical: HgO
Properties: Orange-red powd.; sol. in dil. HCl and nitric acid; insol. in water, alcohol, ether; m.w. 216.59; dens. 11-11.29; m.p. 500 C (dec.)
Toxicology: DOT: Poisonous material; TLV 0.05 mg(Hg)/m³ of air; LD50 (oral, rat) 18 mg/kg, (skin, rat) 315 mg/kg, (IP, mouse) 4500 µg/kg; highly toxic; poison by ing., skin contact, IP, intramuscular routes; inh. may cause respiratory tract irritation, abdominal pain, vomiting, diarrhea, inflamm. of gums; chronic exposure results in anxiety, depression, insomnia, nervous system effects, kidney damage; experimental teratogen, reproductive effector; TSCA listed
Precaution: Strong oxidizer capable of igniting combustible materials; fire risk in contact with organic materials; flamm. by chem. reactions; explosive, violent, or incandescent reactions possible
Hazardous Decomp. Prods.: Heated to decomp., emits highly toxic fumes of Hg
HMIS: Health 3, Flammability 1, Reactivity 1
Storage: Light-sensitive
Uses: Pharmaceuticals; antiseptic; OTC drug
Regulatory: SARA reportable
Manuf./Distrib.: Aldrich† http://www.sigma-aldrich.com; Alfa Aesar
http://www.alfa.com; Allan
http://www.allanchem.com; BASF
http://www.basf.com; Centerchem
http://www.centerchem.com
Cerac http://www.cerac.com; Fluka
http://www.sigma-aldrich.com; Noah
http://www.noahtech.com; Ruger
http://www.rugerchemical.com; Sigma
http://www.sigma-aldrich.com/belgium
Spectrum Quality Prods.
http://www.spectrumchemical.com; Thor
UK http://www.thor.com
http://www.thor.adept.co.uk
Mercury oxide (ic), yellow
CAS 21908-53-2; EINECS/ELINCS 244-654-7
UN 1641 (DOT)
Synonyms: Mercuric oxide (INCI); Mercury (II) oxide; Mercury oxide, yellow; Yellow mercuric oxide; Yellow oxide of mercury; Yellow precipitate
Empirical: HgO
Properties: Lt. orange-yel. powd.; odorless; darkens on exposure to light; sol. in dil. HCl and nitric acid, potassium iodide sol'n., conc. sol'ns. of alkaline-earth chloride, magnesium
Mercury subchloride. See Dimercury dichloride

Meroxapol 105
CAS 9003-11-6 (generic)
Classification: Polyoxypropylene, polyoxyethylene block polymer
Formula:
\[ \text{HO(CHCH_3CH_2O)}_{x}(\text{CH_2CH_2O)}_{y}(\text{CH_2CHCH_3O)}_{z})\text{H} \], avg. \( x = 7, y = 22, z = 7 \)
Properties: Nonionic liq.
Toxicology: LD50 (oral, rat) 2300 mg/kg; mod. toxic by ing. and IP routes; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Emulsifier, wetting agent, binder, stabilizer, plasticizer, lubricant, solubilizer, dispersant, visc. control agent, defoamer for pharmaceuticals

Meroxapol 172
CAS 9003-11-6 (generic)
Classification: Polyoxypropylene, polyoxyethylene block polymer
Formula:
\[ \text{HO(CHCH_3CH_2O)}_{x}(\text{CH_2CH_2O)}_{y}(\text{CH_2CHCH_3O)}_{z})\text{H} \], avg. \( x = 12, y = 9, z = 12 \)
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, wetting agent, binder, stabilizer, plasticizer, lubricant, solubilizer, dispersant, visc. control agent, defoamer for pharmaceuticals

Meroxapol 174
CAS 9003-11-6 (generic)
Classification: Polyoxypropylene, polyoxyethylene block polymer
Formula:
\[ \text{HO(CHCH_3CH_2O)}_{x}(\text{CH_2CH_2O)}_{y}(\text{CH_2CHCH_3O)}_{z})\text{H} \], avg. \( x = 12, y = 23, z = 12 \)
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, wetting agent, binder, stabilizer, plasticizer, lubricant, solubilizer, dispersant, visc. control agent, defoamer for pharmaceuticals

Meroxapol 251
CAS 9003-11-6 (generic)
Classification: Polyoxypropylene, polyoxyethylene block polymer
Formula:
\[ \text{HO(CHCH_3CH_2O)}_{x}(\text{CH_2CH_2O)}_{y}(\text{CH_2CHCH_3O)}_{z})\text{H} \], avg. \( x = 18, y = 6, z = 18 \)
Properties: Nonionic liq.
Toxicology: TSCA listed
Uses: Emulsifier, wetting agent, binder, stabilizer, plasticizer, lubricant, solubilizer,
Chemical Component Cross-Reference

dispersant, visc. control agent, defoamer for pharmaceutical creams

Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

Meroxapol 252
CAS 9003-11-6 (generic)
Classification: Polyoxypropylene, polyoxyethylene block polymer

Formula:
\[ HO(CHCH_3CH_2O)_x(CH_2CH_2O)_y(CH_2CHCH_3O)_z H, \text{avg. } x=18, y=14, z=18 \]

Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, wetting agent, binder, stabilizer, plasticizer, lubricant, solubilizer, dispersant, visc. control agent, defoamer for pharmaceutical creams

Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

Trade Names: Antarox® 25-R-2

Meroxapol 254
CAS 9003-11-6 (generic)
Classification: Polyoxypropylene, polyoxyethylene block polymer

Formula:
\[ HO(CHCH_3CH_2O)_x(CH_2CH_2O)_y(CH_2CHCH_3O)_z H, \text{avg. } x=18, y=34, z=18 \]

Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, wetting agent, binder, stabilizer, plasticizer, lubricant, solubilizer, dispersant, visc. control agent, defoamer for pharmaceutical creams

Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

Trade Names: Antarox® 31-R-1

Meroxapol 258
CAS 9003-11-6 (generic)
Classification: Polyoxypropylene, polyoxyethylene block polymer

Formula:
\[ HO(CHCH_3CH_2O)_x(CH_2CH_2O)_y(CH_2CHCH_3O)_z H, \text{avg. } x=21, y=7, z=21 \]

Properties: Nonionic liq.
Toxicology: TSCA listed
Uses: Emulsifier, wetting agent, binder, stabilizer, plasticizer, lubricant, solubilizer, dispersant, visc. control agent, defoamer for pharmaceuticals

Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

Trade Names: Antarox® 31-R-1

Meroxylon pereirae. See Balsam Peru (Myroxylon pereirae)

Merphenyl nitrate. See Phenylmercuric nitrate; Phenylmercuric nitrate, basic

Merthiolate; Merthiolate sodium. See Thimerosal

meso-Erythritol. See Erythritol

meso-Inositol. See Inositol

Met. See L-Methionine

Metacetone. See Diethyl ketone

Metacetic acid. See Propionic acid

Metallum problematum. See Tellurium

Metanilic acid
CAS 121-47-1; EINECS/ELINCS 204-473-6
Synonyms: 1-Aminobenzenesulfonic acid; 3-Aminobenzenesulfonylic acid; m-Aminobenzenesulfonic acid; Aniline-3-sulfonic acid; m-Anilinesulfonic acid; m-Sulfanilic acid

Empirical: \( \text{C}_6\text{H}_7\text{NO}_3\text{S} \)
Formula: \( \text{C}_6\text{H}_4(\text{NH}_2)\text{SO}_3\text{H} \)

Properties: Wh. needles; sol. in water, alcohol, ether; sl. sol. in ethanol; m.w. 173.18; dec. by heating

Toxicology: Eye irritant; mutagenic data; TSCA listed

Hazardous Decomp. Prods.: Heated to decomps., emits very toxic fumes of NO\(_x\) and SO\(_x\)

Uses: Sulfa drug synthesis
Chemical Component Cross-Reference


Metaphenylenediamine. See m-Phenylenediamine

Metaphos. See Sodium metaphosphate

Metaphosphoric acid, hexasodium salt. See Sodium hexametaphosphate

Metaphosphoric acid potassium salt. See Potassium metaphosphate

Metaphosphoric acid, sodium salt. See Sodium metaphosphate

Metaphosphoric acid trisodium salt. See Sodium trimetaphosphate

Metasilicic acid. See Silica gel

Methacetone. See Diethyl ketone

Methacrylate copolymer; Methacrylate polymer. See Methacrylic acid copolymer

Methacrylic acid

CAS 79-41-4; EINECS/ELINCS 201-204-4

UN 2531 (inhibited)

Synonyms: Acrylic acid, 2-methyl-; MAA; 2-Methacrylate acid; α-Methacrylic acid; α-Methacylic acid (monomer); 2-Methylene propionic acid; 2-Methylehypernoic acid; 2-Methyl-2-propenoic acid; 2-Propenoic acid, 2-methyl-; Propionic acid, 2-methylene-

Empirical: C₄H₈O₂

Formula: H₂C:C(CH₃)COOH

Properties: Colorless liq., repulsive acrid odor; sol. in warm water, alcohol, ether, most org. solvs.; sol. > 10 mg/ml in water (17 C); m.w. 86.09; dens. 1.015 (20 C); vapor pressure 1 mm (25.5 C); m.p. 15-16 C; b.p. 163 C; flash pt. (OC) 76 C

Toxicology: ACGIH TLV/TWA 20 ppm; LD50 (oral, rat) 1060 mg/kg, (IP, mouse) 48 mg/kg, (skin, rabbit) 500 mg/kg; poison by IP route; mod. toxic by ing., skin contact; corrosive; strong irritant to skin, eyes, mucous membranes; mutagenic data; TSCA listed

Precaution: Combustible; corrosive; flamm. exposed to heat, flame, oxidizers; a storage hazard; spontaneous exothermic polymerization can occur

†=pharmaceutical grade

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke, irritating fumes

Storage: Storage hazard

Uses: Pharmaceutical ophthalmics

Regulatory: FDA approved for ophthalmics; Canada DSL


Sigma http://www.sigma-aldrich.com/belgium; Whyte Chems. Ltd http://www.whytechemicals.co.uk

β-Methacrylic acid. See Crotonic acid

Methacrylic acid butyl ester. See Butyl methacrylate

Methacrylic acid copolymer

Synonyms: Methacrylate copolymer; Methacrylate polymer

Definition: Fully polymerized copolymer of methacrylic acid and an acrylic or methacrylic ester; Type C may contain surfactants

Properties: Wh. powd., faint char. odor; sol. in dil. alkali, buffer solns. of pH ≥ 7, methanol, alcohol, IPA, acetone; insol. in water, dil. acids; visc. 50-200 cps

Uses: Coating agent for pharmaceutical enteric coated tablets; taste/odor masking agent for pharmaceuticals

Regulatory: USP?NF compliance

Manuf./Distrib.: Esschem http://www.esschem.com; Monomer-Polymer & Dajac Labs http://www.monomerpolymer.com

Trade Names: Aqueous Enteric Coat L30D; Aqueous Enteric Coat L100D; Controlled/Sustained Release Coat S100; Eudragit® L 30 D-55; Eudragit® L 100; Eudragit® L 100-55; Eudragit® S 100

Trade Names Containing: Acryl-Eze™; Acryl-Eze™ MP; Controlled/Sustained Release Coat S12.5; Eudragit® L 12.5; Eudragit® S 12.5
Chemical Component Cross-Reference

Methacrylic acid copolymer type C and
Metacrylic acid-ethyl acrylate copolymer (1:1). See Methacrylic acid/ethyl acrylate copolymer

Methacrylic acid-divinylbenzene copolymer
CAS 50602-21-6
Synonyms: Methacrylic acid/DVB copolymer
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Carrier of vitamin B₂ for special dietary use; tablet disintegrant
Regulatory: FDA 21CFR §172.775, 173.25, 175.105, 176.180; Canada DSL

Methacrylic acid/ethyl acrylate copolymer
CAS 25212-88-8
Synonyms: Acrylates copolymer; Methacrylic acid copolymer type C and Metacrylic acid-ethyl acrylate copolymer (1:1); P(EA/MAA); 2-Propenoic acid, 2-methyl-, polymer with ethyl 2-propenoate
Uses: Excipient for pharmaceuticals; film former in enteric coatings for solid dosage forms
Trade Names: Polyquid PA-30; Polyquid PA-30S
Trade Names Containing: Kollicoat® MAE 30 DP; Kollicoat® MAE 100P

Methacrylic acid, methyl ester. See Methyl methacrylate

Methacrylic acid methyl ester polymers. See Polymethyl methacrylate

Methacrylic acid polymer with divinylbenzene, potassium salt. See Polacrillin potassium

2-Methacryloyloxyethyl phosphorylcholine
CAS 67881-98-5
Synonyms: 2-MOEP
Classification: Choline compound
Uses: Ingredient in formulation of drug solubilizers
Trade Names Containing: Purebright MB-37 Series

Methaldehyde. See Formaldehyde
Methallyl butyrate. See 2-Methylallyl butyrate
Methanal. See Formaldehyde
Methanamide. See Formamide
Methanaminium, 1-carboxy-N,N,N-trimethyl-, chloride. See Betaine hydrochloride
Methanebis (N,N’-(5-ureido-2,4-diketotetrahydroimidazole)-N,N-dimethylol). See Imidazolidinyl urea

†=pharmaceutical grade
diketotetrahydroimidazole(-N,N-dimethylol).
See Imidazolidinyl urea
Methanecarbonitrile. See Acetonitrile
Methanecarboxamide. See Acetamide
Methanecarboxylic acid. See Acetic acid
Methanedicarboxylic acid; Methanedicarboxylic acid. See Malonic acid
Methanedicarboxylic acid, diethyl ester. See Diethyl malonate
Methane dichloride; Methane-, dichloro-. See Methylene chloride
Methanesulfonic acid, hydroxy-, monosodium salt. See Sodium formaldehyde sulfoxylate

Methanesulfonic acid
CAS 75-75-2; EINECS/ELINCS 200-898-6
UN 2584; UN 2586
Synonyms: Methylsulfonic acid; MSA; Sulfomethane
Classification: Aliphatic organic compd.
Empirical: CH₄O₃S
Formula: CH₃SO₃H
Properties: Colorless to ylsh. liq.; sol. in water, alcohol, ether, oxygenated solvs.; m.w. 96.10; dens. 1.483 (20/4 C); vapor pressure 1 mm Hg (20 C); m.p. 20 C; b.p. 167 C (10 mm); dec. > 200 C; flash pt. 110 C; ref. index 1.4300
Toxicology: LDLo (oral, rat) 200 mg/kg, (IP, rat) 50 mg/kg; poison by ing., IP routes; corrosive to tissue, skin, eyes, mucous membranes; causes burns; target organs: liver, kidney, stomach, CNS; TSCA listed
Environmental: Good biodegrad.; VOC; ThOD 0.67; do not allow undiluted prod. to reach ground water or sewage systems
Precaution: Corrosive to iron, steel, brass, copper, lead; explosive reaction with ethyl vinyl ether; incomp. with hydrogen fluoride, alkalis, amines, vinyl ethers; reacts violently with water
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of SOx
Storage: Store container tightly sealed in cool, dry area with sufficient ventilation; keep away from heat, direct sunlight
Uses: Pharmaceutical parenterals
Regulatory: FDA approved for parenterals; Canada DSL
Manuf./Distrib.: AMRESCO
http://www.amresco-inc.com; Aldrich
http://www.sigma-aldrich.com; Alfa Aesar†
http://www.alfa.com; Allichem Ind.
http://www.allchem.com; Arkema†
http://www.total.com/
### Chemical Component Cross-Reference

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<thead>
<tr>
<th>Chemical Component</th>
<th>Manufacturer/Distributor</th>
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<tr>
<td>Methane, sulfonylbis-</td>
<td>See Dimethyl sulfone</td>
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<td>Methane tetrachloride</td>
<td>See Carbon tetrachloride</td>
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<td>Methanethiol</td>
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<td>Methanethiol, phenyl-</td>
<td>See Benzyl mercaptan</td>
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<td>Methane trichloride</td>
<td>See Chloroform</td>
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<td>Methane, trichlorofluoro-</td>
<td>See Trichlorofluoromethane</td>
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<td>Methane, trifluoro.</td>
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<td>Methanoic acid, amide</td>
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<td>Methanol, benzyl-</td>
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<td>Methanol, oxiranyl-</td>
<td>See Glycidol</td>
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<td>Methanone, (2,4-dihydroxyphenyl) phenyl-</td>
<td>See Benzophenone-1</td>
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<td>Methanone (2-hydroxy-4-methoxyphenyl) phenyl-</td>
<td>See Benzophenone-3</td>
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<td>Methenamine 3-chloroallylchloride</td>
<td>See Quaternium-15</td>
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<td>Methenamine hippurate</td>
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<td>Synonyms: Hexamethylenetetramine hippurate; Hippuric acid, compd. with hexamethylene tetramine</td>
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<td>Empirical: C₁₅H₂₃N₅O₃</td>
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<td>Formula: C₉H₅NO₃ • C₆H₁₂N₄</td>
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<td>Properties: M.w. 319.41</td>
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<td>Toxicology: LD₅₀ (IP, mouse) 1500 mg/kg; (subcut., mouse) 2870 mg/kg</td>
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<tr>
<td>Uses: Antimicrobial, preservative, antibacterial for pharmaceuticals; oral drug</td>
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<td>Methenyl chloride; Methenyl trichloride. See Chloroform</td>
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<td>Methenyltrichloridyl chloride (±)-2-Amino-4-(methylmercapto) butyric acid; DL-2-Amino-4-methylthiobutanaoic acid; DL-2-Amino-4-(methylthio) butyric acid; Methionine (INCI); (±)-Methionine; Racemethionine</td>
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<td>Classification: Amino acid</td>
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<td>Properties: Wh. cryst. platelets or powd., char. odor; sol. in water, dil. acids and alkalis; very sl. sol. in alcohol; insol. in ether, all org. solvs.; m.w. 149.21; dens. 1.34 kg/l; m.p. ≈ 280 C (dec.); pH 5.6-6.1 (1%)</td>
<td></td>
</tr>
<tr>
<td>Toxicology: LD₅₀ (oral, mouse) 4 g/kg, (IP, mouse) 1500 mg/kg, (IV, mouse) 300 mg/kg; mod. toxic by ing. and other routes; experimental reproductive effects, teratogen; TSCA listed</td>
<td></td>
</tr>
<tr>
<td>Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of SOₓ and NOₓ</td>
<td></td>
</tr>
<tr>
<td>Storage: Light-sensitive</td>
<td></td>
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<tr>
<td>Uses: Dietary supplement, nutrient, flavor in pharmaceuticals</td>
<td></td>
</tr>
<tr>
<td>Regulatory: FDA 21CFR §172.320, 3.1% max., not for infant foods; FEMA GRAS; Japan approved; BP, EP compliance; Canada DSL</td>
<td></td>
</tr>
</tbody>
</table>
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Chemical Component</th>
<th>Cross-Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acid</td>
<td><a href="http://www.donboo.com">http://www.donboo.com</a>; Fluka <a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a>; Fortitech† <a href="http://www.fortitech.com">http://www.fortitech.com</a></td>
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<tr>
<td>Fuerst Day Lawson</td>
<td><a href="http://www.fdl.co.uk">http://www.fdl.co.uk</a>; Functional Foods† <a href="http://www.functionalfoods.com">http://www.functionalfoods.com</a>; George Uhe <a href="http://www.uhe.com">http://www.uhe.com</a>; Helm NY† <a href="http://www.helmnewyork.com">http://www.helmnewyork.com</a>; Integra† <a href="http://www.integrachem.com">http://www.integrachem.com</a></td>
</tr>
<tr>
<td>Storage:</td>
<td>Light-sensitive</td>
</tr>
<tr>
<td>Uses:</td>
<td>Dietary supplement, nutrient, flavor in pharmaceuticals; infusion sol'ns.; peptide drug intermediate</td>
</tr>
<tr>
<td>Features:</td>
<td>Lipotropic</td>
</tr>
<tr>
<td>Regulatory:</td>
<td>FDA 21CFR §172.320, limitation 3.1%; Japan approved; BP, EP compliance; Canada DSL</td>
</tr>
</tbody>
</table>

### L-Methionine

**CAS**: 63-68-3; EINECS/ELINCS 200-562-9

**Synonyms**: 1-α-Amino-γ-methylmercaptobutyric acid; (S)-2-Amino-4-(methylmercapto) butyric acid; L-2-Amino-4-methylthiobutyric acid; Met; 1-γ-Methylthio-α-aminobutyric acid

**Classification**: Amino acid

**Definition**: Avail. commercially as the naturally occurring L(-)-enantiomer

**Empirical**: C₅H₁₁NO₂S

**Formula**: CH₃SCH₂CH₂CH(NH₂)COOH

**Properties**: Wh. cryst. powd. or platelets, sl. char. odor; sol. in water, dil. acids, alkalis; insol. in abs. alcohol, alcohol, benzene, acetone, ether; m.w. 149.21; dens. 1.340; m.p. 281 C (dec.)

**Toxicology**: LD₅₀ (oral, rat) 36 g/kg; (IP, rat) 4328 mg/kg; mildly toxic by ing., IP routes; human mutagenic data; experimental teratogen, reproductive effects; TSCA listed

**Features**: Hazardous Decomp. Pros.: Heated to decomp., emits very toxic fumes of NOₓ and SOₓ

**Trade Names Containing**: Aminodermin CLR

**L-Methionine**

**L-Methionine, N-acetyl-** See N-Acetyl-L-methionine

**Methocel** See Methylcellulose

**4′-Methoxyacetophenone; p-Methoxyacetophenone** See Acetanisole

**3-Methoxy-4-acetoxybenzaldehyde** See Vanillin acetate

**p-Methoxyallylbenezene** See Estragole

**2-Methoxy-4-allylphenol** See Eugenol

**2-Methoxy-1-aminobenzenene** See o-Anisidine

**4-Methoxy-1-aminobenzenene** See p-Anisidine

**2-Methoxyaniline** See o-Anisidine

**3-Methoxyaniline** See m-Anisidine

**4-Methoxyaniline** See p-Anisidine

**m-Methoxyaniline** See m-Anisidine
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Chemical Component</th>
<th>CAS Number</th>
<th>FEMA</th>
<th>Synonyms</th>
<th>Classification</th>
<th>Properties</th>
<th>Toxicology</th>
<th>Uses</th>
<th>Regulatory</th>
</tr>
</thead>
<tbody>
<tr>
<td>o-Methoxyaniline.</td>
<td>See o-Anisidine</td>
<td></td>
<td></td>
<td>Aromatic aldehyde</td>
<td>Colorless or cream-colored cryst., faint sweet floral odor, spice-like flavor; sol. in alcohol; insol. in water; m.w. 136.15; dens. 1.1326; m.p. 35-37 C; b.p. 243-244 C; flash pt. 117 C; ref. index 1.5530</td>
<td>Irritating to eyes, skin, respiratory system; mutagen; TSCA listed</td>
<td>Sweet flavor</td>
<td>Canada DSL</td>
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<tr>
<td>p-Methoxyaniline.</td>
<td>See o-Anisidine</td>
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<td>3-Methoxyanisole.</td>
<td>See m-Dimethoxybenzene</td>
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<td>p-Methoxyanisole.</td>
<td>See p-Dimethoxybenzene</td>
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<tr>
<td>2-Methoxybenzaldehyde.</td>
<td>See o-Methoxybenzaldehyde</td>
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<td>3-Methoxybenzaldehyde.</td>
<td>See m-Methoxybenzaldehyde</td>
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<td>4-Methoxybenzaldehyde.</td>
<td>See p-Anisaldehyde</td>
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<tr>
<td>m-Methoxybenzaldehyde</td>
<td>CAS 591-31-1; EINECS/ELINCS 209-712-8</td>
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<td>Aromatic aldehyde</td>
<td>Lt. yel. liq.; m.w. 136.16; sp.gr. 1.119; dens. 9.33 lb/gal; b.p. 143 C (50 mm); flash pt. (CC) 110 C; ref. index 1.5530</td>
<td>Irritating to eyes, skin, respiratory system; mutagen; TSCA listed</td>
<td>Synthesis of anti-inflammatories and other bulk actives</td>
<td>Canada DSL</td>
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<td>o-Methoxybenzaldehyde</td>
<td>CAS 135-02-4; EINECS/ELINCS 205-171-7</td>
<td>FEMA 4077</td>
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<td>2-Anisaldehyde</td>
<td>o-Anisaldehyde; o-Anisic aldehyde; Benzaldehyde, 2- methoxy-; 2-Methoxybenzaldehyde; 2-Methoxybenzenecarboxaldehyde; Methyl salicylaldehyde; Salicylaldehyde methyl ether</td>
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<td>p-Methoxybenzaldehyde</td>
<td>See p-Anisaldehyde</td>
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<tr>
<td>2-Methoxybenzene</td>
<td>See o-Anisidine</td>
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<td>3-Methoxybenzene</td>
<td>See m-Anisidine</td>
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<tr>
<td>4-Methoxybenzene</td>
<td>See p-Anisidine</td>
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<td>Methoxybenzene.</td>
<td>See Anisole</td>
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<tr>
<td>4-Methoxybenzenecarboxaldehyde</td>
<td>See o-Methoxybenzaldehyde</td>
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<td>4-Methoxybenzenemethanol</td>
<td>See p-Anisyl alcohol</td>
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<td>Methoxybenzenemethanol methanoate.</td>
<td>See Anisyl formate</td>
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<tr>
<td>Methoxybenzoic acid; p-Methoxybenzoic acid.</td>
<td>See p-Anisic acid</td>
<td></td>
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<td>o-Methoxybenzoic acid methyl ester.</td>
<td>See Methyl o-methoxybenzoate</td>
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<tr>
<td>4-Methoxybenzyl acetate; p-Methoxybenzyl acetate.</td>
<td>See p-Anisyl acetate</td>
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<td>4-Methoxybenzylandecetone.</td>
<td>See 4-p-Methoxyphenyl-2-butanone</td>
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<tr>
<td>4-Methoxybenzyl alcohol; p-Methoxybenzyl alcohol.</td>
<td>See p-Anisyl alcohol</td>
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<tr>
<td>p-Methoxybenzyl butyrate.</td>
<td>See Anisyl butyrate</td>
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<tr>
<td>4-Methoxybenzyl formate; p-Methoxybenzyl formate.</td>
<td>See Anisyl formate</td>
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<tr>
<td>4-Methoxybenzyl methyl ketone; p-Methoxybenzyl methyl ketone.</td>
<td>See 1-(p-Methoxyphenyl)-2-propanone</td>
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<tr>
<td>p-Methoxybenzyl phenyl acetate.</td>
<td>See Anisyl phenylacetate</td>
<td></td>
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<tr>
<td>4-Methoxybenzyl propanoate; p-Methoxybenzyl propionate.</td>
<td>See Anisyl propionate</td>
<td></td>
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<tr>
<td>1-Methoxybutane-1,3-dione.</td>
<td>See Methyl acetoacetate</td>
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<tr>
<td>3-Methoxybutanol</td>
<td>CAS 2517-43-3; EINECS/ELINCS 219-741-8</td>
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</tbody>
</table>

†=pharmaceutical grade

**Features:** Sweet flavor

**Regulatory:** FDA 21CFR §172.515; Canada DSL

Chemical Component Cross-Reference

Synonyms: 1,3-Butanediol 3-methyl ether; 1-Butanol, 3-methoxy-; Butolether; 1,3-Butylene glycol monomethyl ether; 3-Methoxy-n-butanol

Classification: Organic compd.

Empirical: C₉H₁₂O₂

Formula: CH₃CH(OCH₃)CH₂CH₂OH

Properties: Colorless clear liq.; mild odor; sol. in water; misc. with common org. solvs.; m.w. 104.15; dens. 0.920-0.922 g/cc; vapor pressure 0.9 mm Hg (20 C); sets to glass @ -85 C; b.p. 161 C; flash pt. (CC) 60 C; autoignition temp. 335 C; ref. index 1.415-1.416 (20 C)

Toxicology: LD₅₀ (oral, rat) 4000 mg/kg; toxic by ingestion

Environmental: Good biological eliminability

Precaution: Combustible

NFPA: Health 1, Flammability 2, Reactivity 0

Storage: Store in cool, dark, dry place in tightly closed containers, with air excluded

Uses: Solvent for pharmaceuticals

Features: High boiling; good dissolving power

Regulatory: Canada DSL

Manuf./Distrib.: Celanese

http://www.celanesechemicals.com;
http://www.chemvip.com

3-Methoxy-n-butanol. See 3-Methoxybutanol

2-Methoxy-4-carbaldehyde-phenyl 2-methylpropanoate. See Vanillin isobutyrate

2-(Methoxycarbonyl) aniline. See Methyl anthranilate

Methoxycarbonylethylene. See Methyl acrylate

2-(Methoxycarbonyl) phenol. See Methyl salicylate

6’-Methoxycinchonan-9-ol monohydrochloride. See Quinine hydrochloride

2’-Methoxycinnamaldehyde. See o-Methoxycinnamaldehyde

o-Methoxycinnamaldehyde

CAS 1504-74-1; EINECS/ELINCS 216-131-3

FEMA 3181

Synonyms: o-Cumaric aldehyde methyl ether; 2’-Methoxycinnamaldehyde; o-Methoxycinnamic aldehyde; β-(o-Methoxyphenyl) acrolein; 3-(2-Methoxyphenyl)-2-propenal

Empirical: C₁₀H₁₀O₂

Properties: Pale yel. cryst. flakes, spicy-floral odor; sol. in alcohol, ether, chloroform; sl. sol. in water; m.w. 162.18; m.p. 45-46 C; b.p. 295 °C

T = pharmaceutical grade

Toxicology: LD₅₀ (oral, mouse) > 2 g/kg; primary skin irritant; mutagen; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals

Features: Sweet flavor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: Advanced Synthesis Tech.

http://www.advancedsynthesis.com; Citrus and Allied Essences

http://www.citrusandallied.com; SAFC Specialties http://www.safcspecialties.com

o-Methoxycinnamic aldehyde. See o-Methoxycinnamaldehyde

2-Methoxy-p-cresol. See 2-Methoxy-4-methylphenol

Methoxyethanol

CAS 109-86-4; EINECS/ELINCS 203-713-7

UN 1188 (DOT)

Synonyms: EGME; Ethylene glycol methyl ether; Ethylene glycol monomethyl ether; Glycol monomethyl ether; 2-ME; 2-Methoxyethanol; β-Methoxyethanol; Methoxyhydroxyethane; Methyl ‘Cellosolve’

Classification: Aliphatic ether alcohol

Empirical: C₃H₆O₂

Formula: CH₃OCH₂CH₂OH

Properties: Colorless liq., mild agreeable ether-like odor.; sol. in water, alcohols, ketones, glycols, most hydrocarbons; misc. with ether, benzene, glycerol, acetone, dimethylformamide; m.w. 76.10; dens. 0.964 (20/4 C); vapor pressure 9.5 mm Hg; f.p. -86.5 C; b.p. 123-124 C; flash pt. (OC) 43 C; autoignition temp. 235 C; ref. index 1.4028 (20 C); surf. tens. 30.84 dynes/cm; pH neutral

Toxicology: ACGIH TLV/TWA 5 ppm (skin); LD₅₀ (oral, rat) 2460 mg/kg, (IP, rat) 2500 mg/kg, (IV, rat) 2140 mg/kg, (skin, rabbit) 1280 mg/kg; mod. toxic by ing., inh., skin contact, IP, IV routes; mod. toxic to humans by ing.; human systemic effects; skin/eye irritant; inh. can cause headache, confusion, weakness, nausea, difficulty breathing, increased heart rate; target organs: blood, brain, kidneys; potential occupational carcinogen; experimental teratogen; mutagenic data; TSCA listed

Environmental: VOC; BOD₅ 0.12; COD 1.69; ThOD 1.68
**Precaution:** Flamm. on exposure to heat and flame; mod. explosion hazard; can react with oxidizers to form explosive peroxides; incompat. with acid chlorides, acid anhydrides (forms ester compds.)

**Hazardous Decomp. Prods.:** Acetaldehyde, methanol; heated to decomp., emits acrid smoke, irritating fumes

**NFPA:** Health 2, Flammability 2, Reactivity 0

**Storage:** Store in cool, dry, well-ventilated area, out of direct sunlight

**Uses:** Solvent in pharmaceuticals

**Regulatory:** FDA 21CFR §73.1 (no residue), 175.105; USDA 9CFR §381.147; SARA §313 reportable; HAP; Canada DSL


2-Methoxyethanol; β-Methoxyethanol. See Methoxyethanol

**Properties:** Colorless to ylsh. liq., spicy, vanilla-like odor; sol. in alcohol, ether, benzene, chloroform, acetic acid; sl. sol. in water; m.w. 138.17; dens. 1.092 (20/4 C); vapor dens. 4.7; m.p. 5 C; b.p. 221-222 C; flash pt. 99 C; ref. index 1.537 (20 C)

**Toxicology:** LD50 (oral, rat) 740 mg/kg, (IV, mouse) 75 mg/kg; poison by IV route; probably mod. toxic; irritating to eyes, skin, respiratory system; mutagenic data; TSCA listed

**Environmental:** Do not contaminate water sources, sewers

**Precaution:** Wear protective gloves, splash-proof eye goggles; incompat. with strong oxidizers, alkalies

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Storage:** Keep in original, tightly closed container; keep away from heat, sparks, open flame

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Sweet vanilla-like flavor

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI

Chemical Component Cross-Reference

http://www.advancedsynthesis.com; Fluka
http://www.sigma-aldrich.com; Moore
Chem. Ltd
http://www.oxfordchemicals.com
R.C. Treatt & Co. Ltd
http://www.rctreatt.com; SAFC Specialties
http://www.safcspecialties.com

2-Methoxy-2-methylpropane. See Methyl t-butyl ether
2-Methoxy-3-methylpyrazine. See 2-Methoxy-3(5)-methylpyrazine
2-Methoxy-3(5)-methylpyrazine CAS 2847-30-5; EINECS/ELINCS 220-651-6
FEMA 3183
Synonyms: 2-Methoxy-3-methylpyrazine
Empirical: C6H8N2O
Properties: Colorless liq.; roasted hazelnut odor; sol. in water, org. solvs.; m.w. 124.14; dens. 1.00-1.09 (20 °C); flash pt. 131 °F; ref. index 1.506
Precaution: Flamm. liq. exposed to heat, flame, or sparks
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx
Uses: Flavor for pharmaceuticals
Regulatory: FEMA GRAS; Canada DSL
Manuf./Distrib.: Advanced BioTech
http://www.ad-bio.com; Advanced Synthesis Tech.
http://www.advancedsynthesis.com; Cargill
Flavors & Fruit Systems USA
http://www.flavors-fruit-systems.com; De Monchy Aromatics
http://www.demonchyaromatics.com;
Epochem http://www.epochem.com
Frutarom Ltd http://www.frutarom.com;
Oxford Chems. Ltd
http://www.oxfordchemicals.com; SAFC Specialties
http://www.safcspecialties.com; Vioryl
http://www.vioryl.gr

p-Methoxy-β-methylstyrene. See Anethole

Methoxy PEG
CAS 9004-74-4 (generic)
Synonyms: Methoxy polyethylene glycol; PEG methyl ether; Polyethylene glycol monomethyl ether
Definition: Addition polymer of ethylene oxide and methanol
Formula: CH3(CH2CH2O)nOH, n = 7-16
Properties: Liq. grades: Colorless or prac.

†=pharmaceutical grade
colorless clear to sl. hazy sl. hygroscopic visc. liqs., sl. char. odor; sol. in acetone, alcohol, chloroform, ethyl acetate, toluene; misc. with water; sp.gr. 1.09-1.10; Solid grades: wh. waxy plastic, flakes, beads, or powds., pract. odorless and tasteless; sol. in water, acetone, alcohol, chloroform, ethyl acetate, toluene
Uses: Ointment base, solvent, plasticizer in pharmaceuticals
Regulatory: NF compliance

Methoxy PEG methacrylate
CAS 26915-72-0
Synonyms: Methoxy polyethylene glycol methacrylate
Uses: Steric stabilizer and controlled release device for pharmaceuticals
Trade Names: Rohamere® 6850-0

2-Methoxyphenol. See Guaiacol
4-Methoxyphenol. See Hydroquinone monomethyl ether
o-Methoxyphenol. See Guaiacol
p-Methoxyphenol. See Hydroquinone monomethyl ether
2-Methoxyphenyl acetate; o-Methoxyphenyl acetate. See Guaiacyl acetate
4-Methoxyphenylacetic acid. See p-Methoxyphenylacetic acid

p-Methoxyphenylacetic acid
CAS 104-01-8; EINECS/ELINCS 203-166-4
Synonyms: 2-(p-Anisyl) acetic acid; Homoanisic acid; 4-Methoxybenzeneacetic acid; 4-Methoxyphenylacetic acid; p-Methoxy-α-toluic acid; MOPA
Classification: Aromatic organic compd.
Empirical: C9H10O3
Formula: CH3OC6H4CH2COOH
Properties: Off-wh. to pale yel. flakes; sol. in methanol; insol. in cold water; m.w. 166.18; m.p. 86-88.5 °C; b.p. 140 °C (3 mm)
Toxicology: LD50 (oral, rat) 1550 mg/kg, (IP, mouse) 504 mg/kg; mod. toxic by ing. and IP routes; irritant; questionable carcinogen; tumorigen; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Intermediate for pharmaceuticals, other organic compds.
Regulatory: Canada DSL
Manuf./Distrib.: Advanced Synthesis Tech.
http://www.advancedsynthesis.com;
Aldrich† http://www.sigma-aldrich.com;
Alfa Chem† http://www.alfachem1.com;
Chemical Component Cross-Reference

Biddle Sawyer†
http://www.biddlesawyer.com; D&O
http://www.dochem.com
Fluka http://www.sigma-aldrich.com;
Indofine†
http://www.indofinechemical.com;
Interchem† http://www.interchem.com;
Junsei Chem.† http://www.junsei.co.jp/;
Midori Kagaku† http://www.midori-kagaku.co.jp/m060713/e_start_fr.htm
Penta Mfg.† http://www.pentamfg.com
R.W. Greeff† http://www.pechiney-chemicals.com;
Sigma http://www.sigma-aldrich.com/belgium;
Spectrum Quality Prods.† http://www.spectrumchemical.com
Synasia† http://www.synasia.com

4-Methoxyphenylacetone; p-Methoxyphenylacetone. See 1-(p-Methoxyphenyl)-2-propanone
β-(o-Methoxyphenyl)acrolein. See o-Methoxycinnamaldehyde
o-Methoxyphenylamine. See o-Anisidine
p-Methoxyphenylamine. See p-Anisidine

4-p-Methoxyphenyl-2-butanone
CAS 104-20-1; EINECS/ELINCS 203-184-2
FEMA 2672
Synonyms: Anisyl acetone; 2-Butanone, 4-(p-methoxyphenyl)-; 4-Methoxybenzylacetone; p-Methoxyphenylbutanone; Raspberry ketone methyl ether
Classification: aromatic ketone
Empirical: C11H14O2
Formula: CH3OC6H4C2H4COCH3
Properties: Colorless to pale yel. liq.; sweet floral odor; m.w. 178.23; dens. 1.045; m.p. 8 C; b.p. 152-153 C (15 mm); flash pt. > 230 F; ref. index 1.5200
Toxicology: LD50 (oral, rat) > 5 gm/kg; sensitizer; primary irritant
Uses: Synthetic flavor for pharmaceuticals
Classifications: synthetic flavor for pharmaceuticals
Features: Sweet cherry, raspberry-like flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; prohibited in cosmetics (Europe); Canada DSL
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; MelChem http://www.melchem.com

2-Methoxyphenyl phenylacetate; o-Methoxyphenyl phenylacetate. See Guaiacyl phenylacetate
1-(p-Methoxyphenyl)-2-propanone
CAS 122-84-9; EINECS/ELINCS 204-433-2; 204-578-7
FEMA 2674
Synonyms: 4-Acetonylanisole; p-Acetonylanisole; Anisic ketone; Anisketone; Anisylmethyl ketone; p-Anisyl methyl ketone; 4-Methoxybenzyl methyl ketone; p-Methoxybenzyl methyl ketone; 4-Methoxybenzyleacetone; p-Methoxyphenylacetone; 2-Propanone, 1-(p-methoxyphenyl)-
Chemical Component Cross-Reference

Classification: Aromatic ketone
Empirical: C_{10}H_{12}O_2
Properties: Oil or cryst.; sl. sol. in water and oxygenated solvs.; m.w. 164.20; dens. 1.067; m.p. 46 C; b.p. 110-113 C; flash pt. 215 F; ref. index 1.5250
Toxicology: LD50 (oral, rat) 3330 mg/kg, (IP, mouse) 560 mg/kg, (skin, rabbit) > 5 g/kg; mod. toxic by ing. and other routes; primary skin irritant; TSCA listed
Precaution: Flamm.
Storage: Refrigerate; store under nitrogen
Uses: Synthetic flavor for pharmaceuticals
Features: Caramel, vanilla-like flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Fluka http://www.sigma-aldrich.com; SAFC Specialties http://www.safcspecialties.com

3-(2-Methoxypropenyl)-2-propanol. See o-Methoxycinnamaldehyde
1-(p-Methoxyphenyl) propene. See Anethole
3-(4-Methoxyphenyl)-2-propenoic acid compd. with 2,2'-iminobis (ethanol). See DEA methoxycinnamate
3-(4-Methoxyphenyl)-2-propenoic acid, 2-ethylhexyl ester. See Octyl methoxycinnamate

Methoxy polyethylene glycol. See Methoxy PEG
Methoxy polyethylene glycol methacrylate. See Methoxy PEG methacrylate
1,2-Methoxy-4-propenylbenzene. See Methyl isoeugenol
1-Methoxy-4-propenylbenzene. See Anethole
1-Methoxy-4-(2-propenyl) benzene. See Estragole
4-Methoxypropenylbenzene; p-Methoxypropenylbenzene. See Anethole
2-Methoxy-4-prop-1-enyl phenetole. See Isoeugenyl ethyl ether
2-Methoxy-4-propenylphenol; 2-Methoxy-4-(prop-1-enyl) phenol. See Isoeugenol
2-Methoxy-4-(2-propenyl) phenol; 2-Methoxy-4-prop-2-enylphenol. See Eugenol
2-Methoxy-4-propenylphenyl acetate; 2-Methoxy-4-prop-1-enylphenyl acetate. See Acetisoeugenol
2-Methoxy-4-(2-propenyl) phenyl benzoate. See Eugenyl benzoate
2-Methoxy-4-propenylphenyl benzyl ether. See Isoeugenyl benzyl ether
2-Methoxy-4-propenylphenyl formate. See

†=pharmaceutical grade

Isoeugenyl formate
2-Methoxy-4-propenylphenyl phenylacetate; 4-Methoxy-4-prop-1-enylphenyl phenylacetate. See Isoeugenyl phenylacetate
1-Methoxy-4-propylbenzene; 1-Methoxy-4-n-propylbenzene. See p-Propyl anisole
Methoxypyrazine. See 2-Methoxypyrazine

2-Methoxypyrazine
CAS 3149-28-8
FEMA 3302
Synonyms: Methoxypyrazine
Classification: pyrazine
Empirical: C_5H_6N_2O
Properties: Colorless to yel. liq.; nutty cocoa-like odor; sol. in alcohol; insol. in water @ 61 C; m.w. 110.12; dens. 1.110; b.p. 60-61 C (29 mm); flash pt. 114 F; ref. index 1.508
Toxicology: Skin and eye irritant
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx
Uses: Synthetic flavor for pharmaceuticals
Features: Sweet, cocoa-like flavor
Regulatory: FEMA GRAS; Canada DSL

2-Methoxyltoluene. See o-Methylanisole
4-Methoxyltoluene. See p-Methylanisole
o-Methoxyltoluene. See o-Methylanisole
p-Methoxyltoluene. See p-Methylanisole
p-Methoxy-α-toluic acid. See p-Methoxyphenylactic acid

2-Methoxy-4-vinylphenol
CAS 7786-61-0; EINECS/ELINCS 231-101-2
FEMA 2675
Synonyms: 4-Hydroxy-3-methoxy styrene; p-Vinylcatechol-O-methyl ether; Vinyl guaiiacol; p-Vinylguaiacol
Classification: Aromatic phenol
Empirical: C_9H_10O_2
Properties: Colorless solid or liq.; spicy, clove odor; insol. in wager; sol. in most org. solvs.; m.w. 150.18; sp.gr. 1.105-1.115; dens. 1.11; vapor dens. 5.1; flash pt. (CC) > 99 C; ref. index 1.570-1.580

Handbook of Pharmaceutical Additives, Third Edition 1633
Methylecetaldehyde. See Propionaldehyde

Methyl acetate
CAS 79-20-9; EINECS/ELINCS 201-185-2
UN 1231 (DOT); FEMA 2676
Synonyms: Acetic acid methyl ester; Methyl acetic ester; Methyl ethanoate
Classification: Sat. aliphatic carboxylic acid ester
Definition: Ester of methyl alcohol and acetic acid
Empirical: C₃H₆O₂
Formula: CH₃COOCH₃
Properties: Colorless volatile liq., fragrant odor; sl. bitter flavor; very sol. in water; sol. in ethanol, diethyl ether, acetone, benzene, chloroform; m.w. 78.09; dens. 0.92438; vapor pressure 100 mm Hg (9.4 C); f.p. -98.05 C; m.p. 54.05 C; flash pt. (CC) -10 C; autoignition temp. 454 C; surf. tens. 24.1 dynes/cm (20 C); dielec. const. 6.68
Toxicology: ACGIH TLV/TWA 200 ppm in air; STEL 250 ppm; LD50 (oral, rabbit) 3705 mg/kg; LCLo (inh., cat, 1 h) 57,000 mg/m³; mod. toxic by several routes; human systemic irritant by inh.; mod. skin and severe eye irritant; irritant to respiratory tract; narcotic in high concns.; mutagenic data; TSCA listed
Environmental: ThOD 1.51
Precaution: Flamm.; dangerous fire and explosion risk; explosive limits 3.1-16% in air; incompat. with oxidizing agents, strong acids, bases, potassium t-butoxide
Hazardous Decomp. Prods.: Methanol, acetic acid; heated to decomp., emits acrid smoke and fumes
NFPA: Health 1, Flammability 3, Reactivity 0

Methylacetic acid. See Propionic acid
Methylacetic anhydride. See Propionic anhydride
Methyl acetic ester. See Methyl acetate

Methyl acetoacetate
CAS 105-45-3; EINECS/ELINCS 203-299-8
Synonyms: Acetoacetic acid methyl ester; MAA; 1-Methoxybutane-1,3-dione; Methyl acetylacetate; Methyl acety lacetonate; Methyl 3-oxobutanoate; Methyl 3-oxobutyrate; 3-Oxobutanoic acid methyl ester
Classification: Carboxylic acid ester
Empirical: C₅H₈O₃
Formula: CH₃COCH₂COOCH₃
Properties: Colorless liq.; very sol. in water; sol. in alcohol, ether; misc. with oxygenated solvs.; m.w. 116.1; dens. 1.076 (20/4 C); m.p. -80 C; b.p. 100 mm Hg (9.4 C); m.p. -98.05 C; surf. temp. 454 C; ref. index 1.3614 (20 C); surf. tens. 24.1 dynes/cm (20 C); dielec. const. 6.68
Toxicology: LD50 (oral, rat) 3228 mg/kg; mod...
Chemical Component Cross-Reference

toxic by ing.; severe eye and mild skin irritant; high concs. of vapor may cause nose/throat irritation, drowsiness, headache, lightheadedness; TSCA listed

Precaution: Flamm. exposed to heat or flame; incompt. with oxidizing agents (increases fire/explosion hazard), bases (decomp. can occur)

Hazardous Decomp. Prods.: Methanol, acetic acid; heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 2, Flammability 2, Reactivity 0

Storage: Store in cool, dry, well-ventilated area, out of direct sunlight

Uses: Pharmaceutical intermediate; synthesis of nifedipine (a cardiac drug); intermediate for vitamins

Regulatory: Canada DSL


Trade Names: Eastman® MAA

Methyl acetone. See Methyl ethyl ketone

4′-Methyl acetophenone. See 4′-Methyl acetonaphone

CAS 122-00-9; EINECS/ELINCS 204-514-8

FEMA 2677

Synonyms: p-Acetotoluene; p-Acetyl toluene; 1-(4-methylphenyl)-p-Methylacetonaphone (INCI); 1-Methyl-4-acetyl benzene; 1-(4-Methylphenyl)ethanone; Methyl p-tolyl ketone

Classification: Organic compd.; aliphatic ketone

Empirical: C9H10O

Formula: CH3C6H4COCH3

Properties: Colorless cryst. solid; fruity-floral odor, strawberry-like flavor; sol. in oxygenated solvs.; insol. in water; m.w. 134.18; dens. 1.004 (20/4 C); m.p. 28 C; b.p. 220-223 C; flash pt. 82 C; ref. index 1.534 (20 C)

Toxicology: LD50 (oral, rat) 1400 mg/kg; mod. toxic by ing.; primary irritant; human skin irritant; TSCA listed

Precaution: Combustible liq.

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals; pharmaceutical intermediate

Features: Fruity flavor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Japan approved as flavoring; Canada DSL


p-Methylacetophenone (INCI). See 4′-Methyl acetonaphone

Methylacetoxypropanone. See Dehydroacetic acid

Methyl 12-acetoxy-9-octadecenoate; Methyl 12-acetoxyoleate. See Methyl acetyl ricinoleate

Methyl acetylace tate; Methyl acetylace tone. See Methyl acetoacetate

1-Methyl-4-acetyl benzene. See 4′-Methyl acetonaphone

Methyl acetyl ricinoleate

CAS 140-03-4; EINECS/ELINCS 205-392-9

Synonyms: Methyl 12-acetoxy-9-octadecenoate; Methyl 12-acetoxyoleate; Ricinoleic acid, methyl ester, acetate

Empirical: C21H38O4

Formula: C17H32(OCOCH3)COOCH3

Properties: Cryst.; sol. in most org. solvs.; insol. in water; pale yel. liquid; mild odor; m.w. 1306.59; sp.gr. 0.938; m.p. -15 C; flash pt. (COC) 196 C; ref. index 1.4545

Toxicology: LD50 (oral, mouse) 34,900 mg/kg; low toxicity by ing.; primary irritant to eyes; probable skin and mucous membrane irritant; TSCA listed

Precaution: Combustible exposed to heat or...
2-Methylacrylic acid. See Methacrylic acid

3-Methylacrylic acid. See Crotonic acid

α-Methylacrylic acid. See Methacrylic acid

β-Methylacrylic acid. See Crotonic acid

2-Methylacrylic acid 1-methyl-3-(2-methylacryloyloxy)-propyl ester. See 1,3-Butanediol dimethacrylate

α-Methylacrylic acid (monomer). See Methacrylic acid

Methyl alcohol

CAS 67-56-1; EINECS/ELINCS 200-659-6
UN 1230 (DOT)
Synonyms: Carbinol; Colonial spirit; Columbian spirits; Methanol; Methyl hydrate; Methyl hydroxide; Methylo; Monohydroxymethane; Pyroxylic spirit; Wood alcohol; Wood naphtha; Wood spirit

Empirical: CH₄O
Formula: CH₃OH
Properties: Clear colorless liq., non-flammable, highly polar, misc. with water, alcohol, ether, benzene, ketones, most org. solvs.; m.w. 32.05; dens. 0.7924; vapor pressure 127 mm Hg; m.p. -97.8 C; b.p. 64.5 C; flash pt. (CC) 6 C; autoignition temp. 385 C; ref. index 1.3292 (20 C); surf. tens. 22.3 dynes/cm; dielec. const. 32.66

Toxicology: ACGIH TLV/TWA 200 ppm; LD₅₀ (oral, rat) 5628 mg/kg; toxic (causes blindness); poisonous by ing., inh., or percutaneous absorp.; eye/skin irritant; narcotic; acute effects: headache, fatigue, nausea, visual impairment, acidosis, convulsions, circulatory collapse, respiratory failure, death; usual fatal dose
Chemical Component Cross-Reference

100-250 ml; experimental teratogen, reproductive effects; TSCA listed

Environmental: VOC; BOD5 0.85; COD 1.50; ThOD 1.50

Precaution: DOT: Flamm. liq.; dangerous fire risk; explosive limits 6.0-36.5 vol.% in air; reacts vigorously with oxidizers; violent or explosive reactions possible

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 1, Flammability 3, Reactivity 0

Uses: Solvent, excipient in pharmaceuticals, orals

Regulatory: FDA 21CFR §73.345, 73.615, 172.560, 172.859, 172.867, 173.250, 173.385, 175.105, 175.300, 176.180, 176.200, 176.210, 177.1200, 177.2420, 177.2460, 177.2800, 27CFR §21.115; FDA approved for orals; USP/NF, BP compliance; Canada DSL; SARA §313 reportable; CERCLA hazardous substance; HAP


†=pharmaceutical grade


Trade Names Containing: Celtone; Filmex® A-2 190 Proof; Filmex® A-2 Anhydrous; Filmex® B 190 Proof; Filmex® B Anhydrous; Filmex® C 190 Proof; Filmex® C Anhydrous; Filmex® D-1; Filmex® D-2 190 Proof; Filmex® D-2 Anhydrous; Punctilious® SDA 1-1 190 Proof; Punctilious® SDA 1-1 Anhydrous; Punctilious® SDA 1-2 190 Proof; Punctilious® SDA 1-2 Anhydrous; Punctilious® SDA 30 190 Proof; Punctilious® SDA 30 Anhydrous

Methyl aldehyde. See Formaldehyde

Methyl-1-alkyl amidoethyl-2-alkyl imidazolinium methylsulfate. See Oleic imidazolinium methosulfate

2-Methylallyl butyrate

CAS 7149-29-3

FEMA 2678

Synonyms: Isopropenyl carbinyln-n-butyrate; Methallyl butyrate; 2-Methyl-2-propenyl butyrate; 2-Methyl-2-propen-1-yl butyrate

Definition: Ester of β-methylallyl alcohol and butyric acid

Empirical: C₈H₁₄O₂
Methylaminoacetic acid. See Sarcosine

Methyl 2-aminobenzoate; Methyl-o-aminobenzoate. See Methyl anthranilate

1-Methylamino-1-deoxy-D-glucitol. See Meglumine

1-Methyl-2-aminoethanol. See Isopropanolamine

2-Methylamino methyl benzoate. See Dimethyl anthranilate

2-Methyl-2-aminopropane. See t-Butylamine

2-Methyl-2-amino-1-propanol. See Aminomethyl propanol

Methylamylacetic acid. See 2-Methylheptanoic acid

Methyl amyl ketone. See Methyl n-amyl ketone

Methyl n-amyl ketone

CAS 110-43-0; EINECS/ELINCS 203-767-1

UN 1110 (DOT); FEMA 2544

Synonyms: Amyl methyl ketone; n-Amyl methyl ketone; Butylacetone; 2-Heptanone; Heptan-2-one; Ketone C-7; MAK; Methyl amyl ketone; Methyl pentyl ketone; n-Pentyl methyl ketone

Classification: Sat. aliphatic ketone

Empirical: C₇H₁₄O

Formula: CH₃CH₂CH₂CH₂CH₂COCH₃

Properties: Colorless liq., fruity ethereal odor; sol. in alcohol; insol. in water; m.w. 142.19; b.p. 168 C

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

TSCA listed

NFPA: Health 1, Flammability 2, Reactivity 0

Storage: Store in cool, dry, well-ventilated area, away from heat/ignition sources

Uses: Synthetic flavor for pharmaceuticals

Features: Banana-like flavor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; DOT nonregulated; Australia AICS; Canada DSL; Japan MITI

Manuf./Distrib.: ABDR http://www.abcr.de;
Alichem Ind. http://www.allchem.com
Ashland http://www.ashchem.com;
Augustus Oils Ltd http://www.augustus-oils.ltd.uk;
Axence Aromatic GmbH http://www.axxence.com;
Cargill Flavors & Fruit Systems USA http://www.flavors-fruit-systems.com;
Fluka http://www.sigma-aldrich.com;
Indofine http://www.indofinechemical.com
Shell http://www.shellchemicals.com;
http://www.shell-lubricants.com; Sigma http://www.sigma-aldrich.com/belgium

Methyl (2-amyl-3-oxocyclopentyl) acetate. See Methyl dihydrojasmonate
Chemical Component Cross-Reference

α-Methylisalacetone.  See 1-(p-Methoxyphenyl)-1-penten-3-one
Methyl anisate.  See Methyl p-anisate
Methyl o-anisate.  See Methyl o-methoxybenzoate
Methyl p-anisate
CAS 121-98-2; EINECS/ELINCS 204-513-2
FEMA 2679
Synonyms:  p-Anisic acid, methyl ester; Benzoic acid, 4-methoxy-, methyl ester; Benzoic acid, p-methoxy-, methyl ester; Methyl anisate; Methyl 4-methoxybenzoate; Methyl p-methoxybenzoate
Classification:  Aromatic ester
Empirical:  C₉H₁₀O₃
Properties:  Wh. powd.; insol.; m.w. 166.18; m.p. 49-51 C; b.p. 244-245 C; flash pt. 235 F
Toxicology:  LD₅₀ (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; primary irritant; prevent inh. and direct contact with skin and eyes; TSCA listed
Precaution:  Avoid strong oxidants
Hazardous Decomp. Prods.:  Irritating and toxic fumes and gases
Storage:  Store in a cool, dry place; keep container closed when not in use.
Uses:  Synthetic flavor for pharmaceuticals
Regulatory:  FDA 21CFR §172.515; FEMA GRAS; Canada DSL

p-Methylanisole
CAS 104-93-8; EINECS/ELINCS 203-253-7
FEMA 2681
Synonyms:  p-Cresol methyl ether; p-Cresyl methyl ether; Methoxy-1 methyl-4 benzene; 1-Methoxy-4-methylbenzene; 4-Methoxytoluene; p-Methoxytoluene; 4-Methylanisole; Methyl p-cresol; 4-Methyl-1-methoxybenzene; 4-Methylphenol methyl ether; Methyl-p-tolyl ether; p-Tolyl methyl ether
Classification:  Aromatic ether; aliphatic ketone
Empirical:  C₈H₁₀O
Properties:  Colorless liq., pungent ylang-ylang odor; sol. in ethanol, diethyl ether, fixed oils; insol. in glycerin, propylene glycol, water; m.w. 122.18; dens. 0.996-0.970; b.p. 175-176 C; flash pt. 144 F; ref. index 1.510-1.513
Toxicology:  LD₅₀ (oral, rat) 1920 mg/kg; mod. toxic by ing.; skin irritant; TSCA listed
Precaution:  Flamm.
Hazardous Decomp. Prods.:  CO, CO₂; heated to decomp., emits acid smoke and irritating fumes
NFPA:  Flammability 2, Reactivity 0
Uses:  Synthetic flavor for pharmaceuticals
Methyl anthranilate
CAS 134-20-3; EINECS/ELINCS 205-132-4
FEMA 2682
Synonyms: 2-Aminobenzoic acid methyl ester; o-Aminobenzoic acid methyl ester; Anthranilic acid methyl ester; Benzoic acid, 2-amino-, methyl ester; 2-Carbomethoxyaniline; o-Carbomethoxyaniline; 2-(Methoxycarbonyl) aniline; Methyl 2-aminoanisole; Methyl-o-aminoanisole; Methyl 2-anthranilate; Neroli oil, artificial
Classification: Aromatic organic compd.
Definition: Ester of methyl alcohol and 2-aminobenzoic acid
Empirical: C9H9NO2
Formula: H2NC6H4CO2CH3
Properties: Cryst. or pale yel. liq., bluish fluorescence, grape-like odor; sol. in fixed oils, propylene glycol, oxygenated solvs.; sl. sol. in water; insol. in glycerol; m.w. 151.18; dens. 1.167-1.175 (15 C); m.p. 23.8 C; b.p. 258-261 C; flash pt. 123 C; ref. index 1.583 (20 C)
Toxicology: LD50 (oral, rat) 2910 mg/kg; poison by intravenous route; mod. toxic by ing.; skin irritant; experimental tumorigen; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx, CO, CO2
Storage: 6 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, cold, air
Uses: Synthetic flavor for pharmaceuticals; pharmaceutical intermediate; fragrance for ointments
Features: Grape and berry flavor; orange scent
Methylated trimethylated silica

**CAS:** 238094-36-5

**Uses:** Major component of **bioadhesive** transdermal **drug delivery systems**

**Trade Names Containing:** BIO-PSA® 7-4101 Silicone Adhesive; BIO-PSA® 7-4102 Silicone Adhesive; BIO-PSA® 7-4201 Silicone Adhesive; BIO-PSA® 7-4202 Silicone Adhesive

**Synonyms:**
- BIO-PSA® 7-4101 Silicone Adhesive;
- BIO-PSA® 7-4102 Silicone Adhesive;
- BIO-PSA® 7-4201 Silicone Adhesive;
- BIO-PSA® 7-4202 Silicone Adhesive

**Classification:** Quaternary ammonium salt

**Empirical:** C_{28}H_{44}NO_2 • Cl

**Formula:** (CH_3)_3CCH_2C(CH_3)_2C_6H_3(CH_3O)(CH_2)_2N(CH_3)_2(CH_2C_6H_5)Cl • H_2

**Properties:** Colorless to wh. cryst., odorless, bitter taste; readily sol. in alcohol, hot benzene, Cellosolve, water; pract. insol. in chloroform; insol. in CCl_4, ether; m.w. 462.12; m.p. 161-163 C

**Toxicology:** LD_{50} (oral, rat) 800 mg/kg; mod. toxic by ing.

**Hazardous Decomp. Prods.:** Heated to decomp., emits very toxic fumes of NO_x and Cl^-

**Storage:** Hygroscopic

**Uses:** Surfactant, antimicrobial in pharmaceuticals; medicine; OTC drug; topical anti-infective; bactericide; sanitizer

**Regulatory:** Canada DSL

**Manuf./Distrib.:** Sigma [http://www.sigma-aldrich.com/belgium]; Spectrum Quality [http://www.spectrumchemical.com]

**Methyl benzoate**

**CAS:** 93-58-3; EINECS/ELINCS 202-259-7

**UN 2938 (DOT); FEMA 2683**

**Synonyms:**
- Benzoic acid methyl ester
- Essence of niobe
- Methyl benzenecarboxylate
- Niobe oil
- Oil of niobe

**Classification:** Aromatic ester

**Empirical:** C_8H_8O_2

**Formula:** C_6H_5COOCH_3

**Properties:**
- Colorless liq., fragrant odor; sol. in alcohol, fixed oils, propylene glycol, water @ 30 C; misc. with alcohol, ether, oxygenated solvs.; insol. in glycerin; m.w. 136.15; dens. 1.082-1.088; vapor pressure 1 mm Hg (39 C); m.p. -12.5 C; b.p. 199.6 C; flash pt. 181 F; ref. index 1.515

**Toxicology:**
- LD_{50} (oral, rat) 1350 mg/kg; LD_{Lo} (skin, cat) 10 g/kg; mildly toxic by skin contact; skin and eye irritant; TSCA listed

**Precaution:** Flamm. exposed to heat or flame; reactive with oxidizing materials; keep away from food

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**NFPA:** Health 0, Flammability 2, Reactivity 0

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Fruity flavor

**Use Level:** 0.5% max. as benzoic acid in finished cosmetics

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL
4-Methylnbenzoic acid methyl ester. See p-Cresyl acetate

Methylbenzol. See Toluene

6-Methyl-2H-1-benzopyran-2-one; 6-Methylbenzopyrone; 6-Methyl-1,2-benzopyrone. See 6-Methylcoumarin

α-Methylbenzyl acetate

CAS 93-92-5; EINECS/ELINCS 202-288-5

FEMA 2684

Synonyms: Acetic acid, 1-phenylethyl ester; Benzenemethanol, α-methyl-, acetate; Benzyl alcohol, α-methyl-, acetate; Gardenol; α-Methylbenzene methanol acetate; Methylphenylcarbinol acetate; Methylphenylcarbinyl acetate; s-Phenethyl acetate; 1-Phenylethyl acetate; α-

†=pharmaceutical grade

Phenylethyl acetate; s-Phenylethyl acetate; Phenylmethylcarbinyl acetate; Styralyl acetate; Styralyl acetate; Styrolyl acetate; Styrolyl acetate

Empirical: C_{10}H_{12}O_{2}

Formula: C_{6}H_{5}CH(CH_{3})OOCCH_{3}

Properties: Colorless to pale yel. clear liq., gardenia odor; sol. in fixed oils, glycerin; insol. in water; m.w. 164.20; dens. 1.023; vapor dens. > 1; f.p. 0 C; b.p. 94-95 C (12 mm); flash pt. 95 C; ref. index 1.493-1.497

Toxicology: LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; irritating to eyes, skin, respiratory system; TSCA listed

Precaution: Combustible liq.; avoid incompat. materials, strong oxidizers

Hazardous Decomp. Prods.: CO, CO₂; heated to decomp., emits acid smoke and irritating fumes

Storage: 6 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, cold, air

Uses: Synthetic flavor for pharmaceuticals

Features: Apple, apricot, pineapple, plum-like flavor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI

Manuf./Distrib.: Acros Org.


Methylbenzyl acetate, mixed o-, m-, p-

CAS 29759-11-3

FEMA 3702

Synonyms: Methyl benzene methanol acetate
### Chemical Component Cross-Reference

(mixed ortho-,meta-,para-): 1-Phenyl ethyl acetate (mixed ortho-,meta-,para-); Tolyl acetate

**Empirical:** C_{10}H_{12}O_{2}

**Properties:** Colorless liq.; sol. in benzyl benzoate, min. oil; sl. sol. in propylene glycol; insol. in glycerin; m.w. 164.20; ref. index 1.5015-1.5040

**Toxicology:** TSCA listed

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Sweet floral fruity herbal odor

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS

**Manuf./Distrib.:** Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)

### α-Methylbenzyl alcohol

**CAS:** 98-85-1; EINECS/ELINCS 202-707-1

**UN:** 2937 (DOT); FEMA 2685

**Synonyms:** Benzenemethanol, α-methyl-; Ethanol, 1-phenyl-; Methyl phenylcarbinol; Methylphenylmethanol; α-Phenethyl alcohol; s-Phenethyl alcohol; 1-Phenylethanol; α-Phenylethyl alcohol; Phenylmethylcarbinol; Styrallyl alcohol; Styralyl alcohol

**Classification:** aromatic alcohol

**Empirical:** C_{8}H_{10}O

**Formula:** C_{6}H_{5}CH(CH_{3})OH

**Properties:** Colorless liq.; mild floral odor; sol. in alcohol, glycerol, min. oil, oxygenated and hydrocarbon solvs.; sl. sol. in water; m.w. 122.17; dens. 1.009-1.014; vapor pressure 0.1 mm (20 C); m.p. 20.7 C; b.p. 204 C; flash pt. (COC) 96 C; ref. index 1.525-1.529 (20 C); congeals below R.T.

**Toxicology:** LD_{50} (oral, rat) 400 mg/kg, (subcut., mouse) 250 mg/kg, (skin, rabbit) 2500 mg/kg; toxic by ing., subcut. routes; mod. toxic by skin contact; primary skin irritant; severe eye irritant; cancer suspect agent; mutagen; tumorigen; target organ: kidneys; TSCA listed

**Precaution:** Combustible; can react with oxidizers

**Uses:** Synthetic flavor for pharmaceuticals

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL


### α-Methylbenzyl butyrate

**CAS:** 3460-44-4; EINECS/ELINCS 222-409-5

**FEMA:** 2686

**Synonyms:** Methyl phenylcarbinyl butyrate; Styralyl butyrate

**Empirical:** C_{12}H_{16}O_{2}

**Properties:** Colorless oily liq.; m.w. 192.26; dens. 0.990; b.p. 83-84 C (3 mm); flash pt. 229 F

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Sweet fruity berry juicy earhty floral jasmin odor; heavy, fruity, plum-like with a rich tropical nectar nuance taste

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL


### α-Methylbenzyl formate

**CAS:** 7775-38-4; EINECS/ELINCS 231-893-7

**FEMA:** 2688

**Synonyms:** α-Methyl benzene methanol formate; Methyl phenylcarbinyl formate; 1-Phenyl-1-ethyl formate; 1-Phenyl-1-ethyl methanoate; Styralyl formate

**Empirical:** C_{9}H_{10}O_{2}

**Properties:** Colorless liq.; woody mimosa gardenia odor; m.w. 150.18; sp. gr. 1.042-1.050; b.p. 198 C; acid no. 2.0 max.; ref. index 1.502-1.508

**Uses:** Synthetic flavor for pharmaceuticals

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL


### 1-Methyl-1-benzylidene-acetone

**See 3-Methyl-4-phenyl-3-buten-2-one**

### Methylbenzyl isobutyrate

**CAS:** 7775-39-5; EINECS/ELINCS 231-894-2

**FEMA:** 2687

**Synonyms:** α-Methylbenzyl isobutyrate; α-Methyl benzyl 2-methyl propanoate; Methyl phenylcarbinyl isobutyrate; 1-Phenylethyl 2-methylpropionate; Styralyl isobutyrate
Chemical Component Cross-Reference

<table>
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<tr>
<th>Chemical Component</th>
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<th>Synonyms</th>
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<tr>
<td>2-Methyl-4,5-bis (hydroxymethyl)-3-hydroxyypyridine</td>
<td>124-45-6</td>
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<td>FEMA 2689</td>
<td>GRAS; Canada DSL</td>
<td>See Pyridoxine</td>
<td>LD50 (oral, rat) 5200 mg/kg, (skin, rabbit) &gt; 5 g/kg; mildly toxic by ing.; primary skin irritant; TSCA listed</td>
<td>Colorless liq.; sol. in alcohol; very sl. sol. in water; m.w. 187.25; dens. 1.007; b.p. 91-92 (5 mm); ref. index 1.49</td>
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<td>2-Methylbutanal, 2-Methylbutanal-1; 2-Methyl-1-butanal</td>
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<td>FEMA 3998</td>
<td>GRAS; Canada DSL</td>
<td>See 2-Methylbutyraldehyde</td>
<td>LD50 (oral, rat) 5200 mg/kg, (skin, rabbit) &gt; 5 g/kg; mildly toxic by ing.; primary skin irritant; TSCA listed</td>
<td>Colorless liq.; sol. in alcohol; very sl. sol. in water; m.w. 187.25; dens. 1.007; b.p. 91-92 (5 mm); ref. index 1.49</td>
</tr>
<tr>
<td>2-Methylbutanoic acid n-hexyl ester</td>
<td>120-45-6</td>
<td>205-289-9</td>
<td>FEMA 3998</td>
<td>GRAS; Canada DSL</td>
<td>See Hexyl 2-methylbutyrate</td>
<td>LD50 (oral, rat) 5200 mg/kg, (skin, rabbit) &gt; 5 g/kg; mildly toxic by ing.; primary skin irritant; TSCA listed</td>
<td>Colorless liq.; sol. in alcohol; very sl. sol. in water; m.w. 187.25; dens. 1.007; b.p. 91-92 (5 mm); ref. index 1.49</td>
</tr>
</tbody>
</table>

†=pharmaceutical grade

α-Methylbutanal. See 2-Methylbutyraldehyde
3-Methylbutane-1,2-diol; 3-Methyl-1,3-butanediol. See Isopentylidiol
Methyl butanoate; Methyl n-butanoate. See Methyl butyrate
2-Methylbutanoic acid. See 2-Methylbutyric acid
3-Methylbutanoic acid. See Isovaleric acid
3-Methylbutanoic acid, butyl ester. See n-Butyl isovalerate
3-Methylbutanoic acid ethyl ester. See Ethyl isovalerate
2-Methylbutanoic acid n-hexyl ester. See Hexyl 2-methylbutyrate
3-Methylbutanoic acid methyl ester. See Methyl isovalerate
(1α,2β,5α)-3-Methylbutanoic acid 5-methyl-2-(1-methylethyl) cyclohexyl ester. See Menthol isovalerate
3-Methyl butanoic acid octyl ester. See Octyl isovalerate
3-Methylbutanoic acid, phenylethyl ester. See Benzyl isovalerate
3-Methylbutanoic acid 2-phenylethyl ester. See Phenethyl isovalerate
3-Methylbutanoic acid 3-phenyl-2-propenyl ester. See Cinnamyl isovalerate
3-Methylbutanoic acid, 2-propenyl ester. See Allyl isovalerate
(1R-endo)-3-Methylbutanoic acid 1,7,7-trimethylbicyclo [2.2.1] hept-2-yl ester. See Bornyl isovalerate
1-Methyl-1-butanol. See s-Amyl alcohol
2-Methyl butanol. See 2-Methyl-1-butanol
2-Methyl-1-butanol | 137-32-6 | 205-289-9 | FEMA 3998 | GRAS; Canada DSL | See Pyridoxine | LD50 (oral, rat) 5200 mg/kg, (skin, rabbit) > 5 g/kg; mildly toxic by ing.; primary skin irritant; TSCA listed | Colorless liq.; sol. in alcohol; very sl. sol. in water; m.w. 187.25; dens. 1.007; b.p. 91-92 (5 mm); ref. index 1.49 |

†=pharmaceutical grade

α-Methylbutanal. See 2-Methylbutyraldehyde
3-Methylbutane-1,2-diol; 3-Methyl-1,3-butanediol. See Isopentylidiol
Methyl butanoate; Methyl n-butanoate. See Methyl butyrate
2-Methylbutanoic acid. See 2-Methylbutyric acid
3-Methylbutanoic acid. See Isovaleric acid
3-Methylbutanoic acid, butyl ester. See n-Butyl isovalerate
3-Methylbutanoic acid ethyl ester. See Ethyl isovalerate
2-Methylbutanoic acid n-hexyl ester. See Hexyl 2-methylbutyrate
3-Methylbutanoic acid methyl ester. See Methyl isovalerate
(1α,2β,5α)-3-Methylbutanoic acid 5-methyl-2-(1-methylethyl) cyclohexyl ester. See Menthol isovalerate
3-Methyl butanoic acid octyl ester. See Octyl isovalerate
3-Methylbutanoic acid, phenylethyl ester. See Benzyl isovalerate
3-Methylbutanoic acid 2-phenylethyl ester. See Phenethyl isovalerate
3-Methylbutanoic acid 3-phenyl-2-propenyl ester. See Cinnamyl isovalerate
3-Methylbutanoic acid, 2-propenyl ester. See Allyl isovalerate
(1R-endo)-3-Methylbutanoic acid 1,7,7-trimethylbicyclo [2.2.1] hept-2-yl ester. See Bornyl isovalerate
1-Methyl-1-butanol. See s-Amyl alcohol
2-Methyl butanol. See 2-Methyl-1-butanol
Chemical Component Cross-Reference

**Toxicology:**
LD50 (oral, rat) 4920 mg/kg; LDLo (skin, rabbit) 3540 mg/kg; mod. toxic by skin contact, IP; mildly toxic by ing.; can be absorbed through skin; inh. may cause nose/throat irritation, headache, dizziness, dyspnea, nausea, vomiting; eye, skin, mucous membrane irritant; severe exposures may produce double vision, deafness, delirium, severe nervous symptoms, fatalities; can cause severe lung damage, respiratory/cardiac arrest, or death if aspirated into lungs; TSCA listed

**Precaution:** Flamm. exposed to heat, flame, oxidizers; explosive as vapor exposed to heat or flame; incompatible with oxidizing agents (increases fire/explosion hazard), corrosives; heat or flame may cause hazardous decom., emits acrid smoke and irritating fumes

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**NFPA:** Health 2, Flammability 2, Reactivity 0

**Storage:** Store in cool, dry place away from corrosives

**Uses:** Solvent

**Regulatory:** FEMA GRAS; Canada DSL

**Manuf./Distrib.:** Advanced BioTech
http://www.adv-bio.com; BASF AG
http://www.basf.de; Dow
http://www.dow.com; SAFC Specialties
http://www.safcspecialties.com; V. Mane
Fils SA http://www.mane.com
Wutong Aroma http://www.wu-tong.com

**Trade Names Containing:** Pentanol 45

2-Methylbutanol-1. See 2-Methyl-1-butanol
2-Methyl-2-butanol; 2-Methyl butanol-2. See t-Amyl alcohol
2-Methyl-4-butanol. See Isoamyl alcohol
2-Methyl-n-butanol. See 2-Methyl-1-butanol
3-Methylbutanol; 3-Methyl-1-butanol; 3-Methylbutan-1-ol. See Isoamyl alcohol
3-Methylbutan-3-ol. See t-Amyl alcohol
(±)-2-Methyl-1-butanol. See 2-Methyl-1-butanol
2-Methyl-1-butanol acetate. See 2-Methylbutyl acetate
3-Methyl-1-butanol acetate. See Isoamyl acetate
3-Methyl-2-buten-1-ol. See 3-Methyl-2-buten-1-ol
(E)-2-Methyl-2-butenolic acid ethyl ester. See Ethyl tiglate
2-Methyl-but-2-enolic acid isopropyl ester.

†=pharmaceutical grade

**See Isopropyl tiglate**
2-Methyl-but-2-enolic acid phenethyl ester.

**See Phenethyl tiglate**

3-Methyl-2-buten-1-ol
CAS 556-82-1; EINECS/ELINCS 209-141-4
FEMA 3647

**Synonyms:** Dimethylallyl alcohol; 3,3-Dimethylallyl alcohol; γ,γ-Dimethylallyl alcohol; 3-Methyl-2-buten-1-ol; 3-Methylbut-2-ene-1-ol; Prenol; Prenyl alcohol; Vertenol

**Empirical:** C5H10O

**Formula:** (CH3)2C:CHCH2OH

**Properties:** Oily liq.; m.w. 86.14; dens. 0.861 (20/4 C); b.p. 143-144 C; flash pt. 110 F; ref. index 1.443

**Toxicology:** LD50 (oral, rat) 810 mg/kg, (skin, rabbit) 3900 mg/kg; mod. toxic by skin contact and ing.; harmful if swallowed; irritating to skin; TSCA listed

**Precaution:** Flamm.

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Fruity flavor

**Regulatory:** FEMA GRAS; Canada DSL

**Manuf./Distrib.:** Bedoukian Research
http://www.bedoukian.com; Fluka
http://www.sigma-aldrich.com; Grau
Aromatics http://www.grau-aromatiques.de;
SAFC Specialties
http://www.safcspecialties.com; Sigma
http://www.sigma-aldrich.com/belgium

3-Methylbut-2-en-1-ol. See 3-Methyl-2-buten-1-ol

**2-Methylbutyl acetate**

CAS 624-41-9; 53496-15-4; EINECS/ELINCS 210-843-8
FEMA 3644

**Synonyms:** Acetic acid 2-methylbutyl ester; 1-Butanol, 2-methyl-, acetate; 2-Methyl-1-butanol acetate; Methyl-2-butyl acetate; 2-Methyl-1-butyl acetate; Pentyl acetate (all isomers)

**Empirical:** C7H14O2

**Properties:** Liq.; fruity banana odor; m.w. 130.19; dens. 0.876; b.p. 138 C (741 mm); flash pt. 35 C; ref. index 1.4010

**Toxicology:** ACGIH TLV/TWA 50 ppm; STEL 100 ppm; irritating to eyes, skin, mucous membranes, upper respiratory tract; may be harmful by inh., ing., or skin absorp.; TSCA
Chemical Component Cross-Reference

Listed

Precaution: Flamm.; vapor may flash back; incompat. with strong oxidizing agents

Hazardous Decomp. Prods.: CO, CO₂; emits toxic fumes under fire conditions

Storage: Store in cool, dry place; keep tightly closed; keep away from heat, sparks, and flame

Uses: Flavor for pharmaceuticals

Features: Fruity banana-like flavor

Regulatory: FEMA GRAS; Canada DSL

Manuf./Distrib.: Advanced BioTech


Methyl-2-butyl acetate; 2-Methyl-1-butyl acetate. See 2-Methylbutyl acetate

3-Methylbutyl acetate; 3-Methyl-1-butyl acetate; β-Methylbutyl acetate. See Isoamyl acetate

2-Methyl butylacrylate. See Butyl methacrylate

2-Methylbutyl alcohol. See 2-Methyl-1-butanol

1-(3-Methyl) butyl benzoate; 3-Methylbutyl benzoate. See Isoamyl benzoate

3-Methylbutyl butyrate. See Isoamyl butyrate

3-Methylbutyl dodecanoate. See Isoamyl laurate

3-Methylbutyl ester. See Isoamyl salicylate

3-Methylbutyl ethanoate. See Isoamyl acetate

Methyl t-butyl ether

CAS 1634-04-4; EINECS/ELINCS 216-653-1

UN 2398 (DOT)

Synonyms: t-Butyl methyl ether; 2-Methoxy-2-methylpropane; Methyl 1,1-dimethylethyl ether; 2-Methyl-2-methoxypropane; Methyl tertiary butyl ether; MTBE; Propane, 2-methoxy-2-methyl-

Classification: Aliphatic ether

Empirical: C₅H₁₂O

Formula: CH₃OC(CH₃)₃

Properties: Colorless clear liq., terpene-like odor; misc. with all gasoline-type hydrocarbons; sl. sol. in water; m.w. 88.15; dens. 0.7335; vapor pressure 249 mm Hg; f.p. -75 C; b.p. 91.1 C;

†=pharmaceutical grade

Flash pt. -25.6 C; ref. index 1.369; surf. tens. 19.07 dynes/cm

Toxicology: LD₅₀ (oral, rat) 4 g/kg, (skin, rabbit) > 10,000 mg/kg; LC₅₀ (inh., rat, 4 h) 23,576 ppm; LDI₀ (IV, rat) 148 mg/kg; poison by IV route; sl. toxic by ing., inh.; sl. skin and eye irritant; target organs: CNS, adrenal, kidney, liver; TSCA listed

Environmental: VOC; ThOD 1.63

Precaution: Flamm. exposed to heat or flame; mod. fire risk

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 2, Flammability 3, Reactivity 0

Uses: Solvent, reaction medium in pharmaceuticals

Regulatory: SARA §313 reportable; HAP; Canada DSL


Trade Names: Arcopure® MTBE

3-Methylbutyl formate. See Isoamyl formate

3-Methyl butyl 2-furan butanoate. See Isoamyl 4-(2-furan) butyrate

2-Methylbutyl isovalerate

CAS 2445-77-4; EINECS/ELINCS 219-496-7

FEMA 3506

Synonyms: 2-Methylbutyl-3-methylbutanoate

Empirical: C₁₀H₂₀O₂

Properties: Liq.; fruit-like, herbaceous sl. earthy odor; fruit-like, balsamic-herbaceous taste in dils. < 50 ppm; m.w. 172.27; dens. 0.858; flash pt. 143 F; sp.gr. 0.857; b.p. 375 F flash pt.

Handbook of Pharmaceutical Additives, Third Edition 1646
Methyl butyl ketone; Methyl N-butyl ketone.

See 2-Hexanone

3-Methylbutyl methanoate.  See Isoamyl formate

2-Methylbutyl-3-methylbutanoate.  See 2-Methylbutyl isovalerate

3-Methylbutyl 2-methylbutanoate.  See Isoamyl-2-methylbutyrate

3-Methylbutyl 2-methylpropanoate.  See Isoamyl isobutyrate

3-Methyl butyl nonanoate.  See Isoamyl nonanoate

3-Methylbutyl octanoate.  See Isoamyl octanoate

Methyl 4-t-butylphenylacetate.  See Methyl p-t-butylphenylacetate

Methyl p-t-butylphenylacetate

CAS 3549-23-3; 33155-60-1; EINECS/ELINCS 222-602-4

FEMA 2690

Synonyms: 4-t-Butylphenylacetic acid, methyl ester; Methyl 4-t-butylphenylacetate

Empirical: C13H18O2

Formula: (CH3)3CC6H4CH2CO2CH3

Properties: Colorless liq., fragrant odor; misc. with water, acetone, benzene, CCl4; sol. in most org. solvs.; m.w. 206.29; dens. 0.999; b.p. 106°C (2 mm); flash pt. > 110°C; ref. index 1.5010

Toxicology: May be harmful by inh., ing., or skin absorp.; may cause irritation; TSCA listed

Precaution: Incompat. with strong oxidizing agents, strong bases

Hazardous Decomp. Prods.: Toxic fumes of CO, CO2

Storage: Store in cool, dry lace; keep tightly closed

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: ABCR http://www.abcr.de; Advanced Synthesis Tech.

3-Methylbutyl propanoate.  See Isoamyl propionate

3-Methylbutyl salicylate.  See Isoamyl salicylate

Methyl butynol

CAS 115-19-5; EINECS/ELINCS 204-070-5

UN 1993

Synonyms: 1-Butyn-3-ol, 3-methyl-; Dimethyl acetylene carbinol; Dimethylacetylenedicarbinol; Dimethyl ethynylcarbinol; Dimethylethynylmethanol; 1,1-Dimethylpropargyl alcohol; α,α-Dimethylpropargyl alcohol; 1,1-Dimethylpropynol; Ethynylmethyl carbinol; 2-Hydroxy-2-methyl-3-butyne; MBY; 2-Methyl-3-butyne-2-ol; 2-Methylbutyn-3-ol-2; 3-Methyl-1-butyn-3-ol

Classification: Aliphatic organic compd.

Definition: Tertiary acetylenic alcohol

Empirical: C5H8O

Formula: (CH3)2COHCCH

Properties: Colorless liq., fragrant odor; misc. with water, acetone, benzene, CCl4; sol. in most org. solvs.; m.w. 84.13; dens. 0.8672 (20/20 C); m.p. 2.6 C; b.p. 104-105 C; flash pt. (TOC) 25 C; ref. index 0.861 (20C)

Toxicology: LD50 (oral, rat) 1950 mg/kg, (IP, mouse) 3600 mg/kg, (subcut., mouse) 2340 mg/kg; LC50 (inh., mouse) 2 g/m3; mod. toxic by ing., IP, subcut. routes; TSCA listed

Precaution: Flamm.; very dangerous fire hazard exposed to heat or flame; reactive with oxidizing agents

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Reactive intermediate for pharmaceutical mfg.

Regulatory: Canada DSL


3-Methylbutyl propanoate.  See Isoamyl propionate

3-Methylbutyl salicylate.  See Isoamyl salicylate

Methyl butynol
Chemical Component Cross-Reference

2-Methyl-3-butyn-2-ol; 2-Methylbutyn-3-ol; 3-Methyl-1-butyn-3-ol. See Methyl butynol

2-Methylbutyaldehyde
CAS 96-17-3; EINECS/ELINCS 202-485-6
FEMA 2691

Synonyms: Acetaldehyde, methylethyl-; Butanal, 2-methyl-; Butyraldehyde, 2-methyl-; 2-Formylbutane; 2-Methylbutanal; 2-Methylbutanal-1; 2-Methyl-1-butanal; α-Methylbutanal; α-Methylbutyaldehyde; 2-Methyl butyric aldehyde; α-Methyl butyric aldehyde; Methyl ethyl acetaldehyde

Empirical: C₅H₁₀O₂

Formula: C₅H₁₀O₂

Properties: Colorless liq.; apple-like odor; sol. in about 60 parts water; misc. with alcohol, ether; m.w. 102.14; dens. 0.898 (20/4 C); vapor pressure 40 mm (29.6 C); m.p. -95 C; b.p. 99-102 C; flash pt. 14 C; ref. index 1.3869 (20 C)

Toxicology: LD₅₀ (oral, rat) > 5 g/kg, (skin, rabbit) 3560 mg/kg; LC₅₀ (inh., mouse, 2 h) 18 g/m³; mod. toxic by ing., skin contact; primary skin irritant; TSCA listed

Environmental: VOC; ThOD 1.25

Precaution: Highly flamm.; dangerous fire risk exposed to heat, flame, or oxidizers; can react vigorously with oxidizers

Hazardous Decomp. Prods.: Heated to decomp., emits CO, CO₂, acrid smoke and irritating fumes

Storage: 12 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, cold, air

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI

Manuf./Distrib.: Advanced BioTech
http://www.adv-bio.com; Celanese
http://www.celanesechemicals.com; Epochem
http://www.epochem.com; Fleurchem
http://www.fleurchem.com; Fluka
http://www.sigma-aldrich.com
http://www.oxfordchemicals.com; SAFC Specialties http://www.safcspecialties.com

3-Methylbutyaldehyde. See Isovaleraldehyde

α-Methylbutyaldehyde. See Active valeric acid

Methyl butyrate
CAS 623-42-7; EINECS/ELINCS 210-792-1
UN 1237 (DOT); FEMA 2693

Synonyms: Butanoic acid methyl ester; Butyric acid, methyl ester; Methyl butanoate; Methyl n-butanoate; Methyl-n-butyrte

Empirical: C₅H₁₀O₂

Formula: CH₃CH₂CH₂COOCH₃

Properties: Colorless liq.; apple-like odor; sol. in about 60 parts water; misc. with alcohol, ether; m.w. 102.14; dens. 0.898 (20/4 C); vapor pressure 40 mm (29.6 C); m.p. -95 C; b.p. 99-102 C; flash pt. 14 C; ref. index 1.3869 (20 C)

Toxicology: LD₅₀ (oral, rat) > 5 g/kg, (skin, rabbit) 3560 mg/kg; LC₅₀ (inh., mouse, 2 h) 18 g/m³; mod. toxic by ing., skin contact; primary skin irritant; TSCA listed

Environmental: VOC; ThOD 1.25

Precaution: Highly flamm.; dangerous fire risk exposed to heat, flame, or oxidizers; can react vigorously with oxidizers

Hazardous Decomp. Prods.: Heated to decomp., emits CO, CO₂, acrid smoke and irritating fumes

Storage: 12 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, cold, air

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI

Manuf./Distrib.: Axxence Aromatic GmbH
http://www.axxence.com; Berje
http://www.berjeinc.com; Sigma
http://www.sigma-aldrich.com/belgium; Treatt & Co
http://www.rctreatt.com; United-Guardian
http://www.safer-guardian.com; United-Guardian
http://www.u-g.com; Fluka
http://www.sigma-aldrich.com; Grau
http://www.sigma-aldrich.com; Grau
Aromatics http://www.grau-aromatics.de
Lluch Essence http://www.lluch-essence.com; Moore Ingreds.
http://www.moorelab.com; Oxford Chems. Ltd
Treatt & Co. Ltd http://www.rc-treatt.com
SAFC Specialties http://www.safcspecialties.com; Sigma
http://www.sigma-aldrich.com/belgium; Unted-Guardian http://www.u-g.com

2-Methylbutyrate. See 2-Methylbutyric acid

Methyl-n-butyrte. See Methyl butyrate

2-Methylbutyric acid
CAS 116-53-0; EINECS/ELINCS 204-145-2
UN 3265; 2922; FEMA 2695

Synonyms: Active valeric acid; Butanoic acid,
Chemical Component Cross-Reference

2-methyl-: Butyric acid, 2-methyl-:
Carboxylic acid Cs; Ethylmethylacetic acid;
2-Methylbutanoic acid; 2-Methylbutyrate; α-
Methylbutyric acid; Methylacetic acid
Classification: Nonaromatic carboxylic acid
Definition: Commercial prod. is a racemic mixt.
Empirical: CsH10O2
Formula: CH3CH2CH(CH3)COOH
Properties: Colorless liq.; strong unpleasant odor; sol. in oxyg.
ated solvs.; sl. sol. in water; m.w. 102.14; dens. 0.934 (20/4 C);
vapor pressure 0.5 mm Hg; b.p. 173-176 C; ref. index 1.4055
Flash pt. 83 C; ref. index 1.4055
Toxicology: LD50 (oral, rat) 1870 µl/kg, (skin, rabbit) 1460 µl/kg; toxic; serious effects if swallowed; harmful by skin contact; skin/eye irritant; corrosive; may cause hypermotility, diarrhea, salivary gland changes, ataxia; TSCA listed
Precaution: Combustible; avoid strong oxidizing agents, reducing agents, alkaline materials
Hazardous Decomp. Prods.: CO, CO2
NFPA: Health 2, Flammability 2, Reactivity 0
Storage: Store in cool, well-ventilated area
Uses: Synthetic flavor for pharmaceuticals
Features: Fruity flavor
Regulatory: FDA 21CFR §172.515; FEMA 2-Methylbutyric acid. See Isovaleric acid
α-Methylbutyric acid. See 2-Methylbutyric acid
β-Methylbutyric acid. See Isovaleric acid
3-Methylbutyric acid, allyl ester. See Allyl isovalerate
3-Methylbutyric acid, 3,7-dimethyl-octa-2,6-dienyl ester. See Neryl isovalerate; Geranyl isovalerate
3-Methylbutyric acid, 1,5-dimethyl-1-vinyl-hex-4-enyl ester. See Linalyl isovalerate
3-Methylbutyric acid, ethyl ester. See Ethyl isovalerate
3-Methylbutyric acid hexyl ester. See Hexyl isovalerate
2-Methylbutyric acid, phenethyl ester. See Phenethyl-2-methylbutyrate
3-Methylbutyric acid phenethyl ester. See Phenethyl isovalerate
2-Methyl butyric aldehyde; α-Methyl butyric aldehyde. See 2-Methylbutyraldehyde
3-Methylbutyrolactone; 4-Methyl-γ-butyrolactone; γ-Methyl-γ-butyrolactone. See γ-Valerolactone
Methyl caproate
CAS 106-70-7; EINECS/ELINCS 203-425-1
UN 3272; FEMA 2708
Synonyms: Hexanoic acid, methyl ester;
Methyl capronate; Methyl hexanoate;
Methyl 2-hexanoate; Methyl n-hexanoate;
Methyl hexoate; Methyl hexylate
Definition: Ester of methyl alcohol and caproic acid
Empirical: C7H14O2
Formula: CH3(CH2)4COOCH3
Properties: Colorless liq.; pleasant, fruity odor; sol. in alcohol, ether, oxyg.
ated solvs.; insol. in water; m.w. 130.19; dens. 0.884 (20/4 C); vapor dens. 4.4; f.p. -71 C; b.p. 150-151 C; flash pt. 43 C; ref. index 1.4055
Toxicology: LD50 (oral, rat) > 5 g/kg, (skin, guinea pig) > 5 g/kg; LDLo (IV, mouse) 48 mg/kg; poison by IV route; sl. toxic by ing., inh., skin contact; TSCA listed
Precaution: Flamm.
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke, irritating
Chemical Component Cross-Reference

vapors, CO₂

Uses: Synthetic flavor for pharmaceuticals
Features: Pineapple-like flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Advanced BioTech
http://www.adv-bio.com; Fleurchem
http://www.fleurchem.com; Fluka
http://www.sigma-aldrich.com; Grau Aromatics
http://www.grau-aromatics.de; Lluch Essence
http://www.lluch-essence.com
Oxford Chems. Ltd http://www.oxfordchemicals.com
Penta Mfg.† http://www.pentamfg.com; SAFC Specialties
http://www.safcspecialties.com; Sigma
http://www.sigma-aldrich.com/belgium

Methylcarbinol. See Alcohol
Methylcatechol; α-Methylcatechol. See Guaiacol
Methyl 'Cellosolve'. See Methoxyethanol

Methylcellulose
CAS 9004-67-5
FEMA 2696; INS461; E461
Synonyms: Cellulose methyl; Cellulose methy late; Cellulose methyl ether; Citru cel; Cologel; MC; Methocel; Methyl cellulose ether
Definition: Methyl ether of cellulose
Properties: Grayish-wh. fibrous powd., odorless, tasteless;aq. suspension swells in water to visc. colloidal sol’n.; sol. in cold water, glacial acetic acid, some org. solvs.; insol. in alcohol, ether, chloroform, warm water; m.w. 86,000-115,000
Toxicology: LD₅₀ (IP, mouse) 275 g/kg; LD₉₀ (IV, mouse) 1 g/kg; poison by IP route; nonallergenic; may cause immune responses; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Thickener, suspending agent, stabilizer, emulsifier, dispersant, filler in pharmaceuticals, buccals, injectables, ophthalmics, orals, topicals, vaginals; tablet binder, coating agent; placebo tablets and capsules; bulk laxative
Regulatory: FDA 21CFR §150.141, 150.161, 175.105, 175.210, 175.300, 177.2260, 182.1480, GRAS; USDA 9CFR §318.7, limitation 0.15% in meat and vegetable prods.; FEMA GRAS; Canada DSL; Japan restricted (2% max.); Europe listed; UK approved; FDA approved for buccals, injectables, ophthalmics, orals, topicals, vaginals; USP/NF, BP, EP compliance
Manuf./Distrib.: AB R Lundberg
http://www.norfoods.se/lundberg; Aceto†
http://www.aceto.com; Akzo Nobel UK
http://www.akzonobel.com; Akzo Nobel
http://www.sigma-aldrich.com

†=pharmaceutical grade
Chemical Component Cross-Reference


Trade Names: Benecel® Methylcellulose; Benecel® M; Benecel® ME1; Benecel® ME2; Benecel® MP3; Benecel® MP6; Benecel® MP8; Benecel® MP9; Culminal® MC 2000; Culminal® MC 3000 P; Culminal® MC 7000 PF; Methocel® A Premium LV EP; Methocel® A4C; Methocel® A4C Premium EP; Methocel® A4M Premium EP

†=pharmaceutical grade

Methocel® A15C Premium; Methocel® A15-LV; Methocel® A15LV Premium; Methocel® F4M Premium EP; Metolose® SM-4

Trade Names Containing: Dow Corning® Medical Antifoam C Emulsion; Mearlmaid® AA

Methyl cellulose ether. See Methylcellulose

Methyl chavicol. See Estragole

Methylchloroform. See 1,1,1-Trichloroethane

Methylchloroisothiazolinone
CAS 26172-55-4; EINECS/ELINCS 247-500-7

Synonyms: Chloromethylisothiazolinone; 5-Chloro-2-methyl-4-isothiazolin-3-one; Chloro-2-methyl-3(2H)-isothiazolone; 5-Chloro-2-methyl-2H-isothiazol-3-one; CIT; CMI/MIT; 4-Isothiazolin-3-one, 5-chloro-2-methyl-

Classification: Heterocyclic organic compd.

Empirical: C₄H₄ClNOS

Properties: M.w. 149.60

Toxicology: Danger of skin and respiratory sensitization

Uses: Antimicrobial, biocide, preservative for pharmaceuticals, topicals

Regulatory: FDA 21CFR §175.105, 176.170; Canada DSL

3-Methyl-4-chlorophenol. See p-Chloro-m-cresol

4-methyl cinnamaldehyde. See p-Methylcinnamaldehyde

α-Methylcinnamaldehyde
CAS 101-39-3; EINECS/ELINCS 202-938-8

FEMA 2697

Synonyms: Methyl cinnamic aldehyde; α-Methyl cinnamic aldehyde; α-Methyl cinninal; 2-Methyl-3-phenyl-2-propenal; 2-Methyl-3-phenyl-propenyl; 3-Phenyl-2-methylacrolein

Classification: Aromatic aldehyde

Empirical: C₁₀H₁₀O

Properties: Yel. liq.; cinnamon odor; sol. in fixed oils, propylene glycol; insol. in glycerin; m.w. 146.19; dens. 1.037; b.p. 148-149 C (27 mm); flash pt. 175 F; ref. index 1.6050

Toxicology: LD₅₀ (oral, rat) 2050 mg/kg; mod. toxic by ing.; primary skin irritant; TSCA listed

Precaution: Combustible liq.

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals
Chemical Component Cross-Reference

Features: Cinnamon-like flavor

Regulatory: FDA 21CFR §172.515; FEMA

GRAS; Japan approved as flavoring; Canada

Manuf./Distrib.: Advanced Synthesis Tech.
SAFC Specialties http://www.safcspecialties.com

p-Methylcinnamaldehyde
CAS 1504-75-2
FEMA 3640
Synonyms: 4-methyl cinnamaldehyde; 3-(4-Methyl phenyl)-2-propenal; 3-p-Methyl phenyl propenal; 3-(p-Methyl phenyl)propenal; 3-p-Tolyl propenal

Empirical: C_{10}H_{10}O
Properties: Pale yel. to yel. crystals; sol. in alcohol; insol. in water; m.p. 154 C; b.p. 154 C; acid no. 5.0 max.

Uses: Synthetic flavor for pharmaceuticals

Features: Spicy cinnamon odor

Regulatory: FDA 21CFR §172.515; FEMA

Manuf./Distrib.: Degussa AG/Health & Nutrition

Methyl cinnamate
CAS 103-26-4; EINECS/ELINCS 203-093-8
FEMA 2698
Synonyms: Methyl cinnamylate; Methyl-3-phenyl propenoate; 3-Phenyl-2-propenoic acid methyl ester

Empirical: C_{10}H_{10}O_{2}
Formula: C_{6}H_{5}CH:CHCOOCH_{3}

Properties: Wh. to sl. yel. cryst., fruity strawberry-like odor; very sol. in alcohol, ether; sol. in fixed oils, glycerin, propylene glycol, oxygenated solvs.; insol. in water; m.w. 162.20; dens. 1.042 (36/0 C); m.p. 33.4 C; b.p. 263 C; flash pt. > 212 F

Toxicology: LD_{50} (oral, rat) 2610 mg/kg; mod. toxic by ing.; TSCA listed

Precaution: Combustible; incompat. with strong oxidizers, reducers

Hazardous Decomp. Pros.: Heated to decomp., emits CO, CO_{2}, acrid smoke and irritating fumes

Storage: 12 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, cold, air

Uses: Synthetic flavor for pharmaceuticals

Features: Strawberry-like flavor

Regulatory: FDA 21CFR §172.515; FEMA

†=pharmaceutical grade

GRAS; Japan approved as flavoring; Canada

Manuf./Distrib.: Advanced BioTech
http://www.adv-bio.com; Asiamea Int'l.; Astral Extracts


Methyl cinnamic aldehyde; α-Methyl cinnamic aldehyde. See α-Methylcinnamaldehyde

Methyl cinnamylate. See Methyl cinnamate

α-Methyl cinninmal. See α-Methylcinnamaldehyde

Methyl cocoate
CAS 61788-59-8; EINECS/ELINCS 262-988-1
Synonyms: Coconut acid methyl ester; Fatty acids, coco, methyl esters; Methyl ester of coconut oil fatty acids

Definition: Ester of methyl alcohol and coconut fatty acids

Formula: RCO–OCH_{3}, RCO– represents the fatty acids derived from coconut oil

Toxicology: TSCA listed

Uses: Emollient, plasticizer, lubricant for pharmaceuticals

Regulatory: FDA 21CFR §172.225, 175.105, 176.200, 176.210, 177.2260, 177.2800,
Chemical Component Cross-Reference

178.3910; Canada DSL
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk; Chempri;
Mosselman NV http://www.mosselman.be
Trade Names: Exceparl MC

N-Methyl-N-(1-coconut alkyl) glycine. See Cocoyl sarcosine

6-Methylcoumarin
CAS 92-48-8; EINECS/ELINCS 202-158-8
FEMA 2699
Synonyms: 2H-1-Benzopyran-2-one, 6-methyl-; 6-MC; 6-Methyl-2H-1-benzopyran-2-one; 6-Methylbenzopyrone; 6-Methyl-1,2-benzopyrone; 6-Methylcoumarinic anhydride
Classification: Heterocyclic compd.; lactone
Empirical: C10H8O2
Properties: Wh. cryst.; dry herbaceous coconut; m.w. 160.17; m.p. 73-76 C; b.p. 303 C (725 mm)
Toxicology: LD50 (oral, rat) 1680 mg/kg; (subcut, mouse) 253 mg/kg; poison by subcut. route; mod. toxic by ing.; harmful; skin irritant; possible mutagen; TSCA listed
Precaution: Combustible; photosensitizer
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx and CN–
Uses: Synthetic flavor for pharmaceuticals; oral care agent
Features: Coconut-like flavor
Regulatory: FEMA GRAS; prohibited in cosmetics (Europe); Canada DSL
Manuf./Distrib.: Advanced BioTech
http://www.adv-bio.com; Augustus Oils Ltd
http://www.augustus-oils.ltd.uk;
Chinessence http://www.chinessence.com;
Eramex Aromatics http://www.aramex.de;
Fuerst Day Lawson http://www.fdl.co.uk
Lluch Essence http://www.lluch-essence.com; R.C. Treatt & Co. Ltd
http://www.rctreatt.com; SAFC Specialties
http://www.safcspecialties.com; Sarcom
http://www.sarcominc.com

6-Methylcoumarinic anhydride. See 6-Methylcoumarin

6-Methyl-m-cresol. See 2,5-Xylenol
Methyl p-cresol. See p-Methylanisole
p-Methylcumene. See p-Cymene
Methyl cyanide. See Acetonitrile

Methyl cyanoacetate
CAS 105-34-0; EINECS/ELINCS 203-288-8
†=pharmaceutical grade

Synonyms: Cyanoacetic acid methyl ester; Malonic methyl ester nitrile; Methyl 2-cyanoacetate; Methyl cyanoethanoate
Definition: Ester of cyanoacetic acid and methanol
Empirical: C4H5NO2
Formula: NCCH2COOCH3
Properties: Colorless liq.; sol. in alcohol, ether; insol. in water; m.w. 99.09; dens. 1.123 (15/4 C); m.p. -13 C; b.p. 204-207 C; flash pt. > 230 F; ref. index 1.4170
Toxicology: LD50 (IP, mouse) 200 mg/kg; LDLo (skin, guinea pig) 400 mg/kg; poison by skin contact and IP routes; irritant; avoid contact and inh.; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx and CN–
Uses: Organic synthesis; pharmaceuticals
Regulatory: Canada DSL
Manuf./Distrib.: Aceto† http://www.aceto.com;
Aldrich† http://www.sigma-aldrich.com;
CarboMer† http://www.carbomer.com;
Degussa AG http://www.degussa.com;
Fluka http://www.sigma-aldrich.com
Lonza† http://www.lonza.com; R.W. Greeff
http://www.pechiney-chemicals.com;
Xinchem† http://www.finechemnet.com

Methyl 2-cyanoacetate; Methyl cyanoethanoate. See Methyl cyanoacetate

Methyl cyclodextrin (INCI). See Methyl-β-cyclodextrin

Methyl-α-cyclodextrin
Uses: Chelating agent, solubilizer, bioavailability enhancer, odor/taste masking agent, stabilizer, antioxidant in pharmaceuticals
Features: Complex hosting guest molecules; turns liqs. or volatiles into stable solid powds.
Manuf./Distrib.: CarboMer†
http://www.carbomer.com

Methyl-β-cyclodextrin
CAS 128446-36-6
Synonyms: MβCD; Methyl cyclodextrin (INCI)
Classification: Cyclic oligosaccharides
Definition: Prod. obtained by methylation of cyclodextrin
Uses: Chelating agent, solubilizer, bioavailability enhancer, odor/taste masking agent, stabilizer, antioxidant in pharmaceuticals
Features: Complex hosting guest molecules; turns liqs. or volatiles into stable solid powds.
Chemical Component Cross-Reference

Regulatory: Canada DSL
Manuf./Distrib.: CarboMer†
http://www.carbomer.com

Trade Names: Cavasol® W7 M; Cavasol® W7 M Pharma; Cavasol® W7 M TL; Crysmeb

Methyl-γ-cyclodextrin

Definition: Complex hosting guest molecule
Uses: Chelating agent, solubilizer, bioavailability enhancer, odor/taste masking agent, stabilizer, antioxidant in pharmaceuticals
Features: Complex hosting guest molecules; turns liqs. or volatiles into stable solid powds.
Manuf./Distrib.: CarboMer†
http://www.carbomer.com

Methyl cyclohexane
CAS 108-87-2; EINECS/ELINCS 203-624-3
UN 2296 (DOT)
Synonyms: Cyclohexane, methyl-; Cyclohexylmethane; Hexahydrotoluene; Toluene hexahydrate
Classification: Sat. alicyclic hydrocarbon
Empirical: C7H14
Formula: C6H11CH3
Properties: Colorless liq.; faint benzene-like odor; sol. in most org. solvs.; insol. in water; m.w. 98.19; sp.gr. 0.77 (20 C); vapor pressure 40 mm Hg (20 C); m.p. -126 C; b.p. 101 C; flash pt.-4 C
Toxicology: ACGIH TLV/TWA 400 ppm; LD50 (oral, rat) 1600 mg/kg; FEMA 3360
Precaution: Combustible
Uses: Flavor in pharmaceuticals
Features: Medicinal, mild cherry flavor
Regulatory: FEMA GRAS; Canada DSL
Manuf./Distrib.: Advanced Synthesis Tech.
http://www.advancedsynthesis.com
Fluka http://www.sigma-aldrich.com
SAFC Specialties http://www.safcspecialties.com

3-Methylcyclohex-2-enone. See 3-Methyl-2-cyclohexen-1-one

3-Methyl-2-cyclohexen-1-one
CAS 1193-18-6; EINECS/ELINCS 214-769-7
FEMA 3360
Synonyms: 3-Methylcyclohex-2-enone
Classification: Nonaromatic ketone
Empirical: C7H10O
Properties: Liq.; m.w. 110.16; dens. 0.971; b.p. 199-200 C; flash pt. 155 F; ref. index 1.4940
Toxicology: LD50 (oral, rat) 1600 mg/kg; TSCA listed
Precaution: Flamm.; dangerous fire risk; lower explosive limit in air 1.2%; incompat. with strong oxidizing agents (increases fire and explosion hazard)
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
NFPA: Health 2, Flammability 3, Reactivity 0
Storage: Store in cool, dry, well-ventilated area out of direct sunlight
Uses: Solvent in pharmaceuticals
Regulatory: Canada DSL
Manuf./Distrib.: Aldrich http://www.sigma-

HMIS: Health 1, Flammability 1, Reactivity 0
### Chemical Component Cross-Reference

**Storage:** 12 mos. when stored at 40-70°F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, cold, air

**Uses:** *Synthetic flavor for pharmaceuticals*

**Regulatory:** FDA 21 CFR §175.105; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI


**Methyldibromo glutaronitrile**

CAS 35691-65-7; EINECS/ELINCS 252-681-0

**Synonyms:** 2-Bromo-2-(bromomethyl) glutaronitrile; 2-Bromo-2-(bromomethyl) pentanedinitrile; 1,2-Dibromo-2,4-dicyanobutane; Glutaronitrile, 2-bromo-2-(bromomethyl)

**Definition:** Brominated methylene glutaronitrile

**Empirical:** C_{6}H_{6}Br_{2}N_{2}

**Formula:** NCCBrCH_{2}BrCH_{2}CH_{2}CN

**Properties:** Mildly pungent odor; sol. in methanol, ethanol, ether; insol. in water; m.w. 265.96; m.p. 51.2-52.5°C

**Toxicology:** TDLo (oral, rat) 1750 mg/kg; TSCA listed

**Uses:** Antimicrobial, preservative for pharmaceuticals

**Regulatory:** FDA 21 CFR §175.105, 176.170,

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†=pharmaceutical grade

176,210, 176,300; USA not restricted; Europe listed; Canada DSL


**Trade Names Containing:** Nipaguard® DCB

4-Methyl-2,6-di-t-butylphenol; Methyl di-t-butylphenol. See BHT

**Methyl diglyme.** See Diethylene glycol dimethyl ether

**Methyl dihydrojasmonate**

CAS 2630-39-9; 24851-98-7; EINECS/ELINCS 220-112-5; 246-495-9; 253-379-1

**FEMA 3408**

**Synonyms:** 2-Amylcyclopentanoneacetic acid methyl ester; 3-(Carbomethoxymethyl)2-pentylcyclopentanone; Cyclopentenacetic acid, 3-oxo-2-pentyl-, methyl ester; Methyl (2-amyl-3-oxocyclopentyl) acetate; Methyl 2-hexyl-3-oxocyclopentanecarboxylate; Methyl (1R-trans)-3-oxo-2-pentylcyclopentanecacetate; Methyl 3-oxo-2-pentylcyclopentanecacetate; 3-Oxo-2-pentylcyclopentanecacid, methyl ester

**Classification:** Organic compd.; cycloaliphatic ester

**Empirical:** C_{13}H_{22}O_{3}

**Properties:** Colorless i.q.; fruity, jasmine-like odor; sol. in ethanol; m.w. 226.32; sp.gr. 0.998-1.006; flash pt. > 110°C; ref. index 1.457-1.461; acid value 0-1

**Uses:** Flavor for pharmaceuticals

**Regulatory:** FEMA GRAS; Canada DSL


**Trade Names:** Super-Cepionate®

**Methyl dimethylacetate.** See Methyl isobutyrate

**Methyl 1,1-dimethylethyl ether.** See Methyl t-butyl ether

**Methyl 2,4-dimethylphenyl ketone.** See 2,4-Dimethylacetophenone

**4-Methyl-1,3-dioxolan-2-one.** See Propylene
**Chemical Component Cross-Reference**

<table>
<thead>
<tr>
<th>Chemical Component</th>
<th>Methyl disulfide</th>
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<tbody>
<tr>
<td>CAS</td>
<td>624-92-0</td>
</tr>
<tr>
<td>EINECS/ELINCS</td>
<td>210-871-0</td>
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<tr>
<td>UN</td>
<td>2381 (DOT)</td>
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<tr>
<td>FEMA</td>
<td>3536</td>
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<tr>
<td>Synonyms</td>
<td>Dimethyl disulfide; 2,3-Dithiobutane; DMDS; MDS; Methyldithiomethane</td>
</tr>
<tr>
<td>Classification</td>
<td>Alkyl disulfide</td>
</tr>
<tr>
<td>Empirical Formula</td>
<td>C₂H₆S₂</td>
</tr>
<tr>
<td>Formula</td>
<td>CH₃SSCH₃</td>
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<tr>
<td>Properties</td>
<td>Pale yel. liq.; disagreeable onion odor; very sol. in alcohol, ether; sl. sol. in water; m.w. 94.20; sp.gr. 1.062 (20/4 C); vapor pressure 28.6 mm Hg; m.p. -84.7 C; b.p. 108-110 C; flash pt. (CC) 16 C; ref. index 1.527 (20 C)</td>
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<td>Toxicology</td>
<td>LD₅₀ (mammal) 138 mg/kg; skin and eye irritant; very toxic by inh. in animal tests; breaks down to methyl mercaptan in body; inh. of vapors probably causes headache, dizziness, nausea, vomiting; massive exposure can be fatal; TSCA listed</td>
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<td>Precaution</td>
<td>Highly flamm.; very dangerous fire hazard exposed to heat, flame, oxidizers; incompat. with oxidizing agents (can react violently), reducing materials (can produce methyl mercaptan), copper and alloys (can react corrosively)</td>
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<tr>
<td>Hazardous Deprods.</td>
<td>Hydrogen sulfide, methyl mercaptan</td>
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<tr>
<td>Storage</td>
<td>Store in cool, well-ventilated area, out of direct sunlight; prevent release of mists into workplace air</td>
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<tr>
<td>Uses</td>
<td>Synthetic flavor for pharmaceuticals</td>
</tr>
<tr>
<td>Regulatory</td>
<td>FDA 21 CFR §172.515; FEMA GRAS; Canada DSL</td>
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<td>Manuf./Distrib.</td>
<td>ADA Int'l. [Link to ADA Int'l. website]</td>
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<td>Arkema [Link to Arkema website]</td>
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<td>Cargill Flavors &amp; Fruit Systems USA [Link to Cargill Flavors &amp; Fruit Systems USA website]</td>
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<td>Sigma [Link to Sigma website]</td>
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</tbody>
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**†=pharmaceutical grade**

Methyl dodecanoate; Methyl n-dodecanoate; Methyl dodecylate. See Methyl laurate

11-Methyldodecyl dodecanoate. See Isotridecyl laurate

Methyl enanthate. See Methyl heptanoate

Methylene bichloride. See Methylene chloride

N,N’-Methylenebis[N’-[1-(hydroxymethyl)-2,5-dioxo-4-imidazolidinyl] urea]; N,N’-Methylenebis[N’-[3-(hydroxymethyl)-2,5-dioxoimidazolidin-4-yl] urea]. See Imidazolidinyl urea

4,4’-Methylenebis(3-hydroxy-2-naphthoic acid) disodium salt. See Disodium pamoate

N,N’-Methylenebis(methacrylamide)/glycidyl methacrylate/allyl glycidyl ether/methacrylamide copolymer

Uses: Carrier for enzyme immobilization in prod. of semisyn. antibiotics and chiral pharmaceuticals

Trade Names: Eupergit® C; Eupergit® C M; Eupergit® C250 L

2,2’-Methylenebis(3,4,6-trichlorophenol). See Hexachlorophene

Methylene blue. See Methylene blue trihydrate

Methylene blue trihydrate

CAS 7220-79-3

Synonyms: 3,7-Bis (dimethylamino) phenazathionium chloride trihydrate; 3,7-Bis (dimethylamino) phenothiazin-5-i um, chloride, trihydrate; CI basic blue 9, trihydrate; 7-(Dimethylamino)-3-(methylimino)-3H-phenothiazine, 3-methochloride, trihydrate; Methylene blue; Methylothionine chloride trihydrate; Methylothionine trihydrate; Phenothiazin-5-ium, 3,7-bis (dimethylamino)-, chloride, trihydrate; Tetramethylene blue trihydrate; Tetramethylothionine chloride trihydrate

Empirical: C₁₆H₁₈N₃S • Cl • 3H₂O

Properties: Dk. grn. cryst. with bronze luster or cryst. powd.; odorless or prac. odorless; sol. in water, DMSO, 95% ethanol; sol. < 1 mg/ml in acetone; insol. in ether; m.w. 373.90; m.p. 190 C (dec.)

Toxicology: LD₅₀ (oral, rat) 1180 mg/kg, (IP, mouse) 150 mg/kg, (IV, rat) 1250 mg/kg, (subcut., guinea pig) 300 mg/kg; poison by ing., IP, IV, subcut. routes; severe eye irritant; ing. may cause nausea, vomiting, diarrhea, dysuria, hemolytic anemia; skin irritant; IV exposure may cause nausea,
abdominal pain, chest pain, headache, dizziness, mental confusion, profuse sweating; subcut. exposure may cause necrotic abscesses; mutagenic data; target organ: blood; TSCA listed

Precaution: Probably combustible; incompat. with strong oxidizers, caustic alkali, alkali iodides, reducing agents, dichromates; forms double salts with many inorg. salts; bleached reversibly by (zinc + HCl) or sodium hydrosulfite

Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of CO, CO₂, NOₓ, SOₓ, chlorine, hydrogen chloride gas

Storage: Hygroscopic; store under ambient temps.; keep away from oxidizing materials

Uses: Medicine (antimethemoglobinemic, antidote to cyanide); veterinary medicine (antiseptic, disinfectant, antidote to cyanide and nitrate)

Manuf./Distrib.: AMRESCO†
http://www.amresco-inc.com; Acros Org.
http://www.acros.com; Aldrich†
http://www.sigma-aldrich.com; Alfa Aesar
http://www.alfa.com; Fisher Scientific
Hawkins Chem.†
http://www.hawkinschemical.com; ICN
http://www.mpbio.com; Integra†
http://www.integrachem.com; Lancaster
Synthesis http://www.alfa.com;
Mallinckrodt Baker†
http://www.mallbaker.com
Materia Medica†; Penta Mfg.†
http://www.pentamfg.com; Ruger†
http://www.rugerchemical.com; Sigma
http://www.sigma-aldrich.com/belgium;
Spectrum Quality Prods.†
http://www.spectrumchemical.com
Universal Preserv-A-Chem†
http://www.upichem.com; VWR Int’l.†
http://www.vwrsp.com; Zetapharm†
http://www.zetapharm.com

Methylene chloride
CAS 75-09-2; EINECS/ELINCS 200-838-9
UN 1593 (DOT)

Synonyms: DCM; Dichloromethane; Freon 30; MDC; Methane dichloride; Methane-, dichloro-; Methylene bichloride; Methylene dichloride

Classification: Halogenated aliphatic

†=pharmaceutical grade

Empirical: CH₂Cl₂

Properties: Colorless clear volatile liq., penetrating ether-like odor; sol. in alcohol, ether, phenols, aldehydes, ketones; misc. with fixed and volatile oils, oxygenated and chlorinated solvs.; mod. sol. in water; m.w. 84.93; dens. 1.335 (15/4 C); vapor pressure 380 mm (22 C); f.p. -97 C; b.p. 40.1 C; autoignition temp. 556 C; ref. index 1.4244 (20 C); KB value 136; nonflamm.

Toxicology: ACGIH TLV/TWA 50 ppm; LD50 (oral, rat) 2136 mg/kg, (IP, mouse) 437 mg/kg, (subcut., mouse) 6460 mg/kg; very toxic; poison by IV route; mod. toxic by ing., subcut., IP routes; mildly toxic by inh.; human systemic effects; eye and severe skin irritant; narcotic in high concs.; confirmed carcinogen; experimental tumorigen, teratogen, reproductive effector; human mutagenic data; TSCA listed

Environmental: ThOD 0.38

Precaution: Explosive as vapor exposed to heat or flame; incompat. with methanol, Al powd., amines, quat. ion exchange resins (azide form), DMSO, perchloric acid, alkali metals, nitric acid, etc.

Hazardous Decomp. Prods.: Contact with hot surfaces cause decomp., yielding toxic fumes; heated to decomp., emits highly toxic fumes of phosgene and CI⁻

NFPA: Health 2, Flammability 1, Reactivity 0

Storage: Store in cool, dry, well-ventilated area out of direct sunlight; keep quantities stored as small as possible

Uses: Solvent in pharmaceuticals, orals; pharmaceutical aid; medicine (anesthetic)

Regulatory: FDA 21CFR §73.1 (no residue), 73.30, 73.345, 73.615, 172.560, 173.255, 175.105, 177.1580, 177.1585; FDA approved for orals; Canada DSL; SARA §311/312 acute health/chronic health hazard, §313 reportable; CERCLA hazardous substance; Calif. Prop. 65 reportable; HAP; USP/NF, BP, EP compliance

Manuf./Distrib.: AAE Chemie NV†
http://www.aaechemie.com; AMC Chems.;
Aldrich† http://www.sigma-aldrich.com;
Alchim Ind. http://www.allchem.com;
Amyl http://www.amyl.com
Arkema http://www.total.com/; Ashland†
http://www.ashchem.com; Brenntag AG†
http://www.brenntag.de; C.P. Hall
http://www.cphall.com; Chemcentral
http://www.chemcentral.com
Methylenedioxybenzene. See 1,2-Methylenedioxybenzene

1,2-Methylenedioxybenzene
CAS 274-09-9; EINECS/ELINCS 205-992-0
Synonyms: 1,3-Benzodioxole; 1,3-Dioxaindane; MDB; Methylenedioxybenzene
Classification: Aromatic ether
Empirical: C7H6O2
Properties: Colorless liq.; m.w. 122.12; dens. 1.064; b.p. 172-173 C
Toxicology: LD50 (oral, rat) 580 mg/kg, (oral, mouse) 1220 mg/kg; mod. toxic by ing.; irritant; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Storage: Store under nitrogen
Uses: Intermediate for mfg. of pharmaceuticals, flavors and fragrances; antibacterial compds.
Manuf./Distrib.: Advanced Synthesis Tech.
http://www.advancedsynthesis.com;
Aldrich† http://www.sigma-aldrich.com;
Dottikon Exclusive Synthesis AG
http://www.dottikon.com; Fluka
http://www.sigma-aldrich.com; Int'l. Fiber† http://www.ifcfiber.com

3,4-Methylenedioxybenzyl acetate. See Piperonyl acetate
3,4-Methylenedioxybenzyl isobutyrate. See Piperonyl isobutyrate
3,4-Methylenedioxyphenol. See Sesamol
1-(3,4-Methylenedioxyphenyl) propane. See Dihydrosafrole
1,2-Methylenedioxy-4-propenylbenzene; 3,4-Methylenedioxy-1-propenylbenzene. See Isosafrole
1,2-(Methylenedioxy)-4-propylbenzene; 3,4-Methylenedioxy-propylbenzene. See Dihydrosafrole

Methylene diphosphonic acid. See Medronic acid
Methylene ether of oxyquinone. See Sesamol
Methylene glycol. See Formaldehyde
3-Methylene-7-methyl-1,6-octadiene. See Myrcene
2-Methylene propionic acid. See Methacrylic acid
3,4-Methyleneprotocatechuic aldehyde. See Heliotropine
8-Methylene-4,11,11-(trimethyl) bicyclo (7.2.0) undec-4-ene; trans-(1R,9S)-8-Methylene-4,11,11-trimethylbicyclo[7.2.0] undec-4-ene. See β-Caryophyllene
Methyl ester of benzenebutanoic acid. See Methyl 4-phenylbutyrate
Methyl ester of coconut oil fatty acids. See Methyl cocoate
Methyl esters of soybean oil. See Methyl soyate
Methyl ester stearic acid. See Methyl stearate ((1-Methyl-1,2-ethanediyl) bis (oxy)) bis (propanol). See Tripropylene glycol
Methyl ethanoate. See Methyl acetate
2Methylethanoate. See Isopropyl acetate
1-Methylethanol. See Isopropyl alcohol
(S)-4-(1-Methylene)-1-cyclohexene-1-carboxaldehyde; L-4-(1-Methylthienyl)-1-cyclohexene-1-carboxaldehyde. See
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Chemical Component</th>
<th>Cross-Reference</th>
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<tbody>
<tr>
<td>Perillaldehyde</td>
<td>See 2-Butanone</td>
</tr>
<tr>
<td>Methyl ethyl acetaldehyde</td>
<td>See 2-Methylbutyraldehyde</td>
</tr>
<tr>
<td>1-Methylethyl acetate</td>
<td>See Isopropyl acetate</td>
</tr>
<tr>
<td>Methyl ethylacetic acid</td>
<td>See 2-Methylbutyric acid</td>
</tr>
<tr>
<td>Methylacetylcarbinol</td>
<td>See Methyl pentynol</td>
</tr>
<tr>
<td>1-Methylpentanol</td>
<td>See Isopropyl alcohol</td>
</tr>
<tr>
<td>1-Methyllethylamine</td>
<td>See Isopropylamine</td>
</tr>
<tr>
<td>3-[(1-methylethylamino)-1,2-propanediol</td>
<td>See 3-Isopropylnaminopropane-1,2-diol</td>
</tr>
<tr>
<td>4-(1-Methylethyl) benzaldehyde</td>
<td>See Cuminaldehyde</td>
</tr>
<tr>
<td>(1-Methylethyl) benzene</td>
<td>See Cumene</td>
</tr>
<tr>
<td>1-Methyl ethyl benzene acetate</td>
<td>See Isopropyl phenylacetate</td>
</tr>
<tr>
<td>(1-Methylethyl) benzene, monosulfo deriv.,</td>
<td>See Sodium cumenesulfonate</td>
</tr>
<tr>
<td>sodium salt</td>
<td></td>
</tr>
<tr>
<td>1-Methyllethyl benzoate</td>
<td>See Isopropyl benzoate</td>
</tr>
<tr>
<td>1-Methyl ethyl butanoate</td>
<td>See Isopropyl butyrate</td>
</tr>
<tr>
<td>Methyl ethyl carbinol</td>
<td>See 2-Butanol</td>
</tr>
<tr>
<td>Methyl ethyl diketone</td>
<td>See Pentane-2,3-dione</td>
</tr>
<tr>
<td>1-Methyllethyldodecanoate</td>
<td>See Isopropyl laurate</td>
</tr>
<tr>
<td>((Methylethylene) bis (oxy)) dipropanol</td>
<td>See Tripropylene glycol</td>
</tr>
<tr>
<td>1-Methyl ethylene carbonate</td>
<td>See Propylene carbonate</td>
</tr>
<tr>
<td>1-Methylethylene 2-ethyhexanoate</td>
<td>See Propylene glycol dioxotanoate</td>
</tr>
<tr>
<td>Methyl ethylene glycol</td>
<td>See Propylene glycol</td>
</tr>
<tr>
<td>1-Methyl ethyl formate</td>
<td>See Isopropyl formate</td>
</tr>
<tr>
<td>Methyl ethyl glycol</td>
<td>See Propylene glycol</td>
</tr>
<tr>
<td>Methyl ethyl glyoxal</td>
<td>See Pentane-2,3-dione</td>
</tr>
<tr>
<td>1-Methyllethyl hexadecanoate</td>
<td>See Isopropyl palmitate</td>
</tr>
<tr>
<td>1-Methylethyl-4-hydroxybenzoate</td>
<td>See Isopropylparaben</td>
</tr>
<tr>
<td>Methyl ethyl ketone</td>
<td>CAS 78-93-3; EINECS/ELINCS 201-159-0</td>
</tr>
<tr>
<td>UN 1193 (DOT); FEMA 2170</td>
<td></td>
</tr>
<tr>
<td>Synonyms: Butanone; 2-Butanone; 3-Butanone;</td>
<td></td>
</tr>
<tr>
<td>Ethyl methyl ketone; MEK (INCI); Methyl</td>
<td></td>
</tr>
<tr>
<td>acetone; Methyl-2-propanone; 2-Oxobutane</td>
<td></td>
</tr>
<tr>
<td>Classification: Sat. aliphatic ketone</td>
<td></td>
</tr>
<tr>
<td>Empirical: ( \text{C}_4\text{H}_8\text{O} )</td>
<td></td>
</tr>
<tr>
<td>Formula: ( \text{CH}_3\text{COCH}_2\text{CH}_3 )</td>
<td></td>
</tr>
<tr>
<td>Properties: Colorless liq., acetone-like odor; sol.</td>
<td></td>
</tr>
</tbody>
</table>

†=pharmaceutical grade

in 4 parts water, benzene, alcohol, ether, oxygenated and chlorinated solvs.; misc. with fixed oils; m.w. 72.10; dens. 0.8255 (0/4 C); vapor pressure 71.2 mm (20 C); visc. 0.40 cp; m.p. -86 C; b.p. 79.6 C; flash pt. (TOC) 24 F; ref. index 1.3814 (15 C)

**Toxicology:** ACGIH TLV/TWA 200 ppm; STEL 300 ppm; LD50 (oral, rat) 2737 mg/kg, (IP, mouse) 616 mg/kg; mod. toxic by ing., skin contact, IP routes; toxic by inh.; strong irritant; mod. to severe eye irritant; human eye irritant @ 350 ppm; affects CNS; ing. of extremely high concs. may cause loss of consciousness or death; experimental teratogen, reproductive effects; TSCA listed

**Environmental:** VOC; BOD5 2.03; COD 2.31; ThOD 2.44

**Precaution:** DOT: Flamm. liq; dangerous fire risk; explosive limits in air 2-10%; incompat. with oxidizers, strong acids, mixts. of haloforms and strong bases, mixts. of hydrogen peroxide and nitric acid

**Hazardous Decomp. Prods.:** Explosive peroxides; heated to decomp., emits acrid smoke and fumes

**NFPA:** Health 1, Flammability 3, Reactivity 0

**Storage:** Store in cool, well-ventilated area, out of direct sunlight, away from heat/ignition sources, away from corrosives

**Uses:** Solvent, synthetic flavor for pharmaceuticals

**Regulatory:** FDA 21CFR §172.515, 172.859, 175.105, 175.320, 177.1200; FEMA GRAS; SARA §313 reportable; HAP; CERCLA hazardous substance; Australia AICS; Canada DSL; Japan MITI

**Manuf./Distrib.:** AAE Chemie NV†


Arch Chems. http://www.archchemicals.com; Arkema†

http://www.total.com/; Ashland

http://www.ashchem.com; Asiamerica

Int’l.;† BP Chems. Ltd

http://www.bp.com/chemicals/

Baychem; Brenntag AG†

http://www.brenntag.de; Brenntag

Southeast; C.P. Hall

http://www.cphall.com; Cargill Flavors & Fruit Systems USA http://www.flavors-fruit-systems.com
Chemical Component Cross-Reference

Celanese
http://www.celanesechemicals.com;
http://www.chemvip.com; ChemTech
Specialties†
http://www.chemtechspecialties.com;
Chemcentral http://www.chemcentral.com;
Delta Distributors†; Dow
http://www.dow.com
Eastman† http://www.eastman.com;
ExxonMobil
http://www.exxonmobilchemical.com; Fluka
http://www.sigma-aldrich.com; GFS†
http://www.gfschemicals.com; General
Harcros http://www.harcroschem.com;
Honeywell Perf. Polymers
http://www.honeywellppc.com;
http://www.honeywell-plastics.com;
Houghton Chem.
http://www.houghtonchemical.com; Hukill
http://www.hukill.com; ICC Ind.
http://www.iccchem.com
Integra† http://www.integrachem.com;
Lluch Essence http://www.lluch-essence.com;
MPS† http://www.mp-solutionsinc.com; Mallinckrodt Baker†
http://www.mallbaker.com; Moore Ingreds.
http://www.moorelab.com
Oxiteno
http://www.oxiteno.com.br/in/index.htm;
Penta Mfg.† http://www.pentamfg.com;
Primachem; R.E. Carroll
http://www.recarroll.com; Romil Ltd
http://www.romil.com
Ruger http://www.rugerchemical.com;
SAFC Specialties
http://www.safcspecialties.com; Sal Chem.
http://www.salchem.com; Shell
http://www.shellchemicals.com;
http://www.shell-lubricants.com; Spectrum
Quality Prods.†
http://www.spectrumchemical.com
VWR Int’l.† http://www.vwrsp.com; Varsal
Instruments http://www.varsal.com
Trade Names Containing: Degalan® PM-555

Methylethylmethane. See Butane
1-Methylethyl (E)-2-methyl-2-butenoate. See Isopropyl tiglate
1-Methyl ethyl 2-methyl propanoate. See Isopropyl isobutyrate
1-Methylethyl octadecanoate. See Isopropyl stearate
1-Methylethyl-9-octadecenoate. See

†=pharmaceutical grade

Isopropyl oleate
2-(1-Methylethyl) phenol. See o-Isopropylphenol
4-(1-Methylethyl) phenol. See p-Isopropylphenol
1-Methylethyl 3-phenylpropenoate; 1-Methylethyl 3-phenyl-2-propenoate. See Isopropyl cinnamate
1-Methyl ethyl propanoate. See Isopropyl propionate
1-Methylethyl tetradecanoate. See Isopropyl myristate

Methyl eugenol
CAS 93-15-2; EINECS/ELINCS 202-223-0
FEMA 2475
Synonyms: 1- Allyl-3,4-dimethoxybenzene; 4-Allyl-1,2-dimethoxybenzene; 4-Allyl veratrole; Benzene, 1,2-dimethoxy-4-(2-propenyl); 1,2-Dimethoxy-4-allylbenzene; 1-(3,4-Dimethoxyphenyl)-2-propene; 3-(3,4-Dimethoxyphenyl) propene; 1,2-Dimethoxy-4-(2-propenyl) benzene; Eugenol methyl ether; 1,3,4-Eugenol methyl ether; Eugenyl methyl ether; Veratrole methyl ether
Classification: Aromatic compd.
Empirical: C₁₁H₁₄O₂
Formula: (CH₃O)₂C₆H₃CH₂CH:CH₂
Properties: Colorless to pale yel. liq., clove, carnation odor; sol. in alcohol, fixed oils; insol. in water, glycerin, propylene glycol; m.w. 178.25; dens. 1.032-1.036; b.p. 128-130 C (10 mm); flash pt. 110 C; ref. index 1.534 (20 C)
Toxicology: LD₅₀ (oral, rat) 1179 mg/kg, (IP, mouse) 540 mg/kg, (IV, mouse) 112 mg/kg, (skin, rabbit) > 2025 mg/kg; poison by IV route; mod. toxic by ing., IP routes; skin irritant; mutagenic data; carcinogen; TSCA listed
Precaution: Combustible liq.
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: Anthea Aromatics
http://www.anthea-aromatics.com;
Augustus Oils Ltd http://www.augustus-oils.ltd.uk; Elan http://www.elan-chemical.com; Firmenich
http://www.firmenich.com; Fluka
http://www.sigma-aldrich.com

1660
Chemical Component Cross-Reference

†=pharmaceutical grade

Methyl gallate

Synonyms: Benzoic acid, 3,4,5-trihydroxy-, methyl ester; Gallic acid, methyl ester; Methyl 3,4,5-trihydroxybenzoate; 3,4,5-Trihydroxybenzoic acid, methyl ester

Empirical: C8H6O3

Formula: C6H2(OH)3 • COOCH3

Properties: Wh. cryst. powd.; odorless; sol. in hot water, alcohol, methanol, ether; m.w. 184.15; m.p. 202-205 C

Toxicology: LD50 (oral, mouse) 1200 mg/kg, (IP, mouse) 784 mg/kg, (IV, mouse) 470 mg/kg; mod. toxic by ing., IP and IV routes; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Antioxidant for pharmaceuticals


Methylglucamine (INCI); N-Methylglucamine. See Meglumine

Methyl gluceth-10

CAS 68239-42-9

Synonyms: PEG-10 methyl glucose ether; POE (10) methyl glucose ether

Definition: PEG ether of methyl glucose

Formula: CH3C6H10O5(OCH2CH2)nOH, avg. n = 10

Properties: Nonionic

Uses: Solvent and solubilizer for pharmaceutical topicals

Regulatory: Canada DSL

Trade Names: Glucam® E-10

Methyl gluceth-20

CAS 68239-42-9; 68239-43-0

Synonyms: PEG-20 methyl glucose ether; POE (20) methyl glucose ether

Definition: PEG ether of methyl glucose

Formula: CH3C6H10O5(OCH2CH2)nOH, avg. n = 20

Properties: Nonionic

Uses: Solvent and solubilizer for pharmaceutical topicals

Trade Names: Glucam® E-20

Methyl gluceth-20 distearate

CAS 119831-19-5

Properties: Nonionic

Uses: O/w emulsifier, moisturizer, conditioner, emollient and lubricant for pharmaceuticals
Methyl glucose dioleate
CAS 83939-91-3; EINECS/ELINCS 280-069-3
Synonyms: D-Glucopyranoside methyl 2,6-dioleate
Definition: Diester of a methyl glucoside and oleic acid
Empirical: C_{43}H_{78}O_{8}
Properties: Nonionic
Uses: Emollient, humectant, w/o emulsifier, aux. emulsifier for o/w systems, conditioner, emollient, lubricant, plasticizer, and pigment dispersant in topical pharmaceuticals
Trade Names: Glucate® DO

Methyl glucose sesquistearate
CAS 68936-95-8; EINECS/ELINCS 273-049-0
Synonyms: D-Glucopyranoside, methyl, octadecanoate (2:3)
Definition: Mixture of mono- and diesters of a methyl glucoside and stearic acid
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emollient, w/o emulsifier, visc. stability, mildness agent for pharmaceuticals
Regulatory: Canada DSL
Trade Names: Glucate® SS

N-Methylglycine; Methyl glycocoll. See Sarcosine

Methyl glycol. See Propylene glycol

Methylglyoxal. See Pyruvaldehyde

Methylguaiacol; 4-Methylguaiacol; p-Methylguaiacol. See 2-Methoxy-4-methylphenol

2-Methylhendecanal. See Methyl nonyl acetaldehyde

p-Methylhexyl 2-methylpropanoate. See p-Tolyl isobutyrate

16-Methylheptadecanoic acid. See Isostearic acid

16-Methylheptadecanoic acid, 16-methylheptadecyl ester. See Isostearyl isostearate

1-Methyl-2-heptadecenyl-3-oleylamidoethyl imidazolium methosulfate. See Oleic imidazolium methosulfate

16-Methylheptadecyl 16-methylheptadecanoate. See Isostearyl isostearate

Methyl heptanoate
CAS 106-73-0; EINECS/ELINCS 203-428-8
FEMA 2705
Synonyms: Heptanoic acid methyl ester; Methyl enanthate; Methyl heptoa; Methyl n-heptylate; Methyl oenanthylate
Empirical: C_{8}H_{16}O_{2}
Formula: CH_{3}(CH_{2})_{5}COOCH_{3}
Properties: Liq.; m.w. 144.22; dens. 0.881 (20/4 C); m.p. -55.8 C; b.p. 173.8 C; flash pt. 55 C; ref. index 1.412 (20 C)
Toxicology: LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; TSCA listed
Precaution: Flamm.

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating vapors
Uses: Synthetic flavor for pharmaceuticals
Features: Berry-like flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

2-Methylheptanoic acid
CAS 1188-02-9
FEMA 2706
Synonyms: Methylamylacetic acid; Methyl-2-heptanoic acid; 2-Methoxyenhanic acid
Empirical: C_{8}H_{16}O_{2}
Properties: Colorless liq.; char. odor; m.w. 144.21; ref. index 1.423-1.427
Storage: Store in tightly closed containers in dry, well-ventilated area away from direct sunlight
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Methyl-2-heptanoic acid. See 2-Methylheptanoic acid

5-Methyl-3-heptanone. See 3-Octanone

6-Methyl-5-heptene-2-one; Methyl-5-hepten-2-
Methyl heptenone

**Empirical:** \( \text{C}_8\text{H}_{14}\text{O} \)

**Formula:** \((\text{CH}_3)_2\text{C}:\text{CHCH}_2\text{CH}_2\text{COCH}_3\)

**Properties:** Colorless to sl. yel. liq.; citrus-lemongrass odor; misc. with alcohol, ether, chloroform, oxygenated solvs.; insol. in water; m.w. 126.22; dens. 0.846-0.851; m.p. -67 C; b.p. 173-174 C; flash pt. 55 C; ref. index 1.438-1.442

**Toxicology:** LD50 (oral, rat) 3500 mg/kg; mod. toxic by ing.; skin irritant; TSCA listed

**Precaution:** Combustible; incompat. with strong oxidizers, reducers

**Hazardous Decomp. Prods.:** Heated to decomp., emits CO, CO₂, acrid smoke and irritating fumes

**Storage:** 6 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, cold, air

**Uses:** Synthetic flavor for pharmaceuticals

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI

Chemical Component Cross-Reference

& Co. Ltd http://www.rctreatt.com; SAFC
Specialties http://www.safcspecialties.com
UOP http://www.uop.com

Methyl 2-hexyl-3-oxocyclopentanecarboxylate. See Methyl dihydrojasmonate

Methyl hydrate. See Methyl alcohol

Methyl hydrotartraldehyde; p-
Methylhydrotartraldehyde; p-
Methylhydratopaldehyde. See 2-(p-

Methyl hydrocinamate. See Methyl 3-phenylpropionate

6'-Methylhydrogen-9'-cis-6,6'-diapocarotene-6,6'-dioate, Na or K; 6'-Methylhydrogen-9'-trans-6,6'-diapocarotene-6,6'-dioate, Na or K. See Norbixin

Methyl hydroxide. See Methyl alcohol

1-Methyl-4-hydroxybenzene. See p-Cresol

Methyl hydroxybenzoate; Methyl 2-hydroxybenzoate. See Methyl salicylate

Methyl 4-hydroxybenzoate. See Methylparaben

Methyl o-hydroxybenzoate. See Methyl salicylate

Methyl p-hydroxybenzoate. See Methylparaben

2-Methyl-3-hydroxy-4,5-bis (hydroxymethyl) pyridine. See Pyridoxine

2-Methyl-3-hydroxy-4,5-bis (hydroxymethyl) pyridine hydrochloride. See Pyridoxine HCl

2-Methyl-3-hydroxy-4,5-dihydroxymethyl pyridine. See Pyridoxine

Methyl hydroxyethylcellulose

CAS 9032-42-2
Synonyms: Cellulose, 2-hydroxyethyl methyl ether; Hydroxyethylmethylcellulose; MHEC
Definition: Methyl ether of hydroxyethylcellulose
Properties: Wh. powd.; sol. in cold water forming colloidal sol's, which gel as the temp. increases; nonionic
Uses: Binder, thickener, pigment, foam/filler stabilizer, dispersant, emulsifier, plasticizer, visc. control agent, sedimenting aid, and protective colloid in pharmaceuticals, orals
Regulatory: FDA approved for orals; BP, EP compliance; Canada DSL
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; CarboMer† http://www.carbomer.com

†=pharmaceutical grade

Trade Names: Culminal® MHEC 6000 PR; Culminal® MHEC 8000; Culminal® MHEC 15000 PFF; Culminal® MHEC 15000 PFR; Culminal® MHEC 25000 PFF; Culminal® MHEC 35000 P1R; Culminal® MHEC 40000 P1; Tylose® MH Grades; Tylose® MHB

1-Methyl-3-hydroxy-4-isopropylbenzene. See Thymol
1-Methyl-3-hydroxy-4-isopropyl-6-chlorobenzene. See Chlorothymol

Methyl hydroxypropyl cellulose. See Hydroxypropyl methylcellulose

2-Methyl-3-hydroxy-4-pyrene. See Maltol

1,2-(Methylened) glycerol; Methylidinoglycerol. See Glycerol formal

3-Methylindole; 3-Methyl-1H-indole; β-Methylindole. See Skatole

1-Methyl-β-ionone. See Methyl β-ionone

5-Methyl-α-ionone; 6-Methylionone; 6-Methyl-α-ionone. See α-Irone

Methyl α-ionone
CAS 127-42-4; EINECS/ELINCS 204-842-1; 215-635-0
FEMA 2711

Synonyms: α-Cetone; α-Cyclocitrylidenebutanone; α-Cyclocitrylidinemethyl ethyl ketone; α-Methyl ionone; α-n-Methyl ionone; 1-Penten-3-one, 1-(2,6,6-trimethyl-2-cyclohexen-1-yl)-(R(E)); 5-(2,6,6-Trimethyl-2-cyclohexen-1-yl)-4-penten-3-one; 5-(2,6,6-Trimethyl-2-cyclohexenyl)-4-penten-3-one; 1-(2,6,6-Trimethyl-2-cyclohex-1-yl)-1-penten-3-one

Empirical: C14H22O

Properties: Colorless to amber-yel. liq.; floral odor; sol. in alcohol; insol. in water; dens. 0.926-0.939; vapor dens. > 1; b.p. 144 C (16 mm); flash pt. (CC) 118 C; ref. index 1.501-1.504; tenacity > 1 wk. on blotter

Toxicology: LD50 (oral, rat) > 5 g/kg, (dermal, rabbit) 2 g/kg; TSCA listed

Precaution: Combustible liq.; incompat. with strong oxidizers, iron, iron salts

NFPA: Health 1, Flammability 1, Reactivity 0

Storage: Store in cool, dry place in tightly sealed containers, protected from heat, light

Uses: Synthetic flavor for pharmaceuticals

Use Level: < 10%

Regulatory: SARA §311/312 Fire Hazard; FDA 21CFR §172.515; FEMA GRAS; Australia;
Chemical Component Cross-Reference

Canada DSL; Japan ENCS (no. 3-2385); Philippines PICCS

Manuf./Distrib.: Berje
http://www.berjeinc.com; Chemtex International
http://www.chemtexinternational.com; Givaudan Fragrances
http://www.givaudan.com; Lluch Essence
http://www.lluch-essence.com; Penta Mfg.
http://www.pentamfg.com
Takasago Int'l. http://www.takasago.com

α-Methyl Ionone; α-n-Methyl ionone. See Methyl α-ionone

Methyl β-ionone
CAS 127-43-5; EINECS/ELINCS 204-843-7
FEMA 2712

Synonyms: β-Cetone; β-
Cyclocitrilidenedebutanone; β-Ionone, methyl-
; β-Iraldeine, 1-Methyl-β-ionone; β-
Methylionone; 1-Penten-3-one, 1-[(2,6,6-
trimethyl-1-cyclohexen-1-yl)-5-[(2,6,6-
Trimethyl-1-cyclohexen-1-yl)]-4-penten-3-
one; 5-(2,6,6-Trimethyl-1-cyclohexenyl)-4-
pen ten-3-one; 1-(2,6,6-Trimethyl-1-
cyclohexin-1-yl)-1-penten-3-one

Empirical: C14H22O

Properties: Colorless to amber-yel. liq.; floral odor; sol. in alcohol; insol. in water; m.w. 206.33; dens. 0.926-0.939; b.p. 144°C (16 mm); ref. index 1.501-1.504

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com

β-Methylionone. See Methyl β-ionone

Methyl Δ-ionone
CAS 7784-98-7; EINECS/ELINCS 232-074-7
FEMA 2713

Synonyms: Methyl ionone delta; 1-(2,6,6-
Trimethyl-3-cyclohexen-1-yl) pent-1-en-3-
one; 5-(2,6,6-Trimethyl-3-cyclohexen-1-yl)-4-
pen ten-3-one; 5-2,6,6-Trimethyl-3-
cyclohexen-1-yl-4-penten-3-one

Empirical: C14H22O

Properties: Colorless to amber-yel. liq.; floral odor; sol. in alcohol; insol. in water; dens. 0.926-0.939; b.p. 144°C (16 mm); ref. index 1.501-1.504

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: R.C. Treatt & Co. Ltd http://www.rctreatt.com

γ-Methyl ionone. See α-Isomethylionone

Methyl ionone delta. See Methyl Δ-ionone

Methyl isobutylacetate. See Methyl 4-
methylvalerate

Methyl isobutyl ketone
CAS 108-10-1; EINECS/ELINCS 203-550-1
UN 1245; FEMA 2731

Synonyms: Hexanone; Hexone; Isobutyl methyl ketone; Isopropylacetone; 4-Methyl-
2-oxopentane; 2-Methyl-4-pentanone; 4-
Methyl-2-pentanone; 4-Methylpentan-2-one;
2-Methylpropyl methyl ketone; MIBK (INCI)

Classification: Sat. aliphatic ketone

Empirical: C6H12O

Formula: CH3COCH2CH(CH3)2

Properties: Colorless volatile liq., faint ketonic/camphoraceous odor; misc. with alcohol, ether, benzene, most org. solvs.; sl. sol. in water; m.w. 100.18; dens. 0.8042 (20/20 C); vapor pressure 19.9 mm Hg; m.p. -85 C; b.p. 115.8 C; flash pt. (CC) 13 C; autoignition temp. 448 C; ref. index 1.396; surf. tens. 23.29 dynes/cm; dielec. const. 13.11

Toxicology: ACGIH TLV/TWA 50 ppm; STEL 75 ppm; LD50 (oral, rat) 2080 mg/kg; poison by IP route; mod. toxic by ing.; mildly toxic by inh.; very irritating to skin, eyes, mucous membranes; narcotic in high conc.; TSCA listed

Environmental: VOC; BOD5 1.67; COD 2.16; ThOD 2.72

Precaution: Flamm.: dangerous fire risk; explosive limits 1.4-7.5% in air; incomp. with oxidizing/reducing agents, strong bases, potassium t-butoxide; violent reactions possible

Hazardous Decomp. Prods.: Explosive peroxides (e.g., methyl isobutyl peroxide)

NFPA: Health 2, Flammability 3, Reactivity 1

Storage: Store in well-ventilated area; bond and ground metal containers in storage area

Uses: Alcohol denaturant, solvent, extractive agent, synthetic flavor for pharmaceuticals

Features: Fruity flavor

Regulatory: FDA 21CFR §172.515, 172.842, 175.105, 176.180, 176.200, 176.210, 177.1650; FEMA GRAS; USP/NF compliance; SARA §313 reportable; CERCLA hazardous substance; HAP; Canada DSL

Manuf./Distrib.: AAE Chemie NV† http://www.aaechemie.com; AMC Chems.†
Chemical Component Cross-Reference

†=pharmaceutical grade

Ashland http://www.ashchem.com; Asiameeria Int'l.; Baychem; Brenntag AG† http://www.brenntag.de; Brenntag
Southeast†
C.P. Hall http://www.cphall.com; Cargill Flavors & Fruit Systems USA http://www.flavors-fruit-systems.com;
Celanese http://www.celanesechemicals.com; http://www.chemvip.com; ChemTech Specialties†
Chemcentral http://www.chemcentral.com
Delta Distributors† http://www.dow.com; Eastman† http://www.eastman.com; ExxonMobil http://www.exxonmobichemical.com; Fluka
http://www.sigma-aldrich.com
MPSI† http://www.mp-solutionsinc.com;
Mallinckrodt Baker† http://www.mallbaker.com; Pentamfg† http://www.pentamfg.com; Primachem
Romil Ltd http://www.romil.com
Thomas Scientific† http://www.thomassci.com; VWR Int'l.† http://www.vwrsp.com

Trade Names Containing: Filmex® A-2 190 Proof; Filmex® A-2 Anhydrous; Filmex® B 190 Proof; Filmex® B Anhydrous; Filmex® C 190 Proof
Filmex® C Anhydrous; Filmex® D-1; Filmex® D-2 190 Proof; Filmex® D-2 Anhydrous; Punctilious® SDA 1-2 190 Proof
Punctilious® SDA 23H 190 Proof

Methyl isobutyrate
CAS 547-63-7; EINECS/ELINCS 208-929-5
UN 3272; FEMA 2694
Synonyms: Isobutyric acid methyl ester; Methyl dimethylacetate; 2-Methylpropanoic acid methyl ester
Definition: Ester of methanol and isobutyric acid
Empirical: CsH10O2
Formula: (CH3)2CHCOOCH3
Properties: Colorless mobile liq.; pungent, fruity odor; sl. sol. in water; misc. with alcohol, ether; m.w. 102.14; dens. 0.891 (20/4 C); vapor dens. 3.5; vapor pressure 50 mmHg; m.p. -84 to -85 C; b.p. 91-93 C; flash pt. 12 C; ref. index 1.384 (20 C)
Toxicology: LD50 (oral, rat) 16 g/kg; LC50 (inh., mouse) 25,500 mg/kg; mildly toxic by inh.; skin, eye, respiratory system irritant; TSCA listed
Precaution: Highly flamm.; incompat. with strong oxidizers
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes; COx
Storage: Keep in original, tightly closed container; keep away from heat, sparks, open flame
Uses: Synthetic flavor for pharmaceuticals
Features: Fruity flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Methyl isocaproate. See Methyl 4-methylvalerate

Methyl isoeugenol
CAS 93-16-3; EINECS/ELINCS 202-224-6
FEMA 2476
Synonyms: 4-Allyl-1,2-dimethoxybenzene; 1-(3,4-Dimethoxyphenyl) propene; 1,2-Dimethoxy-4-propenylbenzene; Isoeugenol methyl ether; 1,3,4-Isoeugenol methyl ether; Isoeugenyl methyl ether; Isohomogenol; 1,2-Methoxy-4-propenylbenzene; Propenyl
**Chemical Component Cross-Reference**

**guaiacol; 4-Propenylveratrole; 4-Prop-1-enylveratrole**

**Definition:** Commercial grades are mixts. of cis- and trans-isomers

**Empirical:** C₁₁H₁₄O₂

**Formula:** CH₃CH:CHC₆H₃(OCH₃)₂

**Properties:** Colorless to pale yel. liq., clove-carnation odor, burning bitter taste; sol. in 2 parts 70% alcohol; pract. insol. in min. oil; insol. in glycerol; m.w. 178.23; dens. 1.050; b.p. 262-264 C; flash pt. > 230 F; ref. index 1.5650-15.690 (20 C)

**Toxicology:** LD₅₀ (IP, mouse) 570 mg/kg, (IV, mouse) 181 mg/kg; poison by IV route; mod. toxic by IP route; irritating to skin; TSCA listed

**Precaution:** Combustible

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and fumes

**Uses:** Synthetic flavor for pharmaceuticals

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL


Methyl isopentanoate. See Methyl isovalerate

1-Methyl-4-isopropenyl cyclohexan-3-ol. See Isopulegol

6-Methyl-3-isopropenylcyclohexanol. See Dihydrocarvone

1-Methyl-4-isopropenyl cyclohexan-3-one. See Isopulegone

1-Methyl-4-isopropenylcyclohexan-3-yl acetate. See Isopulegyl acetate

1-Methyl-4-isopropenylcyclohexene; 1-Methyl-4-isopropenyl-1-cyclohexene. See dl-Limonene

1-Methyl-4-isopropenyl-6-cyclohexen-2-ol. See Carvone

1-1-Methyl-4-isopropenyl-6-cyclohexen-2-one. See l-Carvone

d-1-Methyl-4-isopropenyl-6-cyclohexen-2-one. See d-Carvone

Δ-1-Methyl-4-isopropenyl-6-cyclohexen-2-one. See Carvone

†=pharmaceutical grade

6-Methyl-3-isopropenyl cyclohexyl acetate. See Dihydrocarvyl acetate

1-Methyl-4-isopropylbenzene; p-Methylisopropyl benzene. See p-Cymene

1-Methyl-4-isopropylcyclohexadiene-1,3; 1-Methyl-4-isopropyl-1,3-cyclohexadiene. See α-Terpine

1-Methyl-4-isopropylcyclohexadiene-1,4. See γ-Terpine

2-Methyl-5-isopropyl-1,3-cyclohexadiene. See α-Phellandrene

5-Methyl-2-isopropylcyclohexanol. See Menthol

1-Methyl-4-isopropylcyclohexan-3-one. See l-Menthone

1-Methyl-4-isopropyl-1-cyclohexene-4-ol. See 4-Carvomenthenol

1-Methyl-4-isopropyl-1-cyclohexen-8-ol. See α-Terpine

1-Methyl-4-isopropyl-1-cyclohexen-3-one. See d-Piperitone

Methyl isopropyl diketone. See 4-Methyl-2,3-pentanedione

5-Methyl-2-isopropyl hexahydrophenol. See Menthol

α-Methyl-p-isopropylhydrocinnamaldehyde. See Cyclamen aldehyde

1-Methyl-4-isopropylidene-3-cyclohexanone. See Pulegone

2-Methyl-5-isopropylphenol. See Carvacrol

5-Methyl-2-isopropylphenol. See Thymol

2-Methyl-3-(p-isopropylphenyl) propanal; 2-Methyl-3-(p-isopropylphenyl)-propionaldehyde; Methyl-p-isopropylphenylpropionaldehyde. See Cyclamen aldehyde

**Methylisothiazolinone**

CAS 2682-20-4; EINECS/ELINCS 220-239-6

**Synonyms:** 3(2H)-Isothiazolinone, 2-methyl-; 2-Methyl-4-isothiazolin-3-one; 2-Methyl-3(2H)-isothiazolone

**Classification:** Heterocyclic organic compd.

**Empirical:** C₄H₅NOS

**Uses:** Antimicrobial, preservative in topical pharmaceuticals

**Regulatory:** FDA 21CFR §175.105, 176.170; Canada DSL

2-Methyl-4-isothiazolin-3-one; 2-Methyl-3(2H)-isothiazolone. See Methylisothiazolinone
Methyl isovalerate

**CAS**: 556-24-1; **EINECS/ELINCS**: 209-117-3
**UN**: 2400 (DOT); **FEMA**: 2753

**Synonyms**: Isovaleric acid, methyl ester; 3-Methylbutanoic acid methyl ester; Methyl isopentanoate; Methyl-3-methylbutanoate; Methyl-3-methylbutyrate

**Empirical**: C₆H₁₂O₂
**Formula**: (CH₃)₂CHCH₂COOCH₃

**Properties**: Liq., valerian odor; sl. sol. in water; misc. with alcohol, ether; m.w. 116.16; dens. 0.880 (20/4 C); b.p. 115-117 C; flash pt. 16 C; ref. index 1.393 (20 C)

**Toxicology**: LD₅₀ (oral, rabbit) 5693 mg/kg; LC₅₀ (inh., mouse, 2 h) 20,250 mg/m³; mildly toxic by ing.; very sl. toxic by inh.; TSCA listed

**Precaution**: Highly flamm.; can react vigorously with oxidizers

**Hazardous Decomp. Prods.**: Heated to decomp., emits acrid smoke and irritating vapors

**Uses**: Synthetic flavor for pharmaceuticals

**Features**: Sweet apple-like flavor

**Regulatory**: FDA 21CFR §172.515; FEMA GRAS; Canada DSL


**N’-(5-Methyl-3-isoxazole) sulfanilamide; N’-(5-Methyl-3-isoxazolyl) sulfanilamide**. See Sulfamethoxazole

**Methyl ketone**. See Acetone

**Methyl lardate**

**CAS**: 68082-78-0
**Definition**: Methyl ester of lard
**Uses**: Pharmaceutical fermentation
**Manuf./Distrib.**: Anar; Chemol; Norman, Fox http://www.norfoxx.com; Sea-Land http://www.sealandchem.com

**Methyl laurate**

**CAS**: 111-82-0; **EINECS/ELINCS**: 203-911-3
**FEMA**: 2715

**Synonyms**: Dodecanoic acid methyl ester; Lauric acid methyl ester; Methyl dodecanoate; Methyl n-dodecanoate; Methyl decylate; Methyl laurinate

**Definition**: Ester of methyl alcohol and lauric acid
**Empirical**: C₁₃H₂₆O₂
**Formula**: CH₃(CH₂)₁₀COOCH₃

**Properties**: Water-wh. clear liq., fatty floral odor; insol. in water; m.w. 214.35; dens. 0.8702 (20/4 C); m.p. 4-5 C; b.p. 262 C (766 mm); flash pt. 94 C; ref. index 1.4320

**Toxicology**: LD₅₀ (IV, mouse) 48 mg/kg; poison by IV route; may be harmful by inh., ing., or skin absorption; may cause irritation; TSCA listed

**Precaution**: Combustible; noncorrosive; incompat. with strong oxidizing agents, strong bases

**Hazardous Decomp. Prods.**: Heated to decomp., emits acrid smoke and irritating vapors

**Storage**: Keep tightly closed; store in cool, dry place

**Uses**: Synthetic flavor for pharmaceuticals

**Features**: Coconut-like flavor

**Regulatory**: FDA 21CFR §172.225, 172.515, 176.200, 177.2260, 177.2800; FEMA GRAS; Canada DSL


**Trade Names**: Exceparl ML-85

**Methyl laurate**. See Methyl laurate

**Methyl linoleate**

**CAS**: 112-63-0; **EINECS/ELINCS**: 203-993-0
### Chemical Component Cross-Reference

**Synonyms:** Linoleic acid methyl ester; Methyl cis,cis-9,12-octadecadienoate; 9,12-Octadecadienoic acid methyl ester  
**Definition:** Ester of methyl alcohol and linoleic acid  
**Empirical:** C₁₉H₃₄O₂  
**Use:** Excipient in pharmaceuticals  

<table>
<thead>
<tr>
<th>Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colorless oil; misc. with dimethylformamide, fat solvs., oils; m.w. 294.48; dens. 0.887 (20/4 C); m.p. -35 C; b.p. 207-208 C (11 mm); iodine no. 172.4; ref. index 1.466</td>
</tr>
</tbody>
</table>
| **Precaution:** Combustible  
| **HMIS:** Health 1, Flammability 1, Reactivity 0  
| **Regulatory:** FDA 21CFR §172.225; Canada DSL  
| **Manuf./Distrib.:** Advanced BioTech  
| http://www.adv-bio.com; Aldrich  
| http://www.sigma-aldrich.com; Moore Ingreds.  
| http://www.moorelab.com; Natural Advantage  
| http://www.sigma-aldrich.com; R.C. Treatt & Co. Ltd  
| http://www.rctreatt.com |  

**Methyl mercapta**  
**CAS:** 74-93-1; EINECS/ELINCS 200-822-1  
**Synonyms:** Mercaptan C₁; Mercapto methane; Methanethiol; Methyl sulfhydrate; Thiomethanol; Thiomethyl alcohol  
**Empirical:** CH₃S  
**Formula:** CH₃SH  
**Properties:** Colorless volatile liq.; sharp fruity odor; sol. in MEK, THF, esters, aromatic and chlorinated hydrocarbons; sl. sol. in water; m.w. 100.1; dens. 0.940 (25/25 C); vapor pressure 40 mm (25.5 C); f.p. -48.2 C; b.p. 99-100 C; flash pt. (TOC) 13 C  
**Toxicology:** ACGIH TLV/TWA 100 ppm; LD₅₀ (oral, rat) 8.4 g/kg, (IP, rat) 1328 mg/kg, (subcut., rat) 7500 mg/kg; LC₅₀ (inh., rat) 3750 ppm; mod. toxic by inh., IP routes; mildly toxic by ing.; human systemic effects by inh. (anorexia, blood pressure decrease); potent sensitizer; may cause contact dermatitis on handling, occupational asthma; irritating to skin, eyes, respiratory system; questionable carcinogen; experimental tumorigen, teratogen, reproductive effector; mutagenic data; TSCA listed  
**Precaution:** Extremely flamm.; dangerous fire risk; explosive limits in air 3.9-21.8%; can react vigorously with oxidizers; explosive as vapor exposed to heat or flame; reacts with water steam, or acids to produce toxic/flamm. vapors  

**Hazardous Decomp. Prods.:** SOₓ  
**Uses:** Synthetic flavor for pharmaceuticals  
**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL  
**Manuf./Distrib.:** Advanced BioTech  
http://www.adv-bio.com; Aldrich  
http://www.sigma-aldrich.com; Moore Ingreds.  
http://www.moorelab.com; Natural Advantage  
http://www.sigma-aldrich.com; R.C. Treatt & Co. Ltd  
http://www.rctreatt.com  

**Methyl methacrylate**  
**CAS:** 80-62-6; EINECS/ELINCS 201-297-1  
**UN NA:** 1247 (DOT)  
**Synonyms:** Acrylic acid, 2-methyl-, methyl ester; Methacrylic acid, methyl ester; Methyl α-methacrylate; Methyl-2-methyl-2-propenoate; 2-Methyl-2-propenoic acid methyl ester; MMA; MME; 2-Propenoic acid, 2-methyl-, methyl ester  
**Empirical:** C₅H₈O₂  
**Formula:** CH₂:C(CH₃)COOCH₃  
**Properties:** Colorless volatile liq.; sharp fruity odor; sol. in MEK, THF, esters, aromatic and chlorinated hydrocarbons; sl. sol. in water; m.w. 100.1; dens. 0.940 (25/25 C); vapor pressure 40 mm (25.5 C); f.p. -48.2 C; b.p. 99-100 C; flash pt. (TOC) 13 C  
**Toxicology:** ACGIH TLV/TWA 100 ppm; LD₅₀ (oral, rat) 8.4 g/kg, (IP, rat) 1328 mg/kg, (subcut., rat) 7500 mg/kg; LC₅₀ (inh., rat) 3750 ppm; mod. toxic by inh., IP routes; mildly toxic by ing.; human systemic effects by inh. (anorexia, blood pressure decrease); potent sensitizer; may cause contact dermatitis on handling, occupational asthma; irritating to skin, eyes, respiratory system; questionable carcinogen; experimental tumorigen, teratogen, reproductive effector; mutagenic data; TSCA listed  
**Precaution:** Highly flamm.; dangerous fire risk; explosive limits 2.1-12.5% in air; can
Chemical Component Cross-Reference

†=pharmaceutical grade

**Handbook of Pharmaceutical Additives, Third Edition**

**Methyl α-methacrylate.** See Methyl methacrylate

**Methyl methacrylate homopolymer; Methyl methacrylate polymer; Methyl methacrylate polymers; Methyl methacrylate resin.** See Polymethyl methacrylate

**Methyl β-methiopropionate.** See Methyl 3-methylthiopropionate

**2-Methylmethoxybenzene.** See o-Methylanisole

**4-Methyl-1-methoxybenzene.** See p-Methylanisole

**Methyl 2-methoxybenzoate.** See Methyl o-methoxybenzoate

**Methyl 4-methoxybenzoate.** See Methyl p-anisate

**Methyl o-methoxybenzoate**

CAS 606-45-1; EINECS/ELINCS 210-118-6

FEMA 2717

Synonyms: o-Anisic acid, methyl ester; 

**Hazardous Decomp. Prods.:** Heated to decom., emits acrid smoke and irritating fumes

**Uses:** Coating agent in transdermal systems

**Regulatory:** FDA 21CFR §157.300; SARA reportable; HAP; Canada DSL


**Trade Names Containing:** Plastoid® B; Rohagum® M-345; Rohagum® M-825; Rohagum® M-890

**Empirical:** C₉H₁₀O₃

**Formula:** CH₃OC₆H₄CO₂CH₃

**Properties:** M.w. 166.18; dens. 1.157; b.p. 248 C; flash pt. > 230 F; ref. index 1.5340

**Toxicology:** LD₅₀ (oral, rat) 3800 mg/kg, (skin, rabbit) > 5 g/kg; mod. toxic by ing.; sl. toxic by skin contact; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decom., emits acrid smoke and irritating vapors

**Uses:** Synthetic flavor for pharmaceuticals

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL


**Methyl p-methoxybenzoate.** See Methyl p-anisate

α-Methyl-ω-methoxypolydimethylsiloxane. See Dimethylsiloxane

2-Methyl-2-methoxypropane. See Methyl t-butyl ether

Methyl methylanobenzoate; Methyl 2-methylanobenzoate; Methyl N-methyl-2-aminobenzoate; N-Methyl methyl anthranilate; Methyl-N-methyl anthranilate. See Dimethyl anthranilate

Methyl-4-methylbenzenesulfonate; Methyl-p-methylbenzenesulfonate. See Methyl tosylate

Methyl 2-methylbutanoate. See Methyl-2-methylbutyrate

Methyl-3-methylbutanoate. See Methyl isovalerate

**Methyl-2-methylbutyrate**

CAS 868-57-5; 53955-81-0; EINECS/ELINCS 212-778-0

UN 3272; UN 1993; FEMA 2719

**Synonyms:** Methyl 2-methylbutanoate; Methyl-2-methyl butyrate

**Empirical:** C₆H₁₂O₂

**Formula:** CH₃CH₂CH(CH₃)COOCH₃

**Properties:** Colorless liq.; sweet fruity apple-like odor; sol. in alcohol, fixed oils; insol. in water; m.w. 116.16; dens. 0.885 (20/4 C); vapor dens. 4; b.p. 113-115 C; flash pt. 18 C; ref. index 1.394 (20 C)
Chemical Component Cross-Reference

### Toxicology
- **Eye, skin, respiratory system irritant; TSCA listed**

### Precaution
- **Highly flammable.**

### Hazardous Decomp. Prods.
- Heated to decomp., emits acrid smoke and irritating fumes; COx

### HMIS
- Health 2, Flammability 2, Reactivity 0

### Uses
- Synthetic flavor for pharmaceuticals

### Features
- Apple-like flavor

### MANUF./DIST.
- Advanced Synthesis Tech.
- Axxence Aromatic GmbH
- Bell Flavors & Fragrances
- Citrus and Allied Essences
- Epocem
- Fluka
- Frutarom Ltd
- Grau Aromatics
- Millenium/F&F
- Millenium Chems. Ltd
- Oxford Chemicals
- SAFC Specialties
- V. Mane Fils SA

### Regulatory
- FDA 21 CFR §172.515; FEMA GRAS; Canada DSL

### HMIS
- Health 2, Flammability 2, Reactivity 0

### Regulatory
- FDA 21 CFR §172.515; FEMA GRAS; Canada DSL

### Warnings
- TSCA listed

### Uses
- Synthetic flavor for pharmaceuticals

### Synonyms
- 3-methyl butanoate. See Terpinyl isovalerate
- 1-Methyl-1-(4-methylcyclohex-3-enyl) ethyl 2-methylpropanoate. See Terpinyl isobutyrate
- 1-Methyl-1-(4-methylcyclohex-3-enyl) ethyl propanoate. See Terpinyl propionate
- (-)-6-Methyl-2-(4-methyl-3-cyclohexen-1-yl)-5-hepten-2-ol. See Levomenol
- 6-Methyl-2-(4-methyl-3-cyclohexen-1-yl)-5-hepten-2-ol. See Bisabolol
- 2-Methyl-6-methylene-2,7-octadiene; 7-Methyl-3-methylene-1,6-octadiene; 7-Methyl-3-methylene-octa-1,6-diene. See Myrcene
- 1-Methyl-4-(1-methylethenyl) cyclohexanol. See β-Terpineol
- d-2-Methyl-5(1-methylethenyl)-cyclohexanone. See d-Dihydrocarvone
- 1-Methyl-4 (1-methylethenyl) cyclohexene. See d-Limone
- (R)-1-Methyl-4-(1-methylethenyl)-cyclohexene. See d-Limone
- 2-Methyl-5-(1-methylethenyl)-2-cyclohexen-1-one acetate. See Carvyl acetate
- 2-Methyl-5-(1-methylethenyl)-2-cyclohexen-1-one propionate. See Carvyl propionate
- 2-Methyl-5-(1-methylethenyl)-2-cyclohexen-1-one. See Carvone
- (R)-2-Methyl-5(1-methylethenyl)-2-cyclohexen-1-one. See l-Carvone
- (S)-2-Methyl-5-(1-methylethenyl)-2-cyclohexen-1-one. See d-Carvone
- 2-Methyl-5-(1-methylethenyl) cyclohexyl acetate. See Dihydrocarvyl acetate
- 1-Methyl-4-(1-methylethyl) benzene. See p-Cymene
- α-Methyl-4-(1-methylethyl) benzenepropanal. See Cyclamen aldehyde
- 1-Methyl-4-(1-methylethyl)-1,3-cyclohexadiene. See α-Terpinene
- 1-Methyl-4-(1-methylethyl)-1,4-cyclohexadiene. See γ-Terpinene
- 2-Methyl-5-(1-methylethyl)-1,3-cyclohexadiene. See α-Phellandrene
- [1S-(1α,2α,5β)-5-Methyl-2-(1-methylethyl)-cyclohexanol. See d-Neomenthol
- 5-Methyl-2-(1-methylethyl) cyclohexanol. See Menthol
- 5-Methyl-2-(1-methylethyl) cyclohexanol acetate; dl-5-Methyl-2-(1-methylethyl) cyclohexanol acetate. See dl-Menthol acetate
- 5-Methyl-2(1-methylethyl) cyclohexanol-2-

Handbook of Pharmaceutical Additives, Third Edition 1671
Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Chemical Component</th>
<th>Cross-Reference</th>
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<tbody>
<tr>
<td>aminobenzoate</td>
<td>See Methyl anthranilate</td>
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<tr>
<td></td>
<td>(2S-trans)-5-Methyl-2-(1-methylethyl)cyclohexanone, (-)-5-Methyl-2-(1-methylethyl) cyclohexanone. See l-Menthone</td>
</tr>
<tr>
<td>1-Methyl-4-(1-methyl ethyl)-3-cyclohexen-1-ol.</td>
<td>See p-Menth-3-en-1-ol</td>
</tr>
<tr>
<td>4-Methyl-1-(1-methylethyl)-3-cyclohexen-1-ol.</td>
<td>See 4-Carvomenthol</td>
</tr>
<tr>
<td>3-Methyl-6-(1-methylethyl)-2-cyclohexen-1-one.</td>
<td>See d-Piperitone</td>
</tr>
<tr>
<td>5-Methyl-2-(1-methylethyl) cyclohexyl α-hydroxypropanoate; (1R-(1α(R),2β,5α))-5-Methyl-2-(1-methylethyl) cyclohexyl lactate.</td>
<td>See Methyl lactate</td>
</tr>
<tr>
<td>5-Methyl-2-(1-methylethyl) cyclohexyl 3-methylbutanoate. See Methyl isovalerate (R)-5-Methyl-2-(1-methylidenedienic) cyclohexanone. See d-Pulegone</td>
<td></td>
</tr>
<tr>
<td>1-Methyl-4-(1-methylethylidenedienic) cyclohexene. See Terpinolene</td>
<td></td>
</tr>
<tr>
<td>1-Methyl-4-(1-methylethyl)-7-oxabicyclo[2.2.1] heptane. See 1,4-Cineole</td>
<td></td>
</tr>
<tr>
<td>2-Methyl-5-(1-methylidene) phenol. See Carvacrol</td>
<td></td>
</tr>
<tr>
<td>5-Methyl-2-(1-methylidene) phenol. See Thymol</td>
<td></td>
</tr>
<tr>
<td>Methyl 3-(methylmercapto) propionate; Methyl β-methyl mercaptopropionate. See Methyl 3-methylthiopropionate</td>
<td></td>
</tr>
<tr>
<td>Methyl 4-methylpentanoate. See Methyl 4-methylvalerate</td>
<td></td>
</tr>
<tr>
<td>Methyl o-methylphenyl ether. See o-Methylanisole</td>
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<tr>
<td>Methyl-2-methyl-2-propenoate. See Methyl methacrylate</td>
<td></td>
</tr>
<tr>
<td>Methyl α-methylstyryl ketone. See 3-Methyl-4-phenyl-3-buten-2-one</td>
<td></td>
</tr>
<tr>
<td>Methyl 3-methylthiopropionate</td>
<td>CAS 13532-18-8; EINECS/ELINCS 236-883-6 FEMA 2720</td>
</tr>
<tr>
<td>Synonyms: Methyl β-methiopropionate; Methyl 3-(methylmercapto) propionate; Methyl β-methyl mercaptopropionate</td>
<td></td>
</tr>
<tr>
<td>Empirical: CsH10O2S</td>
<td></td>
</tr>
<tr>
<td>Formula: CH3SCH2CH2COOCH3</td>
<td></td>
</tr>
<tr>
<td>Properties: Colorless to pale yel. liq.; onion-like odor; sl. sol. in water; m.w. 134.19; dens. 1.073 (20/4 C); b.p. 184-189 C; flash pt. 72 C; ref. index 1.465 (20 C)</td>
<td></td>
</tr>
<tr>
<td>HMIS: Health 1, Flammability 1, Reactivity 0</td>
<td></td>
</tr>
<tr>
<td>Storage: 24 mos. when stored in tight glass, aluminum, or double lined containers in a cool area away from direct heat</td>
<td></td>
</tr>
<tr>
<td>Uses: Synthetic flavor for pharmaceuticals</td>
<td></td>
</tr>
<tr>
<td>Features: Fruity flavor</td>
<td></td>
</tr>
<tr>
<td>Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL</td>
<td></td>
</tr>
</tbody>
</table>

Methyl 4-methylvalerate | CAS 2412-80-8; EINECS/ELINCS 219-320-9 FEMA 2721 |
| Synonyms: Methyl isobutylacetate; Methyl isocaproate; Methyl 4-methylpentanoate |
| Empirical: C7H14O2 |
| Properties: M.w. 130.19; dens. 0.888; b.p. 139-140 C; flash pt. 103 F |
| Uses: Synthetic flavor for pharmaceuticals |
| Features: Sweet pineapple-like flavor |
| Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL |
| Manuf./Distrib.: SAFC Specialties http://www.safcspecialties.com |

2-Methyl-5-(1-methylvinyl) cyclohexanol. See Dihydrocarveol |

trans-5-Methyl-2-(1-methyl vinyl) cyclohexan-1-one. See Isopulegone |

Methyl myristate | CAS 124-10-7; EINECS/ELINCS 204-680-1 FEMA 2722 |
| Synonyms: Methyl tetradecanoate; Tetradecanoic acid, methyl ester |
| Definition: Ester of methyl alcohol and myristic acid |
| Empirical: C15H30O2 |
| Formula: CH3(CH2)12COOCH3 |
| Properties: Colorless liq., honey and orris-like odor; insol. in water; m.w. 242.40; dens. 0.866 (20/4 C); m.p. 17.8 C; b.p. 186.8 C (30 mm); flash pt. > 112 C; ref. index 1.438 (20 C) |
| Toxicology: TSCA listed |
| Precaution: Combustible |
Chemical Component Cross-Reference

†=pharmaceutical grade

Uses: Synthetic flavor for pharmaceuticals

Features: Honey-like flavor

Regulatory: FDA 21CFR §172.225, 172.515, 176.200, 176.210, 177.2260, 177.2800; FEMA GRAS; Canada DSL

Manuf./Distrib.: A&E Connock

http://www.connock.co.uk; Cognis/Chem. Group
http://www.cognis-us.com; Fluka
http://www.sigma-aldrich.com; Grau Aromatics
http://www.grau-aromatics.de; Indofine
http://www.indofinechemical.com; Jarchem Ind.
http://www.pentamfg.com; SAFC Specialties
http://www.safcspecialties.com; Sigma
http://www.sigma-aldrich.com/belgium; Stepan
http://www.stepan.com; Uniqema Am.
http://www.uniqema.com

1-Methylnaphthalene. See α-Methylnaphthalene

α-Methylnaphthalene

CAS 90-12-0; EINECS/ELINCS 201-966-8

FEMA 3193

Synonyms: 1-Methylnaphthalene

Empirical: C11H10

Formula: C10H7CH3

Properties: Colorless liq. or oil; sol. in alcohol, ether, oxygenated and aromatic solvs.; insol. in water; m.w. 142.20; dens. 1.020 (20/4 C); m.p. -22 C; b.p. 241-245 C; flash pt. 82 C; ref. index 1.614

Toxicology: LD50 (oral, rat) 1840 mg/kg; mod. toxic by ing.; mutagenic data; TSCA listed

Precaution: Combustible exposed to heat, flame, or oxidizers

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Flavor for pharmaceuticals

Regulatory: FEMA GRAS; Canada DSL

Manuf./Distrib.: Allchem Ind.

http://www.allchem.com; Coyne
http://www.coynechemical.com; Crowley Tar Prods.
http://www.crowleychemical.com; Fluka
http://www.sigma-aldrich.com; SAFC Specialties
http://www.safcspecialties.com

Methyl naphthyl ketone; Methyl 2-naphthyl ketone; Methyl β-naphthyl ketone; β-Methyl naphthyl ketone. See 2′-Acetonaphthone

2-Methyl-2-nitropropanol; 2-Methyl-2-nitro-1-
Methyl n-nonyl acetaldehyde; Methyl n-nonyl acetic aldehyde.  See Methyl n-nonyl acetaldehyde

Methyl nonylate.  See Methyl pelargonate

Methyl nonylenate.  See Methyl 2-nonenoate

Methyl nonyl ketone; Methyl n-nonyl ketone.  See 2-Undecanone

Methyl 2-nonynoate

CAS 111-80-8; EINECS/ELINCS 203-909-2

FEMA 2726

Synonyms:  Methyl octine carbonate; Methyloctyne carbonate; 2-Nonynoic acid, methyl ester; Non-2-ynoic acid methyl ester; Octynecarboxylic acid methyl ester

Classification:  aliphatic compd.

Empirical:  C_{10}H_{16}O_2

Formula:  CH_3(CH_2)_5C≡CCOOCH_3

Properties:  Colorless cl. liq.; m.w. 168.24; dens. 0.915; b.p. 121 C (20 mm); acid no. 1.0 max.; flash pt. 213 F; ref. index 1.4480

Toxicology:  LD50 (oral, rat) 2220 mg/kg, (skin, rabbit) > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; skin irritant; TSCA listed

Hazardous Decomp. Prods.:  Heated to decomp., emits acrid smoke and irritating fumes

Uses:  Synthetic flavor for pharmaceuticals

Features:  Peach-like flavor

Use Level:  0.002% max. in finished cosmetics

Regulatory:  FDA 21CFR §172.515; FEMA GRAS; Canada DSL


1-Methyl-2-noroleyl-3-oleic acid-amido

t=pharmaceutical grade

ethylimidazolium methylsulfate.  See Oleic imidazolium methosulfate

4-Methylnorvaline.  See L-Leucine

Methyl cis,cis-9,12-octadecadienoate.  See Methyl linoleate

Methyl octadecanoate; Methyl n-octadecanoate.  See Methyl stearate

Methyl 9-octadecenoate; Methyl-cis-9-octadecenoate; Methyl (Z)-9-octadecenoate.  See Methyl oleate

2-Methyloctanal

CAS 7786-29-0; EINECS/ELINCS 232-093-0

FEMA 2727

Synonyms:  Methyl hexyl acetaldehyde; α-Methyloctanal; Octanal-, 2-methyl-

Empirical:  C_{9}H_{18}O

Properties:  M.w. 142.27

Toxicology:  LD50 (oral, rat) > 5 g/kg, (skin, rabbit) 5 g/kg; low toxicity by ing. and skin contact; skin irritant; TSCA listed

Hazardous Decomp. Prods.:  Heated to decomp., emits acrid smoke and irritating fumes

Uses:  Synthetic flavor for pharmaceuticals

Regulatory:  FDA 21CFR §172.515; FEMA GRAS; Canada DSL

α-Methyloctanal.  See 2-Methyloctanal

Methyl octanoate.  See Methyl caprylate

Methyl 2-ocitnoate.  See Methyl 2-ocitnoate

Methyl octine carbonate.  See Methyl 2-nonynoate; Methyl 2-nonynoate

7-Methyloctyl acetate.  See Isononyl acetate

Methyloctyne carbonate.  See Methyl 2-nonynoate

Methyl octynoate.  See Methyl 2-ocitnoate

Methyl 2-ocitnoate

CAS 111-12-6; EINECS/ELINCS 203-836-6

FEMA 2729

Synonyms:  Methyl heptyne carbonate; Methyl heptyne carbonate; Methyl 2-ocitnoate; Methyl octine carbonate; Methyl octynoate; Oct-2-ynoic acid methyl ester

Classification:  aliphatic compd.

Empirical:  C_{9}H_{18}O

Formula:  CH_3(CH_2)_5C≡CCOOCH_3

Properties:  Colorless to sl. yel. liq.; strong unpleasant odor; violet odor on dilution; sol. in most fixed oils and min. oil; sl. sol. in propylene glycol; sol. in 5 parts 70% alcohol; insol. in glycerin; m.w. 154.20; dens. 0.924 (20/4 C); b.p. 215-217 C; flash pt. 89 C; ref. index 1.447 (20 C)
**C9H36O2**

**Empirical:** C9H36O2

**Synonyms:** Methyl 9-octadecenoate; Methyl-(Z)-9-octadecenoate; 9-Octadecenoic acid, methyl ester; (Z)-9-Octadecenoic acid, methyl ester; Oleic acid, methyl ester, cis-;

**Definition:** Ester of methyl alcohol and oleic acid

**Properties:** Clear to amber liq., faint fatty odor; sol. in alcohols, most org. solvs.; misc. with oxygenated solvs.; insol. in water; m.w. 296.55; dens. 0.8739 (20 C); f.p. -19.9 C; b.p. 218.5 C (20 mm); pour pt. -15 C; ref. index 1.4510 (26 C); nonionic

**Toxicology:** ACGIH TLV/TWA 10 mg/m3 (total dust); TDLo (skin, mouse, 45 wk intermittent) 54 g/kg; low oral toxicity; mildly irritating to skin; questionable carcinogen; experimental tumorigen which causes leukemia and skin tumors by skin contact; TSCA listed

**Precaution:** Combustible

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Defoamer in pharmaceutical

**Regulatory:** FDA 21CFR §172.225, 175.105, 176.200, 176.210, 177.2260, 177.2800; Canada DSL

**Manuf./Distrib.:** A&E Connock

**Interms:** http://www.sigma-aldrich.com; Sigma;

**ChemTech Specialties**

**Uses:** Synthetic flavor for pharmaceuticals

**Use Level:** 0.002% max. in finished cosmetics

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Uses:** Synthetic flavor for pharmaceuticals

**Precaution:** Combustible

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Storage:** Store in tightly sealed containers in dry, well-ventilated area away from direct sunlight

**Uses:** Synthetic flavor for pharmaceuticals

**Regulatory:** FDA 21CFR §172.225, 175.105, 176.200, 176.210, 177.2260, 177.2800; Canada DSL

**Manuf./Distrib.:** Advanced Synthesis Tech.

**Chemical Component Cross-Reference†=pharmaceutical grade**

**Trade Names:** Exceparl M-OL; Nofable MO-90; Nofable MO-99

**Methylol methyl amyl ketone.** See 3-Octanone-1-ol

**Methylol methyl hexyl ketone acetate.** See 3-Nonanone-1-yl acetate

**Methylolpropene.** See Butyl alcohol

**6-Methyl-1,2,3-oxathiazine-4 [3H]-one 2,2-dioxide, potassium salt.** See Acesulfame potassium

**Methyl oxirane polymers.** See Poloxamer 101

**Methyl 3-oxobutanoate; Methyl 3-oxobutyrate.** See Methyl acetoacetate

**N-Methyl-N-(1-oxoconut alkyl) glycin e.** See Cocosyl sarcosine

**N-Methyl-N-(1-oxododecyl) glycin e.** See Lauroyl sarcosine

**N-Methyl-N-(1-oxo-9-octadecenyl) glycin e; (Z)-N-Methyl-N-(1-oxo-9-octadecenyl) glycin e.
Chemical Component Cross-Reference

See Oleoyl sarcosine

4-Methyl-2-oxopentane. See Methyl isobutyl ketone

Methyl (1R-trans)-3-oxo-2-pentylcyclopentanecacetate; Methyl 3-oxo-2-pentylcyclopentanecacetate. See Methyl dihydrojasmonate

2-Methyl-2-((1-oxo-2-propenyl)-amino)-1-propanesulfonic acid, sodium salt. See Sodium 2-acrylamido-2-methylpropanesulfonate

1-Methyl-2-oxopropyl butyrate. See Butan-3-one-2-yl butyrate

N-Methyl-N-(1-oxotetradecyl) glycine, sodium salt. See Sodium myristoyl sarcosinate

Methyl p-oxybenzoate. See Methylparaben

2-Methyl-3-oxy-γ-pyrone. See Maltol

Methy]paraben

CAS 99-76-3; EINECS/ELINCS 202-785-7

FEMA 2710; INS218; E218

Synonyms: 4-Hydroxybenzoic acid, methyl ester; Methyl 4-hydroxybenzoate; Methyl p-hydroxybenzoate; Methyl p-oxybenzoate; Methyl parasept

Classification: aliphatic ketone

Definition: Ester of methyl alcohol and p-hydroxybenzoic acid

Empirical: C8H8O3

Formula: CH3OOC6H4OH

Properties: Colorless crystals or wh. cryst. powd., odorless or faint char. odor, sl. burning taste; sol. in alcohol, ether, oxygenated solvs.; sl. sol. in water, benzene, CCl4; m.w. 152.14; m.p. 125-128 C; b.p. 270-280 C (dec.)

Toxicology: LD50 (oral, dog) 3000 mg/kg, (IP, mouse) 960 mg/kg, (subcut., mouse) 1200 mg/kg; mod. toxic by ing., subcut., and IP routes; may cause skin and eye irritation, asthma, rashes, hyperactivity; may promote allergic sensitization in humans; mutagenic data; TSCA listed

Precaution: Conc. dust may present an explosion hazard; incompat. with alkalis and strong oxidizing agents

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes; burning may produce phenolic vapors and CO

HMIS: Health 1, Flammability 0, Reactivity 0

Uses: Antimicrobial, preservative, antifungal, antibacterial in pharmaceuticals, injectables, parenterals, inhalants, intravenous, ophthalmics, orals, rectals, topicals; flavor; dental anesthetics; insulin preps.

Use Level: 0.05% (eye wash); 0.1-0.8% (drug extracts); 0.3% (cough syrups); 0.02-0.1% (tablets); 0.1% (ointment bases); 0.2% (suppositories)

Regulatory: FDA 21CFR §150.141, 150.161, 172.515, 181.22, 181.23, 184.1490, GRAS, limitation 0.1%, 556.390, zero limitation in milk; USA CIR approved, EPA reg.; FEMA GRAS; Japan listed; Europe listed; UK approved; Canada DSL; FDA approved for injectables, parenterals, inhalants, intravenous, ophthalmics, orals, rectals, topicals; USP/NF compliance

Manufact./Distrib.: AB R Lundberg

http://www.norfoods.se/lundberg

AMRESCO† http://www.amresco-inc.com

AXO Chem.† http://www.axochemical.com

Aceto† http://www.aceto.com

Acme-Hardesty† http://www.acme-hardesty.com

Allan http://www.allanchem.com

Alzo† http://www.alzointernational.com

Arch Personal Care Prods.† http://www.archchemicals.com

Ashland† http://www.ashchem.com

Avatar† http://www.avatarcorp.com

Camida Ltd† http://www.camida.com

Charkit† http://www.charkit.com

Clariant/Functional Chems.† http://www.fun.clariant.com

Cornelius Chem. Co. Ltd† http://www.cornelius.co.uk

Dastech Int'l.† http://www.dastech.com

Degussa AG/Health & Nutrition EMD Chems.† http://www.emdchemicals.com

Eigenmann & Veronelli† http://www.eigver.it

Fluka http://www.sigma-aldrich.com

Functional Foods† http://www.functionalfoods.com

GMI Prods.† http://www.gmsoriginates.com

Hawkins Chem.† http://www.hawkinschemical.com

Helm AG† http://www.helmag.com

Indofine http://www.indofinechemical.com

Inolex† http://www.inolex.com

Integrat† http://www.integrachem.com

Jeen Int’l.† http://www.jeen.com

Kraft Chem.† http://www.kraftchemical.com

Magnesia GmbH† http://www.magnesia.de

Mallinckrodt Baker† http://www.mallbaker.com
Methylparaben, potassium salt. See Potassium methylparaben
Methylparaben sodium; Methylparaben sodium salt. See Sodium methylparaben
Methylparafynol. See Methyl pentynol
Methyl parahydroxybenzoate; Methyl parasept. See Methylparaben

Methyl pelargonate
CAS 1731-84-6; EINECS/ELINCS 217-052-7
FEMA 2724

Synonyms: Methyl nonanoate; Methyl n-nonanoate; Methyl nonylate; Nonanoic acid, methyl ester; Pelargonic acid, methyl ester

Definition: Ester of methyl alcohol and pelargonic acid

Empirical: C_{10}H_{20}O
Formula: CH_{3}(CH_{2})_{7}COOCH_{3}

Properties: Colorless liq.; sol. in alcohol, ether; sol. 22.9 mg/l in water; m.w. 172.27; dens. 0.874 (20/4 C); b.p. 91-92 C (11 mm); flash pt. 87 C; ref. index 1.422 (20 C)

Toxicology: LDLo (IV, mouse) 48 mg/kg; may be harmful by inh., ing., or skin absorp.; may cause irritation; TSCA listed

Precaution: Combustible; incompat. with strong oxidizing agents, strong bases

Hazardous Decomp. Prods.: Toxic fumes of CO, CO_{2}; emits toxic fumes under fire conditions

Storage: Limited shelf life; store in a cool, dry place; keep tightly closed

Uses: Synthetic flavor for pharmaceuticals; medical research

Features: Coconut-like flavor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL


Methylpentamethylenediamine. See 2-Methylpentamethylenediamine

2-Methylpentamethylenediamine

CAS 15520-10-2; EINECS/ELINCS 239-556-6

Synonyms: 2-Methyl-1,5-diaminopentane; Methylpentamethylenediamine; MPMD; 1,5-Pentanediamine, 2-methyl-

Empirical: C_{8}H_{16}N_{2}
Formula: H_{2}NCH_{2}CH(CH_{3})C(CH_{2})_{2}NH_{2}

Properties: Colorless liq., weak ammonia, fishy odor; m.w. 116.2; sp.gr. 0.86; b.p. 193 C; f.p. -50 to -60 C; flash pt. (CC) 83 C

Toxicology: LD50 (oral, rat) 1690 mg/kg; can cause burns and ulceration of skin and eye tissue, nose, throat, and gastrointestinal irritation; TSCA listed

Precaution: Corrosive; avoid strong oxidants; combustible

Hazardous Decomp. Prods.: Emits toxic fumes of nitrogen oxides on decomp.
Chemical Component Cross-Reference

† = pharmaceutical grade

**Uses:** Organic synthesis of pharmaceuticals
**Regulatory:** Canada DSL
**Manuf./Distrib.:** Aldrich [http://www.sigma-aldrich.com]; Fluka [http://www.sigma-aldrich.com]
**Trade Names Containing:** Dytek® A

2-Methyl-2,4-pentanediol; 2-Methylpentane-2,4-diol; 4-Methyl-2,4-pentanediol. See Hexylene glycol

4-Methyl-2,3-pentanedione
**CAS:** 7493-58-5; **EINECS/ELINCS:** 231-328-4
**FEMA:** 2730
**Synonyms:** Acetyl isobutyryl; Isopropyl methyl diketone; Methyl isopropyl diketone
**Classification:** aliphatic ketone
**Empirical:** C₆H₁₀O₂
**Properties:** Yel. oil, char. pungent odor; sol. in alcohol; insol. in water; m.w. 114.15; dens. 0.9215 (11 C); m.p. -2.4 C; b.p. 116 C
**Uses:** Synthetic flavor for pharmaceuticals
**Features:** Sweet fruity buttery creamy fatty odor
**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL
**Manuf./Distrib.:** Degussa AG/Health & Nutrition; Penta Mfg. [http://www.pentamfg.com]

Methyl pentanoate. See Methyl valerate

2-Methylpentanoic acid
**CAS:** 97-61-0; **EINECS/ELINCS:** 202-594-9
**UN:** 1760; **FEMA:** 2754
**Synonyms:** 3-Methylvaerlic acid
**Empirical:** C₆H₁₂O₂
**Properties:** Colorless oily liq.; misc. with alcohol, benzene, acetone; low sol. in water; m.w. 116.18; dens. 0.921 (20/4 C); m.p. -33 C; b.p. 197 C; ref. index 1.4146 (20 C)
**Toxicology:** LD₅₀ (oral, rat) 2050 mg/kg, (skin, rabbit) 2500 mg/kg; mod. toxic by ing. and skin contact; primary irritant; skin and severe eye irritant; corrosive; TSCA listed
**Environmental:** Prevent contamination of soil, ground- and surface water
**Precaution:** Combustible; incompat. with strong oxidizing agents
**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes
**NFPA:** Health 2, Flammability 1, Reactivity 0
**Storage:** Store in cool, well-ventilated area
**Uses:** Synthetic flavor for pharmaceuticals
**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL

3-Methylpentanoic acid
**CAS:** 105-43-1
**UN:** 1760; **FEMA:** 3437
**Synonyms:** 3-Methylvaleric acid
**Empirical:** C₆H₁₂O₂
**Properties:** Colorless liq.; sour, herbaceous, sl. green, parmesan cheese odor; sol. in water; m.w. 116.16; dens. 0.930; b.p. 196-198 C; flash pt. 185 F; ref. index 1.412-1.418
**Precaution:** Corrosive; wear goggles or face shield, chemical resistant gloves
**HMIS:** Health 1, Flammability 2, Reactivity 0
**Uses:** Flavor for pharmaceuticals
**Features:** Herbaceous, sweet flavor
**Regulatory:** FEMA GRAS; Canada DSL

4-Methylpentanoic acid
**CAS:** 646-07-1; **EINECS/ELINCS:** 211-464-0
**FEMA:** 3463
**Synonyms:** Isocaproic acid; Isohexanoic acid; 4-Methyl valeric acid
**Empirical:** C₆H₁₂O₂
**Formula:** (CH₃)₂CH(CH₂)₂COOH
**Properties:** Colorless oily liq.; misc. with alcohol, benzene, acetone; low sol. in water; m.w. 116.18; dens. 0.921 (20/4 C); m.p. -33 C; b.p. 197 C; ref. index 1.4146
**Toxicology:** LD₅₀ (oral, rat) 2050 mg/kg, (skin, rabbit) 1050 mg/kg; toxic; mod. toxic by ing. and skin contact; primary skin and eye irritants
2-Methyl-4-pentanone; 4-Methyl-2-pentanone; 4-Methylpentan-2-one. See Methyl isobutyl ketone

Methyl-2-pentenoic acid. See 2-Methyl-2-pentenoic acid

2-Methyl-2-pentenoic acid

**CAS 3142-72-1; EINECS/ELINCS 221-552-0**

**FEMA 3195**

**Synonyms:** Methyl-2-pentenoic acid; 2-Pentenoic acid, 2-methyl-

**Empirical:** \(\text{C}_6\text{H}_{10}\text{O}_2\)

**Properties:** Wh. to yel. cryst.; sweet woody fruity aroma; sl. sol. in water; m.w. 114.14; dens. 0.979; m.p. 24-26 C; b.p. 123-125 C (30 mm); flash pt. 226 F; sp.gr. 0.975-0.982; b.p. 120 C (20 mm); flash pt. (CC) 225 F; ref. index 1.450-1.460 (20 C)

**Uses:** Flavor for pharmaceuticals

**Features:** Fruity flavor

**Regulatory:** FEMA GRAS; Canada DSL


**Formula:** \(\text{C}_6\text{H}_{10}\text{O}_2\)

**Environmental:** Dangerous to the environment

**Precaution:** Flamm. exposed to heat or flame; can react with oxidizing materials

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and fumes

**Uses:** Reactive intermediate in the mfg. of pharmaceuticals; medicine (soporific and...
Handbook of Pharmaceutical Additives, Third Edition
Chemical Component Cross-Reference

acetate; Dimethyl phenylethyl carbinyl acetate; 1,1-Dimethyl-3-phenylpropyl acetate; (1,1-Dimethyl-3-phenylpropyl) ester acetic acid; 2-Methyl-4-phenyl-2-butanol acetate; Phenyl ethyl dimethyl carbinyl acetate

Empirical: C_{13}H_{18}O_{2}

Properties: M.w. 206.31

Toxicology: LD50 (oral, rat) 4850 mg/kg; mildly toxic by ing.; skin irritant; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: R.C. Treatt & Co. Ltd

2-Methyl-4-phenyl-2-butyl isobutyrate

CAS 10031-71-7; EINECS/ELINCS 233-092-8

FEMA 2736

Synonyms: Dimethylphenethyl carbinyl isobutyrate; Dimethylphenylethyl carbinyl isobutyrate; 1,1-Dimethyl-3-phenylpropyl isobutyrate; 1,1-Dimethyl-3-phenylpropyl 2-methylpropanoate; 2-Methyl-4-phenyl-2-butyl 2-methyl propanoate; 2-Methyl propanoic acid 1,1-dimethyl-3-phenyl propyl ester; Papaya isobutyrate

Empirical: C_{15}H_{22}O_{2}

Properties: Colorless to pale yel. liq.; sol. in alcohol and dipropylene glycol; insol. in water; sp. gr. 0.949-0.957; b.p. 250 C; flash pt. (TCC) > 212.00 F; ref. index .477-1.482

Uses: Synthetic flavor for pharmaceuticals

Features: Floral green fruity sweet papaya juicy odor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

2-Methyl-4-phenyl-2-butyl 2-methyl propanoate. See 2-Methyl-4-phenyl-2-butyl isobutyrate

3-Methyl-2-phenylbutyraldehyde

CAS 2439-44-3

FEMA 2738

Synonyms: α-Isopropyl phenylacetaldehyde

Empirical: C_{11}H_{14}O

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Methyl 4-phenylbutyrate

CAS 2046-17-5; EINECS/ELINCS 218-067-1

†=pharmaceutical grade

FEMA 2739

Synonyms: Benzenebutanoic acid, methyl ester; Butyric acid, 4-phenyl-, methyl ester; Methyl ester of benzenebutanoic acid; Methyl 4-phenylbutanoate; 4-Phenylbutanoic acid methyl ester

Empirical: C_{11}H_{14}O_{2}

Properties: Colorless cl. liq.; sol. in alcohol; sl. sol. in water; m.w. 178.23; vapor pressure 0.0243 mm Hg

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL


Methyl phenylcarbinol. See α-Methylbenzyl alcohol

Methylphenylcarbinol acetate; Methylphenylcarbinyl acetate. See α-Methylbenzyl acetate

Methyl phenylcarbinyl butyrate. See α-Methylbenzyl butyrate

Methyl phenylcarbinyl formate. See α-Methylbenzyl formate

Methyl phenylcarbinyl isobutyrate. See Methylbenzyl isobutyrate

Methylphenylcarbinyl propionate. See α-Methylbenzyl propionate

Methyl phenyl diketone. See 1-Phenyl-1,2-propanedione

2-(Methylphenyl)-1,3-dioxan-5-ol (mixed isomers). See Tolualdehyde glyceryl acetal, mixed o, m, p

4-Methyl-2-phenyl-1,3-dioxolane; 4-Methyl-2-phenyl-m-dioxolane. See Benzaldehyde propylene glycol acetal

p-Methyl phenyl dodecanoate. See p-Tolyl laurate

2-Methylphenyl ester of acetic acid. See o-Cresyl acetate

1-(4-Methylphenyl) ethanone. See 4′-Methyl acetophenone

Methylphenyl ether. See Anisole

α-Methyl phenylethyl alcohol. See 2-Phenyl propanol-1

Methyl phenyl ethyl carbinol. See 4-Phenyl-2-butanol

1-Methyl-1-phenyl ethyl isobutyrate. See α,α-Dimethylbenzyl isobutyrate

Methyl phenylethyl ketone; Methyl 2-phenylethyl ketone. See Benzylacetone

3-Methyl-3-phenyl glycidic acid ethyl ester.
Chemical Component Cross-Reference

See Ethyl methylphenylglycidate
Methylphenylglyoxal. See 1-Phenyl-1,2-propanedione
Methyl phenyl ketone. See Acetophenone
Methylphenylmethanol. See α-Methylbenzyl alcohol
2-Methyl phenyl 2-methyl propanoate. See o-Tolyl isobutyrate
3-Methyl-3-phenyloxiranecarboxylic acid, ethyl ester. See Ethyl methylphenylglycidate
3-Methyl-1-phenylpentan-3-ol. See 1-Phenyl-3-methyl-3-pentanol
4-Methyl-1-phenyl-2-pentanol; 4-Methyl-1-phenylpentan-2-ol. See α-Isobutylphenethyl alcohol
4-Methyl-1-phenyl-2-pentanone
CAS 5349-62-2
FEMA 2740
Synonyms: Benzyl isobutyl ketone
Classification: aromatic ketone
Empirical: C₁₂H₁₆O
Formula: C₆H₅CH₂C(O)CH₂CH(CH₃)₂
Properties: M.w. 176.26; dens. 0.949; b.p. 250-251 C; flash pt. 221 F
Precaution: Combustible
Uses: Synthetic flavor for pharmaceuticals
Features: Sweet flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: SAFC Specialties
http://www.safcspecialties.com
4-Methylphenyl phenylacetate. See p-Tolyl phenylacetate
Methyl phenyl polysiloxane. See Phenyl trimethicone
2-Methyl-3-phenyl-2-propanal. See α-Methylcinnamaldehyde
3-(4-Methyl phenyl)-2-propanal; 3-p-Methyl phenyl propenal; 3-(p-Methyl phenyl) propenal. See p-Methylcinnamaldehyde
Methyl-3-phenyl propenoate. See Methyl cinnamate
2-Methyl-3-phenyl-propenal. See α-Methylcinnamaldehyde
2-(p-Methylphenyl) propionaldehyde. See 2-(p-Tolyl) propionaldehyde
Methyl 3-phenylpropionate
CAS 103-25-3; EINECS/ELINCS 203-092-2
FEMA 2741
Synonyms: Methyl hydrocinnamate
Empirical: C₁₀H₁₂O₂

†=pharmaceutical grade

Properties: M.w. 164.20; dens. 1.043; b.p. 91-92 C (4 mm); flash pt. 212 F
Uses: Synthetic flavor for pharmaceuticals
Features: Fruity flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: SAFC Specialties
http://www.safcspecialties.com
1-Methyl-3-phenylpropyl acetate. See 4-Phenyl-2-butyl acetate
p-Methylphenylsulfonic acid. See p-Toluene sulfonic acid
Methyl phosphate. See Trimethyl phosphate
2-Methyl-3-phytyl-1,4-naphthoquinone. See Vitamin K₁
2-Methylpropanal
CAS 78-84-2; EINECS/ELINCS 201-149-6
UN 2045; FEMA 2220
Synonyms: iBuH; Isobutanal; Isobutyl aldehyde; Isobutyraldehyde; Isobutyric aldehyde; 2-Methyl-1-propanal; 2-Methylpropionaldehyde; Valine aldehyde
Empirical: C₄H₈O
Formula: (CH₃)₂CHCHO
Properties: Colorless liq., pungent sharp odor; sol. in water; misc. with alcohol, ether, benzene, carbon disulfide, acetone, toluene, chloroform, oxygenated and aromatic solvs.; m.w. 72.12; dens. 0.7938 (20/4 C); m.p. -65 C; b.p. 64 C; flash pt. (CC) -40 F; ref. index 1.374
Toxicology: LD₅₀ (oral, rat) 2810 mg/kg, (skin, rabbit) 7130 mg/kg; LC₅₀ (inh., rat, 4 h) 8000 ppm; mod. toxic by ing.; mildly toxic by skin contact, inh.; severe skin and eye irritant; TSCA listed
Environmental: Do not discharge into lakes, streams, ponds, public waters
Precaution: Flamm.; dangerous fire hazard exposed to heat, flames, oxidizers; can react vigorously with reducing materials; explosive limits 1.6-10.6%
Hazardous Decomp. Prods.: Heated to decomp., emits acid smoke and fumes
Storage: 12 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air
Uses: Synthetic flavor for pharmaceuticals
Features: Banana-like flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI
Manuf./Distrib.: Advanced BioTech

Handbook of Pharmaceutical Additives, Third Edition 1682
Chemical Component Cross-Reference

http://www.adv-bio.com; Augustus Oils Ltd
http://www.augustus-oils.ltd.uk; Axxence
Aromatic GmbH  http://www.axxence.com;
http://www.axxence.de; BASF†
http://www.bASF.com; Cargill Flavors & Fruit
Systems USA  http://www.flavors-fruit-
systems.com
Celanese
http://www.celanesechemicals.com;
http://www.chemvip.com; Dow
http://www.dow.com; Eastman
http://www.eastman.com; Fleurchem
http://www.chemvipsystem.com; Fluka
http://www.sigma-aldrich.com
I. P. Callison  http://www.ipcallison.com;
Oxford Chems. Ltd
http://www.oxfordchemicals.com; SAFC
Specialties
http://www.safcspecialties.com; Xinchem†
http://www.finechemnet.com

2-Methyl-1-propanal. See 2-Methylpropanal
2-Methyl-2-propanamine. See t-Butylamine
2-Methylpropane. See Isobutane
Methyl propanoate. See Methyl propionate
2-Methylpropanoic acid. See Isobutyric acid
(Z)-2-Methylpropanoic acid 3,7-dimethyl-2,6-
octadienyl ester. See Neryl isobutyrate
2-Methylpropanoic acid 1,1-dimethyl-3-
phenyl propyl ester. See 2-Methyl-4-
phenyl-2-buty l isobutyrate
2-Methylpropanoic acid ethyl ester. See Ethyl
isobutyrate
2-Methylpropanoic acid, hexyl ester. See Hexyl
isobutyrate
2-Methylpropanoic acid methyl ester. See Methyl
isobutyrate
2-Methyl propanoic acid 1-methyl ethyl ester.
See Isopropyl isobutyrate; Isopropyl
isovalerate
2-Methylpropanoic acid 1-methyl-1-(4-methyl-
3-cyclohexen-1-yl) ethyl ester. See Terpinyl
isobutyrate
2-Methyl propanoic acid 2-methyl phenyl
ester. See o-Tolyl isobutyrate
2-Methylpropanoic acid 2-methylpropyl ester.
See Isobutyl isobutyrate
2-Methylpropanoic acid, 3-phenyl-2-propenyl
ester. See Cinnamyl isobutyrate
2-Methyl propanoic acid propyl ester. See Propyl
isobutyrate
1-Methyl propanol. See 2-Butanol
2-Methylpropanol. See Isobutyl alcohol

†=pharmaceutical grade

Methyl-2-propanol. See t-Butyl alcohol
2-Methyl-1-propanol; 2-Methylpropan-1-ol.
See Isobutyl alcohol
2-Methyl-2-propanol; 2-Methylpropan-2-ol.
See t-Butyl alcohol
Methyl-2-propanone. See Methyl ethyl ketone
2-Methyl propanyl butyrate. See Isobutyl
butyrate
Methyl propionate. See Methyl acrylate
2-Methyl-1-propene, homopolymer; 2-
Methylpropene polymer. See Polysobutene
Methyl propenoate; Methyl 2-propenoate. See
Methyl acrylate
2-Methylpropenoic acid; 2-Methyl-2-propenoic
acid. See Methacrylic acid
2-Methyl-2-propenoic acid methyl ester. See
Methyl methacrylate
2-Methyl-2-propenyl butyrate; 2-Methyl-2-
propen-1-yl butyrate. See 2-Methylallyl
butyrate
2-Methylpropionaldehyde. See 2-
Methylpropanal
Methyl propionate
CAS 554-12-1; EINECS/ELINCS 209-060-4
UN 1248 (DOT); FEMA 2742
Synonyms: Methyl propanoate; Methyl
propylate; Propanoic acid methyl ester
Classification: Ester
Empirical: C4H8O2
Formula: CH3CH2COOCH3
Properties: Colorless liq., fruity rum-like odor;
sol. in 16 parts water; misc. with alcohol, ether;
m.w. 88.11; dens. 0.915 (20/4 C); vapor
pressure 40 mm (11 C); m.p. -87 C; b.p. 78-80
C; flash pt. -2 C; autoignition temp. 469 C; ref.
index 1.377 (20 C); dielec. const. 5.5
Toxicology: LD50 (oral, rat) 5 g/kg, (oral,
mouse) 3460 mg/kg, (skin, rabbit) > 5000
mg/kg; LC50 (inh., mouse) 27 g/m3; mod.
toxic by ing.; mildly toxic by inh.; primary
skin irritant; target organs: CNS,
respiratory system; TSCA listed
Environmental: VOC; ThOD 1.09
Precaution: Highly flamm.; explosive limits in
air 2.5-13%; dangerous fire hazard exposed
to heat, flame, or oxidizers; explosive as
vapor exposed to heat or flame
Hazardous Decomp. Prods.: Heated to
decom., emits acrid smoke and irritating
Methyl propyl ketone

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Apple, banana, strawberry-like flavor

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**NFPA:** Health 1, Flammability 3, Reactivity 0

**Properties:** Water-wh. liq.; fruity ethereal odor; sol. in ethanol, diethyl ether, acetone, other ketones, oxygenated solvs.; sl. sol. in water; m.w. 86.14; dens. 0.801-0.806; vapor pressure 35.4 mm Hg; m.p. -78 C; b.p. 102-103 C; flash pt. (CC) 7 C; autoignition temp. 452 C; ref. index 1.388; surf. tens. 33.87 dynes/cm; dielec. const. 13.6

**Hazardous Decomp. Prods.:** CO, CO2

**Precaution:** Highly flamm.; LEL 1.5%; UEL 8.2%; very dangerous fire hazard exposed to heat or flame; reacts vigorously with oxidizers; explosion hazard in vapor form exposed to heat or flame; mixts. with bromine trifluoride may explode

**Thermal Data:** ThOD 2.60

**Environmental:** VOC; BOD5 1.18; COD 2.31; ThOD 2.60

**Toxicology:** ACGIH TLV/TWA 200 ppm, STEL 250 ppm; LD50 (oral, rat) 3730 mg/kg, (IP, rat) 800 mg/kg; mod. toxic by ingestion, IP; mildly toxic by skin contact, inh.; human systemic effects; skin irritant; mutagenic data; target organs: respiratory system, eyes, skin, CNS; TSCA listed

**Manuf./Distrib.:** Ashland

**Formula:** CH₃COCH₂CH₂CH₃

**CAS:** 107-87-9; EINECS/ELINCS 203-528-1

**UN:** 1249 (DOT); FEMA 2842

**Synonyms:** Ethyl acetone; Methyl n-propyl ketone; MPK; 2-Pentanone

**Classification:** Saturated aliphatic ketone

**Empirical:** C₅H₁₀O

**Density:** 0.793

**Flash Point:** 100 °C

**Boiling Point:** 104 °C

**Molecular Weight:** 86.14

**Methylpropionic acid; 2-Methylpropionic acid; α-Methylpropionic acid.** See Isobutyric acid

**Methylpropionylcetic acid.** See 2-Methylpentanoic acid

**Methylpropionyl-acetate; 2-Methyl-1-propyl acetate.** See Isobutyl acetate

**Methylpropyl acetate.** See Isobutyl alcohol

**Methylpropyl alcohol.** See Isobutyl alcohol

**Methylpropyl 2-aminobenzoate.** See Isobutyl anthranilate

**Methyl propylate.** See Methyl propionate

**Methylpropyl benzeneacetate.** See Isobutyl phenylacetate

**Methylpropyl benzoate.** See Isobutyl benzoate

**Methylpropyl butanoate.** See Isobutyl butyrate

**Methyl propyl carbinol.** See s-Amyl alcohol

**Methyl propyl diketone.** See Acetyl butyryl

**2-Methylpropyl ethanoate; β-Methylpropyl ethanoate.** See Isobutyl acetate

**2-Methylpropyl furan-2-propionate.** See Isobutyl-2-furanpropionate

**2-Methylpropyl heptanoate.** See Isobutyl heptanoate

**2-Methylpropyl hexanoate.** See Isobutyl hexanoate

**2-Methylpropyl 2-hydroxybenzoate.** See Isobutyl salicylate

**2-Methylpropyl isobutyrate.** See Isobutyl isobutyrate

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Chemical Component Cross-Reference

Quality Prods.†
http://www.spectrumchemical.com; VWR Int'l.† http://www.vwr.com

Methyl n-propyl ketone. See Methyl propyl ketone
2-2-Methylpropyl-3-methoxy pyrazine. See 2-Isobutyl-3-methoxy-pyrazine
2-Methylpropyl (Z)-2-methyl-2-butenoate; Methylpropyl 2-methylisocrotonate. See Isobutyl angelate
2-Methylpropyl methyl ketone. See Methyl isobutyl ketone
2-Methylpropyl 2-methylpropanoate. See Isobutyl isobutyrate
2-Methylpropyl octadecanoate. See Isobutyl stearate
Methyl propyl phenyl acetate; 2-Methyl propyl phenyl acetate. See Isobutyl phenylacetate
2-Methylpropyl 3-phenyl-2-propenoate. See Isobutyl cinnamate
2-Methylpropyl propanoate; 2-Methylpropyl propionate. See Isobutyl propionate
Methylprotopocatechualdehyde; Methylprotopocatechuic aldehyde. See Vanillin

2-Methylpyrazine
CAS 109-08-0; EINECS/ELINCS 203-645-8
FEMA 3309
Synonyms: Pyrazine, 2-methyl
Classification: Aromatic heterocyclic; pyrazine
Empirical: C₅H₇NO
Properties: Liq.; nutty cocoa odor; misc. with water, alcohol, acetone, fixed oils; m.w. 109.14; m.p. 40 C; hygroscopic range of polar solvents and water; m.w. 109.14; m.p. 40 C; hygroscopic
Toxicology: LD50 (oral, rat) 1689 mg/kg; mod. toxic by IP route; TSCA listed
Hazardous Decomp. Pros.: Heated to decomp., emits toxic vapors of NOₓ
Uses: Pharmaceutical intermediate
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Raschig

Methyl 2-pyridyl ketone. See 2-Acetylpyridine
Methyl 3-pyridyl ketone; Methyl β-pyridyl ketone. See 3-Acetylpyridine

2-Methyl pyrromeconic acid. See Maltol
Methyl pyromucate. See Methyl 2-furoate
1-Methylpyrrolidinone; 1-Methyl-2-pyrrolidinone; N-Methylpyrrolidinone; N-Methyl-2-pyrrolidinone; Methyl pyrrolidone (INCI); 1-Methylpyrrolidone; 1-Methyl-2-pyrrolidone; N-Methylpyrrolidone. See N-Methyl-2-pyrrolidone

N-Methyl-2-pyrrolidone
CAS 872-50-4; EINECS/ELINCS 212-828-1
UN NA 1993 (DOT)
Synonyms: 1-Methylazacyclopentan-2-one; 1-Methylpyrrolidinone; 1-Methyl-2-pyrrolidinone; N-Methylpyrrolidinone; N-
**Chemical Component Cross-Reference**

**Methyl-2-pyrrolidinone; Methyl pyrrolidone (INCI); 1-Methylpyrrolidone; 1-Methyl-2-pyrrolidone; N-Methylpyrrolidone; NMP; m-Pyrrole**

**Classification:** Sat. nitrogen heterocyclic compd.

**Empirical:** C₅H₉NO

**Properties:** Colorless liq., mild amine odor; sol. in water, alcohols, ketones, ethers, ethyl acetate, aromatic hydrocarbons, most org. solvs.; mod. sol. in aliphatic hydrocarbons; misc. with castor oil; m.w. 99.13; dens. 1.032 (20/4 C); vapor pressure 0.3 mm Hg (20 C); f.p. -24 C; b.p. 202 C; flash pt. 95 C; ref. index 1.470 (20 C); pH 7.7-8.0 (10% aq.)

**Toxicology:** LD₅₀ (oral, rat) 7000 mg/kg, (IP, rat) 2472 mg/kg, (IV, mouse) 54,500 µg/kg, (skin, rabbit) 8000 mg/kg; poison by IV route; mod. toxic by ing. and IP routes; mildly toxic by skin contact; severely irritating to eyes, skin; inh. of high consc. may cause fatigue, difficulty breathing; ing. may cause nausea, vomiting; not a skin absorption hazard; experimental teratogen, reproductive effects; mutagenic data; TSCA listed

**Environmental:** Readily biodeg.; VOC; ThOD 1.05; EC50 (rainbow trout, 96 h) ≥ 500 mg/l, (algae, 72 h) ≥ 500 mg/l

**Precaution:** Combustible exposed to heat, open flame, powerful oxidizers; incompat. with oxidizing agents (may spontaneously ignite), strong acids and strong bases (can cause hydrolysis)

**Hazardous Decomp. Prods.:** May form hydroperoxides on exposure to air and sunlight; heated to decomp., emits CO, CO₂, toxic fumes of NOₓ

**HMIS:** Health 2, Flammability 1, Reactivity 0

**Storage:** Store in cool, dry, well-ventilated area, out of direct sunlight; hygroscopic; photosensitive

**Uses:** Solvent in pharmaceuticals; synthesis of vitamin E precursor; solubilizer for topicals; increases water sol. of therapeutic compds.; bioadhesive; spray bandages; veterinary pharmaceuticals

**Regulatory:** BP, EP compliance; FDA 21 CFR §176.300, 177.1655, 177.2440; SARA §311/312 acute health/chronic health/fire hazard; Canada DSL

**Manuf./Distrib.:** AMC Chems.; Aldrich†

**http://www.sigma-aldrich.com; Allchem Ind.**

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†=pharmaceutical grade

**http://www.allchem.com; Arch Chems.**

**http://www.archchemicals.com**

**Ashland http://www.ashchem.com; BASF**

**http://www.basf.com; Coyne**

**http://www.coynechemical.com; Dynaloy**

**http://www.dynaloy.com; Fluka**

**http://www.sigma-aldrich.com**

**General Chem.**

**http://www.gencemcorp.com; Haltermann**

**Prods. UK http://www.haltermann.com; ISP**

**http://www.ispcorp.com; Integra†**

**http://www.integrachedem.com; Kessler**

**http://www.kesslerchemical.com**

**Lyondell† http://www.lyondell.com; Mitsubishi Chem. http://www-m-kagaku.co.jp/index_en.htm; Mutchler†**

**http://www.mutchlerchem.com; Romil Ltd**

**http://www.romil.com; S & S Chem.†**

**Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality Prods.†**

**http://www.spectrumchemical.com; Thomas Scientific†**

**http://www.thomassci.com; Tulstar Prods.**

**http://www.tulstar.com; VWR Int'l.†**

**http://www.vwrsp.com**

**Whyte Chems. Ltd**

**http://www.whytechemicals.co.uk**

**Trade Names:** Pharmasolve™

2-Methylquinoline. See Quinaldine

4-Methylquinoline. See Lepidine

α-Methylquinoline. See Quinaldine

γ-Methylquinoline; p-Methylquinoline. See Lepidine

Methylrosaniline chloride. See Basic violet 3

Methyl salicylaldehyde. See α-Methoxybenzaldehyde

Methyl salicylate

CAS 119-36-8; EINECS/ELINCS 204-317-7

UN 3082; FEMA 2745

**Synonyms:** Betula; Betula oil; 2-Carbomethoxyphenol; 2-Hydroxybenzoic acid, methyl ester; o-Hydroxybenzoic acid, methyl ester; 2-(Methoxycarbonyl) phenol; Methyl hydroxybenzoate; Methyl 2-hydroxybenzoate; Methyl o-hydroxybenzoate; Oil of wintergreen; Sweet birch oil; Synthetic oil of wintergreen; Teaberry oil; Wintergreen oil

**Classification:** Aromatic organic compd.

**Definition:** Ester of methyl alcohol and salicylic acid

**Empirical:** C₈H₈O₃
Chemical Component Cross-Reference

Formula: \( C_6H_4OHCOOCH_3 \)

Properties: Colorless, yel., or red liq., wintergreen odor and taste; sol. in ether, glacial acetic acid, oxygenated and chlorinated solvs.; very sl. sol. in water; m.w. 152.14; dens. 1.180-1.185; m.p. -8.6 C; b.p. 222.2 C; flash pt. (CC) 101 C; ref. index 1.535-1.538 (20 C)

Toxicology: LD50 (oral, rat) 887 mg/kg, (subcut., rabbit) 4250 mg/kg; mod. toxic by ing., IP, IV, subcut. routes; human poison by ing.; lethal dose 30 cc in adults, 10 cc in children; human systemic effects; primary irritant; severe skin/eye irritant; experimental teratogen, reproductive effects; TSCA listed

Precaution: Combustible when exposed to heat or flame; reactive with oxidizing materials; protect from light, alkaline, iron salts

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

HMIS: Health 2, Flammability 1, Reactivity 0

Uses: Synthetic flavor, fragrance, disinfectant, antiseptic in pharmaceuticals, buccals, orals, topicals, dentifrices; topical analgesic; local anesthetic; relief of pain in lumbar and sciatic regions and for rheumatic conditions; UV absorber in sunburn lotions

Features: Sweet minty flavor

Use Level: 0.5 mg/kg/day considered safe for ingestion

Regulatory: FDA 21CFR §175.105, 177.1010; 27CFR §21.65, 21.151; FEMA GRAS; Japan approved as flavoring; FDA approved for buccals, orals, topicals; USP/NF, BP, EP compliance; Canada DSL


†=pharmaceutical grade

Chemical Component Cross-Reference

†=pharmaceutical grade

Symrise USA† http://www.symrise.com; Thomas Scientific† http://www.thomasci.com

Trade Names: Custosense MS; Rhodiaflor™ SME; Rhodiaflor™ SME Extra-Pure
See also Wintergreen (Gaultheria procumbens) oil

Methylsalicylate methyl ester. See Methyl α-methoxybenzoate

Methylsilanol mannuronate
CAS 102397-69-3; 128973-71-7; EINECS/ELINCS 310-104-0
Synonyms: 1-O-(Dihydroxymethylsilyl)-β-D-mannopyranuronic acid; Siloxanes and silicones, α-D-mannopyranuronoyl-oxy methyl, hydroxy-terminated
Definition: Ester of monomethylsilanol and oligomeric mannuronic acid
Empirical: C2H14O9Si
Formula: CH3Si(OH)2OC6H9O6
Uses: Conditioner in health prods.
Trade Names: Algisium C

Methyl silicone; Methyl silicone resin. See Polydimethylsiloxane

Methyl soyate
CAS 67784-80-9; EINECS/ELINCS 267-015-4
Synonyms: Methyl esters of soybean oil
Classification: Fatty acid esters
Definition: Ester of methyl alcohol and soya acid derived from soybeans
Properties: Vapor pressure 0
Toxicology: Noncarcinogenic
Environmental: Biodeg.; low VOC; not an ODC or HAP
HMIS: Health 1, Flammability 1, Reactivity 0
Uses: Emollient in creams and lotions
Regulatory: EPA approved SNAP solvent; SARA nonreportable; Canada DSL
Trade Names Containing: Natural Wax Jelly SP-505

Methyl stearate
CAS 112-61-8; 85586-21-6; EINECS/ELINCS 203-990-4, 287-824-6
Synonyms: Methyl ester stearic acid; Methyl octadecanoate; Methyl n-octadecanoate; Octadecanoic acid, methyl ester; Stearic acid, methyl ester

Definition: Ester of methyl alcohol and stearic acid
Empirical: C19H38O2
Formula: CH3(CH2)16COOCH3
Properties: Wh. crystals; sol. in ether, alcohol; insol. in water; m.w. 298.57; m.p. 37.8 C; b.p. 234.5 C (30 mm); flash pt. 307 F
Toxicology: TDLo (subcut., mouse, 26 wk intermittent) 5200 mg/kg; experimental tumorigen; questionable carcinogen; TSCA listed
Precaution: Combustible exposed to heat or flame; can react with oxidizing materials
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Emollient in pharmaceuticals, topicals; defoamer and nutrient in fermentation
Regulatory: FDA 21CFR §172.225, 176.200, 176.210, 177.2260, 177.2800, 178.3910; FDA approved for topicals; Canada DSL

Trade Names: Exceparl MS

Methyl styryl carbinol. See 4-Phenyl-3-buten-2-ol
Methyl styryl ketone. See Benzylidene acetone
Methyl succinate. See Dimethyl succinate
### Chemical Component Cross-Reference

<table>
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<th>Chemical Component</th>
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<th>Definition</th>
<th>Uses</th>
<th>Regulators</th>
<th>Properties</th>
<th>Toxicology</th>
<th>Storage</th>
<th>Precautions</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methylsulfone</td>
<td>Dimethyl sulfone</td>
<td>Wetting agent</td>
<td>Ester of methyl alcohol and tallow acid</td>
<td>FDA 21CFR §175.105; Canada DSL</td>
<td>Pale yel. mobile liq., powerful onion/meat-like odor; sol. in alcohol; insol. in water; m.w. 104.17; dens. 1.052 (20/4 C); b.p. 165-166 C; flash pt. 60 C; ref. index 1.486 (20 C)</td>
<td>LD50 (oral, rat) 4400 mg/kg; LC50 (inh., rat, 4 h) 5820 mg/m³; mod. toxic by ing.; irritating to skin, eyes, respiratory system; TSCA listed</td>
<td>Avoid prolonged exposure to light, heat, cold, air</td>
<td>Incompat. with strong oxidizers, reducers</td>
<td>Pharmaceutical grade</td>
</tr>
</tbody>
</table>

### Examples

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Methional</td>
<td>Methyl-3-(methylmercapto) propionaldehyde; β-(Methylmercapto) propionaldehyde</td>
<td>Synthetic flavor for pharmaceuticals</td>
<td>Synthetic flavor for pharmaceuticals</td>
<td>FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI</td>
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</tr>
</tbody>
</table>

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Chemical Component Cross-Reference

†=pharmaceutical grade

Methyl thiram; Methyl thiramdisulfide. See Tetramethythiuram disulfide
α-Methyl tolualdehyde. See 2-Phenylpropanal
Methyl α-toluate. See Methyl phenylacetate
Methyl toluene. See Xylene
Methyl-4-toluene sulfonate; Methyl-para-toluene sulfonate. See Methyl tosylate
α-Methyl-α-toluic aldehyde. See 2-Phenylpropanal
Methyl o-tolyl ether. See o-Methylanisole
Methyl p-tolyl ether. See p-Methylanisole
Methyl p-tolyl ketone. See 4’-Methyl acetophenone

2-Methyl-3-tolylpropionaldehyde, mixed α-, m-, p-
CAS 977044-51-1
FEMA 2748
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS
Manuf./Distrib.: Degussa AG/Health & Nutrition; Penta Mfg.
http://www.pentamfg.com

Methyl tosylate
CAS 80-48-8; EINECS/ELINCS 201-283-5
UN 2922
Synonyms: Benzenesulfonic acid, 4-methyl-, methyl ester; Methyl-4-methylbenzenesulfonate; Methyl-p-methylbenzenesulfonate; Methyl-4-toluene sulfonate; Methyl-para-toluene sulfonate; p-Toluene sulfonic acid, methyl ester
Empirical: C₉H₁₀O₃S
Properties: Pale yel. to amber solid; sol. in diethyl ether.; insol. in hot and cold water; m.w. 186.23; sp. gr. 1.23; b.p. 292 C; m.p. 28 C; flash pt. (CC) 152 C
Toxicology: LD₅₀ (acute oral, rat) 341 mg/kg; can cause eye, skin, digestive tract, and respiratory tract irritation; harmful if swallowed; may be carcinogenic
Hazardous Decomp. Prods.: COₓ
Uses: Methylating agent and intermediate for use in production of pharmaceutical and health care products
Manuf./Distrib.: Seal Sands Chems. Ltd†
http://www.rutherfordchemicals.com

Methyl trichloride. See Chloroform
Methyltrichloromethane. See 1,1,1-Trichloroethane
12-Methyl-1-tridecanol. See 2-Hexyl-1-octanol
Methyl trifluoride. See Trifluoromethane

Methyl 3,4,5-trihydroxybenzoate. See Methyl gallate
3-Methyl-4-(2,6,6-trimethyl-2-cyclohex-1-yl)-1-buten-2-one. See α-Isomethylionone
Methyltrimethylene glycol. See Butylene glycol
Methylundecanal; 2-Methyl undecanal. See Methyl nonyl acetaldehyde

Methyl 9-undecenoate
CAS 5760-50-9; EINECS/ELINCS 227-279-3
FEMA 2750
Synonyms: Methyl decylenenate; 9-Undecenoic acid, methyl ester
Empirical: C₁₂H₂₂O₂
Properties: M.w. 198.34
Toxicology: LD₅₀ (oral, rat) 3 g/kg; skin irritant; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: NetQem
http://www.netqem.us; Penta Mfg.
http://www.pentamfg.com

Methyl undecylenate. See Methyl 9-undecenoate

Methyl 2-undecynoate
CAS 10522-18-6
FEMA 2751
Synonyms: Methyl decyne carbonate; 2-Undecynoic acid methyl ester
Empirical: C₁₂H₂₀O₂
Properties: Colorless liq.; sol. in alcohol and dipropylene glycol; insol. in water; sp. gr. 0.91; b.p, 230.00 C @ 760.00 mm
Uses: Synthetic flavor for pharmaceuticals
Features: Waxy fruity green floral violet odor; green, fruity, oily, fatty, chicken- and tallow-like taste
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Degussa AG/Health & Nutrition

3-Methylvaleric acid. See 3-Methylpentanoic acid

Methyl valerate
CAS 624-24-8; EINECS/ELINCS 210-838-0
FEMA 2752
Synonyms: Methyl pentanoate; Methyl n-valerate; Methyl valerianate; Pentanoic acid
methyl ester; Valeric acid, methyl ester
Empirical: C₇H₁₂O₂
Formula: CH₃(CH₂)₃COOCH₃
Properties: Colorless liq.; fruity odor; misc. with oxygenated solvs.; sl. sol. in water; m.w. 116.16; dens. 0.889 (20/4 C); b.p. 126-128 C; flash pt. 27 C; ref. index 1.397 (20 C)
Toxicology: LC50 (inh., mouse, 2 h) 6600 mg/m³; sl. toxic by inh.; TSCA listed
Precaution: Flamm.
Hazardous Decomp. Prods.: Heated to decomp., emits acid smoke and irritating vapors
Uses: Synthetic flavor for pharmaceuticals
Features: Fruity flavor
Regulatory: FDA 21CFR §175.215; FEMA GRAS; Canada DSL
Methyl n-valerate; Methyl valerianate. See Methyl valerate
2-Methylvaleric acid. See 2-Methylpentanoic acid
4-Methyl valeric acid. See 4-Methylpentanoic acid
α-Methylvaleric acid. See 2-Methylpentanoic acid
Methyl vanillin; 4-o-Methylvanillin. See Veratraldehyde
4-Methyl vinyl cyclohexene-1-methyl acetate. See Perillyl acetate
Methyl vinyl ether/maleic acid copolymer
CAS 25153-40-6
Synonyms: 2-Butenedioic acid (2Z), polymer with methoxyethene; MVE/MA copolymer; Poly (methyl vinyl ether-alt-maleic acid)
Classification: Vinyl ether
Formula: (C₇H₁₀O₅)n
Properties: Wh. powd.; dissolves readily in water; chelates alkaline earth cations but not toxic heavy metal ions; m.w. (174.15)n
Toxicology: May be harmful by inh., ing., or skin absorption; may cause eye/skin irritation; TSCA listed
Precaution: Incompat. with strong oxidizing agents, strong bases
Hazardous Decomp. Prods.: CO, CO₂; emits toxic fumes under fire conditions
Storage: Store in cool, dry place; keep tightly closed
Uses: Used in denture adhesive formulations
Regulatory: Canada DSL
Trade Names: Gantrez® S-95
Methyl vinyl ether/maleic anhydride copolymer. See PVM/MA copolymer
2-Methyl-2-vinyl-5-(α-hydroxyisopropyl) tetrahydrofuran; 2-Methyl-2-vinyl-5-(2-hydroxy-2-propyl) tetrahydrofuran. See Linalool oxide
Methyl violet. See Basic violet 3
Metoxal. See Sulphamethoxazole
Mexican oregano. See Oregano
MFP. See Sodium fluorophosphate
MHEC. See Methyl hydroxyethylcellulose
MHPC. See Hydroxypropyl methylcellulose
3-MI. See Skatole
MIBK (INCI). See Methyl isobutyl ketone
Mica
CAS 12001-26-2; EINECS/ELINCS 310-127-6
Synonyms: CI 77019; Mica silicate; Muscovite mica; Phlogopite; Sericite; Suzorite mica
Classification: Silicate minerals
Definition: Any of several silicates of varying chem. composition, but similar physical props. and crystalline structure
Properties: Colorless to sl. red, brown to greenish-yel. soft, translucent solid; odorless; dens. 2.6-3.2; bulking value 0.044 gal/lb; oil absorp. 40-65; GE brightness 80-88; ref. index 1.56-1.60; hardness (Mohs) 2.8-3.2; dielec. const. 6.5-8.7; heat resistant to 600 C; noncombustible
Toxicology: ACGIH TLV/TWA 3 mg/m³ (respirable dust); irritant by inhalation; may damage lungs (fibrosis); may cause abnormal chest x-ray, coughing, shortness of breath; nontoxic to skin
Uses: Colorant for external pharmaceuticals, eye use
Regulatory: FDA 21CFR §73.1496, 73.2496, 175.300, 176.170, 177.1460, 177.2410, 177.2600, 178.3297; exempt from certification, permanently listed for drug use; Canada DSL
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Component</th>
<th>Manufacturer/Supplier</th>
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<tr>
<td>Engelhard</td>
<td><a href="http://www.engelhard.com">http://www.engelhard.com</a></td>
</tr>
</tbody>
</table>

### Properties

- **Formula:** \((\text{C}_6\text{H}_{10}\text{O}_5)_n\)
- **Properties:** Wh. fine cryst. powd., odorless; partly sol. with swelling in dil. alkali; insol. in water, dil. acids, and most org. solvs.; m.w. \(\approx 36,000\); bulk dens. 18-19 lb/ft\(^3\); ref. index 1.55; pH 5-7
- **Toxicology:** LD50 (oral, rat) > 5 g/kg, no significant hazard; irritant by inhalation (dust); may be damaging to lungs; TSCA listed
- **Uses:** Binder, disintegrant, diluent, filler, and lubricant in tablets or capsules; flow aid, sorbent, suspending agent, visc. builder for pharmaceuticals; adsorbs water-sol.

### Regulatory

- FDA GRAS; Europe listed; UK approved; USP/NF, BP, EP, JP compliance; Canada DSL

### Uses

- **Binder, disintegrant, diluent, filler, and lubricant in tablets or capsules; flow aid, sorbent, suspending agent, visc. builder for pharmaceuticals; adsorbs water-sol.**
Microcrystalline hydrocarbon wax. See Microcrystalline wax

Microcrystalline wax

CAS 8063-08-9; 63231-60-7; 64742-42-3; EINECS/ELINCS 264-038-1

INS905c(i); E905

Synonyms: Cera microcristallina;
Microcrystalline hydrocarbon wax; Paraffin waxes and hydrocarbon waxes,
microcrystalline; Petroleum wax,
microcrystalline; Waxes, microcrystalline

Classification: Hydrocarbon wax

Definition: Wax derived from petroleum; combination of long branched chain hydrocarbons obtained from residual oils by solvent crystallization; consists of high m.w. saturated aliphatic hydrocarbons > C35 and char. by fineness of crystals

Properties: Wh. or cream-colored waxy solid, odorless; sol. in chloroform, ether, volatile oils, most warm fixed oils; insol. in water; very sl. sol. in dehydrated alcohol; m.p. 54-102 C

 Toxicology: May be carcinogenic; TSCA listed

Uses: Coating agent, lubricant, protectant in pharmaceuticals, orals, topicals

Regulatory: USP/NF compliance; FDA 21 CFR §172.886, 173.340, 175.105, 175.320, 176.170, 176.200, 177.2600; Europe listed; UK approved for restricted use; FDA approved for orals, topicals

Manufacturers/Distributors:
- Ashland† http://www.ashchem.com
- Avicel® PH-101; Avicel® PH-103; Avicel® PH-105; Avicel® PH-112; Avicel® PH-113; Avicel® PH-200; Avicel® PH-301; Avicel® PH-302; Celphere® CP-102; Celphere® CP-203; Celphere® CP-305; Celphere® CP-507; Celphere® CP-708; Celphere® SCP-100; Ceolus® KG-802; Ceolus® PH-101; Ceolus® PH-102; Ceolus® PH-301; Ceolus® PH-302; Microcel® 101; Microcel® 102; Microcel® 103; Microcel® 122; Microcel® 200; Microcel® 250; Microcel® 500; Pharmacel® 101; Pharmacel® 102; Pharmacel® 105; Pharmacel® 112; Pharmacel® 200; Prosolv SMCC™ 50; Prosolv SMCC™ 90; Prosolv SMCC™ HD90; Sancel-101; Sancel-102; Sancel-112; Tabulose® 101; Tabulose® 102; Tabulose® 103; Tabulose® 122; Tabulose® 200; Tabulose® 250; Tabulose® 500; Vivapur® 12; Vivapur® 14; Vivapur® 101; Vivapur® 102; Vivapur® 103; Vivapur® 105; Vivapur® 112; Vivapur® 200; Vivapur® 301; Vivapur® 302; W. or cream-colored waxy solid, odorless; sol. in chloroform, ether, volatile oils, most warm fixed oils; insol. in water; very sl. sol. in dehydrated alcohol; m.p. 54-102 C

Trade Names: Avicel® PH-101; Avicel® PH-103; Avicel® PH-105; Avicel® PH-112; Avicel® PH-113; Avicel® PH-200; Avicel® PH-301; Avicel® PH-302; Celphere® CP-102; Celphere® CP-203; Celphere® CP-305; Celphere® CP-507; Celphere® CP-708; Celphere® SCP-100; Ceolus® KG-802; Ceolus® PH-101; Ceolus® PH-102; Ceolus® PH-301; Ceolus® PH-302; Microcel® 101; Microcel® 102; Microcel® 103; Microcel® 122; Microcel® 200; Microcel® 250; Microcel® 500; Pharmacel® 101; Pharmacel® 102; Pharmacel® 105; Pharmacel® 112; Pharmacel® 200; Prosolv SMCC™ 50; Prosolv SMCC™ 90; Prosolv SMCC™ HD90; Sancel-101; Sancel-102; Sancel-112; Tabulose® 101; Tabulose® 102; Tabulose® 103; Tabulose® 122; Tabulose® 200; Tabulose® 250; Tabulose® 500; Vivapur® 12; Vivapur® 14; Vivapur® 101; Vivapur® 102; Vivapur® 103; Vivapur® 105; Vivapur® 112; Vivapur® 200; Vivapur® 301; Vivapur® 302; W. or cream-colored waxy solid, odorless; sol. in chloroform, ether, volatile oils, most warm fixed oils; insol. in water; very sl. sol. in dehydrated alcohol; m.p. 54-102 C
Chemical Component Cross-Reference

†=pharmaceutical grade

Microcrystalline Wax SP 624; Multiwax®
180-W; Multiwax® ML-445
Multiwax® W-445; Sofracerine 165;
Sofracerine 185

Trade Names Containing: Pionier® L-15;
Pionier® PIAH; Pionier® PIAH; Pionier®
SVE; Pionier® T-0145
Pionier® T-0150; Pionier® WWH-N;
Pionier® WWH-Soft

Microcrystalline wax, hydrogenated. See
Hydrogenated microcrystalline wax

Milfoil. See Yarrow (Achillea millefolium)

Milk acid. See Lactic acid

Milk of lime. See Calcium hydroxide

Milk lipids
CAS 188550-52-9

Synonyms: Lactis lipida
Definition: Mixt. of lipids derived from milk
Uses: Conditioner, emollient, moisturizer

Trade Names: Monalac ML

Milk of magnesia. See Magnesium hydroxide

Milk, nonfat dry. See Nonfat dry milk

Milk protein
CAS 9000-71-9; EINECS/ELINCS 232-555-1

Synonyms: Casein; Lactis proteinum
Definition: Mixture of proteins obtained from
cow's milk

Properties: Light-yel. powd.
Uses: Thickener for pharmaceuticals

Manuf./Distrib.: Adams Food Ingreds. Ltd
http://www.adamsfood.com; Aldrich
http://www.sigma-aldrich.com; Am. Casein
http://www.americancasein.com; Dutch
Protein & Services BV
http://www.dpsfood.nl; Fluka
http://www.sigma-aldrich.com
Havero Hoogwegt BV http://www.havero.nl;
Induxtra de Suministros Llorella SA
http://www.induxtra.com; Meggle GmbH
http://www.meggle.de; NZMP Australia
http://www.nzmp.com; Nat'l. Casein
http://www.nationalcasein.com
Sigma http://www.sigma-
aldrich.com/belgium; Worthington
Biochemical http://www.worthington-
biochem.com

Trade Names: CMP-I®
See also Casein

Milk protein, casein. See Casein

Milk sugar. See Lactose monohydrate;
Lactose

Milori blue. See Ferric ferrocyanide

Handbook of Pharmaceutical Additives, Third Edition 1694
Mimosa tenuiflora bark extract; Mimosa tenuiflora leaf extract

Synonyms: Mimosa bark extract; Mimosa tenuiflora

Definition: Extract of the bark of Mimosa tenuiflora

Uses: Protectant in pharmaceutical lotions and creams

Manuf./Distrib.: Carrubba
http://www.carrubba.com

Mimosa tenuiflora leaf extract

CAS 93685-96-2

Synonyms: Mimosa tenuiflora

Definition: Extract of the leaves of Mimosa tenuiflora

Uses: Botanical extract, protectant in lotions, creams, and salves to treat skin disorders

Manuf./Distrib.: Creative Fragrances
http://www.creativefragrances.com

Mineral grease (petrolatum); Mineral jelly.

See Petrolatum

Mineral naphtha. See Benzene

Mineral oil

CAS 8012-95-1; 8020-83-5 (wh.); 8042-47-5 (wh.); 39355-35-6; 79956-36-8; 83046-05-3; EINECS/ELINCS 232-384-2; 232-455-8 (wh.)

INS 905a

Synonyms: Heavy mineral oil; Light mineral oil; Liquid paraffin; Liquid petrolatum; Mineral oil, white; Oil mist, mineral; Paraffin oil; Paraffinum liquidum; Petroleum liquid; Petroleum oil; White mineral oil; White oil

Definition: Liq. mixture of hydrocarbons obtained from petroleum by intensive treatment with sulfuric acid and oleum, or by hydrogenation, or a combination; consists of predominantly C15-50 sat. hydrocarbons

Properties: Colorless transparent oily liq., odorless, tasteless; insol. in water, alcohol; sol. in benzene, chloroform, ether, petrol. ether, carbon disulfide, volatile oils; dens. 0.83-0.86 (light), 0.875-0.905 (heavy); flash pt. (OC) 444 F; surf. tens. < 35 dynes/cm

Toxicology: ACGIH TLV/TWA 5 mg/m³; STEL 10 mg/m³; LD50 (oral, mouse) 22 g/kg; skin and severe eye irritant; inh. of vapor or particulates may cause aspiration pneumonia; human carcinogen and teratogen by inhalation; tumorigen; highly purified food grades are of low toxicity;

†=pharmaceutical grade

Precaution: Combustible

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes

NFPA: Health 0, Flammability 1, Reactivity 0

Uses: Vehicle, filler, solvent, lubricant for pharmaceuticals, ophthalmic ointments or suspensions, oral tablets and capsules, topical creams, lotions, and ointments, suppositories; light min. oil as tablet/capsule lubricant; laxative; cathartic

Features: Oleaginous

Regulatory: FDA 21CFR §172.842, 172.878, 173.340 (limitation 0.008% in wash water for sliced potatoes, 150 ppm in yeast), 175.105, 175.210, 175.230, 175.300, 176.170, 176.200, 176.210, 177.1200, 177.2260, 177.2600,; Canada DSL; 177.2800, 178.2010, 178.3570, 178.3620, 178.3740, 178.3910, 179.45, 573.680; ADI not specified (FAO/WHO); FDA approved for ophthalmics, orals, topicals; USP/NF compliance

Manuf./Distrib.: AMC Chems.; AMRESCO; http://www.amresco-inc.com; AP Pharma; http://www.advancedpolymer.com; Adept Sol'ns.; Air-Scent Int'l.
http://www.air scent.com
http://www.americaningredients.com
http://www.americaningredients.com
http://www.americaningredients.com
http://www.ashchem.com
http://www.avaracorp.com; BP Chemicals; http://www.bp.com
http://www.brownchem.com; C.P. Hall
http://www.cphall.com; Castrol Ind.; http://www.castrolindustrial.com; Charkit
http://www.charkit.com

Chemisphere
http://www.chemispherecorp.com;
ChevronPhillips; http://www.cpchem.com;
Coyne http://www.coynechemical.com;
http://www.eggarcouk;
ExxonMobil;
http://www.exxonmobilchemical.com;
Fluka http://www.sigma-aldrich.com; GMI Prods.; http://www.gmi-origina...
Chemical Component Cross-Reference


Trade Names:  Britol® 6NF; Britol® 7NF; Britol® 9NF; Britol® 20USP; Britol® 50USP Citation™ 70; Citation™ 90; Citation™ 100; Citation™ 180; Citation™ 210 Citation™ 350; Citation™ 550; Drakeol® 13; Drakeol® 19; Drakeol® 21 Drakeol® 34; Drakeol® 35; Drakeol® 5; Drakeol® 6; Drakeol® 7 Drakeol® 9; Drakeol® 350; Drakeol® 600; Drakeol® 32; Drakesol® 220 Ervol®; Gloria®; Hydrobrite® 200PO; Hydrobrite® 300PO; Hydrobrite® 380PO Hydrobrite® 550PO; Kaydol®; Kaydol®; Klearol®; Paratherm NF Pionier® 2070 P; Pionier® 2071 N; Pionier® 2071 P; Pionier® 2076 N; Pionier® 2076 P Pionier® 2079 P; Pionier® 4281; Pionier® 6301 N; Pionier® 6301 P; Pionier® 7028 P Pionier® 7860; Pionier® 1155; Protol®; Rudol®; Superla® No. 5

†=pharmaceutical grade

Superla® No. 7; Superla® No. 9; Superla® No. 10; Superla® No. 13; Superla® No. 18 Superla® No. 21; Superla® No. 31; Superla® No. 35; Superla® No. 38; Superla® No. 50

Trade Names Containing:  Aloe Vera Oil CG; Amerchol® L-99; Argobase 125T; Argobase EST; Argobase EU Argobase EUC 2; Colonial LAO; Crodarom Nut O; Emery® 1740; Fancol™ LAO Liquid Absorption Base A; Liquid Absorption Base T; Pionier® 1533; Pionier® 1730; Pionier® 3476 Pionier® Cold; Pionier® KWH-AP; Pionier® KWH-Pharma; Pionier® KWH-Soft; Pionier® L-15 Pionier® OWEA-II; Pionier® PIAH; Pionier® PLW; Pionier® PLW 5.5; Pionier® SVE Pionier® SVE Soft; Pionier® T-0145; Pionier® T-0150; Pionier® WWH-N; Pionier® WWH-Soft Protegin®; Protegin® X; Ritachol®; Sebase; Vilvanolin L-101®

Mineral oil, white. See Mineral oil
Mineral soap. See Bentonite

Mineral spirits
CAS 64475-85-0; EINECS/ELINCS 232-453-7
UN 1271 (DOT)

Synonyms: Petroleum spirits; Turpentine substitutes; White spirits
Classification: Hydrocarbon
Definition: Mixture of hydrocarbons from petroleum with distillation range of 149-213 C and flash pts. above 38 C; avail. in type I (reg., incl. Stoddard), II (high flash), III (odorless), IV (low dry pt.)

Properties:  (I): Clear liq.; dens. 0.754-0.820 (15.6/15.6 C); i.b.p. 149 C; flash pt. 38 C min.; (II): dens. 0.768-0.820 (15.6/15.6 C); i.b.p. 177 C min.; flash pt. 60 C min.; (III): dens. 0.775 max. (15.6/15.6 C); i.b.p. 149 C min.; flash pt. 38 C min.; (IV): dens. 0.754-0.800 (15.6/15.6 C); i.b.p. 149 C flash pt. 38 C min.

Toxicology:  LD50 (oral, rat) 34,600 mg/kg (skin, rabbit) 15,400 mg/kg; LC50 (inh., rat, 4 h) > 21,400 mg/m3; LDLo (IP, rat) 8560 mg/kg; target organs: respiratory system, CNS, blood, kidney; TSCA listed

Environmental: VOC
NFPA: Health 0, Flammability 2, Reactivity 0
Uses: Solvent in pharmaceuticals
Regulatory: FDA 21CFR §178.3800
Manuf./Distrib.: Aldrich  http://www.sigma-
Chemical Component Cross-Reference

\[ \text{aldrich.com; Ashland} \]
\[ \text{http://www.ashchem.com; CITGO} \]
\[ \text{http://www.citgo.com/home.jsp; ChemService} \]
\[ \text{http://www.chemservice.com; Chevron} \]
\[ \text{http://www.chevron.com/ Houghton Chem.} \]
\[ \text{http://www.houghtonchemical.com; Hukill} \]
\[ \text{http://www.hukill.com; Ruger} \]
\[ \text{http://www.rugerchemical.com; Sal Chem.} \]
\[ \text{http://www.salchem.com; Sasol N. Am.} \]
\[ \text{http://www.sasolnorthamerica.com Spectrum Quality Prods.} \]
\[ \text{http://www.spectrumchemical.com; Sunoco} \]
\[ \text{http://www.sunocochem.com} \]

Trade Names:  Shell Mineral Spirits 135
See also  VM&P naphtha

Mineral wax. See Ceresin; Ozokerite
Mineral white. See Calcium sulfate dihydrate
Minkamidopropyl dimethyl 2-hydroxyethyl amnonium chloride. See Quaternium-26
Mint. See Spearmint (Mentha spicata)
Mint lactone. See Mentholactone
Mint oil. See Mentha arvensis oil
MIPA. See Isopropylamine;
Isopropanolamine
Mixed decanoic and octanoic acid, monoester with 1,2,3-propanetriol. See Caprylic/capric triglyceride
Mixed xylene. See Xylene
MKP. See Potassium phosphate
MMA. See Dimethyl anthranilate; Methyl methacrylate
MMBAD. See m-Methoxybenzaldehyde
MME. See Methyl methacrylate;
Hydroquinone monomethyl ether
MNA. See Methyl nonyl acetaldehyde
MNBA. See n-Butylamine
MNBK. See 2-Hexanone
Modified beeswax. See Beeswax, synthetic
Modified food starch. See Food starch, modified
Modified starch. See Starch sodium octenyl succinate
2-MOEP. See 2-Methacryloyloxyethyl phosphorylcholine

Molasses (Saccharum officinarum)
CAS 68476-78-8; 977001-99-2
Definition: Residue after sucrose has been removed from the mother liquor in sugar manufacture
Properties: Thick liq.
Uses: Colorant, sweetener for pharmaceutical tablets
†=pharmaceutical grade
Regulatory: FDA 21CFR §73.85, 131.112, 131.170, 131.200, 131.203, 131.206, 172.816; Canada DSL

Monarda: Monarda punctata; Monarda punctata extract. See Horsemint (Monarda punctata) extract
Monoacetylcellulose. See Cellulose acetate
Monoammonium carbonate. See Ammonium bicarbonate
Monoammonium glycyrrhizlate. See Ammonium glycyrrhizlate
Monoammonium glycyrrhizinate. See Ammonium glycyrrhizinate
Monoammonium phosphate. See Ammonium phosphate
Monoammonium sulfide. See Ammonium sulfide
Monoammonium sulfite. See Ammonium bisulfite
Monoamylamine. See Pentylamine
Monobasic sodium phosphate. See Sodium phosphate
Monobenzylamine. See N-Benzylamine
Monobutylamine; Mono-n-butylamine. See n-Butylamine
Mono-t-butyl hydroquinone. See t-Butyl hydroquinone
Monobutyltin tris (2-ethylhexoate). See Butyltin tris (2-ethylhexoate)
Monocalcium carbonate. See Calcium carbonate
Monocalcium orthophosphate; Monocalcium phosphate; Monocalcium phosphate anhydrour. See Calcium phosphate monobasic anhydrour
Monocetyl glyceryl ether. See Chimyl alcohol
Monochlorobenzene. See Chlorobenzene
Monochloroacetyl chloride. See Chloracetyl chloride
Monochloroacetic acid. See Chloroacetic acid
Monochloroacetic acid. See Chloroacetic acid
Monochlorobenzene. See Chlorobenzene
Monochloroethene; Monochloroethylene. See Vinyl chloride
α-Monochlorohydrine
Uses: Pharmaceutical intermediate
Trade Names: Epiol M-0

Monochlorotrifluoromethane. See Chlorotrifluoromethane
Mono decanoyl octanoyl glyceride. See Caprylic/capric triglyceride
Monodehydroxysoorbital monoooleate. See Sorbitan oleate

Handbook of Pharmaceutical Additives, Third Edition 1697
### Mono- and di-acetylated monoglycerides

**Definition:** Glycerin esterified with edible fatty acids and acetic acid

**Properties:** Wh. to pale yel. waxy solid; sol. in ether, chloroform; sl. sol. in carbon disulfide; insol. in water; m.p. ≈ 45 C; acid no. 3 max.; sapon. no. 279-292; hyd. no. 133-152

**Uses:** Plasticizer for pharmaceuticals

**Synonyms:** INS 471; E 471

### Mono- and diglycerides, acetic acid esters

See Acetylated mono- and diglycerides of fatty acids

### Mono- and diglycerides citrates; Mono- and diglycerides, citric acid esters

See Citric acid esters of mono- and diglycerides of fatty acids

### Mono- and diglycerides, ethoxylated

See Ethoxylated mono- and diglycerides

### Mono- and diglycerides of fatty acids

CAS 67254-73-3; 67701-32-0; 67701-33-1; 68990-53-4

**Synonyms:** Fatty acid mono/diglycerides; MDG

**Definition:** Mixt. of glycerol mono- and di-esters, with minor amts. of tri-esters, of fatty acids from edible oils

**Properties:** Yel. liqs. to ivory plastics to hard solids, bland odor and taste; sol. in alcohol, ethyl acetate, chloroform, other chlorinated hydrocarbons; insol. in water; acid no. 4 max.; nonionic

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Emulsifier, solubilizer for pharmaceutical topical ointments; tableting aid

**Regulatory:** FDA 21CFR §136.110, 172.812, 172.863, 175.105, 184.1505, GRAS; USDA 9CFR §318.7, 381.147; Europe listed; UK approved; NF compliance

**Manuf./Distrib.:** AB R Lundberg

http://www.norfoods.se/lundberg; Adumim Food Ingreds. http://www.adumim.co.il;

Avatar http://www.avatarcorp.com;

Degussa AG/Health & Nutrition

**Trade Names:** Alphadin® 90SBK; BFP 74E; Kirnol® Range; Monomuls® Range

**Trade Names Containing: Descote® Pyridoxine Hydrochloride 33\(\frac{1}{3}\)%; Descote® Riboflavin 33\(\frac{1}{3}\)%; Descote® Thiamine Mononitrate 33\(\frac{1}{3}\)%; Dur-Em® 117; Dur-Em® 207-E
### Chemical Component Cross-Reference

| Monolinolein | See Glyceril linoleate |
| Monomethyl ether of hydroquinone | See Hydroquinone monomethyl ether |
| Monomethylol dimethyl hydantoin | See MDM hydantoin |
| Monomyristin | See Glyceril myristate |
| Monoocadecyl ether of glycerol | See Batyl alcohol |
| Monoocanoin | See Glyceril caprylate |
| Monoolein; Monooleoylglycerol | See Glyceril olate |
| Monopalmitate sorbitan | See Sorbitan palmitate |
| Monophenol | See Phenol |
| Monophenyl dichlorophosphate | See Phenyl dichlorophosphate |
| Monopotassium carbonate | See Potassium bicarbonate |
| Monopotassium 2-hydroxypropanoate acid | See Potassium lactate |
| Monopotassium metaphosphate | See Potassium metaphosphate |
| Monopotassium monosodium tartrate | See Potassium monosodium tartrate |
| Monopotassium monosodium tartrate tetrahydrate | See Potassium sodium tartrate tetrahydrate |
| Monopotassium orthophosphate | See Potassium phosphate |
| Monopotassium D(-)-pentahygroxy capronate | See Potassium D-gluconate |
| Monopotassium phosphate | See Potassium phosphate |
| Monopotassium tartrate; Monopotassium L-(-)-tartrate | See Potassium acid tartrate |
| Monopropylene glycol | See Propylene glycol |
| Monopropylroo | See Pyrrole |
| Monoricinolein; α-Monoricinolein | See Glyceril ricinoleate |
| Monosodium ascorbate; Monosodium L-ascorbate | See Sodium ascorbate |
| Monosodium carbonate | See Sodium bicarbonate |
| Monosodium citrate (INCI); Monosodium citrate anhydrous | See Sodium citrate |
| Monosodium N-cocoyl-L-glutamate | See Sodium cocoyl glutamate |
| Monosodium dihydrogen phosphate | See Sodium phosphate |
| Monosodium gluconate | See Sodium gluconate |
| Monosodium glutamate; α-Monosodium glutamate; Monosodium L-glutamate; α-Monosodium L-glutamate; 1,2,3- 

**†=pharmaceutical grade**

- Monosodium L-glutamate monohydrate. See MSG
- Monosodium p-hydroxybenzoate. See Sodium paraben
- Monosodium hydroxymethane sulfinate. See Sodium formaldehyde sulfloxylate
- Monosodium-2-hydroxypropane-1,2,3-tricarboxylate. See Sodium citrate
- Monosodium orthophosphate. See Sodium phosphate
- Monosodium D(-)-pentahygroxy capronate. See Sodium gluconate
- Monosodium phosphate. See Sodium phosphate
- Monostearin. See Glyceril stearate
- Monostearyl citrate. See Stearyl citrate
- Monostearyl trimethyl ammonium chloride. See Steartrimonium chloride
- Monolest. See Propylene glycol stearate
- Mono-tertiarybutylhydroquinone. See t-Butyl hydroquinone
- Monothioethylene glycol. See 2-Mercaptoethanol
- Monothioglycerol; α-Monothioglycerol. See Thioglycerin
- β-Monoxylnaphthalene. See β-Naphthol
- Monsel’s solution. See Ferric subsulfate
- Montan acid wax
  - CAS 68476-03-9; EINECS/ELINCS 270-664-6
  - Synonyms: Fatty acids, montan wax; Montanic acid; Waxes, montan fatty acids
  - Definition: Prod. obtained by the oxidation of montan wax
  - Toxicology: TSCA listed
  - Uses: Retarding agent in pharmaceuticals
  - Regulatory: Canada DSL
- Montanic acid. See Montan acid wax
- Montmorillonite
  - CAS 1318-93-0; EINECS/ELINCS 215-288-5
  - Classification: Complex silicate clay mineral
  - Definition: Specific type of Fuller’s earth
  - Formula: Al₂O₃ • 4SiO₂ • 2H₂O
  - Properties: Lt. yel. or green, cream, pink, gray to black; insol. in water and common org. solvs.
  - Toxicology: Poison by IV route; inh. of dust can cause respiratory irritation
  - Uses: Thixotrope for pharmaceuticals, acne creams/lotions, calamine lotion
Chemical Component Cross-Reference

MOPA. See p-Methoxyphenylacetic acid
MOPS. See 3-(N-Morpholino)-propane sulfonic acid
MOPS sodium salt. See Sodium 3-morpholino propane sulfonate
Mordant rouge. See Aluminum diacetate
Morellone. See Benzyl dipropyl ketone

Morpholine
CAS 110-91-8; EINECS/ELINCS 203-815-1
UN 1760 (DOT); UN 2054 (DOT)

Synonyms: Diethyleneimide oxide; Diethylene imidoxide; Diethylenimide oxide; 1-Oxa-4-azacyclohexane; Tetrahydro-1,4-isoxazine; Tetrahydro-p-isoxazine; Tetrahydro-2H-1,4-oxazine; Tetrahydro-4H-1,4-oxazine; Tetrahydro-2H-1,4-oxazine; Tetrahydro-p-oxazine

Classification: Heterocyclic sec. amine

Empirical: C₄H₉NO
Formula: C₄H₈ONH

Properties: Colorless clear oily liq., amine-like odor; sol. in water, acetone, benzene, ether, ethyl acetate, chloroform, ethylene glycol, castor oil, alcohols; m.w. 87.14; sp.gr. 1.002 (20/20 C); vapor pressure 10 mm Hg (23 C); f.p. -4.9 C; b.p. 128.9 C; flash pt. (OC) 37.7 C; autoignition temp. 590 F; ref. index 1.4540 (20 C)

Toxicology: ACGIH TLV/TWA 20 ppm; STEL 30 ppm (skin); LD50 (oral, rat) 1050 mg/kg, (skin, rabbit) 500 mg/kg; mod. toxic by ing., inh., skin contact, IP; corrosive irritant to skin, eyes, mucous membranes; overexposure may cause visual disturbance, nose and respiratory irritation, coughing, liver and kidney damage; very high concs. may be fatal; TSCA listed

Environmental: LC50 (bluegill, 96 h) 350 mg/l

Precaution: DOT: Flamm. liq.; dangerous fire hazard exposed to flame, heat or oxidizers; reactive with oxidizers; explosive with nitromethane; incompat. with strong acids, acid anhydrides, nitrites, cellulose nitrate, isocyanates, org. peroxides, epoxides

Hazardous Decomp. Pros.: Thermal decomp. prod.: CO, CO₂, NOₓ, ammonia

NFPA: Health 3, Flammability 3, Reactivity 0

Storage: Store in cool, dry, well-ventilated area, out of direct sunlight; hygroscopic

Uses: Local anesthetic and antiseptic; analgesics

Regulatory: FDA 21CFR §172.235, 173.310 (10 ppm max. in steam). 175.105, 176.180, 176.210, 178.3300; Canada DSL

Manuf./Distrib.: Air Prods.
http://www.airproducts.com; Aldrich†
http://www.sigma-aldrich.com; Allchem Ind.
http://www.allchem.com; BASF AG†
http://www.basf.de; BASF†
http://www.houghtonchemical.com; Huntsman http://www.huntsman.com;
Independent Chem.
http://www.independentchemical.com
Mallinckrodt Baker†
http://www.pmcsg.com; Penta Mfg.†
http://www.pentamfg.com; Ruger†
http://www.rugerchemical.com
Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality Prods.†
http://www.spectrumchemical.com;
Thomas Scientifi†
http://www.thomasscci.com; Universal Preserv-A-Chem†
Whyte Chems. Ltd
http://www.whytechemicals.co.uk

4-Morpholinepropanesulfonic acid;
Morpholinopropanesulfonic acid; 3-Morpholinopropanesulfonic acid. See 3-(N-Morpholino)-propane sulfonic acid

3-(N-Morpholino)-propane sulfonic acid
CAS 1132-61-2; EINECS/ELINCS 214-478-5

Synonyms: MOPS; 4-Morpholinepropanesulfonic acid; Morpholinopropanesulfonic acid; 3-Morpholinopropanesulfonic acid

Classification: Sulfonic acid; zwitterionic amino acid

Empirical: C₇H₁₅NO₄S

Properties: Wh. solid; m.w. 209.26; m.p. 277-280 C

Toxicology: Irritating to eyes, skin, respiratory system; TSCA listed

Storage: Store in cool, dry, well-ventilated area away from incompat. substances

Uses: Biological buffer for cell cultures,
Chemical Component Cross-Reference

biological productions, electrophoresis, diagnostics, tissue studies

Regulatory: Canada DSL


Trade Names: MOPS

3-Morpholino propanesulfonic acid, sodium salt. See Sodium 3-morpholino propane sulfonate

3-N-Morpholino propansulfonic acid. See 3-(N-Morpholino)-propylene sulfonic acid

Morrhua oil. See Cod liver oil

Mossbunker oil. See Menhaden oil

Motor benzol. See Benzene

Mountain pine oil. See Pine (Pinus pumilio) needle oil

MPA. See Isobutyric acid

MPCP. See Phenyl dichlorophosphate

MPD. mPDA. See m-Phenylenediamine

MPK. See Methyl propyl ketone

MPMD. See 2-Methylpentamethylenediamine

MSA. See Methanesulfonic acid

MSC. See Sodium citrate; Stearyl citrate

MSG

CAS 142-47-2; EINECS/ELINCS 205-538-1

FEMA 2756; INS621; E621

Synonyms: Chinese seasoning; Glutamic acid, monosodium salt; Glutamic acid, sodium salt; Monosodium glutamate; α-Monosodium glutamate; Monosodium L-glutamate; Monosodium L-glutamate monohydrate; Sodium glutamate (INCI); Sodium L-glutamate; Sodium hydrogen glutamate; Sodium hydrogen L-glutamate

Definition: Monosodium salt of L-form of glutamic acid; avail. commercially as the natural L(+) enantiomer

Empirical: C5H8NNaO4 • Na (anhyd.); C5H8NNaO4 • H2O (monohydrate)

Formula: HOOCCH2CH2CHNH2COONa

Properties: Wh. free-flowing cryst. or cryst. powd., sl. pepton-like odor, sl. sweet or sl. salty taste; very sol. in water; sl. sol. in alcohol; m.w. 169.13 (anhyd.), 187.13 (monohydrate); pH 6.7-7.2 (5%) 

Toxicology: LD50 (oral, rat) 17 g/kg, (IV, rat) 3300 mg/kg, (IP, rat) 4253 mg/kg; mod. toxic by IV; mildly toxic by ing. and other routes; human systemic effects by ing. and IV (somnolence, hallucinations, headache, dyspnea, nausea, vomiting, dermatitis); causes 'Chinese Restaurant Syndrome;' experimental teratogen, reproductive effects; nonmutagenic; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx and Na2O

HMIS: Health 1, Flammability 0, Reactivity 0

Uses: Flavor, flavor enhancer for pharmaceuticals, an oral syrup

Regulatory: FDA 21CFR §101.22, 145.131, 155.120, 155.130, 155.170, 155.200, 155.201, 158.170, 161.190, 169.115, 169.140, 169.150, 172.320, 182.1, GRAS; USDA 9CFR §318.7, 381.147; not permitted for use in baby foods in UK; FEMA GRAS; Canada DSL; Japan approved; Europe listed; UK approved; USP/NF compliance


 MSM. See Dimethyl sulfone

MSP. See Sodium phosphate
MTAB. See Myrtrimonium bromide
MTBE. See Methyl t-butyl ether
MTBH. See t-Butyl hydroquinone
Mugwort oil. See Wormwood (Artemisia absinthium) oil
Muriate of potash. See Potassium chloride
Muriatic acid. See Hydrochloric acid
Murillo bark extract. See Quillaja (Quillaja saponaria)
Muscatel oil; Muscatel sage oil. See Clary (Salvia sclarea) oil
Muscovite mica. See Mica
Musk. See Musk (Moschus moschiferus)
Musk T. See Ethylene brassylate
Musk (Moschus moschiferus) CAS 8001-04-5
FEMA 2759
Synonyms: Musk; Musk tonquin; Tonquin musk
Definition: Derived from musk deer, Moschus moschiferus
Properties: Potent penetrating musk odor with strong animal note
Toxicology: Allergen
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21 CFR §172.515; FEMA GRAS; Australia; Canada DSL; Japan MITI; Philippines PICCS
β-Myrcene. See Myrcene
Myreth-3 laurate CAS 84605-13-0; 977068-97-5; EINECS/ELINCS 283-390-7
Synonyms: PEG-3 myristyl ether laurate; POE (3) myristyl ether laurate; 2-[2-[2-(Tetradecyloxy)ethoxy]ethoxy]ethyl
**laurate**
**Definition:** Ester of myreth-3 and lauric acid
**Empirical:** C₃₂H₆₄O₅
**Uses:** Penetrant, emollient for topical pharmaceuticals; coupling agent in hydroalcoholic systems; emulsifier and solubilizer in lotions
**Manuf./Distrib.:** Somerset Cosmetic Co. [http://www.makingcosmetics.com/]

**Myreth-3 myristate**
**CAS:** 59599-55-2; 59686-68-9
**Synonyms:** PEG-3 myristyl ether myristate; POE (3) myristyl ether myristate
**Definition:** Ester of myreth-3 and myristic acid
**Empirical:** C₃₄H₆₈O₅

**Myrica oil** See Bay (Pimenta acris) oil

**Myricyl alcohol**
**CAS:** 593-50-0; EINECS/ELINCS 209-794-5
**Synonyms:** 1-Hydroxytriacontane; Melissyl alcohol; Triacantan; 1-Triacontanol
**Classification:** Alcohol
**Empirical:** C₃₀H₆₂O
**Formula:** CH₃(CH₂)₂₈CH₂OH
**Properties:** Cryst.; sol. in benzene, ether; very sl. sol. in cold alcohol, more sol. in hot alcohol; pract. insol. in water; m.w. 438.82; dens. 0.777; m.p. 87°C
**Storage:** Store @ 2-8°C
**Uses:** Ingrid. in dietary supplements
**Regulatory:** Canada DSL
**Trade Names Containing:** Lesstanol™ Natural Octacosanol 30%; Lesstanol™ Natural Policosanol 60

**Myristaldehyde**
**CAS:** 124-25-4; EINECS/ELINCS 204-692-7
**FEMA:** 2763
**Synonyms:** Aldehyde C-14; Aldehyde C-14, myristic; C-14 alcohol, myristic; Myristic aldehyde; Tetradecanal; 1-Tetradecanal; Tetradecyl aldehyde; 1-Tetradecyl aldehyde
**Empirical:** C₁₄H₂₈O
**Formula:** CH₃(CH₂)₁₂CHO
**Properties:** Colorless to sl. yel. liq. or solid,
**Properties (continued):**
- Strong fatty orris-like odor; insol. in water; m.w. 212.38; dens. 0.825-0.835; m.p. 23°C; b.p. 260°C; ref. index 1.43.80-1.4450
- Toxicology: LD₅₀ (oral, rat) > 5 g/kg, (skin, rabbit) > 10 g/kg; low toxicity by ing. and skin contact; primary skin irritant; TSCA listed
- Hazardous Decomp. Prods.: Heated to decom., emits acrid smoke and irritating fumes
- Storage: Refrigerate; store under nitrogen
**Uses:** Synthetic flavor for pharmaceuticals
**Features:** Citrus, fruity flavor
**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Myristalkonium chloride**
**CAS:** 139-08-2; EINECS/ELINCS 205-352-0
**Synonyms:** Benzenemethanaminium, N,N-dimethyl-N-tetradecyl-, chloride; Dimethyl myristyl benzylammonium chloride; N,N-Dimethyl-N-tetradecylbenzenemethanaminium chloride; Myristyl dimethyl benzyl ammonium chloride; Tetradecyl dimethyl benzyl ammonium chloride
**Classification:** Quaternary ammonium salt
**Empirical:** C₂₃H₄₂N • Cl
**Properties:** Wh. free-flowing powd.; m.w. 368.11; m.p. 60-61°C; cationic
**Toxicology:** LD₅₀ (IV, mouse) 18 mg/kg; skin and eye irritant; TSCA listed
**Hazardous Decomp. Prods.:** Heated to decom., emits very toxic fumes of NOₓ, NH₃, and Cl⁻
**Uses:** Antimicrobial, preservative in pharmaceuticals
**Regulatory:** FDA 21CFR §172.165 (limitation 3-12 ppm), 173.320 (limitation 0.6 ppm on wt. of raw sugar cane or raw beets), 175.105, 178.1010; Canada DSL
**Manuf./Distrib.:** Amyl [http://www.amyl.com]; Fluka [http://www.sigma-aldrich.com]; JFC
**Chemical Component Cross-Reference**

**Technologies**  
http://www.jfctechnologies.com; Lonza  
http://www.lonza.com; Mason  
http://www.maquat.com;  
http://www.masonsurfactants.com  
Sigma http://www.sigma-aldrich.com/belgium  
Trade Names: BTC® 824 P100  
Trade Names Containing: SO/SAN® 30M  

**Myristamide DEA**  
CAS 7545-23-5; EINECS/ELINCS 231-426-7  
Synonyms: N,N-Bis (2-hydroxyethyl) myristamide; N,N-Bis (2-hydroxyethyl) tetradecanamide; Myristic diethanolamide; Myristoyl diethanolamide  
Definition: Mixture of ethanolamides of myristic acid  
Empirical: C_{18}H_{37}NO_3  
Formula: CH_3(CH_2)_{12}CON(CH_2CH_2OH)_2  
Properties: Nonionic  
Toxicology: May produce contact sensitivity; TSCA listed  
Uses: Antistat, visc. control agent, thickener, superfatting agent, foam booster/stabilizer, emulsifier for topical dermatological prods.  
Regulatory: FDA 21CFR §175.105, 176.180, 176.210, 177.2260, 177.2800; Canada DSL  
Manuf./Distrib.: Cosmetic Supplies USA  
http://www.cosmeticsuppliesusa.com  
Trade Names Containing: Schercomid SLM-S  

**Myristamide MEA**  
CAS 142-58-5; EINECS/ELINCS 205-546-5  
Synonyms: N-(2-Hydroxyethyl) myristamide; N-(2-Hydroxyethyl) tetradecanamide; Myristic monoethanolamide; Myristoyl monoethanolamide  
Definition: Mixture of ethanolamides of myristic acid  
Empirical: C_{16}H_{33}NO_2  
Formula: CH_3(CH_2)_{12}CONHCH_2CH_2OH  
Properties: Nonionic  
Toxicology: TSCA listed  
Uses: Antistat, visc. control agent, thickener, pearlescent, thickener, opacifier in pharmaceuticals  
Regulatory: Canada DSL  
Manuf./Distrib.: Somerset Cosmetic Co.  
http://www.makingcosmetics.com/  

**Myristamine oxide**  
CAS 3332-27-2; EINECS/ELINCS 222-059-3  
Synonyms: N,N-Dimethyl-1-tetradecanamine-N-oxide; N,N-Dimethylethyltetradecylamine-N-oxide; Myristyl dimethyl amine oxide;  
Classification: Tertiary amine oxide  
Empirical: C_{18}H_{35}NO_3  
Properties: LIq.; m.w. 257.47  
Toxicology: TSCA listed  
Uses: Foam booster/stabilizer, conditioner, visc. builder, and wetting agent for pharmaceuticals  
Regulatory: Canada DSL  
Trade Names: AMMONYX® MCO; AMMONYX® MO  

**Myristic acid**  
CAS 544-63-8; EINECS/ELINCS 208-875-2  
FEMA 2764; INS570; E570  
Synonyms: Tetradecanoic acid; n-Tetradecoic acid; 1-Tridecanecarboxylic acid  
Classification: Organic acid; aliphatic carboxylic acid  
Empirical: C_{14}H_{28}O_2  
Formula: CH_3(CH_2)_{12}COOH  
Properties: Oily wh. cryst. solid; faint odor; sol. in acetone, alcohol, benzene, chloroform, ether, aromatic and chlorinated solvs.; pract. insol. in water; m.w. 228.36; dens. 0.8739 (80 °C); m.p. 54.5 °C; b.p. 326.2 °C; flash pt. > 230 F  
Toxicology: LD50 (oral, rat) > 10 g/kg, (IV, mouse) 43 mg/kg; poison by IV route; eye and human skin irritant; mutagenic data; TSCA listed  
Precaution: Combustible; incomp. with strong oxidizers (may react violently if heated, increased fire risk), reactive metals (may cause violent/explosive reaction), strong bases (may generate heat)  
Hazardous Decomp. Prods.: Combustion decomp. prods.: CO, CO_2; heated to decomp., emits acrid smoke and irritating fumes  
HMIS: Health 1, Flammability 0, Reactivity 0  
Storage: Store in cool, dry, well-ventilated area, out of direct sunlight, away from incompat. materials; avoid generating dust; limit quantities in storage  
Uses: Emulsifier in pharmaceuticals, vaginals  
Regulatory: FDA 21CFR §172.210, 172.860, 173.340, 175.105, 175.320, 176.170, 176.200, 176.210, 177.1010, 177.1200, 177.2260, 177.2600, 177.2800, 178.3570, 178.3910; FEMA GRAS; FDA approved for vaginals; Canada DSL  
Manuf./Distrib.: Acme-Hardesty  
Chemical Component Cross-Reference

†=pharmaceutical grade

†‡=pharmaceutical grade

Nobel http://www.akzonobel.com; Alfa
Chem† http://www.alfachem1.com;
Axxence Aromatic Gmbh
http://www.axxence.com;
http://www.axxence.de
CarboMer† http://www.carbomer.com;
Chempri;
Cognis/Chems. Group
http://www.cognis-us.com; Fleurchem
http://www.fleurchem.com; Fluka
http://www.sigma-aldrich.com
Genzyme http://www.genzyme.com; Grau
Aromatics http://www.grau-aromatics.de;
Imperial-OEL-Import http://www.imperial-oel-import.de; Jarchem Ind.
http://www.jarchem.com; KIC Chems.†
http://www.kicchemical.com;
Mosselman NV http://www.mosselman.be;
Parchem Trading† http://www.parchem.com;
Penta Mfg.† http://www.pentamfg.com;
Prodasynth http://www.prodasynth.com;
Reuter Chemische Apparatebau†
http://www.rca-separations.de; Robeco
http://www.robecoinc.com; Ruger
http://www.rugerchemical.com
SAFC Specialties
http://www.safcspecialties.com; Sea-Land
http://www.sealandchem.com; Sigma
http://www.sigma-aldrich.com/belgium;
Spectrum Quality Prods.†
http://www.spectrumchemical.com; St.
Lawrence http://www.stlawrencechem.com; U.S. Synthetics; Uniqema Am.
http://www.uniqema.com; United Coconut
Chem. http://www.cocochem.ph; Universal
Preserv-A-Chem†
http://www.upichem.com; Whyte Chems. Ltd http://www.whytechemicals.co.uk
Trade Names: Miristico 92-95%; NAA-142

Myristic alcohol, isocetyl ester. See Isocetyl myristate
Myristic acid isopropyl ester. See Isopropyl myristate
Myristic acid, monoester with 1,2-propanediol. See Propylene glycol myristate
Myristic acid, 2-octydodecyl ester. See Octydodecyl myristate
Myristica fragrans. See Mace (Myristica fragrans) oil; Mace (Myristica fragrans) oleoresin; Nutmeg (Myristica fragrans) oil; Nutmeg (Myristica fragrans) oil
Myristic acid, monoester with 1,2-propanediol. See Propylene glycol myristate
Myristic alcohol. See Myristyl alcohol
Myristic aldehyde. See Myristaldehyde
Myristica fragrans. See Mace (Myristica fragrans) oil
Myristoyl diethanolamide. See Myristamide DEA
Myristoyl monoethanolamide. See Myristamide MEA
Myristyl alcohol
CAS 112-72-1; EINECS/ELINCS 204-000-3
Synonyms: Myristic alcohol; 1-Tetradecanol; N-Tetradecanol-1; Tetradecyl alcohol; N-Tetradecyl alcohol
Empirical: C_{14}H_{30}O
Formula: CH_{3}(CH_{2})_{12}CH_{2}OH
Properties: Colorless to wh. waxy solid flakes, waxy odor; sol. in ether; sl. sol. in alcohol; insol. in water; m.w. 214.38; dens. 0.8355 (20/20 C); vapor pressure 0.01 mm Hg (20 C); m.p. 38 C; b.p. 167 C; acid no. 2 max.; iodine no. 1 max.; hyd. no. 250-267; flash pt. 285 F
Toxicology: TDLo (skin, mouse, 24 wk intermittent) 12 g/kg; nontoxic; human skin irritant; mod. eye irritant; questionable carcinogen; experimental tumorigen; TSCA listed
Precaution: Combustible; can react with oxidizers
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
HMIS: Health 1, Flammability 1, Reactivity 0
Uses: Vehicle, consistency agent in pharmaceuticals, orals; pharmaceutical raw material
Features: Oleaginous
Regulatory: FDA 21CFR §172.864, 175.105, 175.300, 176.180, 176.200, 176.210, 177.1010, 177.1200, 177.1390, 177.2800, 178.3480, 178.3910; FDA approved for orals; Canada DSL
Chemical Component Cross-Reference

Manuf./Distrib.: Albemarle
http://www.albemarle.com; Aldrich†
http://www.sigma-aldrich.com; Ashland†
http://www.ashchem.com; Barnet Prods.
http://www.barnetproducts.com;
Cognis/Chems. Group http://www.cognis-us.com
Fluka http://www.sigma-aldrich.com;
Indofine http://www.indofinechemical.com;
Kraft Chem.†
http://www.kraftchemical.com; Lipo
http://www.lipochemicals.com
M. Michel http://www.mmichel.com;
NetQem http://www.netqem.us; Penta Mfg†
http://www.pentamfg.com; R.W. Greeff
http://www.pechiny-chemicals.com; RTD
Hallstar† http://www.rtdhallstar.com
Robeco http://www.robecoinc.com; Ruger†
http://www.rugerchemical.com; Sasol
Germany† http://www.sasol.com;
http://www.sasolnorthamerica.com; Sealand
http://www.sealandchem.com
Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality
Prods.† http://www.spectrumchemical.com;
Universal Preserv-A-Chem†
http://www.upichem.com; Whyte Chems.
Ltd http://www.thornleycompany.com
Trade Names: Cachalot® M-43; Lanette® 14;
NAA-43; Nacol® 14-95; Nacol® 14-98
Trade Names Containing: Nacol® 16-95;
Nacol® 16-98; Prolipid® 141

Myristyl dimethyl amine oxide. See
Myristamine oxide

Myristyl dimethyl benzyl ammonium chloride.
See Myristalkonium chloride

Myristyl eicosanol. See Tetradecyleicosanol

Myristyleicosyl stearate. See
Tetradecyleicosyl stearate

Myristyl lactate
CAS 1323-03-1; EINECS/ELINCS 215-350-1
Synonyms: 2-Hydroxypropanoic acid,
tetradecyl ester; Tetradecyl 2-
hydroxypropanoate; Tetradecyl lactate
Definition: Ester of myristyl alcohol and lactic acid
Empirical: C_{17}H_{34}O_{3}
Formula: CH_{3}COHHCOO(CH_{2})_{12}CH_{3}
Properties: Pale yel. liq. or soft solid; sol. in
ethanol, IPM, min. oil, oleyl alcohol, propylene glycol; insol. in water, glycerin; sp.gr. 0.892-
0.904
Toxicology: LD50 (oral, rat) 20 ml/kg;
nonirritating to skin; TSCA listed
Uses: Emollient, conditioner, solubilizer,
lubricant, gloss aid for pharmaceuticals;
pharmaceutical raw material
Regulatory: Canada DSL
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk; Aldrich
http://www.sigma-aldrich.com
Trade Names: Ceraphyl® 50; Pelemol® ML;
Saboderm MLC

Myristyl myristate
CAS 3234-85-3; EINECS/ELINCS 221-787-9
Synonyms: Tetradecanoic acid, tetradecyl ester; Tetradecyl tetradecanoate
Definition: Ester of myristyl alcohol and myristic acid
Empirical: C_{28}H_{56}O_{2}
Formula: CH_{3}(CH_{2})_{12}COO(CH_{2})_{13}CH_{3}
Properties: Wh. waxy solid; bland char. odor;
sol. in min. oil, IPM, oleyl alcohol; insol. in water, glycerin, propylene glycol; m.p. 36-39 C
Toxicology: LD50 (oral, rat) 8.6 g/kg; minimal
eye irritation, mild skin irritation; TSCA
listed
Uses: Emollient, emulsifier, thickener,
lubricant, moisturizer, superfatting agent,
opacifier, humectant, solubilizer, pigment
dispersant for pharmaceutical topicals,
creams and lotions
Features: Melts at body temp.
Regulatory: Canada DSL
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk; Alzo
http://www.alzointernational.com; C.P. Hall
http://www.cphall.com; Cognis/Care
Chems.; Croda Inc http://www.croda.com;
http://www.crodausa.com
Global-Seven http://www.global-seven.com; Jarchem Ind.
http://www.jarchem.com; Lanaetex Prods.;
Mosselman NV http://www.mosselman.be;
Phoenix http://www.phoenix-chem.com
Rhodia HPCI II http://www.rhodia-hpcii.com;
Sea-Land http://www.sealandchem.com;
Sigma http://www.sigma-aldrich.com/belgium; Thornley
http://www.thornleycompany.com;
Universal Preserv-A-Chem
http://www.upichem.com

†=pharmaceutical grade
### Myristyl octadecanol

**Definition:** Ester of myristyl alcohol and octadecanoic acid

**Empirical:** C$\text{17H}_{34}\text{O}_2$

**Formula:** CH$_3$(CH$_2$)$_{16}$COOCH$_2$(CH$_2$)$_{12}$CH$_3$

**Uses:** Emollient, penetrant, spreading agent for topical pharmaceuticals, antiperspirants, creams, lotions; humectant; solvent

**Regulatory:** Canada DSL

**Manuf./Distrib.:** A&E Connock  
[http://www.connock.co.uk](http://www.connock.co.uk)

**Trade Names:** Schercemol MP

### Myristyl propionate

**CAS:** 6221-95-0; EINECS/ELINCS 226-300-9

**Synonyms:** 1-Tetradecanol, propanoate; Tetradecyl propionate

**Definition:** Ester of myristyl alcohol and propionic acid

**Empirical:** C$\text{17H}_{34}\text{O}_2$

**Formula:** CH$_3$CH$_2$COOCH$_2$(CH$_2$)$_{12}$CH$_3$

**Uses:** Emollient, penetrant, spreading agent for topical pharmaceuticals, antiperspirants, creams, lotions; humectant; solvent

**Regulatory:** Canada DSL

**Manuf./Distrib.:** A&E Connock  
[http://www.connock.co.uk](http://www.connock.co.uk)

**Trade Names:** Schercemol MP

### Myristyl stearate

**CAS:** 17661-50-6; EINECS/ELINCS 241-640-2

**Synonyms:** Octadecanoic acid, tetradecyl ester; Stearic acid myristyl ester; Stearic acid, tetradecyl ester; Tetradecyl octadecanoate; Tetradecyl stearate

**Definition:** Ester of myristyl alcohol and stearic acid

**Empirical:** C$\text{32H}_{64}\text{O}_2$

**Formula:** CH$_3$(CH$_2$)$_{16}$COOCH$_2$(CH$_2$)$_{12}$CH$_3$

**Properties:** M.w. 480.96

**Toxicology:** Eye irritant; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Emollient, visc. builder in pharmaceutical topicals

**Features:** Waxy; replacement for spermaceti

**Regulatory:** Canada DSL

**Manuf./Distrib.:** A&E Connock  
[http://www.connock.co.uk](http://www.connock.co.uk)

**Trade Names:** Pelemol® MS

### Myristyl sulfate, sodium salt

**See Sodium myristyl sulfate**

### Myristyl trimethyl ammonium bromide

**See Myrtrimonium bromide**

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**Myroxylon balsamum balsam.** See Balsam tolu (Myroxylon balsamum)

**Myroxylon pereirae balsam; Myroxylon pereirae oleoresin.** See Balsam Peru (Myroxylon pereirae)

**Myroxylon toluiferum.** See Balsam tolu (Myroxylon balsamum)

**Myrrh (Commiphora myrrha) oil**

**CAS:** 8016-37-3

**FEMA:** 2766

**Synonyms:** Commiphora myrrha; Commiphora myrrha oil; Myrrhe oil; Myrrh oil

**Definition:** Volatile oil from steam distillation of myrrh gum, Commiphora myrrha

**Properties:** Lt. brn. to grn. liq.; char. odor; sol. in fixed oils; sl. sol. in min. oil; insol. in glycerol, propylene glycol

**Toxicology:** LD$\text{50}$ (oral, rat) 1650 mg/kg; mod. toxic by ing.; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Natural flavor for pharmaceuticals

**Regulatory:** BP, EP compliance; FDA 21CFR §172.510; FEMA GRAS; Canada DSL

**Manuf./Distrib.:** Buckton Page Ltd  
[http://www.bucktonpage.com](http://www.bucktonpage.com)

**Danisco Seillans**  
[http://www.danisco.com](http://www.danisco.com)

**F.D. Copeland**  
[http://www.copelandoil.co.uk](http://www.copelandoil.co.uk)

**Fleurchem**  
[http://www.fleurchem.com](http://www.fleurchem.com)

**Lebermuth**  
[http://www.lebermuth.com](http://www.lebermuth.com)

**Penta Mfg.**  
[http://www.pentamfg.com](http://www.pentamfg.com)

**SAFC Specialties**  
[http://www.safcspecialties.com](http://www.safcspecialties.com)

**V. Mane Fils SA**  
[http://www.mane.com](http://www.mane.com)

**Voigt Global Distrib.**  
[http://www.vgdllc.com](http://www.vgdllc.com)

**Myrrh (Commiphora myrrha) oil**

**Myrtenol**

**CAS:** 515-00-4; EINECS/ELINCS 208-193-5

**FEMA:** 3439

**Synonyms:** (1R)-(−)-Myrtenol; (−)-Pin-2-ene-10-ol

**Empirical:** C$\text{10H}_{16}\text{O}$

**Properties:** M.w. 152.24; dens. 0.954; b.p. 221-22 C; flash pt. 193 F

**Uses:** Flavor for pharmaceuticals

**Regulatory:** FEMA GRAS; Canada DSL

**Manuf./Distrib.:** SAFC Specialties  
[http://www.safcspecialties.com](http://www.safcspecialties.com)

(1R)-(−)-Myrtenol. See Myrtenol
**Myrtrimonium bromide**

**CAS 1119-97-7; EINECS/ELINCS 214-291-9**

**Synonyms:** Ammonium, tetradecyltrimethyl-, bromide; Ammonium, trimethyltetradecyl-, bromide; MTAB; Myristyl trimethyl ammonium bromide; Quaternium 13; 1-Tetradecanaminium, N,N,N-trimethyl-, bromide; Tetradecyltrimethylammonium bromide; Tetradonium bromide; Trimethylmyristylammonium bromide; N,N,N-Trimethyl-1-tetradecanaminium bromide; Trimethyltetradecylammonium bromide; TTAB

**Classification:** Quaternary ammonium salt

**Empirical:** $\text{C}_{17}\text{H}_{38}\text{N} \cdot \text{Br}$

**Formula:** $[\text{CH}_3(\text{CH}_2)_{12}\text{CH}_2\text{N(CH}_3)_3]^+\text{Br}^-$

**Properties:** Wh. powd.; sol. in 5 parts water; m.w. 336.40; m.p. 245-250 C; pH 5-8 (1%); cationic

**Toxicology:** LD50 (IV, mouse) 12 mg/kg; poison by IV route; corrosive; can be toxic depending on dose and conc.; conc. sol’n. can irritate the skin and cause necrosis of the mucous membranes; conc. as low as 0.1% are irritating to eyes and mucous membranes; TSCA listed

**Hazardous Decomp. Prods.:** Heated to comp., emits toxic vapors of NOx and Br⁻

**Storage:** Store @ R.T.

**Uses:** Preservative, biocide for pharmaceuticals; disinfectant; sanitizer; sterilizer for skin and mucous membranes in dilute sol’n.; antiseptic creams; purification of heparin

**Regulatory:** Canada DSL

**Manuf./Distrib.:** AMRESCO

http://www.amresco-inc.com; Aldrich
http://www.accordchem.com; Aldrich
http://www.sigma-aldrich.com; Fluka
http://www.sigma-aldrich.com; RTD
Hallstar† http://www.rtdhallstar.com
Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality Prods.†
Trade Names: Mytreg®
Trade Names Containing: Pentonium 4Br40

**NaCMC.** See Carboxymethylcellulose sodium

**NaCMHEC.** See Carboxymethyl hydroxyethyl cellulose

**NaDBS.** See Sodium dodecylbenzenesulfonate

**NaDOSS.** See Diocyl sodium sulfosuccinate

**Na₅DTPA.** See Pentasodium pentetate

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**Nalidixic acid**

**CAS 389-08-2; EINECS/ELINCS 206-864-7**

**Synonyms:** 3-Carboxy-1-ethyl-7-methyl-1,8-naphthidin-4-one; 1,4-Dihydro-1-ethyl-7-methyl4-oxo-1,8-naphthyridine-3-carboxylic acid; 1-Ethyl-1,4-dihydro-7-methyl-4-oxo-1,8-naphthyridine-3-carboxylic acid; 1-Ethyl-7-methyl-1,4-dihydro-1,8-naphthyridine-4-one-3-carboxylic acid; 1-Ethyl-7-methyl-1,8-naphthyridine-4-one-3-carboxylic acid; 1-Ethyl-7-methyl-4-oxo-1,4-dihydro-1,8-naphthyridine-3-carboxylic acid; Nalidic acid; Nalidixin

**Empirical:** $\text{C}_{12}\text{H}_{12}\text{N}_2\text{O}_3$

**Properties:** Pale buff cryst.; sl. in chloroform; mod. sol. in ethanol and methanol; m.w. 232.32; m.p. 225-231 C

**Toxicology:** LD50 (oral, rat) 2040 mg/kg, (IP, rat) 319 mg/kg, (subcut., rat) 1584 mg/kg, (IV, rat) 88,400 µg/kg; harmful solid; poison by IV, IP routes; mod. toxic by ing., subcut. routes; irritant; neurologic hazard; human systemic effects (convulsions, hyperglycemia, sweating); suspected carcinogen, mutagen, teratogen; human mutagenic data; target organ: reproductive

**Storage:** Store @ R.T.; photosensitizer

**Uses:** Antibacterial for medicine; urinary tract antiseptic

**Regulatory:** Canada DSL

**Manuf./Distrib.:** AMRESCO

http://www.amresco-inc.com; Aldrich
http://www.sigma-aldrich.com; Am. Int'l.
http://www.aicma.com; Fluka
http://www.sigma-aldrich.com; Sigma
http://www.sigma-aldrich.com/belgium
Spectrum Quality Prods.†
http://www.spectrumchemical.com; Voigt
Global Distrib.† http://www.vgdllc.com

**Nalidixin.** See Nalidixic acid

2-Naphthacenecarboxamide, 4- (dimethylamino)-1,4,4a,5,5a,6,11,12a-octahydro-3,5,6,10,12a-hexahydroxy-6-methyl-1,11-dioxo-, monohydrochloride.

See Oxytetracycline hydrochloride

Naphtha, heavy hydrotreated. See Naphtha, hydrotreated heavy

Naphtha, hydrotreated heavy

CAS 64742-48-9; EINECS/ELINCS 265-150-3
UN 3295

**Synonyms:** Heavy hydrotreated naphtha
Chemical Component Cross-Reference

(petroleum): Hydrotreated heavy naphtha; Naphtha, heavy hydrotreated; Naphtha (petroleum), hydrotreated heavy

Definition: Complex combination of hydrocarbons obtained by treating a petrol. fraction with hydrogen in the presence of a catalyst; consists predominantly of C6-13 hydrocarbons; mixt. of C9-13 naphthenes, iso- and n-paraffins

Properties: Colorless liq.; insol. in water; dens. 0.76-0.79 g/cm³; vapor pressure 0.1-0.3 kPa (20 C); m.p. 0 C; b.p. 155-217 C; flash pt. (CC) 40-62 C; autoignition temp. 255-270 C

Toxicology: Inh. may cause dizziness, headache, drowsiness, nausea; contact may cause dry skin, eye redness; ing. may cause cough, diarrhea, sore throat, vomiting; if aspirated, may cause chem. pneumonitis

Environmental: Toxic to aquatic organisms; prevent entry into sewers

Precaution: Flamm.; explosive limits in air 0.7-6.0 vol.%; may form explosive vapor/air mixts. above 40 C; reacts with strong oxidants, causing fire/explosion hazard

Uses: Solvent

Regulatory: Canada DSL

Trade Names: Shellsol® D40

Naphtha, hydrotreated light
CAS 64742-49-0; EINECS/ELINCS 265-151-9
UN 1208

Synonyms: Hydrotreated light naphtha (petroleum); Hydrotreated light straight run petroleum; Light hydrotreated naphtha; Naphtha (petroleum), hydrogen-treated, light; Naphtha (petroleum), hydrotreated light; Naphtha (petroleum), light, hydrotreated; SBP; Special boiling point spirit

Classification: High benzene naphtha

Definition: Complex combination of hydrocarbons obtained by treating a petrol. fraction with hydrogen in the presence of a catalyst; consists predominantly of C4-11 hydrocarbons

Properties: B.p. -20 to 190 C

Uses: Solvent

Regulatory: Canada DSL

Trade Names: VM&P Naphtha HT

Trade Names Containing: Punctilious® SDA 2B-2; Punctilious® SDA 2B-2 190 Proof; Punctilious® SDA 2B-4 190 Proof; Punctilious® SDA 2B-4 Anhydrous; Shellsol® B HT

Naphtha, medium aliphatic
CAS 64742-89-8; EINECS/ELINCS 265-192-2

Synonyms: Aliphatic petroleum distillate; Lactol spirits; Light aliphatic naphtha; Light aliphatic solvent naphtha (petroleum); Naphtha (petroleum), light aliphatic; Solvent naphtha (petroleum), light aliphatic

Definition: Complex combination of hydrocarbons obtained from distillation of crude oil or nat. gasoline; consists of predominantly C5-10 sat. hydrocarbons

Properties: B.p. 35-160 C

Uses: Solvent

Regulatory: Canada DSL

Trade Names: VM&P Naphtha HT

Trade Names Containing: Punctilious® SDA 2B-2; Punctilious® SDA 2B-2 190 Proof; Punctilious® SDA 2B-4 190 Proof; Punctilious® SDA 2B-4 Anhydrous; Shellsol® B HT

Naphtha, light aliphatic
CAS 64742-90-9; EINECS/ELINCS 265-191-9
UN 1268; 1993

Synonyms: Aliphatic petroleum solvent; Naphtha, medium aliphatic; Lactol spirits; Light aliphatic naphtha; Light aliphatic solvent naphtha (petroleum); Naphtha (petroleum), light aliphatic; Solvent naphtha (petroleum), light aliphatic

Definition: Complex combination of hydrocarbons obtained from distillation of crude oil or nat. gasoline; consists of predominantly C5-10 sat. hydrocarbons

Properties: B.p. -20 to 190 C

Uses: Solvent

Regulatory: Canada DSL

Trade Names: VM&P Naphtha HT

Trade Names Containing: Punctilious® SDA 2B-2; Punctilious® SDA 2B-2 190 Proof; Punctilious® SDA 2B-4 190 Proof; Punctilious® SDA 2B-4 Anhydrous; Shellsol® B HT

Naphtha, light aliphatic
β-Naphthol
CAS 135-19-3; EINECS/ELINCS 205-182-7
Synonyms: Cl 37500; Cl azoic coupling component 1; 2-Hydroxynaphthalene; β-Hydroxynaphthalene; Isonaphthol; β-Monoxynaphthalene; 2-Naphthalenol; 2-Naphthol; β-Naphthyl alcohol; β-Naphthyl hydroxide

Definition: Derived by fusing sodium β-naphthalene sulfonate with caustic soda

Empirical: C_{10}H_{8}O

Formula: C_{10}H_{7}OH

Properties: Wh. to tan powd.; darkens with age; faint phenol-like odor; sol. in alcohol, ether, chloroform, glycerol, oils, alkaline sol'ns.; pract. insol. in water; m.w. 144.18; dens. 1.217; vapor pressure 10 mm (145.5 C); m.p. 122-123 C; b.p. 285-286 C; flash pt. 152.7 C

Toxicology: LD50 (oral, rat) 1960 mg/kg, (IP, mouse) 97,500 mg/kg, (skin, rabbit) > 10 g/kg; LC50 (inh., rat, 1 h) > 770 mg/m3; harmful by inh., ing., skin absorption; primary irritant; eye/skin/respiratory system irritant; may cause changes in salivary glands/kidney wt./blood count/liver, somnolence, convulsions; mutagen; TSCA listed

Environmental: Very toxic to aquatic organisms; avoid release to environment

Precaution: Combustible; incompat. with strong oxidizing agents, acid chlorides, acid anhydrides, strong bases; stable in air, but darkens on exposure to sunlight

Hazardous Decomp. Prods.: CO, CO2; emits toxic fumes under fire conditions

Storage: Light-sensitive; keep container closed; store in cool, dry place

Uses: Pharmaceuticals; antiseptic

Regulatory: FDA 21CFR §176.200, 176.210; Canada DSL


Trade Names: Shellsol® D43

Naphtha, petroleum. See VM&P naphtha
Naphtha (petroleum), hydrogen-treated, light. See Naphtha, hydrotreated light
Naphtha (petroleum), hydrotreated heavy. See Naphtha, hydrotreated heavy
Naphtha (petroleum), hydrotreated light. See Naphtha, hydrotreated light
Naphtha (petroleum), light aliphatic. See Naphtha, light aliphatic
Naphtha (petroleum), light, hydrotreated. See Naphtha, hydrotreated light
Naphtha (petroleum), medium aliphatic. See Naphtha, medium aliphatic
Naphtha, VM&P. See VM&P naphtha
2-Naphthol. See β-Naphthol
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<td>Neopentyl glycol dicaprate CAS 27841-06-1; EINECS/ELINCS 248-688-3&lt;br&gt;Synonyms: Decanoic acid, 2,2-dimethyl-1,3-propanediol diester&lt;br&gt;Definition: Diester of neopentyl glycol and</td>
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| Naphthol red. See Amaranth | | |
| Naphthol yellow S. See D&C Yellow No. 8; CI 10316; Ext. D&C Yellow No. 7; Fluorescein sodium | | |
| 1,4-Naphthoquinone, 2-hydroxy-. See Lawsone | | |
| β-Naphthyl alcohol. See β-Naphthol | | |
| Naphthylamine red. See Amaranth | | |
| β-Naphthyl hydroxide. See β-Naphthol | | |
| 2-Naphthyl methyl ketone; β-Naphthyl methyl ketone. See 2′-Acetonaphthone | | |
| β-Naphthyl orange. See D&C Orange No. 4; Acid orange 7 | | |
| Narcissin. See p-Tolyl phenylacetate | | |
| NaTG. See Sodium thioglycolate | | |
| Native calcium sulfate. See Calcium sulfate dihydrate | | |
| Natron. See Sodium carbonate | | |
| Natural brown 5. See CI 75130 | | |
| Natural brown 10. See Caramel | | |
| Natural calcium carbonate. See Calcium carbonate | | |
| Natural carotenel. See CI 75130 | | |
| Natural green 3. See CI 75810 | | |
| Natural iron oxides. See Ferric oxide | | |
| Natural musk ambrette. See Ambrettolide | | |
| Natural orange 4. See Annatto (Bixa orellana); Annatto (Bixa orellana) extract | | |
| Natural orange 6. See Lawsone | | |
| Natural pearl essence. See Guanine | | |
| Natural red 4. See Carminic acid | | |
| Natural red oxide. See Ferric oxide | | |
| Natural smithsonite. See Zinc carbonate | | |
| Natural trehalose. See Trehalose | | |
| Natural white 1. See Guanine | | |
| Natural yellow 3. See Turmeric (Curcuma longa) | | |
| Natural yellow 26. See CI 75130; Carotene NDGA. See Nordihydroguaiaretic acid NE. See Nitroethane | | |

[45x38]Handbook of Pharmaceutical Additives, Third Edition 1711
Chemical Component Cross-Reference

**Decanoic acid**

*Empirical: C_{25}H_{48}O_{4}*

*Formula: CH_{3}(CH_{2})_{8}COOCH_{2}C(CH_{3})_{2}CH_{2}OCO(CH_{2})_{8}C_{6}H_{3}*

*Uses: Solvent in topical pharmaceuticals*

**Neopentyl glycol dioctanoate**

*Corresponding CAS: 28510-23-8; 31335-74-7; EINECS/ELINCS 249-060-1; 250-575-9 Synergists: 2,2-Dimethyl-1,3-propanediyl dioctanoate, 2,2-Dimethyl-1,3-propanediyl 2-ethylhexanoate, 2-Ethylhexanoic acid, 2,2-dimethyl-1,3-propanediyl ester, Octanoic acid, 2,2-dimethyl-1,3-propanediol diester*

*Definition: Diester of neopentyl glycol and 2-ethylhexanoic acid*

*Empirical: C_{21}H_{40}O_{4}*

**Toxicology:**

*TSCA listed*

*Uses: Emollient, solvent, pigment dispersant*

**Trade Names:** Schercemol NGDC

**NEPD. See 2-Nitro-2-ethyl-1,3-propanediol**

**Neral. See Citral**

**Nerol**

*Corresponding CAS: 106-25-2; EINECS/ELINCS 203-378-7; FEMA 2770

*Synonyms: 2,6-Dimethyl-2,6-octadien-8-ol; 2-cis-3,7-Dimethyl-2,6-octadien-1-ol; 3,7-Dimethyl-octa-2,6-dien-1-ol; 3,7-Dimethylisocaproic acid; 3,7-Dimethyl-(Z)-2,6-octadien-1-ol; cis-3,7-Dimethyl-2,6-octadien-1-ol*

*Classification: Nonaromatic alcohol, unsat.*

*Definition: The cis-isomer of geraniol; found in many essential oils*

*Empirical: C_{10}H_{18}O*

*Formula: (CH_{3})_{2}C:CHCH_{2}CH_{2}C(CH_{3})_{2}:CHCH_{2}OH*

*Properties: Colorless liq., sweet rose odor, bitter flavor; sol. in abs. alcohol, oxygenated solvs.; insol. in water; m.w. 154.25; dens. 0.8813 (15 C); b.p. 224-225 (745 mm), 125 C (25 mm); flash pt. (OC) 130 C; ref. index 1.4730-1.4780 (20 C); tenacity 24 hrs. on blotter*

*Toxicology:**

*LD50 (oral, rat) 4500 mg/kg, (intramuscular, mouse) 3000 mg/kg; mod. toxic by intramuscular route; mildly toxic by ing.; skin irritant; TSCA listed*

*Precaution: Combustible; incompat. with strong oxidizers*

*Hazardous Decomp. Prods.: Heated to decom., emits acrid smoke and irritating fumes, CO, CO_{2}*

**Nervonic acid**

*Corresponding CAS: 506-37-6

*Synonyms: Selacholeic acid; 15-Tetracosaenoic acid, (Z)-; Tetracosanoic acid; 15-Tetracosanoic acid, cis-15-Tetracosanoic acid*

*Definition: Most prevalent fatty acid in the nervous system*
Neryl acetate
CAS 141-12-8; EINECS/ELINCS 205-459-2
FEMA 2773

Synonyms: Acetic acid 3,7-dimethyl-octa-2,6-dienyl ester; cis-3,7-Dimethyl-2,6-octadien-1-ol acetate; cis-3,7-Dimethyl-2,6-octadien-1-yl-acetate; Nerol acetate; 2,6-Octadien-1-ol, 3,7-dimethyl-, acetate, (Z)-

Classification: floral ester; acyclic terpene ester
Definition: Ester of nerol and acetic acid
Empirical: C_{12}H_{20}O_{2}
Formula: (CH_{3})_{2}C:CHCH_{2}CH_{2}C(CH_{3}):CHCH_{2}OCOCH_{3}

Properties: Colorless to sl. yel. oily liq.; sweet floral orange-blossom and rose-like odor, honey-like flavor; m.w. 196.29; dens. 0.912 (20/4 C); vapor pressure 0.1 mm Hg; vapor dens. \approx 6.8; b.p. 234-236 C; flash pt. (CC) 100 C; ref. index 1.460 (20 C); tenacity 24 hrs. on blotter

Toxicology: LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; irritant; TSCA listed
Precaution: Incomp. with strong oxidizers, iron, iron salts

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating vapors
NFPFA: Health 1, Flammability 1, Reactivity 1

Storage: Refrigerate; store in dry place in tightly sealed containers, protected from heat and light

Uses: Synthetic flavor for pharmaceuticals

Neryl butyrate
CAS 999-40-6; EINECS/ELINCS 213-660-1
FEMA 2774

Synonyms: cis-3,7-Dimethyl-2,6-octadienyl butanoate

Classification: floral ester
Empirical: C_{12}H_{20}O_{2}
Formula: (CH_{3})_{2}C:CHCH_{2}CH_{2}C(CH_{3}):CHCH_{2}OCOCH_{3}

Properties: M.w. 224.35; dens. 0.898; b.p. 240 C; flash pt. > 230 F

Toxicology: TSCA listed

Uses: Synthetic flavor for pharmaceuticals

Features: Sweet orange-like flavor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: Grau Aromatics http://www.grau-aromatics.de; SAFC Specialties http://www.safcspecialties.com

Neryl formate
CAS 2142-94-1; EINECS/ELINCS 218-401-6
FEMA 2776

Synonyms: cis-3,7-Dimethyl-2,6-octadien-1-ol formate; cis-3,7-Dimethyl-2,6-octadienyl methanoate; Formic acid, neryl ester; 2,6-Octadien-1-ol, 3,7-dimethyl-, formate (Z)-

Classification: floral ester
Empirical: C_{11}H_{18}O_{2}

Properties: M.w. 182.29

Toxicology: LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; primary skin irritant; TSCA listed

Uses: Synthetic flavor for pharmaceuticals
**Neryl isobutyrate**

CAS 2345-24-6; EINECS/ELINCS 219-061-1

FEMA 2775

**Synonyms:** cis-3,7-Dimethyl-2,6-octadien-1-yl isobutyrate; Isobutyric acid, 3,7-dimethyl-octa-2,6-dienyl ester; Isobutyric acid, 3,7-dimethyl-2,6-octadienyl ester, (Z)-; (Z)-2-Methylpropanoic acid 3,7-dimethyl-2,6-octadienyl ester; Propionic acid, 2-methyl-, 3,7-dimethyl-2,6-octadienyl ester, (Z)-

**Classification:** Floral ester

**Empirical:** C14H24O2

**Properties:** M.w. 224.35; dens. 0.895; b.p. 229 C; flash pt. > 230 F; ref. index 1.4570

**Toxicology:** LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; TSCA listed

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Sweet orange-like flavor

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Manuf./Distrib.:** Citrus and Allied Essences [http://www.citrusandallied.com](http://www.citrusandallied.com)

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**Neryl isovalerianate**

CAS 3915-83-1; EINECS/ELINCS 223-478-4

FEMA 2778

**Synonyms:** cis-3,7-Dimethyl-2,6-octadien-1-ol isovalerate; Isovaleric acid, 3,7-dimethyl-octa-2,6-dienyl ester; Isovaleric acid, 3,7-dimethyl-2,6-octadienyl ester; (Z)-2-Methylpropanoic acid 3,7-dimethyl-2,6-octadienyl ester; Propionic acid, 2-methyl-, 3,7-dimethyl-2,6-octadienyl ester, (Z)-

**Classification:** Floral ester

**Empirical:** C15H26O2

**Properties:** M.w. 238.37; dens. 0.890; b.p. 252 C; flash pt. > 230 F; ref. index 1.4580

**Toxicology:** LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; skin irritant; may be harmful by inh., ing., or skin absorp.; vapor or mist is irritating to eyes, mucous membranes, upper respiratory tract; TSCA listed

**Precaution:** Incompat. with strong oxidizing agents

**Hazardous Decomp. Prods.:** Toxic fumes of CO, CO2; heated to decomp., emits acrid smoke and irritating fumes; emits toxic fumes under fire conditions

**Storage:** Store in cool, dry place; keep tightly closed

**Uses:** Synthetic flavor for pharmaceuticals

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL


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**Neryl propionate**

CAS 105-91-9; 27751-90-2; EINECS/ELINCS 203-345-7

FEMA 2777

**Synonyms:** cis-3,7-Dimethyl-2,6-octadien-1-ol propionate; (Z)-3,7-Dimethyl-2,6-octadien-1-ol propionate; cis-3,7-Dimethyl-2,6-octadienyl propanoate; Propionic acid, 3,7-dimethyl-2,6-octadienyl ester; Propionic acid, neryl ester

**Definition:** Ester of nerol and propionic acid

**Empirical:** C13H22O2

**Properties:** Colorless oily liq., ether-like sweet intense fruity odor, plum-like taste; sol. in alcohol; sl. sol. in water; m.w. 210.31; b.p. 233 C; flash pt. 120 C; ref. index 1.4550

**Toxicology:** LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; skin irritant; may be harmful by inh., ing., or skin absorp.; vapor or mist is irritating to eyes, mucous membranes, upper respiratory tract; TSCA listed

**Precaution:** Incompat. with strong oxidizing agents

**Hazardous Decomp. Prods.:** Toxic fumes of CO, CO2; heated to decomp., emits acrid smoke and irritating fumes; emits toxic fumes under fire conditions

**Storage:** Store in cool, dry place; keep tightly closed

**Uses:** Synthetic flavor for pharmaceuticals

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Manuf./Distrib.:** Fleurchem [http://www.fleurchem.com](http://www.fleurchem.com); Grau Aromatics [http://www.grau-aromatics.de](http://www.grau-aromatics.de)
Nettle extract. See Nettle (Urtica dioica) extract

Nettle (Urtica dioica) extract
CAS 84012-40-8; EINECS/ELINCS 281-685-5
Synonyms: Nettle extract; Stinging nettle extract; Urtica dioica; Urtica dioica extract
Definition: Extract of the nettle, Urtica dioica
Uses: Botanical
Regulatory: BP, EP compliance
Trade Names Containing: Hair Complex Aquosum

New coccine. See Acid red 18
Niacin (INCI). See Nicotinic acid

Nicotinamide
CAS 98-92-0; EINECS/ELINCS 202-713-4
Synonyms: Nicotinamid; Nicotinic acid amide; Nicotinic acid amide; Nicotinic amide; Nicotylamide; Nicotinamide; NSA; 3-Pyridinecarboxamide; Pyridine-3-carboxylic acid amide; 3-Pyridinecarboxylic acid amide; Vitamin B3; Vitamin PP
Classification: Heterocyclic aromatic amide
Empirical: C6H6N2O
Formula: C6H6NCONH2
Properties: Colorless needles or wh. cryst. powd., odorless, bitter taste; sol. in water, ethanol, ether, glycerin, oxygenated solvs.; m.w. 122.14; dens. 1.40; m.p. 129 C; b.p. 150-160 C (0.0005 mm)
Toxicology: LD50 (oral, rat) 3500 mg/kg, (IP, mouse) 2050 mg/kg, (subcut., rat) 1680 mg/kg; mod. toxic by ing., IV, IP, and subcut. routes; no known skin toxicity; mutagenic data; TSCA listed
Hazardous Decomp. Pros.: Heated to decomp., emits toxic fumes of NOx
HMIS: Health 1, Flammability 1, Reactivity 0
Uses: Skin stimulant; nutrient, dietary supplement to prevent pellagra; pharmaceutical intermediate
Regulatory: FDA 21CFR §137.260, 137.305, 137.350, 139.115, 139.117, 139.122, 139.155, 184.1535, GRAS; BP, EP compliance; Canada DSL

†=pharmaceutical grade

**Chemical Component Cross-Reference**

**Trade Names:** Niacinamide USP, FCC

**Trade Names Containing:** Descote®
  Niacinamide 33\(\frac{1}{3}\)%; Niacinimide Free Flow;
  Rocoat® Niacinamide 33\(\frac{1}{3}\)%; Romax™

**Niacinamide ascorbate**

- **CAS 1987-71-9**
- **Synonyms:** Nicotinamide-ascorbic acid complex
- **Definition:** Complex of ascorbic acid and niacinamide
- **Properties:** Lemon-yel. powd., odorless; may darken on exposure to air; sol. in water, alcohol; sl. sol. in glycerol; pract. insol. in benzene; m.p. 141-145 C
- **Uses:** Nutrient, dietary supplement, ascorbic acid source, nicotinamide source in multivitamin preps.

**Regulatory:** FDA 21CFR §172.315

**Manuf./Distrib.:**
- Alfa Chem†
  http://www.alfachem1.com; Am. Int'l.
- http://www.aicma.com; Anmar Int'l.t
- http://www.anmarinternational.com; Asiamerica Int'l.t; DSM Nutritional Prods.
- USA† http://www.nutraaccess.com
- Fortitech† http://www.fortitech.com
- Functional Foods†
  http://www.functionalfoods.com; Lipo†
  http://www.lipochemicals.com; Spectrum Quality Prods.,†
- http://www.spectrumchemical.com;
  Universal Preserv-A-Chem†
- http://www.upichem.com
- Voigt Global Distrib.
  http://www.vgdllc.com; Zetapharm
  http://www.zetapharm.com

**Nicotinamide.** See Niacinamide

**Nicotinamide-ascorbic acid complex.** See Niacinamide ascorbate

**Nicotine acid.** See Nicotinic acid

**Nicotine acid amide.** See Niacinamide

**Nicotinic acid**

- **CAS 59-67-6; EINECS/ELINCS 200-441-0 INS375**
- **Synonyms:** Anti-pellagra vitamin; 3-Carboxypyridine; Niacin (INCI); Nicotinic acid; 3-Picolinic acid; Pyridine-3-carboxylic acid; Pyridine-3-carboxylic acid; 3-Pyridinencarboxylic acid; Pyridine-β-carboxylic acid
- **Classification:** Heterocyclic aromatic compd.
- **Empirical:** C\(6\)H\(5\)NO\(2\)
- **Properties:** Colorless needles or wh. cryst. powd., odorless to sl. odor, sour taste;
  nonhygroscopic; sol. in alcohol, hot water, aq. alkali; insol. in most lipid solvs., ether; m.w. 123.12; dens. 1.473; m.p. 236 C; sublimes above m.p.; stable in air

**Toxicology:**
- LD50 (oral, rat) 7000 mg/kg, (IP, rat) 730 mg/kg, (subcut., rat) 5000 mg/kg; LDLo (IV, rat) 3500 mg/kg; poison by IP route; mod. toxic by ing., IV, and subcut. routes; human systemic effects; megadoses may cause itching, nausea, headaches; experimental carcinogen; target organ: blood; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of NOx

**HMIS:** Health 1, Flammability 1, Reactivity 0

**Uses:** Dietary supplement, nutrient in pharmaceuticals; antipellagra vitamin; medicine (to lower cholesterol, vasodilator/lipid reduction drug)

**Regulatory:** FDA 21CFR §101.9, 107.100, 135.115, 136.115, 137.165, 137.235, 137.260, 137.305, 137.350, 139.115, 139.117, 139.122, 139.155, 184.1530, GRAS; Canada DSL; Japan restricted; Europe listed; UK approved; BP, EP compliance

**Manuf./Distrib.:**
- ADA Int'l.
  http://www.joinme.net/ada/index.htm
- AMRESCO† http://www.amresco-inc.com; Aastrid Int'l.t
  http://www.anmarinternational.com
- Aceto† http://www.aceto.com; Adept Sol'ns,t
- Aldrich† http://www.sigma-aldrich.com
- Alfa Chem† http://www.alfachem1.com
- Amerol http://www.amerolcorp.com
- Anmar Int'l.t
  http://www.anmarinternational.com
- Ashland† http://www.ashchem.com
- Asiamerica Int'l.t; BASF
  http://www.basf.com; CarboMer†
  http://www.carbomer.com; Charles Bowman† http://www.charlesbowman.com
- CoKEM Assoc.t
- DSM Nutritional Prods. USA†
- Degussa AG/Health & Nutrition; Degussa†
  http://www.degussa.com; EMD Chems.t
  http://www.emdchemicals.com
- Fluka http://www.sigma-aldrich.com
- Fortitech† http://www.fortitech.com
- Functional Foods†
  http://www.functionalfoods.com; Galbraith Labs† http://www.galbraith.com
- Generichem† http://www.generichem.com

†=pharmaceutical grade
Nicotinamide

Nicotinic acid amide; Nicotinic amide. See Niacinamide

Nicotinonitrile

CAS 100-54-9
UN 1993
Synonyms: 3-Cyanopyridine
Empirical: C6H4N2
Properties: Cl. to amber solid; characteristic odor; sol. in water (10% aq. soln.); m.w. 104.11; sp. gr. 1.08 @ 50 C; dens. 8.8 lb/gal; f.p. 48.5 C; flash pt. none; stains animal tissues yel.
Toxicology: ACGIH TLV/TWA 2 ppm; STEL 4 ppm; LDLo (oral, human) 430 mg/kg; human poison by ing.; highly corrosive to eyes, skin, mucous membranes, teeth; rapidly destroys tissues; avoid contact; can cause intermittent severe upper respiratory irritation; experimental teratogen, reproductive effects; TSCA listed
Precaution: DOT: Corrosive material; powerful oxidizing agent; will react with water or steam to produce heat and toxic and corrosive fumes; flamm. by chem. reaction with reducing agents; explosive reactions possible; many incompatibilities
Hazardous Decomp. Prods.: Heated to decomp., emits highly toxic fumes of NOx and hydrogen nitrate
NFPA: Health 4, Flammability 0, Reactivity 0
Uses: Acidifier in pharmaceuticals, inhalants, ophthalmics, topicals; corrosive for removing warts, tattoos; pharmaceutical intermediate
Regulatory: FDA 21CFR §175.105; FDA approved for inhalants, ophthalmics, topicals; USP/NF, BP, EP compliance; Canada DSL

Nitric acid

CAS 7697-37-2; EINECS/ELINCS 231-714-2
UN 2031 (DOT); UN 2032 (DOT)
Synonyms: Aqua fortis; Azotic acid; Engraver's acid; Hydrogen nitrate
Classification: Inorganic acid
Empirical: HNO3
Formula: H-O-N(O)=O
Properties: Colorless to pale yel. fuming liq., char. highly irritating odor; misc. with water; m.w. 63.01; dens. 1.41; m.p.-42 C; b.p. 120 C; flash pt. none; stains animal tissues yel.
Toxicology: ACGIH TLV/TWA 2 ppm; STEL 4 ppm; LDLo (oral, human) 430 mg/kg; human poison by ing.; highly corrosive to eyes, skin, mucous membranes, teeth; rapidly destroys tissues; avoid contact; can cause intermittent severe upper respiratory irritation; experimental teratogen, reproductive effects; TSCA listed
Precaution: DOT: Corrosive material; powerful oxidizing agent; will react with water or steam to produce heat and toxic and corrosive fumes; flamm. by chem. reaction with reducing agents; explosive reactions possible; many incompatibilities
Hazardous Decomp. Prods.: Heated to decomp., emits highly toxic fumes of NOx and hydrogen nitrate
NFPA: Health 4, Flammability 0, Reactivity 0
Uses: Acidifier in pharmaceuticals, inhalants, ophthalmics, topicals; corrosive for removing warts, tattoos; pharmaceutical intermediate
Regulatory: FDA 21CFR §175.105; FDA approved for inhalants, ophthalmics, topicals; USP/NF, BP, EP compliance; Canada DSL
Chemical Component Cross-Reference

†=pharmaceutical grade


Nitric acid, phenylmercury salt. See Phenylmercuric nitrate

Nitric acid silver (1+) salt. See Silver nitrate

Nitric acid, sodium salt. See Sodium nitrate

2,2´,2´´-Nitrioltriethanol. See Triethanolamine

1,1´,1´´-Nitrioltri-2-propanol. See Triisopropanolamine

2,2´,2´´-Nitrioltris (ethanol). See Triethanolamine

1,1´,1´´-Nitrioltris-2-propanol. See Triisopropanolamine

2-Nitrobenzaldehyde. See o-Nitrobenzaldehyde

4-Nitrobenzaldehyde. See p-Nitrobenzaldehyde

o-Nitrobenzaldehyde

CAS 552-89-6; EINECS/ELINCS 209-025-3
Synonyms: 2-Nitrobenzaldehyde
Classification: Aromatic organic compd.
Empirical: C7H5NO3
Formula: O2NC6H4CHO
Properties: Lt. yel. need.; sol. in alcohol, benzene, chloroform, oxygenated and chlorinated solvs.; sl. sol. in water; m.w. 151.12; m.p. 42-43 C; b.p. 153 C (23 mm); flash pt. > 230 F; volatile with steam
Toxicology: LD50 (oral, mouse) 600 mg/kg; mod. toxic by ing.; irritant; possible mutagen; TSCA listed
Precaution: Violent reaction with pyrrole; thermal decom. is very dangerous; pressure increases rapidly

Hazardous Decomp. Prods.: Heated to decom., emits toxic fumes of NOx
Uses: Used in the synthesis of pharmaceuticals
Regulatory: Canada DSL

p-Nitrobenzaldehyde

CAS 555-16-8; EINECS/ELINCS 209-084-5
Synonyms: p-Formyl nitrobenzene; 4-Nitrobenzaldehyde
Classification: Aromatic organic compd.
Empirical: C7H5NO3
Formula: O2NC6H4CHO
Properties: Wh. to yel. cryst.; sol. in alcohol, glac. acetic acid, benzene, aromatic solvs.; sl. sol. in water, ether; m.w. 151.12; m.p. 106-107 C; sublimes; sl. volatile with steam
Toxicology: LD50 (oral, rat) 4700 mg/kg, (IP, rat) 545 mg/kg, (skin, rat) 16 g/kg; mod. toxic by IP route; mildly toxic by ing. and skin contact; irritant; mutagen; TSCA listed
Precaution: Exothermic decom. is vigorous with a very high rate of pressure inc.; reacts violently with pyrrole in acetic acid
Hazardous Decomp. Prods.: Heated to decom., emits toxic fumes of NOx
Uses: Used in the synthesis of pharmaceuticals
Regulatory: Canada DSL
5-Nitrobenzene-1,3-dicarboxylic acid. See 5-Nitroisophthalic acid.

2-Nitro-1-butanol
CAS 609-31-4
Classification: Nitro alcohol
Empirical: C₄H₉NO₃
Formula: CH₃CH₂CHNO₂CH₂OH
Properties: Colorless liq.; sol. in water; m.w. 119.1; dens. 1.133; b.p. -48 C; flash pt. 105 C; ref. index 1.4390
Precaution: Combustible
Uses: Pharmaceutical intermediate; deodorants
Trade Names: NB

Nitrocarbol. See Nitromethane

Nitrocellulose
CAS 9004-70-0; EINECS/ELINCS 239-069-9
UN 2059 (DOT); UN 2555 (DOT); UN 2556 (DOT); UN 2557 (DOT)
Synonyms: Cellloid; Celluloid; Cellulose nitrate; Cellulose tetrinitrate; Collodion; Collodion cotton; Collodion wool; Colloxylin; Flexible collodion; Guncotton; Nitrocellulose, dry; Nitrocellulose sol’n.; Nitrocellulose, wetted; Nitrocelloton; Nitron; Pyroxylin; Pyroxylin plastic; Pyroxylin rods; Soluble guncotton; Xyloidin
Classification: Cellulose deriv.
Empirical: C₁₂H₁₆N₄O₁₈
Formula: C₁₂H₁₆(ONO₂)₄O₆
Properties: Colorless liq. or wh. amorphous solid; sol. in acetone, methanol, glac. acetic acid; insol. in water, ether-alcohol mixt.; m.w. 504.3; dens. 1.66; b.p. 83 C; flash pt. (CC) 40 F
Toxicology: LD₅₀ (oral, rat) > 5 g/kg; very low oral toxicity; severe eye irritant; target organs: kidneys, nerves; TSCA listed
Precaution: DOT: Explosive, flam. liq., flamm. solid; highly dangerous exposed to heat, flame, strong oxidizers; ignites easily;

Nitrocellulose, dry; Nitrocellulose sol’n.; Nitrocellulose, wetted; Nitrocelloton. See also Collodion

Nitrocellulose, dry
Nitrocellulose, wetted; Nitrocelloton. See Nitrocellulose

Nitroethane
CAS 79-24-3; EINECS/ELINCS 201-188-9
UN 2842 (DOT)
Synonyms: Ethane, nitro-; NE
Classification: Aliphatic organic compd.; nitroparaffin
Empirical: C₂H₅NO₂
Formula: CH₃CH₂NO₂
Properties: Colorless oily clear liq.; mild fruity agreeable odor; sol. in water, alcohols, esters, ketones, ethers, aromatic hydrocarbons, chloroform, acid, alkali; misc. with oxygenated solvs.; m.w. 75.07; dens. 1.048 (20/4 C); f.p. -50 C; m.p. -90 C; b.p. 335-382 C; flas. pt. (TCC) 30 C; autoignition temp. 414 C; ref. index 1.391 (20 C)
Toxicology: ACGIH TLV/TWA 100 ppm; LD₅₀ (oral, rat) 1100 mg/kg, (IP, rat) 310 mg/kg; poison by IP route; mod. toxic by ing.;
Chemical Component Cross-Reference

**mildly toxic by inh.; irritating to eyes, mucous membranes; may cause headache, nausea, coughing, sneezing, CNS depression, respiratory obstruction, cyanosis; causes injury to liver and kidneys; mild skin irritant; cancer suspect agent; mutagen; TSCA listed**

**Precaution:** DOT: Flamm. liq.; explodes when heated; incompat. with strong oxidizers, strong acids, reducing agents, alkali metals, inorg. bases, amines, heavy metal oxides, hydrocarbons, activated carbon

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of NOx

**NFPA:** Health 1, Flammability 3, Reactivity 3

**Storage:** Hygroscopic; store in well-ventilated area; bond and ground metal containers in storage area; install pressure and vacuum-relief venting in drums

**Uses:** Raw material for pharmaceutical synthesis, e.g., for α-methyldopa, a hypertensive drug, and for phenylpropanolamine used in bronchial decongestants and appetite suppressants

**Regulatory:** Canada DSL

**Manuf./Distrib.:** ANGUS†

- [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
- Chemetals†
  - [http://www.atomergic.com](http://www.atomergic.com)
- Fluka
  - [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
- Spectrum Quality Prods.†
  - [http://www.spectrumchemical.com](http://www.spectrumchemical.com)

**Trade Names:** NE™

2-Nitro-2-ethyl-1,3-propanediol

**CAS:** 597-09-1

**Synonyms:** 2-Ethyl-2-nitropropan-1,3-diol; 2-Ethyl-2-nitro-1,3-propanediol; NEPD

**Classification:** Nitro alcohol

**Empirical:** C5H11NO4

**Formula:** HOCH2C(C2H5)(NO2)CH2OH

**Properties:** Wh. crystals; very sol. in water; sol. in org. solvs.; m.w. 149.14; m.p. 56-65 C; b.p. dec. (10 mm); pH 5.48 (0.1M aq.)

**Toxicology:** TSCA listed

**Uses:** Pharmaceutical intermediate

**Regulatory:** Canada DSL

**Trade Names:** NEPD™

Nitrogen

**CAS:** 7727-37-9; EINECS/ELINCS 231-783-9

**UN:** 1066 (compressed); UN 1977 (refrig. liq.);

**INS:** 941; E941

**Synonyms:** Nitrogen, compressed; Nitrogen gas; Nitrogen, refrigerated liquid

**Classification:** Gaseous element

**Definition:** Gas that is 78% of the atmosphere by volume and essential to all living things

**Empirical:** N2

**Properties:** Colorless gas, odorless, tasteless; sol. in liq. ammonia, alcohol; sl. sol. in water; at. wt. 14.0067; m.w. 28.01; dens. 1.2506 g/l (0 C); 0.808 g/cm² (liq., -195.8 C); m.p. -210 C; b.p. -195.79 C; chemically nonreactive; noncombustible

**Toxicology:** Low toxicity; simple asphyxiant in high concs.; toxic conc. 90 ppm in humans, 250 ppm in mice; narcotic at high conc. and pressure; narcotic effects and the bends are hazards of compressed air atmospheres such as found in underwater diving; TSCA listed

**Precaution:** Combines with oxygen and hydrogen on sparking forming nitric oxide and ammonia resp.

**Uses:** Propellant, diluent, air displacement agent in pharmaceuticals

**Regulatory:** FDA 21CFR §169.115, 169.140, 169.161, 169.150, 177.1615, 184.1540, GRAS; Japan approved; USP/NF, BP, EP compliance; Canada DSL

**Manuf./Distrib.:** Air Liquide Am.†

- [http://www.us.airliquide.com](http://www.us.airliquide.com)
- Air Prods.†
  - [http://www.airproducts.com](http://www.airproducts.com)
- Aldrich
  - [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
- BOC Ltd†
- Degussa AG/Health & Nutrition
  - [http://www.dgusa.com](http://www.dgusa.com)
- Messer†
  - [http://www.messergroup.com](http://www.messergroup.com)
- Praxair
  - [http://www.praxair.com](http://www.praxair.com)
- Thomas Scientific†
  - [http://www.thomassci.com](http://www.thomassci.com)
- Voltaix
  - [http://www.voltaix.com](http://www.voltaix.com)

**Nitrogen, compressed:** Nitrogen gas. See Nitrogen

**Nitrogen monoxide:** Nitrogen oxide. See Nitrous oxide

**Nitrogen, refrigerated liquid:** See Nitrogen

**2-Nitro-2-(hydroxymethyl)-1,3-propanediol:** See Tris (hydroxymethyl) nitromethane

5-Nitroisophthalic acid

**CAS:** 618-88-2; EINECS/ELINCS 210-568-3

**Synonyms:** 5-Nitrobenzene-1,3-dicarboxylic acid

**Classification:** Aromatic carboxylic acid

**Empirical:** C8H5NO5

**Properties:** Grn. cryst.; sol. in hot water; insol. in cold water; m.w. 211.13; m.p. 260-261 C

**Toxicology:** Irritating to eyes, skin, respiratory system; TSCA listed

**Uses:** Pharmaceutical intermediate
Nitroisopropylene. See 2-Nitropropane

Nitromethane
CAS 75-52-5; EINECS/ELINCS 200-876-6
UN 1261 (DOT)
Synonyms: Nitrocarbol; NM
Classification: Aliphatic nitro compd.; nitroparaffin
Empirical: CH₃NO₂
Properties: Colorless oily liq., mild fruity to disagreeable odor; sol. in water, alcohol, ether, aromatic hydrocarbons, esters, ketones; misc. with oxygenated and aromatic solvs.; m.w. 61.04; sp.gr. 1.139 (20/20 C); m.p. -29 C; b.p. 100-103 C; flash pt. (TCC) 35-35.6 C; ref. index 1.382 (20 C)
Toxicology: ACGIH TLV/TWA 20 ppm; LD₅₀ (oral, rat) 940 mg/kg, (IP, mouse) 110 mg/kg; LDLo (IV, rabbit) 750 mg/kg; poison by ing., inh., IP routes; mod. toxic by IV route; vapor inh. may cause mild respiratory tract irritation; CNS depression occurs in animals; may cause human anorexia, nausea, vomiting, diarrhea, kidney/liver damage; mild skin irritant; TSCA listed
Precaution: Flamm.; dangerously reactive; dangerous fire/explosion risk; may detonate under high temps. and pressures; incompat. with acids, alkali metals, inorg. bases, amines, strong oxidizers, hydrocarbons, metal oxides, aluminum chloride, etc.
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOₓ
NFPA: Health 1, Flammability 3, Reactivity 4
Storage: Store in cool, dry, well-ventilated area out of direct sunlight; store separately from incompatible materials; limit quantity in storage
Uses: Solvent in pharmaceuticals; raw material for synthesis of pharmaceutical actives, e.g., for 1,1-bis(methylthio)-2-nitroethane used to mfg. ranitidine, an anti-ulcer drug, or serinol, a raw material for iopamidol, an injectable radio-opaque x-ray contrast medium
Regulatory: Canada DSL
Manuf./Distrib.: ANGUS†
http://www.mallbaker.com; PCAS†
http://www.pacas.fr; Sigma
http://www.sigma-aldrich.com/belgium
Spectrum Quality Prods.†
http://www.spectrumchemical.com; VWR Int’l.†
http://www.vwrsp.com
Trade Names: NM™

Nitromethylidylnitromethane. See Tris (hydroxymethyl) nitromethane

2-Nitro-2-methyl-1-propanol
CAS 76-39-1; EINECS/ELINCS 200-957-6
Synonyms: 2-Methyl-2-nitropropanol; 2-Methyl-2-nitro-1-propanol; NMP
Classification: Nitro alcohol
Empirical: C₄H₉NO₃
Formula: CH₃C(CH₃)(NO₂)CH₂OH
Properties: Wh. crystals; sol. in ethanol; sparingly sol. in water; m.w. 119.12; m.p. 90 C; b.p. 95 C (10 mm)
Toxicology: LDLo (oral, rabbit) 1 g/kg; mod. toxic by ing.; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOₓ
Uses: Pharmaceutical intermediate
Regulatory: Canada DSL
Manuf./Distrib.: ANGUS
http://www.mallbaker.com; PCAS†
http://www.pacas.fr; Sigma
http://www.sigma-aldrich.com/belgium
Nitrone. See Nitrocellulose
Nitropropane. See 1-Nitropropane; 2-Nitropropane
1-Nitropropane

CAS 108-03-2; EINECS/ELINCS 203-544-9

UN 2608

Synonyms: Nitropropane; n-Nitropropane; 1-NP

Classification: Aliphatic nitro compd.; nitroparaffin

Empirical: C₃H₇NO₂

Formula: CH₃CH₂CH₂NO₂

Properties: Colorless oily liq.; mild fruity odor; sol. in aromatic hydrocarbons, alcohols, esters, ketones, ethers, lower carboxylic acids; misc. with most org. solvs.; very sl. sol. in water; m.w. 89.09; dens. 1.003 (20/20 C); vapor pressure 12.9 mm Hg (20 C); autoignition temp. 420 C; ref. index 1.4018 (20 C; b.p. 129-133 C; flash pt. (TCC) 35.6 C; m.w. 89.09; dens. 1.003 (20/20 C); m.p. -108 with most org. solvs.; very sl. sol. in water; m.w. 89.09; dens. 1.003 (20/20 C); ref. index 1.4018 (20 C)

Toxicology: ACGIH TLV/TWA 25 ppm; LD50 (oral, rat) 725 mg/kg, (IP, rat) 75 mg/kg; very toxic; poison by ingestion, inhalation, and IP routes (nausea, vomiting, diarrhea, anorexia, severe headaches, cyanosis); eye/skin/mucous membrane/upper respiratory tract irritant; Ig doses may cause respiratory tract/liver damage and CNS effects; acute inh. may cause GI bleeding; may cause methemoglobinemia, depressed appetite, pulmonary edema, etc.; suspected carcinogen; mutagenic; reproductive effects

Precaution: Flamm. liq.; reacts violently; incompatible with strong oxidizers, metal oxides, strong acids, amines, inorg. bases, hydrocarbons, activated carbon; sensitive to heat

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx

NFPA: Health 1, Flammability 3, Reactivity 2

Storage: Store in cool, well-ventilated area out of direct sunlight

Uses: Pharmaceutical intermediate

Regulatory: Canada DSL


2-Nitropropane

CAS 79-46-9; EINECS/ELINCS 201-209-1

UN 2608 (DOT)

Synonyms: DimethylNitromethane; Isonitropropane; Nitroisopropene; Nitropropane; β-Nitropropane; s-Nitropropane; 2-NP; Propane, 2-nitro-

Classification: Aliphatic nitro compd.; nitroparaffin

β-Nitropropane. See 2-Nitropropane
n-Nitropropane. See 1-Nitropropane
s-Nitropropane. See 2-Nitropropane

Nitrosobide. See Isosorbide dinitrate

†=pharmaceutical grade
Chemical Component Cross-Reference

Nitrosyl ethoxide; Nitrous acid ethyl ester.  
See Ethyl nitrite
Nitrous acid sodium salt.  See Sodium nitrite
Nitrous ether; Nitrous ethyl ether.  See Ethyl nitrite

Nitrous oxide
CAS 10024-97-2; EINECS/ELINCS 233-032-0
UN 1015; 1070 (compressed); UN 2201 (refrig. liq.); FEMA 2779; INS942; E942
Synonyms: Dinitrogen monoxide; Dinitrogen oxide; Factitious air; Hyponitrous acid anhydride; Laughing gas; Nitrogen monoxide; Nitrogen oxide; Nitrous oxide, compressed; Nitrous oxide, refrigerated liquid
Classification: Inorganic gas
Empirical: N₂O
Properties: Colorless gas, sl. sweet odor, pract. tasteless; freely sol. in alcohol; sol. in ether, oils, oxygenated solvs.; sl. sol. in water; m.w. 44.01; dens. 1.53 (20 C); m.p. -91 C; b.p. -88 C; noncombustible
Toxicology: ACGIH TLV 50 ppm; LC50 (inh., rat, 6 h) 160 mg/m³; mod. toxic by inh.; asphyxiant at high concs.; narcotic in high concs.; systemic effects by inh. (anesthetic, decreased pulse rate); mutagenic data; TSCA listed
Precaution: Does not burn but is flamm. by chem. reaction and will support combustion; oxidizer; can form explosive mixt. with air; self-explodes at high temps.; violent reactions with Al, B, hydrazine, LiH, Na, tungsten carbide
Uses: Propellant gas, aerating agent in pharmaceutical aerosols; anesthetic in dentistry and surgery
Regulatory: FDA 21CFR §184.1545, GRAS; FEMA GRAS; BP, EP compliance; Canada DSL
Manuf./Distrib.: Air Liquide Hellas SA  
http://www.airliquide.com; Air Prods.†  
http://www.airproducts.com; Aldrich  
http://www.sigma-aldrich.com; BOC Ltd†  
http://www.boc.com.au; Degussa AG/Health & Nutrition  
Messer†  http://www.messergroup.com;  
Nissan Chem. Ind.  
http://www.nissanchem.co.jp; Showa Denko  http://www.sdk.co.jp
Nitrous oxide, compressed; Nitrous oxide, refrigerated liquid.  See Nitrous oxide
NM.  See Nitromethane

†=pharmaceutical grade

NMP.  See 2-Nitro-2-methyl-1-propanol; N-Methyl-2-pyrrolidinone
2,4-Nonadienal: (2E,4E)-Nona-2,4-dienal; (E,E)-2,4-Nonadien-1-al; trans-2,trans-4-Nonadien.  See trans,trans-2,4-Nonadienal

trans,trans-2,4-Nonadienal
CAS 5910-87-2; EINECS/ELINCS 227-629-5
FEMA 3212
Synonyms: 2,4-Nonadienal; (2E,4E)-Nona-2,4-dienal; (E,E)-2,4-Nonadien-1-al; trans-2,trans-4-Nonadien
Empirical: C₉H₁₄O
Formula: CH₃[CH₂]₃CH=CH=CH-CHO
Properties: Pale yel. to cl. liq.; sol. in alcohol and fixed oils; insol. in water; m.w. 138.21; sp. gr. 0.850-0.870; b.p. 97-98 C @ 10.00 mm; flash pt. (TCC) 186 F; ref. index 1.522-1.525
Uses: Synthetic flavor for pharmaceuticals
Features: Fatty nutty violet leaf odor
Regulatory: FEMA GRAS; Canada DSL
Manuf./Distrib.: Frutarom Ltd  
http://www.futarom.com; R.C. Treatt & Co. Ltd  
http://www.rctreatt.com; SAFC Specialties  http://www.safcspecialties.com

Nonadienol: Nona-2,6-dienol.  See 2,6-Nonadien-1-ol

2,6-Nonadien-1-ol
CAS 7786-44-9; EINECS/ELINCS 232-097-2
FEMA 2780
Synonyms: Nonadienol; Nona-2,6-dienol; Violet leaf alcohol
Empirical: C₉H₁₆O
Properties: Colorless oily liq.; strong violet odor; sol. in alcohol, propylene glycol; sl. sol. in water; m.w. 140.23; dens. 0.87; b.p. 196 C; ref. index 1.4640
Storage: Refrigerate; store under nitrogen
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

γ-Nonalactone
CAS 104-61-0; EINECS/ELINCS 203-219-1
FEMA 2781
Synonyms: Aldehyde C18; γ-N-Amylbutyrolactone; Coconut aldehyde; 4-Hydroxynonanoic acid lactone; 4-Hydroxynonanoic acid, γ-lactone; 1,4-
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Chemical Component</th>
<th>Aldehyde C 18 Socalled</th>
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#### Nonanalide; Nonan-4-olide; Prunolide

**Classification:** Heterocyclic compd.; lactone

**Empirical:** $C_9H_{16}O_2$

**Properties:** Colorless to sl. yel. liq., coconut odor; sol. in alcohol, fixed oils, propylene glycol; insol. in water; m.w. 156.25; dens. 0.958–0.966; b.p. 243°C; flash pt. > 212°F; ref. index 1.446–1.450

**Toxicology:** LD50 (oral, rat) 6600 mg/kg; mod. toxic by ing.; skin irritant; mutagenic data; TSCA listed

**Precaution:** Combustible liq.

**Hazardous Decomp. Prods.:** Heated to decomps., emits acrid smoke and irritating fumes

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Coconut-like flavor

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Japan approved as flavoring; Canada DSL

**Manuf./Distrib.:** Advanced BioTech

**Trade Names:** Aldehyde C 18 Socalled

**1-Nonaldehyde.** See Nonanal

**Nonalol.** See Nonyl alcohol

**1,4-Nonalolide.** See γ-Nonalactone

**Nonanal**

**CAS** 124-19-6; **EINECS/ELINCS** 204-688-5

**FEMA** 2782

**Synonyms:** Aldehyde C-9; C-9 aldehyde; 1-Nonaldehyde; 1-Nonanal; n-Nonanal; Nonanoic aldehyde; 1-Nonyl aldehyde; n-Nonyl aldehyde; Pelargonaldehyde; Pelargonic aldehyde; Capric acid

**Empirical:** $C_9H_{16}O$

**Formula:** $CH_3(CH_2)_7CHO$

**Properties:** Colorless to lt. yel. liq., strong fatty odor; sol. in alcohol, fixed oils, propylene glycol; insol. in water, glycerin; m.w. 142.24; dens. 0.823 (20/4°C); b.p. 190-192°C; flash pt. 63°C; ref. index 1.425 (20°C)

**Toxicology:** Eye and severe skin irritant; mutagen; TSCA listed

**Precaution:** Combustible; incompat. with strong oxidizers, reducers

**Hazardous Decomp. Prods.:** Heated to decomps., emits CO, CO₂, acrid smoke and irritating fumes

**Storage:** Store under nitrogen; 6 mos. when stored at 40°F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Citrus flavor

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI

**Manuf./Distrib.:** Advanced BioTech

**Trade Names:** Aldehyde C 18 Socalled

**1-Nonaldehyde.** See Nonanal

**n-Nonanal.** See Nonanal

**1-Nonanecarboxylic acid.** See Capric acid

**Nonanediol-1,3-acetate.** See 1,3-Nonanediol acetate, mixed esters

**1,3-Nonanediol acetate, mixed esters**

**CAS** 1322-17-4; **EINECS/ELINCS** 215-332-3

**FEMA** 2783

**Synonyms:** Diasmol; Hexylene glycol diacetate; Jasmin acetate; Jasmonyl; Nonanediol-1,3-acetate; Nonane-1,3-diol monoacetate; Nonane-1,3-diol monoacetate
mixed esters; Octyl crotonyl acetate

Empirical: C_{13}H_{24}O_{4}

Properties: Colorless to sl. yel. liq., floral odor; sol. in alcohol; sl. sol. in water; m.w. 244.34; b.p. 265 C; flash pt. > 100 C; ref. index 1.4410-1.4450

Toxicology: May be harmful by inh., ing., skin absorp.; may cause irritation to eyes, skin, mucous membranes, upper respiratory tract; TSCA listed

Precaution: Combustible; incompat. with strong oxidizing agents

Hazardous Decomp. Prods.: CO, CO_{2}; emits toxic fumes under fire conditions

Storage: Store in cool, dry place; keep tightly closed

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL


Nonanoic acid

CAS 112-05-0; EINECS/ELINCS 203-931-2

FEMA 2784

Synonyms: Carboxylic acid C9; Hexacid C9; n-Nonanoic acid; Nonoic acid; n-Nonoic acid; Nonyl acid; n-Nonyl acid; 1-Octanecarboxylic acid; Pelargic acid; Pelargonic acid (INCI)

Classification: Aliphatic carboxylic acid

Empirical: C_{9}H_{18}O_{2}

Formula: CH_{3}(CH_{2})_{7}COOH

Properties: Colorless oily liq.; char. fatty odor; cryst. when cooled; sol. in alcohol, chloroform, ether, acetone, benzene, cyclohexane, n-hexane, oxygenated solvs.; pract. insol. in water; m.w. 158.24; dens. 0.907 (20/4 C); m.p. 10-12 C; b.p. 252-253 C (756 mm); acid no. 351; flash pt. 129 C; ref. index 1.433 (20 C); weakly acidic

Toxicology: LD_{50} (oral, mouse) 15 g/kg, (IV, mouse) 224 ± 4.6 mg/kg; poison by IV route; mod. toxic by ing.; strong irritant to skin and eyes; inh. of mists may cause mild to mod. irritation to nose/throat; ing. of lg. doses may cause mild irritation, sore throat, abdominal pain, nausea, vomiting; TSCA listed

Precaution: Combustible; corrosive

Hazardous Decomp. Prods.: CO, CO_{2}; heated to decomp., emits acid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals; pharmaceutical intermediate

Regulatory: FDA 21CFR §172.515, 173.315, 178.1010; FEMA GRAS; Canada DSL


n-Nonanoic acid. See Nonanoic acid

Nonanoic acid, ethyl ester. See Ethyl pelargonate

Nonanoic acid, 2-ethylhexyl ester. See Octyl pelargonate

Nonanoic acid, methyl ester. See Methyl pelargonate

Nonanoic acid, 1-methyl-1,2-ethanediyl ester. See Propylene glycol dipelargonate

Nonanoic aldehyde. See Nonanal

Nonan-1-ol; 1-Nonanol. See Nonyl alcohol

2-Nonanol

CAS 628-99-9

FEMA 3315

Synonyms: n-Heptyl methyl carbinol; Nonan-2-ol

Empirical: C_{9}H_{18}O

Properties: Colorless liq.; sol. in alcohol, oils; insol. in water; m.w. 144.26; dens. 0.827; b.p. 193-194 C; flash pt. 180 F; ref. index 1.432-1.432

Uses: Flavor for pharmaceuticals

Features: Melon-like flavor
Chemical Component Cross-Reference

Regulatory: FEMA GRAS; Canada DSL
Manuf./Distrib.: Advanced Synthesis Tech.
http://www.advancedsynthesis.com; Cargill Flavors & Fruit Systems USA

Nonan-2-ol. See 2-Nonanol
n-Nonanol. See Nonyl alcohol
Nonanol acetate. See n-Nonyl acetate
Nonanol-4-olide. See γ-Nonalactone

2-Nonanone
CAS 821-55-6; EINECS/ELINCS 212-480-0
UN 1244; FEMA 2785
Synonyms: Heptyl methyl ketone; Methyl heptyl ketone; Nonan-2-one; 2-Nonanone (methyl heptyl ketone), natural
Classification: aliphatic ketone
Empirical: C9H18O
Formula: CH3(CH2)6COCH3
Properties: Colorless oily liq., char. rue odor, rose tea-like flavor; sol. in alcohol, oils, propylene glycol; insol. in water; m.w. 142.24; dens. 0.82 (20/4 C); m.p. -21 C; b.p. 72-74 C (10 mm); flash pt. 68 C; ref. index 1.421 (20 C)
Toxicology: LD50 (oral, rat) 3200 mg/kg; mod. toxic by ing.; irritant; TSCA listed
Precaution: Combustible liq.; can react with oxidizers; wear suitable protective clothing, gloves, and eye/face protection
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Synthetic flavor for pharmaceuticals
Features: Fruity flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS delisted
Manuf./Distrib.: Degussa AG/Health & Nutrition

Nonanoyl 4-hydroxy-3-methoxybenzylamide; N-Nonanoyl vanillylamide. See Pelargonyl vanillylamide
3,6,9,12,15,18,21,24,27-Nonaoxanonatriacontan-1-ol. See Laureth-9
Nonate. See Isoamyl nonanoate
Non-bronze blue. See Ferric ferrocyanide
Noncarbinol. See Decyl alcohol
Noncrystalline hydrated silica
CAS 20243-18-9
Synonyms: Opal CT
Trade Names Containing: Van Gel® C; Veegum®; Veegum® D; Veegum® F; Veegum® HS; Veegum® HV; Veegum® K

2-Nonenoic acid, methyl ester; Non-2-enioic acid methyl ester. See Methyl 2-nonenoate
cis-6-Nonenol. See cis-6-Nonen-1-ol

cis-6-Nonen-1-ol
CAS 35854-86-5; EINECS/ELINCS 252-764-1
FEMA 3465
Synonyms: cis-6-Nonenol; (Z)-6-Nonen-1-ol; (Z)-Non-6-en-1-ol
Empirical: C9H18O
Properties: Wh. to sl. yel. liq., powerful melon-like odor; insol. in water; m.w. 142.23; dens. 0.850-0.870; b.p. 203.00 C @ 760.00 mm; m.w. 200.27
Uses: Synthetic flavor for pharmaceuticals
Features: Fruity floral waxy mignonette odor
Regulatory: FDA 21CFR §172.515; FEMA GRAS delisted
Manuf./Distrib.: Degussa AG/Health & Nutrition

Noncry stalline hydrated silica
CAS 20243-18-9
Synonyms: Opal CT
Trade Names Containing: Van Gel® C; Veegum®; Veegum® D; Veegum® F; Veegum® HS; Veegum® HV; Veegum® K

2-Nonenoic acid, methyl ester; Non-2-enioic acid methyl ester. See Methyl 2-nonenoate
cis-6-Nonenol. See cis-6-Nonen-1-ol

cis-6-Nonen-1-ol
CAS 35854-86-5; EINECS/ELINCS 252-764-1
FEMA 3465
Synonyms: cis-6-Nonenol; (Z)-6-Nonen-1-ol; (Z)-Non-6-en-1-ol
Empirical: C9H18O
Properties: Wh. to sl. yel. liq., powerful melon-like odor; insol. in water; m.w. 142.23; dens. 0.850-0.870; b.p. 203.00 C @ 760.00 mm; m.w. 200.27
Chemical Component Cross-Reference

†=pharmaceutical grade

Storage: 24 mos. when stored in tight glass, aluminum, or double lined containers in a cool area away from direct heat

Uses: Synthetic flavor for pharmaceuticals
Features: Melon-like flavor
Regulatory: FEMA GRAS; Canada DSL
Manuf./Distrib.: Citrus and Allied Essences, De Monchy Aromatics, Frutarom Ltd, Lluch Essence, R.C. Treutt & Co. Ltd, SAFC Specialties, Zeon

trans-2-Nonen-1-ol
CAS 31502-14-4; EINECS/ELINCS 250-662-1
FEMA 3379
Empirical: C9H18O
Formula: CH3(CH2)5CH=CHCH2OH
Properties: Wh. liq., fatty violet odor; insol. in water; m.w. 142.23; dens. 0.830-0.850; b.p. 105 C (12 mm); flash pt. 101.6 C; ref. index 1.444-1.448
Toxicology: May be harmful by inh., ing., or skin absorp.; may be irritating to eyes, skin, mucous membranes, upper respiratory tract; may cause effects on fetus or newborn; TSCA listed
Precaution: Incompat. with strong oxidizing agents
Hazardous Decomp. Prods.: Toxic fumes of CO, CO2; emits toxic fumes under fire conditions
Storage: Store in cool, dry place; keep tightly closed
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FEMA GRAS; Canada DSL
Manuf./Distrib.: ABCR, Bedoukian Research, SAFC Specialties

(Z)-6-Nonen-1-ol; (Z)-Non-6-en-1-ol. See cis-6-Nonen-1-ol

Nonfat dry milk
EINECS/ELINCS 310-127-6
Synonyms: Milk, nonfat dry; Nonfat milk; Powdered skim milk; Sine adipe lac
Definition: Solid residue from dehydration of defatted cow's milk
Uses: Ingred. in pharmaceuticals

Nonoxynol-1
CAS 9016-45-9 (generic); 26027-38-3 (generic); 27986-36-3; 37205-87-1 (generic); EINECS/ELINCS 248-762-5
Synonyms: Ethylene glycol nonyl phenyl ether; 2-(Nonylphenoxy) ethanol; PEG-1 nonyl phenyl ether
Classification: Ethoxylated alkyl phenol
Empirical: C17H28O2
Formula: C9H19C6H4OCH2CH2OH
Properties: Yel. to almost colorless liq.; sol. in oil; HLB 4.6; nonionic
Toxicology: Moderately toxic by ingestion, skin contact; severe eye and mild skin irritant in humans; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Uses: Emulsifier, solubilizer in pharmaceuticals
Regulatory: FDA 21CFR §175.105, 176.180
Manuf./Distrib.: Aldrich

Trade Names Containing: Bentone Gel® EUG V

Nonoxynol-2
CAS 9016-45-9 (generic); 26027-38-3 (generic); 37205-87-1 (generic); 27176-93-8 (generic); EINECS/ELINCS 248-291-5
Synonyms: PEG-2 nonyl phenyl ether; PEG 100 nonyl phenyl ether; POE (2) nonyl phenyl ether
Classification: Ethoxylated alkyl phenol
Empirical: C19H32O3
Formula: C9H19C6H4(OCH2CH2)nOH, avg. n = 2
Properties: Yel. to almost colorless liq.; sol. in oil; nonionic
Toxicology: Moderately toxic by ingestion, skin contact; severe eye and mild skin irritant in humans; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Uses: Emulsifier, solubilizer in pharmaceuticals
Regulatory: FDA 21CFR §175.105, 176.180, 176.210
Manuf./Distrib.: Aldrich
Nonoxynol-4
CAS 7311-27-5; 9016-45-9 (generic); 26027-38-3 (generic); 37205-87-1 (generic); 27176-97-2; 68412-54-4 (generic); EINECS/ELINCS 230-770-5
Synonyms: PEG-4 nonyl phenyl ether; PEG 200 nonyl phenyl ether; POE (4) nonyl phenyl ether
Classification: Ethoxylated alkyl phenol
Empirical: C23H40O5
Formula: C9H19C6H4(OCH2CH2)nOH, avg. n = 4
Properties: Yel. to almost colorless liq.; sol. in oil; HLB 8.9; nonionic
Toxicology: Moderately toxic by ingestion, skin contact; severe eye and mild skin irritant in humans; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Uses: Surfactant, emulsifier, solubilizer in pharmaceuticals, ophthalmics, topicals, vaginals; pharmaceutic aid
Regulatory: FDA 21CFR §175.105, 176.180, 176.210, 178.3400; FDA approved for ophthalmics, topicals, vaginals; Canada DSL
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

Nonoxynol-5
CAS 9016-45-9 (generic); 20636-48-0; 26027-38-3 (generic); 26264-02-8; 37205-87-1 (generic); EINECS/ELINCS 247-555-7
Synonyms: 14-(Nonylphenoxo)-3,6,9,12-tetraoxatetradecan-1-ol; PEG-5 nonyl phenyl ether; POE (5) nonylphenol; POE (5) nonyl phenyl ether
Classification: Ethoxylated alkyl phenol
Empirical: C25H44O6
Formula: C9H19C6H4(OCH2CH2)nOH, avg. n = 5
Properties: Yel. to almost colorless liq.; sol. in oil; HLB 10.5; nonionic
Toxicology: Moderately toxic by ingestion, skin contact; severe eye and mild skin irritant in humans; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Uses: Surfactant, emulsifier, solubilizer in pharmaceuticals
Regulatory: FDA 21CFR §175.105, 176.180, 176.210, 178.3400

Nonoxynol-6
CAS 9016-45-9 (generic); 26027-38-3 (generic); 27177-01-1; 27177-05-5 (generic); 37205-87-1 (generic); 68412-54-4 (generic)
Synonyms: PEG-6 nonyl phenyl ether; PEG 300 nonyl phenyl ether; POE (6) nonyl phenyl ether
Classification: Ethoxylated alkyl phenol
Empirical: C27H48O7
Formula: C9H19C6H4(OCH2CH2)nOH, avg. n = 6
Properties: Yel. to almost colorless liq.; HLB 10.9; nonionic
Toxicology: Moderately toxic by ingestion, skin contact; severe eye and mild skin irritant in humans; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Uses: Surfactant, stabilizer, defoamer, emulsifier, dispersant, detergent, wetting agent, solubilizer, coupling agent for pharmaceuticals
Regulatory: FDA 21CFR §175.105, 176.180, 176.210, 178.3400
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com/belgium

Nonoxynol-7
CAS 9016-45-9 (generic); 26027-38-3 (generic); 27177-03-3; 37205-87-1 (generic); 68412-54-4 (generic); EINECS/ELINCS 248-292-0
Synonyms: 20-(Nonylphenoxo)-3,6,9,12,15,18-hexaoxaecosan-1-ol; PEG-7 nonyl phenyl ether; POE (7) nonyl phenyl ether
Classification: Ethoxylated alkyl phenol
Empirical: C29H52O8
Formula: C9H19C6H4(OCH2CH2)nOH, avg. n = 7
Properties: Yel. to almost colorless liq.; nonionic
Toxicology: Moderately toxic by ingestion, skin contact; severe eye and mild skin irritant in humans; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Uses: Emulsifier, solubilizer in pharmaceuticals
Regulatory: FDA 21CFR §175.105, 176.180, 176.210, 178.3400
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com/belgium
Chemical Component Cross-Reference

- aldrich.com: Sigma http://www.sigma-aldrich.com/belgium

Nonoxynol-8
CAS 9016-45-9 (generic); 26027-38-3 (generic); 26571-11-9 (generic); 27177-05-5 (generic); 37205-87-1 (generic); 68412-54-4 (generic);
EINECS/ELINCS 248-293-6; 247-816-5
Synonyms: 23-(Nonylphenoxo)-3,6,9,12,15,18,21-heptaoxatricosan-1-ol; PEG-8 nonyl phenyl ether; PEG 400 nonyl phenyl ether; POE (8) nonyl phenyl ether
Classification: Ethoxylated alkyl phenol
Empirical: C_{31}H_{56}O_{9}
Formula: C_{9}H_{19}C_{6}H_{4}(OCH_{2}CH_{2})_{n}OH, avg. n = 8
Properties: Yel. to almost colorless liq.; HLB 12.3; nonionic
Toxicology: Moderately toxic by ingestion, skin contact; severe eye and mild skin irritant in humans; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Uses: Emulsifier, solubilizer in pharmaceuticals
Regulatory: FDA 21CFR §175.105, 176.180, 176.210, 176.300, 178.3400
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Alfa Chem†
http://www.alfachem1.com; CoKEM Assoc.;† Fluka http://www.sigma-aldrich.com; Integra† http://www.integrachem.com
Kraft Chem.;†
http://www.kraftchemical.com; RTD Hallstar† http://www.rtdhallstar.com; Sigma http://www.sigma-aldrich.com/belgium;
Spectrum Quality Prods.† http://www.spectrumchemical.com;
Trade Names: Synperonic® NP8

Nonoxynol-9
CAS 9016-45-9 (generic); 14409-72-4; 26027-38-3 (generic); 26571-11-9 (generic); 37205-87-1 (generic); 68412-54-4 (generic);
EINECS/ELINCS 248-294-1
Synonyms: 26-(Nonylphenoxo)-3,6,9,12,15,18,21,24-octaoxahexacosan-1-ol; PEG-9 nonyl phenyl ether; PEG 500 nonyl phenyl ether; POE (9) nonyl phenyl ether
Classification: Ethoxylated alkyl phenol
Empirical: C_{33}H_{60}O_{10}
Formula: C_{9}H_{19}C_{6}H_{4}(OCH_{2}CH_{2})_{n}OH, avg. n = 9
Properties: Colorless to lt. amber visc. liq.; sol. in water, ethanol, ethylene glycol, xylene, corn oil; m.w. 617; dens. 1.06 (25/4 C); solid. pt. 26 F; pour pt. 37 F; flash pt. 535-555 F; cloud pt. 126-133 F (1% aq.); visc. 175-250 cps; nonionic
Toxicology: Moderately toxic by ingestion, skin contact; severe eye and mild skin irritant in humans; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Uses: Emulsifier, wetting agent, solubilizer for pharmaceuticals
Regulatory: FDA 21CFR §175.105, 176.180, 176.210, 176.300, 178.3400
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Alfa Chem†
http://www.alfachem1.com; Ashland†

Nonoxynol-10
CAS 9016-45-9 (generic); 26027-38-3 (generic); 27177-08-8; 27942-26-3; 37205-87-1 (generic); 68412-54-4 (generic);
EINECS/ELINCS 248-294-1
Synonyms: 29-(Nonylphenoxo)-3,6,9,12,15,18,21,24,27-nonaoxanonacosan-1-ol; PEG-10 nonyl phenyl ether; PEG 500 nonyl phenyl ether; POE (10) nonyl phenyl ether
Classification: Ethoxylated alkyl phenol
Empirical: C_{35}H_{64}O_{11}
Formula: C_{9}H_{19}C_{6}H_{4}(OCH_{2}CH_{2})_{n}OH, avg. n = 10
Properties: Colorless to lt. amber visc. liq.; aromatic odor; sol. in polar org. solvs., water; HLB 13.3; hyd. no. 81-97; nonionic
Toxicology: Moderately toxic by ingestion, skin contact; severe eye and mild skin irritant in humans; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Uses: Emulsifier, wetting agent, solubilizer for pharmaceuticals
Regulatory: FDA 21CFR §175.105, 176.180, 176.210, 176.300, 178.3400
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Alfa Chem†
http://www.alfachem1.com; Ashland†
Nonoxynol-12
CAS 9016-45-9 (generic); 26027-38-3 (generic); 37205-87-1 (generic); 68412-54-4 (generic)
Synonyms: PEG-12 nonyl phenyl ether; PEG 600 nonyl phenyl ether; POE (12) nonyl phenyl ether
Classification: Ethoxylated alkyl phenol
Formula: \( C_{9}H_{19}C_{6}H_{4}(OCH_{2}CH_{2})_{n}OH \), avg. \( n = 12 \)
Properties: Yel. to almost colorless liq.; nonionic
Toxicology: Moderately toxic by ingestion, skin contact; severe eye and mild skin irritant in humans; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Uses: Emulsifier, solubilizer in pharmaceuticals
Regulatory: FDA 21 CFR §175.105, 176.180, 176.210, 176.300, 178.3400
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com/belgium
Trade Names: Synperonic® NP15

Nonoxynol-13
CAS 9016-45-9 (generic); 26027-38-3 (generic); 37205-87-1 (generic); 68412-54-4 (generic)
Synonyms: PEG-13 nonyl phenyl ether; POE (13) nonyl phenyl ether
Classification: Ethoxylated alkyl phenol
Formula: \( C_{9}H_{19}C_{6}H_{4}(OCH_{2}CH_{2})_{n}OH \), avg. \( n = 13 \)
Properties: Yel. to almost colorless liq.; nonionic
Toxicology: Moderately toxic by ingestion, skin contact; severe eye and mild skin irritant in humans; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Uses: Emulsifier, solubilizer in pharmaceuticals
Regulatory: FDA 21 CFR §175.105, 176.180, 176.210, 176.3400
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com/belgium

Nonoxynol-15
CAS 9016-45-9 (generic); 26027-38-3 (generic); 37205-87-1 (generic); 68412-54-4 (generic)
Synonyms: PEG-15 nonyl phenyl ether; POE (15) nonyl phenyl ether
Classification: Ethoxylated alkyl phenol
Formula: \( C_{9}H_{19}C_{6}H_{4}(OCH_{2}CH_{2})_{n}OH \), avg. \( n = 15 \)
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, solubilizer in pharmaceuticals
Regulatory: FDA 21 CFR §175.105, 176.180, 176.210
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com
Trade Names: Synperonic® NP15

Nonoxynol-17
CAS 9016-45-9 (generic)
Synonyms: PEG-17 nonyl phenyl ether; POE (17) nonyl phenyl ether
Classification: Ethoxylated alkyl phenol
Formula: \( C_{9}H_{19}C_{6}H_{4}(OCH_{2}CH_{2})_{n}OH \), avg. \( n = 17 \)
Properties: Nonionic
Toxicology: Moderately toxic by ingestion, skin contact; severe eye and mild skin irritant in humans; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Uses: Emulsifier, solubilizer in pharmaceuticals
Regulatory: FDA 21 CFR §175.105, 176.180
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com
Trade Names: Synperonic® NP15

Nonoxynol-20
CAS 9016-45-9 (generic); 26027-38-3 (generic); 37205-87-1 (generic); 68412-54-4 (generic)
Synonyms: PEG-20 nonyl phenyl ether; PEG 1000 nonyl phenyl ether; POE (20) nonyl phenyl ether
Classification: Ethoxylated alkyl phenol
Formula: \( C_{9}H_{19}C_{6}H_{4}(OCH_{2}CH_{2})_{n}OH \), avg. \( n = 20 \)
Properties: Pale yel. to off-wh. pastes or waxes; HLB 16.0; nonionic
Toxicology: Moderately toxic by ingestion, skin contact; severe eye and mild skin irritant in humans; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Uses: Emulsifier, solubilizer in pharmaceuticals
Regulatory: FDA 21 CFR §175.105, 176.180
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com/belgium
Chemical Component Cross-Reference

Nonoxynol-25
CAS 9016-45-9 (generic)
Synonyms: PEG-25 nonyl phenyl ether; POE (25) nonyl phenyl ether
Classification: Ethoxylated alkyl phenol
Formula: C_{9}H_{19}C_{6}H_{4}(OCH_{2}CH_{2})_{n}OH, avg. n = 25
Properties: Pale yel. to off-wh. pastes or waxes; nonionic
Toxicology: Moderately toxic by ingestion, skin contact; severe eye and mild skin irritant in humans; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Uses: Emulsifier, solubilizer in pharmaceuticals
Trade Names: Lipocol NP-20; Synperonic® NP20

Nonoxynol-30
CAS 9016-45-9 (generic); 26027-38-3 (generic); 37205-87-1 (generic); 68412-54-4 (generic)
Synonyms: PEG-30 nonyl phenyl ether; POE (30) nonyl phenyl ether
Classification: Ethoxylated alkyl phenol
Formula: C_{9}H_{19}C_{6}H_{4}(OCH_{2}CH_{2})_{n}OH, avg. n = 30
Properties: Pale yel. to off-wh. pastes or waxes; HLB 17.1; nonionic
Toxicology: Moderately toxic by ingestion, skin contact; severe eye and mild skin irritant in humans; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Uses: Surfactant, detergent, emulsifier, wetting agent, dispersant, stabilizer, defoamer in pharmaceuticals
Regulatory: FDA 21CFR §175.105, 176.180, 178.3400
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: Synperonic® NP30

Nonoxynol-40
CAS 9016-45-9 (generic); 26027-38-3 (generic); 37205-87-1 (generic); 68412-54-4 (generic)
Synonyms: PEG-40 nonyl phenyl ether; PEG 2000 nonyl phenyl ether; POE (40) nonyl phenyl ether
Classification: Ethoxylated alkyl phenol
Formula: C_{9}H_{19}C_{6}H_{4}(OCH_{2}CH_{2})_{n}OH, avg. n = 40
Properties: Pale yel. to off-wh. pastes or waxes; nonionic
Toxicology: Moderately toxic by ingestion, skin contact; severe eye and mild skin irritant in humans; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Uses: Surfactant, detergent, emulsifier, wetting agent, dispersant, stabilizer, defoamer in pharmaceuticals
Regulatory: FDA 21CFR §175.105, 176.180, 178.3400
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: Synperonic® NP40

Nonoxynol-50
CAS 9016-45-9 (generic); 26027-38-3 (generic); 37205-87-1 (generic); 68412-54-4 (generic)
Synonyms: PEG-50 nonyl phenyl ether; POE (50) nonyl phenyl ether
Classification: Ethoxylated alkyl phenol
Formula: C_{9}H_{19}C_{6}H_{4}(OCH_{2}CH_{2})_{n}OH, avg. n = 50
Properties: Pale yel. to off-wh. pastes or waxes; nonionic
Toxicology: Moderately toxic by ingestion, skin contact; severe eye and mild skin irritant in humans; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Uses: Surfactant, detergent, emulsifier, wetting agent, dispersant, stabilizer, defoamer in pharmaceuticals
Regulatory: FDA 21CFR §175.105, 176.180, 178.3400
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: Synperonic® NP50

†=pharmaceutical grade
n-Nonyl acetate
CAS 143-13-5; EINECS/ELINCS 205-585-8
FEMA 2788
Synonyms: Acetate C-9; Acetic acid nonyl ester; Acetic acid n-nonyl ester; Nonanol acetate; Nonyl acetate (INCI); Nonyl ethanoate; n-Nonyl ethanoate; Pelargonyl acetate
Definition: Ester of nonyl alcohol and acetic acid
Empirical: C_{11}H_{22}O_2
Formula: CH_3COO(CH_2)_8CH_3
Properties: Colorless liq., pungent odor, suggestive of mushrooms, gardenia when dil.; sol. in abs. alcohol, ether; insol. in water; m.w. 186.29; dens. 0.864; b.p. 208-212 C; flash pt. > 153 F; ref. index 1.422
Precaution: Combustible liq.
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Synthetic flavor and fragrance for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

3-Nonyl acrolein. See 2-Dodecenal

Nonyl alcohol
CAS 143-08-8; EINECS/ELINCS 205-583-7
FEMA 2789
Synonyms: Alcohol C-9; Nonanol; Nonan-1-ol; 1-Nonanol; n-Nonanol; n-Nonyl alcohol; Octyl carbinol; Pelargonic alcohol
Empirical: C_{9}H_{18}O
Formula: CH_3(CH_2)_{7}OH
Properties: Colorless to ylsh. liq., citronella oil odor; misc. with alcohol, ether, chloroform, oxygenated solvs.; pract. insol. in water; m.w. 144.26; dens. 0.8279 (20/4 C); m.p. -6 to -4 C; b.p. 210-213 C; flash pt. 98 C; ref. index 1.4338 (20 C)
Toxicology: LD50 (oral, mouse) 6400 mg/kg, (IP, rat) 800 mg/kg, (skin, rabbit) 5600 mg/kg; LC50 (inh., mouse, 2 h) 5500 mg/m^3; mildly toxic by ing., skin contact, inh.; irritant; experimental reproductive effector; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of l-
Uses: Antimicrobial, disinfectant cleaner in topical pharmaceuticals
Regulatory: FDA approved for topicals; Canada DSL
Trade Names: Bio-Surf I-20
Nonyl octylate

Definition: Ester of n-nonanol and n-octanoic acid

Empirical: C_{17}H_{34}O_{2}

Properties: Colorless oily liq., sweet rose odor; sol. in alcohol; insol. in water; m.w. 270.46; dens. 0.86; b.p. 315 C

Uses: Synthetic flavor for pharmaceuticals

Features: Sweet rose mushroom odor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: Degussa AG/Health & Nutrition

n-Nonyl octoate; Nonyl octylate. See Nonyl octanoate

2-(Nonylphenoxy) ethanol. See Nonoxynol-1

23-(Nonylphenoxy)-3,6,9,12,15,18,21-heptaoxaetricalicosan-1-ol. See Nonoxynol-8

20-(Nonylphenoxy)-3,6,9,12,15,18-hexaoxaeticoicosan-1-ol. See Nonoxynol-7

29-(Nonylphenoxy)-3,6,9,12,15,18,21,24,27-nonaoxanonaicosan-1-ol. See Nonoxynol-10

26-(Nonylphenoxy)-3,6,9,12,15,18,21,24-octaaxhexacosan-1-ol. See Nonoxynol-9

Nonylphenoxyethyleneoxy ethanol-iodine complex. See Nonoxynol iodine

14-(Nonylphenoxy)-3,6,9,12-tetraoxatetradecan-1-ol. See Nonoxynol-5

2-Nonynoic acid ethyl ester. See Ethyl-2-nonynoate

2-Nonynoic acid methyl ester. Non-2-ynoic acid methyl ester. See Methyl 2-nonynoate

Nopinen; Nopinene. See β-Pinene

Norbixin

INS160b; E160b

Synonyms: 6'-Methylhydrogen-9'-cis-6,6'-diapocarotene-6,6'-dioate, Na or K; 6'-Methylhydrogen-9'-trans-6,6'-diapocarotene-6,6'-dioate, Na or K

Empirical: C_{24}H_{28}Na_{2}O_{4} or C_{24}H_{28}K_{2}O_{4}

Properties: M.w. 426.46 (sodium salt) or 458.68 (potassium salt)

Uses: Natural colorant for pharmaceuticals

Features: Provides yellow tint

Manuf./Distrib.: AB R Lundberg

http://www.norfoods.se/lundberg;

Atomergic Chemetals†

http://www.atomergic.com; Chr. Hansen Inc†

http://www.chr-hansen.com; Extractos Andinos CA

http://www.extractosandinos.com; RTD

Hallstar† http://www.rtdhallstar.com

Nonyl isovalerate

CAS 7786-47-2; EINECS/ELINCS 232-098-8

FEMA 2791

Empirical: C_{14}H_{28}O_{2}

Properties: Colorless cl. liq.; sol in alcohol and diopylene glycol; insol. in water; m.w. 228.37; b.p. 760.00 mm

Uses: Synthetic flavor for pharmaceuticals

Features: Fruity apple hazelnut citrus odor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: Degussa AG/Health & Nutrition

Nonyl methyl ketone. See 2-Undecanone

Nonyl octanoate

CAS 7786-48-3; EINECS/ELINCS 232-099-3

FEMA 2790

Synonyms: Nonyl caprylate; n-Nonyl octoate;
### Chemical Component Cross-Reference

**See also** Anatto (Bixa orellana); Anatto (Bixa orellana) extract

2-Norbornanone, 1,3,3-trimethyl-  See d-Fenchone

Nordhausen acid.  See Sulfuric acid

Nordihydroguaiaretic acid

CAS **500-38-9**; EINECS/ELINCS **207-903-0**

**Synonyms:** 1,4-Bis (3,4-dihydroxyphenyl)-2,3-dimethylbutane; Dihydrodorguaiaretic acid; \(\beta,\gamma\)-Dimethyl-\(\alpha,\Delta\)-bis (3,4-dihydroxyphenyl)butane; 4,4'-(2,3-Dimethyl-1,4-butanediyl)bis [1,2-benzenediol]; 4,4'-(2,3-Dimethyltetramethylene) dipyracatechol; NDGA; Nordihydroguaiaretic acid

**Classification:** Organic compd.

**Empirical:** \(\text{C}_{18}\text{H}_{22}\text{O}_4\)

**Formula:** \([\text{CaH}_3(\text{OH})_2\text{CH}_2\text{CH(CH}_3)]_2\)

**Properties:** Cryst.; sol. in lipids, ethanol, methanol, ether, acetone, glycerin, propylene glycol, dil. alkalis; sl. sol. in hot water, chloroform; pract. insol. in benzene and petrol. ether; m.w. 302.36; m.p. 184-185 C

**Toxicology:** LD50 (oral, rat) 2620 mg/kg, (skin, rabbit) > 10 g/kg; highly toxic; mod. toxic by ing.; as little as 5 g can cause nausea, vomiting, and death; skin irritant; experimental teratogen, reproductive effects; mutagenic data; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**HMIS:** Health 1, Flammability 1, Reactivity 0

**Use Level:** 0.01-0.1%

**Use Level:** 0.01-0.1%

**Regulatory:** FDA 21CFR §175.300, 177.1010, 181.22, 181.24 (0.005% migrating from food pkg.), 189.165; Japan approved (0.1 g/kg max.)

**Manuf./Distrib.:** A.G. Scientific†

http://www.agscientific.com; Aldrich
http://www.sigma-aldrich.com; Fluka
http://www.sigma-aldrich.com; K J Ross-Petersen http://www.ross.dk; MMP
http://www.mmpinc.com
Sigma http://www.sigma-aldrich.com/belgium

**Nordihydroguaiaretic acid.**  See Nordihydroguaiaretic acid

Norflurane.  See Tetrafluoroethane

Norgine.  See Alginic acid

Normal hexane.  See Hexane

Normal pentane.  See n-Pentane

Normal propyl alcohol.  See Propyl alcohol

Normosterol.  See Pentaerythrityl tetraacetate

Norvaline, 3-methyl-.  See L-Isolucine

Norvaline, 4-methyl-.  See L-Leucine

Novatone.  See Acetanisole

Novocaine.  See Procaine

1-NP.  See 1-Nitropropane

†=pharmaceutical grade

2-NP.  See 2-Nitropropane

NSA.  See Niacinamide

NT red.  See FD&C Red No. 40

**Nutmeg (Myristica fragrans) oil**

CAS **8008-45-5**

FEMA **2793**

**Synonyms:** East Indian nutmeg oil; Myristica fragrans; Myristica fragrans oil; Myristica oil; Nutmeg oil; Nutmeg oil, East Indian

**Definition:** Oil extracted from kernel of Myristica fragrans; consists of \(\alpha\)- and \(\beta\)-pinene, camphene, myristicin, dipentene, sabanene

**Properties:** Colorless to pale yel. liq., nutmeg odor and taste; very sol. in hot alcohol, chloroform, ether; sol. in fixed oils, min. oil; sl. sol. in cold alcohol; insol. in glycerin, propylene glycol, water; dens. 0.880-0.910; ref. index 1.474-1.488

**Toxicology:** LD50 (oral, rat) 2620 mg/kg, (skin, rabbit) > 10 g/kg; highly toxic; mod. toxic by ing.; as little as 5 g can cause nausea, vomiting, and death; skin irritant; experimental teratogen, reproductive effects; mutagenic data; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**HMIS:** Health 1, Flammability 1, Reactivity 0

**Storage:** Keep cool, well closed; light-sensitive

**Uses:** Natural flavor for pharmaceuticals; carminative; stomachic

**Regulatory:** FDA 21CFR §182.20, GRAS; FEMA GRAS; Japan approved; Europe listed (< 1 to 15 ppm safrole); BP, EP compliance; Canada DSL


Fleurchem http://www.fleurchem.com;

Frutarom (UK) Fine Ingreds.† http://www.frutarom.com; Fuerst Day Lawson http://www.fd.co.uk; George Uhe http://www.uhe.com; Haldin Int'l.

http://www.haldin-natural.com
Nylon 12
CAS 25038-74-8; 24937-16-4
Synonyms: Azacyclotridecan-2-one, homopolymer; Azacyclotridecan-2-one polyamide; PA 12; Polyamide 12; Poly (laurolactam)
Classification: Thermoplastic; polyamide
Definition: Polyamide derived from 12-aminododecanoic acid
Empirical: \((\text{C}_{12}\text{H}_{23}\text{NO})_n\)
Formula: \((\text{NH} (\text{CH}_2)_5 \text{CO})_n\)
Properties: Solid; dens. 1.010; m.p. 175 C; tens. str. 45 MPa; tens. mod. 1400 MPa; elong (@ break) 200%; exc. abrasion resist.; good elec. insulation props.
Uses: Raw material for pharmaceuticals; absorbent, carrier in personal hygiene prods.
Regulatory: FDA 21CFR §175.300, 177.1500, 177.2260; Canada DSL
Trade Names: Orgasol® 2002 D NAT COS; Orgasol® 2002 EX D NAT COS; Orgasol® 2002 UD NAT COS
Trade Names Containing: Liponyl 10 BN 6058; Liponyl 10 BN 6069; Liponyl 20LL

Nylon 612
CAS 24936-74-1; 26098-55-5
Synonyms: Nylon 6/12; PA 612; Polyamide 612; Poly (hexamethylenedodecanediamide)
Classification: Thermoplastic; polyamide
Formula: \([\text{NH} (\text{CH}_2)_6 \text{NHCO} (\text{CH}_2)_{10} \text{CO})_n\]
Properties: Solid; dens. 1.07 kg/l; m.p. 210 C; tens. str. (@ yield) 60 MPa
Uses: Thermoplastic resin
Regulatory: FDA 21CFR §172.510; FEMA GRAS
Manuf./Distrib.: Aldrich† http://www.sigma-aldrich.com
Trade Names Containing: Liponyl N30SA

Oak bark extract
FEMA 2794
Synonyms: Oak chips extract
Definition: Extract of the bark of oak trees, Quercus species
Uses: Natural flavor for pharmaceuticals
Regulatory: BP, EP compliance; FDA 21CFR §172.510; FEMA GRAS
Manuf./Distrib.: Grau Aromatics
Chemical Component Cross-Reference

†=pharmaceutical grade

**Oak chips extract.** See Oak bark extract

**OAP.** See Hexamethyldisilazane

**Oat (Avena sativa) kernel extract**

Synonyms: Avena sativa; Avena sativa kernel extract; Oat kernel extract

Definition: Extract of the kernel of oats, Avena sativa

Uses: Soothing agent

Trade Names Containing: Drago-Oat-Active 2/060900

**Oat kernel extract.** See Oat (Avena sativa) kernel extract

**OBCP.** See Chlorophene

**Ocel.** See Oleyl alcohol

**Ocimum basilicum; Ocimum basilicum oil.** See Basil (Ocimum basilicum) oil

**Ocimum basilicum oleoresin.** See Oleoresin basil

**Ocimum sanctum**

Synonyms: Basil, holy; Holy basil; Tulasí; Tuluí

Definition: Herb of the Lamiaceae (mint) family; red and green varieties; revered in India as sacred herb

Properties: Brn. powd. with characteristic odor; astringent taste; sol. in water (≤ 70%)

Storage: 2-yr. shelf life

Uses: Anti-inflammatory, antimicrobial, antispasmodic, reduces blood sugar levels in folk medicine; antidote for snake and scorpion bites

Manuf./Distrib.: Exotic Naturals http://www.exoticnatural.com

Trade Names Containing: Pronalen® Sensitive Skin

**Octaacetylsucrose.** See Sucrose octaacetate

**Octaaluminum zirconium pentachloride tricosahydroxide.** See Aluminum zirconium pentachlorohydrate

**Octacosanol**

CAS 557-61-9

Synonyms: 1-Octacosanol; n-Octacosanol; Octacosyl alcohol; Policosanol; Polycosanol

Definition: A constituent of vegetable waxes

Empirical: C28H58O

Formula: CH3(CH2)26CH2OH

Properties: Cryst.; sol. in carbon disulfide, other fat solvs., oils; insol. in water; m.w. 410.77; m.p. 83.4 C

Uses: Direct compression tableting aid for pharmaceuticals; nutrient in pharmaceuticals, dietary supplements, health foods


Trade Names: Lessstanol™ Natural Octacosanol 95%; Viobin Octacosanol

Trade Names Containing: Lessstanol™ Natural Octacosanol 30%; Lessstanol™ Natural Octacosanol GF; Lesstanol™ Natural Policosanol 60

1-Octacosanol; n-Octacosanol; Octacosyl alcohol. See Octacosanol

9,12-Octadecadienamide, N,N-bis (2-hydroxyethyl)-. See Linoleamide DEA

9,12-Octadecadienoic acid; cis,cis-9,12-Octadecadienoic acid; (Z,Z)-9,12-Octadecadienoic acid. See Linoleic acid

9,12-Octadecadienoic acid, 2,3-dihydroxypropyl ester. See Glyceril linoleate

9,12-Octadecadienoic acid ethyl ester. See Ethyl linoleate

9,12-Octadecadienoic acid methyl ester. See Methyl linoleate

9,12-Octadecadienoic acid, mixed triesters with octanoic acid, decanoic acid, and 1,2,3-propanetriol. See Caprylic/capric/linoleic triglyceride

9,12-Octadecadienoic acid, monoester with 1,2,3-propanetriol. See Glyceril linoleate

Octadecanamide, N,N-dimethyl-N-octadecyl-, chloride. See Distearidimonium chloride

Octadecanamide, N-(2-hydroxy-1,1-dimethylethyl)-. See Stearamide AMP

Octadecanaminium, N,N-dimethyl-N-octadecyl-, chloride. See Distearidylammonium chloride

1-Octadecanaminium, N,N-dimethyl-N-octadecyl-, chloride, reaction products with hectorite. See Distearidinium hectorite

Octadecanoic acid, barium salt. See Barium stearate

1,12-Octodecanediol. See 12-Hydroxystearyl alcohol

Octadecanoic acid; n-Octadecanoic acid. See Stearic acid

Octadecanoic acid, aluminum salt. See Aluminum stearate
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Component</th>
<th>See Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Octadecanoic acid butyl ester</td>
<td>Butyl stearate</td>
</tr>
<tr>
<td>Octadecanoic acid calcium salt</td>
<td>Calcium stearate</td>
</tr>
<tr>
<td>Octadecanoic acid, 2-(1-carboxyethoxy)-1-methyl-2-oxoethyl ester, calcium salt</td>
<td>Calcium stearoyl lactylate</td>
</tr>
<tr>
<td>Octadecanoic acid, 2-(1-carboxyethoxy)-1-methyl-2-oxoethyl ester, sodium salt</td>
<td>Sodium stearoyl lactylate</td>
</tr>
<tr>
<td>Octadecanoic acid, cetyl ester</td>
<td>Cetyl stearate</td>
</tr>
<tr>
<td>Octadecanoic acid, compd. with 2,2′,2″-nitrilotris[ethanol] (1:1)</td>
<td>TEA-stearate</td>
</tr>
<tr>
<td>Octadecanoic acid, diester with decaglycerol</td>
<td>Polyglyceryl-10 decasterate</td>
</tr>
<tr>
<td>Octadecanoic acid, diester with hexaglycerol</td>
<td>Polyglyceryl-6 distearate</td>
</tr>
<tr>
<td>Octadecanoic acid, diester with 1,2,3-propanetriol</td>
<td>Glycol distearate</td>
</tr>
<tr>
<td>Octadecanoic acid, (diethylamino)ethyl ester</td>
<td>Diethylaminoethyl stearate</td>
</tr>
<tr>
<td>Octadecanoic acid, 1,2-ethanediyl ester</td>
<td>Ethyl stearate</td>
</tr>
<tr>
<td>Octadecanoic acid, 2-ethyhexyl ester</td>
<td>Octyl stearate</td>
</tr>
<tr>
<td>Octadecanoic acid, 1-hexadecyl ester</td>
<td>Cetyl stearate</td>
</tr>
<tr>
<td>Octadecanoic acid, 2-hydroxyethyl ester</td>
<td>Glycol stearate</td>
</tr>
<tr>
<td>Octadecanoic acid, 2-hydroxymethyl-3-(1-oxooctadecyl) aminopropyl ester</td>
<td>Stearamide DIBA-stearate</td>
</tr>
<tr>
<td>Octadecanoic acid, isocetyl ester</td>
<td>Isocetyl stearate</td>
</tr>
<tr>
<td>Octadecanoic acid, isodecyl ester</td>
<td>Isodecyl stearate</td>
</tr>
<tr>
<td>Octadecanoic acid, isohexadecyl ester</td>
<td>Isohexadecyl stearate</td>
</tr>
<tr>
<td>Octadecanoic acid, magnesium salt</td>
<td>Magnesium stearate</td>
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<tr>
<td>Octadecanoic acid, methyl ester</td>
<td>Methyl stearate</td>
</tr>
<tr>
<td>Octadecanoic acid, 1-methyl-1,2-ethanediyl ester</td>
<td>Propylene glycol distearate</td>
</tr>
<tr>
<td>Octadecanoic acid, 1-methylhexyl ester</td>
<td>Isopropyl stearate</td>
</tr>
<tr>
<td>Octadecanoic acid, 2-methylpropyl ester</td>
<td>Isobutyl stearate</td>
</tr>
</tbody>
</table>

‡=pharmaceutical grade

<table>
<thead>
<tr>
<th>Component</th>
<th>See Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Octadecanoic acid, mixed triesters with octanoic acid, decanoic acid, and 1,2,3-propanetriol</td>
<td>Caprylic/capric/stearic triglyceride</td>
</tr>
<tr>
<td>Octadecanoic acid, monoester with decaglycerol</td>
<td>Polyglyceryl-10 stearate</td>
</tr>
<tr>
<td>Octadecanoic acid, monoester with diglycerol; 9-Octadecanoic acid, monoester with oxybis [propanediol]</td>
<td>Polyglyceryl-2 stearate</td>
</tr>
<tr>
<td>Octadecanoic acid, monoester with 1,2-propanetriol</td>
<td>Propylene glycol stearate</td>
</tr>
<tr>
<td>Octadecanoic acid, monoester with 1,2,3-propanetriol</td>
<td>Glyceryl stearate</td>
</tr>
<tr>
<td>Octadecanoic acid, monoester with triglycerol; Octadecanoic acid, monoester with tri-1,2,3-propanetriol diether</td>
<td>Polyglyceryl-3 stearate</td>
</tr>
<tr>
<td>Octadecanoic acid, octadecyl ester</td>
<td>Stearyl stearate</td>
</tr>
<tr>
<td>Octadecanoic acid, 2-[(1-oxooctadecyl) amino] ethyl ester</td>
<td>Stearamide MEA-stearate</td>
</tr>
<tr>
<td>Octadecanoic acid, potassium salt</td>
<td>Potassium stearate</td>
</tr>
<tr>
<td>Octadecanoic acid, 1,2,3-propanetriyl ester</td>
<td>Tristearin</td>
</tr>
<tr>
<td>Octadecanoic acid, sodium salt</td>
<td>Sodium stearate</td>
</tr>
<tr>
<td>Octadecanoic acid, 2-tetradecyl-1-eicosanyl ester</td>
<td>Tetradecyleicosyl stearate</td>
</tr>
<tr>
<td>Octadecanoic acid, tetradecyl ester</td>
<td>Myristyl stearate</td>
</tr>
<tr>
<td>Octadecanoic acid, tridecyl ester</td>
<td>Tridecyl stearate</td>
</tr>
<tr>
<td>Octadecanoic acid, zinc salt</td>
<td>Zinc stearate</td>
</tr>
<tr>
<td>Octadecanol; 1-Octadecanol; n-Octadecanol</td>
<td>Stearyl alcohol</td>
</tr>
<tr>
<td>6,9,12-Octadecatrienoic acid</td>
<td>γ-Linolenic acid</td>
</tr>
<tr>
<td>9,12,15-Octadecatrienoic acid; all cis-9,12,15-Octadecatrienoic acid; (Z,Z,Z)-9,12,15-Octadecatrienoic acid</td>
<td>Linolenic acid</td>
</tr>
<tr>
<td>9,12,15-Octadecatrienoic acid, ethyl ester; (Z,Z,Z)-9,12,15-Octadecatrienoic acid, ethyl ester</td>
<td>Ethyl linolenate</td>
</tr>
<tr>
<td>9-Octadecenoic acid; 9,10-Octadecenoic acid; cis-9-Octadecenoic acid; cis-Octade-9-enoic acid</td>
<td>Oleic acid</td>
</tr>
<tr>
<td>9-Octadecenoic acid, (1-acetyloxy)-1,2,3-propanetriol ester</td>
<td>Glycerol triglyceride ricinoleate</td>
</tr>
<tr>
<td>9-Octadecenoic acid, butyl ester</td>
<td>Butyl linolenate</td>
</tr>
<tr>
<td>Chemical Component Cross-Reference</td>
<td>†=pharmaceutical grade</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>9-Octadecenoic acid, compd. with 2,2,2′,2′′-nitrilotris[ethanol] (1:1). See TEA-oleate</td>
<td>1,2,3-propanetriol. See Glyceryl mono/dioleate</td>
</tr>
<tr>
<td>9-Octadecenoic acid decyl ester. See Decyl oleate</td>
<td>9-Octadecenoic acid, monoester with tetraglycerol. See Polyglyceryl-4 oleate</td>
</tr>
<tr>
<td>9-Octadecenoic acid, diester with decaglycerol. See Polyglyceryl-10 dioleate</td>
<td>9-Octadecenoic acid, monoester with triglycerol. See Polyglyceryl-3 oleate</td>
</tr>
<tr>
<td>9-Octadecenoic acid, diester with hexaglycerol. See Polyglyceryl-6 dioleate</td>
<td>9-Octadecenoic acid, 9-octadecenyl ester. See Oleyl oleate</td>
</tr>
<tr>
<td>9-Octadecenoic acid, diester with oxybis [propanediol]: 9-Octadecenoic acid, diester with 3,3′-oxybis[1,2-propanediol]. See Polyglyceryl-2 dioleate</td>
<td>9-Octadecenoic acid, oxybis (2,1-ethanediilxyo)-2,1-ethanediyl) ester. See PEG-4 dioleate</td>
</tr>
<tr>
<td>9-Octadecenoic acid, diester with 1,2,3-propanetriol (1:2). See Polyglyceryl-2 oleate</td>
<td>9-Octadecenoic acid, potassium salt; 9-Octadecenoic acid (Z)-, potassium salt. See Potassium oleate</td>
</tr>
<tr>
<td>9-Octadecenoic acid ethyl ester. See Ethyl oleate</td>
<td>9-Octadecenoic acid, 1,2,3-propanetriyl ester; 9-Octadecenoic acid (Z)-, 1,2,3-propanetriyl ester. See Triolein</td>
</tr>
<tr>
<td>2-Octadecenoic acid, 2-ethylhexyl ester. See Octyl oleate</td>
<td>9-Octadecenoic acid, sesquister with diglycerol. See Polyglyceryl-2 sesquioleate</td>
</tr>
<tr>
<td>9-Octadecenoic acid (Z)-, 2-ethylhexyl ester. See 2-Ethylhexyl oleate</td>
<td>9-Octadecenoic acid, sodium salt. See Sodium oleate</td>
</tr>
<tr>
<td>9-Octadecenoic acid, 12-hydroxy-. See Ricinoleic acid</td>
<td>9-Octadecenoic acid, tetraester with decaglycerol. See Polyglyceryl-10 tetraoleate</td>
</tr>
<tr>
<td>9-Octadecenoic acid, 2-[2-(2-hydroxyethoxy) ethoxy] ethoxy] ethyl ester. See PEG-4 oleate</td>
<td>Octadecenol; 1-Octadecenol; Octadec-9-en-1-ol; 9-Octadecen-1-ol; cis-9-Octadecen-1-ol; (Z)-Octadec-9-enol; (Z)-9-Octadecen-1-ol. See Oleyl alcohol</td>
</tr>
<tr>
<td>9-Octadecenoic acid, 2-(2-hydroxyethoxy) ethyl ester. See PEG-2 oleate</td>
<td>9-Octadecenyl 13-docosenoate; (Z)-Octadec-9-enyl (Z)-docos-13-enoate. See Oleyl erucate</td>
</tr>
<tr>
<td>9-Octadecenoic acid, 17-hydroxy-3,6,9,12,15-pentooxaheptadec-1-yl ester. See PEG-6 oleate</td>
<td>α-9-Octadecenyl-ω-hydroxypoly (oxy-1,2-ethanediyl), (Z). See Oleth-20</td>
</tr>
<tr>
<td>9-Octadecenoic acid, isodecyl ester. See Isodecyl oleate</td>
<td>(Z)-α-9-Octadecenyl-ω-hydroxypoly (oxy-1,2-ethanediyl); 2-[2-(9-Octadecenloyx) ethoxy] ethanol. See Oleth-2</td>
</tr>
<tr>
<td>9-Octadecenoic acid, methyl ester; (Z)-9-Octadecenoic acid, methyl ester. See Methyl oleate</td>
<td>2-[2-[2-(9-Octadecenloyx) ethoxy] ethoxy] ethanol. See Oleth-3</td>
</tr>
<tr>
<td>9-Octadecenoic acid, 1-methylethyl ester. See Isopropyl oleate</td>
<td>Octadecyl alcohol; n-Octadecyl alcohol. See Stearyl alcohol</td>
</tr>
<tr>
<td>9-Octadecenoic acid, monoester with decaglycerol. See Polyglyceryl-10 oleate</td>
<td>Octadecyl citrate. See Stearyl citrate</td>
</tr>
<tr>
<td>9-Octadecenoic acid, monoester with hexaglycerol. See Polyglyceryl-6 oleate</td>
<td>Octadecyl dimethylamine oxide. See Stearamine oxide</td>
</tr>
<tr>
<td>9-Octadecenoic acid, monoester with octaglycerol. See Polyglyceryl-8 oleate</td>
<td>Octadecyl dimethyl benzyl ammonium chloride. See Stearalkonium chloride</td>
</tr>
<tr>
<td>9-Octadecenoic acid, monoester with oxybis [propanediol]. See Polyglyceryl-2 oleate</td>
<td>α-Octadecylether of glycerol. See Batyl alcohol</td>
</tr>
<tr>
<td>9-Octadecenoic acid, monoester with 1,2-propanediol. See Propylene glycol oleate</td>
<td>Octadecyl 2-ethylhexanoate. See Stearyl octanoate</td>
</tr>
<tr>
<td>9-Octadecenoic acid, monoester with 1,2,3-propanetriol. See Glyceryl oleate</td>
<td>1-O-Octadecylglycerol. See Batyl alcohol</td>
</tr>
<tr>
<td>9-Octadecenoic acid (Z)-, monoester with</td>
<td>Octadecyl heptanoate. See Stearyl heptanoate</td>
</tr>
<tr>
<td></td>
<td>Octadecyl 3-hydroxy-11-oxoolean-12-en-29-</td>
</tr>
<tr>
<td>Chemical Component Cross-Reference</td>
<td>Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td>Octaldehyde</td>
<td>Manuf./Distrib.: Advanced BioTech</td>
</tr>
<tr>
<td></td>
<td><a href="http://www.adv-bio.com">http://www.adv-bio.com</a>; Advanced</td>
</tr>
<tr>
<td></td>
<td>n-Octalactone. See γ-Octalactone</td>
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<tr>
<td></td>
<td>n-Octaldehyde. See n-Octanal</td>
</tr>
<tr>
<td></td>
<td>2,6,10,14,19,23,27,31-octamethyldotriaconta-2,6,8,10,12,14,16,18,20,22,24,26,30-tridecaene. See Lycopene</td>
</tr>
<tr>
<td></td>
<td>1-Octanal. See n-Octanal</td>
</tr>
<tr>
<td></td>
<td>n-Octanal CAS 124-13-0; EINECS/ELINCS 204-683-8</td>
</tr>
<tr>
<td></td>
<td>UN 1191 (DOT; UN IATA); FEMA 2797</td>
</tr>
<tr>
<td></td>
<td>Synonyms: Aldehyde C-8; C-8 aldehyde; Caprylaldehyde; Caprylic aldehyde; n-Octaldehyde; 1-Octanal; Octanaldehyde; Octylaldehyde; n-Octyl aldehyde</td>
</tr>
<tr>
<td></td>
<td>Empirical: C₈H₁₆O</td>
</tr>
<tr>
<td></td>
<td>Formula: CH₃(CH₂)₇CHO</td>
</tr>
<tr>
<td></td>
<td>Properties: Colorless to lt. yel. liq., fatty-orange odor; sol. in alcohol, fixed oils, propylene glycol, oxygenated and aliphatic solvs.; sl. sol. in water; insol. in glycerin; m.w. 128.24; dens. 0.821 (20/4 C); b.p. 163.4 C; flash pt. (CC) 125 F; ref. index 1.417-1.425</td>
</tr>
<tr>
<td></td>
<td>Toxicology: LD₂₅ (oral, rat) 5630 mg/kg; (skin, rabbit) 6350 mg/kg; mildly toxic by ing. and skin contact; skin and eye irritant; TSCA listed</td>
</tr>
<tr>
<td></td>
<td>Precaution: Combustible exposed to heat or flame; mod. fire risk; can react with oxidizing, reducing materials</td>
</tr>
<tr>
<td>Octanal</td>
<td></td>
</tr>
</tbody>
</table>
Octanaldehyde. See n-Octanal

Octanal dimethyl acetal
CAS 10022-28-3; EINECS/ELINCS 233-018-4
FEMA 2798
Synonyms: C-8 dimethylacetal; 1,1-Dimethoxyoctane; Octane, 1,1-dimethoxy-
Empirical: C\textsubscript{10}H\textsubscript{22}O\textsubscript{2}
Formula: CH\textsubscript{3}(CH\textsubscript{2})\textsubscript{6}CH(OCH\textsubscript{3})\textsubscript{2}
Properties: Colorless liq.; powerful green citrus waxy sweet odor; sol. in alcohol; insol. in water; m.w. 174.28; sp.gr. 0.841-40.852; b.p. 206-207 C; flash pt. (CC) 155 F; ref. index 1.410-1.420 (20 C)
Toxicology: May be harmful by ing., skin absorp.; may be irritating to eyes, skin, mucous membranes, upper respiratory tract; TSCA listed
Precaution: Combustible liq.; incompat. with strong oxidizing agents
Hazardous Decomp. Prods.: CO, CO\textsubscript{2}; emits toxic fumes under fire conditions

†=pharmaceutical grade

Storage: Store in cool, dry place; keep tightly closed; keep away from heat and open flame
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Bedoukian Research http://www.bedoukian.com
Octanal-3,7-dimethyl-7-hydroxy; Octanal, 7-hydroxy-3,7-dimethyl-. See Hydroxycitronellal
Octanal, 7-hydroxy-3,7-dimethyl-, dimethyl acetal. See Hydroxycitronellal dimethyl acetal
Octanal-, 2-methyl-. See 2-Methyloctanal
Octanamide, N-[2-[N-(2-carboxyethyl)]-N-[2-(2-carboxyethoxy) ethyl] aminoethyl]-, disodium salt. See Disodium caproloamphodipropionate
Octanaminium, N,N-dimethyl-N-octyl-, chloride; 1-Octanaminium, N-octyl-N,N-dimethyl-, chloride. See Diocetyl dimonium chloride
1-Octanecarboxylic acid. See Nonanoic acid
Octane, 1,1-dimethoxy-. See Octanal dimethyl acetal
Octanedioic acid: Octane-1,8-dioic acid. See Suberic acid
1,3-Octanediol. See Ethyl hexanediol
1,2-Octanediol, 3,7-dimethyl-. See Hydroxycitronellol
Octane, 1,1´-oxybis-. See Dioctyl ether
Octanoic acid; n-Octanoic acid. See Caprylic acid
Octanoic acid allyl ester. See Allyl octanoate
Octanoic acid, diester with 5-hydroxy-6-methyl-3,4-pyridinedimethanol. See Pyridoxine dicaprylate
Octanoic acid, diester with 1,2,3-propanetriol. See Glyceryl dicaprylate
Octanoic acid, 2,2-dimethyl-1,3-propanediol diester. See Neopentyl glycol dicaptoante
Octanoic acid ethyl ester. See Ethyl octanoate
Octanoic acid, hexyl ester. See Hexyl octanoate
Octanoic acid, 2-hydroxypropyl ester. See Propylene glycol caprylate
Octanoic acid, isopentyl ester; Octanoic acid, 3-methylbutyl ester. See Isoamyl octanoate
Octanoic acid, methyl ester. See Methyl caprylate
Octanoic acid, 1-methyl-1,2-ethanediyl ester.
Octanoic acid, monoester with 1,2-propanediol. See Propylene glycol caprylate

- Toxicology: LD₅₀ (oral, rat) > 3200 mg/kg; toxic; skin and eye irritant; inh. may cause nose/throat irritation, CNS depression symptoms; ing. may cause 'alcohol' intoxication symptoms; may cause severe lung damage, respiratory/cardiac arrest, and death if aspirated into lungs; TSCA listed

- Environmental: VOC; ThOD 1.84

- Precaution: Combustible liq.: can form explosive mixts. with air ≥ 80 C; incompat.
Chemical Component Cross-Reference

Storage: 6 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI

Manuf./Distrib.: Acme-Hardesty
Advanced Synthesis Tech.
http://www.advancedsynthesis.com; B D Aromatics http://www.bdaromatics.com;
BFA Labs http://www.bfa-lab.com
Degussa Flavors & Fruit Systems USA
http://www.flavors-fruit-systems.com;
Fleurechm http://www.fleurechem.com;
Fluka http://www.sigma-aldrich.com; I. P. Callison http://www.ipcallison.com; J.H.
Calo† http://www.jhcalo.com
Millennium
http://www.safcspecialties.com; Sarcom
http://www.sarcominc.com; V. Mane Fils SA http://www.mane.com

Octanol-3; D-n-Octanol. See 3-Octanol
n-Octanol. See Caprylic alcohol
1-Octanol acetate. See Octyl acetate
1-Octanol, 2-buty1-. See Butyloctanol
2-Octanol, 8,8-diethoxy-2,6-dimethyl-. See Hydroxycitronellal diethyl acetal
2-Octanol, 8,8-dimethoxy-2,6-dimethyl-. See Hydroxycitronellal dimethyl acetal
3-Octanol, 3,7-dimethyl-. See Tetrahydrolinalool
1-Octanol, 3,7-dimethyl-7-hydroxy-. See Hydroxycitroneilol
Octanolide-1,4; Octan-4-olide. See γ-Octalactone
5-Octanol-4-one. See 5-Hydroxy-4-octanone
2-Octanone. See Methyl hexyl ketone

3-Octanone
CAS 106683; EINECS/ELINCS 203423-0
UN 2271 (DOT); FEMA 2803
Synonyms: Amyl ethyl ketone; n-Amyl ethyl ketone; EAK; Ethyl amyI ketone; Ethyl n-amyl ketone; Ethyl pentyI ketone; 5-Methyl-3-heptanone; Octanone-3; n-Pentyl ethyl ketone
Classification: Nonaromatic ketone

†=pharmaceutical grade

Empirical: C8H16O
Formula: CH3(CH2)4COC2H5
Properties: Colorless liq.; mild fruity odor; very sol. in ethanol; misc. with oxygenated solvs.; sl. sol. in water; m.w. 128.22; sp.gr. 0.820-0.824 (20/20 C); dens. 6.83 lb/gal (20 C); b.p. 166-169 C; flash pt. 51 C; ref. index 1.415 (20 C)

Toxicology: OSHA PEL TWA 25 ppm; LD50 (IP, mouse) 406 mg/kg; poison by IP route; mod. irritating to eyes, skin, respiratory system; narcotic in high concs.; TSCA listed

Precaution: Flammable exposed to heat, sparks, flame, or oxidizers; mod. fire risk

Hazardous Decomp. Prods.: CO, CO2; heated to decomp., emits acrid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: Acme-Hardesty
http://www.acme-hardesty.com; Advanced Synthesis Tech.
Degussa AG/Health & Nutrition
http://www.rctreatt.com; SAFC Specialties
http://www.safcspecialties.com

Octanone-3. See 3-Octanone

4-Octanone, 5-hydroxy-. See 5-Hydroxy-4-octanone

3-Octanone-1-ol
CAS 65405687; EINECS/ELINCS 2657395
FEMA 2804
Synonyms: Caproyl ethanol; Hexanoyl ethanol; 3-(hydroxymethyl) heptan-2-one;
Ketone alcohol; Methylol methyl amyl ketone

Empirical: C8H16O2
Properties: Colorless, cl. liq.; sol. in alcohol; very sl. sol. in water; m.w. 144.21; sp. gr. 0.94500 - 0.94900; b.p. 94.00-96.00 C @ 9.00 mm
Uses: Synthetic flavor for pharmaceuticals

Features: Fruity herbal spice odor
Regulatory: FDA 21CFR §172.515; FEMA GRAS

n-Octyl acetate. See Octyl acetate
3,6,9,12,15,18,21,24-Octaoxahexacosane-1,26-diol. See PEG-9
1-Octene-3-ol. See 1-Octene-3-ol

1-Octene-3-ol
CAS 3391-86-4; EINECS/ELINCS 222-226-0
UN 2810; FEMA 2805
Synonyms: Amyl vinyl carbinol; 1-Octene-3-ol; Pentyl vinyl carbinol
Classification: aliphatic alcohol
Empirical: C₈H₁₆O
Formula: CH₃(CH₂)₄CH(OH)CH:CH₂
Properties: Colorless liq.; earthy mushroom odor; insol. in water; sol. in most org. solvs.; m.w. 128.22; dens. 0.837 (20/4 C); vapor dens. 4.4; b.p. 173-177 C; flash pt. 87 C; ref. index 1.437 (20 C); tenacity 8 hrs. on blotter

Toxicology: LD₅₀ (oral, rat) 340 mg/kg, (IV, mouse) 56 mg/kg, (skin, rabbit) 3300 mg/kg; toxic; poison by ing. and IV routes; mod. toxic by skin contact; skin and eye irritant; TSCA listed

Environmental: Do not contaminate water sources, sewers
Precaution: Combustible; wear protective gloves, splash-proof goggles; incompat. with strong oxidizers, acids
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
HMIS: Health 2, Flammability 1, Reactivity 0
Storage: Store in cool, dry place in tightly sealed containers, protected from heat, light
Uses: Synthetic flavor and fragrance for pharmaceuticals
Use Level: < 1%
Regulatory: FCC; FDA 21CFR §172.515; FEMA GRAS; EINECS, AICS, Canada DSL, ECL, PICCS listed

1-Octene-3-ol acetate. See 1-Octen-3-yl acetate
1-Octene-3-ol butyrate. See 1-Octen-3-yl butyrate
6-Octen-1-ol, 3,7-dimethyl-. See β-Citronellol
7-Octen-1-ol, 3,7-dimethyl-, (S)-. See (-)-Rhodinol
6-Octen-1-ol, 3,7-dimethyl-, acetate. See Citronellyl acetate
6-Octen-1-ol, 3,7-dimethyl-, butyrate. See Rhodinyl butyrate
7-Octen-1-ol, 3,7-dimethyl-, propanoate; 7-Octen-1-ol, 3,7-dimethyl-, propionate. See Rhodinyl propionate
Octenyl acetate. See 1-Octen-3-yl acetate
1-Octen-3-yl acetate

CAS 2442-10-6; EINECS/ELINCS 219-474-7
FEMA 3582

Synonyms: Amyl vinyl carbinol acetate; Amyl vinyl carbinyl acetate; 1-Octen-3-ol acetate; Octenyl acetate; 1-Pentallyl acetate; Pentyl crotonyl acetate; n-Pentyl vinyl carbinol acetate

Empirical: C_{10}H_{18}O_{2}

Properties: Colorless to pale yel. liq.; weak, earthy, fruity odor; sol. in alcohol; insol. in water; m.w. 170.28; sp.gr. 0.8778; vapor dens. 5.8; b.p. 189-191 C; flash pt. (CC) 195 F; ref. index 1.419-1.429; tenacity 24 hrs. on blotter

Toxicology: LD50 (oral, rat) 850 mg/kg, (skin, rabbit) > 5 g/kg; may be harmful by inh., ing., skin absorp.; may be irritating to eyes, skin, mucous membranes, upper respiratory tract; TSCA listed

Precaution: Incompat. with strong oxidizing agents

Environmental: Keep run-off water out of sewers, water sources

Storage: Store in cool, dry place; keep tightly closed

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FEMA GRAS; Canada DSL


1-Octen-3-yl butyrate

CAS 16491-54-6; EINECS/ELINCS 240-555-8
FEMA 3612

Synonyms: Butanoic acid, 1-ethenylhexyl ester; Butyric acid, 1-pentallyl ester; Butyric acid, 1-vinylhexyl ester; 1-Octen-3-ol butyrate; 1-Pentallyl butyrate

Empirical: C_{12}H_{22}O_{2}

Properties: Liq.; mushroom, buttery odor; sol. in alcohol; insol. in water; m.w. 198.30; sp.gr. 0.863-0.870; b.p. 225-229 C; flash pt. (CC) 195 F; ref. index 1.424-1.431 (20 C)

Toxicology: LD50 (oral, mouse) 3424 mg/kg; may be harmful by inh., ing., skin absorp.; may be irritating to eyes, skin, mucous membranes, upper respiratory tract; TSCA listed

Precaution: Incompat. with strong oxidizing agents

Environmental: May be toxic fumes under fire conditions

Storage: Store in cool, dry place; keep tightly closed

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FEMA GRAS; Canada DSL

Manuf./Distrib.: Bedoukian Research http://www.bedoukian.com; SAFC Specialties http://www.safcspecialties.com

Octic acid. See Caprylic acid

Octocrylene

CAS 6197-30-4; EINECS/ELINCS 228-250-8

Synonyms: 2-Ethylhexyl 2-cyano-3,3-diphenylacrylate; 2-Ethylhexyl 2-cyano-3,3-diphenyl-2-propenoate; UV Absorber-3

Classification: Substituted acrylate

Empirical: C_{24}H_{27}NO_{2}

Formula: (C_{6}H_{5})_{2}C=C(CN)CO_{2}CH_{2}CH(C_{2}H_{5})(CH_{2})_{3}CH_{3}

Properties: Liq.; m.p. -10 C

Uses: OTC drug active; UV-B absorber/sunscreen

Regulatory: Canada DSL


Trade Names: Escalol® 597

Ooctic acid; n-Octoic acid. See Caprylic acid

Octoxyynol-1

CAS 9002-93-1 (generic); 9004-87-9 (generic); 9036-19-5 (generic); 2315-67-5; EINECS/ELINCS 264-520-1

Synonyms: Ethylene glycol octyl phenyl ether; PEG-1 octyl phenyl ether; 2-[p-(1,1,3,3-Tetramethylbutyl) phenoxy] ethanol
Chemical Component Cross-Reference

Classification: Ethoxylated alkyl phenol
Empirical: C_{16}H_{26}O_{2}
Formula: C_{8}H_{17}C_{6}H_{4}OCH_{2}CH_{2}OH
Properties: Nonionic
Toxicology: LD_{50} (oral, rat) 1800 mg/kg; mod.
toxic by ingestion and IV routes;
experimental reproductive effects; human
mutagenic data; eye and human skin
irritant; TSCA listed
Hazardous Decomp. Prods.: Heated to
decomposition, emits toxic fumes of NOX
Uses: Surfactant, emulsifier in
pharmaceutical topicals; spermicide
Regulatory: FDA 21CFR §172.710, 175.105,
176.180, 176.210; FDA approved for topicals
Manuf./Distrib.: Aldrich http://www.sigma-
aldrich.com

Octoxynol-3
CAS 9002-93-1 (generic); 9004-87-9 (generic);
9036-19-5 (generic); 2315-62-0; 27176-94-9
Synonyms: Octyl phenol condensed with 3
moles ethylene oxide; Octylphenol EO (3);
PEG-3 octyl phenyl ether; POE (3) octyl
phenyl ether; 2-[2-[2-[p-(1,1,3,3-
Classification: Ethoxylated alkyl phenol
Empirical: C_{16}H_{34}O_{4}
Formula: C_{8}H_{17}C_{6}H_{4}(OCH_{2}CH_{2})_{n}OH, avg. n = 3
Properties: Nonionic
Toxicology: LD_{50} (oral, rat) 4000 mg/kg; mod.
toxic by ingestion; irritating to eyes; TSCA listed
Hazardous Decomp. Prods.: Heated to
decomposition, emits acrid smoke and irritating
fumes
Uses: Emulsifier, solubilizer in
pharmaceuticals; spermicide
Regulatory: FDA 21CFR §172.710, 175.105,
176.180, 176.210; FDA approved for topicals
Manuf./Distrib.: Aldrich http://www.sigma-
aldrich.com

Octoxynol-5
CAS 9002-93-1 (generic); 9004-87-9 (generic);
9036-19-5 (generic); 2315-62-0; 27176-99-4
Synonyms: Octyl phenol condensed with 5
moles ethylene oxide; Octyl phenol EO (5);
14-(Octylphenoxy)-3,6,9,12-
tetraoxatetradecan-1-ol; PEG-5 octyl phenyl
ether; POE (5) octyl phenyl ether
Classification: Ethoxylated alkyl phenol
Empirical: C_{23}H_{40}O_{4}
Formula: C_{8}H_{17}C_{6}H_{4}(OCH_{2}CH_{2})_{n}OH, avg. n = 5
Properties: Nonionic
Toxicology: LD_{50} (oral, rat) 3800 mg/kg; mod.
toxic by ingestion; TSCA listed
Hazardous Decomp. Prods.: Heated to
decomposition, emits acrid smoke and irritating
fumes
Uses: Emulsifier, solubilizer in
pharmaceuticals; spermicide
Regulatory: FDA 21CFR §172.710, 175.105,
176.180, 176.210, 178.3400
Manuf./Distrib.: Aldrich http://www.sigma-
aldrich.com; Fluka http://www.sigma-
aldrich.com; Sigma http://www.sigma-
aldrich.com/belgium

Octoxynol-6
CAS 9002-93-1 (generic)
Synonyms: PEG-6 octyl phenyl ether; POE (6)
ocyl phenyl ether
Classification: Ethoxylated alkyl phenol
Formula: C_{8}H_{17}C_{6}H_{4}(OCH_{2}CH_{2})_{n}OH, avg. n = 6
Properties: Nonionic
Uses: Emulsifier, solubilizer in
pharmaceuticals; spermicide
Regulatory: FDA 21CFR §172.710, 175.105,
176.180, 176.210, 178.3400
Manuf./Distrib.: Aldrich http://www.sigma-
aldrich.com; Fluka http://www.sigma-
aldrich.com; Sigma http://www.sigma-
aldrich.com/belgium

Octoxynol-8
CAS 2638-43-9; 3520-90-9; 9002-93-1 (generic);
9004-87-9 (generic); 9036-19-5 (generic);
9063-89-2 (generic)
Synonyms: 23-(4-Octylphenoxy)-
3,6,9,12,15,18,21-heptaoxatricosan-1-ol;
PEG-8 octyl phenyl ether; PEG 400 octyl
phenyl ether; POE (8) octyl phenyl ether
Classification: Ethoxylated alkyl phenol
Empirical: C_{30}H_{54}O_{9}
Formula: C_{8}H_{17}C_{6}H_{4}(OCH_{2}CH_{2})_{n}OH, avg. n = 8
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, solubilizer in
pharmaceuticals
Regulatory: FDA 21CFR §172.710, 175.105,
176.180, 176.210, 178.3400
Manuf./Distrib.: Aldrich http://www.sigma-
aldrich.com; Fluka http://www.sigma-
aldrich.com; Sigma http://www.sigma-
aldrich.com/belgium

Trade Names: Synperonic® OP7.5

Octoxynol-9
CAS 9002-93-1 (generic); 9004-87-9 (generic);
9010-43-9 (generic); 9036-19-5 (generic);
42173-90-0
Synonyms: 26-(Octylphenoxy)-
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Component</th>
<th>Trade Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>3,6,9,12,15,18,21,24-octaoxahexacosa-1-ol; PEG-9 octyl phenyl ether; PEG 450 octyl phenyl ether</td>
<td>Triton® X-100</td>
</tr>
<tr>
<td>3,6,9,12,15,18,21,24-octaoxahexacosa-1-ol; PEG-9 octyl phenyl ether; PEG 450 octyl phenyl ether</td>
<td>Synperonic® OP10</td>
</tr>
</tbody>
</table>

#### Octoxynol-10

- **CAS**: 9002-93-1 (generic); 9004-87-9 (generic); 9036-19-5 (generic)
- **Synonyms**: Octyl phenol EO (10); 29-(Octylphenoxy)-3, 6, 9, 12, 15, 18, 21, 24, 27-nonaioxanophonacosan-1-ol; PEG-10 octyl phenyl ether; PEG 500 octyl phenyl ether; POE (10) octyl phenyl ether
- **Classification**: Ethoxylated alkyl phenol
- **Empirical**: C_{32}H_{58}O_{10}
- **Formula**: C_{8}H_{17}C_{6}H_{4}(OCH_{2}CH_{2})_{n}OH, avg. n = 9
- **Properties**: Pale yel. clear visc. liq.; faint odor, bitter taste; sol. in benzene, toluene; misc. with water, alcohol, acetone; insol. in hexane; dens. 1.059-1.068; hyd. no. 85-101; cloud pt. 63-69 C; pH 6-8; nonionic
- **Toxicology**: TSCA listed
- **Uses**: Surfactant, detergent, wetting agent, solubilizer, emulsifier, dispersant in pharmaceuticals, topicals; spermicide
- **Regulatory**: FDA 21CFR §175.105, 176.180, 176.210, 178.3400; FDA approved for topicals; USP/NF compliance
- **Manuf./Distrib.**: Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)
- **Trade Names**: Triton® X-100

#### Octoxynol-11

- **CAS**: 9002-93-1 (generic); 9004-87-9 (generic); 9036-19-5 (generic)
- **Synonyms**: PEG-11 octyl phenyl ether; POE (11) octyl phenyl ether; 32-[4-(1,1,3,3-Tetramethylbutyl)phenoxy]-3, 6,9,12,15,18,21,24,27,30-decaoxadotriacontan-1-ol
- **Classification**: Ethoxylated alkyl phenol
- **Empirical**: C_{36}H_{66}O_{12}
- **Formula**: C_{8}H_{17}C_{6}H_{4}(OCH_{2}CH_{2})_{n}OH, avg. n = 11
- **Properties**: Nonionic
- **Toxicology**: TSCA listed
- **Uses**: Emulsifier, solubilizer in pharmaceuticals; spermicide
- **Regulatory**: FDA 21CFR §172.710, 175.105, 176.180, 176.210, 178.3400
- **Manuf./Distrib.**: Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)
- **Trade Names**: Triton® X-100

#### Octoxynol-13

- **CAS**: 9002-93-1 (generic); 9004-87-9 (generic); 9036-19-5 (generic)
- **Synonyms**: PEG-13 octyl phenyl ether; POE (13) octyl phenyl ether; 38-[4-(1,1,3,3-Tetramethylbutyl)phenoxy]-3, 6,9,12,15,18,21,24,27,30,33,36-dodecaoxaoctatriacontan-1-ol
- **Classification**: Ethoxylated alkyl phenol
- **Empirical**: C_{40}H_{74}O_{14}
- **Formula**: C_{8}H_{17}C_{6}H_{4}(OCH_{2}CH_{2})_{n}OH, avg. n = 13
- **Properties**: Nonionic
- **Toxicology**: TSCA listed
- **Uses**: Surfactant, emulsifier, solubilizer in pharmaceuticals
- **Regulatory**: FDA 21CFR §172.710, 175.105, 176.180, 176.210, 178.3400
- **Manuf./Distrib.**: Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)
Octoxynol-16
CAS 9002-93-1 (generic); 9004-87-9 (generic); 9036-19-5 (generic)
Synonyms: Octyl phenol condensed with 16 moles ethylene oxide; Octyl phenol EO (16); PEG-16 octyl phenyl ether; POE (16) octyl phenyl ether
Classification: Ethoxylated alkyl phenol
Formula: C₈H₁₇C₆H₄(OCH₂CH₂)ₙOH, avg. n = 16
Properties: Nonionic
Toxicology: LD₅₀ (oral, rat) 2800 mg/kg; mod. toxic by ing.; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Emulsifier, solubilizer in pharmaceuticals; spermicide
Regulatory: FDA 21CFR §175.105, 176.180
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

Octoxynol-20
CAS 9002-93-1 (generic); 9004-87-9 (generic); 9036-19-5 (generic)
Synonyms: PEG-20 octyl phenyl ether; PEG 1000 octyl phenyl ether; POE (20) octyl phenyl ether
Classification: Ethoxylated alkyl phenol
Formula: C₈H₁₇C₆H₄(OCH₂CH₂)ₙOH, avg. n = 20
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, solubilizer in pharmaceuticals; spermicide
Regulatory: FDA 21CFR §175.105, 176.180
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: Synerponic® OP20

Octoxynol-25
CAS 9002-93-1 (generic); 9004-87-9 (generic); 9036-19-5 (generic)
Synonyms: PEG-25 octyl phenyl ether; POE (25) octyl phenyl ether
Classification: Ethoxylated alkyl phenol
Formula: C₈H₁₇C₆H₄(OCH₂CH₂)ₙOH, avg. n = 25
Properties: Nonionic
Toxicology: TSCA listed
Uses: Surfactant, emulsifier, solubilizer in pharmaceuticals

Octoxynol-30
CAS 9002-93-1 (generic); 9004-87-9 (generic); 9036-19-5 (generic)
Synonyms: PEG-30 octyl phenyl ether; POE (30) octyl phenyl ether
Classification: Ethoxylated alkyl phenol
Formula: C₈H₁₇C₆H₄(OCH₂CH₂)ₙOH, avg. n = 30
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, solubilizer in pharmaceuticals; spermicide
Regulatory: FDA 21CFR §172.710, 175.105, 176.180, 178.3400
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

Octoxynol-40
CAS 9002-93-1 (generic); 9004-87-9 (generic); 9036-19-5 (generic)
Synonyms: PEG-40 octyl phenyl ether; POE (40) octyl phenyl ether
Classification: Ethoxylated alkyl phenol
Formula: C₈H₁₇C₆H₄(OCH₂CH₂)ₙOH, avg. n = 40
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, solubilizer in pharmaceuticals; spermicide
Regulatory: FDA 21CFR §172.710, 175.105, 176.180, 178.3400
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: Synerponic® OP40 70%; Synerponic® OP40; Teric™ X40L

Octyacetate
CAS 112-14-1; EINECS/ELINCS 203-939-6
FEMA 2806
Synonyms: Acetate C-8; Acetic acid octyl ester; Caprylyl acetate; 1-Octanol acetate; n-Octanoyl acetate; 1-Octyl acetate; n-Octyl acetate; Octyl alcohol acetate
Classification: Carboxylic acid ester
Empirical: C₁₀H₂₀O₂
<table>
<thead>
<tr>
<th>Chemical Component Cross-Reference</th>
<th>†=pharmaceutical grade</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Formula:</strong> CH₃(CO₂(CH₂)₇CH₃</td>
<td>1-Octyl acetate. See Octyl acetate</td>
</tr>
<tr>
<td><strong>Properties:</strong> Colorless liq.; floral-fruity odor; sol. in alcohol, ether, fixed oils; sl. sol. in water; m.w. 172.27; dens. 0.868; vapor dens. 5.9; m.p. -38.5 C; b.p. 199 C; flash pt. (CC) 86 C; ref. index 1.4180 (20 C)</td>
<td>3-Octyl acetate. CAS 4864-61-3; EINECS/ELINCS 225-471-1</td>
</tr>
<tr>
<td><strong>LD50 (oral, rat) 3000 mg/kg, (skin, rabbit) &gt; 5 g/kg; low oral toxicity; eye and sl. skin irritant; inh. of mist may cause nose/throat irritation; high concs. may cause CNS depression, drowsiness, headache, lightheadedness; TSCA listed</strong></td>
<td>FEMA 3583</td>
</tr>
<tr>
<td><strong>Empirical:</strong> C₁₀H₂₀O₂</td>
<td><strong>Properties:</strong> Colorless liq.; rosy minty odor; sol. in alcohol, propylene glycol, fixed oils; sl. sol. in water; m.w. 172.27; dens. 0.856-0.860; f.p. 190 C; ref. index 1.414</td>
</tr>
<tr>
<td><strong>Precaution:</strong> Combustible; incompat. with strong oxidizing agents (increases fire/explosion hazard), strong bases, strong acids (decomp. can occur)</td>
<td><strong>Precaution:</strong> Combustible; heated to decomp., emits acrid smoke and irritating fumes</td>
</tr>
<tr>
<td><strong>Hazardous Decomp. Prods.:</strong> n-Octyl alcohol, acetic acid; heated to decomp., emits acrid smoke and irritating fumes</td>
<td><strong>Uses:</strong> Synthetic flavor for pharmaceuticals</td>
</tr>
<tr>
<td><strong>Storage:</strong> Store in cool, dry, well-ventilated area, out of direct sunlight; keep containers closed; avoid generating mist; limit quantities in use</td>
<td><strong>Features:</strong> Apple-like, minty flavor</td>
</tr>
<tr>
<td><strong>Uses:</strong> Synthetic flavor and fragrance for pharmaceuticals</td>
<td><strong>Regulatory:</strong> FDA 21CFR §172.515; FEMA GRAS; Canada DSL</td>
</tr>
<tr>
<td><strong>Regulatory:</strong> FDA 21CFR §172.515; FEMA GRAS; Canada DSL</td>
<td><strong>n-Octyl acetate. See Octyl acetate</strong></td>
</tr>
</tbody>
</table>

**n-Octyl alcohol; n-Octyl alcohol. See Caprylic alcohol**

**s-n-Octyl alcohol. See 2-Octanol**

**Octyl alcohol acetate. See Octyl acetate**

**Octyl aldehyde; n-Octyl aldehyde. See n-Octanal**

**Octyl butanoate. See Octyl butyrate**

**Octyl butyrate**

CAS 110-39-4; EINECS/ELINCS 203-762-4

FEMA 2807

**Synonyms:** Butanoic acid octyl ester; Octyl butanoate; N-Octyl N-butyrate

**Empirical:** C₁₂H₂₄O₂

**Formula:** CH₃CH₂CH₂CO₂(CH₂)₇CH₃

**Properties:** Colorless liq.; sol. in alcohol, dipropylene glycol; very sl. sol. in water; m.w. 200.32; dens. 0.862; m.p. -56 C; b.p. 224 C; flash pt. 218 F

**Toxicology:** TSCA listed

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Fresh sweet green oily natural jasmin odor; waxy, fruity, green with a sweet creamy nuance taste

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Manuf./Distrib.:** A&E Connock http://www.connock.co.uk; Advanced BioTech http://www.adv-bio.com;
N-Octyl N-butyrate. See Octyl butyrate

γ-Octyl-γ-butyrolactone; 2-Octyl-γ-n-butyrolactone. See γ-Dodecalactone

Octyl carbinol. See Nonyl alcohol

Octyl crotonyl acetate. See 1,3-Nonanediol acetate, mixed esters

Octyldodecanol (INCI); 2-Octyl decanol. See 2-Octyl-1-decanol

2-Octyl-1-decanol
CAS 45235-48-1
Synonyms: 1-Decanol, 2-octyl; Octyldodecanol (INCI); 2-Octyl decanol; Octyldecyl alcohol
Classification: Aliphatic alcohol
Empirical: C_{18}H_{38}O
Precaution: Combustible
Uses: Emollient in pharmaceuticals
Manuf./Distrib.: Sea-Land http://www.sealandchem.com; Whyte Chems. Ltd http://www.whytechemicals.co.uk

Trade Names Containing: ISOFOL® 18E; ISOFOL® 18T; Jarcol™ I-18T

2-Octyl-1-decanol. See Isostearyl alcohol

Octyldecyl alcohol. See 2-Octyl-1-decanol

Octyl decyl dimethyl ammonium chloride. See Quaternium-24

Octyl dimethyl p-aminobenzoate; Octyl-p-(dimethylamino) benzoate. See Octyl dimethyl PABA

Octyl dimethyl PABA
CAS 21245-02-3; EINECS/ELINCS 244-289-3
Synonyms: 4-Dimethylaminobenzoic acid, ethylhexyl ester; 2-Ethylhexyl-4 (dimethylamino) benzoate; 2-Ethylhexyl p-dimethylaminobenzoate; Octyl dimethyl p-aminobenzoate; Octyl-p-(dimethylamino) benzoate; Padimate O
Definition: Ester of 2-ethylhexyl alcohol and dimethyl p-aminobenzoic acid
Empirical: C_{17}H_{27}NO_2
Properties: M.w. 277.4; sp.gr. 0.99-1.00; ref. index 1.5390-1.5430

2-Octyl dodecanoic acid
CAS 40596-46-1; EINECS/ELINCS 254-992-7
Classification: Nonaromatic carboxylic acid
Empirical: C_{20}H_{40}O_2
Properties: M.w. 312.54; dens. 0.846; m.p. 36-40 C

Toxicology: May be harmful by inh., ing., or skin absorption; irritating to eyes, skin, respiratory system; TSCA listed
Precaution: Incompat. with strong oxidizing agents
Uses: Pharmaceuticals
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Cambrex Karlskoga AB; Ruger http://www.rugerchemical.com; Spectrum Quality Prods.;† http://www.spectrumchemical.com

Trade Names: Jaric I-20

Octyldodecanol
CAS 5333-42-6; EINECS/ELINCS 226-242-9
Synonyms: 1-Dodecanol, 2-octyl-; Isoarachidyl alcohol; Isoeicosanol; Isoeicosyl alcohol; 2-Octyl dodecanol; 2-Octyl-1-dodecanol; 2-Octyldodecyl alcohol
Classification: Aliphatic alcohol
Empirical: C_{20}H_{42}O
Formula: CH_3(CH_2)_9CHCH_2OHCH_3(CH_2)_6CH_2
Properties: Water-wh. clear liq.; sol. in alcohol, ether; insol. in water; m.w. 298.62; sp.gr. 0.84-0.85; m.p. -40 C; acid no. 0.5 max.; iodine no. 8 max.; sapon. no. 5 max.; hyd. no. 175-190; flash pt. (COC) 180 C

Toxicology: Eye and severe skin irritant; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating vapors
Uses: Emollient, lubricant, solvent, vehicle, carrier, solubilizer for pharmaceuticals, topicals, vaginal creams
Features: Oleaginous
Chemical Component Cross-Reference

†=pharmaceutical grade

CH₃(CH₂)₁₂COOCH₂CH(CH₂)₉CH₂CH₂(CH₂)₆
CH₃

Uses: Emollient, plasticizer for pharmaceuticals; excipient for dermal/transdermal pharmaceuticals

Regulatory: Canada DSL
Trade Names: Exceparl OD-M; M.O.D.; Saboderm ODM; Wickenol® 142

Octyldodecyl erucate
CAS 22766-82-1; EINECS/ELINCS 245-204-2
Synonyms: 2-Octyldodecyl erucate; Stearic acid, 2-octyldodecyl ester
Definition: Ester of octyldodecanol and erucic acid
Empirical: C₃₈H₇₆O₂
Toxicology: TSCA listed
Uses: Base, emollient, moisturizer for pharmaceuticals
Regulatory: Canada DSL
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk

2-Octyldodecyl stearate. See Octyldodecyl erucate

Octyldodecyl myristate
CAS 22766-83-2; 83826-43-1; EINECS/ELINCS 245-205-8; 255-623-2
Synonyms: Myristic acid, 2-octyldodecyl ester; Tetradecanoic acid, 2-octyldodecyl ester
Classification: Ester of octyldodecanol and myristic acid
Empirical: C₃₄H₆₆O₂

Uses: Emollient, visc. control agent, binder, dispersant, lubricant, mold release agent for pharmaceuticals, topicals, suppositories
Regulatory: Canada DSL
Trade Names: Ceraphyl® 847

Octyl enanethate. See Octyl heptanoate
Octylene glycol; 1,3-Octylene glycol. See Ethyl hexanediol
Octyl ether. See Dioctyl ether
Octyl formate
CAS 112-32-3; EINECS/ELINCS 203-959-5

2-Octyldodecanol; 2-Octyl-1-dodecanol; 2-Octyldodecyl alcohol. See Octyldodecanol
n-Octyl formate. See Octyl formate

Octyl heptanoate
cas 5132-75-2; einecs/elincs 225-882-6
Fema 2810
Synonyms: Heptanoic acid, octyl ester; Octyl enanther; Octyl heptoate
Empirical: C15H30O2
Properties: Colorless liq.; fruity, sl. fatty odor; m.w. 242.41; sp.gr. 0.85200 (20 C); b.p. 290.8 C; flash pt. > 130 C; ref. index 1.43488
Toxicology: Nontoxic
Uses: Synthetic flavor for pharmaceuticals
Features: Fruity like flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib: Degussa
http://www.degussa.com; Grau Aromatics http://www.grau-aromatics.de
SAFC Specialties
http://www.safcspecialties.com

Octyl hydroxystearate benzoate
CAS 199277-69-5
Synonyms: Ethylhexyl hydroxystearate benzoate
Uses: Emollient, pigment wetting agent/dispersant in therapeutic prods.
Trade Names: Finsolv® BOHS-111

n-Octyl acid. See Caprylic acid

Octyl isobutyrate
cas 109-15-9; einecs/elincs 203-651-0
Fema 2808
Synonyms: Octyl 2-methylpropanoate
Empirical: C12H24O2
Properties: Colorless liq.; weak, fruity odor; insol. in water; sp.gr. 0.85200 (20 C); b.p. 290.8 C; flash pt. > 130 C; ref. index 1.43488
Toxicology: Skin, eye irritant; TSCA listed
Environmental: Keep run-off out of water sources, sewers
Precaution: Wear protective gloves, splash-proof eye goggles; incompat. with strong oxidizers
Hazardous Decomp. Prods.: COx
Storage: Keep away from heat, sparks, open flame; keep in original, tightly closed containers
Octyl isononanoate
CAS 71566-49-9; EINECS/ELINCS 275-637-2
Synonyms: 2-Ethylhexyl isononanoate; Isononanoic acid, 2-ethylhexyl ester
Definition: Ester of 2-ethylhexyl alcohol and a branched chain nonanoic acid
Empirical: C₁₇H₃₄O₂
Formula: CH₃(CH₃)₂CCH₂CH₃CHCH₂COOCH₂(CH₂CH₃)CH(CH₂)₃CH₃
Properties: Clear water-wh. liq.; typ. mild odor; sp.gr. 0.85; f.p. -34 °C; b.p. 200 °C; flash pt. (COC) 127 °C
Toxicology: Nontoxic
Precaution: Incompat. with oxidizing agents
Storage: Store away from strong oxidizing agents
Uses: Emollient, lubricant, solvent for pharmaceutical topicalcs, creams, lotions; antitackifier in antiperspirants
Manuf./Distrib.: A&E Connock
Trade Names: Pelemol® 89

Octyl isovalerianate. See Octyl isovalerate

Octyl methoxycinnamate
CAS 5466-77-3; EINECS/ELINCS 226-775-7
Synonyms: 2-Ethylhexyl methoxycinnamate; 2-Ethylhexyl p-methoxycinnamate; Ethylhexyl p-methoxycinnamate; 2-Ethylhexyl 3-(4-methoxyphenyl)-2-propenoate; 3-(4-Methoxyphenyl)-2-propenoic acid, 2-ethylhexyl ester; 2-Propenoic acid, 3-(4-methoxyphenyl)-, 2-ethylhexyl ester
Definition: Ester of 2-ethylhexyl alcohol and methoxycinnamic acid
Empirical: C₁₈H₂₆O₃
Properties: M.w. 290.40; b.p. 185-195 °C (1 mbar)
Toxicology: Minimal eye irritation, mild skin irritation; TSCA listed
Uses: UV absorber for pharmaceuticals; UV-B absorber for sunscreens; OTC drug active
Regulatory: Canada DSL
Manuf./Distrib.: A&E Connock; Adrian Amer.; Aldrich; Sigma-Aldrich; R.W. Greeff
Trade Names: Escalol® 557
Trade Names Containing: Lipo CD™-OMC; Nanospheres 100 O.M.C.; Unifilter U-41

Octyl 3-methyl butanoate; Octyl 3-methyl butyrate. See Octyl isovalerate

Octyl 2-methylpropanoate. See Octyl isobutyrate

Octyl-octadecyl dimethyl ethylbenzyl ammonium chlorides. See Benzalkonium chloride

Octyl octanoate
CAS 2306-88-9; 7425-14-1; EINECS/ELINCS 231-057-1
FEMA 2811
Synonyms: 2-Ethylhexyl-2-ethylhexanoate
Definition: Ester of 2-ethylhexanol and 2-ethylhexanoic acid
Empirical: C₁₆H₃₂O₂
Formula: CH₃(CH₂)₃CHCH₂CH₃COOCH₂CHCH₂CH₃(CH₂)₃CH₂CH₃
Chemical Component Cross-Reference

\[ \text{H}_2\text{C}_3\text{H}_3 \]

*Uses:* Synthetic flavor for pharmaceuticals; emollient, softener, moisture retention in skin care prods.

*Regulatory:* FDA 21CFR §172.515; FEMA GRAS; Canada DSL

*Manuf./Distrib.:* A&E Connock

http://www.connock.co.uk; Fleurchem

http://www.fleurchem.com; J.H. Calo

http://www.jhcalo.com; SAFC Specialties

http://www.safcspecialties.com

*Trade Names:* Saboderm OO

Octyl oleate

*Synonyms:* 2-Ethylhexyl 2-octadecenoate; 2-Octadecenoic acid, 2-ethylhexyl ester

*Empirical:* \( \text{C}_{26}\text{H}_{50}\text{O}_2 \)

*Formula:* \( \text{CH}_3\text{(CH}_2)_7\text{CH=CH(CH}_2)_7\text{COOCH}_2\text{(CH}_2\text{CH}_3)\text{(CH}_2)_3\text{CH}_3 \)

*Uses:* Emollient

*Trade Names:* Exceparl O-OL; Saboderm EO

Octyl oleylsteareate. See Octyl hydroxystearate

Octyl palmitate

*CAS* 29806-73-3; EINECS/ELINCS 249-862-1

*Synonyms:* 2-Ethylhexyl hexadecanoate; 2-Ethylhexyl palmitate; Hexadecanoic acid, 2-ethylhexyl ester; Palmitic acid, 2-ethylhexyl ester

*Definition:* Ester of 2-ethylhexyl alcohol and palmitic acid

*Empirical:* \( \text{C}_{24}\text{H}_{48}\text{O}_2 \)

*Formula:* \( \text{CH}_3\text{(CH}_2)_14\text{COOCH}_2\text{(CH}_2\text{CH}_3)\text{CH(CH}_2)_3\text{CH}_3 \)

*Properties:* Water-wh. to pale yel. liq.; sol. in min. oil, 95% ethanol, IPM, oleyl alcohol; insol. in water, glycerin, propylene glycol; m.w. 386.72; dens. 0.850-0.856; m.p. 2-6 °C; ref. index 1.4445-1.4465

*Toxicology:* LD50 (oral, rat) > 40 ml/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin irritant; mild skin irritant; nonirritating to eyes; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Emollient, spreading agent, gloss aid for pharmaceuticals, topicals, sunscreens, antiperspirants; solubilizer for benzophenone-3

*Regulatory:* Canada DSL

*Manuf./Distrib.:* A&E Connock

http://www.connock.co.uk; Inolex

http://www.inolex.com; Int’l. Paper

†=pharmaceutical grade

http://www.internationalpaper.com; Phoenix Nat. Prods.

http://www.phoenixuk.com; Rugert

http://www.rugerchemical.com

St. Lawrence

http://www.stlawrencechem.com

*Trade Names:* Ceraphyl® 368; Crodamol OP; Exceparl EH-P; Lexol® EHP; M Kemfluid 250 3/R

*Manuf./Distrib.:* A&E Connock

http://www.connock.co.uk; Inolex

http://www.inolex.com; Int’l. Paper

Trade Names Containing: Pro D.S.B.®; Wickenol® 161

Octyl pelargonate

*CAS* 59587-44-9; EINECS/ELINCS 261-819-9

*Synonyms:* 2-Ethylhexyl pelargonate; Nonanoic acid, 2-ethylhexyl ester

*Definition:* Ester of 2-ethylhexyl alcohol and pelargonic acid

*Empirical:* \( \text{C}_{16}\text{H}_{34}\text{O}_2 \)

*Formula:* \( \text{CH}_3\text{(CH}_2)_7\text{COOCH}_2\text{(CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3)\text{(CH}_2)_3\text{CH}_3 \)

*Uses:* Penetrant, emollient, moisturizer, pigment wetting agent/dispersant for pharmaceuticals; anticlogging agent in antiperspirants

*Regulatory:* Canada DSL

*Manuf./Distrib.:* A&E Connock

http://www.connock.co.uk

*Trade Names:* Crodamol OPG; Schercemol OPG; Wickenol® 160

Octyl phenol condensed with 3 moles ethylene oxide. See Octoxylnol-3

Octyl phenol condensed with 5 moles ethylene oxide. See Octoxylnol-5

Octyl phenol condensed with 16 moles ethylene oxide. See Octoxylnol-16

Octyphenol EO (3). See Octoxylnol-3

Octyphenol EO (5). See Octoxylnol-5

Octyphenol EO (10). See Octoxylnol-10

Octyphenol EO (16). See Octoxylnol-16

2-[2-[2-Octylphenoxy) ethoxy] ethoxy] ethanesulfonic acid, sodium salt. See Sodium octoxylnol-2 ethane sulfonate

23-(4-Octylphenoxy)-3, 6, 9, 12, 15, 18, 21-heptaoxatricosan-1-ol. See Octoxylnol-8

29-(Octylphenoxy)-3, 6, 9, 12, 15, 18, 21, 24, 27-nonaoxanonacosan-1-ol. See Octoxylnol-10

26-(Octylphenoxy)-3, 6, 9, 12, 15, 18, 21, 24-octaoxahexacosan-1-ol. See Octoxylnol-9

14-(Octylphenoxy)-3, 6, 9, 12-
Chemical Component Cross-Reference

tetraoxatetradecan-1-ol. See Octoxynol-5

Octyl phenylacetate
CAS 122-45-2; EINECS/ELINCS 204-545-7
FEMA 2812
Synonyms: Benzeneacetic acid, octyl ester
Empirical: C_{16}H_{24}O_{2}
Properties: Colorless, cl. visc. liq.; sol. in alcohol; insol. in water; m.w. 248.36
Uses: Synthetic flavor for pharmaceuticals
Features: Rooty orange basil bois de rose odor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Octyl phthalate; n-Octyl phthalate. See n-Dioctyl phthalate

Octyl propanoate; N-Octyl propanoate. See Octyl propionate

Octyl propionate
CAS 142-60-9; EINECS/ELINCS 205-548-6
FEMA 2813
Synonyms: Octyl propanoate; N-Octyl propanoate; N-Octyl propionate; Propanoic acid octyl ester; Propionic acid octyl ester
Definition: Ester of n-octanol and propionic acid
Empirical: C_{11}H_{22}O_{2}
Formula: C_{2}H_{5}CO_{2}(CH_{2})_{7}CH_{3}
Properties: Colorless liq.; sol. in alcohol, propylene glycol; insol. in water; m.w. 186.30; b.p. 228 C; flash pt. 94 C; ref. index 1.4225 (20 C)
Toxicology: TSCA listed
Uses: Synthetic flavor for pharmaceuticals
Features: Sweet fruity mushroom raspberry green odor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

N-Octyl propionate. See Octyl propionate

Octyl salicylate
CAS 6969-49-9; EINECS/ELINCS 230-190-2
Synonyms: N-Octyl-o-hydroxybenzoate; Octyl o-hydroxybenzoate; Salicylic acid octyl ester
Empirical: C_{15}H_{22}O_{3}
Properties: M.w. 250.37
Toxicology: LD50 (parenteral, rabbit) > 4 g/kg; primary skin irritant; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: OTC drug active; UV-B absorber for pharmaceuticals; solubilizer for benzophenone-3
Regulatory: Canada DSL
Trade Names: Escalol® 587

Octyl sodium sulfate. See Sodium octyl sulfate

Octyl stearate
CAS 22047-49-0; EINECS/ELINCS 244-754-0
Synonyms: 2-Ethylhexyl octadecanoate; 2-Ethylhexyl stearate; Octadecanoic acid, 2-ethylhexyl ester; Stearic acid, 2-ethylhexyl ester
Definition: Ester of 2-ethylhexyl alcohol and stearic acid
Empirical: C_{26}H_{52}O_{2}
Formula: CH_{3}(CH_{2})_{15}COOCH_{2}(CH_{2}CH_{3})CH(CH_{2})_{3}CH_{3}
Properties: Oily liq.; m.w. 396.71; cloud pt. 10-15 C
Toxicology: Skin and eye irritant; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating vapors
Uses: Emollient, superfatting agent, moisturizer, lubricant, spreading agent, detackifier, solubilizer, gloss aid, pigment wetting agent/dispersant for pharmaceutical topicals
Regulatory: Canada DSL
Manuf./Distrib.: A&E Connock http://www.connock.co.uk; ChemService
Octyl sulfate sodium salt. See Sodium octyl sulfate

Octynecarboxylic acid methyl ester. See Methyl-2-nonynoate

Oct-2-ynoic acid methyl ester. See Methyl-2-octynoate

ODO-L. See Caprylic/capric triglyceride

Odorless kerosene. See Deodorized kerosene

Oenanthal; Oenanthaldehyde. See Heptanal

Oenanthic acid. See Heptanoic acid

Oenanthaldehyde. See Heptanal

Oenanthic ether. See Ethyl heptanoate

Oenanthol. See Heptanal

Oenanthylic acid. See Heptanoic acid

Oenanthylidene acetone. See 3-Decen-2-one

Oil of egg; Oil of egg yolk. See Egg oil

‘Oil garlic’. See Allyl sulfide

Oil of grapes. See Ethyl heptanoate

Oil mist, mineral. See Mineral oil

Oil of niobe. See Methyl benzoate

Oil of Palma Christi. See Castor (Ricinus communis) oil

Oil red. See D&C Red No. 17; Solvent red 23

Oils, avocado. See Avocado (Persea gratissima) oil

Oil scarlet. See D&C Red No. 17; Solvent red 23

Oils, jojoba. See Jojoba (Buxus chinensis) oil

Oils, lanolin. See Lanolin oil

Oils, orange roughy. See Orange roughy oil

Oils, palm. See Palm (Elaeis guineensis) oil

Oils, palm, hydrogenated. See Hydrogenated palm oil

Oils, palm kernel. See Palm (Elaeis guineensis) kernel oil

Oils, palm kernel, hydrogenated. See Hydrogenated palm kernel oil

Oils, rice bran. See Rice (Oryza sativa) bran oil

Oils, soybean, maleated. See Maleated soybean oil

Oils, vegetable. See Vegetable oil

Oils, vegetable, hydrogenated. See Hydrogenated vegetable oil

Oil of vitriol. See Sulfuric acid

Oil of wintergreen. See Methyl salicylate

http://www.chemservice.com

Trade Names: Cetiol® 868; Exceparl EH-S; Memfluid Isostill Stearato; Saboderm OS; Tegosoft® OS

Wickenol® 156

Trade Names Containing: Wickenol® 161

Olealkonium chloride

CAS 37139-99-4; EINECS/ELINCS 253-363-4

Synonyms: N,N-Dimethyl-N-9-octadecenyllbenzenemethanaminium chloride; Oleyl benzyl dimethyl ammonium chloride; Oleyl dimethyl benzyl ammonium chloride

Classification: Quaternary ammonium salt

Empirical: C_{27}H_{48}N • Cl

Formula: C_{27}H_{48}N • Cl

Toxicology: TDLo (IP, mouse) 400 mg/kg

Uses: Conditioner in pharmaceuticals

Regulatory: FDA 21CFR §175.105, 178.1010; Canada DSL

Trade Names: AMMONYX® KP

Oleamide DEA

CAS 93-83-4; EINECS/ELINCS 202-281-7

Synonyms: N,N-Bis(2-hydroxyethyl)-9-octadecenamide; N,N-Bis (2-hydroxyethyl) oleamide; Diethanolamine oleic acid amide; Oleic acid diethanolamide; Oleic DEA; Oleic diethanolamide
Chemical Component Cross-Reference

†=pharmaceutical grade

Definition: Mixture of ethanolamides of oleic acid
Empirical: C_{22}H_{43}NO_{3}
Formula: CH_{3}(CH_{2})_{7}CH:CH(CH_{2})_{7}CON(CH_{2}CH_{2}OH)_{2}
Properties: Amber to brn. liq.; m.w. 369.59
Toxicology: TSCA listed
Uses: W/o emulsifier, lubricant, conditioner in pharmaceutical topicals
Regulatory: FDA 21CFR §175.105, 176.210, 177.2260, 177.2800; Canada DSL
Trade Names: Schercomid SO-A

Oleamide MEA
CAS 111-58-0; EINECS/ELINCS 203-884-8
Synonyms: N-(2-Hydroxyethyl)-9-octadecenamide; N-(2-Hydroxyethyl)oleamide; Monoethanolamine oleic acid amide; Oleic monoethanolamide; Oleoyl monoethanolamide
Definition: Mixture of ethanolamides of oleic acid
Empirical: C_{20}H_{38}NO_{2}
Formula: CH_{3}(CH_{2})_{7}CH:CH(CH_{2})_{7}CONHCH_{2}CH_{2}OH
Properties: Soft paste; m.w. 339.57; nonionic
Toxicology: TSCA listed
Uses: W/o emulsifier, conditioner, and thickener for topical pharmaceuticals
Regulatory: Canada DSL
Manuf./Distrib.: Sigma http://www.sigma-aldrich.com/belgium
Trade Names: Schercomid OME

Oleamide MIPA
CAS 111-05-7; EINECS/ELINCS 203-828-2
Synonyms: N-(2-Hydroxypropyl)-9-octadecenamide; N-(2-Hydroxypropyl)oleamide; Monoisopropanolamine oleic acid amide; Oleic monoisopropanolamide; Oleic isopropanolamide; Oleic monoisopropanolamide
Definition: Mixture of isopropanolamides of oleic acid
Empirical: C_{21}H_{41}NO_{2}
Formula: CH_{3}(CH_{2})_{7}CH:CH(CH_{2})_{7}CONHCH_{2}CH_{3}CHOH
Properties: Soft paste; m.w. 339.57; nonionic
Toxicology: TSCA listed
Uses: Slip agent, lubricant, emollient, softener on skin, for topical pharmaceuticals; emulsifier for creams and lotions
Regulatory: FDA 21CFR §175.105, 176.210, 177.2260, 177.2800; Canada DSL
Trade Names: Burcomide 61; Schercomid OMI

Olean-12-en-30-oic acid, 3-β-hydroxy-11-oxo-
See Glycyrrhetinic acid

Oleic acid
CAS 112-80-1; EINECS/ELINCS 204-007-1
FEMA 2815; INS570; E570
Synonyms: Elaic acid; 9-Octadecenoic acid; 9,10-Octadecenoic acid; cis-9-Octadecenoic acid; cis-Octadec-9-enoic acid; Oleinic acid; Red oil
Classification: Aliphatic carboxylic acid; unsaturated fatty acid
Empirical: C_{18}H_{34}O_{2}
Formula: CH_{3}(CH_{2})_{7}CH:CH(CH_{2})_{7}COOH
Properties: Colorless liq., odorless; darkens when exposed to oxygen; sol. in alcohol, ether, benzene, chloroform, fixed/volatile oils, oxygenated, chlorinated, and aromatic solvs.; insol. in water; m.w. 282.47; dens. 0.895; vapor pressure 1 mm (176.5 C); m.p. 6 C; b.p. 286 C (100 mm); HLB 1.0; acid no. 196-204; nonionic
Toxicology: LD50 (oral, rat) 74 g/kg, (IV, rat) 2400 µg/kg; poison by IV route; mildly toxic by ing.; irritant to skin, mucous membranes; human eye and skin irritant; questionable carcinogen; experimental tumorigen; mutagenic data; TSCA listed
Precaution: Combustible when exposed to heat or flame; incompatible with AI and perchloric acid
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
HMIS: Health 1, Flammability 1, Reactivity 0
Storage: Light-sensitive
Uses: Emulsifier, solubilizer, stabilizer, solvent in pharmaceuticals, inhalants, orals, topicals; pharmaceutic aid
Regulatory: FDA 21CFR §172.210, 172.860, 172.862, 173.315 (0.1 ppm max. in wash water), 173.340, 175.105, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1010, 177.1200, 177.2260, 177.2600, 177.2800, 178.3570, 178.3910, 182.70, 182.90; Canada DSL; FEMA GRAS; FDA approved for inhalants, orals, topicals; USP/NF, BP, EP compliance
Manuf./Distrib.: AMRESCO†
Oleic acid diethanolamide. See Oleamide DEA

Oleic acid glycerol monoester. See Glycerol oleate

Oleic acid, 12-hydroxy-. See Ricinoleic acid

Oleic acid, lauryl ester. See Lauryl oleate

Oleic acid, methyl ester, cis-; cis-Oleic acid, methyl ester. See Methyl oleate

Oleic acid, monooester with decaglycerol. See Polyglyceryl-10 oleate

Oleic acid, monooester with oxybis (propanediol). See Polyglyceryl-2 oleate

Oleic acid, monooester with 1,2-propanediol. See Propylene glycol oleate

Oleic acid, monooester with triglycerol. See Polyglyceryl-3 oleate

Oleic acid monoglyceride. See Glycerol oleate

Oleic acid monoisopropanolamide. See Oleamide MIPA

Oleic acid poly (oxyethylene) ester. See PEG oleate

Oleic acid potassium salt. See Potassium oleate
Chemical Component Cross-Reference

Oleic DEA; Oleic diethanolamide. See Oleamide DEA

Oleic imidazolium methosulfate
CAS 72749-55-4
Synonyms: Methyl-1-alkyl amidoethyl-2-alkyl imidazolium methosulfate; 1-Methyl-2-heptadecenyl-3-oleylamidoethyl imidazolinium methosulfate; 1-Methyl-2-noroleyl-3-oleic acid-amido ethylimidazolium methysulfate
Classification: Quaternary ammonium compd.
Empirical: $\text{C}_{42}\text{H}_{80}\text{O}_{5}\text{N}_{3}\text{S}$
Properties: M.w. 739
Uses: Ingred. in biocides for pharmaceuticals, veterinary prods.
Regulatory: Canada DSL
Trade Names Containing: Bio-Gentle®

Formulation

Oleic isopropanolamide. See Oleamide MIPA
Oleic monoethanolamide. See Oleamide MEA
Oleic monoisopropanolamide. See Oleamide MIPA

Olein. See Triolein
Oleic acid. See Oleic acid
Oleol. See Oleyl alcohol

Oleoresin basil
CAS 977017-82-5; 8015-73-4
FEMA 2120
Synonyms: Basil oleoresin; Ocimum basilicum oleoresin
Definition: Obtained by solv. extraction of the dried plant of Ocimum basilicum
Properties: Dk. brn. or grn. semisolid; basil minty green tea odor
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §182.20, GRAS; FEMA GRAS

Oleoresin black pepper
CAS 8002-56-0
FEMA 2846
Synonyms: Black pepper oleoresin, Pepper oleoresin; Pepper, black, oleoresin; Pepper oleoresin, black; Piper nigrum oleoresin
Definition: Obtained by solv. extraction of dried fruit of Piper nigrum
Properties: Yel., dk. grn., olive grn., or olive drab
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §182.20, GRAS; FEMA GRAS; approved for orals; Canada DSL

†=pharmaceutical grade
liq. or semisolid; fresh ground blk. pepper odor
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §182.20, GRAS; FEMA GRAS; Canada DSL

Oleoresin capsicum
CAS 8023-77-6
FEMA 2234
Synonyms: Capsicin; Capsicum frutescens; Capsicum frutescens oleoresin (INCI); Capsicum frutescens resin; Capsicum oleoresin; Oleoresin capsicum Africanus
Definition: Resinous material obtained by solv. extraction of dried pods of Capsicum frutescens
Properties: Clear red to dk. red somewhat visc. liq., chili, musty, hay, tobacco, sweet herbal odor; char. flavor; sol. in ethyl ether, most veg. oils, most fixed oils; partly sol. in alcohol; insol. in water
Toxicology: LD50 (oral, rat) > 3 g/kg, (IP, rat) 248 mg/kg
Uses: Natural flavor for pharmaceuticals, OTC drugs, orals; counterirritant in external analgesic prods.
Regulatory: FDA 21CFR §73.345, 182.10, 182.20, 582.10, 582.20, GRAS; FEMA GRAS; approved for orals; Canada DSL
Chemical Component Cross-Reference

Oleoresin capsicum Africanus. See Oleoresin capsicum

Oleoresin ginger
CAS 8002-60-6
FEMA 2523
Synonyms: Ginger oleoresin; Zingiber officinale oleoresin
Definition: Obtained by solv. extraction of dried rhizomes of Zingiber officinale
Properties: Dk. brn. visc. to highly visc. liq.; ginger earthy musty citrus odor; char. ginger flavor; cooling aftertaste; poor sol. in alcohol; sp/gr. 0.87500-0.885
Storage: Store air-tight in cool, dry place; protect from light
Uses: Natural flavor for pharmaceuticals
Features: Woody spice herbal ginger citrus/citral odor
Regulatory: FDA 21CFR §182.20, GRAS; FEMA GRAS; Canada DSL
Manuf./Distrib.: Advanced BioTech

Oleoresin marjoram
CAS 977038-85-9; 8016-33-9
FEMA 2659
Synonyms: Marjorana hortensis oleoresin; Marjoram oleoresin
Definition: Obtained by solv. extraction of the dried herb of Marjorana hortensis
Properties: Dk. grn. to brn. visc. liq. or semisolid; marjoram medicinal odor
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §182.20, GRAS; FEMA GRAS

Oleoresin parsley leaf
CAS 8025-95-4
FEMA 2837
Synonyms: Parsley leaf oleoresin; Petroselinum crispum oleoresin
Definition: Obtained by solv. extraction of the dried herb Petroselinum crispum
Properties: Brn. to grn. liq.
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §182.20, GRAS; FEMA GRAS

Oleoresin parsley seed
FEMA 2837
Synonyms: Parsley seed oleoresin; Petroselinum crispum oleoresin
Definition: Obtained by solv. extraction of the dried seeds of Petroselinum crispum
Chemical Component Cross-Reference

†=pharmaceutical grade

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Oleoresin turmeric
CAS 129828-29-1
FEMA 3087

Synonyms: Curcuma longa; Curcuma longa oleoresin; Turmeric oleoresin; Turmeric root oleoresin

Definition: Obtained by solv. extraction of the dried rhizomes of Curcuma longa

Properties: Bright yel. powd. or yel. orange to red brn. visc. liq.; soft spicy woody earth odor; mustard taste; misc. with water

Toxicology: Human mutagenic data

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Natural flavor for pharmaceuticals

Regulatory: FDA 21CFR §73.615, 182.20, GRAS; FEMA GRAS; Canada DSL


See also Turmeric (Curcuma longa)

Oleostearin. See Oleostearine

Oleostearine

Synonyms: Glycerides, tallow; Oleostearin

Definition: Mixt. of fatty acid triglycerides remaining after the physical separation of the low titer oils from beef tallow

Uses: Emollient in pharmaceutical waxes

Manuf./Distrib.: Anar; Geo. Pfau's Sons http://www.pfauoil.com; Norman, Fox

Oleovitamin A. See Retinol
Oleovitamin D. See Ergocalciferol
Oleoyl alcohol. See Oleyl alcohol
Oleoylglycerol. See Glyceryl olate
Oleoyl monoethanolamide. See Oleamide MEA

Oleoyl monoisopropanolamide disodium sulfosuccinate. See Disodium oleamido MIPA-sulfosuccinate

Oleoyl sarcosine
CAS 110-25-8; EINECS/ELINCS 203-749-3

Synonyms: N-Methyl-N-(1-oxo-9-octadecenyl) glycine; (Z)-N-Methyl-N-(1-oxo-9-octadecenyl) glycine; n-Oleoylsarcosine; Oleyl N-methylaminoacetic acid; Oleyl methylaminoethanoic acid; Oleyl N-methylglycine; Oleyl sarcosine; N-Oleyl sarcosine

Definition: Condensation prod. of oleic acid with N-methylglycine

Empirical: C_{21}H_{39}NO_{3}

Formula: CH_{3}(CH_{2})_{7}CH:CH(CH_{2})_{7}CON(CH_{3})CH_{2}COOH

Properties: Amber liq.; m.w. 353.55; dens. 0.955 (20/20 C); ref. index 1.4703 (20 C)

Toxicology: TSCA listed

Precaution: Combustible

Uses: Enhances antimicrobial effectiveness of ophthalmic compositions

Regulatory: FDA 21CFR §178.3130, 178.3570; Canada DSL

Manuf./Distrib.: Sigma http://www.sigma-aldrich.com/belgium

Trade Names: Sarkosyl® O

n-Oleoylsarcosine. See Oleoyl sarcosine

Oleth
CAS 9004-98-2 (generic)

Synonyms: Glycols, polyethylene, mono-9-octadecenyl ether, (Z)-; Oleyl alcohol EO condensate; Oleyl alcohol ethoxylates; Oleyl polyoxyethylene glycol ether; Polyoxyethylene glycol oleyl ether; Poly (oxy-1,2-ethanediyl), α-9-octadecenyl-ω-hydroxy-(Z)-; Polyoxyethylene monooleyl ether; Polyoxy oleyl ether

Classification: Nonaromatic ether

Definition: PEG ether of oleyl alcohol

Empirical: (C_{2}H_{4}O)_{x}C_{18}H_{37}O

Formula: CH_{3}(CH_{2})_{7}CH=CH(CH_{2})_{8}(OCH_{2}CH_{2})_{n}OH, n = 2-20
Chemical Component Cross-Reference

Properties: Pale yel. liq. to wh. waxy solid; HLB 4.9-15.3 (2-20 EO); nonionic
Toxicology: LD50 (IP, rat) 235 mg/kg; poison by IP route; eye irritant; may be reproductive effector; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Storage: Store in a tightly closed container in a cool, dry, well-ventilated area away from incompat. substances
Uses: Emulsifier
Trade Names: Nofable EAO-80; Nofable EAO-90; Nofable EAO-99

Oleth-2
CAS 9004-98-2 (generic); 5274-65-7
Synonyms: (Z)-α-9-Octadecenyl-ω-hydroxypoly (oxy-1,2-ethanediyl); 2-[2-(9-Octadecenyl)oxy] ethanol; Oleyl alcohol EO (2); PEG-2 oleyl alcohol; PEG-2 oleyl ether; PEG 100 oleyl ether; POE (2) oleyl ether
Definition: PEG ether of oleyl alcohol
Empirical: C22H44O3
Formula:
CH3(CH2)7CH=CH(CH2)7CH2(OCH2CH2)nOH, avg. n = 2
Properties: HLB 4.9; nonionic
Toxicology: LD50 (oral, rat) 25,800 mg/kg; mildly toxic by ing.; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Solubilizer, emulsifier, surfactant, dispersant, stabilizer, spreading agent, emollient, cosolvent for pharmaceuticals
Features: Lipophilic
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: Chemonic® OE-2; Lipocol O-2; Ritoleth 2

Oleth-3
CAS 9004-98-2 (generic); 5274-66-8
Synonyms: 2-[2-[2-(9-Octadecenyl)oxy]ethoxy] ethanol; PEG-3 oleyl ether; POE (3) oleyl ether
Definition: PEG ether of oleyl alcohol
Empirical: C24H48O4
Formula:
CH3(CH2)7CH=CH(CH2)7CH2(OCH2CH2)nOH, avg. n = 3
Properties: Wh. soft semisolid or pale yel. liq., bland odor; sol. in water, alcohol; disp. in min. oil, propylene glycol; acid no. 1.0 max.; iodine no. 23-40; sapon. no. 3 max.; hyd. no. 75-95; nonionic
Toxicology: LD50 (oral, rat) 2700 mg/kg; mod. toxic by ing.; irritating to skin and eyes; TSCA listed
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: Agnique FOH 5OC-5; Lipocol O-5; Ritoleth 5; Volpo 5; Volpo N5

Oleth-5
CAS 9004-98-2 (generic); 5353-27-5
Synonyms: PEG-5 oleyl ether; 3,6,9,12,15-Pentaoxatriacont-24-en-1-ol; POE (5) oleyl ether
Definition: PEG ether of oleyl alcohol
Empirical: C28H56O6
Formula:
CH3(CH2)7CH=CH(CH2)7CH2(OCH2CH2)nOH, avg. n = 5
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, lubricant, emollient, solubilizer for pharmaceuticals
Regulatory: FDA 21CFR §176.200
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: Agnique FOH 5OC-5; Lipocol O-5; Ritoleth 5; Volpo 5; Volpo N5

Oleth-10
CAS 9004-98-2 (generic); 24871-34-9
Synonyms: Decaethoxy oleyl ether; 3,6,9,12,15,18,21,24,27,30-Decaooxatetracos-39-en-1-ol; Oleyl alcohol EO (10); PEG-10 oleyl ether; PEG 500 oleyl ether; POE (10) oleyl ether; Polyethylene glycol monooleoyl ether; Polyoxyyl 10 oleyl ether
Definition: PEG ether of oleyl alcohol
Empirical: C38H76O11
Formula:
CH3(CH2)7CH=CH(CH2)7CH2(OCH2CH2)nOH, avg. n = 10
Properties: Wh. soft semisolid or pale yel. liq., bland odor; sol. in water, alcohol; disp. in min. oil, propylene glycol; acid no. 1.0 max.; iodine no. 23-40; sapon. no. 3 max.; hyd. no. 75-95; nonionic
Toxicology: LD50 (oral, rat) 2700 mg/kg; mod. toxic by ing.; irritating to skin and eyes; TSCA listed
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: Agnique FOH 5OC-5; Lipocol O-5; Ritoleth 5; Volpo 5; Volpo N5
Chemical Component Cross-Reference

Hazardous Decomp. Prods.: Heated to comp., emits acrid smoke
Uses: Surfactant, emulsifier, stabilizer, gellant, wetting agent, solubilizer for pharmaceuticals
Regulatory: FDA 21 CFR §176.200, 177.2800; USP/NF compliance
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: Agrique FOH 5OC-10; Brij® 96 V; Chemonic® OE-10; Lipocol O-10; Ritoleth 10
Volpo 10; Volpo N10
Trade Names Containing: Lipowax R2

Oleth-12
CAS 9004-98-2 (generic)
Synonyms: PEG-12 oleyl ether; PEG 600 oleyl ether; POE (12) oleyl ether
Definition: PEG ether of oleyl alcohol
Formula: 
CH₃(CH₂)₇CH=CH(CH₂)₇CH₂(OCH₂CH₂)nOH,
avg. n = 12
Properties: Nonionic
Toxicology: TSCA listed
Uses: Surfactant, emulsifier for pharmaceuticals
Regulatory: FDA 21 CFR §176.200, 177.2800
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

Oleth-16
CAS 9004-98-2 (generic); 25190-05-0 (generic)
Synonyms: PEG-16 oleyl ether; POE (16) oleyl ether
Definition: PEG ether of oleyl alcohol
Formula: 
CH₃(CH₂)₇CH=CH(CH₂)₇CH₂(OCH₂CH₂)nOH,
avg. n = 16
Properties: Nonionic
Toxicology: TSCA listed
Uses: Surfactant, emulsifier for pharmaceuticals
Regulatory: FDA 21 CFR §176.200, 177.2800
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

Oleth-20
CAS 9004-98-2 (generic); 25190-05-0 (generic)

†=pharmaceutical grade

Synonyms: α-9-Octadecenyl-ω-hydroxypropyl (oxy-1,2-ethanediyl), (Z); Oleyl alcohol EO (20); PEG-20 oleyl ether; PEG 1000 oleyl ether; POE (20) oleyl ether
Definition: PEG ether of oleyl alcohol
Formula: 
CH₃(CH₂)₇CH=CH(CH₂)₇CH₂(OCH₂CH₂)nOH,
avg. n = 20
Properties: HLB 15.3; nonionic
Toxicology: LD₅₀ (oral, rat) 2770 mg/kg; mod. toxic by ing.; irritating to eyes; may cause human reproductive effects; TSCA listed
Hazardous Decomp. Prods.: Heated to comp., emits acrid smoke and irritating fumes
Uses: Surfactant, emulsifier, coupling agent, solubilizer, emulsion stabilizer for pharmaceutical topical
Regulatory: FDA 21 CFR §175.105, 176.180, 176.200, 177.1210, 177.2800; FDA approved for topicals
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: Brij® 98; Brij 98; Chemonic® OE-20; Lipocol O-20; Rhodasurf® ON-870; Rhodasurf® ON-877; Ritoleth 20; Simulsol® 98; Volpo 20; Volpo N20

Oleth-25
CAS 9004-98-2 (generic)
Synonyms: PEG-25 oleyl ether; POE (25) oleyl ether
Definition: PEG ether of oleyl alcohol
Formula: 
CH₃(CH₂)₇CH=CH(CH₂)₇CH₂(OCH₂CH₂)nOH,
avg. n = 25
Properties: Nonionic
Toxicology: TSCA listed
Uses: Surfactant, wetting agent, emulsifier for pharmaceutical emulsions
Regulatory: FDA 21 CFR §176.180, 176.200, 177.2800
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

Oleth-3 phosphate
CAS 39464-69-2 (generic)
Synonyms: Oleyl triethoxy mono diphosphate; PEG-3 oleyl ether phosphate; POE (3) oleyl ether phosphate
Definition: Complex mixture of esters of
Chemical Component Cross-Reference

phosphoric acid and oleth-3
Properties: Anionic
Toxicology: TSCA listed
Uses: Surfactant, conditioner, emulsifier, gellant for pharmaceuticals
Trade Names: Crodacos N3A

Oleth-10 phosphate
CAS 39464-69-2 (generic)
Synonyms: PEG-10 oleyl ether phosphate; PEG 500 oleyl ether phosphate; POE (10) oleyl ether phosphate
Definition: Complex mixture of esters of phosphoric acid and oleth-10
Properties: Anionic
Toxicology: TSCA listed
Uses: Surfactant, conditioner, emulsifier, gellant for pharmaceuticals; corrosion inhibitor and antigellant in aerosol antiperspirants

Oleth-20 phosphate
CAS 39464-69-2 (generic)
Synonyms: PEG-20 oleyl ether phosphate; PEG 1000 oleyl ether phosphate; POE (20) oleyl ether phosphate
Definition: Complex mixture of esters of phosphoric acid and oleth-20
Properties: Anionic
Toxicology: TSCA listed
Uses: Surfactant for pharmaceuticals

Oleum anisi. See Anise (Pimpinella anisum) oil
Oleum Gossypii seminis. See Cottonseed (Gossypium) oil
Oleum olivae. See Olive (Olea europaea) oil
Oleum papaveris. See Poppyseeds oil
Oleum ricini. See Castor (Ricinus communis) oil

Oleyl alcohol
CAS 143-28-2; EINECS/ELINCS 205-597-3
Synonyms: Ocel; Octadecenol; 1-Octadecenol; Octadec-9-en-1-ol; 9-Octadecen-1-ol; cis-9-Octadecen-1-ol; (Z)-Octadec-9-enol; (Z)-9-Octadecen-1-ol; Oleol; Oleyl alcohol; Oleyl fatty alcohol
Classification: Unsaturated fatty alcohol
Empirical: C18H36O
Formula: CH3(CH2)7CH=CH(CH2)8OH
Properties: Colorless to pale yel. oily visc. liq., faint char. odor, bland taste; sol. in alcohol, ether; insol. in water; m.w. 268.49; dens. 0.84; m.p. 13-19 C; b.p. 207 C (13 mm); acid no. 1 max.; iodine no. 85-95; hyd. no. 205-215;

Oleum alcohol EO (2). See Oleth-2
Oleum alcohol EO (10). See Oleth-10
Oleum alcohol EO (20). See Oleth-20
Oleum alcohol EO condensate; Oleyl alcohol ethoxylates. See Oleth
Oleyl benzyl dimethyl ammonium chloride; Oleyl dimethyl benzyl ammonium chloride. See Olealkonium chloride

†=pharmaceutical grade
cloud pt. ≤ 10 C; flash pt. > 110 C; ref. index 1.4582 (27.5 C); nonionic
Toxicology: Human skin irritant; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Emollient, plasticizer, emulsifier, emulsion stabilizer, lubricant, antifoam, coupling agent, solubilizer, cosolvent, pigment dispersant, detergent in pharmaceutical topical; carrier for medicaments; astringent in poison ivy/poison oak preps.
Regulatory: FDA 21CFR §176.170, 176.210, 177.1010, 177.1210, 177.2800, 178.3910; FDA approved for topicals; USP/NF compliance; Canada DSL
Trade Names: Agnique FOH 9OC; Nofable AO-80; Nofable AO-90; Nofable AO-99; Novol

Handbook of Pharmaceutical Additives, Third Edition 1763
Oleyl erucate

**CAS**: 17673-56-2; EINECS/ELINCS 241-654-9

**Synonyms**: 13-Docosenoic acid, 9-octadecenyl ester; Erucic acid, oleyl ester; 9-Octadecenyl 13-docosenoate; (Z)-Octadec-9-enyl (Z)-docos-13-enoate

**Definition**: Ester of oleyl alcohol and erucic acid

**Empirical**: C_{40}H_{76}O_{2}

**Uses**: Emollient, lubricant, dispersant, solubilizer, solvent, carrier, vehicle for pharmaceuticals, topicalss

**Regulatory**: Canada DSL

**Manuf./Distrib.**: A&E Connock

**Trade Names**: Dynacerin® 660

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Oleic acid

**CAS**: 17333-68-5; EINECS/ELINCS 156-75-7

**Synonyms**: 9-Octadecenoic acid; (Z)-Octadec-9-enoic acid

**Definition**: Ester of oleyl alcohol and oleic acid

**Empirical**: C_{36}H_{68}O_{2}

**Formula**: CH_{3}(CH_{2})_{7}CH=CH(CH_{2})_{7}COO(CH_{2})_{8}CH=CH(CH_{2})_{7}CH_{3}

**Properties**: Yel. liq.; insol. in water; m.w. 532.94; m.p. 14-16 C

**Toxicology**: TSCA listed

**Uses**: Emollient, lubricant, solubilizer for pharmaceuticals, topicalss; gloss aid, softener, lubricant in skin care preps.

**Regulatory**: FDA approved for topicalss; Canada DSL

**Manuf./Distrib.**: A&E Connock

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Oleic alcohol

**CAS**: 112-80-1; EINECS/ELINCS 205-449-8

**Synonyms**: 9-Octadecenoic acid, 9-octadecenyl ester; (Z)-Octadec-9-enoic acid, (Z)-octadec-9-enyl ester

**Definition**: Ester of oleyl alcohol and oleic acid

**Empirical**: C_{36}H_{68}O_{2}

**Formula**: CH_{3}(CH_{2})_{7}CH=CH(CH_{2})_{7}COO(CH_{2})_{8}CH=CH(CH_{2})_{7}CH_{3}

**Properties**: Yel. liq.; insol. in water; m.w. 532.94; m.p. 14-16 C

**Toxicology**: TSCA listed

**Uses**: Emollient, lubricant, solubilizer for pharmaceuticals, topicalss; gloss aid, softener, lubricant in skin care preps.

**Regulatory**: FDA approved for topicalss; Canada DSL

**Manuf./Distrib.**: A&E Connock

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Oleic ester

**CAS**: 222-980-4; EINECS/ELINCS 241-654-9

**Synonyms**: 9-Octadecenoic acid, 9-octadecenyl ester; (Z)-Octadec-9-enoic acid, (Z)-octadec-9-enyl ester

**Definition**: Ester of oleyl alcohol and oleic acid

**Empirical**: C_{36}H_{68}O_{2}

**Formula**: CH_{3}(CH_{2})_{7}CH=CH(CH_{2})_{7}COO(CH_{2})_{8}CH=CH(CH_{2})_{7}CH_{3}

**Properties**: Yel. liq.; insol. in water; m.w. 532.94; m.p. 14-16 C

**Toxicology**: TSCA listed

**Uses**: Emollient, lubricant, solubilizer for pharmaceuticals, topicalss; gloss aid, softener, lubricant in skin care preps.

**Regulatory**: FDA approved for topicalss; Canada DSL

**Manuf./Distrib.**: A&E Connock

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Oleic methyl ester

**CAS**: 106-28-6; EINECS/ELINCS 200-547-6

**Synonyms**: 9-Octadecenoic acid, 9-octadecenyl ester; (Z)-Octadec-9-enoic acid, (Z)-octadec-9-enyl ester

**Definition**: Ester of oleyl alcohol and oleic acid

**Empirical**: C_{36}H_{68}O_{2}

**Formula**: CH_{3}(CH_{2})_{7}CH=CH(CH_{2})_{7}COO(CH_{2})_{8}CH=CH(CH_{2})_{7}CH_{3}

**Properties**: Yel. liq.; insol. in water; m.w. 532.94; m.p. 14-16 C

**Toxicology**: TSCA listed

**Uses**: Emollient, lubricant, solubilizer for pharmaceuticals, topicalss; gloss aid, softener, lubricant in skin care preps.

**Regulatory**: FDA approved for topicalss; Canada DSL

**Manuf./Distrib.**: A&E Connock
Chemical Component Cross-Reference

Olibanum resinoid. See Olibanum (Boswellia carterii) oil

Olive oil. See Olive (Olea europaea) oil

Olive oil PEG-6 esters
CAS 103819-46-1 (generic)
Definition: Complex mixture formed from the transesterification of olive oil and PEG-6
Properties: Oil; nonionic
Uses: Emollient, solubilizer, emulsifier for pharmaceuticals; amphiphilic agent improving drug delivery
Features: Hydrophilic

Olive (Olea europaea) oil
CAS 8001-25-0; EINECS/ELINCS 232-277-0
Synonyms: Azeite; Gomenoleo oil; Olea europaea; Olea europaea oil; Oleum olivae; Olive oil
Definition: Fixed oil obtained from the ripe fruit of Olea europaea, contg. glycerides of oleic acid, palmitic acid, linoleic acid, stearic acid, and arachidic acid
Properties: Yel. to lt. gmsh. liq., sl. olive odor, sl. char. taste; sl. sol. in alcohol; misc. with ether, chloroform, carbon disulfide; insol. in water; dens. 0.909-0.915 (25/25 C); m.p. -6 C; solid. pt. 17-26 C; iodine no. 187-196; flash pt. (CC) 437 F; ref. index 1.466-1.468; becomes rancid on exposure to air
Toxicology: LD50 (IV, mouse) 1320 mg/kg; mod. toxic by IP route; human skin irritant; devoid of side effects; TSCA listed
Precaution: Combustible exposed to heat or flame; can react with oxidizers; some spontaneous heating
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
HMIS: Health 0, Flammability 1, Reactivity 0
Storage: Photosensitive
Uses: Lubricant, emollient, cosolvent, conditioner, vehicle, solvent for pharmaceuticals, ointments, liniments, plasters, suspensions for injection; softener for ear wax, crusts of eczema and psoriasis; nutrient; FDA registered for one oral and one topical sol'n.
Features: Oleaginous
Regulatory: FDA 21CFR §175.105, 176.200, 176.210, GRAS; Japan approved (olive); USP/NF, BP, EP, JP compliance; Canada DSL
Manuf./Distrib.: ABITEC
http://www.abiteccorp.com; Aarhus Karlshamn A/S† http://www.aak.com;

†=pharmaceutical grade
Aldivia http://www.aldivia.com; Aldrich† http://www.sigma-aldrich.com; Alfa Chem† http://www.alfachem1.com
Charkit http://www.charkit.com; Croda Chem. Europe Ltd; Croda Chem. Europe Ltd http://www.croda.co.uk; Croda Inc† http://www.croda.com;
Lipo http://www.lipochemicals.com;
Mosselman NV http://www.mosselman.be;
Mutchler† http://www.mutchlerchem.com
Noveon http://www.carbopol.com;
http://www.noveoncoatings.com; Parchem Trading† http://www.par-chem.com
Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality Prods.† http://www.spectrumchemical.com
Thornley http://www.thornleycompany.com;
http://www.welch-holme-clark.com
Trade Names: EmCon™ Olive; Fanoliv™ Butter; Fanoliv™ Wax; Phytol™ O; Super Refined® Olive NF

Omega-3 ethyl ester marine oil lipid
Classification: Lipid
Uses: Pharmaceutical orals and topicals

Omega-3 free fatty acid marine oil lipid
Classification: Lipid
Uses: Pharmaceutical orals and topicals

Omega-3 triglyceride marine oil lipid
Classification: Lipid
Uses: Pharmaceutical orals and topicals
Onion (Allium cepa) oil
CAS 8002-72-0
FEMA 2817
Synonyms: Allium cepa; Allium cepa oil; Onion oil
Definition: Oil from steam distillation of bulbs of Allium cepa
Properties: Amber clear liq.; strong pungent lasting odor, char. onion flavor; sol. in fixed oils, min. oil, alcohol; insol. in glycerin, propylene glycol
Toxicology: Skin irritant
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §182.20, GRAS; FEMA GRAS; Canada DSL

Orange (Citrus aurantium dulcis) extract
CAS 84012-28-2
FEMA 2821
Synonyms: Citrus aurantium dulcis fruit extract; Citrus dulcis; Citrus sinensis extract; Orange extract; Orange fruit extract
Definition: Extract of the fruit of the orange, Citrus aurantium dulcis
Properties: Amber-yel. liq.; sol. in ethyl alcohol; insol. in water; sp. gr. 0.840-0.650; ref. index 1.455-1.475
Uses: Natural flavor for pharmaceuticals, orals
Features: Natural fresh sweet pressed oranges aldehydic odor
Regulatory: FDA approved for orals; Canada DSL
Manuf./Distrib.: Bio-Botanica http://www.biobotanica.com; Carrubba http://www.carrubba.com

Orange (Citrus aurantium dulcis) flower oil
CAS 8016-38-4; 8028-48-6; EINECS/ELINCS 232-433-8
Synonyms: Citrus aurantium dulcis; Citrus aurantium dulcis flower oil; Citrus aurantium dulcis oil; Neroli bigarade oil; Neroli bigarade oil, Tunisian; Neroli oil; Neroli oil, Tunisian; Orange flower oil; Orange flowers oil
Definition: Volatile oil obtained from flowers of the orange tree, Citrus aurantium dulcis
Properties: Ylsh. fluorescent liq., very intense pleasant odor; becomes brn. on exposure to light; sol. in 1.5-2 vols 80% alcohol; sl. sol. in water; dens. 0.86-0.88 (25/25 C); ref. index 1.475 (20 C)
Toxicology: LD50 (oral, rat) 4550 mg/kg; mildly toxic by ing.; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Storage: Keep cool, well closed; protect from light
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §182.20, GRAS; Canada DSL
Orange (Citrus aurantium dulcis) oil

CAS 8008-57-9
FEMA 2821; 2825

Synonyms: Citrus oil; Citrus sinensis oil; Citrus sinensis peel oil; 5-Fold orange oil; Neat oil of sweet orange; Orange oil; Orange oil, coldpressed; Orange peel oil; Orange peel, sweet, oil; Sweet orange oil; Sweet orange peel oil

Definition: Volatile oil obtained by expression from the fresh peel of the ripe fruit Citrus sinensis, contg. mainly (+)-limonene

Properties: Yel. to deep orange liq., char. orange odor and taste; sol. in 2 vols 90% alcohol, 1 vol glc. acetic acid; sl. sol. in water; misc. with abs. alcohol, carbon disulfide; dens. 0.842-0.846; ref. index 1.472 (20 C)

Toxicology: TDLo (oral, mouse, 40 wks intermittent) 67 g/kg; skin irritant; inh. or frequent contact may cause headache, dizziness, shortness of breath, allergic reaction in hypersensitive persons; questionable carcinogen; experimental neoplastigen; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

HMIS: Health 0, Flammability 2, Reactivity 0

Storage: Keep well closed, cool, protected from light

Uses: Natural flavor, flavor enhancer, color enhancer in pharmaceuticals; expectorant; tonic; stomachic; carminative

Regulatory: FDA 21CFR §172.230, 182.20, GRAS; FEMA GRAS; Europe listed, no restrictions; FDA approved for orals; BP

†=pharmaceutical grade

Orange (Citrus aurantium dulcis) peel extract

CAS 8028-48-6; EINECS/ELINCS 232-433-8
FEMA 2825

Synonyms: Citrus aurantium dulcis; Citrus aurantium dulcis peel extract; Citrus dulcis; Orange peel extract; Sweet orange peel extract

Definition: Extract of the peel of oranges, Citrus aurantium dulcis

Properties: Deep orange-red liq.; insol. in water; flash pt. 112 F (TCC)

Precaution: Wear safety goggles and chemical protective gloves; incompat. with moisture, light, heat, strong oxidizing agents, strong reducing agents, strong bases

Hazardous Decomp. Prods.: COx

HMIS: Health 3, Flammability 3, Reactivity 0

Storage: Store in tightly sealed and preferably full containers in cool, dry and ventilated area protected from heat and light

Uses: Natural flavor for pharmaceuticals

Features: Sweet orange aldehydic tangerine
**Handbook of Pharmaceutical Additives, Third Edition**

Chemical Component Cross-Reference

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**Citrus odor**

*Regulatory:* FDA 21CFR §182.20, GRAS; FEMA GRAS; BP compliance


**Orange (Citrus aurantium dulcis) peel wax**

*CAS:* 144514-51-2

*Synonyms:* Citrus aurantium dulcis wax; Orange peel wax; Orange wax

*Definition:* Wax obtained from the peel of the orange, *Citrus aurantium dulcis*

*Uses:* Emollient, moisturizer, UV-A and -B absorber, natural antioxidant, mild antimicrobial in pharmaceuticals; anti-inflammatory, analgesic (on burns)

*Trade Names:* Koster Keunen Orange Wax; Orange Wax, Deodorized Orange crystals. See 2′-Acetonaphthone

Orange extract. See Orange (Citrus aurantium dulcis) extract

Orange flower oil; Orange flowers oil. See Orange (Citrus aurantium dulcis) flower oil

Orange fruit extract. See Orange (Citrus aurantium dulcis) extract

Orange G. See Acid orange 10

Orange 2G. See D&C Orange No. 17

Orange leaf oil, bitter; Orange leaf water, absolute. See Petitgrain oil

Orange mandarin oil. See Mandarin orange oil

Orange oil. See Orange (Citrus aurantium dulcis) oil; Phenethyl alcohol

Orange oil, bitter. See Bitter orange (Citrus aurantium amara) oil

Orange oil, coldpressed. See Orange (Citrus aurantium dulcis) oil

Orange oil, distilled

*FEMA:* 2821

*Synonyms:* Citrus sinensis; Citrus sinensis oil, distilled

*Definition:* Oil from steam distillation of fresh peel of *Citrus sinensis*

*Properties:* Colorless to pale yel. liq., fresh orange peel odor; sol. in fixed oils, min. oil, alcohol; insol. in glycerin, propylene glycol

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Natural flavor for pharmaceuticals

*Regulatory:* FDA 21CFR §182.20, GRAS; FEMA GRAS; BP compliance

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**GRAS**


Orange oil terpenes ex-5-fold. See d-Limonene

Orange peel, bitter, oil. See Bitter orange (Citrus aurantium amara) oil

Orange peel extract. See Orange (Citrus aurantium dulcis) peel extract

Orange peel oil; Orange peel, sweet, oil. See Orange (Citrus aurantium dulcis) oil

Orange peel tincture. See Orange tincture

Orange peel wax. See Orange (Citrus aurantium dulcis) peel wax

Orange roughly oil

*Synonyms:* Hoplostethus; Hoplostethus atlanticus oil; Hoplostethus oil; Oils, orange roughly

*Definition:* Lipid derived from the subcutaneous fat of the deep sea fish, orange rougy Hoplostethus atlanticus

*Uses:* Solubilizer for pharmaceuticals

*Trade Names:* Cropure® Orange Roughy

Orange terpenes. See d-Limonene

Orange tincture

*Synonyms:* Orange peel tincture; Tincture of orange

*Uses:* Natural flavor for pharmaceuticals, orals

*Use Level:* 0.0075-0.9% (orals)

*Regulatory:* BP, EP compliance

*Manuf./Distrib.:* Adept Sol'n.s.; Asiamerica Int'l.; Biologos† [http://www.biologos.com](http://www.biologos.com); Penta Mfg.; Synasia† [http://www.synasia.com](http://www.synasia.com)

Orange wax. See Orange (Citrus aurantium dulcis) peel wax

Orange yellow S. See FD&C Yellow No. 6

ORC. See Cellulose, oxidized, regenerated Orchidee. See Isoamyl salicylate

Oregano

*CAS:* 977138-70-7

*FEMA:* 2827

*Synonyms:* Lippia; Mexican oregano; Oreganum; Origan

*Definition:* From *Lippia* spp.

*Uses:* Natural flavor for pharmaceuticals

*Regulatory:* BP, EP compliance; FDA 21CFR §101.22, 182.10, GRAS; FEMA GRAS; Japan
Chemical Component Cross-Reference

approved (oregano extract)
Manuf./Distrib.:  Biolandes
http://www.biolandes.com

Oreganum. See Oregano
Oregon balsam. See Balsam Oregon
(Pseudotsuga menziesii)

Organosiloxane; Organosiloxanes. See Silicone

Origan. See Oregano
Origanol. See 4-Carvomenthenol

Origanum dictamnus. See Dittany of Crete

Origanum majorana; Origanum majorana oil. See Sweet marjoram (Origanum majorana) oil

Origanum oil
CAS 8007-11-2; 90131-59-2; EINECS/ELINCS 290-371-7
FEMA 2828
Synonyms: Origanum oil, Spanish; Spanish oregano oil; Thymus capitatus; Thymus capitatus oil

Definition: Oil from steam distillation of the herb Thymus capitatus; main constituent in carvacrol

Properties: Yel. to dk. red-brn. liq.; pungent spicy odor of thyme oil; warm burning flavor; sol. in alcohol, fixed oils, propylene glycol, min. oil; insol. in glycerin; dens. 0.935-0.960; ref. index 1.502 (20 C)

Toxicology: LD50 (oral, rat) 1850 mg/kg, (skin, rabbit) 320 mg/kg; poison by skin contact; mod. toxic by ing.; severe skin irritant; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Natural flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.510; FEMA GRAS; Japan approved (orris)
Manuf./Distrib.: Active Organics

Orthobenzyl-p-chlorophenol; Orthobenzylparachlorophenol. See Chlorophene

[Orthoborato(3-)-O] phenylmercurate (2-), dihydrogen; Orthoborato(1-)-o-phenylmercury. See Phenylmercuric borate

Orthoboric acid. See Boric acid
Orthocresol. See o-Cresol
Orthohydroxybenzoic acid. See Salicylic acid
Orthohydroxydiphenyl; Orthophenylphenol. See o-Phenylphenol
Orthophosphoric acid. See Phosphoric acid
Oryzanin; Oryzane. See Thiamine

Oryzanol
CAS 11042-64-1
Synonyms: γ-Orizanol; γ-Oryzanol; OZ; β-OZ
Definition: Ester of ferulic acid and a terpene alcohol; derived from rice bran oil
Empirical: C_{40}H_{58}O_{4}
Properties: Wh. or sl. ylsh. powd. or cryst.; little or no odor; tasteless; insol. in water; m.w. 602.98; m.p. 135-137°C
Toxicology: LD_{50} (oral, rat) > 25 g/kg, (IV, rat) 382 mg/kg, (skin, rat) 100 mg/kg; may cause eye and skin irritation; reproductive effector
Precaution: Wear splash goggles, dust respirator, protective gloves, and lab coat
HMIS: Health 2, Flammability 1, Reactivity 0
Storage: Store in a tightly closed container in a cool, well-ventilated area
Uses: UV absorbent and antioxidant for pharmaceuticals; medicine (antiulcerative; treatment of menopausal syndrome)
Manuf./Distrib.: Ikeda
http://www.ikedabussan.com; S. Black

γ-Oryzanol. See Oryzanol
Oryza sativa. See Rice (Oryza sativa) starch; Rice (Oryza sativa) wax; Rice (Oryza sativa) bran oil
Oryza sativa bran wax. See Rice (Oryza sativa) wax
Oryza sativa starch. See Rice (Oryza sativa) starch
Ossein. See Collagen
Otto of rose. See Rose oil
1-Oxa-4-azacyclohexane. See Morpholine
7-Oxabicyclo[4.1.0]heptane. See Cyclohexene oxide
7-Oxabicyclo (2.2.1) heptane, 1-methyl-4-(1-methylethyl)-. See 1,4-Cineole
2-Oxabicyclo (2.2.2) octane, 1,3,3-trimethyl-. See Eucalyptol
1-Oxacycloheptadec-7-en-2-one; Oxacycloheptadec-8-en-2-one, (Z)-. See Ambrettolide
1-Oxa-2-cycloxadecanone; Oxacyclohexadecan-2-one. See Pentadecalactone
Oxacyclpentadiene. See Furan
Oxacyclpentane. See Tetrahydrofuran
Oxacyclopropane; Oxane. See Ethylene

†=pharmaceutical grade

3-Oxapentane-1,5-diol; 3-Oxa-1,5-pentanediol. See Diethylene glycol
1-Oxaspiro-2,6,10,10-tetramethyl(4.5)dec-6-ene. See Theaspirane
Oxatone chromelin. See Dihydroxyacetone
Oxazolidine A. See Dimethyl oxazolidine

Ox bile
Uses: Nutritive pharmaceutical additive
Trade Names: Desiccated Ox Bile
Trade Names Containing: Iron Bile Salts

Ox bile extract
CAS 361-09-1; 8008-63-7; EINECS/ELINCS 206-643-5
Synonyms: Cholic acid, monosodium salt; Cholic acid sodium salt; Purified oxgall; Sodium cholate; Sodium cholic acid
Definition: Purified portion of the bile of an ox
Empirical: C_{24}H_{39}NaO_{5}
Properties: Ylsh.-green soft solid, partly sweet/partly bitter disagreeable taste; m.w. 430.57
Toxicology: LD_{50} (oral, mouse) 2400 mg/kg, (IP, mouse) 164 mg/kg, (IV, mouse) 200 mg/kg; poison by IP and IV routes; mod. toxic by ing.; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of Na_{2}O
Uses: Nutritive pharmaceutical additive
Regulatory: FDA 21CFR §184.1560, GRAS; Canada DSL
Trade Names: Extract of Ox Bile NF XI

Oxidase glucose. See Glucose oxidase
Oxide of chromium. See Chromium oxide (ic)

Oxidized beeswax
CAS 138724-55-7
Synonyms: Beeswax, oxidized
Definition: Prod. obtained by the oxidation of beeswax
Uses: Visc. control agent
Trade Names: Koster Keunen Beeswax

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Chemical Component Cross-Reference

AO2535
Oxidized cellulose
Synonyms: Cellulose, oxidized; Cellulosic acid; Oxycellulose
Definition: Cellulose produced by treatment with nitrogen dioxide
Properties: Sl. of-wh. gauze, lint, or powd.; sl. charred odor; acid taste; sol. in aq. org. bases, dil. alkali, ammonium hydroxide; insol. in water, acids, common org. solvs.
Precaution: Combustible; slowly degrades @ R.T.
Storage: Keep cool
Uses: Carrier for drugs and enzymes; controlled-release pharmaceuticals; hemostatic agent; bioabsorbable surgical sutures; kidney dialyzer membrane; surgical hemostatic agent; controlled-release pharmaceuticals; See Steramide MEA stearate
Regulatory: USP/NF compliance
Manuf./Distrib.: Eastman
http://www.eastman.com

Oxidoethane, α,β-Oxidoethane. See Ethylene oxide
1,8-Oxido-p-menthane. See Eucalyptol
Oxine. See 8-Hydroxyquinoline
Oxine benzoate. See 8-Hydroxyquinoline benzoate
Oxine sulfate. See 8-Hydroxyquinoline sulfate
Oxirane. See Ethylene oxide
Oxiranecarboxylic acid, 3-methyl-3-phenyl-, ethyl ester. See Ethyl methylphenylglycidate
Oxiranemethanol. See Glycidol
Oxirane, methyl-, homopolymer. See Polypropylene glycol
Oxirane, (phenoxyethyl) -. See Phenyl glycidyl ether
β-Oxobenzene propanoic acid ethyl ester. See Ethyl benzoylacetate
2-Oxo-1,2-benzopyran. See Coumarin
2-Oxobornane. See Camphor
2-Oxobutane. See Methyl ethyl ketone
3-Oxo-butanoic acid butyl ester. See Butyl acetooacetate
3-Oxobutanoic acid ethyl ester. See Ethyl acetoacetate
3-Oxobutanoic acid methyl ester. See Methyl acetooacetate
3-Oxobutanoic acid 2-yl butyrate. See Butan-3-one-2-yl butyrate
3-Oxobutyrlic acid 3-methylbutyl ester. See Isoamyl acetoacetate

†=pharmaceutical grade

2-Oxochroman. See Dihydrocoumarin
3-Oxo-2,3-di-hydro-1,2-benzisothiazole-1,1-dioxide. See Saccharin
α-Oxodiphenylmethane. See Benzophenone
3-Oxo-1-gulofuranolactone. See L-Ascorbic acid
Oxolane. See Tetrahydrofuran
Oxole. See Furan
2-[(1-Oxooctadecyl) amino] ethyl octadecanoate. See Steramide MEA stearate
α-1-(Oxooctadecyl)-ω-hydroxy poly (oxy-1,2-ethanediyl). See PEG stearate
12-[(1-Oxooctadecyl)oxy]octadecanoic acid, 2-ocylldodecyl ester. See Octyldecyl stearoyl stearate
N-(1-Oxooctyl) glycine. See Capryloyl glycine
1-[2-Oxo-2-[(1-oxododecyl) oxy] ethyl] amino] ethyl pyridinium chloride. See Lapyrium chloride
4- Oxopentanoic acid. See Levlulanic acid
4-Oxopentanoic acid ethyl ester. See Ethyl levulinate
3-Oxo-2-pentlylcyclopentaneacetic acid, methyl ester. See Methyl dihydrojasmonate
5-Oxoproline, compd. with lysine (1:1); 5-Oxo-DL-proline, compd. with DL-lysine (1:1); 5-Oxo-DL-proline, compd. with L-lysine (1:1); 5-Oxo-L-proline, compd. with DL-lysine (1:1). See Lysine PCA
5-Oxo-DL-proline, sodium salt; 5-Oxo-L-proline, sodium salt. See Sodium PCA
2-Oxopranal. See Pyruvaldehyde
2- Oxopropanoic acid; 2-Oxopropionic acid. See Pyruvic acid
2-Oxopyrrolidine. See 2-Pyrrolidone
4-Oxovaleric acid; 4-Oxo-n-valeric acid. See Levlulanic acid
p-Oxybenzaldehyde. See p-Hydroxybenzaldehyde
Oxybenzene. See Phenol
Oxybenzone. See Benzophenone-3
Oxybenzopyridine. See 8-Hydroxyquinoline
1,1’-Oxybisbenzene. See Diphenyl oxide
1,1’-Oxybisethane; Oxybis-1,1’-ethane. See Ethyl ether
1,1’-[(Oxybis (2,1-ethanediol)oxy)] bis butane. See Diethylene glycol dibutyl ether
2,2’-[Oxybis (2,1-ethanediol)oxy]) bis ethanol. See PEG-4
2,2’-Oxybisethanol. See Diethylene glycol
2,2’-(Oxybis (ethylenoxy)) diethanol. See
PEG-4

1,1′-[Oxybis (methylene)] bis [benzene]. See Benzyl ether

1,1′-Oxybisoctane. See Dioctyl ether

Oxybis (trimethylsilane). See Hexamethyldisiloxane

Oxycellulose. See Oxidized cellulose

Oxychinolin. See 8-Hydroxyquinoline

Oxychlorosene

Formula: Ca(OCl)₂

Properties: Wh. to cream powd.; chlorine odor; disp. in water; dens. 1.21 g/cc (tapped); vapor pressure negligible

Toxicology: TLV 0.5 ppm (TWA), 1 ppm (STEL); may cause eye/skin irritation; may cause respiratory tract/mucous membrane irritation on inh.

Precaution: Reactive oxidizer; explosive when heated with org. matter, reducing agents, ammonia, etc.; incompat. with org. matter, acids, amines, ammonia, metals; avoid high temps. and humidity

Hazardous Decomp. Prods.: Cl₂, HOCI, HCl; emits toxic and irritating Cl₂ on heating above 175 C

Storage: Store under refrigeration (3-8 C)

Uses: Topical antimicrobial, antiseptic, bactericide, fungicide, and virucide for treating localized infections; debriding agent for wounds; deodorizer for necrotizing conditions (diabetic gangrene); irrigation of sinus tracts; cleansing and antisepsis of bed-sores

Regulatory: DOT nonregulated

Trade Names: Clorpactin WCS-90

2,2′-Oxydiethanol. See Diethylene glycol

Oxydimethylquinazine. See Antipyrine

Oxyethylated hexadecyl alcohol. See Ceteth

Oxyethylated tertiary octylphenol-formaldehyde polymer. See Tyloxapol

Oxyethylidenediphosphonic acid. See Etdronic acid

Oxymethylene. See Formaldehyde

Oxyneurine. See Betaine

Oxyphenalon. See 4-(p-Hydroxyphenyl)-2-butanone

Oxyphenic acid. See Pyrocatechol

Oxyphenylon. See 4-(p-Hydroxyphenyl)-2-butanone

Oxypropylated cellulose. See Hydroxpropylcellulose

Oxyquinoline (INCI); 8-Oxyquinoline. See 8-Hydroxyquinoline

†=pharmaceutical grade

Oxyquinoline benzoate (INCI). See 8-Hydroxyquinoline benzoate

Oxyquinoline sulfate (INCI). See 8-Hydroxyquinoline sulfate

5-Oxyresorcinol. See 1,3,5-Trihydroxybenzene

Oxy (salicylato) bismuth. See Bismuth subsalicylate

Oxytetracycline hydrochloride

CAS 2058-46-0; EINECS/ELINCS 218-161-2

Synonyms: 4-(Dimethylamino)-1,4,4a,5,5a,6,11,12a-octahydro-3,5,6,10,12,12a-hexahydroxy-6-methyl-1,11-dioxo-2-naphthacenecarboxamide monohydrochloride; Hydrocyclin; 5-Hydroxytetracycline hydrochloride; 2-Naphthacenecarboxamide, 4-(dimethylamino)-1,4,4a,5,5a,6,11,12a-octahydro-3,5,6,10,12a-hexahydroxy-6-methyl-1,11-dioxo-, monohydrochloride; Oxytetrin; Terramycin hydrochloride; Tetramine; Tetran hydrochloride

Empirical: C₂₂H₂₄N₂O₉ • HCl

Properties: Yel. powd.; odorless; bitter taste; sol. in water, propylene glycol; sol. < 1 mg/ml in DMSO, 95% ethanol, acetone; pract. insol. in chloroform, ether; insol. in abs. methanol; m.w. 496.90; m.p. 180 C (dec.)

Toxicology: LD₅₀ (oral, mouse) 6696 mg/kg, (subcut., rat) 800 mg/kg, (IV, rat) 302 mg/kg; highly toxic by IV route; mod. toxic by subcut. route; low toxicity by ing.; may cause nausea, anorexia, vomiting, diarrhea, dysphagia, tremors, edema, anaphylaxis, convulsions, pericarditis, exacerbation of systemic lupus erythematosus, hemolytic anemia, neutropenia, hypersensitivity, GI disturbances, liver damage, etc.; staphylococcal enterocolitis may occur suddenly, possibly fatally; reproductive hazard; TSCA listed

Precaution: Probably combustible; incompat. with bases; hydrolyzes in presence of water; sensitive to light; may be unstable above 25 C; darkens on exposure to sunlight or moist air above 90 C

Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of CO, CO₂, hydrogen chloride gas, and NOₓ; emits toxic fumes under fire conditions

Storage: Hygroscopic; store in tightly closed containers under inert atmosphere; store refrigerated; protect from light
Chemical Component Cross-Reference

Ozokerite. See Ozokerite

Ozokerite

CAS 8021-55-4; 12198-93-5; 8001-75-0; EINECS/ELINCS 265-134-5

Synonyms: Ceresin; Fossil wax; Mineral wax; Ozocerite; Ozokerite wax

Classification: Hydrocarbon wax

Definition: Hydrocarbon wax derived from mineral or petroleum sources

Properties: Yel.-brown to black or green translucent (pure), noxious odor; sol. in lt. petrol. hydrocarbons, benzene, turpentine, kerosene, ether, carbon disulfide; sl. sol. in alcohol; insol. in water; dens. 0.85-0.95; m.p. 55-110 C (usually 70 C)

Toxicology: No known toxicity; skin and eye irritant

Precaution: Combustible

Uses: Thickener in pharmaceuticals, orals, ointments

Regulatory: Japan approved; FDA approved for orals

Manuf./Distrib.: Eastman

http://www.eastman.com; Eggar & Co.
http://www.eggcar.co.uk; Fanning
http://www.fanncorp.com; Frank B. Ross
http://www frankbross.com; ISP
http://www.ispcorp.com

Koster Keunen

http://www.kosterkeunen.com; MPSI
http://www.mp-solutionsinc.com; Marlin Chems. Ltd
http://www.marlinchemicals.co.uk; Ruger†
http://www.rugerchemical.com; Strahl & Pitsch http://www.strahlpitsch.com

U.S. Synthetics

Trade Names: Cerozo 1247; Cerozo 3549T;
Cerozo 4347; Cerozo 20447; Cerozo 26151
Cerozo 26457; Cerozo 26555; Cerozo 30447; Cerozo 31049; Cerozo A
Cerozo AF; Cerozo AN; Cerozo C806;
Cerozo D306; Cerozo E626
Cerozo F110; Cerozo F308; Cerozo T37;
Cerozo T319; Cerozo V164
Koster Keunen Ozokerite; Ozokerite Wax
SP 109; Ozokerite Wax SP 271; Ozokerite Wax SP 273; Ozokerite Wax SP 490
Ozokerite Wax SP 996; Ozokerite Wax SP 1016; Ozokerite Wax SP 1020; Ozokerite Wax SP 1021; Ozokerite Wax SP 1023
Ozokerite Wax SP 1025; Ozokerite Wax SP 1026; Ozokerite Wax SP 1028; Ozokerite Wax SP 1140; Ozokerite Wax SP 1190

Oxytetracycline hydrochloride

Oxycycline. See Oxytetracycline hydrochloride

m-Oxytoluene. See m-Cresol

o-Oxytoluene. See o-Cresol

p-Oxytoluene. See p-Cresol

Oyster shell powder

Synonyms: Pearl oyster shell powder

Uses: Calcium carbonate source, carrier for pharmaceuticals; moisture and odor absorbent; anti-inflammatory; antiseptic; dusting powd. for surgical gloves; tooth whiteners

Manuf./Distrib.: Alfa Chem†
http://www.alfachem1.com; Asiamerica Int'l.†; Barrington†
http://www.barringtonchem.com;Chr. Hansen Inc† http://www.chr-hansen.com;
DMV Int'l. Pharma† http://www.dm-international.com

Functional Foods†
http://www.functionalfoods.com; GMI Prods.† http://www.gmi-originate.com;
Particle Dynamics†
http://www.particledynamics.com; R.W. Greeff† http://www.pechiney-chemicals.com; RIA Int'l.†
http://www.riausa.com
Spectrum Quality Prods.†
http://www.spectrumchemical.com

OZ; β-OZ. See Oryzanol

Antibacterial for severe infections; antimicrobial in veterinary medicine

Regulatory: BP, EP compliance; Canada DSL

Manuf./Distrib.: Acros Org.
http://www.acros.com; Alfa Chem†
http://www.alfachem1.com; Austin†
http://www.austinchemical.com; Boith China† http://www.boith.com; Chemacon GmbH† http://www.chemacon.de
Fluka http://www.sigma-aldrich.com

Functional Foods†
http://www.functionalfoods.com; George Uhe http://www.uhe.com; H&A (Canada) Ind.† http://www.hacanada.com; Helm NY†
http://www.helmnewyork.com


http://www.mpbio.com; Napp Tech.†
http://www.napptech.com; Pharmite N. Am.† http://www.pharmrite.com; Riedel-deHaën;
Sigma http://www.sigma-aldrich.com/belgium

Varsal Instruments†
http://www.varsal.com; Xinchem†
http://www.xinchem.com

Ozokerite Wax

Koster Keunen Ozokerite Wax SP 1028

Cerozo 31049

Wax SP 1190

Cerozo 4347

Cerozo 1247

Ozokerite Wax SP 271

Cerozo 26151

Cerozo 26457

Ozokerite Wax SP 273

Cerozo 30447

Cerozo 31049

Cerozo A

Cerozo AF

Cerozo AN

Cerozo C806

Cerozo D306

Cerozo E626

Cerozo F110

Cerozo F308

Cerozo T37

Cerozo T319

Cerozo V164

Koster Keunen Ozokerite

Ozokerite Wax SP 109

Ozokerite Wax SP 271

Ozokerite Wax SP 273

Ozokerite Wax SP 490

Ozokerite Wax SP 996

Ozokerite Wax SP 1016

Ozokerite Wax SP 1020

Ozokerite Wax SP 1021

Ozokerite Wax SP 1023

Ozokerite Wax SP 1025

Ozokerite Wax SP 1026

Ozokerite Wax SP 1028

Ozokerite Wax SP 1140

Ozokerite Wax SP 1190
Chemical Component Cross-Reference

Trade Names Containing: Argobase EST; Argobase EUC 2; Lexate® PX; Protegin®; Protegin® W; Protegin® WX; Protegin® X

Ozokerite wax. See Ozokerite

PA6. See Nylon 6
PA 12. See Nylon 12
PA 612. See Nylon 612
PAA. See Phenylacetaldehyde; Peracetic acid; Polyacrylamide; Polyacrylic acid
PAAS. See Sodium polyacrylate
PAB. See Sodium aminobenzoate
PABA (INCI). See p-Aminobenzoic acid
PAC. See Aluminum chlorohydrate
Pacific green no. 6491. See Phthalocyanine green
Padimate O. See Octyl dimethyl PABA
PADMA. See Phenylacetaldehyde dimethyl acetal
Painters naphtha. See VM&P naphtha
PAL. See L-Phenylalanine

Palmarosa (Cymbopogon martini) oil
CAS 8014-19-5
FEMA 2831

Synonyms: Cymbopogon martini oil; East Indian geranium oil; Geranium, East Indian, oil; Geranium oil, East Indian; Geranium oil, Turkish; Palmarosa oil

Definition: Oil derived from steam distillation of the grass, Cymbopogon martini; main constituent is geraniol

Properties: Yel. oily liq.; sweet rose-like odor with herbaceous undertone; sol. in alcohol, fixed oils, propylene glycol, min. oil; insol. in glycerin; dens. 0.879-0.892; ref. index 1.473-1.479 (20 C)

Toxicology: LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; skin irritant; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Emollient in pharmaceutical waxes

Regulatory: FDA 21CFR §175.105, 176.200, 176.210, GRAS; BP compliance (fractionated); Canada DSL

Manuf./Distrib.: ABITEC

Trade Names Containing: Labrafil® M 2130 CS

Palm (Elaeis guineensis) oil
CAS 8002-75-3; EINECS/ELINCS 232-316-1

Synonyms: Elaeis guineensis; Elaeis guineensis seed oil; Oils, palm kernel; Palm kernel oil

Definition: Oil obtained from seeds of Elaeis guineensis

Properties: Ylsh. fatty solid, char. sweet nutty flavor; dens. 0.95 kg/l; m.p. 26-30 C; iodine no. 14-19; sapon. no. 240-250

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Emollient in pharmaceutical waxes

Regulatory: FDA 21CFR §175.105, 176.200, 176.210, GRAS; BP compliance (fractionated); Canada DSL

Manuf./Distrib.: ABITEC

Palm grease

Palm (Elaeis guineensis) oil
CAS 8002-75-3; EINECS/ELINCS 232-316-1

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Uses: Emollient in pharmaceutical waxes

Regulatory: FDA 21CFR §175.105, 176.200, 176.210, GRAS; BP compliance (fractionated); Canada DSL

Manuf./Distrib.: ABITEC

Trade Names Containing: Labrafil® M 2130 CS

Handbook of Pharmaceutical Additives, Third Edition 1774
Palm glycerides
CAS 91744-64-8; 129521-59-1; EINECS/ELINCS 294-628-4
Synonyms: Glycerides, palm oil mono-, di- and tri-
Definition: Mixt. of mono-, di-, and triglycerides derived from palm oil
Uses: Emollient, emulsifier, stabilizer, dispersant, opacifier for pharmaceuticals
Manuf./Distrib.: Somerset Cosmetic Co. http://www.makingcosmetics.com/

Palm grease. See Palm (Elaeis guineensis) oil

Palmitamine oxide
CAS 7128-91-8; EINECS/ELINCS 230-429-0
Synonyms: Alkyl dimethyl amine oxide; Cetamine oxide; Cetyl dimethyl amine oxide; N,N-Dimethyl-1-hexadecanamine-N-oxide; Hexadecyl dimethylamine oxide; Palmityl dimethylamine oxide
Classification: Tertiary amine oxide
Empirical: C_{18}H_{39}NO
Formula: CH_{3}(CH_{2})_{14}CH_{2}N(CH_{3})_{2}O
Properties: Amphoteric
Toxicology: TSCA listed
Uses: Emollient, conditioner, detergent, foam stabilizer, visc. builder for pharmaceuticals
Regulatory: Canada DSL
Trade Names: AMMONYX® CO

Palmitic acid
CAS 57-10-3; EINECS/ELINCS 200-312-9
FEMA 2832; INS570; E570
Synonyms: Cetylic acid; Hexadecanoic acid; n-Hexadecanoic acid; Hexadeccylic acid; 1-Pentadecanecarboxylic acid
Classification: Aliphatic organic compd.; saturated fatty acid
Definition: A mixt. of solid organic acids
Empirical: C_{16}H_{32}O_{2}
Formula: CH_{3}(CH_{2})_{14}COOH
Properties: Wh. cryst. scales, sl. char. odor/taste; sol. in hot alcohol, ether, propyl alcohol, chloroform, oxygenated, aromatic, and chlorinated solvs.; sl. sol. in cold alcohol, petrol. ether; insol. in water; m.w. 256.42; dens. 0.853 (62/4 C); m.p. 63-64 C; b.p. 215 C (15 mm); ref. index 1.4273 (80 C)
Toxicology: LD50 (IV, mouse) 57 mg/kg; acute poison by IV route; human skin irritant; questionable carcinogen; experimental neoplastic; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to
Palmitic acid, diester with 5-hydroxy-6-methylpyridine-3,4-dimethanol; Palmitic acid, diester with pyridoxol. See Pyridoxine dipalmitate

Palmitic acid, 2-ethylhexyl ester. See Octyl palmitate

Palmitic acid, hexadecyl ester; Palmitic acid, n-hexadecyl ester; Palmitic acid palmityl ester. See Cetyl palmitate

Palmitic acid sodium salt. See Sodium palmitate

Palmitic succrose ester. See Sucrose palmitate

Palmitin. See Tripalmitin

Palmitoyl animal collagen amino acids. See Palmitoyl collagen amino acids

6-O-Palmitoylascorbic acid; Palmitoyl L-ascorbic acid. See Ascorbyl palmitate

Palmitoyl collagen amino acids

Synonyms: Palmitoyl animal collagen amino acids

Definition: Condensation prod. of palmitic acid chloride and collagen amino acids

Uses: Anti-inflammatory, waterproofing agent for sun care prods., ointments, dermatologicals, anti-acne creams; surfactant, foaming agent, wetting agent for skin care prods., first aid creams

Features: Mild

Manuf./Distrib.: Somerset Cosmetic Co. http://www.makingcosmetics.com/

Palmityl acetate. See Cetyl acetate

Palmityl alcohol. See Cetyl alcohol

Palmityl dimethylamine oxide. See Palmitamine oxide

Palmityl palmitate. See Cetyl palmitate

Palmityl stearate. See Cetyl stearate

Palmityl trimethyl ammonium chloride. See Cetrimonium chloride
Chemical Component Cross-Reference

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Chemical Component Cross-Reference

Universal Preserv-A-Chem†
http://www.upichem.com

Trade Names: Ritapan D
Trade Names Containing: Hair Complex Aquosum
d(+)-Panthenol.  See D-Panthenol

DL-Panthenol
CAS 16485-10-2
Synonyms: Dexpantenol; 2,4-Dihydroxy-N-(3-hydroxypropyl)-3,3-dimethylbutanamide; Pantotenol; DL-Pantotenol; Pantotheryl alcohol; DL-Pantothylen alcohol; Provitamin B5; Racemic pantotheryl alcohol
Classification: Alcohol
Empirical: C9H19NO4
Formula: HOCH2C(CH3)2CH(OH)CONH(CH2)2CH2OH
Properties: Visc. liq.; sol. in water and alcohol; m.w. 205.25; ref. index 1.497 (20 C)
Toxicology: No known toxicity
Uses: Vitamin, nutrient, dietary supplement in pharmaceuticals; anti-inflammatory; humectant; digestive aid; promotes healing; biochemical research; moisturizer, conditioner for skin care prods.
Regulatory: Canada DSL
Trade Names Containing: Unitrienol T-27
D-Panthenyl triacetate.  See Panthenyl triacetate

Pantothenate calcium; Panthenolic acid, calcium salt.  See Calcium D-pantothenate
(+)-Pantothenic acid sodium salt.  See Sodium pantothenate

Pantothenol.  See D-Panthenol; DL-Panthenol
d-Pantothenol.  See D-Panthenol; DL-Panthenol
DL-Pantothylenol.  See DL-Panthenol
Pantothylen alcohol.  See D-Panthenol; DL-Panthenol
d-Pantothylen alcohol.  See D-Panthenol; DL-Panthenol

Papain
CAS 9001-73-4; EINECS/ELINCS 232-627-2
INS1101(ii)
Synonyms: Papayotin; Vegetable pepsin
Definition: Proteolytic enzyme derived from latex of the green fruit and leaves of Carica papaya
Properties: Wh. to gray powd.; sol. in water, glycerin; insol. in other common org. solvs.; m.w. ≈ 21,000
Toxicology: LD50 (oral, mouse) 12,500 mg/kg; LDLo (IP, mouse) 50 mg/kg; poison by IP route; mod. toxic by ing.; human systemic effects by ing. (esophagus effects); allergen; experimental teratogen, reproductive effector; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx
HMIS: Health 1, Flammability 0, Reactivity 0
Storage: Sl. hygroscopic
Uses: Enzyme; medicinally to prevent adhesion, dissolve necrotic material due to protein digesting ability; anthelmintic and therapeutic agent for chronic dyspepsia
Regulatory: FDA 21CFR §137.305, 184.1585,
Chemical Component Cross-Reference

GRAS; USDA 9CFR §318.7, 381.147; BATF
27CFR §240.1051, GRAS; Canada, UK, Japan approved; Canada DSL

Manuf./Distrib.: AMRESCO†
   http://www.amresco-inc.com; Alfa Chem†
   http://www.alfachem1.com; Am. Labs†
   http://www.americanlaboratories.com;
   Amerol http://www.amerolcorp.com;
   Asemerica Int'l.†
   Atomergic Chemetals†
   http://www.atomergic.com; Charles
   Bowman† http://www.charlesbowman.com;
   Chart http://www.chartcorp.com; Degussa
   AG/Health & Nutrition; EMD Chems.†
   http://www.emdchemicals.com; Fluka
   http://www.sigma-aldrich.com; Fortitech†
   http://www.fortitech.com; Frutarom
   http://www.frutarom.com; Functional Foods†
   http://www.functionalfoods.com; Integra†
   http://www.integrachem.com; Lipot†
   http://www.lipochemicals.com;
   Marcord Development†
   http://www.marcordev.com; Pentafag†
   http://www.pentamfg.com; PureWorld
   Botanicals http://www.pureworld.com; RIA
   Int'l.† http://www.riausa.com
   Roche Diagnostics† http://www.roche-
   applied-science.com; Rugert†
   http://www.rugerchemical.com; Sigma
   http://www.sigma-aldrich.com/belgium;
   Spectrum Quality Prods.† http://www.spectrumchemical.com; Spice
   King

Papaver somniferum. See Poppyseed
   (Papaver somniferum)

Papaya isobutyrate. See 2-Methyl-4-phenyl-2-
   butyl isobutyrate

Papayotin. See Papain

Papermakers' alum. See Aluminum sulfate

Paprika. See Paprika (Capsicum annum)

Paprika (Capsicum annum)
   CAS 977006-45-3; 84625-29-6
   FEMA 2833; INS160c; E160c
   Synonyms: Capsicum annum; Paprika
   Definition: Deep red, sweet, pungent powd.
   obtained from the ground dried pod of mild
   capsicum, Capsicum annum
   Hazardous Decomp. Prods.: Heated to
   decomp., emits acrid smoke and irritating
   fumes
   Uses: Natural flavor for pharmaceuticals
   Regulatory: FDA 21CFR §73.340, 73.345,

†=pharmaceutical grade

101.22, 172.140, 182.10, 582.20, GRAS;
USDA 9CFR §318.7; FEMA GRAS; Japan
approved, restricted as color; Europe listed
(extract), UK approved

Manuf./Distrib.: Biolandes
   http://www.biolandes.com; Chart
   http://www.chartcorp.com; Degussa
   AG/Health & Nutrition; Eramex Aromatics
   http://www.aramex.de; Kalsec
   http://www.kalsec.com
   Kingfood Australia Pty. Ltd
   http://www.kingfood.com.au; Liberty
   Natural Prods.
   http://www.libertynatural.com; Quest Int'l.
   http://www.questintl.com

Paprika oleoresin. See Oleoresin paprika

Parachlorometacresol. See p-Chloro-m-
   cresol

Parachlorometaxylenol. See Chloroxynanol

Paracresyl acetate. See p-Cresyl acetate

Paracresyl isobutyrate. See p-Tolyl
   isobutyrate

Paracymene; Paracymol. See p-Cymene

Paradiazine. See Pyrazine

Paradichlorobenzene; Paradichlorobenzol.
   See p-Dichlorobenzene

Paradichlorobenzene. See Hydroquinone

Paraffin
   CAS 8002-74-2; EINECS/ELINCS 232-315-6
   UN 1223; FEMA 3216; INS905c(ii)
   Synonyms: Hard paraffin; Paraffin wax;
   Paraffin waxes; Paraffin wax fume;
   Petroleum wax, crystalline; Poly
   (methylene) wax
   Classification: Aliphatic organic compd.;
   hydrocarbon
   Definition: Solid mixture of hydrocarbons
   obtained from petroleum fractions by solvent
   crystallization or by the sweating process;
   consists predominantly of straight-chain
   hydrocarbons > C20; characterized by
   relatively large crystals
   Empirical: CnH2n+2
   Properties: Colorless to wh. cryst. solid;
   odorless; tasteless; greasy feel; sol. in
   benzene, gasoline, chloroform, ether, carbon
   disulfide, oils; misc. with fats; insol. in water,
   alcohol; dens. ≈ 0.9; m.p. 50-57 C; flash pt.
   (CC) 190 C
   Toxicology: ACGIH TLV/TWA 2 mg/m3 (fume);
   TDL0 (implant, rat) 120 mg/kg; primary
   irritant; skin and eye irritant; anesthetic
   effect; chronic skin exposure can cause
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Chemical Component</th>
<th>Uses</th>
<th>Regulatory</th>
<th>Storage</th>
<th>Trade Names</th>
</tr>
</thead>
<tbody>
<tr>
<td>paraffin waxes</td>
<td>Stiffener, tablet coating agent in pharmaceuticals, implants, orals, topicals, ointments; raises m.p. of ointments</td>
<td>FDA 21 CFR §133.150, 133.181, 133.189, 172.275, 172.615, 175.105, 175.210, 175.250, 175.300, 175.320, 176.170, 176.200, 177.1200, 177.2420, 177.2600, 177.2800, 178.3710, 178.3800, 178.3910, 179.45; Canada DSL; FEMA GRAS; Canada, Japan, Germany</td>
<td>Store away from heat; store in cool, dry place; refrigerate</td>
<td>See also Synthetic wax</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Manufacturer/Distributor</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acros Org.</td>
<td><a href="http://www.acros.com">http://www.acros.com</a></td>
</tr>
<tr>
<td>Aldrich†</td>
<td><a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a></td>
</tr>
<tr>
<td>Ashland†</td>
<td><a href="http://www.ashchem.com">http://www.ashchem.com</a></td>
</tr>
<tr>
<td>Avata†</td>
<td><a href="http://www.avatav.org">http://www.avatav.org</a></td>
</tr>
<tr>
<td>BP Chemicals</td>
<td><a href="http://www.bp.com">http://www.bp.com</a></td>
</tr>
<tr>
<td>Cambrex</td>
<td><a href="http://www.cambrex.com">http://www.cambrex.com</a></td>
</tr>
<tr>
<td>Chemacon GmbH†</td>
<td><a href="http://www.chemacon.de">http://www.chemacon.de</a></td>
</tr>
<tr>
<td>Chemcor</td>
<td><a href="http://www.chemcor.com">http://www.chemcor.com</a></td>
</tr>
<tr>
<td>Chemorph; ChevronPhillips</td>
<td><a href="http://www.cpchem.com">http://www.cpchem.com</a></td>
</tr>
<tr>
<td>Cornelius Chem. Co. Ltd†</td>
<td><a href="http://www.cornelius.co.uk">http://www.cornelius.co.uk</a></td>
</tr>
<tr>
<td>EMD Chems.†</td>
<td><a href="http://www.emdchemicals.com">http://www.emdchemicals.com</a></td>
</tr>
<tr>
<td>Eggar &amp; Co.</td>
<td><a href="http://www.eggar.co.uk">http://www.eggar.co.uk</a></td>
</tr>
<tr>
<td>ExxonMobilt†</td>
<td><a href="http://www.exxonmobilchemical.com">http://www.exxonmobilchemical.com</a></td>
</tr>
<tr>
<td>Frank B. Ross</td>
<td><a href="http://www.frankbross.com">http://www.frankbross.com</a></td>
</tr>
<tr>
<td>Janssen-Cilag†</td>
<td><a href="http://www.janssen-cilag.nl">http://www.janssen-cilag.nl</a></td>
</tr>
<tr>
<td>Koster Keunen†</td>
<td><a href="http://www.kosterkeunen.com">http://www.kosterkeunen.com</a></td>
</tr>
<tr>
<td>MPSI†</td>
<td><a href="http://mp-solutionsinc.com">http://mp-solutionsinc.com</a></td>
</tr>
<tr>
<td>Magnesia GmbH†</td>
<td><a href="http://www.magnesia.de">http://www.magnesia.de</a></td>
</tr>
</tbody>
</table>

†=pharmaceutical grade
Chemical Component Cross-Reference

Paraffin waxes. See Paraffin
Paraffin waxes and hydrocarbon waxes, microcrystalline. See Microcrystalline wax
Paraffin waxes and hydrocarbon waxes, microcrystalline, hydrotreated. See Hydrogenated microcrystalline wax
Paraffin wax fume. See Paraffin
Paraffin wax (petroleum), clay-treated
CAS 64742-43-4; EINECS/ELINCS 265-145-6
Synonyms: Paraffin wax
Definition: A complex combination of hydrocarbons obtained by treatment of a petroleum wax fraction with natural or modified clay to remove trace amounts of polar compounds and impurities; predominantly straight chain saturated hydrocarbons (C20-50)
Uses: Antioxidant
Regulatory: Canada DSL
Trade Names: AP™ 25, AP™ 35, AP™ 45
Paraform. See Paraformaldehyde; Formaldehyde

Paraformaldehyde
CAS 30525-89-4; EINECS/ELINCS 200-001-8
UN 2213 (DOT)
Synonyms: p-Formaldehyde; Paraform; Paraformic aldehyde; Polyoxymethylene; Trioxymethylene; Trioxymethylene
Classification: A polymer of formaldehyde in which n = 8-100
Empirical: (CH₂O)ₙ
Properties: Wh. cryst. powd.; formaldehyde odor; sol. in strong alkalies; mod. sol. in hot water (yielding formaldehyde); sl. sol. in cold water; insol. in ethanol; m.w. (30.03)ₙ; dens. 0.880; m.p. 132-136 °C; flash pt. 158 °F
Toxicology: LD₅₀ (oral, rat) 800 mg/kg; LDLo (skin, rabbit) 10,000 mg/kg; toxic; mod. toxic by ing.; primary irritant; severe eye and skin irritant; sensitiser; may cause allergic response; mutagen; TSCA listed
Precaution: Flamm. solid; can react with oxidizers; incompat. with liq. oxygen
Hazardous Decomp. Prods.: Heated to decom., emits toxic formaldehyde gas
HMIS: Health 3, Flammability 1, Reactivity 0
Storage: Moisture-sensitive; store @ 2-8 °C under argon or nitrogen
Uses: Preservative in root canal filling pastes; hardener and waterproofing agent for gelatin contraceptive creams
Features: Formaldehyde-releasing
Regulatory: FDA 21 CFR §175.105, 176.170, 177.1210; SARA reportable; Canada DSL

†=pharmaceutical grade

Manuf./Distrib.: AMC Chems.†; Aldrich
http://www.sigma-aldrich.com; Allchem Ind.
http://www.allchem.com; Bencorp Int'l.
Brook-Chem http://www.brookchem.com
Celanese http://www.celanesechemicals.com
http://www.chemvimp.com; Chem-Supply
http://www.chemsupply.com.au; Chemical
http://www.thechemco.com; Degussa
http://www.degussa.com; Fluka
http://www.sigma-aldrich.com
Houghton Chem.
http://www.houghtonchemical.com
Integra† http://www.integrachem.com; M. Arens; Mallinckrodt Baker†
http://www.mallbaker.com; Miljac
http://www.miljac.com
Penta Mfg.† http://www.pentamfg.com;
Ruger http://www.rugerchemical.com;
Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality Prods.†
http://www.spectrumchemical.com;
Storchem http://www.storchem.com
Technichem
http://www.arrowtechnichem.com; Total
Tryline http://www.tryline.com; U.S.

Paraformic aldehyde. See Paraformaldehyde
Parahydroxybenzaldehyde. See p-Hydroxybenzaldehyde
Paramandelic acid. See Mandelic acid
Paramethyl phenol. See p-Cresol
Paranitroaniline red, chlorinated. See 1-[(2-Chloro-4-nitrophenyl) azo]-2-naphthalenol
Pararosaniline, N,N,N´,N´,N´´,N´´-hexamethyl-, chloride. See Basic violet 3
Parasept. See Butylparaben
Parazene. See p-Dichlorobenzene
Pareth-25-1
Pareth-25-2
Pareth-25-3
Pareth-25-4
Pareth-25-5
Pareth-25-6

Parsley. See Parsley (Petroselinum crispum)
Parsley (Carum petroselinum) seed oil
CAS 8000-68-8; EINECS/ELINCS 281-677-1
FEMA 2836
Synonyms: Carum petroselinum; Parsley oil; Parsley seed oil; Petroselinum crispum

Handbook of Pharmaceutical Additives, Third Edition 1781
**seed oil; Petroselinum sativum seed oil**

*Definition:* Volatile oil obtained from seeds of the parsley, *Carum petroselinum*, contg. apiol, terpene, pinene

*Properties:* Colorless or yel. visc. liq.; parsley odor; sol. in 8 vols 80% alcohol; sol. in ether, fixed oils, min. oil; sl. sol. in propylene glycol; very sl. sol. in water; insol. in glyc erin; dens. 1.040-1.100 (15/15 C); ref. index 1.510-1.519 (20 C)

*Toxicology:* LD50 (oral, rat) 3300 mg/kg, (oral, mouse) 1520 mg/kg; mod. toxic by ing.; primary irritant; human skin irritant; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Natural flavor for pharmaceuticals

*Regulatory:* FDA 21CFR §182.20, GRAS; FEMA GRAS; Japan approved

*Manuf./Distrib.:* Advanced BioTech, Aristal Ind., Astral Extracts, Berje, Buckton Page Ltd, Citrus and Allied Essences, Eramex Aromatics, Fleurchem, George Uhe, Janousek Industriale Srl, Lebermuth, Pangaea Sciences†, Penta Mfg. , Pharmline, SAFC Specialties, Sarcom, Treatt USA

*Parsley leaf oleoresin.* See Oleoresin parsley leaf

*Parsley oil.* See Parsley (Carum petroselinum) seed oil

*Parsley (Petroselinum crispum) seed oil*

*CAS:* 977051-58-3

*FEMA:* 2835

*Synonyms:* Parsley; Petroselinum crispum

*Definition:* Petroselinum crispum

*Properties:* Warm herbaceous fresh odor, warm spicy aromatic bitter taste

*Uses:* Natural flavor for pharmaceuticals

*Regulatory:* FDA 21CFR §101.22, 139.125, 139.160, 182.10, GRAS; FEMA GRAS; Japan approved

*Manuf./Distrib.:* Chart
http://www.chartcorp.com

*Parsley seed oil.* See Parsley (Carum petroselinum) seed oil

*Partridge vine oil China.* See Wintergreen (Gaultheria procumbens) oil

*Patchouli oil.* See Patchouli (Pogostemon cablin) oil

*Patchouli (Pogostemon cablin) extract*

*CAS:* 84238-39-1; EINECS/ELINCS 282-493-4

*FEMA:* 2838

*Synonyms:* Extract of patchouli; Pogostemon cablin; Pogostemon patchouli extract

*Definition:* Extract of the leaves of the patchouli, *Pogostemon cablin* bentham (labieae)

*Properties:* Pale yel. to dark brown liq.; sp. gr. 0.955-0.983; flash pt. ≤ 100 C; ref. index 1.505-1.512

*Uses:* Botanical antiseptic

*Features:* Woody, herbaceous, aromatic, spicy odor

*Manuf./Distrib.:* Biolandes, Carrubba

*Trade Names:* Actiphyte® of Patchouli

*Patchouli (Pogostemon cablin) oil*

*CAS:* 8014-09-3

*FEMA:* 2838

*Synonyms:* Patchouli oil; Patchouly oil; Pogostemon cablin; Pogostemon cablin oil; Pogostemon patchouli oil

*Definition:* Volatile oil derived from *Pogostemon cablin*; main constituent is patchoulol

*Properties:* Ylsh. to brownish oil; intense odor; sol. in alcohol; insol. in water; dens. 0.97-0.98 kg/l (15 C); vapor dens. > 1; b.p. 287 C; flash pt. 200 F

*Toxicology:* LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; skin irritant; sensitizer; TSCA listed

*Precaution:* Combustible liq.

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*HMIS:* Health 0, Flammability 1, Reactivity 0
Chemical Component Cross-Reference

Uses: Natural flavor for pharmaceuticals
Features: Old wood woody balsam weedy earthy odor; woody, aromatic, camphoreous, cooking and green with lime and citrus nuances taste
Regulatory: FDA 21CFR §172.510; FEMA GRAS; Japan approved; Canada DSL

Manuf./Distrib.: Astral Extracts
http://www.astalectrons.com; Buckton Page Ltd http://www.bucktonpage.com;
Chart http://www.chartcorp.com; Chemtex International http://www.chemtexinternational.com;

Patchouly oil. See Patchouli (Pogostemon cablin) oil
Patent alum. See Aluminum sulfate
Patent blue AC. See FD&C Blue No. 1; Acid blue 9
PB. See Polybutene
PC. See Polycarbonate

PCA ethyl cocoyl arginate
CAS 95370-65-3; EINECS/ELINCS 305-928-2
Synonyms: N2 Cocoyl-L-arginine ethyl ester; DL-pyrrolidone carboxylic acid salt; PCA ethyl N-cocoyl-L-arginate; DL-Proline, 5-oxo-, compd. with N2-coco acyl-L-arginine ethyl ester
Definition: Salt of PCA and ethyl cocoyl arginate
Properties: Wh. crystal. powd.; sol. in water, ethanol, ethyleneglycol; sl. sol. in ethyl acetate, toluene; sol. 5% in water @ 30 C; m.p. 180-

†=pharmaceutical grade

185 C; pH 5.0-7.0 (1% aq., 20 C); cationic
Toxicology: LD50 (oral, mouse) 10,750 mg/kg; nonirritant to skin and eye mucosa
Uses: Antiseptic; disinfectant in dentifrices, medical supplies
Trade Names: CAE

PCA ethyl N-cocoyl-L-arginine. See PCA ethyl cocoyl arginate
PCA-Na; PCA Soda. See Sodium PCA
PCMC. See p-Chloro-m-cresol
PCMX. See Chloroxylenol
PC resin. See Polycarbonate
PDB; PDCB. See p-Dichlorobenzene
PDDB. See Domiphen bromide
PDMS. See Polymethylsiloxane
PE. See Polymethylene
PEA; β-PEA. See Phenethyl alcohol

Peach aldehyde. See γ-Undecalactone
Peach kernel oil; Peach nut oil; Peach oil, expressed. See Peach (Prunus persica) kernel oil

Peach (Prunus persica) kernel oil
CAS 8002-78-6
Synonyms: Peach kernel oil; Peach nut oil; Peach oil, expressed; Persic oil; Prunus persica
Definition: Oil expressed from kernels of the peach, Prunus persica
Properties: Pale yel. oil; sol. in water; sl. sol. in alcohol; dens. ≈ 0.92 kg/l (15 C)
Uses: Emollient, excipient, natural flavor in pharmaceuticals
Regulatory: FDA 21CFR §182.40, GRAS; Canada DSL
Manuf./Distrib.: Arista Ind.† http://www.aristaindustries.com

P(EA/MAA). See Methacrylic acid/ethyl acrylate copolymer

Peanut (Arachis hypogaea) oil
CAS 8002-03-7; EINECS/ELINCS 232-296-4
Synonyms: Arachis hypogaea; Arachis oil; Earthnut oil; Groundnut oil; Indigenous peanut oil; Katchung oil; Peanut oil; Pecan shell powder
Definition: Refined fixed oil obtained from seed kernels of one or more cultivated varieties of Arachis hypogaea
Properties: Colorless to pale yel. liq., nutty odor, bland taste; sol. in benzene, ether, chloroform, CCl4, oils; misc. with carbon disulfide; sl. sol. in alcohol; insol. in alkalis; dens. 0.916-0.922; solid. pt. -5 C; iodine no. 84-100; sapon. no.
Chemical Component Cross-Reference

†=pharmaceutical grade

http://www.kicchemicals.com;
http://www.kicgroup.com
Lambent Tech.
http://www.lambentcorp.com; MLG Enterprises; Mallinckrodt Baker†
http://www.mallbaker.com; Maypro Ind.
http://www.maypro.com; Mosselman NV
http://www.mosselman.be
Mutchler† http://www.mutchlerchemical.com;
Natural Oils Int’l.
http://www.naturaloils.com; Penta Mfg.†
http://www.pentamfg.com; Pokonobe Ind.†
http://www.pokonobe.com; Rugert
http://www.rugerchemical.com
http://www.sigma-aldrich.com/belgium;
Spectrum Quality Prods.† http://www.spectrumchemical.com
Univar Ltd† http://www.univar.co.uk;
Universal Preserv-A-Chem http://www.upichem.com; Van Den Burg Eiproducten BV; Voigt Global Distrib.†
http://www.vgdllc.com; Welch, Holme & Clark† http://www.welch-holme-clark.com
Trade Names: Super Refined® Peanut NF
Trade Names Containing: Carrot Oil Extra;
Crodarom Nut O

Peanut oil. See Peanut (Arachis hypogaea) oil
Peanut oil, ethoxylated. See Peanut oil PEG-6 esters
Peanut oil PEG-6 esters
CAS 68440-49-3
Synonyms: Peanut oil, ethoxylated
Definition: Complex mixture obtained from transesterification of peanut oil and PEG-6
Properties: Oil
Uses: Emollient in pharmaceuticals; amphiphilic agent improving drug delivery
Features: Hydrophilic
Manuf./Distrib.: Somerset Cosmetic Co. http://www.makingcosmetics.com/

Pearl alum. See Aluminum sulfate
Pearl ash. See Potassium carbonate
Pearl essence. See Guanine
Pearl oyster shell powder. See Oyster shell powder
Pearl stearic. See Stearic acid
Pearl white. See Bismuth oxychloride
Peanut oil. See Amyl acetate; Isoamyl acetate
Pebble lime. See Calcium oxide
Chemical Component Cross-Reference

Pecan shell powder. See Peanut (Arachis hypogaea) oil

Pectin
CAS 9000-69-5; EINECS/ELINCS 232-553-0
INS 440; E 440
Synonyms: Citrus pectin
Classification: Polysaccharide
Definition: Purified carbohydrate prod. obtained from the dilute acid extract of the inner portion of the rind of citrus fruits or from apple pomace
Properties: Wh. to yel. powd. or syrupy conc., pract. odorless; sol. in water; insol. in alcohol, org. solvs.; m.w. 30,000-100,000
Toxicology: LD50 (subcut., mouse) 6400 mg/kg; low toxicity by subcut. route; nonallergenic; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Gellant, thickener, stabilizer, emulsifier, adsorbent, protective colloid, suspending agent for pharmaceuticals, topicals, encapsulated drugs; diarrhea treatments; hemostatic formulations; blood plasma substitute; detoxication; dietary fiber fortification; cholesterol reduction; glucose metabolism
Regulatory: FDA 21CFR §135.140, 145.116, 145.126, 145.131, 145.136, 145.171, 145.181, 150.110, 150.140, 150.141, 150.160, 150.161, 173.385, 184.1588, GRAS; Canada DSL; Japan approved; Europe listed; UK approved; FDA approved for dentals, topicals; USP/NF compliance
Asiameica Int’l.; Atomergic Chemetals† http://www.atomergic.com; Biologos† http://www.biologos.com
Denmark http://www.cpkelco.com; CP Kelco† http://www.cpkelco.com
Fuerst Day Lawson http://www.fdl.co.uk; Functional Foods†
†=pharmaceutical grade

Rit-Chem http://www.ritchem.com; Ruger† http://www.rugerchemical.com; Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality Prods.† http://www.spectrumchemical.com; Spice King
Distrib.† http://www.vgdllc.com
Trade Names: Genu® USP/100; Genu® USP/200; Genu® USP-L/200; Genu® Pectins; Genu® Pectin (citrus) type USP/100
Genu® Pectin (citrus) type USP/200; Genu® Pectin (citrus) type USP-H; Genu® Pectin (citrus) type USP-L/200; Genu® Pectin USP/100; Genu® Pectin USP/200
Trade Names Containing: Teavigo™ TG

Pectin sugar. See L-Arabinose
PEG. See Polyethylene glycol

PEG-4
CAS 112-60-7; 25322-68-3 (generic); EINECS/ELINCS 203-989-9
Synonyms: Bis [2-(2-hydroxyethoxy) ethyl] ether; 2-[2-(2-Hydroxyethoxy) ethoxy] ethoxy] ethanol; Macrogol 200; 2,2’-[Oxybis (2,1-ethanediyl)] bisethanol; 2,2’ -(Oxybis (ethylenoxy)) diethanol; PEG 200; POE (4); TEG; Tetraethylene glycol; Tetruglycol
**Chemical Component Cross-Reference**

<table>
<thead>
<tr>
<th>Classification</th>
<th>Polyhydric alcohol</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong>:</td>
<td>Polymer of ethylene oxide</td>
</tr>
<tr>
<td><strong>Empirical</strong>:</td>
<td>C₈H₁₈O₅</td>
</tr>
<tr>
<td><strong>Formula</strong>:</td>
<td>H(OCH₂CH₂)₄OH</td>
</tr>
<tr>
<td><strong>Properties</strong>:</td>
<td>Colorless to pale straw visc. liq., sl. char. odor; sol. in water; misc. with methanol; insol. in benzene, toluene, gasoline; m.w. 194.23; dens. 1.127 (25/25 C); vapor pressure &gt; 0.001 mm Hg (20 C); f.p. -4 C; b.p. 327.3 C; flash pt. (COC) 185 C; ref. index 1.4577 (20 C); surf. tens. 44.13 dynes/cm; supercools on freezing; nonionic</td>
</tr>
<tr>
<td><strong>Toxicology</strong>:</td>
<td>LD₅₀ (oral, rat) 28,900 mg/kg, (IP, mouse) 7500 mg/kg; mildly toxic by ing.; irritating to eyes, skin, respiratory system; reproductive hazard; target organs: CNS, GI, respiratory system; TSCA listed</td>
</tr>
<tr>
<td><strong>Environmental</strong>:</td>
<td>VOC; COD 1.64; ThOD 1.65</td>
</tr>
<tr>
<td><strong>Precaution</strong>:</td>
<td>Combustible; LEL 1%; can react with oxidizers; solvent action on some plastics</td>
</tr>
<tr>
<td><strong>Hazardous Decomp. Prods.</strong>:</td>
<td>Heated to decom., emits acrid smoke and irritating fumes</td>
</tr>
<tr>
<td><strong>NFPA</strong>:</td>
<td>Health 0, Flammability 1, Reactivity 0</td>
</tr>
<tr>
<td><strong>Storage</strong>:</td>
<td>Hygroscopic</td>
</tr>
<tr>
<td><strong>Uses</strong>:</td>
<td>Pharmaceutical aid; solvent, vehicle for active ingreds. in soft gelatin capsules, oral liqs., parenterals; bulking agent; humectant, consistency agent in topicals</td>
</tr>
<tr>
<td><strong>Regulatory</strong>:</td>
<td>FDA 21CFR §73.1, 172.210, 172.280, 172.310, 173.340, 175.105, 175.300, 178.3750, 178.3910; FDA approved for topicals; NF compliance; Canada DSL</td>
</tr>
</tbody>
</table>

**PEG-6**

| CAS | 2615-15-8; 25322-68-3 (generic); EINECS/ELINCS 203-989-9; 220-045-1 |
| **Synonyms**: | Hexaethylene glycol; Macrogol 300; PEG 300; 3,6,9,12,15-Pentaoxaheptadecane-1,17-diol; Polyethylene glycol 300 |
| **Definition**: | Polymer of ethylene oxide |
| **Empirical**: | C₁₂H₂₆O₇ |
| **Formula**: | H(OCH₂CH₂)₄OH, avg. n = 6 |
| **Properties**: | Sp.gr. 1.124-1.127; visc. 5.4-6.4 cSt (99 C); pour pt. -15 to -8 C; flash pt. (COC) 196 C; ref. index 1.463-1.4641 (20 C); pH 4.5-7.5 (5%); nonionic |
| **Toxicology**: | LD₅₀ (oral, rat) 27,500 mg/kg, (IP, rat) 17,000 mg/kg; mildly toxic by ing.; TSCA listed |
| **Hazardous Decomp. Prods.**: | Heated to decom., emits acrid smoke and irritating fumes |
| **NFPA**: | Health 0, Flammability 1, Reactivity 0 |
| **Uses**: | Pharmaceutical aid; coating agent, plasticizer, lubricant, solvent in pharmaceuticals, ophthalmics, topicals; suppository base; tablet/capsule lubricant; bulking agent; solvent for active ingreds. in soft gelatin capsules, oral liqs., parenterals |
| **Trade Names**: | Adeka PEG-300; Carbowax® E300 NF; Carbowax® PEG 300; Carbowax® Sentry® PEG 300; Imbentin-PEG/300; Jeechem 300; Lipoxol® 300; Lipoxol® 300 MED; Lumulse® PEG 300; Lutrol® E 300; Pluracol® E300; Pluracol® E300L; Super Refined® PEG-300 NF; Ultrapeg 300 USP |
| **Trade Names Containing**: | Carbowax® PEG 540 Blend; Carbowax® Sentry® PEG 540 Blend; Labrafil® M 2130 CS; Lanogen 1500; |
**PEG-8**

CAS **5117-19-1; 25322-68-3** (generic);
EINECS/ELINCS **225-856-4**

**Synonyms:** *3,6,9,12,15,18,21*-Heptaoxatricosane-1,23-diol; Macrocol 400; PEG 400; POE (8); Polyethylene glycol 400

**Definition:** Polymer of ethylene oxide

**Empirical:** C<sub>16</sub>H<sub>34</sub>O<sub>9</sub>

**Formula:** H(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 8

**Properties:** Visc. liq., sl. char. odor, minimal taste; m.w. 380-420; dens. 1.128 (25/25 C); visc. 7.3 cSt (210 F); m.p. 4-8 C; pH 4.5-7.5 (5%); nonionic

**Toxicology:** LD<sub>50</sub> (oral, rat) 30 ml/kg, (IP, rat) 9708 mg/kg, (IV, rat) 7313 mg/kg; low toxicity by ing., IV, IP routes; TSCA listed

**Health:** 0, **Flammability:** 1, **Reactivity:** 0


**Manuf./Distrib.:** Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Sigma [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com/belgium)

**Uses:** Pharmaceutical aid; coating agent, plasticizer, lubricant, solvent in pharmaceuticals; suppository base; tablet/capsule lubricant; bulking agent; solvent for active ingreds. in soft gelatin capsules, oral liqs., parenterals

**Trade Names: E400 NF; Carbowax® PEG 400; Carbowax® Sentry® PEG 400; Imbentin-PEG/400; Jeechee 400; Lipoxol® 400; Lipoxol® 400 MED; Lumulse® PEG 400 NF; Lutrol® E 400; Macrogol 400; Pluracol® E400; Pluracol® E400 NF; Pluracol® E400L; Pogol® 400; Renex® PEG 400; Super Refined® PEG-400 NF; Sympatens-PEG/400; Ultrapeg 400 USP**

**Super Refined® PEG-400**

**EINECS/ELINCS:** 229-859-1

**Formula:** H(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 9

**Properties:** Nonionic

**Toxicology:** LD<sub>50</sub> (oral, rat) 38,100 mg/kg; low toxicity by ing.; eye irritant; TSCA listed


**Manuf./Distrib.:** Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Sigma [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com/belgium)

**Uses:** Pharmaceutical aid; solvent for active ingreds. in soft gelatin capsules, oral liqs., parenterals; bulking agent

**Trade Names: E400 NF in Polyethylene Glycol 400 NF; Hair Complex Aquosum; Oxynex® K**

**PEG-9**

CAS **3386-18-3; 25322-68-3** (generic);
EINECS/ELINCS **222-206-1**

**Synonyms:** *3,6,9,12,15,18,21*-Octaoxahexacosane-1,26-diol; PEG 450; POE (9)

**Definition:** Polymer of ethylene oxide

**Empirical:** C<sub>18</sub>H<sub>38</sub>O<sub>10</sub>

**Formula:** H(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 10

**Properties:** Nonionic

**Toxicology:** TSCA listed


**Manuf./Distrib.:** Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Sigma [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com/belgium)

**Uses:** Pharmaceutical aid; solvent for active ingreds. in soft gelatin capsules, oral liqs., parenterals

**Trade Names: Docusate Sodium USP in Polyethylene Glycol 400 NF; Hair Complex Aquosum; Oxynex® K**

**PEG-12**

CAS **6790-09-6; 25322-68-3** (generic);
EINECS/ELINCS **229-859-1**

**Synonyms:** Macrogol 600; PEG 600; POE (12); Polyethylene glycol 600; 3,6,9,12,15,18,21,24,27,3,33-Undecaoxapentatriacontane-1,35-diol

**Definition:** Polymer of ethylene oxide

**Empirical:** C<sub>24</sub>H<sub>50</sub>O<sub>13</sub>

**Formula:** H(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 12

**Properties:** Visc. liq., char. odor; m.w. 570-630; dens. 1.128 (25/25 C); m.p. 20-25 C; visc. 10.5 cSt (210 F); pH 4.5-7.5 (5%); nonionic

**Toxicology:** LD<sub>50</sub> (oral, rat) 38,100 mg/kg; low toxicity by ing.; eye irritant; TSCA listed


**Manuf./Distrib.:** Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Sigma [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com/belgium)

**Uses:** Pharmaceutical aid; coating agent, plasticizer, lubricant, solvent in pharmaceuticals; suppository base; tablet/capsule lubricant; bulking agent; solvent for active ingreds. in soft gelatin capsules, oral liqs., parenterals

**Trade Names: Adeka PEG-400; Carbowax® E400 NF; Carbowax® PEG 400; Carbowax® Sentry® PEG 400; Imbentin-PEG/400; Jeechee 400; Lipoxol® 400; Lipoxol® 400 MED; Lumulse® PEG 400 NF; Lutrol® E 400; Macrogol 400; Pluracol® E400; Pluracol® E400 NF; Pluracol® E400L; Pogol® 400; Renex® PEG 400; Super Refined® PEG-400 NF; Sympatens-PEG/400; Ultrapeg 400 USP**

**Polypeg® PEG 400; Sympatens-PEG/400; Ultrapeg 400 USP**
Chemical Component Cross-Reference

NOF Am.; Ruger http://www.rugerchemical.com; Sigma http://www.sigma-aldrich.com
Trade Names: Adeka PEG-600; Carbowax® E600 NF; Carbowax® PEG 600; Carbowax® Sentry® PEG 600; Imbentin-PEG/600; Jeechem 600; Lipoxol® 600 MED; Lumulse® PEG 600 NF; Lutrol® E 600 Pluracol® E600; Pluracol® E600 NF; Pluracol® E600L; Super Refined® PEG-600 NF; Ultrapeg 600 USP

PEG-20
CAS 25322-68-3 (generic); EINECS/ELINCS 203-989-9
Synonyms: Macrogol 1000; PEG 1000; POE (20); Polyethylene glycol 1000; Polyglycol 1000
Definition: Polymer of ethylene oxide
Empirical: C₄₀H₈₂O₂₁
Formula: H(OCH₂CH₂)ₙOH, avg. n = 20
Properties: Solid; sp.gr. 1.085; visc. 16-19 cSt (99 C); pour pt. 37-40 C; flash pt. (COC) 265 C; pH 4.5-7.5 (5%); nonionic
Toxicology: LD₅₀ (oral, rat) 32 g/kg, (IP, rat) 15,570 mg/kg; LD₉₀ (IV, dog) 3000 mg/kg; mod. toxic by IP, IV routes; mildly toxic by ing.; questionable carcinogen; experimental tumorigen; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
NFPA: Health 0, Flammability 1, Reactivity 0
Uses: Pharmaceutical acid; film coating agent, solvent, plasticizer, lubricant in pharmaceuticals; tablet binder; tablet/capsule lubricant, plasticizer, solvent; base for ointments and suppositories; bulking agent
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: Adeka PEG-1000; Carbowax® E1000 NF; Carbowax® PEG 900; Carbowax® PEG 1000; Carbowax® Sentry® PEG 900

PEG-14
CAS 25322-68-3 (generic)
Synonyms: PEG 700; POE (14)
Definition: Polymer of ethylene oxide
Empirical: C₂₈H₅₈O₁₅
Formula: H(OCH₂CH₂)ₙOH, avg. n = 14
Properties: Visc. 11.5-13.0 cSt; nonionic
Toxicology: TSCA listed
Uses: Pharmaceutical aid; lubricant, binder in pharmaceuticals; solvent for active ingreds. in soft gelatin capsules, oral liqs., parenterals; bulking agent
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: Rhodasurf® PEG 600

PEG-16
CAS 25322-68-3 (generic)
Synonyms: PEG 800; POE (16)
Definition: Polymer of ethylene oxide
Empirical: C₃₂H₆₆O₁₇
Formula: H(OCH₂CH₂)ₙOH, avg. n = 16
Properties: Visc. 12.5-14.5 cSt; nonionic
Toxicology: TSCA listed
Uses: Pharmaceutical aid; humectant, consistency agent in pharmaceuticals; solvent for active ingreds. in soft gelatin capsules, oral liqs., parenterals; bulking agent
Trade Names: Adeka PEG-1000; Carbowax® E1000 NF; Carbowax® PEG 900; Carbowax® PEG 1000; Carbowax® Sentry® PEG 900

†=pharmaceutical grade
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Component</th>
<th>Trade Names</th>
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<tbody>
<tr>
<td>Carbowax® Sentry® PEG 1000; Lipoxol® 1000; Lipoxol® 1000 MED; Lumulse® PEG 1000; Macrogol 1000; Pluracol® E1000; Renex® PEG 1000; Ultrapeg 1000 USP</td>
<td></td>
</tr>
</tbody>
</table>

**PEG-32**

CAS: 25322-68-3 (generic); EINECS/ELINCS: 203-989-9

**Synonyms:** Macrogol 1540; PEG 1540; POE (32)

**Definition:** Polymer of ethylene oxide

**Empirical:** C₆₄H₁₃₀O₃₃

**Formula:** H(OCH₂CH₂)ₙOH, avg. n = 32

**Properties:** Wh. powd.; nonionic

**Toxicology:** LD₅₀ (oral, rat) 44,200 mg/kg; mildly toxic by ing.; human skin irritant; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Pharmaceutical aid in dentals, orals, rectals, topicals; film coating agent; ointment base; tablet binder, lubricant; bulking agent


**Manuf./Distrib.:** Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); NOF Am.; Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)

**Trade Names:** Pluracol® E2000

**PEG-60**

CAS: 25322-68-3 (generic)

**Synonyms:** PEG 3000; POE (60)

**Definition:** Polymer of ethylene oxide

**Formula:** H(OCH₂CH₂)ₙOH, avg. n = 60

**Properties:** Visc. 67-93 cSt; nonionic

**Toxicology:** TSCA listed

**Uses:** Humectant, consistency agent in pharmaceuticals; bulking agent; surfactant for suppository bases

**Regulatory:** FDA 21CFR §175.105; NF compliance


**Trade Names:** Lipoxol® 3000

**PEG-75**

CAS: 25322-68-3 (generic)

**Synonyms:** Macrogol 4000; PEG 4000; POE (75); Polyethylene glycol 4000; Polyglycol 4000

**Definition:** Polymer of ethylene oxide

**Formula:** H(OCH₂CH₂)ₙOH, avg. n = 75

**Properties:** Wh. powd. or creamy-wh. flakes; m.w. 3000-3700; dens. 1.212 (25/25 C); visc. 76-110 cSt (210 F); m.p. 54-58 C; pH 4.5-7.5 (5%); nonionic

**Toxicology:** LD₅₀ (oral, rat) 50 g/kg, (IP, rat) 11,550 mg/kg, (subcut., mouse) 18 g/kg, (IV, mouse) 16 g/kg; mildly toxic by ing.; skin irritant; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**NFPA:** Health 0, Flammability 1, Reactivity 0

**Uses:** Pharmaceutical acid; film coating agent, solvent, plasticizer in pharmaceuticals, injectables, orals, rectals, topicals, vaginals; tablet binder; tablet/capsule lubricant; base for ointments and
suppositories; bulking agent; active ingred.
in colonic lavage sol'n.
Trade Names: Carbowax® E3350 NF; Carbowax® PEG 3350; Carbowax® Sentry® PEG 3350; Lipoxol® 3350 MED; Lipoxol® 4000
Lipoxol® 4000 MED; Lumulse® PEG 3350; Lutrol® E 3350; Macrogol 4000; Pluracol® E4000
Renex® PEG 4000 Flake; Ultrapeg 4000 F USP
PEG-90
CAS 25322-68-3 (generic); EINECS/ELINCS 203-989-9
Synonyms: PEG (90); POE (90)
Definition: Polymer of ethylene oxide
Formula: H(OCH2CH2)nOH, avg. n = 90
Properties: Nonionic
Uses: Humectant, solvent in pharmaceuticals; tablet binder, coating agent
Regulatory: FDA 21CFR §175.105
Trade Names: Lutrol® E 4000
PEG (90). See PEG-90
PEG-100
CAS 25322-68-3 (generic); EINECS/ELINCS 203-989-9
Synonyms: PEG (100); POE (100)
Definition: Polymer of ethylene oxide
Formula: H(OCH2CH2)nOH, avg. n = 100
Properties: Nonionic
Uses: Pharmaceutical aid; film coating agent, solvent, vehicle in pharmaceuticals; ointment base; tablet binder, lubricant; bulking agent
†=pharmaceutical grade
PEG (100). See PEG-100
PEG-125
CAS 25322-68-3 (generic)
Definition: Polymer of ethylene oxide
Properties: Nonionic
Uses: Bioavailability enhancer for drugs that are insol. or sparingly sol. in water, e.g., steroids, fat-sol. vitamins; binder in mfg. of sugar-coated and uncoated tablets; controls release in sustained-release formulations; used with buffers in laxative formulations; antisticking agent, gloss aid for sugar-coated tablets; film-former, plasticizer in tablet coatings; base for ointments and suppositories
Trade Names: Lutrol® E 6000
PEG-150
CAS 25322-68-3 (generic); EINECS/ELINCS 203-989-9
Synonyms: Macrogol 6000; PEG 6000; POE (150)
Definition: Polymer of ethylene oxide
Formula: H(OCH2CH2)nOH, avg. n = 150
Properties: Creamy-wh. flaks or powd., waxy paraffin-like appearance; very sol. in water, methylene chloride; pract. insol. in alcohol, ether, fatty and min. oils; m.w. 5600-7000; dens. 1.21 (25/25 C); visc. 470-900 cSt (210 F); m.p. 56-63 C; hyd. no. 16-22; flash pt. > 887 F; nonionic
Toxicology: LDLo (oral, rat) 50 g/kg; LD50 (IP, rat) 6790 mg/kg; mildly toxic by ing.; skin irritant; mutagenic data; TSCA listed
Precaution: Combustible exposed to heat or flame
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
NFPA: Health 0, Flammability 1, Reactivity 0
Uses: Pharmaceutical aid; film coating agent, solvent, plasticizer in pharmaceuticals; base for ointments and suppositories; tablet binder; tablet/capsule lubricant; bulking agent
PEG-175
CAS 25322-68-3 (generic)
Uses: Humectant, fixing agent, viscosity control agent
Trade Names: Lipo Polyglycol 8000

PEG-180
CAS 25322-68-3 (generic)
Synonyms: PEG (180); POE (180)
Definition: Polymer of ethylene oxide
Formula: H(OCH₂CH₂)ₙOH, avg. n = 180
Properties: Nonionic
Uses: Binder, lubricant for compressed tablets; humectant; coupling agent in creams and lotions
Trade Names Containing: Aquathik

PEG (180). See PEG-180

PEG-200
CAS 25322-68-3 (generic)
Synonyms: PEG 9000; POE (200)
Definition: Polymer of ethylene oxide
Formula: H(OCH₂CH₂)ₙOH, avg. n = 200
Properties: Solid; nonionic
Toxicology: TSCA listed
Uses: Pharmaceutical aid; film coating agent in pharmaceuticals; ointment base; tablet binder, lubricant; bulking agent; intramuscular injectables, orals, topicals
Trade Names: Adeka PEG-1500

PEG 200. See PEG-4
PEG 300,000. See PEG-7M
Chemical Component Cross-Reference

Trade Names: Macrogol 1500

PEG 1540. See PEG-32
PEG-2000. See PEG-2M
PEG 2000. See PEG-40
PEG 20000. See PEG-350
PEG-20000. See PEG-20M
PEG-23000. See PEG-23M
PEG 3000. See PEG-60
PEG-35000. See PEG-35M
PEG-4000. See PEG-4M
PEG 4000. See PEG-75
PEG-45000. See PEG-45M
PEG-5000. See PEG-5M
PEG-6000. See PEG-6M
PEG 6000. See PEG-150
PEG-7000. See PEG-7M
PEG-8000. See PEG-8M
PEG-9000. See PEG-9M
PEG 9000. See PEG-200
PEG-90000. See PEG-90M

PEG-2M
CAS 25322-68-3 (generic)
Classification: Thermoplastic resin
Definition: Polymer of ethylene oxide
Formula: H(OCH₂CH₂)ₙOH, avg. n = 2000
Properties: Water-sol.; nonionic
Toxicology: TSCA listed
Uses: Binder, emulsion stabilizer, visc. control agent in pharmaceuticals; tablet coating; dispersant, antisetttling agent in calamine lotion; lubricant for rubbing alcohol; controlled-release drugs; contact lens fluid
Regulatory: FDA 21CFR §172.770, 173.310, 175.300, 178.3910; NF compliance
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: Polyox® WSR N-10

PEG-4M
CAS 25322-68-3 (generic)
Synonyms: PEG-4000; POE (4000)
Definition: Polymer of ethylene oxide
Formula: H(OCH₂CH₂)ₙOH, avg. n = 4000
Properties: Nonionic
Uses: Pharmaceutical dentals, injectables, orals, rectals, topicals, vaginals
Regulatory: FDA approved for dentals, injectables, orals, rectals, topicals, vaginals; NF compliance
Trade Names: Adeka PEG-4000

PEG-5M
CAS 25322-68-3 (generic)
Synonyms: PEG-5000; POE (5000)
Classification: Thermoplastic resin
Definition: Polymer of ethylene oxide
Formula: H(OCH₂CH₂)ₙOH, avg. n = 5000
Properties: Water-sol.; nonionic
Toxicology: LD₅₀ (oral, mouse) > 4 g/kg, (skin, rabbit) > 20 g/kg; TSCA listed
Uses: Binder, emulsion stabilizer, visc. control agent in pharmaceuticals; tablet coating; dispersant, antisetttling agent in calamine lotion; lubricant for rubbing alcohol; controlled-release drugs; contact lens fluid
Regulatory: FDA 21CFR §172.770, 173.310, 175.300, 178.3910; NF compliance
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: Polyox® WSR N-80

PEG-6M
CAS 25322-68-3 (generic)
Synonyms: PEG-6000; POE (6000)
Definition: Polymer of ethylene oxide
Formula: H(OCH₂CH₂)ₙOH, avg. n = 6000
Properties: Nonionic
Uses: Pharmaceutical orals, rectals, topicals, vaginals
Regulatory: FDA approved for orals, rectals, topicals, vaginals
Trade Names: Adeka PEG-6000

PEG-7M
CAS 25322-68-3 (generic)
Synonyms: PEG 300,000; PEG-7000; POE (7000)
Classification: Thermoplastic resin
Definition: Polymer of ethylene oxide
Formula: H(OCH₂CH₂)ₙOH, avg. n = 7000
Properties: Water-sol.; nonionic
Toxicology: TSCA listed
Uses: Binder, emulsion stabilizer, visc. control agent in pharmaceuticals; tablet coating; dispersant, antisetttling agent in calamine lotion; lubricant for rubbing alcohol; controlled-release drugs; contact lens fluid
Regulatory: FDA 21CFR §172.770, 173.310, 175.300, 178.3910; NF compliance
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: Adeka PEG-7000

PEG-9M
CAS 25322-68-3 (generic)
Synonyms: PEG 300,000; PEG-9000; POE (9000)
Classification: Thermoplastic resin
Definition: Polymer of ethylene oxide
Formula: H(OCH₂CH₂)ₙOH, avg. n = 9000
Properties: Water-sol.; nonionic
Toxicology: TSCA listed
Uses: Binder, emulsion stabilizer, visc. control agent in pharmaceuticals; tablet coating; dispersant, antisetttling agent in calamine lotion; lubricant for rubbing alcohol; controlled-release drugs; contact lens fluid
Regulatory: FDA 21CFR §172.770, 173.310, 175.300, 178.3910; NF compliance
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: Adeka PEG-9000
PEG-8M

CAS 25322-68-3 (generic)
Synonyms: PEG-8000; POE (8000)
Definition: Polymer of ethylene oxide
Formula: H(OCH₂CH₂)ₙOH, avg. n = 8000
Properties: Nonionic
Uses: Binder for capsules/pills; suppository base; pharmaceutical ophthalmics, orals, rectals, topicals, vaginals
Regulatory: FDA approved for ophthalmics, orals, rectals, topicals, vaginals; NF compliance
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: Polyox® WSR N-750

PEG-9M

CAS 25322-68-3 (generic)
Classification: Thermoplastic resin
Definition: Polymer of ethylene oxide
Formula: H(OCH₂CH₂)ₙOH, avg. n = 9000
Properties: Water-sol.; nonionic
Toxicology: LD₅₀ (oral, mouse) > 4 g/kg, (skin, rabbit) > 20 g/kg
Uses: Binder, emulsion stabilizer, visc. control agent, thickener, binder, emulsion stabilizer for pharmaceuticals; tablet coating; dispersant, antisettling agent in calamine lotion; lubricant for rubbing alcohol; controlled-release drugs; contact lens fluid
Regulatory: FDA 21CFR §172.770, 173.310, 175.300, 178.3910
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: Ultrapeg 8000 F USP

PEG-10M

CAS 25322-68-3 (generic)
Synonyms: PEG-10000; POE (10000)
Definition: Polymer of ethylene oxide
Formula: H(OCH₂CH₂)ₙOH, avg. n = 10,000
Properties: Nonionic
Uses: Wetting agent, emulsifier in pharmaceuticals
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

PEG-14M

CAS 25322-68-3 (generic)
Synonyms: PEG 600,000; PEG-14000; POE (14000)
Classification: Thermoplastic resin
Definition: Polymer of ethylene oxide
Formula: H(OCH₂CH₂)ₙOH, avg. n = 14,000
Properties: Water-sol.; nonionic
Toxicology: TSCA listed
Uses: Thickener, lubricant, binder, emulsion stabilizer for pharmaceuticals; tablet coating; dispersant, antisettling agent in calamine lotion; lubricant for rubbing alcohol; controlled-release drugs; contact lens fluid
Regulatory: FDA 21CFR §172.770, 173.310, 175.300, 178.3910
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: Polyox® WSR 205

PEG-20M

CAS 25322-68-3 (generic); EINECS/ELINCS 225-856-4
Synonyms: PEG-20000; POE (20000)
Classification: Thermoplastic resin
Definition: Polymer of ethylene oxide
Formula: H(OCH₂CH₂)ₙOH, avg. n = 20,000
Properties: Water-sol.; nonionic
Toxicology: TSCA listed
Uses: Binder, emulsion stabilizer, visc. control agent in pharmaceuticals; tablet coating; dispersant, antisettling agent in calamine lotion; lubricant for rubbing alcohol; controlled-release drugs; contact lens fluid
Regulatory: FDA 21CFR §172.770, 173.310, 175.300, 178.3910
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: Adeka PEG-20,000; Lipo Polyglycol 20000; Polyox® WSR 1105

PEG-23M

CAS 25322-68-3 (generic)
Synonyms: PEG-23000; POE (23000)
Classification: Thermoplastic resin
Definition: Polymer of ethylene oxide
Formula: H(OCH₂CH₂)ₙOH, avg. n = 23000
Properties: Water-sol.; nonionic
### Chemical Component Cross-Reference

**Toxicology:** 
LD50 (oral, mouse) > 4 g/kg, (skin, rabbit) > 20 g/kg

**Uses:**  
Binder, emulsion stabilizer, visc. control agent in pharmaceuticals; tablet coating; dispersant, antisettling agent in calamine lotion; lubricant for rubbing alcohol; controlled-release drugs; contact lens fluid

**Regulatory:**  
FDA 21CFR §172.770, 173.310, 175.300, 178.3910

**Manuf./Distrib.:**  
- Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
- Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
- Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)

**Trade Names:**  
- Polyox® WSR N-12K
- Polyox® WSR N-60K
- Polyox® WSR Coagulant

### PEG-35M

**CAS:** 25322-68-3 (generic)

**Synonyms:** PEG-3500; POE (35000)

**Definition:** Polymer of ethylene oxide

**Formula:** H(OCH₂CH₂)ₙOH, avg. n = 35,000

**Properties:** Nonionic

**Uses:** Wetting agent, emulsifier in pharmaceuticals

**Manuf./Distrib.:**  
- Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
- Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
- Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)

### PEG-45M

**CAS:** 25322-68-3 (generic)

**Synonyms:** PEG-4500; POE (45000)

**Classification:** Thermoplastic resin

**Definition:** Polymer of ethylene oxide

**Formula:** H(OCH₂CH₂)ₙOH, avg. n = 45,000

**Properties:** Water-sol.; nonionic

**Toxicology:** LD50 (oral, mouse) > 4 g/kg, (skin, rabbit) > 20 g/kg

**Uses:** Lubricant, emollient, humectant in pharmaceuticals; tablet coating; dispersant, antisettling agent in calamine lotion; lubricant for rubbing alcohol; controlled-release drugs; contact lens fluid

**Regulatory:** FDA 21CFR §172.770, 173.310, 175.300, 178.3910

**Manuf./Distrib.:**  
- Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
- Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
- Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)

**Trade Names:**  
- Polyox® WSR N-12K
- Polyox® WSR N-60K
- Polyox® WSR Coagulant

### PEG-115M

**CAS:** 25322-68-3 (generic)

**Synonyms:** PEG-115000; POE (115000)

**Classification:** Thermoplastic resin

**Definition:** Polymer of ethylene oxide

**Formula:** H(OCH₂CH₂)ₙOH, avg. n = 115,000

**Properties:** Water-sol.; nonionic

**Uses:** Binder, emulsion stabilizer, visc. control agent in cosmetics, pharmaceuticals; tablet coating; dispersant, antisettling agent in calamine lotion; lubricant for rubbing alcohol; controlled-release drugs; contact lens fluid

**Regulatory:** FDA 21CFR §172.770, 173.310, 175.300, 178.3910

**Manuf./Distrib.:**  
- Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
- Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
- Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)

**Trade Names:**  
- Polyox® WSR Coagulant

### PEG-20 almond glycerides

**Synonyms:** PEG 1000 almond glycerides; POE (20) almond glycerides

**Definition:** PEG deriv. of the mono and diglycerides from almond oil, avg. 20 moles EO

**Properties:** Nonionic

**Uses:** Emulsifier, wetting agent, solubilizer, dispersant, emollient in pharmaceuticals

**Manuf./Distrib.:**  
- DeWolf Chem. [http://www.dewolfchem.com](http://www.dewolfchem.com)

### PEG-60 almond glycerides

**Synonyms:** PEG 3000 almond glycerides; POE...
Chemical Component Cross-Reference

(60) almond glycerides
Definition: PEG deriv. of the mono and
diglycerides from almond oil, avg. 60 moles
EO
Properties: Nonionic
Uses: Emulsifier, wetting agent, solubilizer,
dispersant, emollient, counter-irritant in
pharmaceuticals
Trade Names: Crovol A-70
PEG 1000 almond glycerides. See PEG-20
almond glycerides
PEG 3000 almond glycerides. See PEG-60
almond glycerides
PEG-8 beeswax
Synonyms: PEG 400 beeswax; POE (8)
beeswax
Definition: PEG deriv. of beeswax with avg. 8
moles EO
Properties: Nonionic
Uses: Emulsifier, stabilizer, thickener in
pharmaceuticals; SE base for o/w
emulsions; excipient for
dermal/transdermal pharmaceuticals
Features: Structural base
Trade Names: Apifil®
PEG 400 beeswax. See PEG-8 beeswax
PEG-8 behenate
Synonyms: PEG 400 behenate; POE (8)
behenate
Definition: PEG ester of behenic acid
Empirical: C₃₈H₇₆O₁₀
Formula: CH₃(CH₂)₂₀CO(OCH₂CH₂)nOH, avg. n = 8
Uses: Tableting aid in pharmaceuticals
Manuf./Distrib.: Somerset Cosmetic Co.
http://www.makingcosmetics.com/
Trade Names Containing: Compritol HD5 ATO
PEG-20 behenate
Synonyms: POE (20) behenate
Uses: Excipient, coating agent, emulsifier,
solubilizer, and wetting agent for
pharmaceuticals
PEG 400 behenate. See PEG-8 behenate
PEG-5 behenyl ether. See Beheneth-5
PEG-10 behenyl ether. See Beheneth-10
PEG-20 behenyl ether. See Beheneth-20
PEG-30 behenyl ether. See Beheneth-30
PEG 500 behenyl ether. See Beheneth-10
PEG 1000 behenyl ether. See Beheneth-20
PEG-12 C₁₂-₁₅ alcohol. See C₁₂-₁₅ pareth-12
PEG-2-C₁₂-₁₅ alcohols phosphate. See C₁₂-
₁₅ pareth-2 phosphate
PEG 400 caprylate/caprate glycerides. See
PEG-8 caprylate/caprate glycerides
PEG-6 caprylate/caprate glycerides
CAS 52504-24-2; 68954-97-2
Synonyms: PEG 300 caprylate/caprate
glycerides; POE (6) capryl/caprate
glycerides
Definition: PEG deriv. of a mixt. of mono-, di,-
and triglycerides of caprylic and capric acids
with avg. 6 moles EO
Formula: RCO–
OCH₂COHCH₂(OCH₂CH₂)ₙOH, RCO– =
mixt. of capryl/caprate radicals, avg. n = 6
Properties: Oily liq.; sol. in water, acetone, ethyl
acetate, butyl acetate; misc. with IPA, castor
oil; sapon. no. 90-100; nonionic
Uses: Emulsifier, emollient, refatting agent,
solubilizer, wetting agent for
pharmaceuticals
Trade Names: Acconon CC-6, EP; Estol 3684;
Glycerox 767; Softigen® 767; Softisan® 767
PEG-8 caprylate/caprate glycerides
CAS 57307-99-0; 85536-07-8
Synonyms: PEG 400 caprylate/caprate
glycerides; POE (8) caprylate/caprate
glycerides
Definition: PEG deriv. of a mixt. of mono-, di,-
and triglycerides of caprylic and capric acids
with avg. 8 moles EO
Properties: Oil; nonionic
Uses: Bioavailability enhancer, emulsifier,
solvent, solubilizer, excipient for
pharmaceuticals; surfactant for drug
delivery systems
Features: Hydrophilic
Trade Names: Acconon MC-8, EP/NF;
Labrasol®; L.A.S.
PEG 300 caprylate/caprate glycerides. See PEG-
6 caprylate/caprate glycerides
PEG castor oil
CAS 61791-12-6 (generic)
Synonyms: Castor oil ethoxylate
Properties: Pale yel. liq. to wh. solid (5-100 EO);
HLB 3.8-16.5 (5-100 EO); nonionic
Toxicology: Harmful; may cause sensitization
by inh. and skin contact
Storage: Store and use with adequate ventilation
Uses: Emulsifier, dispersant, solubilizer in
phytopharmaceuticals; solubilizer for
vitamins
Regulatory: FDA 21CFR §175.105 (for 4-84
moles EO)
PEG-3 castor oil
CAS 61791-12-6 (generic)
Synonyms: POE (3) castor oil
Definition: PEG deriv. of castor oil with avg. 3 moles of EO
Properties: Nonionic
Toxicology: TSCA listed
Uses: Surfactant, emulsifier, hydrotrope for pharmaceuticals
Regulatory: FDA 21 CFR §175.300
Manuf./Distrib.: Sigma http://www.sigma-aldrich.com/belgium
Trade Names: Servirox® OEG 68.5

PEG-5 castor oil
CAS 61791-12-6 (generic)
Synonyms: POE (5) castor oil
Definition: PEG deriv. of castor oil with avg. 5 moles of EO
Properties: Nonionic
Toxicology: TSCA listed
Uses: Surfactant, emulsifier, dispersant, solubilizer, visc. control agent for pharmaceuticals
Regulatory: FDA 21 CFR §175.105, 175.300
Manuf./Distrib.: Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: CO-3

PEG-8 castor oil
CAS 61791-12-6 (generic)
Synonyms: PEG 400 castor oil; POE (8) castor oil
Definition: PEG deriv. of castor oil with avg. 8 moles of EO
Properties: Nonionic
Toxicology: TSCA listed
Uses: Surfactant, emulsifier, dispersant, solubilizer, visc. control agent for pharmaceuticals
Regulatory: FDA 21 CFR §175.105, 175.300, 176.210, 177.2800
Manuf./Distrib.: Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: Acconon CA-5

PEG-9 castor oil
CAS 61791-12-6 (generic)
Synonyms: PEG 450 castor oil; POE (9) castor oil
Definition: PEG deriv. of castor oil with avg. 9 moles of EO
Properties: Nonionic
Toxicology: TSCA listed
Uses: Surfactant, emulsifier, lubricant, dispersant, solubilizer, visc. control agent for pharmaceuticals
Regulatory: FDA 21 CFR §175.105, 175.300, 177.2800
Manuf./Distrib.: ABITEC† http://www.abiteccorp.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: CO-10

PEG-10 castor oil
CAS 61791-12-6 (generic)
Synonyms: PEG 500 castor oil; POE (10) castor oil
Definition: PEG deriv. of castor oil with avg. 10 moles of EO
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier for pharmaceuticals; solubilizer for essential oils
Regulatory: FDA 21 CFR §175.105, 175.300, 177.2800
Manuf./Distrib.: Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: CO-10

PEG-15 castor oil
CAS 61791-12-6 (generic)
Synonyms: POE (15) castor oil
Definition: PEG deriv. of castor oil with avg. 15 moles of EO
Properties: Nonionic
Uses: Surfactant, emulsifier, lubricant, dispersant, solubilizer, visc. control agent for pharmaceuticals
Regulatory: FDA 21 CFR §175.105, 175.300, 176.210, 177.2800
Manuf./Distrib.: ABITEC† http://www.abiteccorp.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

PEG-17 castor oil
CAS 61791-12-6 (generic)
Synonyms: POE (17) castor oil
Definition: PEG deriv. of castor oil with avg. 17 moles of EO
Properties: Nonionic
Uses: Surfactant in phytopharmaceuticals
Regulatory: FDA 21 CFR §175.105
Chemical Component Cross-Reference

Manuf./Distrib.: Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: Servirox® OEG 45

PEG-20 castor oil
CAS 61791-12-6 (generic)
Synonyms: PEG 1000 castor oil; POE (20)
castor oil
Definition: PEG deriv. of castor oil with avg. 20 moles of EO
Properties: Pale yel. oil; nonionic
Toxicology: TSCA listed
Uses: Emulsifier, solubilizer, dispersant in pharmaceuticals
Regulatory: FDA 21CFR §175.105, 175.300, 176.210, 177.2800
Manuf./Distrib.: Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: CO-20TX; Emalex C-20

PEG-25 castor oil
CAS 61791-12-6 (generic)
Synonyms: POE (25) castor oil
Definition: PEG deriv. of castor oil with avg. 25 moles of EO
Properties: Nonionic
Toxicology: TSCA listed
Uses: Surfactant, emulsifier in pharmaceuticals; solubilizer for essential oils, vitamins, and pharmaceuticals
Regulatory: FDA 21CFR §175.105, 175.300, 177.2800
Manuf./Distrib.: Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: Lumulse® GR-25; Sabopal EL 25

PEG-26 castor oil
CAS 61791-12-6 (generic)
Synonyms: POE (26) castor oil
Definition: PEG deriv. of castor oil with avg. 26 moles of EO
Properties: Nonionic
Uses: Emulsifier, dispersant, solubilizer in pharmaceuticals
Regulatory: FDA 21CFR §175.105
Manuf./Distrib.: Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

PEG-30 castor oil
CAS 61791-12-6 (generic)
Synonyms: POE (30) castor oil
Definition: PEG deriv. of castor oil with avg. 30 moles of EO
Properties: Nonionic
Uses: Solvent, emulsifier for pharmaceuticals
Regulatory: FDA 21CFR §175.105, 175.300, 176.210, 177.2800
Manuf./Distrib.: Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

PEG-32 castor oil
CAS 61791-12-6 (generic)
Synonyms: POE (32) castor oil
Definition: PEG deriv. of castor oil with avg. 32 moles of EO
Properties: Nonionic
Uses: Surfactant in phytopharmaceuticals
Regulatory: FDA 21CFR §175.105
Manuf./Distrib.: Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

PEG-33 castor oil
CAS 61791-12-6 (generic)
Synonyms: POE (33) castor oil
Definition: PEG deriv. of castor oil with avg. 33 moles of EO
Properties: Nonionic
Uses: Solvent, emulsifier for pharmaceuticals
Regulatory: FDA 21CFR §175.105, 175.300, 176.210, 177.2800
Manuf./Distrib.: Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

PEG-35 castor oil
CAS 61791-12-6 (generic)
Synonyms: Ethoxy (35) castor oil; POE (35) castor oil; Polyoxyl 35 castor oil
Definition: PEG deriv. of castor oil with avg. 35 moles of EO
Properties: Yel. oily liq., faint char. odor, sl. bitter taste; very sol. in water; sol. in alcohol, ethyl acetate; insol. in min. oils; sp.gr. 1.057; vapor pressure 6 2 mm Hg (20 C); acid no. 2 max.; iodine no. 25-35; sapon. no. 60-76; hyd. no. 65-80; nonionic
Toxicology: LD50 (IV, mouse) 6500 mg/kg; may be harmful by ing., inh., or skin absorption; may cause eye/skin/respiratory tract
CHEMICAL COMPONENT CROSS-REFERENCE

irritation; may cause sensitization by inh. and skin contact; may cause anaphylactic reactions; may cause a hepatitis-like reaction in large doses; may cause GI disturbances on exposure to lg. amts.; TSCA listed

Storage: Store and use with adequate ventilation

Uses: Surfactant, solubilizer, emulsifier, lubricant, emollient, superfattening agent, softener, detergent, wetting agent for pharmaceuticals, veterinary medicine; solvent for intravenous steroid anesthetic and for miconazole; emulsifier for essential oils

Regulatory: FDA 21CFR §175.105, 175.300, 177.2800; USP/NF compliance

Manufacturers/Distributors:
- Fluka http://www.sigma-aldrich.com
- Sigma http://www.sigma-aldrich.com/belgium

Trade Names: Cremophor® EL; Cremophor® ELP; Etoxas 35 HV; Etoxas 35 NF; Sympatens-TR/350

PEG-36 castor oil
CAS 61791-12-6 (generic)
Synonyms: PEG 1800 castor oil; POE (36) castor oil
Definition: PEG deriv. of castor oil with avg. 36 moles of EO
Properties: Liq.; sol. in water, xylene; nonionic
Toxicology: TSCA listed
Uses: Emulsifier, dispersant, solubilizer in pharmaceuticals
Regulatory: FDA 21CFR §175.105, 175.300, 176.210, 177.2800

Manufacturers/Distributors:
- Fluka http://www.sigma-aldrich.com
- Sigma http://www.sigma-aldrich.com/belgium

Trade Names: Canasol R 3603

PEG-40 castor oil
CAS 61791-12-6 (generic)
Synonyms: PEG 2000 castor oil; POE (40) castor oil; Polyoxyol 40 castor oil
Definition: PEG deriv. of castor oil with avg. 40 moles of EO
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, solubilizer, dispersant for vitamins, pharmaceuticals, parenterals
Regulatory: FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.210, 177.2800; FDA approved for parenterals

Manufacturers/Distributors:
- Fluka http://www.sigma-aldrich.com
- Sigma http://www.sigma-aldrich.com/belgium

PEG-50 castor oil
CAS 61791-12-6 (generic)
Synonyms: POE (50) castor oil
Definition: PEG deriv. of castor oil with avg. 50 moles of EO
Properties: Nonionic
Toxicology: TSCA listed
Uses: Surfactant for pharmaceuticals
Regulatory: FDA 21CFR §175.105

Manufacturers/Distributors:
- Fluka http://www.sigma-aldrich.com
- Sigma http://www.sigma-aldrich.com/belgium

Trade Names: CO-50TX; Emalex C-50

PEG-52 castor oil
CAS 61791-12-6 (generic)
Synonyms: POE (52) castor oil
Definition: PEG deriv. of castor oil with avg. 52 moles of EO
Properties: Nonionic
Uses: Surfactant for pharmaceuticals
Regulatory: FDA 21CFR §175.105

Manufacturers/Distributors:
- Fluka http://www.sigma-aldrich.com
- Sigma http://www.sigma-aldrich.com/belgium

PEG-56 castor oil
CAS 61791-12-6 (generic)
Synonyms: POE (56) castor oil
Definition: PEG deriv. of castor oil with avg. 56 moles of EO
Properties: Nonionic
Uses: Detergent, emulsifier, dispersant, solubilizer for pharmaceuticals
Regulatory: FDA 21CFR §175.105

Manufacturers/Distributors:
- Fluka http://www.sigma-aldrich.com
- Sigma http://www.sigma-aldrich.com/belgium

PEG-60 castor oil
CAS 61791-12-6 (generic)
Synonyms: POE (60) castor oil
Definition: PEG deriv. of castor oil with avg. 60 moles of EO
Properties: Nonionic
Toxicology: TSCA listed

†=pharmaceutical grade
### Chemical Component Cross-Reference

**Uses:** Surfactant, emulsifier, solubilizer, emollient, lubricant, superfatting agent, softener, detergent in pharmaceuticals  
**Regulatory:** FDA 21CFR §175.105, 175.300, 177.2800  
**Manuf./Distrib.:** Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)  
**Trade Names:** CO-60TX

### PEG-180 castor oil  
**CAS:** 61791-12-6 (generic)  
**Synonyms:** POE (180) castor oil  
**Definition:** PEG deriv. of castor oil with avg. 180 moles of EO  
**Properties:** Nonionic  
**Uses:** Emulsifier, dispersant, solubilizer for pharmaceuticals  
**Regulatory:** FDA 21CFR §175.300  
**Manuf./Distrib.:** Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)  
**Trade Names:** Servirox® OEG 90; Servirox® OEG 90/50

### PEG-200 castor oil  
**CAS:** 61791-12-6 (generic)  
**Synonyms:** PEG (200) castor oil; POE (200) castor oil  
**Definition:** PEG deriv. of castor oil with avg. 200 moles of EO  
**Properties:** Nonionic  
**Uses:** Emulsifier, dispersant, solubilizer for pharmaceuticals  
**Regulatory:** FDA 21CFR §175.300  
**Manuf./Distrib.:** Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)  
**Trade Names:** See PEG-200 castor oil

### PEG (200) castor oil  
**See:** PEG-200 castor oil

### PEG 400 castor oil  
**See:** PEG-8 castor oil

### PEG 450 castor oil  
**See:** PEG-9 castor oil

### PEG 500 castor oil  
**See:** PEG-10 castor oil

### PEG 1000 castor oil  
**See:** PEG-20 castor oil

### PEG 1800 castor oil  
**See:** PEG-36 castor oil

### PEG 2000 castor oil  
**See:** PEG-40 castor oil

### PEG-25 Cetostearyl ether  
**See:** Ceteareth-25

### PEG-2 cetyl ether  
**See:** Ceteth-2

### PEG-5 cetyl ether  
**See:** Ceteth-5

### PEG-6 cetyl ether  
**See:** Ceteth-6

### PEG-7 cetyl ether  
**See:** Ceteth-7

### PEG-10 cetyl ether  
**See:** Ceteth-10

### PEG-12 cetyl ether  
**See:** Ceteth-12

### PEG-15 cetyl ether  
**See:** Ceteth-15

### PEG-16 cetyl ether  
**See:** Ceteth-16

### PEG-20 cetyl ether  
**See:** Ceteth-20

### PEG-23 cetyl ether  
**See:** Ceteth-23

### PEG-24 cetyl ether  
**See:** Ceteth-24

### PEG-25 cetyl ether  
**See:** Ceteth-25

### PEG-30 cetyl ether  
**See:** Ceteth-30

### PEG-40 cetyl ether  
**See:** Ceteth-40

### PEG 100 cetyl ether  
**See:** Ceteth-2

### PEG 300 cetyl ether  
**See:** Ceteth-6

### PEG 500 cetyl ether  
**See:** Ceteth-10

### PEG 600 cetyl ether  
**See:** Ceteth-12

### PEG 1000 cetyl ether  
**See:** Ceteth-20

### PEG-10 cetyl ether phosphate  
**See:** Ceteth-10 phosphate

### PEG-22 cetyl/oleyl ether  
**See:** Cetoleth-22

### PEG-2 cetyl/stearyl ether  
**See:** Ceteareth-2

### PEG-3 cetyl/stearyl ether  
**See:** Ceteareth-3

### PEG-4 cetyl/stearyl ether  
**See:** Ceteareth-4

### PEG-6 cetyl/stearyl ether  
**See:** Ceteareth-6

### PEG-7 cetyl/stearyl ether  
**See:** Ceteareth-7

### PEG-9 cetyl/stearyl ether  
**See:** Ceteareth-9

### PEG-10 cetyl/stearyl ether  
**See:** Ceteareth-10

### PEG-11 cetyl/stearyl ether  
**See:** Ceteareth-11

### PEG-12 cetyl/stearyl ether  
**See:** Ceteareth-12

### PEG-14 cetyl/stearyl ether  
**See:** Ceteareth-14

### PEG-15 cetyl/stearyl ether  
**See:** Ceteareth-15

### PEG-16 cetyl/stearyl ether  
**See:** Ceteareth-16

### PEG-18 cetyl/stearyl ether  
**See:** Ceteareth-18

### PEG-20 cetyl/stearyl ether  
**See:** Ceteareth-20

### PEG-25 cetyl/stearyl ether  
**See:** Ceteareth-25

### PEG-30 cetyl/stearyl ether  
**See:** Ceteareth-30

### PEG-33 cetyl/stearyl ether; PEG (33) cetyl/stearyl ether  
**See:** Ceteareth-33

### PEG 100 cetyl/stearyl ether  
**See:** Ceteareth-2

### PEG 500 cetyl/stearyl ether  
**See:** Ceteareth-10

### PEG 24 cholesteryl ether  
**See:** Choleth-24

### PEG-3 cocamide MEA  
**Properties:** Nonionic  
**Uses:** Foam builder/stabilizer for pharmaceutical shampoos; solubilizer

### PEG-5 cocamine  
**CAS:** 61791-14-8 (generic)  
**Synonyms:** POE (5) coconut amine  
**Definition:** PEG deriv. of cocamine  
**Formula:** R-N(CH2CH2O)xH(CH2CH2O)yH, R rep. alkyl groups from coconut oil, avg. (x+y) = 5  
**Properties:** Cationic/nonionic  
**Toxicology:** LD50 (oral, rat) 750 mg/kg; mod. toxic by ing.; eye irritant; TSCA listed  
**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes  
**Uses:** Emulsifier  
**Trade Names:** Protox™ C-5

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†=pharmaceutical grade
PEG-15 cocamine
CAS 68439-72-5; 8051-52-3 (generic); 61791-14-8 (generic)
Synonyms: Amines, C14-18 and C16-18 unsaturated, alkyl, ethoxylated; POE (15) coconut amine
Definition: PEG deriv. of cocamine
Formula: R–N(CH2CH2O)xH(CH2CH2O)yH, R rep. alkyl groups from coconut oil, avg. (x+y) = 15
Properties: Cationic/nonionic
Toxicology: TSCA listed
Uses: Emulsifier for topical pharmaceuticals
Features: Hydrophilic
Trade Names: Ethomeen® C/25
Trade Names Containing: Lubrasil® DS
PEG-8 cocoate
CAS 61791-29-5 (generic)
Synonyms: PEG 400 cocoate; PEG 400 monococoate; POE (8) monococoate
Definition: PEG ester of coconut acid
Formula: RCO–(OCH2CH2)nOH, RCO– rep. fatty acids from coconut oil, avg. n = 8
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier
Regulatory: FDA 21CFR §175.105, 175.300, 176.170, 176.200, 176.210, 177.1210, 177.2260, 177.2800
Trade Names: Glicopol 123
PEG 400 cocoate. See PEG-8 cocoate
PEG-20 corn glycerides. See PEG-8 cocoate
PEG 1000 corn glycerides. See PEG-20 corn glycerides
PEG 3000 corn glycerides. See PEG-60 corn glycerides
PEG dilaurate
CAS 9005-02-1 (generic)
Synonyms: Polyethylene glycol dilaurate
Definition: PEG diester of lauric acid
Formula: CH3(CH2)10CO(OCH2CH2)nOCO(CH2)10CH3, n = 4-150
Properties: Yel. liq. to wh. solid; HLB 5.9-18.5 (4-150 EO); nonionic
Uses: Emulsifier for pharmaceuticals
PEG 4 dilaurate
CAS 9005-02-1 (generic)
Synonyms: PEG (4) dilaurate; PEG 200 dilaurate; POE (4) dilaurate; Polyoxyl 4 dilaurate
Definition: PEG diester of lauric acid
Empirical: C32H62O7
Formula: CH3(CH2)10CO(OCH2CH2)nOCO(CH2)10CH3, avg. n = 4
Properties: Sol. in alcohol; sol. warm in veg. and min. oils; disp. in water; nonionic
Toxicology: TSCA listed
HMIS: Health 1, Flammability 1, Reactivity 0
Uses: Surfactant, emulsifier, dispersant, solubilizer, visc. control agent, defoamer, lubricant, wetting agent, cosolvent for pharmaceuticals, topicals
Regulatory: FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 176.210; FDA approved for topicals
Manuf./Distrib.: A&E Connock http://www.connock.co.uk; Mosselman NV http://www.mosselman.be; Ruger http://www.rugerchemical.com
Trade Names: Mapeg® 200 DL; STEPAN® PEG 200 DL
PEG-60 corn glycerides
Synonyms: PEG 3000 corn glycerides; POE (60) corn glycerides
Definition: PEG deriv. of corn glycerides, avg. 60 moles EO
Properties: Nonionic
Uses: Emulsifier, wetting agent, solubilizer, dispersant, emollient for pharmaceuticals

†=pharmaceutical grade
Regulatory: FDA 21CFR §175.300, 176.210
Trade Names: Crovol M-70
PEG 1000 corn glycerides. See PEG-20 corn glycerides
PEG 3000 corn glycerides. See PEG-60 corn glycerides
PEG dilaurate
CAS 9005-02-1 (generic)
Synonyms: Polyethylene glycol dilaurate
Definition: PEG diester of lauric acid
Formula: CH3(CH2)10CO(OCH2CH2)nOCO(CH2)10CH3, n = 4-150
Properties: Yel. liq. to wh. solid; HLB 5.9-18.5 (4-150 EO); nonionic
Uses: Emulsifier for pharmaceuticals
PEG 4 dilaurate. See PEG-4 dilaurate
PEG-6 dilaurate
CAS 9005-02-1 (generic)
Synonyms: PEG 300 dilaurate; POE (6) dilaurate
Definition: PEG diester of lauric acid
Formula: CH3(CH2)10CO(OCH2CH2)nOCO(CH2)10CH3, avg. n = 6
PEG-8 dilaurate
CAS 9005-02-1 (generic)
Synonyms: PEG 400 dilaurate; POE (8) dilaurate
Definition: PEG diester of lauric acid
Empirical: C₄₀H₇₈O₁₁
Formula:
\[ \text{CH}_3(\text{CH}_2)_{10}\text{CO(OCH}_2\text{CH}_2)_n\text{OCO(CH}_2)_{10}\text{CH}_3, \]
avg. \( n = 8 \)
Properties: Sol. in alcohol; sol. warm in veg. and min. oils; disp. in water; sp.gr. 1.030; m.p. 15 C; HLB 10.4; flash pt. (COC) 249 C; ref. index 1.459; nonionic
Toxicology: TSCA listed
Uses: Emulsifier, solubilizer, cosolvent, dispersant, wetting agent, lubricant, thickener, emollient, plasticizer, softener, release agent, coupling agent in pharmaceuticals
Regulatory: FDA 21CFR §175.105, 175.300, 176.210, 177.2260, 177.2800
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk; Ruger
http://www.rugerchemical.com
Trade Names: Glicopol 225; Lumulse® 42-L; Mapeg® 400 DL; Saboderm PDC; STEPAN® PEG 400 DL

PEG-12 dilaurate
CAS 9005-02-1 (generic)
Synonyms: PEG 600 dilaurate; POE (12) dilaurate
Definition: PEG diester of lauric acid
Empirical: C₄₈H₉₄O₁₅
Formula:
\[ \text{CH}_3(\text{CH}_2)_{10}\text{CO(OCH}_2\text{CH}_2)_n\text{OCO(CH}_2)_{10}\text{CH}_3, \]
avg. \( n = 12 \)
Properties: Nonionic
Toxicology: TSCA listed
Uses: Surfactant, emulsifier, solubilizer, thickener, emollient, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals
Regulatory: FDA 21CFR §175.105, 175.300, 176.210, 177.2260, 177.2800
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk; Ruger
http://www.rugerchemical.com
Trade Names: Glicopol 225; Lumulse® 42-L; Mapeg® 400 DL; Saboderm PDC; STEPAN® PEG 400 DL
### PEG-150 dilaurate

**CAS**: 9005-02-1 (generic)

**Synonyms**: PEG 6000 dilaurate; POE (150) dilaurate

**Definition**: PEG diester of lauric acid

**Formula**: \( \text{CH}_3(\text{CH}_2)_{10}\text{CO(OCH}_2\text{CH}_2)_n\text{OCO(CH}_2\text{)10CH}_3, \text{avg. } n = 150 \)

**Properties**: Nonionic

**Toxicology**: TSCA listed

**Uses**: Surfactant, emulsifier, solubilizer, thickener, emollient, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals

**Regulatory**: FDA 21CFR §175.300

**Manuf./Distrib.**: A&E Connock [http://www.connock.co.uk]; Ruger [http://www.rugerchemical.com]

PEG-200 dilaurate

CAS: 9005-07-6 (generic); 52688-97-0 (generic); 134141-38-1

**Synonyms**: 9-Octadecenoic acid, oxybis (2,1-ethanediyoxy-2,1-ethanediyl) ester; PEG 200 dioleate; POE (4) dioleate

**Definition**: PEG diester of oleic acid

**Empirical**: \( \text{C}_{44}\text{H}_{82}\text{O}_7 \)

**Properties**: Nonionic

**Toxicology**: LD50 (oral, rat) 1900 mg/kg; TSCA listed

**Uses**: Surfactant, emulsifier, coemulsifier, thickener, solubilizer, cosolvent, emollient, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals

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**Chemical Component Cross-Reference**

**Definition**: PEG diester of lauric acid

**Formula**: \( \text{CH}_3(\text{CH}_2)_{10}\text{CO(OCH}_2\text{CH}_2)_n\text{OCO(CH}_2\text{)10CH}_3, \text{avg. } n = 75 \)

**Properties**: Nonionic

**Toxicology**: TSCA listed

**Uses**: Surfactant, emulsifier, solubilizer, thickener, emollient, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals

**Regulatory**: FDA 21CFR §175.300

**Manuf./Distrib.**: A&E Connock [http://www.connock.co.uk]; Ruger [http://www.rugerchemical.com]

PEG-150 dilaurate

**CAS**: 9005-02-1 (generic)

**Synonyms**: PEG 6000 dilaurate; POE (150) dilaurate

**Definition**: PEG diester of lauric acid

**Formula**: \( \text{CH}_3(\text{CH}_2)_{10}\text{CO(OCH}_2\text{CH}_2)_n\text{OCO(CH}_2\text{)10CH}_3, \text{avg. } n = 75 \)

**Properties**: Nonionic

**Toxicology**: TSCA listed

**Uses**: Surfactant, emulsifier, solubilizer, thickener, emollient, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals

**Regulatory**: FDA 21CFR §175.300

**Manuf./Distrib.**: A&E Connock [http://www.connock.co.uk]; Ruger [http://www.rugerchemical.com]

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**PEG 6000 dilaurate**

**CAS**: 9005-02-1 (generic)

**Synonyms**: PEG 6000 dilaurate; POE (150) dilaurate

**Definition**: PEG diester of lauric acid

**Formula**: \( \text{CH}_3(\text{CH}_2)_{10}\text{CO(OCH}_2\text{CH}_2)_n\text{OCO(CH}_2\text{)10CH}_3, \text{avg. } n = 75 \)

**Properties**: Nonionic

**Toxicology**: TSCA listed

**Uses**: Surfactant, emulsifier, solubilizer, thickener, emollient, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals

**Regulatory**: FDA 21CFR §175.300

**Manuf./Distrib.**: A&E Connock [http://www.connock.co.uk]; Ruger [http://www.rugerchemical.com]

PEG-200 dilaurate

**CAS**: 9005-07-6 (generic); 134141-38-1

**Synonyms**: 9-Octadecenoic acid, oxybis (2,1-ethanediyoxy-2,1-ethanediyl) ester; PEG 200 dioleate; POE (4) dioleate

**Definition**: PEG diester of oleic acid

**Empirical**: \( \text{C}_{44}\text{H}_{82}\text{O}_7 \)

**Properties**: Nonionic

**Toxicology**: LD50 (oral, rat) 1900 mg/kg; TSCA listed

**Uses**: Surfactant, emulsifier, coemulsifier, thickener, solubilizer, cosolvent, emollient, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals
PEG-6 dioleate

CAS 9005-07-6 (generic); 52688-97-0 (generic)
Synonyms: PEG 300 dioleate; POE (6) dioleate
Definition: PEG diester of oleic acid
Empirical: C_{48}H_{90}O_{9}
Properties: Nonionic
Toxicology: LD₅₀ (oral, rat) 1900 mg/kg; TSCA listed
Uses: Surfactant, emulsifier, solubilizer, thickener, emollient, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals
Regulatory: FDA 21 CFR §175.105, 175.300, 176.210
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk; Ruger
http://www.rugerchemical.com
Trade Names: Mapeg® 200 DO; STEPAN® PEG 200 DO

PEG-8 dioleate

CAS 9005-07-6 (generic); 52688-97-0 (generic)
Synonyms: PEG 400 dioleate; POE (8) dioleate
Definition: PEG diester of oleic acid
Empirical: C_{52}H_{98}O_{11}
Properties: Sol. in veg. and min. oils; partly sol. in alcohol; disp. in water; nonionic
Toxicology: LD₅₀ (oral, rat) 1900 mg/kg; TSCA listed
Uses: Emulsifier, solubilizer, cosolvent, lubricant, dispersant, defoamer, wetting agent for pharmaceuticals
Regulatory: FDA 21 CFR §175.105, 175.300, 176.210, 177.2260, 177.2800
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk; Mosselman NV
http://www.mosselman.be
http://www.rugerchemical.com
Trade Names: Mapeg® 400 DO; STEPAN® PEG 400 DO; Tilol 265-O

PEG-12 dioleate

CAS 9005-07-6 (generic); 52688-97-0 (generic); 85736-49-8; EINECS/ELINCS 288-459-5
Synonyms: PEG 600 dioleate; POE (12) dioleate
Definition: PEG diester of oleic acid
Properties: Sol. in alcohol, veg. and min. oils; disp. in water; m.p. 15-20 C; nonionic
Toxicology: LD₅₀ (oral, rat) 1900 mg/kg; TSCA listed
HMIS: Health 0, Flammability 1, Reactivity 0
Uses: Emulsifier, wetting agent, plasticizer, thickener, solubilizer, emollient, spreading agent, dispersant in pharmaceuticals
Regulatory: FDA 21 CFR §173.340, 175.105, 175.300, 176.210, 177.2260, 177.2800
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk; Mosselman NV
http://www.mosselman.be; Ruger
http://www.rugerchemical.com
Trade Names: Mapeg® 600 DO; STEPAN® PEG 600 DO; Tilol 267-O

PEG-20 dioleate

CAS 9005-07-6 (generic); 52688-97-0 (generic)
Synonyms: PEG 1000 dioleate; POE (20) dioleate
Definition: PEG diester of oleic acid
Properties: Nonionic
Toxicology: LD₅₀ (oral, rat) 1900 mg/kg; TSCA listed
Uses: Surfactant, emulsifier, solubilizer, cosolvent, thickener, emollient, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals
Regulatory: FDA 21 CFR §175.300, 176.210, 177.2260, 177.2800
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk; Ruger
http://www.rugerchemical.com

PEG-32 dioleate

CAS 9005-07-6 (generic); 52688-97-0 (generic)
Synonyms: PEG 1540 dioleate; POE (32) dioleate
Definition: PEG diester of oleic acid
Properties: Nonionic
Toxicology: LD₅₀ (oral, rat) 1900 mg/kg; TSCA listed
Uses: Surfactant, emulsifier, solubilizer, cosolvent, thickener, emollient, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals
Regulatory: FDA 21 CFR §175.300, 176.210, 177.2260, 177.2800
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk; Ruger
http://www.rugerchemical.com

PEG-75 dioleate

CAS 9005-07-6 (generic); 52688-97-0 (generic)
Synonyms: PEG 4000 dioleate; POE (75) dioleate
Definition: PEG diester of oleic acid
Properties: Sol. in alcohol, veg. and min. oils; disp. in water; m.p. 15-20 C; nonionic
Toxicology: LD₅₀ (oral, rat) 1900 mg/kg; TSCA listed
Uses: Surfactant, emulsifier, solubilizer, thickener, emollient, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals
Regulatory: FDA 21 CFR §175.300, 176.210, 177.2260, 177.2800
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk; Ruger
http://www.rugerchemical.com

PEG-75 dioleate

CAS 9005-07-6 (generic); 52688-97-0 (generic)
Synonyms: PEG 4000 dioleate; POE (75) dioleate
PEG diester of oleic acid

**Definition:**
PEG diester of oleic acid

**Properties:**
- Nonionic

**Toxicology:**
- LD50 (oral, rat) 1900 mg/kg; TSCA listed

**Uses:**
- Surfactant, emulsifier, solubilizer, thickener, emollient, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals

**Regulatory:**
- FDA 21CFR §175.300

**Manuf./Distrib.:**
- A&E Connock
  - http://www.connock.co.uk
- Ruger
  - http://www.rugerchemical.com

**PEG-150 dioleate**

**CAS:**
- 9005-07-6 (generic); 52688-97-0 (generic)

**Synonyms:**
- PEG 6000 dioleate; POE (150) dioleate

**Definition:**
PEG diester of oleic acid

**Properties:**
- Nonionic

**Regulatory:**
- FDA 21CFR §175.300

**Manuf./Distrib.:**
- A&E Connock
  - http://www.connock.co.uk
- Ruger
  - http://www.rugerchemical.com

**PEG 200 dioleate**

**See:**
- PEG-4 dioleate

**PEG 300 dioleate**

**See:**
- PEG-6 dioleate

**PEG-400 dioleate**

**CAS:**
- 9005-08-7

**Classification:**
- Fatty acid PEG esters

**Uses:**
- O/w emulsifier, thickener, antifoam, dispersant, base for pharmaceuticals

**Trade Names:**
- M Dioleato de PEG 400

**PEG 400 dioleate**

**See:**
- PEG-8 dioleate

**PEG 600 dioleate**

**See:**
- PEG-12 dioleate

**PEG 1000 dioleate**

**See:**
- PEG-20 dioleate

**PEG 1540 dioleate**

**See:**
- PEG-32 dioleate

**PEG 4000 dioleate**

**See:**
- PEG-75 dioleate

**PEG 6000 dioleate**

**See:**
- PEG-150 dioleate

**PEG distearate**

**CAS:**
- 9005-08-7 (generic)

**Synonyms:**
- Heptadecanoic acid, compd. with ethane-1,2-diol; Polyethylene glycol distearate; Polyglycol distearate

**Definition:**
PEG diester of stearic acid

**Empirical:**
(C_{2}H_{4}O)_{n}C_{36}H_{70}O_{3}

**Formula:**
CH_{3}(CH_{2})_{16}CO(OCH_{2}CH_{2})_{n}OCO(CH_{2})_{16}CH_{3}, n = 9-14

**Physical:**
- Solid; HLB 7.7-10.1 (9-14 EO); nonionic

**Toxicology:**
- LD50 (IV, mouse) 365 mg/kg

**Hazardous Decomp. Prods.:**
- Heated to decomp., emits acrid smoke and irritating fumes

**Uses:**
- Emulsifier, thickener, opacifier in pharmaceuticals

**Trade Names:**
- Emanon 3299; Emanon 3299R; Nissan Nonion DS-60HN

**PEG-2 distearate**

**CAS:**
- 109-30-8; 9005-08-7 (generic); 9005-08-7 (generic)

**EINECS/ELINCS:**
- 203-663-6

**Synonyms:**
- Diethylene glycol distearate; PEG 100 distearate; POE (2) distearate

**Definition:**
PEG diester of stearic acid

**Empirical:**
C_{40}H_{78}O_{5}

**Formula:**
CH_{3}(CH_{2})_{16}CO(OCH_{2}CH_{2})_{n}OCO(CH_{2})_{16}CH_{3}, avg. n = 2

**Properties:**
- Sp.gr. 0.96; m.p. 48 C; nonionic

**Toxicology:**
- TSCA listed

**HMIS:**
- Health 0, Flammability 1, Reactivity 0

**Uses:**
- Emulsifier, emollient, detergent, emulsifier, opacifier, and bodying agent for pharmaceuticals, lotions

**Regulatory:**
- FDA 21CFR §175.105, 175.300, 176.210
- Canada DSL

**Manuf./Distrib.:**
- A&E Connock
  - http://www.connock.co.uk
- CasChem
- Ruger
  - http://www.rugerchemical.com

**PEG-4 distearate**

**CAS:**
- 142-20-1; 9005-08-7 (generic)

**Synonyms:**
- PEG 200 distearate; POE (4) distearate

**Definition:**
PEG diester of stearic acid

**Empirical:**
C_{44}H_{86}O_{7}

**Formula:**
CH_{3}(CH_{2})_{16}CO(OCH_{2}CH_{2})_{n}OCO(CH_{2})_{16}CH_{3}, avg. n = 4

**Properties:**
- M.p. 35-37 C; HLB 5.0; flash pt. > 110 C; nonionic

**Toxicology:**
- TSCA listed

**HMIS:**
- Health 0, Flammability 1, Reactivity 0

**Uses:**
- Emulsifier, emollient, detergent, emulsifier, opacifier, thickener, visc. builder, solubilizer, spreading agent, wetting agent, dispersant for pharmaceuticals

**Regulatory:**
- FDA 21CFR §175.105, 175.300, 176.210

**Manuf./Distrib.:**
- A&E Connock
  - http://www.connock.co.uk
- Ruger
  - http://www.rugerchemical.com
### PEG-6 distearate

**CAS**: 9005-08-7 (generic)

**Synonyms**: PEG 300 distearate; POE (6) distearate

**Definition**: PEG diester of stearic acid

**Empirical**: C_{48}H_{94}O_{9}

**Formula**: 
\[ \text{CH}_3\text{(CH}_2\text{)}_{16}\text{CO(OCH}_2\text{CH}_2\text{)}_n\text{OCO(CH}_2\text{)}_{16}\text{CH}_3, \text{ avg. } n = 6 \]

**Properties**: M.p. 35-37 C; flash pt. > 110 C; nonionic

**Toxicology**: TSCA listed

**Uses**: Surfactant, emulsifier, solubilizer, thickener, emollient, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals

**Regulatory**: FDA 21CFR §175.105, 175.300, 176.210

**Manuf./Distrib.**: A&E Connock

**Trade Names**: Lumulse® 42-S; Mapeg® 400 DS; Monestriol 204-C; STEPAN® PEG 400 DS

### PEG-8 distearate

**CAS**: 9005-08-7 (generic)

**Synonyms**: PEG 400 distearate; POE (8) distearate

**Definition**: PEG diester of stearic acid

**Empirical**: C_{52}H_{102}O_{11}

**Formula**: 
\[ \text{CH}_3\text{(CH}_2\text{)}_{16}\text{CO(OCH}_2\text{CH}_2\text{)}_n\text{OCO(CH}_2\text{)}_{16}\text{CH}_3, \text{ avg. } n = 8 \]

**Properties**: M.p. 35-37 C; flash pt. > 110 C; nonionic

**Toxicology**: TSCA listed

**HMIS**: Health 0, Flammability 1, Reactivity 0

**Uses**: Surfactant, emulsifier, solubilizer, thickener, emollient, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals

**Regulatory**: FDA 21CFR §175.105, 175.300, 176.210, 177.2260, 177.2800

**Manuf./Distrib.**: A&E Connock

**Trade Names**: Mapeg® 600 DS; STEPAN® PEG 600 DS

### PEG-12 distearate

**CAS**: 9005-08-7 (generic)

**Synonyms**: PEG 600 distearate; POE (12) distearate

**Definition**: PEG diester of stearic acid

**Formula**: 
\[ \text{CH}_3\text{(CH}_2\text{)}_{16}\text{CO(OCH}_2\text{CH}_2\text{)}_n\text{OCO(CH}_2\text{)}_{16}\text{CH}_3, \text{ avg. } n = 12 \]

**Properties**: M.p. 35-37 C; flash pt. > 110 C; nonionic

**Toxicology**: TSCA listed

**Uses**: Emollient, detergent, emulsifier, thickener, visc. builder, solubilizer, spreading agent, wetting agent, dispersant for pharmaceuticals

**Regulatory**: FDA 21CFR §175.105, 175.300, 176.210, 177.2260, 177.2800

**Manuf./Distrib.**: A&E Connock

### PEG-20 distearate

**CAS**: 9005-08-7 (generic)

**Synonyms**: PEG 1000 distearate; POE (20) distearate

**Definition**: PEG diester of stearic acid

**Formula**: 
\[ \text{CH}_3\text{(CH}_2\text{)}_{16}\text{CO(OCH}_2\text{CH}_2\text{)}_n\text{OCO(CH}_2\text{)}_{16}\text{CH}_3, \text{ avg. } n = 20 \]

**Properties**: M.p. 35-37 C; flash pt. > 110 C; nonionic

**Toxicology**: TSCA listed

**Uses**: Surfactant, emulsifier, solubilizer, thickener, emollient, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals

**Regulatory**: FDA 21CFR §175.300, 176.210, 177.2260, 177.2800

**Manuf./Distrib.**: A&E Connock

### PEG-32 distearate

**CAS**: 9005-08-7 (generic)

**Synonyms**: PEG 1540 distearate; POE (32) distearate
**Distearate**

**Definition:** PEG diester of stearic acid

**Formula:**
\[ CH_3(CH_2)_{16}CO(OCH_2CH_2)_nOCO(CH_2)_{16}CH_3, \text{ avg. } n = 32 \]

**Properties:** M.p. 35-37°C; flash pt. > 110°C; nonionic

**Toxicology:** TSCA listed

**Uses:** Surfactant, emulsifier, solubilizer, thickener, emollient, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals

**Regulatory:** FDA 21CFR §175.300, 176.210, 177.2800

**Manuf./Distrib.:** A&E Connock [http://www.connock.co.uk](http://www.connock.co.uk); Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Ruger [http://www.rugerchemical.com](http://www.rugerchemical.com); Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)

**PEG-75 distearate**

**CAS:** 9005-08-7 (generic)

**Synonyms:** PEG 4000 distearate; POE (75) distearate

**Definition:** PEG diester of stearic acid

**Formula:**
\[ CH_3(CH_2)_{16}CO(OCH_2CH_2)_nOCO(CH_2)_{16}CH_3, \text{ avg. } n = 75 \]

**Properties:** M.p. 35-37°C; HLB 17.3; flash pt. > 110°C; nonionic

**Toxicology:** TSCA listed

**Uses:** Surfactant, emulsifier, solubilizer, thickener, emollient, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals

**Regulatory:** FDA 21CFR §175.300, 176.210, 177.2800

**Manuf./Distrib.:** A&E Connock [http://www.connock.co.uk](http://www.connock.co.uk); Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Ruger [http://www.rugerchemical.com](http://www.rugerchemical.com); Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)

**PEG 100 distearate.** See PEG-2 distearate

**PEG-125 distearate**

**CAS:** 9005-08-7 (generic)

**Synonyms:** PEG 6000 distearate; POE (150) distearate; Polyoxyl 150 distearate

**Definition:** PEG diester of stearic acid

**Formula:**
\[ CH_3(CH_2)_{16}CO(OCH_2CH_2)_nOCO(CH_2)_{16}CH_3, \text{ avg. } n = 150 \]

**Properties:** M.p. 35-37°C; flash pt. > 110°C; nonionic

**Toxicology:** TSCA listed

**HMIS:** Health 0, Flammability 1, Reactivity 0

**Uses:** Surfactant, emulsifier, solubilizer, thickener, spreading agent, wetting agent, dispersant in pharmaceuticals, topicals; melting pt. control agent in suppositories

**Regulatory:** FDA 21CFR §175.300; FDA approved for topicals

**Manuf./Distrib.:** A&E Connock [http://www.connock.co.uk](http://www.connock.co.uk); Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Ruger [http://www.rugerchemical.com](http://www.rugerchemical.com); Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)

**Trade Names:** Mapeg® 6000 DS; Monestrol 216-C; Polypax PD 6000; Rewopal® PEG 6000 DS; STEPAN® PEG 6000 DS

**Trade Names Containing:** CustoBlend® BAC; CustoBlend® BAT

**PEG 200 distearate.** See PEG-4 distearate

**PEG 300 distearate.** See PEG-6 distearate

**PEG 400 distearate.** See PEG-8 distearate

**PEG 600 distearate.** See PEG-12 distearate

**PEG 1000 distearate.** See PEG-20 distearate

**PEG 1540 distearate.** See PEG-32 distearate

**PEG 4000 distearate.** See PEG-75 distearate

**PEG 6000 distearate.** See PEG-150 distearate

**PEG-8 ditallate**

**CAS:** 61791-01-3 (generic)

**Synonyms:** PEG 400 ditallate; POE (8) ditallate

**Definition:** PEG diester of tall oil acid

**Formula:** RCO–(OCH_2CH_2)_nOCOR, RCO– rep. tall oil fatty radicals, avg. n = 8

**Properties:** Nonionic

**Toxicology:** TSCA listed

**Uses:** Emulsifier, dispersant in pharmaceuticals

**Regulatory:** FDA 21CFR §175.105, 175.300, 176.210, 177.1210, 177.2800

**Manuf./Distrib.:** A&E Connock [http://www.connock.co.uk](http://www.connock.co.uk); Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Ruger [http://www.rugerchemical.com](http://www.rugerchemical.com); Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)

**Trade Names:** Mapeg® 400 DOT

**PEG-12 ditallate**

**CAS:** 61791-01-3 (generic)

**Synonyms:** PEG 600 ditallate; POE (12) ditallate

**Definition:** PEG diester of tall oil acid

**Formula:** RCO–(OCH_2CH_2)_nOCOR, RCO– rep. tall oil fatty radicals, avg. n = 12

**Properties:** Nonionic

**Toxicology:** TSCA listed

**Uses:** Emulsifier, dispersant in pharmaceuticals

**Regulatory:** FDA 21CFR §175.105, 175.300, 176.210, 177.1210, 177.2800

**Manuf./Distrib.:** A&E Connock [http://www.connock.co.uk](http://www.connock.co.uk)

**Trade Names:** Mapeg® 400 DOT
Chemical Component Cross-Reference

Trade Names: Mapeg® 600 DOT
PEG 400 ditallate. See PEG-8 ditallate
PEG 600 ditallate. See PEG-12 ditallate

PEG-7 glyceryl cocoate
CAS 66105-29-1; 68201-46-7 (generic)
Synonyms: PEG (7) glyceryl monoglycolate; POE (7) glyceryl monoglycolate
Definition: PEG ether of glyceryl cocoate
Formula: RCO–
OCH2COHHCH2(OCH2CH2)nOH, RCO– rep. fatty acids from coconut oil, avg. n = 7
Properties: Nonionic
Uses: Surfactant, emollient, superfatting agent, emulsifier, solubilizer, coupling agent for pharmaceuticals; dispersant for biologically act. ingreds.
Regulatory: FDA 21CFR §175.300
Trade Names: Cetiol® HE; Glycerox HE; Mazol® 159; Milopol G-7; Saboderm HE
Tegosoft® GC
Trade Names Containing: Saboderm SHO

PEG-30 glyceryl cocoate
CAS 68201-46-7 (generic)
Synonyms: POE (30) glyceryl monoglycolate
Definition: PEG ether of glyceryl cocoate
Formula: RCO–
OCH2COOHCH2(OCH2CH2)nOH, RCO– rep. fatty acids from coconut oil, avg. n = 30
Properties: Nonionic
Uses: Surfactant, detergent, emollient, emulsifier, solubilizer, thickener, superfatting agent for pharmaceuticals; dispersant for surfactants
Features: Low irritation
Regulatory: FDA 21CFR §175.300, 177.2800
Manuf./Distrib.: A&E Connock http://www.connock.co.uk; ABITEC† http://www.abiteccorp.com
Trade Names: Rewoderm® LI 63

PEG-80 glyceryl cocoate
CAS 68201-46-7 (generic)
Synonyms: PEG (80) glyceryl monoglycolate; POE (80) glyceryl monoglycolate
Definition: PEG ether of glyceryl cocoate
Formula: RCOOCH2CHOHCH2(OCH2CH2)nOH, R = coconut fatty radical, avg. n = 80
Properties: Nonionic
Uses: Surfactant, detergent, emulsifier, solubilizer, thickener, superfatting agent for pharmaceuticals

†=pharmaceutical grade

Features: Surfactant, detergent, emulsifier, solubilizer, thickener, superfatting agent for pharmaceuticals; dispersant for surfactants
Regulatory: FDA 21CFR §175.300
Trade Names: Rewoderm® LI 67-75
PEG-7 glyceryl ether. See Glycereth-7
PEG-26 glyceryl ether. See Glycereth-26
PEG-7 glyceryl ether benzoate. See Glycereth-7 benzoate
PEG-5 glyceryl ether lactate. See Glycereth-5 lactate
PEG-7 glyceryl ether triacetate. See Glycereth-7 triacetate
PEG-10 glyceryl isostearate
Properties: Nonionic
Uses: Emulsifier, solubilizer
Trade Names: Emalex GWIS-110EX
PEG-15 glyceryl isostearate
CAS 68958-58-7 (generic)
Synonyms: POE (15) glyceryl isostearate
Definition: PEG ether of glyceryl isostearate
Formula: C17H35COOCH2COOHCH2(OCH2CH2)nOH, avg. n = 15
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emollient
Trade Names: Emalex GWIS-115
PEG-20 glyceryl isostearate
CAS 68958-58-7; 69468-44-6 (generic)
Synonyms: PEG 1000 glyceryl isostearate; POE (20) glyceryl isostearate
Definition: PEG ether of glyceryl isostearate
Formula: C17H35COOCH2CHOHCH2(OCH2CH2)nOH, avg. n = 20
Properties: Nonionic
Toxicology: TSCA listed
Uses: Solubilizer for flavors, vitamin oils
Trade Names: Emalex GWIS-120EX
PEG-25 glyceryl isostearate
CAS 69468-44-6 (generic)
Synonyms: POE (25) glyceryl isostearate
Definition: PEG ether of glyceryl isostearate
Properties: Nonionic
Uses: Solubilizer
Trade Names: Emalex GWIS-125
PEG-30 glyceryl isostearate
CAS 68958-58-7; 69468-44-6 (generic)
Synonyms: POE (30) glyceryl isostearate
Definition: PEG ether of glyceryl isostearate
Formula: C17H35COOCH2CHOHCH2(OCH2CH2)nOH,
Chemical Component Cross-Reference

avg. n = 30
Properties: Nonionic
Toxicology: TSCA listed
Uses: Solubilizer for flavors, vitamin oils
Trade Names: Emalex GWIS-130EX

PEG-40 glyceryl isostearate
CAS 69468-44-6 (generic)
Synonyms: POE (40) glyceryl isostearate
Definition: PEG ether of glyceryl isostearate
Properties: Nonionic
Uses: Solubilizer, emulsifier
Trade Names: Emalex GWIS-140EX

PEG-50 glyceryl isostearate
CAS 69468-44-6 (generic)
Synonyms: POE (50) glyceryl isostearate
Definition: PEG ether of glyceryl isostearate
Properties: Nonionic
Uses: Emulsifier
Trade Names: Emalex GWIS-150EX

PEG-60 glyceryl isostearate
CAS 68958-58-7 (generic); 69468-44-6 (generic)
Synonyms: PEG 3000 glyceryl isostearate; POE (60) glyceryl isostearate
Definition: PEG ether of glyceryl isostearate
Properties: Nonionic
Uses: Solubilizer, emulsifier
Trade Names: Emalex GWIS-160EX

PEG 1000 glyceryl isostearate. See PEG-20 glyceryl isostearate
PEG 3000 glyceryl isostearate. See PEG-60 glyceryl isostearate

PEG-12 glyceryl laurate
CAS 59070-56-3 (generic); 51248-32-9 (generic)
Synonyms: PEG 600 glyceryl monolaurate; POE (12) glyceryl laurate; POE (12) glyceryl monolaurate
Definition: PEG ether of glyceryl laurate
Properties: Nonionic
Uses: Excipient, emulsifier for pharmaceuticals
Trade Names: Gelucire 44/14

PEG (32) glyceryl laurate. See PEG-32 glyceryl laurate
PEG (7) glyceryl monococoate. See PEG-7 glyceryl cocoate
PEG (80) glyceryl monococoate. See PEG-80 glyceryl cocoate
PEG 600 glyceryl monolaurate. See PEG-12 glyceryl laurate
PEG 1000 glyceryl monolaurate. See PEG-20 glyceryl laurate
PEG-20 glyceryl monooleate; PEG 1000 glyceryl monooleate. See PEG-20 glyceryl oleate
PEG 1000 glyceryl monostearate. See PEG-
PEG-7 glyceryl oleate
Uses: Emollient, carrier for pharmaceuticals

PEG-20 glyceryl oleate
CAS 68889-49-6 (generic); 51192-09-7 (generic)
Synonyms: PEG-20 glyceryl monooleate; PEG 1000 glyceryl monooleate; POE (20) glyceryl oleate
Definition: PEG ether of glyceryl oleate
Formula: \( \text{CH}_3[(\text{CH}_2)_7]_2\text{COOCH}_2\text{CHOHCH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH}, \text{avg. } n = 20 \)
Properties: Nonionic

Pionier® O2

PEG-32 glyceryl palmitostearate
Uses: Excipient, emulsifier for pharmaceuticals
Trade Names: Gelucire 50/13

PEG-5 glyceryl stearate
CAS 51158-08-8 (generic); 68153-76-4 (generic)
Synonyms: POE (5) glyceryl monostearate
Definition: PEG ether of glyceryl stearate
Empirical: \( \text{C}_31\text{H}_62\text{O}_9 \)
Formula: \( \text{CH}_3(\text{CH}_2)_{16}\text{COOCH}_2\text{COOHCH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH}, \text{avg. } n = 5 \)
Properties: Nonionic
Uses: Surfactant, emulsifier, dispersant, thickener for pharmaceuticals
Regulatory: FDA 21CFR §175.300
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk
Trade Names: Aldo® MS-20 KFG; Tagat® S2

PEG-30 glyceryl stearate
CAS 51158-08-8 (generic)
Synonyms: POE (30) glyceryl monostearate
Definition: PEG ether of glyceryl stearate
Formula: \( \text{CH}_3(\text{CH}_2)_{16}\text{COOCH}_2\text{COOHCH}_2(\text{OCH}_2\text{CH}_2)_n\text{O}, \text{avg. } n = 30 \)
Properties: Nonionic
Uses: Surfactant, solubilizer, emulsifier in pharmaceuticals, prep. of o/w emulsions/creams/lotions; solubilizer for flavors, perfumes, vitamin oils; dispersant
Regulatory: FDA 21CFR §175.300, 177.2800
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk
Trade Names: Tagat® S
Trade Names Containing: Pionier® OEW-2; Pionier® OW 350

PEG-32 glyceryl stearate
Uses: Excipient for hard gelatin capsules; bioavailability enhancer in pharmaceuticals

PEG-80 glyceryl tallowate
CAS 68153-76-4 (generic)
Synonyms: POE (80) glyceryl monotallowate
Definition: PEG ether of tallow glyceride
Formula: \( \text{RCO–}(\text{OCH}_2\text{CH}_2)_n\text{OH}, \text{avg. } n = 80 \)
Properties: Nonionic
Uses: Surfactant, emulsifier, solubilizer, thickener, emollient, superfatting agent, anti-irritant in pharmaceuticals
Regulatory: FDA 21CFR §175.300
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk
PEG-200 glyceryl tallowate
CAS 68153-76-4 (generic); 68553-11-7
Synonyms: POE (200) glyceryl monotallowate
Definition: PEG ether of tallow glyceride
Formula: RCO–OCH₂COHCH₂(OCH₂CH₂)nOH, RCO– rep. fatty acids from tallow, avg. n = 200
Properties: Nonionic
Uses: Surfactant, emulsifier, thickener for pharmaceuticals
Features: Mild
Regulatory: FDA 21CFR §175.300
Manuf./Distrib.: Somerset Cosmetic Co.
http://www.makingcosmetics.com/

PEG-4 glyceryl tristearate
Uses: Oil-phase ingred. for pharmaceuticals
Trade Names: Emalex GWS-304

PEG-5 glyceryl tristearate
Uses: Oil-phase ingred. for ointments
Trade Names: Emalex GWS-305

PEG-5 hydrogenated castor oil
CAS 61788-85-0 (generic)
Synonyms: POE (5) hydrogenated castor oil
Definition: PEG deriv. of hydrogenated castor oil with avg. 5 moles of EO
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, hydrotrope in pharmaceuticals
Trade Names: Emalex HC-5; HCO-5

PEG-7 hydrogenated castor oil
CAS 61788-85-0 (generic)
Synonyms: POE (7) hydrogenated castor oil
Definition: PEG deriv. of hydrogenated castor oil with avg. 7 moles of EO
Properties: Nonionic
Toxicology: TSCA listed
Uses: Surfactant, hydrotrope, emulsifier, softener in pharmaceuticals
Trade Names: Arlace® 989; Dehymuls® HRE 7; Emalex HC-7; Simulsol® 989
Trade Names Containing: Pionier® 1533; Pionier® L-15; Pionier® PIAH; Pionier® SVE Soft

PEG-10 hydrogenated castor oil
CAS 61788-85-0 (generic)
Synonyms: PEG 500 hydrogenated castor oil; POE (10) hydrogenated castor oil
Definition: PEG deriv. of hydrogenated castor oil with avg. 10 moles of EO
Properties: Nonionic
Toxicology: TSCA listed

PEG-15 hydrogenated castor oil
CAS 61788-85-0 (generic)
Synonyms: POE (15) hydrogenated castor oil
Definition: PEG deriv. of hydrogenated castor oil with avg. 15 moles of EO
Properties: Nonionic
Uses: Oil and wax emulsifier, solubilizer, thickener in pharmaceuticals

PEG-20 hydrogenated castor oil
CAS 61788-85-0 (generic)
Synonyms: POE (20) hydrogenated castor oil
Definition: PEG deriv. of hydrogenated castor oil with avg. 20 moles of EO
Properties: Nonionic
Toxicology: TSCA listed
Uses: Surfactant, emulsifier, plasticizer, hydrotrope, lubricant, wetting agent, dispersant, binder, thickener for pharmaceuticals
Regulatory: FDA 21CFR §177.2800
Trade Names: HCO-20

PEG-25 hydrogenated castor oil
CAS 61788-85-0 (generic)
Synonyms: POE (25) hydrogenated castor oil
Definition: PEG deriv. of hydrogenated castor oil with avg. 25 moles of EO
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, solubilizer in pharmaceuticals
Regulatory: FDA 21CFR §177.2800
Trade Names: Arlatone® G Pharma; Arlatone® G; Sabopal ELH 25; Simulsol® 1292

PEG-30 hydrogenated castor oil
CAS 61788-85-0 (generic)
Synonyms: POE (30) hydrogenated castor oil
Definition: PEG deriv. of hydrogenated castor oil with avg. 30 moles of EO
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, hydrotrope in pharmaceuticals
Regulatory: FDA 21CFR §177.2800
Trade Names: HCO-30

PEG-40 hydrogenated castor oil
CAS 61788-85-0 (generic)
Synonyms: POE (40) hydrogenated castor oil;
**Polyoxyl 40 hydrogenated castor oil**  
*Definition:* PEG deriv. of hydrogenated castor oil with avg. 40 moles of EO  
*Properties:* Wh. to ylsh. paste or pasty liq., faint odor, sl. taste; very sol. in water; sol. in alcohol, ethyl acetate; insol. in min. oils; congeal pt. 20-30 C; acid no. 2 max.; iodine no. 2 max.; sapon. no. 45-69; hyd. no. 60-80; nonionic  
*Toxicology:* LD50 (IV, mouse) 5 g/kg; TSCA listed  
*Uses:* Surfactant, solubilizer, emulsifier, wetting agent, emollient for pharmaceuticals  
*Regulatory:* FDA 21CFR §177.2800; USP/NF compliance  
*Manuf./Distrib.:* Libraw Pharma†  
[http://www.pharma-excipients.com](http://www.pharma-excipients.com)  
*Trade Names:* Agnique CSO-40H; Canasol R 4000 H; Cremophor® RH 40; Croduret 40LD; Emalex HC-40; HCO-40; HCO-40 Pharm.; Lipocol HCO-40; Sabopal ELH 40; Simulsol® 1293; Tagat® CH 40  
*Trade Names Containing:* Solubilisant γ 2428  

PEG (45) hydrogenated castor oil  
*CAS:* 61788-85-0  
*Synonyms:* PEG (45) hydrogenated castor oil; POE (45) hydrogenated castor oil  
*Definition:* PEG deriv. of hydrogenated castor oil with avg. 45 moles of EO  
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Solubilizer for pharmaceuticals, essential oils  
*Regulatory:* FDA 21CFR §177.2800  
*Manuf./Distrib.:* Somerset Cosmetic Co.  

PEG (45) hydrogenated castor oil. See PEG-45 hydrogenated castor oil  

PEG-50 hydrogenated castor oil  
*CAS:* 61788-85-0  
*Synonyms:* POE (50) hydrogenated castor oil  
*Definition:* PEG deriv. of hydrogenated castor oil with avg. 50 moles of EO  
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Surfactant, solubilizer, hydrotrope, thickener, emulsifier for pharmaceuticals  
*Regulatory:* FDA 21CFR §177.2800  
*Trade Names:* Croduret 50 Special; Emalex HC-50; HCO-50; HCO-50 Pharm.  

PEG (50) hydrogenated castor oil. See PEG-45 hydrogenated castor oil  

PEG-60 hydrogenated castor oil  
*CAS:* 61788-85-0  
*Synonyms:* POE (60) hydrogenated castor oil  
*Definition:* PEG deriv. of hydrogenated castor oil with avg. 60 moles of EO  
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Surfactant, solubilizer, emulsifier, emollient for pharmaceuticals  
*Regulatory:* FDA 21CFR §177.2800  
*Trade Names:* Agnique CSO-60H; Emalex HC-60; HCO-60; HCO-60 Pharm.; Lipocol HCO-60; Tagat® CH 60  

PEG-80 hydrogenated castor oil  
*CAS:* 61788-85-0  
*Synonyms:* POE (80) hydrogenated castor oil  
*Definition:* PEG deriv. of hydrogenated castor oil with avg. 80 moles of EO  
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Surfactant, hydrotrope, thickener, emulsifier in pharmaceuticals  
*Trade Names:* HCO-80  

PEG-100 hydrogenated castor oil  
*CAS:* 61788-85-0  
*Synonyms:* PEG (100) hydrogenated castor oil; POE (100) hydrogenated castor oil  
*Definition:* PEG deriv. of hydrogenated castor oil with avg. 100 moles of EO  
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Surfactant, solubilizer, hydrotrope, emulsifier, emollient for pharmaceuticals  
*Trade Names:* HCO-100  

PEG (100) hydrogenated castor oil. See PEG-100 hydrogenated castor oil  

PEG 500 hydrogenated castor oil. See PEG-10 hydrogenated castor oil  

PEG-200 hydrogenated glyceryl palmate  
*CAS:* 67784-88-7  
*Definition:* PEG deriv. of hydrog. palm glyceride with an avg. of 200 moles of EO  
*Uses:* Emollient  
*Manuf./Distrib.:* Somerset Cosmetic Co.  
*Trade Names Containing:* Saboderm SHO  

PEG-20 hydrogenated lanolin  
*CAS:* 68648-27-1  
*Synonyms:* PEG 1000 hydrogenated lanolin; POE (20) hydrogenated lanolin  
*Definition:* PEG deriv. of hydrogenated lanolin
Chemical Component Cross-Reference

PEG-24 hydrogenated lanolin
CAS 68648-27-1 (generic)
Synonyms: POE (24) hydrogenated lanolin
Definition: PEG deriv. of hydrogenated lanolin with avg. 24 moles of EO
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emollient, conditioner, emulsifier, dispersant, solubilizer, surfactant, emulsifier, sec. stabilizer for pharmaceuticals, topicals
Trade Names: Fancol™ HL-24; Lipolan 31; Supersat AWS-24

PEG 1000 hydrogenated lanolin. See PEG-20 hydrogenated lanolin

PEG-50 hydrogenated tallowamide
CAS 68155-24-8 (generic); 68783-22-2 (generic)
Classification: Ethoxylated amide
Properties: Nonionic
Uses: Thickener, detergent, emulsifier, dispersant, foaming agent for pharmaceuticals, topicals; surfactant, emulsifier, sec. stabilizer for emulsion systems
Regulatory: Canada DSL
Trade Names: Schercomid HT-60

PEG-15 hydroxystearate
Synonyms: POE (15) hydroxystearate
Definition: PEG ester of hydroxystearic acid
Formula: \(CH_3(CH_2)_5CHOH(CH_2)_10CO(OCH_2CH_2)_nOH\), avg. \(n = 15\)
Uses: Solvent, solubilizer for injection sol’ns.
Trade Names: Solutol® HS 15

PEG-20 isocetyl ether. See Isoceteth-20
PEG-30 isocetyl ether. See Isoceteth-30
PEG 1000 isocetyl ether. See Isoceteth-20

PEG-6 isostearate
CAS 56002-14-3 (generic)
Synonyms: PEG 300 monoisostearate; POE (6) monoisostearate
Definition: PEG ester of isostearic acid
Empirical: \(C_{30}H_{60}O_8\)
Formula: \(C_{17}H_{35}CO(OCH_2CH_2)_nOH\), avg. \(n = 6\)
Properties: Nonionic
Toxicology: TSCA listed
Uses: Solubilizer, superfatting agent, visc. builder, plasticizer, emollient, foam stabilizer, humectant in pharmaceuticals

PEG-27 lanolin
CAS 8051-81-8; 61790-81-6 (generic)
Synonyms: POE (27) lanolin
Definition: PEG deriv. of lanolin with avg. 27 moles of EO
Properties: Yel.-amber gel, faint, pleasant odor; disp. in water; nonionic
Toxicology: TSCA listed
Uses: Emulsifier, conditioner, emollient, lubricant, dispersant, wetting agent, solubilizer, foam stabilizer for pharmaceuticals
Trade Names: Lanogel® 21

PEG-30 lanolin
CAS 61790-81-6 (generic)
Synonyms: POE (30) lanolin
Definition: PEG deriv. of lanolin with avg. 30 moles of EO
Properties: Nonionic
Toxicology: TSCA listed
Uses: Solubilizer, emulsifier, emollient for pharmaceuticals
Manuf./Distrib.: Somerset Cosmetic Co.
http://www.makingcosmetics.com/
Trade Names Containing: Sebase

PEG-40 lanolin
CAS 8051-82-9; 61790-81-6 (generic)
Synonyms: PEG 2000 lanolin; POE (40) lanolin
Definition: PEG deriv. of lanolin with avg. 40 moles of EO
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, emollient, wetting agent, dispersant, solubilizer, foam stabilizer, superfatting agent for pharmaceuticals
Manuf./Distrib.: Somerset Cosmetic Co.
http://www.makingcosmetics.com/

PEG-60 lanolin
CAS 61790-81-6 (generic)
Synonyms: PEG 3000 lanolin; POE (60) lanolin
Definition: PEG deriv. of lanolin with avg. 60 moles of EO
Properties: Nonionic
Toxicology: TSCA listed
Uses: Solubilizer, superfatting agent, visc. builder, plasticizer, emollient, foam stabilizer, humectant in pharmaceuticals

†=pharmaceutical grade

Uses: Solvent, emulsifier, emulsion stabilizer, dispersant, solubilizer for topical pharmaceuticals
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk

PEG-27 lanolin
CAS 8051-81-8; 61790-81-6 (generic)
Synonyms: POE (27) lanolin
Definition: PEG deriv. of lanolin with avg. 27 moles of EO
Properties: Yel.-amber gel, faint, pleasant odor; disp. in water; nonionic
Toxicology: TSCA listed
Uses: Emulsifier, conditioner, emollient, lubricant, dispersant, wetting agent, solubilizer, foam stabilizer for pharmaceuticals
Trade Names: Lanogel® 21

PEG-30 lanolin
CAS 61790-81-6 (generic)
Synonyms: POE (30) lanolin
Definition: PEG deriv. of lanolin with avg. 30 moles of EO
Properties: Nonionic
Toxicology: TSCA listed
Uses: Solubilizer, emulsifier, emollient for pharmaceuticals
Manuf./Distrib.: Somerset Cosmetic Co.
http://www.makingcosmetics.com/
Trade Names Containing: Sebase

PEG-40 lanolin
CAS 8051-82-9; 61790-81-6 (generic)
Synonyms: PEG 2000 lanolin; POE (40) lanolin
Definition: PEG deriv. of lanolin with avg. 40 moles of EO
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, emollient, wetting agent, dispersant, solubilizer, foam stabilizer, superfatting agent for pharmaceuticals
Manuf./Distrib.: Somerset Cosmetic Co.
http://www.makingcosmetics.com/

PEG-60 lanolin
CAS 61790-81-6 (generic)
Synonyms: PEG 3000 lanolin; POE (60) lanolin
Definition: PEG deriv. of lanolin with avg. 60 moles of EO
Properties: Nonionic
Toxicology: TSCA listed
Uses: Solubilizer, superfatting agent, visc. builder, plasticizer, emollient, foam stabilizer, humectant in pharmaceuticals

†=pharmaceutical grade

Uses: Solvent, emulsifier, emulsion stabilizer, dispersant, solubilizer for topical pharmaceuticals
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk

PEG-27 lanolin
CAS 8051-81-8; 61790-81-6 (generic)
Synonyms: POE (27) lanolin
Definition: PEG deriv. of lanolin with avg. 27 moles of EO
Properties: Yel.-amber gel, faint, pleasant odor; disp. in water; nonionic
Toxicology: TSCA listed
Uses: Emulsifier, conditioner, emollient, lubricant, dispersant, wetting agent, solubilizer, foam stabilizer for pharmaceuticals
Trade Names: Lanogel® 21

PEG-30 lanolin
CAS 61790-81-6 (generic)
Synonyms: POE (30) lanolin
Definition: PEG deriv. of lanolin with avg. 30 moles of EO
Properties: Nonionic
Toxicology: TSCA listed
Uses: Solubilizer, emulsifier, emollient for pharmaceuticals
Manuf./Distrib.: Somerset Cosmetic Co.
http://www.makingcosmetics.com/
Trade Names Containing: Sebase

PEG-40 lanolin
CAS 8051-82-9; 61790-81-6 (generic)
Synonyms: PEG 2000 lanolin; POE (40) lanolin
Definition: PEG deriv. of lanolin with avg. 40 moles of EO
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, emollient, wetting agent, dispersant, solubilizer, foam stabilizer, superfatting agent for pharmaceuticals
Manuf./Distrib.: Somerset Cosmetic Co.
http://www.makingcosmetics.com/

PEG-60 lanolin
CAS 61790-81-6 (generic)
Synonyms: PEG 3000 lanolin; POE (60) lanolin
Definition: PEG deriv. of lanolin with avg. 60 moles of EO
Properties: Nonionic
Toxicology: TSCA listed
Uses: Solubilizer, superfatting agent, visc. builder, plasticizer, emollient, foam stabilizer, humectant in pharmaceuticals

†=pharmaceutical grade

Uses: Solvent, emulsifier, emulsion stabilizer, dispersant, solubilizer for topical pharmaceuticals
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk

PEG-27 lanolin
CAS 8051-81-8; 61790-81-6 (generic)
Synonyms: POE (27) lanolin
Definition: PEG deriv. of lanolin with avg. 27 moles of EO
Properties: Yel.-amber gel, faint, pleasant odor; disp. in water; nonionic
Toxicology: TSCA listed
Uses: Emulsifier, conditioner, emollient, lubricant, dispersant, wetting agent, solubilizer, foam stabilizer for pharmaceuticals
Trade Names: Lanogel® 21

PEG-30 lanolin
CAS 61790-81-6 (generic)
Synonyms: POE (30) lanolin
Definition: PEG deriv. of lanolin with avg. 30 moles of EO
Properties: Nonionic
Toxicology: TSCA listed
Uses: Solubilizer, emulsifier, emollient for pharmaceuticals
Manuf./Distrib.: Somerset Cosmetic Co.
http://www.makingcosmetics.com/
Trade Names Containing: Sebase

PEG-40 lanolin
CAS 8051-82-9; 61790-81-6 (generic)
Synonyms: PEG 2000 lanolin; POE (40) lanolin
Definition: PEG deriv. of lanolin with avg. 40 moles of EO
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, emollient, wetting agent, dispersant, solubilizer, foam stabilizer, superfatting agent for pharmaceuticals
Manuf./Distrib.: Somerset Cosmetic Co.
http://www.makingcosmetics.com/

PEG-60 lanolin
CAS 61790-81-6 (generic)
Synonyms: PEG 3000 lanolin; POE (60) lanolin
Definition: PEG deriv. of lanolin with avg. 60 moles of EO
Properties: Nonionic
Toxicology: TSCA listed
Uses: Solubilizer, superfatting agent, visc. builder, plasticizer, emollient, foam stabilizer, humectant in pharmaceuticals
## Chemical Component Cross-Reference

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<thead>
<tr>
<th>Trade Names</th>
<th>Solan; Solan 50</th>
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<td><strong>PEG-70 lanolin</strong></td>
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<td><strong>Uses</strong>:</td>
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<td><strong>Uses</strong>:</td>
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<td><strong>Regulatory</strong>:</td>
<td>FDA 21CFR §175.105, 175.300, 176.210, 178.3910</td>
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<td><strong>Manuf./Distrib.</strong>:</td>
<td>Somerset Cosmetic Co. <a href="http://www.makingcosmetics.com/">http://www.makingcosmetics.com/</a></td>
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<td><strong>PEG-150 lanolin</strong></td>
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<td>CAS</td>
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<td>Synonyms</td>
<td>PEG (6000) lanolin; POE (150)</td>
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<td><strong>Definition</strong>:</td>
<td>PEG deriv. of lanolin with avg. 150 moles of EO</td>
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<tr>
<td><strong>Uses</strong>:</td>
<td>Emulsifier, emollient, superfatting agent, vehicle in pharmaceuticals; solubilizer for aq./aq.-alcoholic systems, perfumes</td>
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<td><strong>Regulatory</strong>:</td>
<td>FDA approved for topicals</td>
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<tr>
<td><strong>Trade Names</strong>:</td>
<td>Glicopol 121; Lumulse® 20-L; Mapeg® 200 ML</td>
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</table>
PEG-5 laurate
CAS 9004-81-3 (generic)
Synonyms: POE (5) monolaurate
Definition: PEG ester of lauric acid
Formula: CH₃(CH₂)₁₀CO(OCH₂CH₂)₅OH, avg. n = 5
Properties: Nonionic
Toxicology: TSCA listed
Uses: Oil and wax emulsifier in pharmaceuticals

PEG-6 laurate
CAS 2370-64-1; 9004-81-3 (generic); EINECS/ELINCS 219-136-9
Synonyms: 17-Hydroxy-3,6,9,12,15-pentaoxaheptadec-1-yl dodecanoate; PEG 300 monolaurate; POE (6) monolaurate
Definition: PEG ester of lauric acid
Empirical: C₂₄H₄₈O₈
Formula: CH₃(CH₂)₁₀CO(OCH₂CH₂)₆OH, avg. n = 6
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, thickener, solubilizer, emollient, spreading agent, dispersant in pharmaceuticals
Features: Hydrophilic
Regulatory: FDA 21CFR §175.105, 175.300, 176.210, 178.3910

PEG-8 laurate
CAS 9004-81-3 (generic); 35179-86-3; 37318-14-2; EINECS/ELINCS 253-458-0
Synonyms: 23-Hydroxy-3,6,9,12,15,18,21-heptaoxatricos-1-yl dodecanoate; PEG 400 monolaurate; POE (8) lauric acid monoester; POE (8) monolaurate
Definition: PEG ester of lauric acid
Empirical: C₂₈H₅₆O₁₀
Formula: CH₃(CH₂)₁₀CO(OCH₂CH₂)₈OH, avg. n = 8
Properties: Insol. in water; HLB 16.5; nonionic
Toxicology: TSCA listed
Uses: Surfactant, emulsifier, thickener, solubilizer, emollient, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals; solubilizer for perfumes
Regulatory: FDA 21CFR §175.105, 175.300, 176.210, 177.1200, 177.2260, 177.2800, 178.3910
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk; Mosselman NV
http://www.mosselman.be; Ruger
http://www.rugercosmetics.com
Trade Names: Glicopol 127; STEPAN® PEG 600 ML

PEG-12 laurate
CAS 9004-81-3 (generic)
Synonyms: PEG 600 monolaurate; POE (12) monolaurate
Definition: PEG ester of lauric acid
Formula: CH₃(CH₂)₁₀CO(OCH₂CH₂)₁₂OH, avg. n = 12
Properties: Sol. in water, alcohol, veg. oils; partly sol. in min. oils; m.p. 20-25 C; nonionic
Toxicology: TSCA listed
HMIS: Health 0, Flammability 1, Reactivity 0
Uses: Emulsifier, lubricant, dispersant, leveling agent, solubilizer, wetting agent, emollient, thickener in pharmaceuticals
Regulatory: FDA 21CFR §175.105, 175.300, 176.170, 176.210, 177.1200, 177.2260, 177.2800, 178.3910
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk; Mosselman NV
http://www.mosselman.be; Ruger
http://www.rugercosmetics.com
Trade Names: Glicopol 127; STEPAN® PEG 600 ML

PEG-20 laurate
CAS 9004-81-3 (generic)
Synonyms: PEG 1000 monolaurate; POE (20) monolaurate
Definition: PEG ester of lauric acid
Formula: CH₃(CH₂)₁₀CO(OCH₂CH₂)₂₀OH, avg. n = 20
Properties: Insol. in water; HLB 16.5; nonionic
Toxicology: TSCA listed
Uses: Surfactant, emulsifier, thickener, solubilizer, emollient, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals; solubilizer for perfumes
Regulatory: FDA 21CFR §175.105, 175.300, 176.210, 177.2260, 177.2800, 178.3910
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk; Ruger
http://www.rugercosmetics.com
Trade Names: http://www.rugercosmetics.com

PEG-24 laurate
CAS 9004-81-3 (generic)
Synonyms: POE (24) monolaurate
Definition: PEG ester of lauric acid
Properties: Insol. in water; nonionic
Toxicology: TSCA listed
Uses: O/w emulsifier for pharmaceutical creams, lotions, ointments; wetting agent,
PEG-32 laurate
CAS 9004-81-3 (generic)
Synonyms: PEG 1540 monolaurate; POE (32) monolaurate
Definition: PEG ester of lauric acid
Formula: \( \text{CH}_3(\text{CH}_2)_{10}\text{CO} (\text{OCH}_2\text{CH}_2)_n\text{OH}, \text{avg. } n = 32 \)
Properties: Nonionic
Toxicology: TSCA listed
Uses: Surfactant, solubilizer, thickener, emollient, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals
Regulatory: FDA 21CFR §175.300, 176.210, 177.2260, 177.2800, 178.3910
Manuf./Distrib.: A&E Connock http://www.connock.co.uk; Ruger http://www.rugerchemical.com

PEG-40 laurate
CAS 9004-81-3 (generic)
Synonyms: POE (40) monolaurate
Definition: PEG ester of lauric acid
Formula: \( \text{CH}_3(\text{CH}_2)_{10}\text{CO} (\text{OCH}_2\text{CH}_2)_n\text{OH}, \text{avg. } n = 40 \)
Properties: Insol. in water; nonionic
Toxicology: TSCA listed
Uses: O/w emulsifier for pharmaceutical creams, lotions, and ointments; wetting agent, solubilizer for perfumes; dispersant

PEG-75 laurate
CAS 9004-81-3 (generic)
Synonyms: PEG 4000 monolaurate; POE (75) monolaurate
Definition: PEG ester of lauric acid
Formula: \( \text{CH}_3(\text{CH}_2)_{10}\text{CO} (\text{OCH}_2\text{CH}_2)_n\text{OH}, \text{avg. } n = 75 \)
Properties: Nonionic
Toxicology: TSCA listed
Uses: Surfactant, emulsifier, dispersant, thickener, solubilizer, emollient, opacifier, spreading agent, wetting agent in pharmaceuticals
Regulatory: FDA 21CFR §175.300, 178.3910
Manuf./Distrib.: A&E Connock http://www.connock.co.uk; Ruger http://www.rugerchemical.com

PEG-100 laurate
CAS 9004-81-3 (generic)
Synonyms: PEG (100) monolaurate; POE (100) monolaurate
Definition: PEG ester of lauric acid
Chemical Component Cross-Reference

PEG-8 lauryl ether stearate
Definition: Stearic acid ester of POE lauryl ether
Uses: Self-emulsifying ingred., emollient, spreading agent, dispersant, emulsion stabilizer, gloss aid, water repellent for medical ointments
Trade Names: Emalex LWS-5

PEG-10 lauryl ether stearate
Definition: Stearic acid ester of POE lauryl ether
Uses: Self-emulsifying ingred., emollient, spreading agent, dispersant, emulsion stabilizer, gloss aid, water repellent for medical ointments
Trade Names: Emalex LWS-8

PEG-15 lauryl ether stearate
Definition: Stearic acid ester of POE lauryl ether
Uses: Self-emulsifying ingred., emollient, spreading agent, dispersant, emulsion stabilizer, gloss aid, water repellent for medical ointments
Trade Names: Emalex LWS-10

PEG (1-4) lauryl ether sulfate, ammonium salt. See Ammonium laureth sulfate
PEG (1-4) lauryl ether sulfate, sodium salt. See Sodium laureth sulfate
PEG methyl ether. See Methoxy PEG

PEG-120 methyl glucose dioleate
CAS 86893-19-8
Synonyms: Macrogol 120 methyl glucose dioleate; POE (120) methyl glucose dioleate
Definition: PEG ether of the diester of methyl glucose and oleic acid with avg. 120 moles of ethylene oxide
Properties: Nonionic
Uses: Thickener, emulsifier, solubilizer for pharmaceuticals, topicals; anti-irritant for surfactants
Regulatory: Canada DSL
Trade Names: Glucamate® DOE-120

PEG-10 methyl glucose ether. See Methyl gluceth-10
PEG-20 methyl glucose ether. See Methyl gluceth-20

PEG-20 methyl glucose sesquistearate
CAS 68389-70-8
Synonyms: PEG 1000 methyl glucose sesquistearate; POE (20) methyl glucose sesquistearate
Definition: PEG ether of the mono and diesters of methyl glucose and stearic acid with avg. 200 moles EO
Properties: Nonionic
Uses: O/w emulsifier, solubilizer for pharmaceuticals, topicals
Regulatory: Canada DSL
Trade Names: Glucamate® SSE-20

PEG 1000 methyl glucose sesquistearate. See PEG-20 methyl glucose sesquistearate
PEG methyl ether. See Methoxy PEG

PEG 1000 monostearate. See PEG-100 laurate
PEG 200 monostearate. See PEG-4 laurate
PEG 300 monostearate. See PEG-6 laurate
PEG 400 monostearate. See PEG-8 laurate
PEG 600 monostearate. See PEG-12 laurate
PEG 1000 monostearate. See PEG-20 laurate
PEG 1540 monostearate. See PEG-32 laurate
PEG 4000 monostearate. See PEG-75 laurate
PEG 6000 monostearate. See PEG-150 laurate
PEG monooleate. See PEG oleate
PEG (7) monooleate. See PEG-7 oleate
PEG 100 monooleate. See PEG-2 oleate
PEG-200 monooleate. See PEG-200 oleate
PEG 200 monooleate. See PEG-4 oleate
PEG 300 monooleate. See PEG-6 oleate
PEG-400 monooleate. See PEG-400 oleate
PEG 400 monooleate. See PEG-8 oleate
PEG 500 monooleate. See PEG-10 oleate
PEG 600 monooleate. See PEG-12 oleate
PEG 1000 monooleate. See PEG-20 oleate
PEG 1540 monooleate. See PEG-32 oleate
PEG 4000 monooleate. See PEG-75 oleate
PEG 6000 monooleate. See PEG-150 oleate
PEG (600) monoricinoleate. See PEG-12 ricinoleate

PEG 100 monostearate. See PEG-2 stearate
PEG (100) monostearate. See PEG-100 stearate
PEG 200 monostearate. See PEG-4 stearate
PEG 300 monostearate. See PEG-6 stearate
PEG 400 monostearate. See PEG-8 stearate
PEG 450 monostearate. See PEG-9 stearate
PEG 500 monostearate. See PEG-10 stearate
PEG 600 monostearate. See PEG-12 stearate
PEG 1000 monostearate. See PEG-20 stearate
PEG 1540 monostearate. See PEG-32 stearate
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<th>Chemical Component Cross-Reference</th>
<th>†=pharmaceutical grade</th>
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<tr>
<td>PEG 2000 monostearate. See PEG-40 stearate</td>
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<td>PEG oleate</td>
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<td>CAS 9004-96-0 (generic)</td>
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<td><strong>Synonyms:</strong> Oleic acid poly (oxyethylene) ester; PEG monooleate; POE monooleate; POE oleate; Polyethylene glycol monooleate; Polyethylene glycol oleate; Polyethylene oxide monooleate; Poly (ethylene oxide) oleate; Polyglycol monooleate; Poly (oxyethylene) monooleate; Poly (oxyethylene) oleate; Poly (oxyethylene) oleic acid ester</td>
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<tr>
<td><strong>Definition:</strong> PEG ester of oleic acid</td>
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<td><strong>Formula:</strong> (C2H4O)n • C18H34O2</td>
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<td><strong>Properties:</strong> Pale yel. to wh. waxy solid; disp. in water at low EO, sol. at higher EO; sol. dec. with inc. temp.; HLB 7-19 (4-130 EO); nonionic; HLB 7.0-19.0</td>
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<td><strong>Toxicology:</strong> LD50 (IV, mouse) 500 mg/kg; mod. toxic by IV route; skin and eye irritant; TSCA listed</td>
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<td><strong>Hazardous Decomp. Prods.:</strong> Heated to decomp., emits acrid smoke and irritating</td>
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### Chemical Component Cross-Reference

**fumes**  
*Uses:* Emulsifier for pharmaceuticals  
*Trade Names:* Emanon 4110

#### PEG-2 olate

**CAS:** 106-12-7; 9004-96-0  
*Synonyms:* Diethylene glycol monooleate; Diglycol olate; 2-(2-Hydroxyethoxy) ethyl olate; 9-Octadecenoic acid, 2-(2-hydroxyethoxy) ethyl ester; PEG 100 monooleate; POE (2) monooleate  
*Definition:* PEG ester of oleic acid  
*Empirical:* C\(_{22}\)H\(_{42}\)O\(_4\)  
*Formula:* CH\(_3\)(CH\(_2\))\(_7\)CHCH(CH\(_2\))\(_7\)CO(OCH\(_2\)CH\(_2\))\(_n\)OH, avg. n = 2  
*Properties:* Amber liq.; m.w. 370.58; m.p. < 0°C; HLB 5.2; nonionic  
*Toxicology:* TSCA listed  
*Uses:* Emulsifier, dispersant  
*Regulatory:* FDA 21 CFR §175.105, 175.300, 176.210  
*Manuf./Distrib.:* A&E Connock  
http://www.connock.co.uk; A.P. Chems. Ltd  
http://www.chemial.com; ABITEC  
http://www.abiteccorp.com; Adept Sol'ns.†; Cognis/Chems. Group  
http://www.cognis-us.com  
Inolex  
http://www.inolex.com; Lipo  
http://www.lipochemicals.com; Lonza  
http://www.lonza.com; Penta Mfg.†  
http://www.pentamfg.com; Uniqema  
http://www.uniqema.com  
*Trade Names:* MYO-2

#### PEG-4 olate

**CAS:** 9004-96-0  
*Synonyms:* PEG (4) monooleate; POE (4) monooleate  
*Definition:* PEG ester of oleic acid  
*Empirical:* C\(_{26}\)H\(_{50}\)O\(_6\)  
*Formula:* CH\(_3\)(CH\(_2\))\(_7\)CHCH(CH\(_2\))\(_7\)CO(OCH\(_2\)CH\(_2\))\(_n\)OH, avg. n = 4  
*Properties:* Sol. in alcohol; partly sol. in veg. and min. oils; disp. in water; nonionic  
*Toxicology:* TSCA listed  
*Uses:* Surfactant, emulsifier in pharmaceuticals  
*Regulatory:* FDA 21 CFR §175.105, 175.300  
*Manuf./Distrib.:* A&E Connock  
http://www.connock.co.uk; Mosselman NV  
http://www.mosselman.be

#### PEG-6 olete

**CAS:** 9004-96-0  
*Synonyms:* PEG (6) monooleate; POE (6) monooleate  
*Definition:* PEG ester of oleic acid  
*Empirical:* C\(_{30}\)H\(_{58}\)O\(_8\)  
*Formula:* CH\(_3\)(CH\(_2\))\(_7\)CHCH(CH\(_2\))\(_7\)CO(OCH\(_2\)CH\(_2\))\(_n\)OH, avg. n = 6  
*Properties:* Sol. in alcohol, min. oils; disp. in water; m.p. 0°C; nonionic  
*Toxicology:* TSCA listed  
*Uses:* Surfactant, emulsifier, lubricant, antifoam, dispersant, thickener, solubilizer, emollient, spreading agent, wetting agent for pharmaceuticals  
*Regulatory:* FDA 21 CFR §175.105, 175.300  
*Manuf./Distrib.:* A&E Connock  
http://www.connock.co.uk; Mosselman NV  
http://www.mosselman.be

#### PEG-7 olete

**CAS:** 9004-96-0  
*Synonyms:* PEG (7) monooleate; POE (7) monooleate  
*Definition:* PEG ester of oleic acid  
*Empirical:* C\(_{32}\)H\(_{62}\)O\(_9\)  
*Formula:* CH\(_3\)(CH\(_2\))\(_7\)CHCH(CH\(_2\))\(_7\)CO(OCH\(_2\)CH\(_2\))\(_n\)OH, avg. n = 7  
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Surfactant, emulsifier in pharmaceuticals  
*Regulatory:* FDA 21 CFR §175.300  
*Manuf./Distrib.:* A&E Connock  
http://www.connock.co.uk

#### PEG-8 olete

**CAS:** 9004-96-0  
*Synonyms:* PEG (8) monooleate; POE (8) monooleate  
*Definition:* PEG ester of oleic acid  
*Empirical:* C\(_{34}\)H\(_{66}\)O\(_{10}\)  
*Formula:*
PEG-16 oleate
CAS 9004-96-0 (generic)
Synonyms: PEG (16) monooleate
Definition: PEG ester of oleic acid
Properties: Nonionic
Uses: Oil/wax emulsifier for pharmaceuticals; dispersant
Regulatory: FDA 21CFR §176.200
Manuf./Distrib.: Somerset Cosmetic Co.
http://www.makingcosmetics.com/

PEG-20 oleate
CAS 9004-96-0 (generic)
Synonyms: PEG 1000 monooleate; POE (20) monooleate
Definition: PEG ester of oleic acid
Formula: CH₃(CH₂)₇CHCH(CH₂)₇CO(OCH₂CH₂)ₙOH, avg. n = 20
Properties: HLB 15.4; nonionic
Toxicology: LD₅₀ (IV, mouse) 500 mg/kg; mod. toxic by IV route; skin and eye irritant; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Surfactant, emulsifier, thickener, solubilizer, solvent, emollient, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals
Regulatory: FDA 21CFR §176.200, 177.2260, 177.2800
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk; Mosselman NV
http://www.mosselman.be; Ruger
http://www.rugerchemical.com

PEG-32 oleate
CAS 9004-96-0 (generic)
Synonyms: PEG 1540 monooleate; POE (32) monooleate
Definition: PEG ester of oleic acid
Formula: CH₃(CH₂)₇CHCH(CH₂)₇CO(OCH₂CH₂)ₙOH, avg. n = 32
Properties: Dk. red oil; sol. in alcohol; disp. in water; misc. with cottonseed oil; nonionic
Toxicology: TSCA listed
Uses: Emulsifier, thickener, solubilizer, emollient, spreading agent, wetting agent,
## PEG-75 oleate

**CAS** 9004-96-0 (generic)

**Synonyms:** PEG 4000 monooleate; POE (75) monooleate

**Definition:** PEG ester of oleic acid

**Formula:**

\[
CH_3(CH_2)_7CHCH(CH_2)_7CO(OCH_2CH_2)_nOH, \quad \text{avg. } n = 75
\]

**Properties:** Dk. red oil; sol. in alcohol; disp. in water; misc. with cottonseed oil; nonionic

**Toxicology:** TSCA listed

**Uses:** Surfactant, detergent, emulsifier, solubilizer, thickener, emollient, opacifier, spreading agent, wetting agent, dispersant, softener, lubricant for pharmaceuticals

**Regulatory:** FDA 21 CFR §175.300, 176.200, 177.2260, 177.2800

**Manuf./Distrib.:** A&E Connock

[http://www.connock.co.uk](http://www.connock.co.uk); Ruger

[http://www.rugerchemical.com](http://www.rugerchemical.com)

## PEG-150 oleate

**CAS** 9004-96-0 (generic)

**Synonyms:** PEG 6000 monooleate; POE (150) monooleate

**Definition:** PEG ester of oleic acid

**Formula:**

\[
CH_3(CH_2)_7CHCH(CH_2)_7CO(OCH_2CH_2)_nOH, \quad \text{avg. } n = 150
\]

**Properties:** Nonionic

**Toxicology:** TSCA listed

**Uses:** Surfactant, detergent, emulsifier, solubilizer, thickener, emollient, opacifier, spreading agent, penetrant, wetting agent, dispersant, softener, lubricant for pharmaceuticals

**Regulatory:** FDA 21 CFR §175.300, 176.200

**Manuf./Distrib.:** A&E Connock

[http://www.connock.co.uk](http://www.connock.co.uk); Ruger

[http://www.rugerchemical.com](http://www.rugerchemical.com)

## PEG-200 oleate

**CAS** 9004-96-0 (generic)

**Synonyms:** PEG-200 monooleate; POE (200) monooleate

**Definition:** PEG ester of oleic acid

**Formula:**

\[
CH_3(CH_2)_7CHCH(CH_2)_7CO(OCH_2CH_2)_nOH, \quad \text{avg. } n = 200
\]

**Properties:** Nonionic

**Uses:** O/w emulsifier, thickener, antifoam, dispersant, base for pharmaceuticals

**Regulatory:** FDA 21 CFR §176.200

**Trade Names:** M Mono oleato di PEG 200

**Manuf./Distrib.:** Chempri; JLK Ind.

[http://www.solaecom](http://www.solaecom)

## PEG-200 oleate

**Synonyms:** PEG-200 monooleate; POE (200) monooleate

**Definition:** PEG ester of oleic acid

**Formula:**

\[
CH_3(CH_2)_7CHCH(CH_2)_7CO(OCH_2CH_2)_nOH, \quad \text{avg. } n = 200
\]

**Properties:** Nonionic

**Uses:** O/w emulsifier, thickener, antifoam, dispersant, base for pharmaceuticals

**Regulatory:** FDA 21 CFR §176.200

**Trade Names:** M Mono oleato di PEG 200

**Manuf./Distrib.:** Chempri; JLK Ind.

[http://www.solaecom](http://www.solaecom)

## PEG-300 oleate

**CAS** 9004-96-0 (generic)

**Synonyms:** PEG-300 monooleate

**Definition:** PEG ester of oleic acid

**Properties:** Nonionic

**Uses:** O/w emulsifier, thickener, antifoam, dispersant, o/w emulsifier, detergent, defoamer, visc. modifier for pharmaceuticals

**Regulatory:** FDA 21 CFR §176.200

**Manuf./Distrib.:** Chempri; JLK Ind.

[http://www.solaecom](http://www.solaecom)

## PEG-400 oleate

**CAS** 9004-96-0 (generic)

**Synonyms:** PEG-400 monooleate; POE (400) monooleate

**Definition:** PEG ester of oleic acid

**Formula:**

\[
CH_3(CH_2)_7CHCH(CH_2)_7CO(OCH_2CH_2)_nOH, \quad \text{avg. } n = 400
\]

**Properties:** Nonionic

**Uses:** O/w emulsifier, thickener, antifoam, dispersant, base for pharmaceuticals

**Regulatory:** FDA 21 CFR §176.200

**Trade Names:** M Mono oleato di PEG 400

**Manuf./Distrib.:** Chempri; JLK Ind.

[http://www.solaecom](http://www.solaecom)

## PEG-500 oleate

**Synonyms:** PEG-500 monooleate

**Definition:** PEG ester of oleic acid

**Properties:** Nonionic

**Uses:** O/w emulsifier, thickener, antifoam, dispersant, base for pharmaceuticals

**Regulatory:** FDA 21 CFR §176.200

**Trade Names:** M Mono oleato di PEG 500

**Manuf./Distrib.:** Chempri; JLK Ind.

[http://www.solaecom](http://www.solaecom)

## PEG-800 oleate

**Synonyms:** PEG-800 monooleate

**Definition:** PEG ester of oleic acid

**Properties:** Nonionic

**Uses:** O/w emulsifier, thickener, antifoam, dispersant, base for pharmaceuticals

**Regulatory:** FDA 21 CFR §176.200

**Trade Names:** M Mono oleato di PEG 800

**Manuf./Distrib.:** Chempri; JLK Ind.

[http://www.solaecom](http://www.solaecom)
Chemical Component Cross-Reference

†=pharmaceutical grade

phosphate

PEG-20 oleyl ether phosphate. See Oleth-20 phosphate
PEG 500 oleyl ether phosphate. See Oleth-10 phosphate
PEG 1000 oleyl ether phosphate. See Oleth-20 phosphate
PEG-3 oleyl ether phosphate, diethanolamine salt. See DEA-oleth-3 phosphate
PEG-10 oleyl ether phosphate, diethanolamine salt; PEG 500 oleyl ether phosphate, diethanolamine salt. See DEA-oleth-10 phosphate
PEG-25 PABA
CAS 15716-30-0; 113010-52-9; 116242-27-4
Synonyms: 4-Bis (polyethoxy)-p-aminobenzoic acid polyethoxyethyl ester; POE (25) PABA

Definition: PEG deriv. of PABA
Uses: UV-B absorber for sunscreen prods.; pharmaceuticals; stabilizer for light-sensitive prods.
Trade Names: Unipabol U-17

PEG-5 phytosterol
CAS 68441-03-2 (generic)

Definition: PEG ether of phytosterol with an avg. ethoxylation value of 5
Properties: Nonionic
Uses: Emulsifier, solubilizer, dispersant, emollient, foam stabilizer, visc. modifier, conditioner for pharmaceuticals
Trade Names: BPS-5

PEG-10 phytosterol
CAS 68441-03-2 (generic)

Definition: PEG ether of phytosterol with an avg. ethoxylation value of 10
Properties: Nonionic
Uses: Emulsifier, solubilizer, dispersant, emollient, foam stabilizer, visc. modifier, conditioner for pharmaceuticals
Trade Names: BPS-10

PEG-15 phytosterol
CAS 68441-03-2 (generic)

Definition: PEG ether of phytosterol with an avg. ethoxylation value of 15
Properties: Nonionic
Uses: Emulsifier, solubilizer, dispersant, emollient, foam stabilizer, visc. modifier, conditioner for pharmaceuticals
Trade Names: BPS-15

PEG-20 phytosterol
CAS 68441-03-2 (generic)

Definition: PEG ether of phytosterol with an avg. ethoxylation value of 20
Properties: Nonionic
Uses: Emulsifier, solubilizer, dispersant, emollient, foam stabilizer, visc. modifier, conditioner for pharmaceuticals
Trade Names: BPS-20

PEG-25 phytosterol
CAS 68441-03-2 (generic)

Definition: PEG ether of phytosterol with an avg. ethoxylation value of 25
Properties: Nonionic
Uses: Emulsifier, solubilizer, dispersant, emollient, foam stabilizer, visc. modifier, conditioner for pharmaceuticals
Trade Names: BPSH-25

PEG-30 phytosterol
CAS 68441-03-2 (generic)

Definition: PEG ether of phytosterol with an avg. ethoxylation value of 30
Properties: Nonionic
Uses: Emulsifier, solubilizer, dispersant, emollient, foam stabilizer, visc. modifier, conditioner for pharmaceuticals
Trade Names: BPS-30

PEG/PPG-18/18 dimethicone
Trade Names Containing: Dow Corning® 5225C Formulation Aid

PEG-10-PPG-10 glyceryl stearate
CAS 68783-63-1

Definition: Polyoxypropylene, polyoxyethylene ether of glyceryl stearate with avg. propoxylation value of 10 and avg. ethoxylation value of 10
Properties: Nonionic
Uses: Surfactant, emulsifier, dispersant, solubilizer, visc. control agent, wetting agent, and foaming agent for pharmaceutical dermatologials

PEG-10 propylene glycol
CAS 9003-11-6 (generic)

Synonyms: PEG 500 propylene glycol; POE (10) propylene glycol

Definition: PEG ether of propylene glycol
Formula: \( \text{CH}_2(\text{OCH}_2\text{CH}_2)_x\text{OHCH(OCH}_2\text{CH}_2)_y\text{OHCH}_3, \)

Uses: Emulsifier, dispersant, solubilizer, visc. control agent for pharmaceuticals

PEG 500 propylene glycol. See PEG-10 propylene glycol
### PEG-8 propylene glycol cocoate

**CAS**: 126645-98-5  
**Synonyms**: PEG 400 propylene glycol cocoate; POE (8) propylene glycol cocoate  
**Definition**: PEG ether of propylene glycol cocoate  
**Formula**: RCO–OCH2CHCH3(OCH2CH2)nOH, RCO– rep. coconut fatty radical, avg. n = 8  
**Uses**: Surfactant, emulsifier in pharmaceutical ointments  
**Manuf./Distrib.**: Somerset Cosmetic Co.  
**Trade Names Containing**: Emulsynt® 1055

### PEG 400 propylene glycol cocoate

**CAS**: 126645-98-5  
**Synonyms**: PEG 400 propylene glycol cocoate; POE (8) propylene glycol cocoate  
**Definition**: PEG ether of propylene glycol cocoate  
**Formula**: RCO–OCH2CHCH3(OCH2CH2)nOH, RCO– rep. coconut fatty radical, avg. n = 8  
**Uses**: Surfactant, emulsifier in pharmaceutical ointments  
**Manuf./Distrib.**: Somerset Cosmetic Co.  
**Trade Names Containing**: Emulsynt® 1055

### PEG-8 propylene glycol stearate

**CAS**: 126645-98-5  
**Synonyms**: POE (8) propylene glycol stearate  
**Definition**: PEG ether of propylene glycol stearate  
**Formula**: CH3(CH2)16COOCH2CCH3H(OCH2CH2)nOH, avg. n = 8  
**Properties**: Liq.; sol. in water; sp.gr. 1.04; vapor pressure < 1.0 mm Hg (20 C); b.p. > 100 C; HLB 16.0; flash pt. (COC) > 148 C; nonionic  
**Toxicology**: May be harmful by inh., ing., or skin absorption; may cause eye/skin irritation  
**Precaution**: Incompat. with strong oxidizing agents  
**Hazardous Decomp. Prods.**: Toxic fumes of CO, CO2; emits toxic fumes under fire conditions  
**Uses**: Surfactant, emulsifier, visc. control agent, emollient for pharmaceuticals  
**Regulatory**: Canada DSL  
**Manuf./Distrib.**: A&E Connock

### PEG-12 propylene glycol stearate

**Synonyms**: POE (12) propylene glycol monostearate  
**Definition**: PEG ether of propylene glycol stearate  
**Formula**: CH3(CH2)16COOCH2CCH3H(OCH2CH2)nOH, avg. n = 12

### PEG-8 ricinoleate

**CAS**: 9004-97-1 (generic); 42426-59-5 (generic)  
**Synonyms**: PEG 400 ricinoleate; POE (8) ricinoleate  
**Definition**: PEG ester of ricinoleic acid  
**Empirical**: C34H66O11  
**Formula**: CHCH2COHH(CH2)5CH3CH(CH2)7CO(OCH2CH2)nOH, avg. n = 8  
**Properties**: Sol. in alcohol; partly sol. in veg. and min. oils; insol. in water; m.p. 2 C; nonionic  
**Uses**: Surfactant, emulsifier, wetting agent, plasticizer for pharmaceuticals  
**Regulatory**: FDA 21CFR §173.340, 176.200  
**Trade Names**: Rinolax 184

### PEG-12 ricinoleate

**CAS**: 9004-97-1 (generic)  
**Synonyms**: PEG (600) monoricinoleate; POE (12) monoricinoleate  
**Definition**: PEG ester of ricinoleic acid  
**Formula**: CHCH2COHH(CH2)5CH3CH(CH2)7CO(OCH2CH2)nOH, avg. n = 12  
**Properties**: Nonionic  
**Uses**: Surfactant in pharmaceuticals  
**Regulatory**: FDA 21CFR §173.340, 176.200  
**Trade Names**: Rinolax 184

### PEG 400 ricinoleate

**Synonyms**: PEG 400 ricinoleate; POE (8) ricinoleate  
**Definition**: PEG ester of ricinoleic acid  
**Formula**: CHCH2COHH(CH2)5CH3CH(CH2)7CO(OCH2CH2)nOH, avg. n = 8  
**Properties**: Sol. in alcohol; partly sol. in veg. and min. oils; insol. in water; m.p. 2 C; nonionic  
**Uses**: Surfactant, emulsifier, wetting agent, plasticizer for pharmaceuticals  
**Regulatory**: FDA 21CFR §173.340, 176.200  
**Trade Names**: Rinolax 184

### PEG-6 sorbitan beeswax

**CAS**: 8051-15-8  
**Synonyms**: PEG 300 sorbitan beeswax; POE (6) sorbitol beeswax  
**Definition**: Ethoxylated sorbitol deriv. of beeswax with avg. 6 moles EO  
**Properties**: Nonionic  
**Uses**: Surfactant, emulsifier, emulsion stabilizer for pharmaceuticals
Chemical Component Cross-Reference

Trade Names: GBW-25
PEG-8 sorbitan beeswax
Synonyms: PEG 400 sorbitan beeswax; POE (8) sorbitol beeswax
Definition: Ethoxylated sorbitan deriv. of beeswax with avg. 8 moles EO
Properties: Nonionic
Uses: Surfactant, emulsifier for pharmaceuticals
Manuf./Distrib.: Somerset Cosmetic Co.
http://www.makingcosmetics.com/

PEG-20 sorbitan beeswax
CAS 8051-73-8
Synonyms: PEG 1000 sorbitan beeswax; POE (20) sorbitol beeswax
Definition: Ethoxylated sorbitol deriv. of beeswax with avg. 20 moles EO
Properties: Nonionic
Uses: Surfactant, emulsifier, emulsion stabilizer for pharmaceuticals
Trade Names: GBW-125

PEG 300 sorbitan beeswax. See PEG-6 sorbitan beeswax
PEG 400 sorbitan beeswax. See PEG-8 sorbitan beeswax
PEG 1000 sorbitan beeswax. See PEG-20 sorbitan beeswax
PEG-40 sorbitan diisostearate
Synonyms: POE (40) sorbitan diisostearate
Definition: Ethoxylated sorbitan diester of isostearic acid with avg. 40 moles EO
Properties: Nonionic
Uses: Solubilizer for flavors in mouthwashes, germicides
Manuf./Distrib.: Somerset Cosmetic Co.
http://www.makingcosmetics.com/
Trade Names Containing: Lubrasil® DS

PEG-50 sorbitan hexaoleate
CAS 9011-29-4; 57171-56-9 (generic)
Synonyms: PEG-50 sorbitol hexaoleate (INCI); POE (50) sorbitol hexaoleate
Definition: Oleic acid hexaester of ethoxylated sorbitol with an avg. 50 moles EO
Properties: HLB 11.4; nonionic
Uses: Surfactant for pharmaceuticals
Regulatory: FDA 21CFR §175.300
Trade Names: Hedipin-SHO/500

PEG-20 sorbitan isostearate
CAS 66794-58-9 (generic)
Synonyms: PEG 1000 sorbitan monoisostearate; POE (20) sorbitan monoisostearate; Polysorbate 120

†=pharmaceutical grade

Definition: Ethoxylated sorbitan monoester of isostearic acid with avg. 20 moles EO
Properties: Nonionic
Uses: Surfactant, emulsifier, solvent, wetting agent for pharmaceuticals, topicals, creams, lotions, ointments
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk
Trade Names: Crillet 6

PEG-40 sorbitan lanolate
CAS 8036-77-9
Synonyms: PEG 2000 sorbitan lanolate; POE (40) sorbitol lanolate
Definition: Ethoxylated sorbitan deriv. of lanolin acid with avg. 40 moles EO
Properties: Nonionic
Uses: Surfactant, emulsifier for pharmaceuticals
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk

PEG 2000 sorbitan lanolate. See PEG-40 sorbitan lanolate
PEG-4 sorbitan laurate. See Polysorbate 21

PEG-6 sorbitan laurate
CAS 9005-64-5 (generic)
Synonyms: POE (6) sorbitan monolaurate
Definition: Ethoxylated sorbitan ester of lauric acid with avg. 6 moles EO
Properties: Nonionic
Uses: Emulsifier
Trade Names: Rheodol TW-L106

PEG-20 sorbitan laurate. See Polysorbate 20

PEG-80 sorbitan laurate
CAS 9005-64-5 (generic)
Synonyms: PEG (80) sorbitan monolaurate; POE (80) sorbitan monolaurate
Definition: Ethoxylated sorbitan ester of lauric acid with avg. 80 moles EO
Properties: Nonionic
Toxicology: TSCA listed
Uses: Surfactant, emulsifier, solubilizer, wetting agent, dispersant, stabilizer, visc. control agent, cleanser, counterirritant, foaming agent for pharmaceuticals
Features: Mild
Regulatory: FDA 21CFR §175.300
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk; Aldrich
http://www.sigma-aldrich.com; Fluka
http://www.sigma-aldrich.com; Sigma
http://www.sigma-aldrich.com/belgium
Trade Names: Lumisorb™ PSML-80; T-Maz®
PEG 1000 sorbitan monoisostearate. See PEG-20 sorbitan isostearate
PEG (80) sorbitan monolaurate. See PEG-80 sorbitan laurate
PEG 300 sorbitan monoooleate. See PEG-6 sorbitan oleate
PEG 300 sorbitan monostearate. See PEG-6 sorbitan stearate
PEG-5 sorbitan oleate. See Polysorbate 81

PEG-6 sorbitan oleate
CAS 9005-65-6 (generic)
Synonyms: PEG 300 sorbitan monooleate; POE (6) sorbitan oleate
Definition: Ethoxylated sorbitan ester of oleic acid with avg. 6 moles EO
Empirical: C_{36}H_{68}O_{11}
Properties: Nonionic
Toxicology: Moderately toxic by intravenous route; mildly toxic by ingestion; TSCA listed
Uses: Emulsifier, solubilizer for pharmaceuticals
Regulatory: FDA 21CFR §175.300, 176.210
Manuf./Distrib.: A&E Connock http://www.connock.co.uk; Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: Emasol O-105R; Rheodol TW-O106; TO-106V

PEG-20 sorbitan oleate. See Polysorbate 80

PEG-40 sorbitan oleate
CAS 9005-65-6 (generic)
Synonyms: POE (40) sorbitan monooleate; POE (40) sorbitan oleate
Definition: Ethoxylated sorbitan ester of oleic acid with avg. 40 moles EO
Properties: Nonionic
Uses: Emulsifier, solubilizer for pharmaceuticals
Regulatory: Canada DSL
Trade Names: Emalex ET-8040

PEG-40 sorbitan peroleate
Synonyms: PEG 2000 sorbitan peroleate; POE (40) sorbitan peroleate; POE (40) sorbitol septaooleate
Definition: Mixture of oleic acid esters of sorbitol condensed with avg. 40 moles EO
Properties: Nonionic
Uses: W/o emulsifier, solvent, solubilizer, antistat, lubricant, spreading agent for pharmaceuticals
Regulatory: FDA 21CFR §175.300, 176.210
Manuf./Distrib.: A&E Connock http://www.connock.co.uk
Trade Names: GO-430V

PEG-40 sorbitan tetraoleate
CAS 63089-86-1 (generic)
Synonyms: POE (30) sorbitan tetraoleate; Sorbeth-30 Tetraoleate
Definition: Tetraester of oleic acid and a PEG ether of sorbitol, avg. 30 moles EO
Empirical: C_{17}H_{44}O_{8}
Properties: Nonionic
Uses: Emulsifier, solubilizer, wetting agent, antistat, stabilizer, dispersant, visc. modifier, suspending agent used in pharmaceuticals
Regulatory: FDA 21CFR §175.300
Manuf./Distrib.: A&E Connock http://www.connock.co.uk
Trade Names: GO-430V
ether of sorbitol, avg. 40 moles EO  
Formula: $(C_3H_6O \cdot C_2H_4O)_x$  
Properties: Nonionic  
Toxicology: Moderately toxic by ingestion and intraperitoneal route  
Uses: Emulsifier, solubilizer, superfatting agent for pharmaceuticals  
Regulatory: FDA 21CFR §175.300, 176.210  
Manuf./Distrib.: A&E Connock  
http://www.connock.co.uk; Aldrich  
http://www.sigma-aldrich.com; Fluka  
http://www.sigma-aldrich.com; Sigma  
http://www.sigma-aldrich.com/belgium  
Trade Names: GO-440V; Rheodol 440

PEG-60 sorbitan tetraoleate  
CAS 63089-86-1 (generic)  
Synonyms: POE (60) sorbitan tetraoleate; Sorbeth-60 Tetraoleate  
Definition: Tetraester of oleic acid and a PEG ether of sorbitol, avg. 60 moles EO  
Properties: Nonionic  
Uses: Emulsifier, solubilizer, superfatting agent for pharmaceuticals  
Regulatory: FDA 21CFR §175.300  
Manuf./Distrib.: A&E Connock  
http://www.connock.co.uk; Aldrich  
http://www.sigma-aldrich.com; Fluka  
http://www.sigma-aldrich.com; Sigma  
http://www.sigma-aldrich.com/belgium  
Trade Names: GO-460V; Rheodol 460

PEG 2000 sorbitan tetraoleate. See PEG-40 sorbitan tetraoleate

PEG-17 sorbitan trioleate  
CAS 9005-70-3 (generic)  
Definition: Triester of oleic acid and a PEG ether of sorbitol, avg. 17 moles EO  
Properties: Nonionic  
Toxicology: TSCA listed  
Uses: Emulsifier for pharmaceuticals  
Regulatory: Canada DSL  
Manuf./Distrib.: Aldrich  
http://www.sigma-aldrich.com; Fluka  
http://www.sigma-aldrich.com; Sigma  
http://www.sigma-aldrich.com/belgium

PEG-18 sorbitan trioleate  
CAS 9005-70-3 (generic)  
Definition: Triester of oleic acid and a PEG ether of sorbitol, avg. 18 moles EO  
Properties: M.w. 1838.60; dens. 1.028; flash pt. > 110 C; ref. index 1.4680 (20 C); nonionic  
Toxicology: TSCA listed  
Uses: Emulsifier for pharmaceuticals  
Manuf./Distrib.: Aldrich  
http://www.sigma-aldrich.com; Fluka  
http://www.sigma-aldrich.com; Sigma

PEG-20 sorbitan trioleate. See Polysorbate 85
PEG-20 sorbitan tristearate. See Polysorbate 65
PEG-20 sorbitan tritallate  
Definition: Triester of tall oil acid and a PEG ether of sorbitol, avg. 20 moles EO  
Uses: Emulsifier, solubilizer, wetting agent, viscosity modifier, stabilizer, dispersant in pharmaceuticals  
Regulatory: Canada DSL  
Manuf./Distrib.: Aldrich  
http://www.sigma-aldrich.com; Fluka  
http://www.sigma-aldrich.com; Sigma

PEG-20 sorbitol ether; PEG 1000 sorbitol ether. See Sorbeth-20

PEG-50 sorbitol hexaoleate (INCI). See PEG-50 sorbitan hexaoleate

PEG-75 soy glycerides  
CAS 61791-23-9  
Uses: Emulsifier, dispersant, solubilizer, viscosity control agent in pharmaceuticals  
Regulatory: Canada DSL  
Trade Names: Acconon® S-75

PEG stearate  
CAS 9004-99-3 (generic)  
Synonyms: Glycols, polyethylene, monostearate; α-1-(Oxooctadecyl)-ω-hydroxypropoly (oxy-1,2-ethanediyl); Polylethylene glycol monostearate; Polylethylene glycols monostearate; Polylethylene glycol stearate; Poly (oxy-1,2-ethanediyl), α-(1-oxooctadecyl)-ω-hydroxy-; Polyoxyethylene monostearate  
Definition: PEG ester of stearic acid  
Formula: $(C_2H_4O)_n \cdot C_{18}H_{36}O_2$  
Properties: Wh. or yel. paste to solid; insol. in water (@ < 8 EO); m.p. 31-33 C; HLB 7.5-18.0 (4-100 EO); nonionic  
Toxicology: LD50 (oral, rat) 53 ml/kg; very sl. toxic by ing.; may cause GI changes, liver changes, spleen changes; questionable carcinogen; experimental tumorigen, reproductive effects; TSCA listed  
Hazardous Decomp. Prods.: Heated to decom., emits acrid smoke and irritating fumes  
Uses: Emulsifier, dispersant in pharmaceuticals  
Trade Names: Emanon 3199

PEG-1 stearate. See Glycol stearate

PEG-2 stearate. See Glycol stearate

PEG-50 stearate  
CAS 106-11-6; 9004-99-3 (generic); 85116-97-8; EINECS/ELINCS 203-363-5; 285-550-1

†=pharmaceutical grade
**Chemical Component Cross-Reference**

**Synonyms:** Diethylene glycol, monooester with stearic acid; Diethylene glycol monostearate; Diethylene glycol stearate; Diglycol monooester; Diglycol stearate; Glyco stearin; 2-(2-Hydroxyethoxy) ethyl ester stearic acid; 2-(2-Hydroxyethoxy) ethyl stearate; PEG 100 monooester; Polyoxy 2 stearate; Stearic acid, 2-(2-Hydroxyethoxy) ethyl ester

**Definition:** PEG ester of stearic acid

**Empirical:** C_{22}H_{44}O_{4}

**Formula:** CH_{3}(CH_{2})_{16}CO(OCH_{2}CH_{2})_{n}OH, avg. n = 2

**Properties:** Wh. wax-like solid; faint fatty odor; sol. in hot alcohol, oils; m.w. 372.66; m.p. 45-55 C; HLB 4.3; nonionic

**Toxicology:** LD_{50} (IP, mouse) 200 mg/kg; poison by IV, IP routes; mildly toxic by ing.; TSCA listed

**Precaution:** Combustible

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and fumes

**Uses:** Emulsifier, plasticizer, lubricant, wetting agent, binder, thickener, dispersant, antistat, opacifier, pearlescent, stabilizer, solubilizer in pharmaceuticals, topical; protective coating for hygroscopic materials (tablets)

**Regulatory:** FDA 21CFR §175.300, 176.210, 176.210; FDA approved for topicals; Canada DSL


**Trade Names:** Hydrine®; Lipo DGS; Lumulose® POE (100) MS; MYS-2V

**Trade Names Containing:** Sedefos 75®

**PEG-4 stearate**

**CAS:** 106-07-0; 9004-99-3 (generic); EINECS/ELINCS 203-358-8

**†=pharmaceutical grade**

**Synonyms:** 2-[2-(2-Hydroxyethoxy) ethoxy][ethoxy] ethyl octadecanoate; PEG 200 monostearate; POE (4) stearate

**Definition:** PEG ester of stearic acid

**Empirical:** C_{26}H_{52}O_{6}

**Formula:** CH_{3}(CH_{2})_{16}CO(OCH_{2}CH_{2})_{n}OH, avg. n = 4

**Properties:** Sol. in alcohol; partly sol. in min. oils; disp. warm in water; m.p. 30-40 C; HLB 8.0; nonionic

**Toxicology:** Poison by IV, IP route; mildly toxic by ingestion; TSCA listed

**Uses:** Emulsifier, wetting agent, emollient, lubricant, dispersant, leveling agent, spreading agent, solubilizer, thickener, visc. control agent, softener in pharmaceuticals

**Regulatory:** FDA 21CFR §175.340, 175.105, 175.300

**Manuf./Distrib.:** A&E Connock [http://www.connock.co.uk](http://www.connock.co.uk); Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)

**Trade Names:** MYS-4

**PEG-5 stearate**

**CAS:** 9004-99-3 (generic)

**Synonyms:** POE (5) stearate

**Definition:** PEG ester of stearic acid

**Empirical:** C_{28}H_{50}O_{7}

**Formula:** CH_{3}(CH_{2})_{16}CO(OCH_{2}CH_{2})_{n}OH, avg. n = 5

**Properties:** Nonionic

**Toxicology:** Poison by intravenous, intraperitoneal route; mildly toxic by ingestion; TSCA listed

**Uses:** Emulsifier in pharmaceuticals

**Regulatory:** FDA 21CFR §173.340, 175.105, 175.300

**Manuf./Distrib.:** A&E Connock [http://www.connock.co.uk](http://www.connock.co.uk); Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)

**Trade Names:** Sabopal SE 6

**PEG-6 stearate**

**CAS:** 9004-99-3 (generic); 10108-28-8

**Synonyms:** 17-Hydroxy-3,6,9,12,15-pentaoxaheptadec-1-yl octadecanoate; PEG 300 monostearate; POE (6) stearate

**Definition:** PEG ester of stearic acid

**Empirical:** C_{30}H_{60}O_{8}

**Formula:** CH_{3}(CH_{2})_{16}CO(OCH_{2}CH_{2})_{n}OH, avg. n = 6

**Properties:** Sol. in alcohol; sol. warm in veg. and (generic)
Chemical Component Cross-Reference

min. oils; disp. in water; nonionic
Toxicology: Poison by IV, IP route; mildly toxic by ing.; TSCA listed
Uses: Emulsifier, thickener, solubilizer, emollient, spreading agent, wetting agent, dispersant in pharmaceuticals
Features: Waxy
Regulatory: FDA 21CFR §175.105, 175.300, 176.210
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk; Mosselman NV
http://www.mosselman.be; Ruger
http://www.rugerchemical.com; Sigma
http://www.sigma-aldrich.com/belgium
Trade Names: Monestriol 102;
Superpolystate®
Trade Names Containing: Tefose® 63; Tefose® 1500; Tefose® 2000; Tefose® 2561

PEG-8 stearate
CAS 9004-99-3 (generic); 70802-40-3
INS430
Synonyms: 23-Hydroxy-3,6,9,12,15,18,21-heptaoxatricos-1-yl octadecanoate; Macrogol ester 400; Macrogol stearate 400; PEG 400 monostearate; POE (8) stearate; Polyoxyl 8 stearate
Definition: PEG ester of stearic acid
Empirical: C_{34}H_{68}O_{10}
Formula: CH_3(CH_2)_{16}CO(OCH_2CH_2)nOH, avg. n = 8
Properties: Sol. in alcohol; partly sol. in veg. and min. oils; disp. warm in water; HLB 11.1-11.7; nonionic
Toxicology: Poison by intravenous, intraperitoneal route; mildly toxic by ingestion; TSCA listed
HMIS: Health 0, Flammability 1, Reactivity 0
Uses: Emulsifier, lubricant, dispersant, leveling agent, solubilizer, visc. control agent, emollient in pharmaceuticals, topicals
Regulatory: FDA 21CFR §175.105, 175.300, 176.210, 177.1200, 177.2260, 177.2800
Europe listed; UK approved; FDA approved for topicals
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk; Sigma
http://www.sigma-aldrich.com/belgium
Trade Names: Cremophor® S 9; Monestriol 104

PEG-9 stearate
CAS 9004-99-3 (generic); 5349-52-0;
EINECS/ELINCS 226-312-9
Synonyms: 26-Hydroxy-3,6,9,12,15,18,21,24-octaoxahexacos-1-yl octadecanoate; PEG 450 monostearate; POE (9) monostearate; POE (9) stearate
Definition: PEG ester of stearic acid
Empirical: C_{36}H_{72}O_{11}
Formula: CH_3(CH_2)_{16}CO(OCH_2CH_2)nOH, avg. n = 9
Properties: Nonionic
Toxicology: Poison by intravenous, intraperitoneal route; mildly toxic by ingestion; TSCA listed
Uses: O/w emulsifier, thickener, suspension stabilizer, lubricant, antitackifier for pharmaceuticals
Regulatory: FDA 21CFR §175.105, 175.300, 177.2260, 177.2800
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk; Sigma
http://www.sigma-aldrich.com/belgium
Trade Names: MYS-10

PEG-10 stearate
CAS 9004-99-3 (generic)
Synonyms: PEG 500 monostearate; POE (10) stearate
Definition: PEG ester of stearic acid
Empirical: C_{36}H_{76}O_{12}
Formula: CH_3(CH_2)_{16}CO(OCH_2CH_2)nOH, avg. n = 10
Properties: Nonionic
Toxicology: Poison by intravenous, intraperitoneal route; mildly toxic by ingestion; TSCA listed
Uses: Emulsifier, solubilizer for pharmaceuticals
Regulatory: FDA 21CFR §175.105, 175.300, 177.2260, 177.2800
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk; Sigma
http://www.sigma-aldrich.com/belgium
Trade Names: MYS-10

PEG-12 stearate
CAS 9004-99-3 (generic)
Synonyms: PEG 600 monostearate; POE (12) stearate
Definition: PEG ester of stearic acid
Formula: CH_3(CH_2)_{16}CO(OCH_2CH_2)nOH, avg. n = 12
Chemical Component Cross-Reference

†=pharmaceutical grade

Properties: Sol. in alcohol; partly sol. in veg. and min. oils; m.p. 35 C; HLB 13.6; nonionic

Toxicology: Poison by intravenous, intraperitoneal route; mildly toxic by ingestion; TSCA listed

HMIS: Health 0, Flammability 1, Reactivity 0

Uses: Emulsifier, lubricant, dispersant, defoamer, leveling agent, visc. control agent, wetting agent, solubilizer, emollient, spreading agent in pharmaceuticals

Regulatory: FDA 21CFR §175.105, 175.300, 176.170, 176.210, 177.1200, 177.2260, 177.2800


Trade Names: Mapeg® 600 MS

PEG-20 stearate
CAS 9004-99-3 (generic)
Synonyms: PEG 1000 monostearate; POE (20) stearate; Polyoxy 20 stearate
Definition: PEG ester of stearic acid
Formula: CH₃(CH₂)₁₆CO(OCH₂CH₂)ₙOH, avg. n = 20

Properties: Sol. in ethanol; partly sol. in propylene glycol; disp. in glycerin; insol. in water; m.p. 39.5-42.5 C; sapon. no. 40-50; nonionic

Toxicology: Poison by IV, IP routes; mildly toxic by ing.; TSCA listed

HMIS: Health 0, Flammability 1, Reactivity 0

Uses: Surfactant, emulsifier, humectant, thickener, solubilizer, emollient, opacifier, wetting agent, dispersant, stabilizer, plasticizer in pharmaceutical orals

Regulatory: FDA 21CFR §175.105, 175.300, 176.210, 177.2260, 177.2800; FDA approved for orals


Trade Names: Cerasynt® 840; Lumulse® 100-S; Myrj® 49P; Sabopal SE 20

PEG-24 stearate
CAS 9004-99-3 (generic)
Synonyms: POE (24) stearate
Definition: PEG ester of stearic acid
Formula: CH₃(CH₂)₁₆CO(OCH₂CH₂)ₙOH, avg. n = 24

Properties: Nonionic

Toxicology: TSCA listed

Uses: O/w emulsifier for pharmaceutical creams, lotions, and ointments; wetting agent, solubilizer for perfumes; dispersant

Manuf./Distrib.: Sigma http://www.sigma-aldrich.com/belgium

PEG-25 stearate
CAS 9004-99-3 (generic)
Synonyms: POE (25) stearate
Definition: PEG ester of stearic acid
Formula: CH₃(CH₂)₁₆CO(OCH₂CH₂)ₙOH, avg. n = 25

Properties: Nonionic

Toxicology: Poison by intravenous, intraperitoneal route; mildly toxic by ingestion; TSCA listed

Uses: Emulsifier, solubilizer for pharmaceuticals

Regulatory: FDA 21CFR §175.105, 175.300, 176.210, 177.2260, 177.2800

Manuf./Distrib.: A&E Connock http://www.connock.co.uk; Sigma http://www.sigma-aldrich.com/belgium

Trade Names: MYS-25V

PEG-30 stearate
CAS 9004-99-3 (generic)
Synonyms: POE (30) stearate
Definition: PEG ester of stearic acid
Formula: CH₃(CH₂)₁₆CO(OCH₂CH₂)ₙOH, avg. n = 30

Properties: Nonionic

Toxicology: Poison by intravenous, intraperitoneal route; mildly toxic by ingestion; TSCA listed

Uses: Surfactant, o/w emulsifier, pearlescent, dispersant, emulsion stabilizer, thickener for pharmaceuticals

Regulatory: FDA 21CFR §175.105, 175.300, 176.210, 177.2260, 177.2800

Manuf./Distrib.: A&E Connock http://www.connock.co.uk; Sigma http://www.sigma-aldrich.com/belgium

Trade Names: Myrj® 51

Trade Names Containing: Arlatone® 983S Pharma

PEG-32 stearate
CAS 9004-99-3 (generic)
Synonyms: PEG 1540 monostearate; PEG 1540 stearate; POE (32) monostearate
Definition: PEG ester of stearic acid
Formula: CH₃(CH₂)₁₆CO(OCH₂CH₂)ₙOH, avg. n = 32

Properties: Nonionic

Toxicology: TSCA listed

Uses: O/w emulsifier for pharmaceutical creams, lotions, and ointments; wetting agent, solubilizer for perfumes; dispersant

Manuf./Distrib.: Sigma http://www.sigma-aldrich.com/belgium

PEG-20 stearate
CAS 9004-99-3 (generic)
Synonyms: PEG 1000 monostearate; POE (20) stearate; Polyoxy 20 stearate
Definition: PEG ester of stearic acid
Formula: CH₃(CH₂)₁₆CO(OCH₂CH₂)ₙOH, avg. n = 20

Properties: Sol. in ethanol; partly sol. in propylene glycol; disp. in glycerin; insol. in water; m.p. 39.5-42.5 C; sapon. no. 40-50; nonionic

Toxicology: Poison by IV, IP routes; mildly toxic by ing.; TSCA listed

HMIS: Health 0, Flammability 1, Reactivity 0

Uses: Emulsifier, lubricant, dispersant, defoamer, leveling agent, visc. control agent, wetting agent, solubilizer, emollient, spreading agent in pharmaceuticals

Regulatory: FDA 21CFR §175.105, 175.300, 176.210, 177.1200, 177.2260, 177.2800


Trade Names: Mapeg® 600 MS

PEG-20 stearate
CAS 9004-99-3 (generic)
Synonyms: PEG 1000 monostearate; POE (20) stearate; Polyoxy 20 stearate
Definition: PEG ester of stearic acid
Formula: CH₃(CH₂)₁₆CO(OCH₂CH₂)ₙOH, avg. n = 20

Properties: Sol. in alcohol; partly sol. in veg. and min. oils; m.p. 35 C; HLB 13.6; nonionic

Toxicology: Poison by intravenous, intraperitoneal route; mildly toxic by ingestion; TSCA listed

HMIS: Health 0, Flammability 1, Reactivity 0

Uses: Emulsifier, lubricant, dispersant, defoamer, leveling agent, visc. control agent, wetting agent, solubilizer, emollient, spreading agent in pharmaceuticals

Regulatory: FDA 21CFR §175.105, 175.300, 176.170, 176.210, 177.1200, 177.2260, 177.2800
Chemical Component Cross-Reference

Properties: Nonionic
Toxicology: Poison by IV, IP route; mildly toxic by ing.; TSCA listed
Uses: Surfactant, emulsifier, solubilizer, thickener, emollient, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals
Regulatory: FDA 21CFR §175.300, 176.210, 177.2260, 177.2800
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk; Ruger
http://www.rugerchemical.com; Sigma
http://www.sigma-aldrich.com/belgium
Trade Names: Monestriol 112-C
Trade Names Containing: Tefose® 63; Tefose® 1500

PEG-40 stearate
CAS 9004-99-3 (generic); 31791-00-2
INS431; E431
Synonyms: Macrogol stearate 2000; PEG 2000 monostearate; POE (40) monostearate; POE (40) stearate; Polyoxyl 40 stearate; Stearethate 40
Definition: PEG ester of stearic acid
Formula: \( \text{CH}_3(\text{CH}_2)_{16}\text{CO(OCH}_2\text{CH}_2)_n\text{OH} \), avg. \( n = 40 \)
Properties: Wh. to cream waxy solid; nearly odorless to faint fatty odor; sol. in water, ether, alcohol, acetone; insol. in min. and veg. oils; m.p. 37-47 C; HLB 16.9; acid no. 2 max.; sapon. no. 25-35; hyd. no. 25-40; nonionic
Toxicology: LD50 (oral, rat) 53 ml/kg; poison by IV, IP routes; mildly toxic by ing.; TSCA listed
Uses: Emulsifier, solubilizer, wetting agent, stabilizer, antifreeze, lubricant for pharmaceuticals, dentals, ophthalmics, orals, otics, topicals, creams, lotions
Regulatory: FDA 21CFR §175.300, 177.2260, 177.2800; Europe listed; UK approved; FDA approved for dentals, ophthalmics, orals, otics, topicals; USP/NF compliance
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk; Sigma
http://www.sigma-aldrich.com/belgium
Trade Names: Canasol MJ 52; Crodet S40; MYS-40V; Mapeg® S-40K; Monestriol 52; Myrj® 52 Flake; Myrj® 52; Myrj® 52S; Pharma; Sabopal SE 40; Simulsol® M 52; Tego® Acid S 40 P

PEG-45 stearate
CAS 9004-99-3 (generic)
Synonyms: POE (45) stearate
Definition: PEG ester of stearic acid
Formula: \( \text{CH}_3(\text{CH}_2)_{16}\text{CO(OCH}_2\text{CH}_2)_n\text{OH} \), avg. \( n = 45 \)
Properties: Nonionic
Toxicology: Poison by intravenous, intraperitoneal route; mildly toxic by ingestion; TSCA listed
Uses: Surfactant, emulsifier, solubilizer for pharmaceuticals
Regulatory: FDA 21CFR §175.300, 177.2260, 177.2800
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk; Sigma
http://www.sigma-aldrich.com/belgium
Trade Names: MYS-45V

PEG-50 stearate
CAS 9004-99-3 (generic)
Synonyms: POE (50) monostearate; POE (50) stearate; Polyoxyl 50 stearate
Definition: PEG ester of stearic acid
Formula: \( \text{CH}_3(\text{CH}_2)_{16}\text{CO(OCH}_2\text{CH}_2)_n\text{OH} \), avg. \( n = 50 \)
Properties: Cream-colored soft waxy solid, faint fatty odor; sol. in water, IPA; m.p. \( \approx 45 \) C; HLB 17.9; acid no. 2 max.; sapon. no. 20-28; hyd. no. 23-35; nonionic
Toxicology: Poison by intravenous, intraperitoneal route; mildly toxic by ingestion; TSCA listed
Uses: Wetting agent, solubilizer in pharmaceuticals, topicals
Features: Hydrophilic
Regulatory: FDA 21CFR §175.300, 177.2260, 177.2800; FDA approved for topicals
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk; Sigma
http://www.sigma-aldrich.com/belgium; Spectrum Quality Prods.;
http://www.spectrumchemical.com

†=pharmaceutical grade
Chemical Component Cross-Reference

PEG-55 stearate
CAS 9004-99-3 (generic)
Synonyms: POE (55) stearate; Polyoxyl 55 stearate

Definition: PEG ester of stearic acid
Formula: \( \text{CH}_3(\text{CH}_2)_{16}\text{CO(OCH}_2\text{CH}_2)_n\text{OH} \), avg. \( n = 55 \)

Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, solubilizer, wetting agent for pharmaceuticals

Manuf./Distrib.: Sigma [http://www.sigma-aldrich.com/belgium]
Trade Names: Myrj® 53 Pellets

PEG-75 stearate
CAS 9004-99-3 (generic)
Synonyms: PEG 4000 monostearate; POE (75) stearate

Definition: PEG ester of stearic acid
Formula: \( \text{CH}_3(\text{CH}_2)_{16}\text{CO(OCH}_2\text{CH}_2)_n\text{OH} \), avg. \( n = 75 \)

Properties: Nonionic
Toxicology: Poison by intravenous, intraperitoneal route; mildly toxic by ingestion; TSCA listed
Uses: Surfactant, solubilizer, thickener, emollient, opacifier, spreading agent, wetting agent, dispersant for pharmaceuticals

Regulatory: FDA 21CFR §175.300
Manuf./Distrib.: A&E Connock [http://www.connock.co.uk]; Sigma [http://www.sigma-aldrich.com/belgium]
Trade Names: Canasol MJ 59; Crodet S100; Myrj® 59 P Pharma; Myrj® 59; Sabopal SE 100; Tego® Acid S 100 P

PEG-100 stearate
CAS 9004-99-3 (generic)
Synonyms: PEG (100) monostearate; POE (100) stearate

Definition: PEG ester of stearic acid
Formula: \( \text{CH}_3(\text{CH}_2)_{16}\text{CO(OCH}_2\text{CH}_2)_n\text{OH} \), avg. \( n = 100 \)

Properties: Nonionic
Toxicology: Poison by intravenous, intraperitoneal route; mildly toxic by ingestion; TSCA listed
Uses: Surfactant, emulsifier, emollient, solubilizer, thickener, wetting agent, dispersant for pharmaceuticals

Regulatory: FDA 21CFR §175.300, 176.210
Trade Names: Monestriol 114; Myrj® 59 P Pharma; Myrj® 59; Sabopal SE 100; Tego® Acid S 100 P

PEG-150 stearate
CAS 9004-99-3 (generic)
Synonyms: PEG 6000 monostearate; POE (150) stearate

Definition: PEG ester of stearic acid
Formula: \( \text{CH}_3(\text{CH}_2)_{16}\text{CO(OCH}_2\text{CH}_2)_n\text{OH} \), avg. \( n = 150 \)

Properties: Nonionic
Toxicology: Poison by intravenous, intraperitoneal route; mildly toxic by ingestion; TSCA listed
Uses: Surfactant, emulsifier, emollient, solubilizer, thickener, wetting agent, dispersant for pharmaceuticals

Regulatory: FDA 21CFR §175.300
Trade Names: STEPAN® PEG 6000 MS

PEG-300 stearate
CAS 9004-99-3 (generic)
Synonyms: POE (300) stearate

Definition: PEG ester of stearic acid
Properties: Nonionic
Uses: Wetting agent, lubricant, opacifier, dispersant, o/w emulsifier, detergent, defoamer, plasticizer, visc. modifier in pharmaceuticals

Manuf./Distrib.: Chempri

PEG-1500 stearate
CAS 9004-99-3 (generic)
Synonyms: POE (1500) stearate

Definition: PEG ester of stearic acid
Properties: Nonionic
Uses: Wetting agent, lubricant, opacifier, dispersant, o/w emulsifier, detergent, defoamer, plasticizer, visc. modifier in pharmaceuticals

Handbook of Pharmaceutical Additives, Third Edition 1830
PEG 1540 stearate. See PEG-32 stearate

PEG-2 stearate SE
CAS 106-11-6; 9004-99-3 (generic)
Synonyms: Diethylene glycol monostearate self-emulsifying; PEG 100 monostearate self-emulsifying; POE (2) monostearate self-emulsifying
Definition: Self-emulsifying grade of PEG-2 stearate
Properties: HLB 5.4; anionic
Toxicology: TSCA listed
Uses: Emulsifier in cosmetics, pharmaceuticals; protective coating for hygroscopic materials (tablets)

PEG-2 stearyl ether. See Steareth-2
PEG-7 stearyl ether. See Steareth-7
PEG-8 stearyl ether. See Steareth-8
PEG-10 stearyl ether. See Steareth-10
PEG-16 stearyl ether. See Steareth-16
PEG-20 stearyl ether. See Steareth-20
PEG-21 stearyl ether. See Steareth-21
PEG-25 stearyl ether. See Steareth-25
PEG-100 stearyl ether. See Steareth-100
PEG 100 stearyl ether. See Steareth-2
PEG 400 stearyl ether. See Steareth-8
PEG 500 stearyl ether. See Steareth-10
PEG 1000 stearyl ether. See Steareth-20

PEG-4 tallate
CAS 61791-00-2 (generic)
Synonyms: PEG 200 monotallate; POE (4) monotallate
Classification: Ethoxylated fatty acid ester
Definition: PEG ester of tall oil acid
Formula: RCO–(OCH2CH2)nOH, RCO– rep. fatty acids from tall oil, avg. n = 4
Properties: Liq.; nonionic
Toxicology: TSCA listed
Uses: Detergent, emulsifier, lubricant, softener, wetting agent for pharmaceuticals
Regulatory: FDA 21CFR §175.105, 175.300, 176.210
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk

PEG-8 tallate
CAS 61791-00-2 (generic)
Synonyms: PEG 400 monotallate; POE (8) monotallate
Classification: Ethoxylated fatty acid ester
Definition: PEG ester of tall oil acid

PEG-12 tallate
CAS 61791-00-2 (generic)
Synonyms: PEG 600 monotallate; POE (12) monotallate
Classification: Ethoxylated fatty acid ester
Definition: PEG ester of tall oil acid
Formula: RCO–(OCH2CH2)nOH, RCO– rep. fatty acids from tall oil, avg. n = 12
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, dispersant defoamer for pharmaceuticals
Regulatory: FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.210, 177.2800
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk
Trade Names: Lipo 142; Mapeg® 400 MOT

PEG-13 tallate
CAS 61791-00-2 (generic)
Synonyms: POE (13) monotallate; POE (13) tallate
Classification: Ethoxylated fatty acid ester
Definition: PEG ester of tall oil acid
Formula: RCO–(OCH2CH2)nOH, RCO– rep. fatty acids derived from tall oil, avg. n = 13
Properties: Nonionic
Uses: Oil and wax emulsifier in pharmaceuticals

PEG-23 tallate
CAS 61791-00-2 (generic)
Synonyms: POE (23) monotallate; POE (23) tallate
Classification: Ethoxylated fatty acid ester
Definition: PEG ester of tall oil acid
Formula: RCO–(OCH2CH2)nOH, RCO– rep. fatty acids derived from tall oil, avg. n = 23
Properties: Nonionic
Uses: Oil and wax emulsifier in pharmaceuticals

PEG-660 tallate
CAS 61791-00-2 (generic)
Chemical Component Cross-Reference

Synonyms: POE (66) montallate
Classification: Ethoxylated fatty acid ester
Definition: PEG ester of tall oil acid
Properties: Nonionic
Uses: Emulsifier, dispersant for pharmaceuticals

PEG-8 tallow ether. See Talloweth-8
PEG-11 tallow ether. See Talloweth-11
PEG-25 tallow ether. See Talloweth-25
PEG-10 tridecyl ether. See Trideceth-10
PEG-15 tridecyl ether. See Trideceth-15
PEG-100 tridecyl ether. See Trideceth-100
PEG 500 tridecyl ether. See Trideceth-10
PEG-7 tridecyl ether carboxylic acid. See Trideceth-7 carboxylic acid
PEG-3 trimethylolpropane distearate
Trade Names: Emalex TPS-203
PEG-4 trimethylolpropane distearate
Uses: Oil-phase ingred.
Trade Names: Emalex TPS-204
PEG-5 trimethylolpropane distearate
Uses: Oil-phase ingred.
Trade Names: Emalex TPS-205
PEG-3 trimethylolpropane tristearate
Uses: Superfatting agent
Trade Names: Emalex TPS-303
PEG-5 trimethylolpropane tristearate
Uses: Superfatting agent
Trade Names: Emalex TPS-305
PEG-10 trimethylolpropane tristearate
Uses: Superfatting agent
Trade Names: Emalex TPS-310
Pelargic acid. See Nonanoic acid
Pelargonaldehyde. See Nonanal
Pelargonic acid (INCI). See Nonanoic acid
Pelargonic acid, methyl ester. See Methyl pelargonate
Pelargonic alcohol. See Nonyl alcohol
Pelargonic aldehyde. See Nonanal
Pelargonium graveolens oil. See Rose geranium (Pelargonium graveolens) oil
Pelargonyl acetate. See n-Nonyl acetate
Pelargonyl vanillylamide
CAS 2444-46-4; EINECS/ELINCS 219-484-1
UN 2811; FEMA 2787
Synonyms: N-(4-Hydroxy-3-methoxybenzyl) nonanamide; Nonanol 4-hydroxy-3-methoxybenzylamide; N-Nonanoyl vanillylamide; Synthetic capsicin
Empirical: C_{17}H_{27}NO_{3}
Properties: Wh. odorless crystals or powd.; sl.
†=pharmaceutical grade
sol. in water; easily sol. in methanol and diethyl ether; m.w. 293.41; m.p. 65 C
Toxicology: LD50 (oral, rat) 190 mg/kg, (dermal, mouse) 512 mg/kg; toxic to lungs, mucous membranes; very hazardous in case of skin contact (irritant), of ing., and inh.
Precaution: May be combustible at high temps.; wear splash goggles, lab coat, and dust respirator
HMIS: Health 3, Flammability 1, Reactivity 0
Uses: Synthetic flavor for pharmaceuticals; rubefacient for pharmaceutical topicals
Regulatory: FDA 21CFR §172.515; FEMA GRAS
Manuf./Distrib.: Sciencelab http://www.sciencelab.com
Pennyroyal, European, extract; Pennyroyal extract. See Pennyroyal (Mentha pulegium) extract
Pennyroyal (Mentha pulegium) extract
CAS 90064-00-9; EINECS/ELINCS 290-061-1
Synonyms: European pennyroyal extract; Lurk-in-the-Ditch; Mentha pulegium; Mentha pulegium extract; Pennyroyal, European, extract; Pennyroyal extract; Pudding Grass; Pulegium; Run-by-the-Ground
Definition: Extract of the flowering herb, Mentha pulegium
Uses: Natural flavoring agent
Regulatory: FDA 21CFR §172.510
Manuf./Distrib.: Bio-Botanica http://www.biobotanica.com; Carrubba http://www.carrubba.com
Trade Names Containing: Actiphyte® of Pennyroyal
Pennyroyal (Mentha pulegium) oil
CAS 8013-99-8
FEMA 2839
Synonyms: European pennyroyal oil; Mentha pulegium; Mentha pulegium oil; Pennyroyal oil; Pennyroyal oil, European
Definition: Volatile oil from steam distillation of Mentha pulegium, contg. 85% d-pulegone
Properties: Yel. to greenish-yel. liq., aromatic mint odor, aromatic taste; sol. in fixed oils, propylene glycol, min. oil; insol. in glycerin; dens. 0.960 (15/15 C); ref. index 1.475-1.496 (20 C)
Toxicology: LD50 (oral, rat) 400 mg/kg; experimental poison by ing.; skin irritant; TSCA listed
Pennyrroyal oil; Pennyrroyal oil, European.  
See Pennyrroyal (Mentha pulegium) oil  
1,2,3,4,6-Penta-O-acetyl-α-D-glucopyranose  
See α-D-Glucopyranose  

Peptidase  
Hazardous Decomp. Prods.:  
Heated to decomp., emits acrid smoke and irritating fumes  
Uses:  
Natural flavor for pharmaceuticals  
Regulatory:  
FDA 21CFR §182.20, GRAS; FEMA GRAS; Canada DSL  
Manuf./Distrib.:  
Berje  
http://www.berjeinc.com;  
Buckton Page Ltd  
http://www.bucktonpage.com;  
Chr. Hansen Inc  
http://www.chr-hansen.com;  
Lebermuth  
http://www.lebermuth.com;  
Penta Mfg.  
http://www.pentamfg.com  
Polarome Int'l.  
http://www.polarome.com;  
RCB Int'l.  

ω-Pentadecalactone.  
See Pentadecalactone  

1-Pentadecanecarboxylic acid.  
See Palmitic acid  

7-Pentadecanecarboxylic acid.  
See 2-Hexyldecanic acid  
Pentadecanolide; 15-Pentadecanolide;  
Pentadecan-15-olide.  
See Pentadecalactone  

1,3-Pentadiene-1-carboxylic acid.  
See Sorbic acid  
Pentaerythritol dichlorohydryn.  
See Aminomethyl propanediol  
Pentaerythritol tetraacetate.  
See Pentaerythrityl tetraacetate  
Pentaerythritol tetracaurate.  
See Pentaerythrityl tetracaurate  
Pentaerythritylcocoate  

Uses:  
Ingred. in pharmaceuticals  
Trade Names Containing:  
Dehymuls® E  
Pentaerythritol oleate  

Definition:  
Ester of pentaerythritol and oleic acid  
Uses:  
Wetting agent, emulsifier for pharmaceuticals  
Manuf./Distrib.:  
A.P. Chems. Ltd  
http://www.chemial.com  
Pentaerythritol tetraacetate  
CAS 597-71-7; EINECS/ELINCS 209-907-8  
Synonyms:  
Acetic acid, tetraester with 2,2-bis(hydroxymethyl)-1,3-propanediol;  
2,2-Bis[(acycloxy) methyl]-1,3-propanediol diacetate;  
Normosterol; Pentaerythritol tetraacetate;  
1,3-Propanediol, 2,2-bis(acycloxy) methyl-, diacetate;  
Tetraacetylpenestriol  

Definition:  
Tetraester of pentaerythritol and acetic acid  
Empirical:  
C₁₃H₂₀O₈  
Formula:  
C(CH₂OOCCH₃)₄  
Properties:  
Wh. cryst. powd.; sol. in water, alcohol, ether; m.w. 304.30; m.p. 83-84 C; 
b.p. 225 C (30 mm)  
Toxicology:  
LD₅₀ (oral, mouse) 3500 mg/kg, (IP, mouse) 4850 mg/kg; mod. toxic by ing.; 
sl. toxic by IP route; TSCA listed  
Precaution:  
Combustible  
Hazardous Decomp. Prods.:  
Heated to decomp., emits acrid smoke and irritating vapors  
Uses:  
Antilipemic agent
Chemical Component Cross-Reference

Galactose
1,2,3,4,5-Pentahydroxypentane. See Xylitol
γ-Pentalactone. See γ-Valerolactone
Pentaldehyde. See n-Valeraldehyde
Pentalide. See Pentadecalactone
Pentamethylenimine. See Piperidine
Pentalanal; n-Pentalanal. See n-Valeraldehyde
1-Pentanamine. See Pentyline
Pentan-2,4-dione. See Acetylatedtone
Pentane (INCI). See n-Pentane

n-Pentane
CAS 109-66-0; EINECS/ELINCS 203-692-4
UN 1265 (DOT)
Synonyms: Alkane C5; Amyl hydride; Normal pentane; Pentane (INCI)
Classification: Aliphatic hydrocarbon
Empirical: C5H12
Formula: CH3(CH2)3CH3
Properties: Colorless liq.; gasoline-like odor; sol. in alcohol, oxygenated, chlorinated, and hydrocarbon solv.s.; insol. in water; m.w. 72.17; dens. 0.62624; vapor pressure 400 mm Hg (18.5 C); f.p. -129.7 C; b.p. 36 C; flash pt. (CC) -49 C; autoignition temp. 260 C; surf. tens. 15.48 dynes/cm; KB value 26; dielec. const. 1.841
Toxicology: ACGIH TLV/TWA 600 ppm; STEL 750 ppm; LD50 (IV, mouse) 446 mg/kg; mod. toxic by inh. and IV routes; narcotic in high concs. (dizziness, headache); prolonged skin contact may cause itching, redness, pigmentation, swelling, burning, pain; extreme exposure can cause nausea, confusion, persistent gasoline taste, unconsciousness; lethal @ 130,000 ppm; relatively low oral toxicity unless aspirated into lungs (severe lung irritation or damage can occur); TSCA listed
Environmental: VOC; ThOD 3.56; zero ozone depletion
Precaution: Highly flamm.; LEL 1.5%; UEL 7.8%; severe explosion hazard exposed to heat or flame; shock can shatter metal containers; incompat. with strong oxidizing agents (increases fire and explosion hazard)
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
NFPA: Health 1, Flammability 4, Reactivity 0
Storage: Store in cool, dry, well-ventilated area, out of direct sunlight; limit quantities in use; avoid generating mists; refrigerated storage

Handbook of Pharmaceutical Additives, Third Edition

Galactose
1,2,3,4,5-Pentahydroxypentane. See Xylitol
γ-Pentalactone. See γ-Valerolactone
Pentaldehyde. See n-Valeraldehyde
Pentalide. See Pentadecalactone
Pentamethylenimine. See Piperidine
Pentalanal; n-Pentalanal. See n-Valeraldehyde
1-Pentanamine. See Pentyline
Pentan-2,4-dione. See Acetylatedtone
Pentane (INCI). See n-Pentane

n-Pentane
CAS 109-66-0; EINECS/ELINCS 203-692-4
UN 1265 (DOT)
Synonyms: Alkane C5; Amyl hydride; Normal pentane; Pentane (INCI)
Classification: Aliphatic hydrocarbon
Empirical: C5H12
Formula: CH3(CH2)3CH3
Properties: Colorless liq.; gasoline-like odor; sol. in alcohol, oxygenated, chlorinated, and hydrocarbon solv.s.; insol. in water; m.w. 72.17; dens. 0.62624; vapor pressure 400 mm Hg (18.5 C); f.p. -129.7 C; b.p. 36 C; flash pt. (CC) -49 C; autoignition temp. 260 C; surf. tens. 15.48 dynes/cm; KB value 26; dielec. const. 1.841
Toxicology: ACGIH TLV/TWA 600 ppm; STEL 750 ppm; LD50 (IV, mouse) 446 mg/kg; mod. toxic by inh. and IV routes; narcotic in high concs. (dizziness, headache); prolonged skin contact may cause itching, redness, pigmentation, swelling, burning, pain; extreme exposure can cause nausea, confusion, persistent gasoline taste, unconsciousness; lethal @ 130,000 ppm; relatively low oral toxicity unless aspirated into lungs (severe lung irritation or damage can occur); TSCA listed
Environmental: VOC; ThOD 3.56; zero ozone depletion
Precaution: Highly flamm.; LEL 1.5%; UEL 7.8%; severe explosion hazard exposed to heat or flame; shock can shatter metal containers; incompat. with strong oxidizing agents (increases fire and explosion hazard)
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
NFPA: Health 1, Flammability 4, Reactivity 0
Storage: Store in cool, dry, well-ventilated area, out of direct sunlight; limit quantities in use; avoid generating mists; refrigerated storage

Galactose
1,2,3,4,5-Pentahydroxypentane. See Xylitol
γ-Pentalactone. See γ-Valerolactone
Pentaldehyde. See n-Valeraldehyde
Pentalide. See Pentadecalactone
Pentamethylenimine. See Piperidine
Pentalanal; n-Pentalanal. See n-Valeraldehyde
1-Pentanamine. See Pentyline
Pentan-2,4-dione. See Acetylatedtone
Pentane (INCI). See n-Pentane

n-Pentane
CAS 109-66-0; EINECS/ELINCS 203-692-4
UN 1265 (DOT)
Synonyms: Alkane C5; Amyl hydride; Normal pentane; Pentane (INCI)
Classification: Aliphatic hydrocarbon
Empirical: C5H12
Formula: CH3(CH2)3CH3
Properties: Colorless liq.; gasoline-like odor; sol. in alcohol, oxygenated, chlorinated, and hydrocarbon solv.s.; insol. in water; m.w. 72.17; dens. 0.62624; vapor pressure 400 mm Hg (18.5 C); f.p. -129.7 C; b.p. 36 C; flash pt. (CC) -49 C; autoignition temp. 260 C; surf. tens. 15.48 dynes/cm; KB value 26; dielec. const. 1.841
Toxicology: ACGIH TLV/TWA 600 ppm; STEL 750 ppm; LD50 (IV, mouse) 446 mg/kg; mod. toxic by inh. and IV routes; narcotic in high concs. (dizziness, headache); prolonged skin contact may cause itching, redness, pigmentation, swelling, burning, pain; extreme exposure can cause nausea, confusion, persistent gasoline taste, unconsciousness; lethal @ 130,000 ppm; relatively low oral toxicity unless aspirated into lungs (severe lung irritation or damage can occur); TSCA listed
Environmental: VOC; ThOD 3.56; zero ozone depletion
Precaution: Highly flamm.; LEL 1.5%; UEL 7.8%; severe explosion hazard exposed to heat or flame; shock can shatter metal containers; incompat. with strong oxidizing agents (increases fire and explosion hazard)
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
NFPA: Health 1, Flammability 4, Reactivity 0
Storage: Store in cool, dry, well-ventilated area, out of direct sunlight; limit quantities in use; avoid generating mists; refrigerated storage
Chemical Component Cross-Reference

Uses: Solvent in pharmaceuticals
Regulatory: FDA 21CFR §178.3010; Canada DSL
Manuf./Distrib.: Aeropres
http://www.aeropres.com; Aldrich†
http://www.sigma-aldrich.com; Ashland
ChevronPhillips http://www.cpchem.com; Fisher Scientific
http://https://www1.fishersci.com/index.jsp; Fluka http://www.sigma-aldrich.com; GFS†
http://www.gfschemicals.com; Hukill
http://www.hukill.com; Integra† http://www.integrachem.com; Mallinckrodt Baker†
http://www.mallbaker.com; Penta Mfg.†
http://www.pentamfg.com; Romil Ltd
http://www.shell-lubricants.com; Sigma http://www.sigma-aldrich.com/belgium; South Hampton Resources
http://www.southhamptonrefining.com; Spectrum Quality Prods.†
http://www.spectrumchemical.com; Thomas Scientific†
http://www.vwrsp.com

2-Pentanecarboxylic acid. See 2-Methylpentanoic acid
3-Pentanecarboxylic acid. See Diethylacetic acid
Pentanodial: 1,5-Pentanodial; Pentane-1,5-dial. See Glutaral
1,5-Pentanediamine, 2-methyl-. See 2-Methylpentamethyldiamine
2,4-Pentanediol, 2-methyl. See Hexylene glycol
1,5-Pentanedione. See Glutaral

Pentane-2,3-dione
CAS 600-14-6; EINECS/ELINCS 209-984-8
UN 1993; FEMA 2841
Synonyms: Acetylpropionyl; Methyl ethyl diketone; Methyl ethyl glyoxal; 2,3-Pentanedione
Classification: aliphatic ketone
Empirical: C₅H₈O₂
Formula: CH₃CH₂COCOCH₃

†=pharmaceutical grade

Properties: Yel. liq., penetrating buttery odor on dilution; sl. sol. in water; m.w. 100.12; dens. 0.959 (20/4 C); m.p. -52 C; b.p. 110-115 C; flash pt. 19 C; ref. index 1.404 (20 C)
Toxicology: LD50 (oral, rat) 3 g/kg, (skin, rabbit) > 2500 mg/kg; mod. toxic by ing.; primary skin irritant; TSCA listed
Precaution: Highly flamm.
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Storage: Keep away from ignition sources; refrigerate
Uses: Synthetic flavor for pharmaceuticals
Features: Butterscotch, chocolate flavor/fragrance
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI
Manuf./Distrib.: Advanced BioTech
http://www.adv-bio.com; Advanced Synthesis Tech.

2,3-Pentanedione. See Pentane-2,3-dione
2,4-Pentanedione; Pentanediene-2,4. See Acetylacetone
Pentanoic acid; n-Pentanoic acid. See n-Valeric acid
Pentanoic acid methyl ester. See Methyl valerate
Pentanoic acid, 4-oxo-, butyl ester. See Butyl levulinate
Pentanoic acid, 4-oxo-, ethyl ester. See Ethyl levulinate
Endo-pentanoic acid 1,7,7-trimethyl bicyclo(2.2.1)hept-2-yl ester. See Bornyl valerate
1-Pentanol; Pentanol-1; Pentan-1-ol. See n-Amyl alcohol
Pentan-2-ol; 2-Pentanol; Pentanol-2. See s-Amyl alcohol
### 3-Pentanol

**CAS:** 584-02-1; EINECS/ELINCS 209-526-7  
**UN:** 2706 (DOT)  
**Synonyms:** n-Amyl alcohol; Diethyl carbinol; 1-Ethyl-1-propanol; Pentanol-3; Pentan-3-ol  
**Classification:** Sec. aliphatic alcohol  
**Empirical:** C₅H₁₂O  
**Formula:** (C₂H₅)₂CHOH  
**Properties:** Colorless visc. liq.; char. odor; sl. sol. in water; sol. in alcohol, ether; m.w. 88.15; sp.gr. 0.819 (20/4 C); m.p. < -75 C; b.p. 114-116 C; flash pt. (CC) 41 C; ref. index 1.410  
**Toxicology:** ACGIH TLV/TWA 100 ppm; STEL 125 ppm; LD₅₀ (oral, rat) 1.87 g/kg, (skin, rabbit) 1.87 g/kg, (eye, rabbit) 2520 mg/kg; inh. may cause double vision, deafness, delirium, severe nervous symptoms, fatalities; ing. may produce 'alcohol' intoxication symptoms; may cause severe lung damage, cardiac arrest, death if aspirated into lungs; TSCA listed  
**Precaution:** Flamm.; dangerous fire and explosion hazard exposed to heat, flame, oxidizers; incomp. with oxidizing agents (increases fire/explosion hazard), hydrogen trisulfide (explosive reaction possible)  
**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes  
**NFFA:** Health 1, Flammability 2, Reactivity 0  
**Storage:** Store in cool, dry, well-ventilated area  
**Uses:** Solvent in pharmaceuticals  
**Regulatory:** Canada DSL  

**Trade Names:**  
- Pentan-3-ol. See 3-Pentanol  
- n-Pentanol. See n-Amyl alcohol  
- t-Pentanol. See t-Amyl alcohol  
- 1-Pentanol acetate. See Amyl acetate  
- 4-Pentanolide. See γ-Valerolactone  
- 3-Pentanol, 3-methyl-1-phenyl. See 1-Phenyl-3-methyl-3-pentanol  
- 2-Pentanone. See Methyl propyl ketone  
- 3-Pentanone; Pentanone-3. See Diethyl ketone

### Pentasodium pentetate

**CAS:** 140-01-2; EINECS/ELINCS 205-391-3  
**Synonyms:** N,N-Bis[2-[bis (carboxymethyl) amino] ethyl] glycine, pentasodium salt; Diethylenetriaminepentaacetic acid, pentasodium salt; DTPAN; DTPANa5; Na₅DTPA; Pentasodium (carboxylatomethyl) iminobis (ethylenenitrilo) tetraacetate; Pentasodium diethylene triamine pentaacetate; Pentasodium DTPA; Pentetate pentasodium; Sodium DTPA  
**Classification:** Inorganic salt  
**Empirical:** C₁₄H₁₈N₃O₁₀ • 5Na  
**Formula:** C₁₄H₁₈N₃O₁₀ • 5Na  
**Properties:** M.w. 503.25  
**Toxicology:** Mod. irritating to skin and mucous membranes; ing. can cause violent purging; TSCA listed  
**Uses:** Chelating agent, sequestrant for pharmaceuticals, intravenous, drug stabilization; antibiotic mfg.  
**Regulatory:** FDA 21CFR §175.105, 176.150; FDA approved for intravenous; Canada DSL  
**Trade Names:** Versenex 80

**18-Pentatriacontanone; Pentatriacontan-18-one. See Sterane**

### 4-Pentenoic acid

**CAS:** 591-80-0; EINECS/ELINCS 209-732-7  
**FEMA:** 2843  
**Synonyms:** Allyl acetate; Allylacetic acid; 3-Vinylpropionic acid  
**Empirical:** C₅H₈O₂  
**Formula:** CH₂:CHCH₂CH₂COOH

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**Chemical Component Cross-Reference**

<table>
<thead>
<tr>
<th>3-Pentanol</th>
<th>♦=pharmaceutical grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>3,6,9,12,15-Pentaoxahentriacont-1-ol. See Ceteth-5</td>
<td></td>
</tr>
<tr>
<td>3,6,9,12,15-Pentaoxaheptacosanoic acid, sodium salt. See Sodium laureth-5 carboxylate</td>
<td></td>
</tr>
<tr>
<td>3,6,9,12,15-Pentaoxaheptadecane-1,17-diol. See PEG-6</td>
<td></td>
</tr>
<tr>
<td>3,6,9,12,15-Pentaoxaheptatriacontan-1-ol. See Beheneth-5</td>
<td></td>
</tr>
<tr>
<td>3,6,9,12,15-Pentaoxatriacont-24-en-1-ol. See Oleth-5</td>
<td></td>
</tr>
<tr>
<td>Pentaphen, 2-methyl-2-p-hydroxyphenylbutane. See p-t-Amylphenol</td>
<td></td>
</tr>
<tr>
<td>Pentasodium (carboxylatomethyl) iminobis (ethylenenitrilo) tetraacetate; Pentasodium diethylene triamine pentaacetate; Pentasodium DTPA. See Pentasodium pentetate</td>
<td></td>
</tr>
</tbody>
</table>

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**Handbook of Pharmaceutical Additives, Third Edition** 1836
Chemical Component Cross-Reference

Properties: Colorless liq., cheesy odor; sol. in alcohol, ether; sl. sol. in water; m.w. 100.12; dens. 0.978 (20/4 C); m.p. -22 c; b.p. 187-189 C; flash pt. 193 F; ref. index 1.429 (20 C)

Toxicology: LD50 (oral, rat) 470 mg/kg, (IP, mouse) 315 mg/kg, (subcut., mouse) 315 mg/kg; toxic; poison by subcut. and IP routes; mod. toxic by ing.; corrosive; irritating to eyes, respiratory system; TSCA listed

Precaution: Combustible

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL


2-Pentenoic acid, 2-methyl-. See 2-Methyl-2-pentenoic acid

1-Penten-3-ol
CAS 616-25-1; EINECS/ELINCS 210-472-1
UN 1987; FEMA 3584
Synonyms: Ethyl vinyl carbinol; Pent-1-en-3-ol
Empirical: C5H10O
Formula: CH3CH2CH(OH)CH:CH2

Properties: Liq., butter mild green odor; sl. sol. in water; misc. with alcohol, ether, m.w. 86.14; dens. 0.838 (20/4 C); b.p. 114-116 C; flash pt. 128 C; ref. index 1.425 (20 C); dens. 0.753 (20/4 C); m.p. -55 C; b.p. 102-104 C; sol. in dimethylsulfoxide; m.w. 87.19; dens. 0.978 (20/4 C); m.p. -22 C; b.p. 187-189 C; flash pt. 193 F; ref. index 1.429 (20 C)

Precaution: Flamm.

HMIS: Health 1, Flammability 2, Reactivity 0

Storage: 24 mos. when stored in tight glass, aluminum, or double lined containers in a cool area away from direct heat

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL


Pent-1-en-3-ol. See 1-Penten-3-ol
1-Penten-3-one, 1-(2,6,6-trimethyl-1-cyclohexen-1-yl)-. See Methyl β-ionone
1-Penten-3-one, 1-(2,6,6-trimethyl-2-cyclohexen-1-yl) -. (R-(E))- See Methyl α-ionone

†=pharmaceutical grade

Pentate calcium trisodium. See Calcium trisodium pentetate
Pentate pentasodium. See Pentasodium pentetate
Pentate trisodium calcium. See Calcium trisodium pentetate
Pentiformic acid. See Caproic acid
Pentosanpolysulfate sodium
Synonyms: PPS
Definition: A semi-synthetic glucosaminoglycan analog of heparin with anticoagulant, chondroprotective, anti-inflammatory, antiangiogenic and antiviral properties
Uses: Pharmaceutical topicals; treatment of veterinary interstitial cystitis

Regulatory: FDA approved for topicals

Pentyl acetate; 1-Pentyl acetate; n-Pentyl acetate. See Amyl acetate
Pentyl acetate (all isomers). See 2-Methylbutyl acetate
Pentyl alcohol; n-Pentyl alcohol. See n-Amyl alcohol
s-Pentyl alcohol. See s-Amyl alcohol
t-Pentyl alcohol. See t-Amyl alcohol
α-Pentylaldehyde. See α-Amylinaldehyde
1-Pentylallyl acetate. See 1-Octen-3-yl acetate
1-Pentylallyl butyrate. See 1-Octen-3-yl butyrate

Pentylamine
CAS 110-58-7; EINECS/ELINCS 203-780-2
UN 1106; 2733 (DOT); 2734 (DOT)
Synonyms: Amine C5; 1-Aminopentane; Amylamine; n-Amylamine; Monoamylamine; 1-Pentanamine; 1-Pentylamine; n-Pentylamine

Classification: Sat. aliphatic amine

Empirical: C5H13N

Formula: CH3(CH2)4NH2

Properties: Colorless liq.; ammoniacal odor; very sol. in water, ethanol, acetone, ether, benzene; sol. in dimethylsulfoxide; m.w. 87.19; dens. 0.753 (20/4 C); m.p. -55 C; b.p. 102-104 C; flash pt. (CC) -1 C; ref. index 1.412 (20 C); mod. strong base

Toxicology: LDLo (IP, rat) 37,500 µg/kg; poison by IP route; corrosive, toxic; can cause burns of skin; can be absorbed through skin in toxic amts.; eye irritant; possible permanent eye injury, 'halo vision'; inh. of vapor can cause nose/throat irritation.
coughing; chest pain; difficulty breathing; high concs. may cause potentially fatal pulmonary edema; ing. may cause burning of mouth, throat, digestive tract; headache, nausea; anxiety; TSCA listed

Precaution: Highly flamm.; dangerous fire risk; incompat. with oxidizing agents, acids, acid chlorides, acid anhydrides, calcium or sodium hypochlorite, nitromethane, nitrosyl perchlorate; violent/explosive reactions possible

Hazardous Decomp. Prods.: Heated to decomp., emits toxic vapors of NOx

NFPA: Health 2, Flammability 3, Reactivity 0

Storage: Store in cool, dry, well-ventilated area, out of direct sunlight

Uses: Pharmaceutical topicals

Regulatory: FDA approved for topicals; Canada DSL


1-Pentylamine; n-Pentylamine. See Pentylamine

Pentyl butanoate; Pentyl butyrate. See Amyl butyrate

Pentyl caproate. See Amyl hexanoate

Pentylcarbinol. See Hexyl alcohol

α-Pentylcinnamaldehyde. See α-Amylcinamaldehyde

α-Pentyl cinnamyl acetate. See α-Amylcinamyl acetate

α-Pentylcinnamyl alcohol. See α-Amylcinamyl alcohol

α-Pentylcinnamyl formate. See α-Amylcinamyl formate

α-Pentylcinnamyl isovalerate. See α-Amylcinamyl isovalerate

Pentyl crotonyl acetate. See 1-Octen-3-yl acetate

Pentyl ethanoate. See Amyl acetate

n-Pentyl ethyl ketone. See 3-Octanone

Pentyl formate; n-Pentyl formate. See Amyl formate

Pentylformic acid. See Caproic acid

Pentyl-2-furoate. See Amyl 2-furoate

Pentyl 2-furyl ketone

CAS 14360-50-0; EINECS/ELINCS 238-333-0

†=pharmaceutical grade

FEMA 3418

Synonyms: Apricot ketone; 1-(2-Furanyl)-1-hexanone; 1-(2-Furyl) hexanone; 1-(2-Furyl)-1-hexanone; 2-Hexanoyl furan; Pentyl 2-furyl ketone

Classification: aliphatic ketone

Empirical: C10H14O2

Properties: Yel. to brown cl. liq.; sol. in alcohol; insol. in water; m.w. 166.22; dens. 0.995; b.p. 65-67 C (0.5 mm); flash pt. 25 F

Uses: Synthetic flavor for pharmaceuticals

Features: Apricot, peach-like flavor

Regulatory: FEMA GRAS; Canada DSL

Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com

Pentyl 2-furyl ketone. See Pentyl 2-furyl ketone

Pentyl heptanoate. See Amyl heptanoate

Pentyl hexanoate. See Amyl hexanoate

Pentyl 2-hydroxybenzoate. See Amyl salicylate

n-Pentyl methyl ketone. See Methyl n-amyl ketone

Pentyl octanoate. See Amyl octanoate

p-t-Pentylphenol. See p-t-Amylphenol

3-Pentyl-3-phenyl-2-propanal. See α-Amylcinamaldehyde

2-Pentyl-3-phenylprop-2-en-1-ol. See α-Amylcinamyl alcohol

Pentyl salicylate. See Amyl salicylate

Pentyl vinyl carbinol. See 1-Octen-3-ol

n-Pentyl vinyl carbinol acetate. See 1-Octen-3-yl acetate

m-Pentynol. See Methyl pentynol

PEO. See Polyethylene glycol

Pepital. See Acetaldehyde phenethyl propyl acetal

Pepper, black, oil. See Black pepper (Piper nigrum) oil

Pepper, black, oleoresin. See Oleoresin black pepper

Peppermint. See Peppermint (Mentha piperita) leaves

Peppermint camphor. See Menthol

Peppermint leaf; Peppermint leaves. See Peppermint (Mentha piperita) leaves

Peppermint (Mentha piperita) leaves

CAS: 977018-19-1

FEMA 2847

Synonyms: Mentha piperita; Mentha piperita leaf; Mentha piperita leaves; Peppermint; Peppermint leaf; Peppermint leaves

Definition: Dried leaves and tops of the
Chemical Component Cross-Reference

peppermint, *Mentha piperita*

Properties: Aromatic char. odor, pungent taste producing a cooling sensation in the mouth

Uses: Natural flavor in pharmaceuticals; stimulant; stomachic; carminative

Regulatory: FDA 21CFR §182.10, GRAS; FEMA GRAS; Japan approved (peppermint); USP/NF, BP, EP compliance

Manuf./Distrib.: Alfa Chem†
http://www.alfachelm.com; Chr. Hansen Inc
http://www.chr-hansen.com; Ruger†
http://www.rugerchemical.com

Peppermint (Mentha piperita) oil

CAS 8006-90-4; EINECS/ELINCS 308-770-2

FEMA 2848

Synonyms: Mentha piperita; Mentha piperita oil; Peppermint oil

Definition: Volatile oil from steam distillation of *Mentha piperita*, contg. menthol, and menthyl esters incl. menthyl acetate, and menthone

Properties: Colorless to pale yel. liq., strong penetrating peppermint odor, pungent taste producing sensation of cold when air is drawn into mouth; sol. in 4 vols 90% alcohol; very sl. sol. in water; dens. 0.896-0.908; flash pt. (CC) 80 C; ref. index 1.460-1.471 (20 C); tenacity 8 hrs. on blotter

Toxicology: LD50 (oral, rat) 2426 mg/kg, (IP, rat) 819 mg/kg; mod. toxic by ing. and IP routes; can cause allergic reactions, hay fever, skin rash; mutagenic data; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

HMIS: Health 1, Flammability 2, Reactivity 0

Storage: Light-sensitive; store in cool, dry place in tightly sealed containers, protected from heat

Uses: Pharmaceutic aid; natural flavor for pharmaceuticals, toothpaste, tooth powds., mouthwashes, buccals, orals, eye lotions; perfume; carminative; vehicle in peppermint water

Use Level: < 3%

Regulatory: FDA 21CFR §172.230, 182.20, GRAS; 27CFR §21.65, 21.151; FEMA GRAS; Europe listed (pulegone levels: 25 ppm in food to 350 ppm in mint confectionery); FDA approved for buccals, orals; USP/NF, BP, EP compliance; Canada DSL; Australia; Philippines PICCS

Manuf./Distrib.: AMC Chems.; Acme-Hardesty

†=pharmaceutical grade

http://www.acme-hardesty.com; Adept
Sol'ns.; Alfa Chem†
http://www.alfachelm.com; Arista Ind.†
http://www.aristaindustries.com
Asiameer Intl.; Astral Extracts
http://www.astroalextracts.com; Barnet Prods.
http://www.barnetproducts.com
Berje http://www.berjeinc.com; Buckton Page Ltd http://www.bucktonpage.com
CarboMer† http://www.carbomer.com;
Chart http://www.chartcorp.com;
Chemacon GmbH†
http://www.chemacon.de; Chinessence
http://www.chinessence.com; Citrus and Allied Essences
http://www.citrusandallied.com
Creative Fragrances
http://www.creativefragrances.com; De Monchy Aromatics
http://www.demonchyaromatics.com;
Eramex Aromatics http://www.ерамекс.de;
Essence Nat. Prods.† http://www.ea-menthol.com; F.D. Copeland
http://www.copelandoil.co.uk
Fleurchem http://www.fleurchem.com;
Frutarom (UK) Fine Ingrds.†
http://www.frutarom.com; Fuerst Day Lawson http://www.fdlic.co.uk; George Uhe
http://www.uhe.com; Hindustan Mint & Agro Products
http://www.hindustanmint.com/
Hitech Agro Prods.; Hunan Xinyu
http://www.hunanxinyu.com; Integra†
MelChem http://www.melchem.com
Millennium†
http://www.millenniumchem.com; Mutchler†
http://www.mutchlerchem.com; NetQem
http://www.netqem.us; Pangaea Sciences†
http://www.pangaeasciences.com; Penta Mfg.† http://www.pentamfg.com
Polarome Int'l. http://www.polarom.com
R.W. Greeff† http://www.pechiney-chemicals.com
Reindeer Menthol http://www.reindeermenthol.com; Robeco
http://www.robecoinc.com; Ruger†
http://www.rugerchemical.com
SAFC Specialties
http://www.safcspecialties.com; Sarcom
http://www.sarcominc.com; Spectrum
Quality Prods.†
http://www.spectrumchemical.com;
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Chemical Component</th>
<th>Manufacturer/Distributor</th>
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</thead>
<tbody>
<tr>
<td>Peppermint oil</td>
<td>Takasago Int'l.</td>
</tr>
<tr>
<td>Peppermint spirit</td>
<td>Treatt USA</td>
</tr>
<tr>
<td>Peppermint oil</td>
<td>U.S. Synthetics; Ultra Int'l.</td>
</tr>
<tr>
<td>Pepper oil, black</td>
<td>Takasago Int'l.</td>
</tr>
</tbody>
</table>

### Peppermint oil
- **Trade Names:** Custosense PM
- **Uses:** Flavor and fragrance for pharmaceuticals

### Peppermint spirit
- **CAS:** 8030-00-0
- **UN:** 1170
- **Definition:** Contains peppermint oil and alcohol
- **Uses:** Flavor and fragrance for pharmaceuticals

### Pepper oil, black
- **Trade Names:** Pepsin 1:3000 Powder; Pepsin 1:6000; Pepsin 1:10,000 Powd. or Gran.; Pepsin 1:15,000 Powd.

### Pepsin
- **CAS:** 9001-75-6; EINECS/ELINCS 232-629-3
- **Synonyms:** Lactated pepsin; Pepsin A; Pepsinum
- **Definition:** A digestive enzyme of gastric juice which hydrolyzes certain linkages of proteins to produce peptones
- **Properties:** Wh. or ylsh. wh. powd. or lustrous transparent or translucent scales, odorless; sol. in water; insol. in alcohol, chloroform, ether; m.w. ≈ 36,000
- **Toxicology:** Mutagen; TSCA listed
- **HMIS:** Health 1, Flammability 0, Reactivity 0
- **Storage:** Hygroscopic; keep under argon
- **Uses:** Proteolytic enzyme for pharmaceuticals; medicine (digestive ferment)
- **Regulatory:** FDA 21CFR §247.406, 184.1595, GRAS; Canada, Japan approved; BP, EP compliance
- **Manuf./Distrib.:** AMRESCO† http://www.amresco-inc.com; Aceto† http://www.aceto.com; Alfa Chem

### Peracetic acid
- **CAS:** 79-21-0; EINECS/ELINCS 201-186-8
- **Synonyms:** Acetyl hydroperoxide; Ethaneperoxic acid; PAA; Peroxyacetic acid
- **Classification:** Nonaromatic carboxylic acids
- **Empirical:** C₂H₄O₃
- **Formula:** CH₃COOOH
- **Properties:** Colorless liq.; strong acrid odor; sol. in water, alcohol, sulfuric acid, oxygenated solvs.; m.w. 76.06; dens. 1.15 (20 C); f.p. -30 C; b.p. 105 C; flash pt. 40.5 C; ref. index 1.3876
- **Toxicology:** LD50 (oral, rat) 1540 µl/ kg, (oral, mouse) 210 mg/kg; poison by ing.; mod. toxic by inh. and skin contact; strong irritating to skin, mucous membranes; inh. can cause coughing, burning sensation; ing. causes burning, irritation; tumorigen; TSCA listed
- **Environmental:** No environmental hazards; rapidly dec. to acetic acid, oxygen, and water; non-bioaccumulative
- **Precaution:** Flamm.; strong oxidizing agent;
Chemical Component Cross-Reference

Perillyl acetate
See Perillyl alcohol

Perillyl alcohol
See Perillyl alcohol

Perillaldehyde
CAS 2111-75-3; 18031-40-8 (L-(-)); EINECS/ELINCS 218-302-8
FEMA 3557

Synonyms: 4-Isopropenylcyclohex-1-ene carbaldehyde; 4-Isopropenyl-1-cyclohexene-1-carboxaldehyde; p-Mentha-1,8-dien-7-ol; 1,8-p-Menthadien-7-ol; (S)-4-[(1-Methylene) 1-cyclohexene-1-carboxaldehyde; L-4-(1-Methylene) 1-cyclohexene-1-carboxaldehyde; DL-Perillaldehyde; (S)-(-)-Perillaldehyde; Perillyl aldehyde

Empirical: C10H14O

Properties: Green oily fatty cherry odor; m.w. 150.22; dens. 0.965; b.p. 104-105 C (10 mm); flash pt. 204 F; ref. index 1.5072

Toxicology: Irritant; mutagen

†=pharmaceutical grade

HMIS: Health 1, Flammability 1, Reactivity 0

Uses: Synthetic flavor for pharmaceuticals

Features: Cherry-like flavor

Use Level: 0.1% max. in finished cosmetics

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Japan approved as flavoring; Canada DSL


DL-Perillaldehyde; (S)-(-)-Perillaldehyde. See Perillaldehyde

Perillol. See Perillyl alcohol

Perillyl acetate
CAS 15111-96-3; EINECS/ELINCS 239-162-4
FEMA 3561

Synonyms: Acetic acid perillyl ester; Dihydrocuminyl acetate; 4-Isopropenyl-1-cyclohexene carbinol acetate; Menthadien-7-carbinyl acetate; 1-8-p-Menthadien-7-yl acetate; p-Mentha-1,8-dien-7-yl acetate; 4-Methyl vinyl cyclohexene-1-methyl acetate; Perilla acetate

Empirical: C12H18O2

Properties: Ylsh. to orange yel.; rich, spicy,
hearbaceous odor; practically insol. in water;
sol. in alcohol, oils; m.w. 194.28; sp.gr. 0.978-0.986; flash pt. 93 C; ref. index 1.475-1.485

Storage: 24 mos. when stored in tight glass,
aluminum, or double lined containers in a cool
area away from direct heat

Uses: Synthetic flavor for pharmaceuticals

Features: Rich spicy herbal odor

Regulatory: FDA 21CFR §172.515; FEMA
GRAS; Canada DSL

Manuf./Distrib.: Citrus and Allied Essences http://www.citrusandallied.com; Degussa AG/Health & Nutrition

Perillyl alcohol
CAS 536-59-4; EINECS/ELINCS 208-639-9
FEMA 2664

Synonyms: Cyclohex-1-ene-1-methanol, 4-{1-methylene}; Dihydrocuminyl alcohol; 1-Hydroxymethyl-4-isopropenyl-1-cyclohexene; 4-Isopropenyl-cyclohex-1-ene-1-methanol; 4-Isopropenylcyclohex-1-en-1-ylmethanol; p-Mentha-1,8-dien-7-ol;
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Chemical Component</th>
<th>Synonyms</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perilla alcohol</td>
<td>Perillol; (S)-(-)-Perillyl alcohol</td>
<td>See Perillaldehyde</td>
</tr>
<tr>
<td>Empirical: C_{10}H_{16}O</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Properties: Liq.; green pungent fatty odor; m.w. 152.24; dens. 0.960; b.p. 119-121 C (11 mm); flash pt. &gt; 230 F; ref. index 1.5010</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Toxicology: LD50 (oral, rat) 2100 mg/kg; mod. toxic by ing.; severe skin irritant; TSCA listed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Precaution: Combustible liq.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**HMIS:** Health 1, Flammability 1, Reactivity 0

**Uses:** Synthetic flavor for pharmaceuticals

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Manuf./Distrib.:** Citrus and Allied Essences [http://www.citrusandallied.com](http://www.citrusandallied.com); SAFC Specialties [http://www.safcspecialties.com](http://www.safcspecialties.com)

For a complete list of synonyms and sources, see the Handbook of Pharmaceutical Additives, Third Edition.
Petitgrain oil saponified. See Petitgrain oil
Petrol. See Isopropyl alcohol

Petrolatum
CAS 8009-03-8 (NF); 8027-32-5 (USP);
EINECS/ELINCS 232-373-2
INS905b
Synonyms: Mineral grease (petrolatum);
Mineral jelly; Paraffin jelly; Petrolatum amber;
Petrolatum white; Petroleum jelly; Vaseline;
White petrolatum; White soft paraffin; Yellow vaseline
Classification: Petroleum hydrocarbons
Definition: Semisolid mixture of hydrocarbons
obtained from dewaxing residual oil; consists
predominantly of sat. crystalline and liq.
hydrocarbons with > C25
Properties: Ylsh. to lt. amber or wh. semisolid,
umeuxious mass; pract. odorless and tasteless;
sol. in benzene, chloroform, ether, petrol.
ether, oils; pract. insol. in water; insol. in
alcohol; dens. 0.820-0.865 (60/25 C); m.p. 38-
54 C; soften. pt. 65-70 C; ref. index 1.460-
1.474 (60 C)
Toxicology: LD50 (IP, mouse) > 50 g/kg; can
cause allergic skin reactions in hypersensitive persons; generally nontoxic;
TSCA listed
Hazardous Decomp. Prods.: Heated to
decomps., emits acrid smoke and irritating
fumes
HMIS: Health 0, Flammability 1, Reactivity 0
Uses: Excipient, ointment base, filler, solvent,
emollient, skin protectant in pharmaceuticals, topicals, ophthalmics,
orals, otics, suppositories, veterinary
prods.; laxative base
Features: Protects skin from irritation
Regulatory: FDA 21CFR §172.880, 172.884,
Chemical Component Cross-Reference

Universal Preserv-A-Chem†
http://www.upicchem.com; VWR Int’l.†
http://www.vwrsp.com
Varsal Instruments†
http://www.varsal.com; Voigt Global Distrib.†
http://www.vgdllc.com

Trade Names: Avagel™ 520; Avagel™ 525; Avagel™ 560; Cosmolloid® MO76; Cosmolloid® MO120
Cosmolloid® MO125; Cosmolloid® MO280; Cosmolloid® MO299; Cosmolloid® MO300; Fonoline® White
Fonoline® Yellow; Mineral Jelly No. 10; Mineral Jelly No. 14; Mineral Jelly No. 17; Mineral Jelly No. 20
Ointment Base No. 4; Ointment Base No. 6; Penreco Amber; Penreco Blond; Penreco Cream
Penreco Lily; Penreco Regent; Penreco Royal; Penreco Snow; Penreco Super Penreco Ultima; Perfecta®; Petrolan USP;
Pinnacle™ 170 USP White Petrolatum; Pinnacle™ 170A USP Amber Petrolatum
Pinnacle™ 190 USP White Petrolatum; Pinnacle™ 190A USP Amber Petrolatum; Pinnacle™ 225 USP White Petrolatum;
Pinnacle™ 225A USP Amber Petrolatum; Pinnacle™ LC 170 Petrolatum, USP
Pinnacle™ LC 190 Petrolatum, USP; Pinnacle™ LC 225 Petrolatum, USP; Pinnacle™ WF 170 Petrolatum, USP;
Pinnacle™ WF 190 Petrolatum, USP; Pinnacle™ WF 225 Petrolatum, USP
Pionier® 01; Pionier® 1761; Pionier® 3479; Pionier® 3533; Pionier® 5370
Pionier® 5464; Pionier® 5741; Pionier® 6140; Pionier® 6892; Pionier® 8693; Pionier® 17004
Pionier® 17146; Protopet® Alba; Protopet® White 1S; Protopet® White 2L; Protopet® White 3C
Protopet® Yellow 2A; Sonojell® No. 4; Sonojell® No. 9; Super White Fonoline®; Super White Protopet®
Ultrapure ES Liquid; Ultrapure L; Ultrapure Liquid; Ultrapure SC

Trade Names Containing: Argobase EST; Argo base EU; Argo base EUC 2; Emery® 1740; Forlan 200
Forlan 300; Lexate® PX; Pionier® MAA; Pionier® MAA Weich; Pionier® SVE
Pionier® SVE Soft; Protegin®; Protegin® W; Protegin® WX; Protegin® X
Vilvanolin® C; Vilvanolin® CAB
See also Red petrolatum

†=pharmaceutical grade

Petrolatum amber. See Petrolatum
Petrolatum liquid. See Mineral oil
Petrolatum white. See Petrolatum
Petroleum distillate; Petroleum distillate light. See Petroleum distillates

Petroleum distillates
CAS 8002-05-9; 64742-14-9; 64742-48-9; 64742-56-9; EINECS/ELINCS 232-298-5
UN 1268 (DOT)
Synonyms: Petroleum distillate; Petroleum distillate light
Classification: Petroleum hydrocarbons
Definition: Mixture of volatile hydrocarbons obtained from petroleum
Toxicology: OSHA PEL TWA 400 ppm; TDLo (parenteral, man) 57 mg/kg; human systemic effects by parenteral route
cough, dyspnea, nausea, vomiting); mildly toxic by inh., ing.; mod. skin/eye irritant;
skin contact may cause defatting; vapor inh. can cause CNS depression, headache,
unconsciousness; TSCA listed
Precaution: Combustible exposed to heat or flame
Hazardous Decomp. Prods.: Heated to decom., emits acrid smoke and irritating fumes
Uses: Solvent, defoamer, diluent for pharmaceutical creams and lotions

Regulatory: Canada DSL
Trade Names: PD-25; PD-28

Petroleum ether. See VM&P naphtha
Petroleum gases, liquefied. See Propane
Petroleum jelly. See Petrolatum
Petroleum naphtha. See VM&P naphtha
Petroleum oil. See Mineral oil
Petroleum spirits. See VM&P naphtha; Mineral spirits

Petroleum thinner. See VM&P naphtha
Petroleum wax, crystalline. See Paraffin
Petroleum wax, microcrystalline. See Microcrystalline wax

Petroselinum crispum. See Parsley
(Petroselinum crispum)
Petroselinum crispum oleoresin. See Oleoresin parsley leaf; Oleoresin parsley seed
Petroselinum crispum seed oil; Petroselinum sativum seed oil. See Parsley (Carum petroselinum) seed oil
PG. See Propyl gallate; Propylene glycol
PGA. See Folic acid
PGE. See Phenyl glycidyl ether
Chemical Component Cross-Reference

PGEE. See Propylene glycol ethyl ether
PGML. See Propylene glycol laurate
PGMS. See Propylene glycol stearate
PGPR. See Polyglyceryl polyricinoleate

Pharmaceutical glaze
Synonyms: Glaze, pharmaceutical
Definition: Denatured alcohol sol’n. contg. 20-
57% of anhydrous shellac
Uses: Coating agent in pharmaceutical orals
Regulatory: FDA approved for orals; USP/NF
compliance

α-Phellandrene
CAS 99-83-2; EINECS/ELINCS 202-792-5
FEMA 2856
Synonyms: α-Phellandrene; 4-Isopropyl-1-
methyl-1,5-cyclohexadiene; 5-Isopropyl-2-
methyl-1,3-cyclohexadiene; p-Mentha-1,5-
diene; 2-Methyl-5-isopropyl-1,3-
cyclohexadiene; 2-Methyl-5-(1-methylethyl)-
1,3-cyclohexadiene
Classification: Monocyclic terpene
Empirical: C_{10}H_{16}
Formula: CH₃C:CHCH₂CH[CH(CH₂)₂]CH:CH
Properties: Colorless to pale yel. mobile oil or
liq.; minty herbaceous odor; sol. in alcohol,
ether; insol. in water; m.w. 136.24; dens.
0.850; b.p. 175 C; flash pt. 117 F; ref. index
1.471-1.477; tenacity 2 hrs. on blotter
Toxicology: LD₅₀ (oral, rat) 5700 mg/kg; mildly
toxic by ing.; ing. can cause vomiting,
diarrhea; can be irritating to, and absorbed
trough, skin; severe human skin irritant;
TSCA listed
Precaution: Flamm. liq. exposed to heat,
sparks, or flame; incompat. with air
Hazardous Decomp. Prods.: Heated to
decomp., emits acrid smoke and irritating
fumes
Storage: Store in cool, dry place in tightly sealed
containers, protected from heat, light
Uses: Synthetic flavor for pharmaceuticals
Features: Minty flavor

Use Level: 1-5%
Regulatory: FDA 21CFR §172.515; FEMA
GRAS; Australia; Canada DSL; Japan ENCS
(no. 3-2243); Philippines PICCS
Manuf./Distrib.: Augustus Oils Ltd
http://www.augustus-oils.ltd.uk; Citrus and
Allied Essences
http://www.citrusandallied.com; Fleurchem
http://www.fleurchem.com; SAFC
Specialties
http://www.safcspecialties.com; Takasago

Phemernite. See Phenylmercuric nitrate,
basic
Phemabol chloride. See Benzethonium
chloride
Phenacetaldehyde dimethyl acetal. See
Phenylacetaldehyde dimethyl acetal
Phenacetyl chloride. See Chloroacetophenone
1-Phenanthrenemethanol, dodecahydro-1,4a-
dimethyl-7-[(1-methylethyl)-, docosanoate.
See Dihydroabietyl behenate
1-Phenanthrenemethanol, tetradecahydro-
1,4a-dimethyl-7-(1-methylethyl)-. See
Dihydroabietyl alcohol
Phenazon. See Antipyrine
Phene. See Benzene
Phenethanol; β-Phenethanol. See Phenethyl
alcohol
1-Phenethoxy-1-propoxyethane. See
Acetaldehyde phenethyl propyl acetal
Phenethyl acetate; 2-Phenethyl acetate; β-
Phenethyl acetate. See 2-Phenylethyl
acetate
s-Phenethyl acetate. See α-Methylbenzyl
acetate

Phenethyl alcohol
CAS 60-12-8; EINECS/ELINCS 200-456-2
UN 2810 (DOT; UN IATA); FEMA 2858
Synonyms: Benzeneethanol; Benzyl carbinol;
Ethanol, 2-phenyl-; β-Hydroxyethylbenzene;
Methanol, benzyl-; Orange oil; PEA; β-PEA;
Phenethanol; β-Phenethanol; 2-Phenethyl
alcohol; β-Phenethyl alcohol; 2-
Phenylethanol; β-Phenylethanol;
Phenyethol alcohol; 2-Phenethyl alcohol;
β-Phenylethyl alcohol; Rose oil
Classification: Aromatic alcohol
Empirical: C₆H₄O
Formula: C₆H₅CH₂CH₂OH
Properties: Colorless liq., floral rose odor,
burning taste; sol. in fixed oils, glycerin,
propylene glycol, oxygenated solvs.; misc. with alcohol, ether; sl. sol. in water; m.w. 122.18; dens. 1.0245 (15 C); vapor pressure 1 mm (58 C); m.p. -27 C; b.p. 220 C; flash pt. 102 C; ref. index 1.532 (20 C)

**Toxicology:** LD50 (oral, rat) 1790 mg/kg, (skin, rabbit) 790 mg/kg; mod. toxic by ing., skin contact; harmful by inh.; skin, eye, and respiratory system irritant; may cause severe CNS injury; may cause anestheisa, ataxia, coma, gastritis, fetal death; may cause burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, vomiting; experimental teratogen, reproductive effector; mutagenic data; target organs: CNS; TSCA listed

**Precaution:** Combustible when exposed to heat or flame; incompat. with strong oxidizing agents, strong acids; reactive with oxidizing materials

**Hazardous Decomp. Prods.:** Toxic fumes of CO, CO2; emits toxic fumes under fire conditions

**NFPA:** Health 1, Flammability 1, Reactivity 0

**Storage:** 6 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air

**Uses:** Antimicrobial, preservative, solvent for pharmaceuticals, ophthalmics, otics, topicals, vaginals; flavor and fragrance for pharmaceuticals; topical antiseptic; local anesthetic

**Features:** Honey-like flavor

**Regulatory:** USP/NF compliance; FDA 21CFR §172.515, CIR approved, EPA reg.; FEMA GRAS; JSCI listed; FDA approved for ophthalmics, otics, topicals, vaginals; Australia AICS; Canada DSL

**Manuf./Distrib.:** ADA Int'l. 
Phenethyl anthranilate

CAS: 133-18-6; EINECS/ELINCS: 205-098-0
FEMA: 2859

Synonyms: 2-Aminobenzoic acid phenethyl ester; Anthranilic acid, phenethyl ester; Benzoic acid, 2-amino-, 2-phenylethyl ester; Benzyl carbinyl anthranilate; Phenethyl 2-aminobenzoate; β-Phenethyl-o-aminobenzoate; 2-Phenylethyl-o-aminobenzoate; Phenylethyl anthranilate; 2-Phenylethyl anthranilate

Classification: Aromatic ester

Definition: Ester of anthranilic acid and phenylethyl alcohol

Empirical: C₁₅H₁₅NO₂

Formula: H₂NC₆H₄COOC₂H₄C₆H₅

Properties: Wh. to yel. cryst. mass; odor of grape and orange; insol. in water; m.w. 241.29; dens. 1.14; m.p. 39-44 C; b.p. 226 C; flash pt. > 230 F

Toxicology: Primary skin irritant; TSCA listed

Precaution: Combustible

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOₓ

Storage: Store under nitrogen

Uses: Synthetic flavor for pharmaceuticals

Features: Honey-like flavor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL


Phenethyl benzoate

CAS: 94-47-3; EINECS/ELINCS: 202-336-5
FEMA: 2860

Synonyms: Benzoic acid phenethyl ester; Benzyl carbinyl benzoate; Phenethyl alcohol, benzoate; Phenylethyl benzoate; 2-Phenylethyl benzoate; β-Phenethylbenzoate

Classification: Aromatic ester

Empirical: C₁₅H₁₄O₂

Properties: Colorless to ylsh. oily liq., rose honey-like odor; insol. in water; m.w. 192.26; dens. 0.994; b.p. 260 C; flash pt. > 230 F; ref. index 1.488-1.492

Toxicology: LD₅₀ (oral, rat) 4600 µl/kg; mod. toxic by ing.; primary skin irritant; TSCA listed

Precaution: Combustible

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals

Features: Sweet grape, strawberry-like flavor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL


Phenethyl butanoate

CAS: 103-52-6; EINECS/ELINCS: 203-119-8
FEMA: 2861

Synonyms: Benzylcarbinyl butyrate; Butyric acid phenethyl ester; Phenethyl butanoate; 2-Phenethyl butanoate; β-Phenethyl-n-butanoate; Phenylethyl butyrate; 2-Phenylethyl butyrate

Classification: Aromatic ester

Empirical: C₁₂H₁₆O₂

Properties: Colorless liq., rose-like odor, sweet honey-like taste; insol. in water; m.w. 192.26; dens. 0.994; b.p. 260 C; flash pt. > 230 F; ref. index 1.488-1.492

Toxicology: LD₅₀ (oral, rat) 4600 µl/kg; mod. toxic by ing.; primary skin irritant; TSCA listed

Precaution: Combustible

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals

Features: Sweet grape, strawberry-like flavor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Phenethyl caproate. See Phenethyl hexanoate
Phenethyl carbinol. See Hydrocinnamic alcohol
Phenethyl cinnamate
CAS 103-53-7; EINECS/ELINCS 203-120-3
FEMA 2863
Synonyms: Benzyl carbinyl cinnamate; Benzyl carbinyl 3-phenyl propenoate; Cinnamic acid phenethyl ester; β-Phenethyl cinnamate; Phenylethyl cinnamate; 2-Phenylethyl cinnamate; 3-Phenyl-2-propenoic acid 2-phenyl ethyl ester
Classification: Aromatic ester
Empirical: C17H16O2
Formula: C6H5CH=CHCO2CH2CH2C6H5
Properties: Wh. cryst. solid, sweet balsamic odor; sol. in hot alcohol; insol. in water; m.w. 252.32; m.p. > 300 C; flash pt. (TCC) > 212 F
Toxicology: LD50 (oral, rat) 5 g/kg, (oral, guinea pig) 4500 mg/kg; mildly toxic by ing.; irritating to skin; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Synthetic flavor for pharmaceuticals
Features: Rose green hyacinth watercress herbal odor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

β-Phenethyl cinnamate. See Phenethyl cinnamate
Phenethyl 3,3-dimethylacrylate. See Phenethyl senecioate
Phenethylene. See Styrene
Phenethyl ester isovaleric acid. See Phenethyl isovalerate
Phenethyl ethanoate. See 2-Phenylethyl acetate
Phenethyl formate
CAS 104-62-1; EINECS/ELINCS 203-220-7
FEMA 2864
Synonyms: Benzylcarbinyl formate; Benzyl carbinyl methanoate; Formic acid phenethyl ester; Phenethyl alcohol, β-formate; 2-Phenylethyl formate; β-Phenylethyl formate
Classification: Aromatic ester
Empirical: C9H10O2
Formula: HCO2CH2CH2C6H5
Properties: Colorless liq.; sol. in alcohol; sl. sol. in water; m.w. 150.17; b.p. 226 C; acid no. 1.0 max.; ref. index 1.506-1.510
Toxicology: LD50 (oral, rat) 3220 mg/kg, (skin, rabbit) > 5 g/kg; mod. toxic by ing.; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Synthetic flavor for pharmaceuticals
Features: Rose green hyacinth watercress herbal odor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Phenethyl hexanoate
CAS 6290-37-5; EINECS/ELINCS 228-538-3
FEMA 3221
Synonyms: Benzyl carbinyl caproate; Benzyl carbinyl hexanoate; Hexanoic acid phenethyl ester; Hexanoic acid phenyl ethyl ester; Phenethyl caproate; 2-Phenyl ethyl caproate; 2-Phenyl ethyl hexanoate
Classification: Aromatic ester
Empirical: C14H20O2
Properties: M.w. 220.31; dens. 0.971; flash pt. > 230 F
Uses: Synthetic flavor for pharmaceuticals
Features: Fruity banana, pineapple-like flavor
Regulatory: FEMA GRAS; Canada DSL
Manuf./Distrib.: SAFC Specialties http://www.safcspecialties.com

Phenethyl isobutyrate
CAS 103-48-0; EINECS/ELINCS 203-116-1
FEMA 2862
Synonyms: Benzylcarbinol isobutyrate;
Chemical Component Cross-Reference

Benzylcarbinyl isobutyrate; Isobutyric acid phenethyl ester; Phenylethyl isobutyrate; 2-Phenylethyl isobutyrate; β-Phenylethyl isobutyrate; Phenylethyl 2-methylpropanoate; 2-Phenylethyl-2-methylpropanoate

Classification: Aromatic ester

Empirical: C_{12}H_{16}O_{2}

Formula: (CH_{3})_{2}CHCOOC_{2}H_{4}C_{6}H_{5}

Properties: Colorless to lt. yel. liq.; pleasant rosy odor; sol. in alcohol, ether, fixed oils; insol. in water @ 230 C; m.w. 192.26; dens. 0.988; b.p. 250 C; flash pt. 227 F; ref. index 1.488 (20 C)

Toxicology: LD50 (oral, rat) 5200 mg/kg; mildly toxic by ing.; TSCA listed

Precaution: Combustible liq.

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals

Features: Fruity flavor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: Augustus Oils Ltd
http://www.augustus-oils.ltd.uk; Bell Flavors & Fragrances
Grau Aromatics http://www.grau-aromatics.de; J.H. Calo†
http://www.jhcalo.com; Lluch Essence
http://www.lluch-essence.com; Oxford Chems. Ltd
SAFC Specialties http://www.safcspecialties.com; V. Mane Fils SA http://www.mane.com

Phenethyl isovalerate

CAS 24817-51-4; EINECS/ELINCS 246-476-5

FEMA 3632

Synonyms: Benzylcarbinyl 2-methylbutyrate; Butanoic acid, 2-methyl-, 2-phenylethyl ester; Butyric acid, 2-methyl-, phenethyl ester; 2-Methylbutyric acid, phenethyl ester; β-Phenylethyl α-methylbutanoate; Phenylethyl 2-methylbutyrate; 2-Phenylethyl 2-methylbutyrate

Classification: Aromatic ester

Empirical: C_{13}H_{18}O_{2}

Properties: Colorless to lt. yel. liq.; fruity rosy odor; m.w. 206.29; dens. 0.974; b.p. 268 C; flash pt. > 230 F; ref. index 1.4850

Toxicology: LD50 (oral, rat) > 5 g/kg; mildly toxic by ing.; TSCA listed

Precaution: Combustible liq.

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating vapors

Uses: Synthetic flavor for pharmaceuticals

Features: Fruity flavor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: Augustus Oils Ltd
http://www.augustus-oils.ltd.uk; Bell Flavors & Fragrances
Grau Aromatics http://www.grau-aromatics.de; J.H. Calo†
http://www.jhcalo.com; Lluch Essence
http://www.lluch-essence.com; Oxford Chems. Ltd
SAFC Specialties http://www.safcspecialties.com; V. Mane Fils SA http://www.mane.com

Phenethyl-2-methylbutyrate

CAS 24817-51-4; EINECS/ELINCS 246-476-5

FEMA 3632

Synonyms: Benzylcarbinyl 2-methylbutyrate; Butanoic acid, 2-methyl-, 2-phenylethyl ester; Butyric acid, 2-methyl-, phenethyl ester; 2-Methylbutyric acid, phenethyl ester; β-Phenylethyl α-methylbutanoate; Phenylethyl 2-methylbutyrate; 2-Phenylethyl 2-methylbutyrate

Classification: Aromatic ester

Empirical: C_{13}H_{18}O_{2}

Properties: Colorless to lt. yel. liq.; fruity rosy odor; m.w. 206.29; dens. 0.975; flash pt. > 230 F; ref. index 1.4860

Toxicology: LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating vapors

Uses: Synthetic flavor for pharmaceuticals
Chemical Component Cross-Reference

Features: Fruity flavor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: Advanced Synthesis Tech.
http://www.advancedsynthesis.com; De Monchy Aromatics

Phenethyl 3-methylbutyrate. See Phenethyl isovalerate
Phenethyl 2-methylcrotonate. See Phenethyl tiglate
Phenethyl 3-methylcrotonate. See Phenethyl senecioate
Phenethylmethylcarbinol. See 1-Phenyl-3-methyl-3-pentanol
Phenethyl methyl ketone. See Benzylacetone

Phenethyl phenylacetate
CAS 102-20-5; EINECS/ELINCS 203-013-1
FEMA 2866

Synonyms: Benzeneacetic acid, 2-phenylethyl ester; Benzylcarbinyl-α-toluate;
Phenylacetic acid, phenethyl ester; Phenylethyl phenylacetate; β-Phenylethyl
phenylacetate; 2-Phenylethyl-α-toluate
Classification: Aromatic ester

Empirical: C_{16}H_{16}O_{2}
Formula: C_{6}H_{5}(CH_{2})_{2}OOCCH_{2}C_{6}H_{5}

Properties: Colorless to sl. yel. liq. above 26 C or
cryst. solid; rosy hyacinth odor; sol. in alcohol;
insol. in water; m.w. 240.32; dens. 1.079-1.082;
m.p. 26.5 C; flash pt. > 212 F

Toxicology: LD_{50} (oral, rat) 4 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and
skin contact; TSCA listed

Precaution: Combustible

Hazardous Decomp. Prods.: Heated to
decom., emits acrid smoke and irritating
fumes

Storage: Protect from air and light

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: Advanced Synthesis Tech.
http://www.advancedsynthesis.com; Augustus Oils Ltd
http://www.augustus-oils.ltd.uk; Bell Flavors & Fragrances
http://www.bellff.com; Cargill Flavors & Fruit Systems USA
http://www.flavors-fruit-systems.com; Elan http://www.elan-chemical.com

Fleurchem http://www.fleurchem.com;
Grau Aromatics http://www.grau-aromatics.de; J.H. Calo
http://www.jhcalo.com; Lluch Essence
http://www.lluch-essence.com; R.C. Treatt & Co. Ltd
http://www.rc-treatt.com

SAFC Specialties
http://www.safcspecialties.com; Sigma
http://www.sigma-aldrich.com/belgium
Chemical Component Cross-Reference

2-Phenethyl propionate. See Phenethyl propionate

Phenethyl salicylate
CAS 87-22-9; EINECS/ELINCS 201-732-5
FEMA 2868
Synonyms: Benzyl carbinyl 2-hydroxybenzoate; 2-Hydroxybenzoic acid 2-phenethyl ester; Phenylethyl 2-hydroxybenzoate; Phenylethyl salicylate; 2-Phenylethyl salicylate; Salicylic acid phenyl ethyl ester
Classification: Aromatic ester
Empirical: C_{15}H_{14}O_{3}
Formula: 2-(HO)C_{6}H_{4}CO_{2}CH_{2}CH_{2}C_{6}H_{5}
Properties: Wh. cryst.; balsamic odor; sol. in alcohol; insol. in water; m.w. 242.27; solid. pt. 41 C; m.p. 44 C; acid no. 1.0 max.; flash pt. > 212 F
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Augustus Oils Ltd

Phenethyl senecioate
CAS 42078-65-9; EINECS/ELINCS 255-649-4
FEMA 2869
Synonyms: Phenethyl 3,3-dimethylacrylate; Phenethyl 3-methylcrotonate; phenyl ethyl β,β-dimethyl acrylate; 2-Phenyl ethyl 3-methyl-2-butenoate; 2-Phenylethyl senecioate
Classification: Aromatic ester
Empirical: C_{13}H_{16}O_{2}
Properties: Colorless cl. liq.; sol. in alcohol; insol. in water; m.w. 204.27; solid. pt. 41 C; m.p. 44 C; acid no. 1.0 max.; flash pt. > 212 F
Toxicology: TSCA listed
Uses: Synthetic flavor for pharmaceuticals
Features: Deep sweet herbal wine odor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Degussa http://www.degussa.com; Grau Aromatics http://www.grau-aromatics.de

Phenethyl tiglate
†=pharmaceutical grade
CAS 55719-85-2; EINECS/ELINCS 259-774-5
FEMA 2870
Synonyms: Benzyl carbinyl tiglate; 2-Methyl-but-2-enolic acid phenethyl ester; Phenethyl 2-methylcrotonate; Phenylethyl (2E)-2-methyl-2-butenoate; Phenylethyl-α-methylbutenoate; Phenylethyl tiglate; 2-Phenylethyl tiglate
Classification: Aromatic ester
Empirical: C_{13}H_{16}O_{2}
Properties: Colorless liq., warm rose-like odor, sweet winey taste; sol. in alcohol; insol. in water; m.w. 204.27; dens. 1.018; b.p. 259 C; flash pt. > 230 F; ref. index 1.5140
Toxicology: Primary skin irritant; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Phenethyltris (trimethylsiloxy) silane. See Phenyl trimethicone
Phenic acid. See Phenol
Phenmerzyl nitrate. See Phenylmercuric nitrate, basic
Phenododecinium bromide. See Domiphen bromide

Phenol
CAS 108-95-2; EINECS/ELINCS 203-632-7
UN 1671 (solid); UN 2312 (fused); UN 2821 (sol'n.); FEMA 3223
Synonyms: Benzenol; 'Carbolic acid'; Hydroxybenzene; Liquid phenol; Monohydroxybenzene; Monophenol; Oxybenzene; Phenic acid; Phenol alcohol; Phenol, liquefied; Phenyl hydrate; Phenyl hydroxide; Phenyllic acid; Phenyllic alcohol
Classification: Aromatic organic compd.; carbolic acid
Empirical: C_{6}H_{5}O
Formula: C_{6}H_{5}OH
Properties: Colorless to lt. pink needle-shaped cryst.; char. odor of coal tar and wood; burning taste; sol. in alcohol, glycerin, chloroform, ether, water; misc. with oxygenated and chlorinated solvs.; sl. sol. in min. oil; m.w. 94.11; dens. 1.07; m.p. 40-42 C; b.p. 182 C;
flash pt. 79 C; darkens on exposure to lt., air

Toxicology: ACGIH TLV/TWA 5 ppm (skin);
LD50 (oral, rat) 317 mg/kg, (subcut., rat) 460 mg/kg, (IV, mouse) 112 mg/kg, (skin, rabbit) 850 mg/kg; poison by ing., subcut., IV, IP routes; human poison by ing.; mod. toxic by skin contact; severe eye/skin irritant; ing. of even sm. amts. may cause vomiting, circulatory collapse, paralysis, convulsions, coma, grnsh. urine, necrosis of mouth and GI tract; death results from respiratory failure; may cause serious skin burns; possible carcinogen; human mutagen; TSCA listed

Precaution: Combustible; vapor is flamm.; DOT: poisonous material; explosive and violent reactions possible; polymerizes violently when combined with isocyanates

Hazardous Decomp. Prods.: CO, CO2; heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 4, Flammability 2, Reactivity 0

Storage: Hygroscopic; deliq.; moisture- and light-sensitive; store frozen

Uses: Antimicrobial, preservative for pharmaceuticals, topicals, parenterals, injectables, insulin prods.; disinfectant, anesthetic for skin; active ingred. in deodorant soaps and mouthwash

Use Level: 0.5% (topicals), 0.2-5% (parenterals), 1% max. (soaps, shampoos)

Regulatory: FDA 21CFR §175.105, 175.300, 175.380, 175.390, 176.170, 177.1210, 177.1580, 177.2410, 177.2600, 27CFR §21.65, 21.151; FEMA GRAS; SARA reportable; HAP; FDA approved for injectables, parenterals, topicals; Canada DSL; USP/NF, BP, EP compliance

Manuf./Distrib.: AMRESCO†
http://www.amresco-inc.com; Allchem Ind.
http://www.allchem.com; Ashland
http://www.ashchem.com; Asiamerica Int'l†; Augustus Oils Ltd
http://www.augustus-oils.ltd.uk
BP Chemicals† http://www.bp.com; Barker Ind.
http://www.barkerind.com; Brenntag (UK) Ltd† http://www.brenntag.co.uk;
Chance & Hunt† http://www.chancehunt.com; Charkitt† http://www.charkit.com
Chemical http://www.thechemco.com;
Chevron http://www.chevron.com; Croda
Chem. Europe Ltd† http://www.croda.co.uk; Dakota

†=pharmaceutical grade

Gasification http://www.dakotagas.com;
Dastech Int'l† http://www.dastech.com
Fluka http://www.sigma-aldrich.com; GE Plastics http://www.geplastics.com
Honeywell Perf. Polymers http://www.honeywellppc.com;
http://www.honeywellplastics.com; INEOS Phenol† http://www.phenolchemie.de
Integra† http://www.integrachem.com
Kessler http://www.kesslerchemical.com;
Mallinckrodt Baker†
http://www.mallbaker.com; MelChem† http://www.melchem.com; Merck KGaA† http://www.merck.de; Miljac
http://www.miljac.com
Noveon Kalama; Noveon
http://www.carbopol.com;
http://www.noveoncoatings.com; PCAS†
http://http://www.pmcsig.com; Penta Mfg.†
http://http://www.pentamfg.com
R.W. Greeff† http://www.pechiney-chemicals.com; Research Organics
http://www.resorg.com; Rhodia
http://http://www.rhodia.com; Roche Diagnostics†
http://http://www.roche-applied-science.com;
Royale Pigments & Chems.
http://www.royalepigments-chem.com
Ruger† http://www.rugerchemical.com;
SAFC Specialties
http://www.safcspecialties.com;
Shell† http://www.shellchemicals.com
http://http://www.shell-lubricants.com; Sigma
Spectrum Quality Prods.†
http://http://www.spectrumchemical.com; Sunoco
http://http://www.sunocochem.com; Tennants
UBichem plc† http://http://www.ubichem.com
VWR Int'l† http://http://www.vwrsp.com; Voigt

Phenol alcohol. See Phenol
Phenolcarbinol. See Benzyl alcohol
Phenol, 4-chloro-2-benzyl- See Chlorophene
Phenol, 4-chloro-5-methyl-2-(1-methylethyl)- See Chlorothymol
Phenol, p-ethyl- See p-Ethylphenol
Phenol glycidyl ether See Phenyl glycidyl ether
Phenol, o-isopropyl- See o-Isopropylphenol
Phenol, p-isopropyl- See p-Isopropylphenol
Phenol, liquefied See Phenol
Phenol, 4-methoxymethyl ether
Phenol, 2-methoxy-4-methyl- See 2-Methoxy-4-methylphenol
Phenol, 2-methoxy-4-(1-propenyl)- See Isoeugenol
Phenol, 2-methoxy-4-(2-propenyl)- See Eugenol
Phenol, 3-methylbis(1-methylethyl)- See Diisopropyl cresol
Phenol, 3,4-(methylenedioxy) See Sesamol
Phenol methyl ether See Anisole
Phenol, 2-(1-methylethyl)- See o-Isopropylphenol
Phenol, 4-(1-methylethyl)- See p-Isopropylphenol
Phenol, 5-methyl-2-(1-methylethyl)- See Thymol
Phenol sulfonic acid
CAS 1333-39-7; EINECS/ELINCS 215-587-0
UN 1803 (DOT)
Synonyms: Benzenesulfonic acid, hydroxy-; Hydroxybenzenesulfonic acid; Phenol sulfonic acid liquid; Sulfoarabic acid
Classification: Aromatic organic compd.
Empirical: C₆H₆O₄S
Formula: HOC₆H₄SO₃H
Properties: Ylsh. liq. (brown in air); sol. in water, alcohol; m.w. 174.18
Toxicology: LD₅₀ (oral, rat) 1900 mg/kg,
(subcut., rat) 4 g/kg, (IP, mouse) 140 mg/kg;
poison by subcut, and IP routes; mod. toxic by ing.; irritant to skin and tissues; TSCA listed
Precaution: DOT: Corrosive material
Hazardous Decomp. Prods.: Heated to decomp., emits toxic vapors of SO₂
Uses: Mfg. of pharmaceuticals
Regulatory: Canada DSL

Phenol sulfonic acid liquid. See Phenolsulfonic acid
Phenol-4-sulfonic acid sol'n. See p-Phenol sulfonic acid
1-Phenyl-4-sulfonic acid zinc salt. See Zinc phenolsulfonate
Phenol, 4-(1,1,3,3-tetramethylbutyl)-, polymer with formaldehyde and oxirane. See Tyloxapol
Phenol, 2,2' thiobis (4,6-dichloro- See 2,2'-Thiobis (4,6-dichlorophenol)
Phenomerborum. See Phenylmercuric borate
Phenomercuric acetate. See Phenylmercuric acetate
Phenopyridine. See 8-Hydroxyquinoline
Phenothiazine
CAS 92-84-2; EINECS/ELINCS 202-196-5
Synonyms: Dibenzoarathiazine; Dibenzothiazine; Dibenzo-1,4-thiazine; Phenthiazine; PTZ; Thiodiphenylamine
Empirical: C₁₂H₉NS
Formula: C₆H₄NHC₆H₄S
Properties: Grayish-green to greenish-yel.
powd., gran., or flakes; sl. odor; tasteless; sol. in benzene, ether, hot acetic acid, 21% in acetone, 15% in ethyl amyl ketone, 11% in ethyl acetate, aromatic solvs.; sl. sol. in alcohol, min. oils; pract. insol. in water, chloroform, petrol. ether; m.w. 199.26; m.p.
Phenothiazin-5-ium, 3,7-bis (dimethylamino)-, chloride, trihydrate
See Methylene blue trihydrate
Phenoxethol; Phenoxetol. See Phenoxyethanol
Phenoxyacetic acid
CAS 122-59-8; EINECS/ELINCS 204-556-7
FEMA 2872
Synonyms: Glycolic acid phenyl ether; Glycolic acid phenyl ether; Phenoxyethanoic acid; α-Phenylglycolic acid; Phenylum
Classification: aromatic acid
Empirical: C₆H₅OCH₂COOH
Formula: C₆H₅OCH₂COOH
Properties: Off-wh. cryst. solid, sour odor, honey-like taste; readily sol. in alcohol, ether, benzene, CS₂, glacial acetic acid, oxygenated and aromatic solvs.; sl. sol. in water; m.w. 152.14; m.p. 95 °C; b.p. 285 °C (some decomp.)
Toxicology: LD₅₀ (oral, rat) 1500 mg/kg, (IP, rat) 323 mg/kg; harmful solid; poison by IP route; mod. toxic by ing.; mild irritant; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Synthetic flavor for pharmaceuticals; pharmaceutical intermediate (keratin exfoliative to soften calluses, corns); precursor in antibiotic fermentations esp. penicillin V
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Phenoxyacetic acid sodium salt. See Sodium phenoxy acetate
Phenoxybenzene. See Diphenyl oxide
3-Phenoxy-1,2-epoxypropane. See Phenyl glycidyl ether
Phenoxyethanoic acid. See Phenoxyacetic acid
Phenoxyethanol
CAS 122-99-6; EINECS/ELINCS 204-589-7
Synonyms: Ethylene glycol monophenyl ether; Ethylene glycol phenyl ether; Glycol monophenyl ether; β-Hydroxyethyl phenyl ether; 1-Hydroxy-2-phenoxyethane; Phenoethol; Phenoexol; 2-Phenoxyethanol; β-Phenoxyethanol; Phenoxyethyl alcohol; Phenoxytol; Phenylglycol; Phenylglycol ether; Phenylmonoglycol ether; Rose ether
Classification: Aromatic ether alcohol
Definition: Phenol polyglycol ether
Empirical: C₆H₅OPO₂
Formula: C₆H₅OCH₂CH₂OH
Properties: Yel.-brn. or clear liq.; faint aromatic rose-like odor; burning taste; sol. in alcohol,
2-Phenoxyethanol; β-Phenoxyethanol; Phenoxyethyl alcohol. See Phenoxyethanol

β-Phenoxyethylidimethyldodecylammonium bromide. See Domiphen bromide

Phenoxyethyl isobutyrate

CAS 103-60-6; EINECS/ELINCS 203-127-1

FEMA 2873

Synonyms: Isobutyric acid 2-phenoxyethyl ester; 2-Phenoxyethyl isobutyrate; 2-Phenoxyethyl 2-methylpropanoate; 2-Phenoxyethyl 2-methylpropionate; Propanoic acid, 2-methyl-, 2-phenoxyethyl ester

Empirical: C_{12}H_{16}O_3

Properties: Colorless liq., honey rose-like odor, sweet peach-like taste; misc. in alcohol, chloroform, ether; insol. in water; m.w. 208.26; dens. 1.044; b.p. 265 °C; flash pt. > 212 °F; ref. index 1.492

Toxicology: LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; TSCA listed

Precaution: Combustible

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals

Features: Honey-like flavor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: Advanced Synthesis Tech.
Chemical Component Cross-Reference

http://www.advancedsynthesis.com;
Augustus Oils Ltd http://www.augustus-oils.ltd.uk; Degussa AG/Health & Nutrition;
Grau Aromatics http://www.grau-aromatics.de; J.H. Calo
http://www.jhcalo.com
Lluch Essence http://www.lluch-essence.com; R.C. Treatt & Co. Ltd
http://www.rctreatt.com; Rhodia Organics
http://www.rhodia-ppa.com/ppa/home.jsp; SAFC Specialties
http://www.safcspecialties.com

2-Phenoxyethyl isobutyrate; 2-Phenoxyethyl 2-methylpropanoate; 2-Phenoxyethyl 2-methylpropionate. See Phenoxyethyl isobutyrate

Phenoxyisopropanol
CAS 770-35-4; EINECS/ELINCS 212-222-7
Synonyms: β-Phenoxyisopropanol; 1-Phenoxy-2-propanol; 1-Phenoxypropan-2-ol; 2-Propanol, 1-phenoxy-; α-Propylene glycol 1-phenyl ether; Propylene phenoxyetol; Propylene phenoxythol; Propylene phenoxytol
Classification: Aromatic ether alcohol
Empirical: C9H12O2
Properties: Colorless oily liq., becomes more visc. on standing; hyacinth, lilac odor; sol. in alcohol, ether, propylene glycol, oxygenated solvs.; sl. sol. in water; m.w. 152.16; dens. 1.0123-1.030; m.p. 33-34 C; b.p. 194-196 C; flash pt. 68 C; ref. index 1.525-1.545
Toxicology: LD50 (oral, rat) 1550 mg/kg; mod. toxic by ing.; human skin irritant; TSCA listed
Precaution: Combustible liq.

Phenylacetaldehyde 2,3-butylene glycol acetal
CAS 5468-06-4; FEMA 2875
Synonyms: 4,5-Dimethyl-2-benzyl-1,3-dioxolan
Empirical: C12H16O2
Properties: Colorless visc. liq., earthy fragrance, fruity flavor; sol. in alcohol; insol. in water; m.w. 192.26
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Phenylacetaldehyde
CAS 122-78-1; EINECS/ELINCS 204-574-5; FEMA 2874
Synonyms: Benzeneacetaldehyde; Hyacinthin; PAA; Phenylacetic aldehyde; Phenylethanalan; α-Toluualdehyde; α-Toluic aldehyde
Classification: aromatic compd.
Empirical: C8H8O
Formula: C5H5CH2CHO
Properties: Colorless oily liq., becomes more visc. on standing; hyacinth, lilac odor; sol. in alcohol, ether, propylene glycol, oxygenated solvs.; sl. sol. in water; m.w. 120.16; dens. 1.0123-1.030; m.p. 33-34 C; b.p. 194-196 C; flash pt. 68 C; ref. index 1.525-1.545
Toxicology: LD50 (oral, rat) 1550 mg/kg; mod. toxic by ing.; human skin irritant; TSCA listed
Precaution: Combustible liq.
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Synthetic flavor and fragrance for pharmaceuticals
Features: Apricot, berry-like flavor and fragrance
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Advanced BioTech
http://www.adv-bio.com; Augustus Oils Ltd
http://www.axxence.de; BASF
http://www.basf.com; Fluka
http://www.sigma-aldrich.com
Lluch Essence http://www.lluch-essence.com; Penta Mfg.
http://www.pentamfg.com; Prodasynth
Sigma http://www.sigma-aldrich.com/belgium; Symrise USA†
http://www.symrise.com

Phenylacetaldehyde 2,3-butylene glycol acetal
CAS 5468-06-4; FEMA 2875
Synonyms: 4,5-Dimethyl-2-benzyl-1,3-dioxolan
Empirical: C12H16O2
Properties: Colorless visc. liq., earthy fragrance, fruity flavor; sol. in alcohol; insol. in water; m.w. 192.26
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Handbook of Pharmaceutical Additives, Third Edition 1856
Phenylacetaldehyde diisobutyl acetal
CAS 68345-22-2; EINECS/ELINCS 269-851-5
FEMA 3384
Synonyms: (2,2-Bis(2-methyl propoxy)ethyl) benzene; 1,1-Diisobutoxy-2-phenylethane
Definition: Synthetic acetal aromatic
Empirical: C₁₆H₂₆O₂
Properties: Colorless cl. liq.; sol. in alcohol; sl. sol. in water; m.w. 250.38; b.p. 240.00 °C @ 760.00 mm
Uses: Synthetic flavor for pharmaceuticals
Features: Sweet floral green odor/taste
Regulatory: FEMA GRAS; Canada DSL

Phenylacetaldehyde dimethyl acetal
CAS 101-48-4; EINECS/ELINCS 202-945-6
FEMA 2876
Synonyms: (2,2-Dimethoxyethyl)-benzene; 1,1,-Dimethoxy-2-phenylethane; PADMA; Phenacetaldehyde dimethyl acetal; α-Tolyl aldehyde dimethyl acetal; Viridine
Classification: aromatic compd.
Empirical: C₁₀H₁₄O₂
Formula: C₆H₅CH₂CH(OCH₃)₂
Properties: Colorless liq., strong rose-like odor; sol. in fixed oils, propylene glycol; insol. in glycerin; m.w. 166.24; dens. 1.000-1.006; b.p. 95-98 °C (10 mm); flash pt. 89 °C; ref. index 1.493
Toxicology: LD₅₀ (oral, rat) 3500 mg/kg; mod. toxic by ing.; IP routes; skin irritant; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Synthetic flavor for pharmaceuticals
Use Level: 1-10%
Regulatory: Canada DSL

Phenylacetaldehyde glyceryl acetal
CAS 5694-72-4; EINECS/ELINCS 227-164-8
FEMA 2877
Synonyms: 2-Benzyl-1,3-dioxolan-4-ylmethanol; 2-Benzyl-4-hydroxyethyl-1,3-dioxane; 2-Benzyl-4-hydroxyethyl-1,3-dioxolane; 2-Benzyl-4-methanol-1,3-dioxane; 1,2-O-Phenyldieneglycerol; Phenylacetaldehyde glyceryl 1,2-cyclic acetal
Empirical: C₁₁H₁₄O₃
Properties: Colorless to pale yel. visc. liq., faint sweet rosy odor, sweet green flavor; insol. in water; m.w. 194.23; dens. 1.1650-1.1680 (15 °C); flash pt. 95 °C; ref. index 1.5315-1.5345
Toxicology: LD₅₀ (oral, rat) 1720 mg/kg, (IP, mouse) 523 mg/kg; mod. toxic by ing. and IP routes; skin irritant; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Synthetic flavor for pharmaceuticals
Use Level: 1-10%
Regulatory: Canada DSL

Phenylacetaldehyde glyceryl cyclic acetals
CAS 29895-73-6; EINECS/ELINCS 249-934-2
FEMA 2877
Synonyms: Benzeneacetaldehyde, cyclic acetal with glycerol; Phenylacetaldehyde glyceryl acetal
Empirical: C₁₁H₁₄O₃
Properties: Colorless sl. visc. liq.; tenacious, honey, cyclamen, rose odor; m.w. 194.23; dens. 1.154-1.162; ref. index 1.529-1.534
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Phenylacetaldehyde glyceryl cyclic acetals
CAS 103-82-2; EINECS/ELINCS 203-148-6
UN 1759 (DOT; UN IATA); FEMA 2878
Synonyms: Benzenacetic acid; Benzenacetic acid; \(\omega\)-Phenylacetic acid; \(\alpha\)-Toluic acid; \(\alpha\)-Tolylic acid

Classification: Aromatic acid

Empirical: \(\text{C}_8\text{H}_8\text{O}_2\)

Formula: \(\text{C}_8\text{H}_8\text{CH}_2\text{COOH}\)

Properties: Wh. cryst. or flakes; disagreeable geranium odor; sol. in alcohol, ether, hot water, oxygenated and chlorinated solvs.; sl. sol. in cold water; m.w. 136.16; dens. 1.0809; m.p. 77-78 C; b.p. 265.5 C; flash pt. > 100 C

Toxicology: LD50 (oral, rat) 2250 mg/kg, (IP, rat) 1600 mg/kg, (subcut., mouse) 1500 mg/kg; mod. toxic by ing., subcut., IP routes; experimental teratogen; causes burns; risk of serious damage to eyes; TSCA listed

Precaution: Combustible; wear suitable protective clothing; incompat. with strong oxidizers, reducers

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 1, Flammability 1, Reactivity 0

Storage: 6 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, cold, air

Uses: Synthetic flavor for pharmaceuticals; precursor in mfg. of penicillin G

Features: Honey-like flavor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI


†=pharmaceutical grade


\(\omega\)-Phenylacetic acid. See Phenylacetic acid

Phenylacetic acid 3,7-dimethyl-7-octenyl ester. See Rhodinyl phenylacetate

Phenylacetic acid, ethyl ester. See Ethyl phenylacetate

Phenylacetic acid hexyl ester. See Hexyl phenylacetate

Phenylacetic acid, isobutyl ester. See Isobutyl phenylacetate

Phenyl acetic acid isopropyl ester. See Isopropyl phenylacetate

Phenylacetic acid, p-methoxybenzyl ester. See Anisyl phenylacetate

Phenylacetic acid, methyl ester. See Methyl phenylacetate

Phenylacetic acid, phenethyl ester. See Phenethyl phenylacetate

Phenyl acetic acid santalyl ester. See Santalyl phenylacetate

Phenylacetic acid p-toly ester. See p-Tolyl phenylacetate

Phenylacetic aldehyde. See Phenylacetaldehyde

Phenylacrolein. See Cinnamal

3-Phenylacrylic acid; \(\beta\)-Phenylacrylic acid; t-\(\beta\)-Phenylacrylic acid. See Cinnamic acid

Phenylalanine (INCI); 3-Phenylalanine; 3-Phenyl-L-alanine; Phenyl-\(\alpha\)-alanine; \(\beta\)-Phenylalanine; \(\beta\)-Phenyl-\(\alpha\)-alanine. See L-Phenylalanine

DL-Phenylalanine

CAS 150-30-1; EINECS/ELINCS 205-765-7

FEMA 3726

Synonyms: \(\alpha\)-Amino-\(\beta\)-phenylpropionic acid; DL-\(\alpha\)-Amino-\(\beta\)-phenylpropionic acid

Classification: Amino acid

Empirical: \(\text{C}_9\text{H}_{11}\text{NO}_2\)

Properties: Wh. cryst. platelets, odorless; sol. in water; sl. sol. in alcohol; m.w. 165.19

HMIS: Health 0, Flammability 1, Reactivity 0

Uses: Flavor for pharmaceuticals; nutrient; dietary supplement

Regulatory: FEMA GRAS; Canada DSL

Manuf./Distrib.: Aceto† http://www.aceto.com; Advanced Synthesis Tech.
Chemical Component Cross-Reference


L-Phenylalanine
CAS 63-91-2; EINECS/ELINCS 200-568-1
FEMA 3585
Synonyms: Alanine, phenyl-; Alanine, 3-phenyl-; L-Alanine, phenyl-; (S)-α- Aminobenzenepropanoic acid; α- Aminoacidinonic acid; α-Amino-β- phenylpropionic acid; L-α-Amino-β-phenylpropionic acid; PAL; Phenylalanine (INCI); 3-Phenylalanine; 3-Phenyl-L-alanine; Phenyl-α-alanine; β-Phenylalanine; β-Phenyl-α-alanine
Classification: Amino acid
Definition: Avail. commercially as the naturally occurring L(+)-enantiomer
Empirical: C9H11NO2
Formula: C9H11NO2
Properties: Wh. crys. or crys. powd., sl. odor, bitter taste; sol. in water; very sl. sol. in alcohol, ether; m.w. 165.21; m.p. 275-283 C (dec.)

†=pharmaceutical grade
Toxicology: LD50 (IP, rat) 5287 mg/kg; mildly toxic by IP route; experimental reproductive effects; human mutation data; hazard to PKU individuals; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx
HMIS: Health 0, Flammability 1, Reactivity 0
Uses: Nutrient, dietary supplement, flavor for pharmaceuticals; ingred. of aspartame; raw material for peptide drugs; infusion sol’ns.; diagnostic aids
Regulatory: FDA 21CFR §172.320, 5.8% max.; FEMA GRAS; Japan approved; BP, EP compliance; Canada DSL
Manuf./Distrib.: ADA Int’l.
3-Phenylallyl acetate; γ-Phenylallyl acetate. See Cinnamyl acetate 3-Phenylallyl alcohol; γ-Phenylallyl alcohol. See Cinnamyl alcohol 3-Phenylallyl butanoate. See Cinnamyl butyrate Phenylallyl cinnamate. See Cinnamyl cinnamate 3-Phenylallyl isovalerate. See Cinnamyl butyrate
Chemical Component Cross-Reference

†=pharmaceutical grade

**FEMA 2880**

**Synonyms:** Homocinnamyl alcohol; Methyl styryl carbinol; 2-Phenyl-3-butenol

**Empirical:** C_{10}H_{12}O

**Properties:** Colorless cl. liq.; sol in alcohol; insol. in water; m.w. 148.20; sp. gr. 1.00600-1.01200; b.p. 140.00 C @ 12.00 mm; ref. index 1.55800-1.56700

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Sweet fruity floral balsam odor

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Manuf./Distrib.:** Daniels Fine Chems.  
http://www.dfccan.com

1-Phenylbutenone; 4-Phenyl-3-buten-2-one; trans-4-Phenyl-3-buten-2-one. See Benzylidene acetone

**CAS 10415-88-0; EINECS/ELINCS 233-890-6**

**FEMA 2882**

**Synonyms:** 1-Methyl-3-phenylpropyl acetate; Phenylethyl methyl carbinyl acetate

**Empirical:** C_{12}H_{16}O_{2}

**Properties:** Colorless, cl. liq.; sol. in alcohol; insol. in water; m.w. 192.26; dens. 0.991; b.p. 72-74 (0.05 mm Hg)

**Toxicology:** TSCA listed

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Green fruity odor

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Manuf./Distrib.:** Acros Org.  
http://www.acros.com

Phenylcarbinol. See Benzyl alcohol

Phenylcarbonylaminocetic acid. See Hippuric acid

Phenylcarboxylic acid. See Benzoic acid

Phenyl chloride. See Chlorobenzene

Phenylchloromethylketone. See Chloroacetophenone

**Phenyl dichlorophosphate**

**CAS 770-12-7; EINECS/ELINCS 212-220-0**

**Synonyms:** Dichlorophenoxyphosphine oxide; Monophenyl dichlorophosphate; MPCP; Phosphorodichloridic acid, phenyl ester

**Empirical:** C_{6}H_{5}Cl_{2}O_{2}P

**Properties:** Liq.; sol. in most inert org. solvs.; hydrolyzes on water contact; m.w. 210.98; dens. 1.412; b.p. 241-243 C; ref. index 1.5230

**Toxicology:** LD50 (oral, mammal) 850 mg/kg; TSCA listed

**Precaution:** Hydrolyzes on contact with water
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Chemical Component</th>
<th>Classifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Phenyldimethyl carbonyl isobutyrate.</strong> See α,α-Dimethylbenzyl isobutyrate</td>
<td></td>
</tr>
<tr>
<td><strong>1-Phenyldimethylpyrazole-5-one; 1-Phenyldimethyl-5-pyrazolone.</strong> See Antipyrine</td>
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<tr>
<td><strong>2-Phenyl-m-dioxan-5-ol.</strong> See Benzaldehyde glyceryl acetal</td>
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<tr>
<td><strong>1,3-Phenylenediamine.</strong> See m-Phenylenediamine</td>
<td></td>
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<tr>
<td><strong>m-Phenylenediamine</strong></td>
<td>CAS 108-45-2; EINECS/ELINCS 203-584-7 UN 1673 (DOT)</td>
</tr>
<tr>
<td><strong>Synonyms:</strong> 3-Aminoaniline; m-Aminoaniline; 1,3-Benzenediamine; Benzenediamine-1,3; m-Benzenediamine; CI 76025; 1,3-Diaminobenzene; Diamino-1,3-benzene; m-Diaminobenzene; Metaphenylenediamine; MPD; mPDA; 1,3-Phenylenediamine</td>
<td></td>
</tr>
<tr>
<td><strong>Classification:</strong> Aromatic amine</td>
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</tr>
<tr>
<td><strong>Empirical:</strong> C₆H₄(NH₂)₂</td>
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</tr>
<tr>
<td><strong>Formula:</strong> C₆H₄(NH₂)₂</td>
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<tr>
<td><strong>Properties:</strong> Wh. cryst.; discolored by light and air; sol. in water, methanol, ethanol, MEK, dioxane, chloroform, acetone, oxygenated solvs.; sl. sol. in ether, CCl₄, IPA; very sl. sol. in benzene, toluene; m.w. 108.14; dens. 1.139; m.p. 62.8 C; b.p. 284-287 C; flash pt. 175 C</td>
<td></td>
</tr>
<tr>
<td><strong>Toxicology:</strong> TLV/TWA 0.1 mg/m³; LD₅₀ (oral, rat) 280 mg/kg, (IP, rat) 283 mg/kg; irritant; poison by ing., IV, IP, subcut. routes; mildly toxic by skin contact; suspected carcinogen; experimental tumorigen, teratogen; mutagenic data; TSCA listed</td>
<td></td>
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<tr>
<td><strong>Precaution:</strong> Combustible exposed to heat or flame</td>
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<tr>
<td><strong>Hazardous Decomp. Prods.:</strong> CO, CO₂; heated to decomp., emits toxic fumes of NOₓ</td>
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<tr>
<td><strong>Storage:</strong> Photosensitive; keep well sealed and protected from light</td>
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<tr>
<td><strong>Uses:</strong> Laboratory reagent</td>
<td></td>
</tr>
<tr>
<td><strong>Regulatory:</strong> FDA 21 CFR §177.2280; Canada DSL</td>
<td></td>
</tr>
</tbody>
</table>

†=pharmaceutical grade

### Manuf./Distrib.

- Alchemie USA
  - [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
- Aldrich† [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
- Rhodia [http://www.rhodia-ppd.com](http://www.rhodia-ppd.com)
- Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)

- DuPont [http://www.dupont.com](http://www.dupont.com)
- Fabrichem [http://www.fabricheminc.com](http://www.fabricheminc.com)
- Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
- Kessler [http://www.kesslerchemical.com](http://www.kesslerchemical.com)
- Dytek® A

### Trade Names Containing:

- Dytek® A

### Uses:

- Pharmaceutical intermediate

### Storage:

- Moisture-sensitive

### Toxicology:

- LD₅₀ (oral, rat) 3670 mg/kg, (skin, rabbit) 6210 mg/kg; mod. toxic by ing.; mildly toxic by skin contact; irritating to skin; TSCA listed

### Precaution:

- Combustible exposed to heat or flame

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**Dytek® A**

- Phenyldimethyl carbonyl isobutyrate
- m-Phenylenediamine

- **Uses:** Pharmaceutical intermediate

- **Storage:** Moisture-sensitive

- **Toxicology:** LD₅₀ (oral, rat) 3670 mg/kg, (skin, rabbit) 6210 mg/kg; mod. toxic by ing.; mildly toxic by skin contact; irritating to skin; TSCA listed

- **Precaution:** Combustible exposed to heat or flame
Chemical Component Cross-Reference

**Handbook of Pharmaceutical Additives, Third Edition**

**Features:**
- Apple, apricot, honey-like flavor

**Uses:**
- Synthetic flavor for pharmaceuticals

**Synthetic flavor for pharmaceuticals**

**Hazards:**
- Heated to decom., emits CO, CO₂, acrid smoke and irritating fumes

**Storage:**
- 6 mos. when stored at 40 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air

**Uses:**
- Synthetic flavor for pharmaceuticals (See Phenethyl anthranilate; Phenylethyl benzoate; 2-Phenylethyl benzoate; β-Phenylethyl benzoate) See Phenethyl benzoate

**Phenylethyl butyrate:**
- 2-Phenylethyl butyrate. See Phenethyl butyrate

**2-Phenylethyl caproate:**
- See Phenethyl hexanoate

**Phenylethyl carbinol:** See Hydrocinnamic alcohol; 1-Phenyl-1-propanol

**Phenylethyl cinnamate:**
- 2-Phenylethyl cinnamate. See Phenethyl cinnamate

**Phenylethyl formate:**
- phenyl ethyl β,β-dimethyl acrylate. See Phenethyl senecioate

**Phenylethyl dimethyl carbinyl acetate:**
- Phenyl ethyl dimethyl carbinyl acetate. See 2-Methyl-4-phenyl-2-butyl acetate

**Phenylethylene:**
- See Styrene

**1-Phenyl-1-ethyl formate:**
- See α-Methylbenzyl formate

**2-Phenylethyl formate:**
- β-Phenylethyl formate. See Phenethyl formate

**2-Phenylethyl hexanoate:**
- See Phenethyl hexanoate

**Phenylethyl 2-hydroxybenzoate:**
- See Phenethyl salicylate

**Phenylethyl isobutyrat:**
- 2-Phenylethyl isobutyrat. See Phenethyl isobutyrato

**Phenylethyl isovalerat:**
- 2-Phenylethyl isovalerat. See Phenethyl isovalerato

**Phenylethyl isovalerianat:**
- Phenylethyl isovalerianate. See Phenethyl isovalerato

**Phenylethyl 2-hydroxybenzoat:**
- See Phenethyl salicylat

**Phenylethyl 3-methylbutanat:**
- See Phenethyl isovalerato

**β-Phenylethyl α-methylbutanat:**
- See Phenethyl isovalerato

**2-Phenylethyl 3-methyl-2-butenat:**
- See Phenethyl isovalerato

**Phenylethyl (2E)-2-methyl-2-butenoat:**
- Phenylethyl-α-methylbutenoat. See Phenethyl tiglate

**Phenylethyl 2-methylbutyrat:**
- Phenylethyl 2-methylbutyrat. See Phenethyl-2-methylbutyrate

**2-Phenylethyl 3-methylbutyrat:**
- See Phenethyl isovalerato

**Phenylethyl methyl carbinol:**
- See 4-Phenyl-2-butanol

**Phenylethyl methyl carbinyl acetat:**
- See 4-Phenyl-2-butyl acetate

**Phenylethyl methyl ethyl carbinol:**
- See 1-
Chemical Component Cross-Reference

Phenyl-3-methyl-3-pentanol
β-Phenyethyl methyl ketone. See Benzy lacetone
Phenyl ethyl 2-methylpropanoate. See Phen ethyl isobutyrate
1-Phenylethyl 2-methylpropanoate. See Methylbenzyl isobutyrate
2-Phenylethyl-2-methylpropionate. See Phen ethyl isobutyrate
Phenylethyl phenylacetate; 2-Phenylethyl phenylac etate. β-Pheny lethyl phenylacetate. See Phen ethyl phenylacetate
Phenylethyl propanoate; Phenylethyl propionate. See Phen ethyl propionate
1-Phenylethyl propionate. See α-Methylbenzyl propionate
2-Phenylethyl propionate. See Phen ethyl propionate
Phenylethyl salicylate; 2-Phenylethyl salicylate. See Ph enethyl salicylate
2-Phenylethyl senecioate. See Phen ethyl senecio ate
Phenylethyl tiglate; 2-Phenylethyl tiglate. See Phen ethyl tiglate
2-Phenylethyl-α-tolu late. See Phen ethyl phenylacetate
Phenyl formic acid. See Benzoic acid
Phenyl glycidyl ether
CAS 122-60-1; EINECS/ELINCS 204-557-2
Synonyms: 1,2-Epoxy-3-phenoxy propane; 2,3-Epoxypropyl phenyl ether; Glicidyl phenyl ether; Glycidyl phenyl ether; Oxirene, (phenoxy methyl)-; PGE; Phenol glycidyl ether; 3-Phenoxy-1,2-epoxypropane; Phenoxypropene oxide; Phenoxypropylene oxide; Phenyl-2,3-epoxypropyl ether
Classification: Aromatic epoxy ether
Empirical: C₉H₁₀O₂
Formula: H₂COCH₇OC₆H₅
Properties: Colorless liq.; completely sol. in acetone, toluene; sol. in ethanol; mod. sol. in water; m.w. 150.19; dens. 1.113 (20/4°C); m.p. 3.5°C; b.p. 245°C; flash pt. 114°C
Toxicology: ACGIH TLV/TWA 1 ppm (skin); LD₅₀ (oral, rat) 4260 mg/kg, (subcut., mouse) 760 mg/kg, (dermal, rabbit) 1500 mg/kg; mod. toxic by ing., skin contact, subcut. routes; severe eye and skin irritant; may cause sensitization by skin contact; confirmed carcinogen; tumorigen; mutagen; reproductive effector; TSCA listed
Precaution: Incompat. with acids, alkalis, amines, oxidizing agents
Hazardous Decomp. Prods.: CO, hydrocarbons; heated to decomp., emits acrid smoke and irritating fumes
Uses: Intermediate for pharmaceuti cals
Regulatory: FDA 21CFR §177.2280; Canada DSL
Manuf./Distr ib.: Aldrich http://www.sigma aldrich.com; Fluka http://www.sigma aldrich.com; Monomer-Polymer & Dajac Labs http://www.monomerpolymer.com; Raschig; Rhodia HPCII http://www.rhodia hpcii.com
Richman http://www.richmanchemical.com
Phenylglycol; Phenylglycol ether. See Phenoxyethanol
Phenylglycolic acid. See Mandelic acid
α-Phenylglycolic acid. See Phenoxyacetic acid
Phenylglycollic acid; Phenylglyconic acid. See Mandelic acid
Phenyl hydrate. See Phenol
Phenyl hydride. See Benzene
Phenyl hydroxide. See Phenol
Phenylhydroxyacetic acid; α-Phenylhydroxyacetic acid. See Mandelic acid
Phenyl-2-hydroxybenzoate. See Phenyl salicylate
1-Phenyl-1-hydroxypropane. See 1-Phenyl-1-propanol
Phenolic acid; Phenylic alcohol. See Phenol
Phenyl alcohol. See Phenoxyacetic acid
Phenyl ketone. See Benzophenone
Phenyl mercaptan. See Thiophenol
Phenylmercuric acetate. See Phenylmercuric acetate
Phenylmercuricborate. See Phenylmercuric borate
Phenylmercuric acetate
CAS 62-38-4; EINECS/ELINCS 200-532-5
UN 1674 (DOT)
Synonyms: (Acetato) phenyl mercury; (Acetoxymercuri) benzene; Acetoxyphenylmercury; Mercuriphenyl acetate; Mercury, (acetato) phenyl-; Phenomercuric acetate; Phenylmercuric acetate; Phenylmercury acetate; PMA; PMAC; PMA S
Classification: Metallo-organic compd.
Empirical: C₈H₉HgO₂
Formula: C₈H₅HgOCCOCH₃
Properties: Wh. to cream prisms or clear sol'n.;
Chemical Component Cross-Reference

Phenylmercuric borate

**Classification:** Metallo-organic compd.; phenylmercuric salt

**Empirical:** C₆H₇BHgO₃

**Properties:** Wh. fine cryst. or grayish powd.; sl. sol. in alcohol, glycerin; very sl. sol. in water; insol. in ether; m.w. 339.71; m.p. 176-186 C dec.

**Toxicology:** ACGIH TLV/TWA 0.1 mg(Hg)/m³ (skin); LDLo (IV, rabbit) 5 mg/kg; poison by IV route; toxic by ingestion, inhalation, and skin absorption; irritant; causes burns; irritating to respiratory system; TSCA listed

**HMIS:** Health 3, Flammability 1, Reactivity 2

**Storage:** Light-sensitive

**Uses:** Antimicrobial, preservative, antibacterial, antifungal for pharmaceuticals, parenterals, ophthalmics, intramuscular injectables; spermicide; OTC drug active

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Phenylmercuric nitrate

**Classification:** Metallo-organic compd.; phenylmercuric salt

**Empirical:** C₆H₅HgN0₃

**Properties:** Wh. fine cryst. or grayish powd.; sl. sol. in alcohol, glycerin; very sl. sol. in water; insol. in ether; m.w. 339.71; m.p. 176-186 C dec.

**Toxicology:** ACGIH TLV/TWA 0.1 mg(Hg)/m³ (skin); LDLo (IV, rabbit) 5 mg/kg; poison by IV route; toxic by ingestion, inhalation, and skin absorption; irritant; causes burns; irritating to respiratory system; TSCA listed

**HMIS:** Health 3, Flammability 1, Reactivity 2

**Storage:** Light-sensitive

**Uses:** Antimicrobial, preservative, antibacterial, antifungal for pharmaceuticals, parenterals, ophthalmics, intramuscular injectables; spermicide; OTC drug active
### Chemical Component Cross-Reference

**Features:** Its use in topical eye preps. and as an intravaginal contraceptive may cause concerns of mercurial poisoning  

**Use Level:** 0.001% (parenterals); 0.002-0.004% (ophthalmics)  

**Regulatory:** FDA approved for intramuscular injectables; USP/NF, BP, EP compliance

**Manuf./Distrib.:**  
- AMRESCO†  
  - [http://www.amresco-inc.com](http://www.amresco-inc.com)  
  - [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)  
  - [http://www.chemets.com](http://www.chemets.com)  
  - [http://www.camida.com](http://www.camida.com)  
  - [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)  
- Aldrich†  
  - [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)  
  - [http://www.chemets.com](http://www.chemets.com)  
  - [http://www.camida.com](http://www.camida.com)  
- Atomergic  
  - [http://www.atomergic.com](http://www.atomergic.com)  
- Camida Ltd†  
  - [http://www.camida.com](http://www.camida.com)  
- http://www.rugerchemical.com  
- Janssen-Cilag†  
  - [http://www.janssen-cilag.nl](http://www.janssen-cilag.nl)  
  - [http://www.integracem.com](http://www.integracem.com)  
- Integra†  
  - [http://www.integracem.com](http://www.integracem.com)  
- Janssen-Cilag†  
  - [http://www.janssen-cilag.nl](http://www.janssen-cilag.nl)  
- Magnesia GmbH†  
  - [http://www.magnesia.de](http://www.magnesia.de)  
- http://www.rugerchemical.com  
- Noah†  
  - [http://www.noahtech.com](http://www.noahtech.com)  
- http://www.noahtech.com  
- http://www.sigma-aldrich.com  
- http://www.spectrumchemical.com  
- Integra†  
  - [http://www.integracem.com](http://www.integracem.com)  
- Janssen-Cilag†  
  - [http://www.janssen-cilag.nl](http://www.janssen-cilag.nl)  
- Magnesia GmbH†  
  - [http://www.magnesia.de](http://www.magnesia.de)  
- http://www.rugerchemical.com  
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  - [http://www.janssen-cilag.nl](http://www.janssen-cilag.nl)  
- Magnesia GmbH†  
  - [http://www.magnesia.de](http://www.magnesia.de)  
- http://www.rugerchemical.com  
- Noah†  
  - [http://www.noahtech.com](http://www.noahtech.com)  
- http://www.noahtech.com  
- http://www.sigma-aldrich.com  
- http://www.spectrumchemical.com

### Phenylmercury nitrate, basic

**CAS:** 8003-05-2  
**Synonyms:** Hydroxyphenyl-mercury compd. with nitrato-phenymercury (1:1); Merphenyl nitrate; (Nitrato-O)-phenymercury; Phemernite; Phen mercury nitrate  
**Empirical:** C₁₂H₁₁Hg₂NO₄  
**Formula:** C₆H₅HgO • C₆H₅HgNO₃  
**Properties:** Wh. fine cryst. or grayish powd.; mod. sol. in glycerol; sl. sol. in alcohol and water; insol. in ether; m.w. 634.40; m.p. 187-190 (dec.)  
**Toxicology:** ACGIH TLV/TWA 0.1 mg(Hg)/m³ (skin); LD₅₀ (IV, mouse) 0.027 mg/g, (subcut., rat) 56 mg/kg; highly toxic; toxic by ing., inh., and skin contact; poison by IV, subcut. routes; readily absorbed through skin; irritating to respiratory system; causes burns; neurologic hazard  
**Hazardous Decomp. Prods.:** Heated to decomp., emits very toxic fumes of Hg and NOₓ  
**Storage:** Light-sensitive  
**Uses:** Antimicrobial in pharmaceuticals; antiseptic; disinfectant  
**Manuf./Distrib.:** Aldrich  
  - [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)

### Phenylmercury acetate

**See Phenylmercuric acetate**  
**Phenylmercury borate.** See Phenylmercuric borate

### Phenylmercury nitrate†=pharmaceutical grade

- Phenylmercury nitrate. See Phenylmercuric nitrate  
- Phenylmethanal. See Benzaldehyde  
- Phenylmethane. See Toluene  
- Phenylmethanethiol. See Benzyl mercaptan  
- Phenylmethanol. See Benzyl alcohol  
- Phenylmethyl acetate. See Benzyl acetate  
- 3-Phenyl-2-methylacrolein. See α-Methylcinnamaldehyde  
- Phenylmethylnitrate alcohol. See Benzyl alcohol  
- Phenylmethylnitrate (Phenylmethyl) amine. See N-Benzyllamine  
- Phenylmethyl benzoate. See Benzyl benzoate  
- Phenylmethylcarbinol. See α-Methylbenzyl alcohol  
- Phenylmethylcarbinylacetate. See α-Methylbenzyl acetate  
- Phenylmethylcarbinylpropionate. See α-Methylbenzyl propionate  
- Phenylmethyldiketone. See 1-Phenyl-1,2-propanedione  
- Phenylmethyl 2,3-dimethyl-2-butenoate. See Benzyl 2,3-dimethylcrotonate  
- 2-(Phenylmethylenene) heptanal. See α-Amlycinnamaldehyde  
- 2-(Phenylmethylenene) heptyl acetate. See α-Amlycinnamyl acetate  
- 2-(Phenylmethylene) heptyl formate. See α-Amlycinnamyl formate  
- 2-(Phenylmethylenene) hexanal. See α-Butylcinnamaldehyde  
- 2-(Phenylmethylenene) octanal. See α-Hexylcinnamaldehyde  
- Phenylmethyl ether. See Anisole  
- Phenylmethyl 2-hydroxybenzoate. See Benzylsalicylate  
- Phenylmethyl 4-hydroxybenzoate. See Benzylicraparben  
- Phenylmethyl ketone. See Acetophenone  
- Phenylmethyl mercaptan. See Benzyl mercaptan  

1-Phenyl-3-methyl-3-pentanol  
**CAS:** 10415-87-9; EINECS/ELINCS 233-889-0  
**FEMA:** 2883  
**Synonyms:** 3-Methyl-1-phenylpentan-3-ol; 3-Pentanol, 3-methyl-1-phenyl; Phenethylmethylethylcarbinol; Phenylethyl methyl ethyl carbinol  
**Classification:** aromatic alcohol  
**Empirical:** C₁₂H₁₈O  
**Properties:** Colorless liq.; delicate peony, sl. fruity odor; m.w. 178.30; dens. 0.9582; b.p. 129-130 C (1.7 kPa); ref. index 1.509-1.513  
**Toxicology:** LD₅₀ (oral, rat) 2950 mg/kg; mod.
Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Chemical Component</th>
<th>Cross-Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phenylmethyl 3-phenyl-2-propenoate.</td>
<td>See Benzyl cinnamate</td>
</tr>
<tr>
<td>1-Phenyl-2-methyl-2-propanol.</td>
<td>See Dimethylbenzyl carbinol</td>
</tr>
<tr>
<td>Phenylmonoglycol ether.</td>
<td>See Phenoxyethanol</td>
</tr>
<tr>
<td>1-Phenyl-2-pentanol.</td>
<td>See α-Propylphenethyl alcohol</td>
</tr>
<tr>
<td>5-Phenyl-1-pentanol</td>
<td>CAS 10521-91-2; EINECS/ELINCS 234-064-8; FEMA 3618</td>
</tr>
<tr>
<td>Phenylpentan-1-ol</td>
<td>CAS 101-54-2; EINECS/ELINCS 202-951-9</td>
</tr>
<tr>
<td>2-Phenylphenol.</td>
<td>See α-Phenylphenethyl alcohol</td>
</tr>
<tr>
<td>o-Phenylphenol</td>
<td>CAS 90-43-7; EINECS/ELINCS 201-993-5; FEMA 3959; INS231; E231</td>
</tr>
<tr>
<td>N-Phenyl-p-phenylenediamine</td>
<td>CAS 101-54-2; EINECS/ELINCS 202-951-9</td>
</tr>
</tbody>
</table>

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL


Phillipines; skin irritant; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL


Phenylpentan-1-ol, See 5-Phenyl-1-pentanol

DL-1-Phenylpentan-2-ol. See α-Propylphenethyl alcohol

o-Phenylphenol | CAS 90-43-7; EINECS/ELINCS 201-993-5; FEMA 3959; INS231; E231 |

Synonyms: | (1,1’-Biphenyl)-2-ol; 2-Biphenylol; o-Biphenylol; o-Diphenylol; 2-Hydroxybiphenyl; 2-Hydroxy-1,1’-biphenyl; o-Hydroxybiphenyl; 2-Hydroxydiphenyl; o-Hydroxydiphenyl; OPP; Orthohydroxydiphenyl; Orthophenylphenol; 2-Phenylphenol; o-Xenol |

Classification: | Substituted aromatic compd. |

Empirical: | C_{12}H_{12}N_{2} |

Formula: | NH_{2}C_{6}H_{4}NHC_{6}H_{5} |

Properties: | Purple powder; sol. in alcohol, acetone, acids; insol. in water; m.w. 184.11; m.p. 75 C; b.p. 155 C (0.026 mm) |

Toxicology: | LD_{50} (oral, rat) 464 mg/kg, (skin, rabbit) > 5 g/kg; mod. toxic by ing.; severe eye irritant; mutagenic data; TSCA listed |

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NO_{x}

Uses: Intermediate for pharmaceuticals

Regulatory: | Canada DSL |


N-Phenylphenylene-p-diamine. See N-Phenyl-
Chemical Component Cross-Reference

p-phenylenediamine

2-Phenylpropanal
CAS 93-53-8; 34713-70-7; EINECS/ELINCS 202-255-5
FEMA 2886
Synonyms: Cumene aldehyde; α-Formylethylbenzene; Hyacinthal; Hydratropaldehyde; Hydratropic aldehyde; α-Methyl phenylacetalddehyde; α-Methyl tolualdehyde; α-Methyl-α-toluic aldehyde; 2-Phenylpropionaldehyde; α-Phenylpropionaldehyde
Classification: aromatic compd.
Empirical: C9H10O
Formula: C6H5CH(CH3)CHO
Properties: Colorless to pale yel. liq., floral hyacinth-like odor; m.w. 134.18; dens. 1.002 (20/4 C); b.p. 205-206 C; flash pt. 169 F; ref. index 1.518
Toxicology: LD50 (oral, rat) 2800 mg/kg; mod. toxic by ing.; irritating to eyes, skin, respiratory system; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Storage: Store under nitrogen
Uses: Synthetic flavor and fragrance for pharmaceuticals
Regulatory: FEMA GRAS; Canada DSL

3-Phenyl-2,3-propanedione. See 1-Phenyl-1,2-propanedione
Phenylpropanoic acid; 3-Phenylpropanoic acid. See Hydrocinnamic acid
Phenyl-1-propanol. See Hydrocinnamic alcohol
1-Phenylpropanol. See 1-Phenyl-1-propanol
1-Phenyl-1-propanol
CAS 93-54-9; EINECS/ELINCS 202-256-0
FEMA 2884
Synonyms: Benzenemethanol, α-ethyl-; Benzylic alcohol, α-ethyl-; α-Ethylbenzenemethanol; α-Ethylbenzyl alcohol; ±α-Ethylbenzyl alcohol; Ethyl phenyl carbinol; α-Hydroxypropylbenzene; Phenylethyl carbinol; 1-Phenyl-1-hydroxypropane; 1-Phenylpropanol; 1-Phenyl-n-propanol; (±)-1-Phenyl-1-propanol; 1-Phenylpropyl alcohol; 1-Propanol, 1-phenyl-
Classification: aromatic alcohol
Empirical: C9H12O
Formula: C9H10O
Properties: Colorless oily liq., floral fragrance; sol. in alcohol; m.w. 134.18; dens. 1.002; b.p. 103 C (14 mm); flash pt. 90 C; ref. index 1.5200
Toxicology: LD50 (oral, mouse) 500 mg/kg, (subcut., mouse) 700 mg/kg; mod. toxic by ing. and subcut. routes
Precaution: Combustible liq.
Hazardous Decomp. Prods.: Heated to
Chemical Component Cross-Reference

- **Decomp., emits acrid smoke and irritating fumes**
- **Uses:** Synthetic flavor for pharmaceuticals
- **Regulatory:** FDA 21 CFR §172.515; FEMA GRAS; Canada DSL

1-Phenyl-n-propanol. See 1-Phenyl-1-propanol

2-Phenylpropan-1-ol

**CAS** 1123-85-9; **EINECS/ELINCS** 214-379-7

**FEMA** 2732

**Synonyms:** Benzeneethanol, β-methyl-;
Hydratropalcohol; Hydratropic alcohol;
Hydratropyl alcohol; β-
Methylbenzeneethanol; β-Methylphenethyl alcohol; α-Methyl phenylethyl alcohol; 2-
Phenyl-1-propanol; 2-Phenylpropan-1-ol; 2-
Phenylpropyl alcohol; β-
Phenylpropyl alcohol

**Classification:** Aromatic alcohol

**Empirical:** C9H12O

**Formula:** C9H12O

**Properties:** Colorless, visc. liq.; sol. in alcohol;
insol. in water; m.w. 136.20; dens. 1.003 (20/4 C); b.p. 224-225 C; flash pt. 108 C; ref. index
1.527

**Toxicology:** LD50 (oral, rat) 2300 mg/kg, (skin, rabbit) > 5 g/kg; mod. toxic by ing.; TSCA
listed

**Hazardous Decomp. Prods.:** Heated to
decomp., emits acrid smoke and irritating
vapors

**Uses:** Synthetic flavor and fragrance for
pharmaceuticals

**Features:** Green spicy hyacinth balsam lilac
honeysuckle odor

**Regulatory:** FDA 21 CFR §172.515; FEMA
GRAS; Canada DSL

**Manuf./Distrib.:** Acros Org.
[http://www.acros.com; Alfa Aesar
[http://www.alfa.com; BASF

†=pharmaceutical grade

[http://www.mpbio.com
Lancaster Synthesis [http://www.alfa.com;

2-Phenyl-1-propanol; 2-Phenylpropan-1-ol.
See 2-Phenyl propanol-1

3-Phenylpropanol; 3-Phenyl-1-propanol; 3-
Phenylpropan-1-ol; 3-Phenyl-n-propanol; γ-
Phenylpropanol. See Hydrocinnamic
alcohol

(±)-1-Phenyl-1-propanol. See 1-Phenyl-1-
propanol

3-Phenyl-1-propanol acetate. See
Hydrocinnamyl acetate

2-Phenylpropan-2-yl isobutyrate; 2-Phenyl
propan-2-yl 2-methyl propanoate. See α,α-
Dimethylbenzyl isobutyrate

3-Phenylpropanol; 3-Phenyl-2-propanol. See
Cinnamal

3-Phenylpropenoic acid; 3-Phenyl-2-
propenoic acid. See Cinnamic acid

3-Phenyl-2-propenoic acid-1,5-dimethyl-1-
vinyl-4-hexen-1-yl ester; 3-Phenyl-2-
propenoic acid-1-ethenyl-1,5-dimethyl-4-
hexenyl ester. See Linalyl cinnamate

3-Phenyl-2-propanoic acid, ethyl ester. See
Ethyl cinnamate

3-Phenyl-2-propanoic acid 3-methylbutyl
ester. See Isoamyl cinnamate

3-Phenyl-2-propenoic acid methyl ester. See
Methyl cinnamate

(S)-3-Phenyl-2-propenoic acid 1-methyl-1-(4-
methyl-3-cyclohexen-1-yl) ethyl ester. See
Terpinyl cinnamate

3-Phenyl-2-propenoic acid, 2-methylpropyl
ester. See Isobutyl cinnamate

3-Phenyl-2-propenoic acid 2-phenyl ethyl
ester. See Phenethyl cinnamate

3-Phenyl-2-propenoic acid phenylmethyl
ester. See Benzyl cinnamate

3-Phenyl-2-propenoic acid 3-phenyl-
2-propenyl ester. See Cinnamyl cinnamate

3-Phenyl-2-propenoic acid 3-phenylpropyl
ester. See 3-Phenylpropyl cinnamate

3-Phenyl-2-propenoic acid propyl ester. See
Propyl cinnamate

3-Phenyl-2-propenal; 3-Phenyl-2-propen-1-ol.
See Cinnamyl alcohol

2-Phenyl-2-propen-1-ol acetate; 3-Phenyl-2-
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Chemical Component</th>
<th>Synonyms</th>
<th>CAS Number</th>
<th>FEMA Code</th>
<th>Empirical</th>
<th>Properties</th>
<th>Toxicology</th>
<th>Precaution</th>
<th>Uses</th>
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<tr>
<td>propen-1-yl acetate</td>
<td>See Cinnamyl acetate</td>
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<tr>
<td>3-Phenyl-2-propenylanthranilate</td>
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<td>3-Phenyl-2-propen-1-yl formate</td>
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<tr>
<td>3-Phenyl-2-propenyl 3-methylbutanoate.</td>
<td>See Cinnamyl isovalerate</td>
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<td>See Cinnamyl isobutyrate</td>
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<td>3-Phenyl-2-propenyl 3-phenyl-2-propenoate.</td>
<td>See Cinnamyl propionate</td>
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<td>2-Phenylpropionaldehyde.</td>
<td>See 2-Phenylpropanal</td>
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<td>3-Phenylpropionaldehyde.</td>
<td>See Hydrocinnamaldehyde</td>
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<tr>
<td>α-Phenylpropionaldehyde.</td>
<td>See 2-Phenylpropanal</td>
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<tr>
<td>β-Phenylpropionaldehyde.</td>
<td>See Hydrocinnamaldehyde</td>
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<tr>
<td>2-Phenylpropionaldehyde dimethylacetal</td>
<td>CAS 90-87-9; EINECS/ELINCS 202-022-8</td>
<td>FEMA 2888</td>
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<td>Synonyms: (2,2-Dimethoxy-1-methylethyl)-benzene; 1,1-Dimethoxy-2-phenylpropane; Hydratropaldehyde dimethyl acetal; Hydratropic aldehyde dimethyl acetal; 2-Phenylpropionaldehyde dimethyl acetal</td>
<td>Classification: aromatic compd.</td>
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<tr>
<td>Empirical: C11H16O2</td>
<td>Properties: Colorless to sl. yel. liq., mushroom odor; sol. in alcohol, ether; insol. in water; m.w. 180.25; dens. 0.989-0.994; b.p. 240-241°C; flash pt. 92°C; ref. index 1.492-1.497</td>
<td>Toxicology: LD50 (oral, rat) 1850 mg/kg, (skin, rabbit) &gt; 5 g/kg; mod. toxic by ing.; primary skin irritant; TSCA listed</td>
<td>Precaution: Combustible liq.</td>
<td>Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes</td>
<td>Uses: Synthetic flavor and fragrance for pharmaceuticals</td>
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<tr>
<td>Phenylpropionic acid; 3-Phenylpropionic acid; β-Phenylpropionic acid.</td>
<td>See Hydrocinnamic acid</td>
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<td>Phenylpropionic aldehyde.</td>
<td>See Hydrocinnamaldehyde</td>
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<tr>
<td>Phenylpropyl acetate; 3-Phenylpropyl acetate.</td>
<td>See Hydrocinnamyl acetate</td>
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<tr>
<td>Phenylpropyl alcohol.</td>
<td>See Hydrocinnamic alcohol</td>
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<td>1-Phenylpropyl alcohol.</td>
<td>See 1-Phenyl-1-propanol</td>
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<td>2-Phenylpropyl alcohol.</td>
<td>See 2-Phenylpropanol-1</td>
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<td>3-Phenylpropyl alcohol.</td>
<td>See Hydrocinnamic alcohol</td>
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<tr>
<td>β-Phenylpropyl alcohol.</td>
<td>See 2-Phenylpropanol-1</td>
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<tr>
<td>γ-Phenylpropyl alcohol.</td>
<td>See Hydrocinnamic alcohol</td>
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<tr>
<td>α-Phenylpropyl alcohol butyric ester.</td>
<td>See 2-Phenylpropyl butyrate</td>
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<tr>
<td>α-Phenylpropyl alcohol isobutyric ester.</td>
<td>See 2-Phenylpropyl isobutyrate</td>
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<tr>
<td>Phenylpropyl aldehyde; 3-Phenylpropyl aldehyde.</td>
<td>See Hydrocinnamaldehyde</td>
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<tr>
<td>2-Phenylpropyl butyrate</td>
<td>CAS 80866-83-7</td>
<td>FEMA 2891</td>
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<tr>
<td>Synonyms: Hydratropyl butyrate; β-Methylphenethyl butyrate; α-Phenylpropyl alcohol butyric ester</td>
<td>Empirical: C13H18O2</td>
<td>Properties: Sol. in alcohol; insol. in water; m.w. 206.29; dens. 0.991; flash pt. &gt; 230°F; ref. index 1.48800</td>
<td>Uses: Synthetic flavor for pharmaceuticals</td>
<td>Features: Sweet apricot-like flavor</td>
<td>Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL</td>
<td>Manuf./Distrib.: SAFC Specialties</td>
<td><a href="http://www.safcspecialties.com">http://www.safcspecialties.com</a></td>
<td>α-Phenylpropyl butyrate.</td>
</tr>
</tbody>
</table>
3-Phenylpropyl cinnamate
CAS 122-68-9; EINECS/ELINCS 204-565-6
FEMA 2894
Synonyms: Cinnamic acid, 3-phenylpropyl ester; Hydrocinnamyl cinnamate; 3-Phenyl-2-propenoic acid 3-phenylpropyl ester; Phenylpropyl cinnamate; 3-Phenylpropyl 3-phenyl-2-propenoate; 2-Propenoic acid, 3-phenyl-, 3-phenylpropyl ester
Empirical: C18H18O2
Properties: M.w. 266.36
Toxicology: LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating vapors
Uses: Synthetic flavor for pharmaceuticals
Features: Fruity flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Phenylpropyl formate. See 3-Phenylpropyl formate

3-Phenylpropyl formate
CAS 104-64-3; EINECS/ELINCS 203-222-8
FEMA 2895
Synonyms: Hydrocinnamyl formate; Hydrocinnamyl methanoate; Phenylpropyl formate; 3-Phenyl-1-propyl formate; β-Phenyl propyl formate
Empirical: C10H12O2
Properties: Colorless liq.; sol. in alcohol; insol. in water; m.w. 164.22; b.p. 238.00 C @ 760.00 mm; acid no. 1 max.
Toxicology: LD50 (oral, rat) 4090 mg/kg; mildly toxic by ing.; skin irritant; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes
Uses: Synthetic flavor for pharmaceuticals
Features: Fruity flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

3-Phenyl-1-propyl formate; β-Phenyl propyl formate. See 3-Phenylpropyl formate

3-Phenylpropyl hexanoate
CAS 6281-40-9
FEMA 2896
Synonyms: Hydrocinnamyl hexanoate
Empirical: C15H22O2
Properties: Sol. in alcohol; very sl. sol. in water; m.w. 220.31; dens. 0.980; b.p. 285 C; flash pt.
Phenyl propyl ketone. See Butyrophenone

β-Phenyl propyl 3-methyl butanoate. See 3-Phenylpropyl isovalerate

3-Phenylpropyl 2-methylpropanoate; 3-Phenylpropyl 2-methylpropionate. See 3-Phenylpropyl isobutyrate

3-Phenylpropyl 3-phenyl-2-propenoate. See 3-Phenylpropyl cinnamate

3-Phenylpropyl propanoate; Phenylpropyl propionate. See 3-Phenylpropyl propionate

3-Phenylpropyl propionate

CAS 122-74-7; EINECS/ELINCS 204-571-9

FEMA 2897

Synonyms: Benzene propanol, propanoate; Hydrocinnamyl propionate; 3-Phenylpropyl propanoate; Phenylpropyl propanoate; β-Phenylpropyl propionate

Empirical: C_{12}H_{16}O_2

Properties: M.w. 192.28

Toxicology: LD_{50} (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; skin irritant; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

HMIS: Health 1, Flammability 1, Reactivity 0

Storage: Protect from sunlight

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL


β-Phenylpropyl propionate. See 3-Phenylpropyl propionate

2-Phenylpropyltetrahydrofuran. See 2-(3-Phenylpropyl) tetrahydrofuran

2-(3-Phenylpropyl) tetrahydrofuran

CAS 3208-40-0; EINECS/ELINCS 221-715-6

FEMA 2898

Synonyms: 2-Hydrocinnamyl tetrahydrofuran; 2-Phenylpropyltetrahydrofuran

Empirical: C_{13}H_{18}O

Properties: Colorless to pale straw-yel. liq.; sweet, fruity aroma; very sl. sol. in water; m.w. 190.28; b.p. 107 n C (1 mm Hg); acid no. 1 max.; ref. index 1.511-1.516

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Phenyl salicylate

CAS 118-55-8; EINECS/ELINCS 204-259-2

FEMA 3960

Synonyms: 2-Hydroxybenzoic acid phenyl ester; Phenyl-2-hydroxybenzoate; Salol

Empirical: C_{13}H_{10}O_3

Formula: C_6H_4OHCO_2C_6H_5

Properties: Wh. cryst. powd.; faint aromatic odor and taste; sol. in alcohol, ether, chloroform, benzene, fixed or volatile oils, org. solvs.; sparingly sol. in water; m.w. 214.22; dens. 1.2614; m.p. 62 C; b.p. 172-173 C (12 mm); flash pt. > 110 C; absorbs light

Toxicology: LD_{50} (oral, rat) 3 g/kg, (IP, mouse) > 500 mg/kg; mod. toxic by ing.; irritant; possible sensitizer; possible teratogen, reproductive effector; TSCA listed

Precaution: Combustible

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

HMIS: Health 1, Flammability 1, Reactivity 0

Storage: Protect from sunlight

Uses: Flavor for pharmaceuticals; drug coatings; medicine (analgesic, antipyretic, anti-inflammatory)

Features: Fruity flavor

Regulatory: FDA 21CFR §177.1010, 27CFR §21.65, 21.151; FEMA GRAS; Canada DSL

### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Spectrum Quality Prods.†</th>
<th><a href="http://www.spectrumchemical.com">http://www.spectrumchemical.com</a></th>
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</thead>
</table>

### Phenyltrimchlorosilane

**CAS**: 98-13-5; **EINECS/ELINCS**: 202-640-8

**UN**: 1804 (DOT)

**Synonyms**: Phenyltrimchlorosilane; Silane, phenylchlororosilane; Silane, trichlorophenylsilane; Silicon phenyl trichloride; Trichlorophenylsilane

**Empirical**: C₆H₅Cl₃Si

**Properties**: Colorless liq.; sol. in benzene, ether, perchloroethylene; hydrolyzed by water releasing hydrogen chloride; m.w. 211.55; dens. 1.321; vapor pressure 10 mm (75°C); b.p. 201°C; flash pt. 91°C; ref. index 1.5247 (20°C); sp. heat 0.24 cal/g/C

**Toxicology**: LD₅₀ (oral, rat) 2390 mg/kg, (IV, mouse) 100 mg/kg, (skin, rabbit) 890 mg/kg; LC₅₀ (inh., mouse, 2 h) 330 mg/m³; highly toxic; poison by inh., IV routes; mod. toxic by ing. and skin contact; corrosive; causes burns; lachrymator; irritating to skin, eyes, mucous membranes; readily absorbed thru skin; may be fatal if inhaled; harmful by ing., skin absorp.; inh. may cause spasm/inflamm./edema of larynx/bronchi, chem. pneumonitis, pulmonary edema; TSCA listed

**Precaution**: Flamm.; incompat. with strong oxidizing agents, strong acids, strong bases; may dec. on exposure to moist air or water; may dec. under fire conditions to form flamm./explosive mixts. in air

**Hazardous Decomp. Prods.**: Toxic fumes of CO, CO₂, silicon oxide, hydrogen chloride gas, formaldehyde; emits toxic fumes under fire conditions

**HMIS**: Health 3, Flammability 2, Reactivity 1

**Storage**: Store in cool, dry place; keep tightly closed; moisture-sensitive; store under nitrogen; keep away from heat, open flame

**Uses**: Surface modifier for pharmaceuticals

**Features**: Stable

**Regulatory**: Canada DSL


### Phenyltrimethicone

**CAS**: 2116-84-9; **EINECS/ELINCS**: 218-320-6

**Synonyms**: 1,1,5,5,5-Hexamethyl-3-phenyl-3-[(trimethylsilyl) oxy] trisiloxane; Methyl phenyl polysiloxane; Phenethyltris (trimethylsiloxy) silane; Phenyltris (trimethylsiloxy) silane; Phenyl trisiloxane siloxysilane; Polyphenylmethyl siloxane; Trisiloxane, 1,1,1,5,5,5-hexamethyl-3-phenyl-3-(trimethylsilyl) oxy)-; Tris (trimethylsiloxy) phenylsilane

**Classification**: Siloxane polymer

**Definition**: Phenyl substituted silicone fluid

**Empirical**: C₁₅H₃₂O₃Si₄

**Properties**: M.w. 372.76; dens. 0.97; vapor pressure 1 mm (105°C); m.p. < -60°C; b.p. 264-266°C; flash pt. 127°C; ref. index 1.459; surf. tens. 27.2 dynes/cm

**Toxicology**: LDLo (oral, rat) > 34,500 mg/kg; irritating to eyes, skin, respiratory system; TSCA listed

**HMIS**: Health 1, Flammability 1, Reactivity 0

**Storage**: Moisture-sensitive; keep under argon

**Uses**: Emollient, conditioner, film-former for pharmaceuticals; antiperspirants; oil-phase ingred.

**Regulatory**: FDA 21CFR §175.105, 175.300; Canada DSL


**Trade Names Containing**: Actiprime® 100

**Phenyltris (trimethylsiloxy) silane; Phenyl**...
tristtrimethyl siloxysilane. See Phenyltrimethicone

Philosopher's wool. See Zinc oxide

Phlogopite. See Mica

Phloroglucin; Phloroglucine; Phloroglucinol. See 1,3,5-Trihydroxybenzene

Phloxeine B. See D&C Red No. 28

Phosboric acid, 2-hydroxy-3-[3-(1-octadecylamino)propyl] dimethylammonio] propyl triester, trichloride. See Stearamidopropyl PG-dimonium chloride phosphate

Phosphate crosslinked starch. See Distarch phosphate

Phosphate, sodium hexametaphosphate. See Sodium hexametaphosphate

Phosphatides. See Phospholipids

Phosphatidylcholine CAS 97281-47-5

Synonyms: Phosphatidyl-N-trimethylethanolamine

Definition: Purified grade of lecithin containing no less than 95% of the phospholipid

Formula: $RCO–OCH_2CHOOCRCH_2OPOO–OCH_2CH_2N+(CH_3)_3$, where $RCO–$ rep. various naturally occurring fatty acids

Uses: Emulsifier, dispersant, wetting agent, penetrant, antioxidant for pharmaceuticals, liposomes; choline enrichment, carrier for dietetics, pharmaceuticals, encapsulation


Trade Names Containing: Anti-Irritant Liposomes; Centella Phytosome®; Escin/β-Sitosterol Phytosome®; Glycyrrhetic Acid Phytosome®; Thiosome (P) Vitamin A, C & E Liposomes

See also Lecithin

Phospholipin. See Phospholipids

Phosphonic acid, (1-hydroxyethylidene) bis-, tetraysodium salt. See Tetrasodium etidronate

Phosphoric acid CAS 7664-38-2; EINECS/ELINCS 231-633-2 UN 1805 (DOT); FEMA 2900; INS338

Synonyms: Orthophosphoric acid; Phosphoric acid, pure

Classification: Inorganic mineral acid
Chemical Component Cross-Reference

**Empirical:** $\text{H}_3\text{O}_4\text{P}$

**Formula:** $\text{H}_3\text{PO}_4$

**Properties:** Colorless liq. or rhombic crystals, odorless; sol. in water, alcohol; misc. with many org. solvs.; m.w. 97.99; dens. 1.70 (20/4 C); vapor pressure 0.0285 mm (20 C); m.p. 42.4 C; b.p. 158 C; starts to dec. above 200 C forming polyphosphoric acids

**Toxicology:** ACGIH TLV/TWA 1 mg/m³; STEL 3 mg/m³; LD50 (oral, rat) 1530 mg/kg, (skin, rabbit) 2740 mg/kg; mod. toxic by skin contact; human poison by ing.; corrosive irritant to eyes, skin, mucous membranes; systemic irritant by inh.; common air contaminant; TSCA listed

**Environmental:** Environmentally hazardous

**Precaution:** DOT: Corrosive material; strong acid; mixts. with nitromethane are explosive; incompat. with alkalis; corrosive to many metals; violent reaction possible with sodium tetrahydroborate

**Hazardous Decomp. Pros.:** Heated to decomp., emits toxic fumes of POx

**NFPA:** Health 3, Flammability 0, Reactivity 0

**Uses:** Pharmaceutic aid; acidifier, buffer in pharmaceuticals, parenterals, intramuscular injectables, orals, topicals, vaginals; dental cements and etchants; dil. as tonic, for treatment of nausea, vomiting

**Regulatory:** FDA 21CFR §73.85, 73.275, 131.144, 133.123, 133.124, 133.129, 133.169, 133.173, 133.178, 133.179, 163.110, 163.111, 163.112, 175.300, 177.2260, 178.1010, 178.3520, 182.1073, GRAS; USDA 9CFR §318.7.; Canada DSL; 381.147 (0.01% max. in lard, shortening, poultry fat); FEMA GRAS; SARA reportable; Japan approved; Europe listed; UK approved; FDA approved for parenterals, intramuscular injectables, orals, topicals, vaginals; USP/NF, BP, EP compliance

**Manuf./Distrib.:** AB R Lundberg

[http://www.norfoods.se/lundberg]

AMRESCO† [http://www.amresco-inc.com]

Agrium [http://www.agrium.com]

Amyl [http://www.amyl.com]

Arch Chems.

[http://www.archchemicals.com]

Ashland† [http://www.ashchem.com]

Boith China

[http://www.boith.com]

Brown [http://www.brownchem.com]


Coyne [http://www.coynechemical.com]

DC Chem.

[http://www.dcchem.co.kr/english/index.asp]

EMCO Chem. Distributors

[http://www.emcochem.com]

EMD Chems.† [http://www.emdchemicals.com]

FMC Foret

[http://www.fmcforet.com]

FMC† [http://www.fmcchemicals.com]

Fisher Scientific


Fluka [http://www.sigma-aldrich.com]

Fuerst Day Lawson [http://www.fdl.co.uk]

GFS† [http://www.gfschemicals.com]

General Chem.

[http://www.genchemcorp.com]

Haco Ltd

[http://www.haco.ch]

Houghton Chem.

[http://www.houghtonchemical.com]

Haco Ltd

[http://www.haco.ch]

Houghton Chem.

[http://www.houghtonchemical.com]

Hydrite [http://www.hydrite.com]

ICL Performance Prods.

[http://www.astaris.com]

Integra† [http://www.integrachem.com]

Mallinckrodt Baker†

[http://www.mallbaker.com]

Occidental

[http://www.oxygenchem.com]

Penta Mfg.† [http://www.pentamfg.com]

PotashCorp

[http://www.potashcorp.com]

Rasa Ind. [http://www.rasa.co.jp]

Rhodia HPCIII†

[http://www.rhodia-hpcii.com]

Rhodia UK/Phosphorus Perf. Derivs.

[http://www.rhodia-ppd.com]

Rhodia [http://www.rhodia.com]

Ruger† [http://www.rugerchemical.com]

SAFC Specialties

[http://www.safcspecialties.com]

Sinochem Liaoning

[http://www.sinochemliaoning.com]

Spectrum Quality Prods.† [http://www.spectrumchemical.com]

Tekchem [http://www.tekchem.com.mx]

Thomas Scientific† [http://www.thomassci.com]

Universal Preserv-A-Chem†

[http://www.upichem.com]

VWR Int'l.† [http://www.vwrsp.com]

Varsal Instruments [http://www.varsal.com]

Voigt Global Distrib.

[http://www.vgdllc.com]

Phosphoric acid, aluminum salt (1:1). See Aluminum orthophosphate

Phosphoric acid calcium salt (1:1). See Calcium phosphate dibasic

Phosphoric acid calcium salt (2:1). See
Chemical Component Cross-Reference

Calcium phosphate monobasic anhydrous
Phosphoric acid, calcium salt (2:3). See Calcium phosphate tribasic
Phosphoric acid, cetyl ester, potassium salt. See Potassium cetyl phosphate
Phosphoric acid diammonium salt. See Ammonium phosphate, dibasic
Phosphoric acid, dihexadecyl ester. See Dicetyl phosphate
Phosphoric acid dipotassium salt. See Potassium phosphate dibasic
Phosphoric acid disodium salt. See Sodium phosphate dibasic
Phosphoric acid, hydroxycetyl ester. See Hydroxycetyl phosphate
Phosphoric acid monopotassium salt. See Potassium phosphate
Phosphoric acid monosodium salt. See Sodium phosphate
Phosphoric acid, pure. See Phosphoric acid
Phosphoric acid, triester with N-(2,3-dihydroxypropyl)-N,N-dimethyl-3-[(1-oxococo-alkyl) amino-1-propanaminium chloride. See Cocamidopropyl PG-dimonomium chloride phosphate
Phosphoric acid, trimethyl ester. See Trimethyl phosphite
Phosphorochloridic acid, phenyl ester. See Phenyl dichlorophosphate
Phosphorodichloridic acid, phenyl ester. See Phosphorodichloridic acid, phenyl ester.
Phosphorus acid, triisopropyl ester; Phosphorofluoridic acid, disodium salt. See Sodium fluorophosphate
Phosphorous acid, triisopropyl ester; Phosphorous acid, tris (1-methylethyl) ester. See Triisopropyl phosphite
Phosphorus acid, trimethyl ester. See Trimethyl phosphite

Phosphorus oxychloride
CAS 10025-87-3; EINECS/ELINCS 233-046-7
UN 1810 (DOT)
Synonyms: Phosphorus oxytrichloride; Phosphoryl chloride; Phosphoryl trichloride; Trichlorophosphine oxide; Trichlorophosphorous oxide

Empirical: Cl₃OP
Formula: POCl₃
Properties: Colorless fuming liq., pungent odor; dec. by water and alcohol with evolution of heat; m.w. 153.35; dens. 1.675 (20/20 C); m.p. 1.2 C; b.p. 107.2 C; dens. 1.675 (20C); ref. index 1.461 (20C)
Toxicology: ACGIH TLV/TWA 0.1 ppm; LD50 (oral, rat) 380 mg/kg; LC50 (inh., rat, 4 h) 32 ppm; toxic by ing. and inh.; strong irritant to skin and tissue; TSCA listed
Precaution: DOT: Corrosive material; dec. by water and alcohol with evolution of heat; potentially explosive reaction with water evolving HCl and phosphate; other explosive/violent reactions possible; incomp. with CS₂, dimethyl formamide, zinc, etc.
Hazardous Decomp. Prods.: Heated to decomp., emits highly toxic fumes of Cl⁻ and PO₅
Storage: Moisture-sensitive
Uses: Mfg. of pharmaceuticals
Regulatory: FDA 21CFR §172.892; Canada DSL
Phosphorus oxytrichloride; Phosphoryl chloride; Phosphoryl trichloride. See Phosphorus oxychloride

Phthalic acid, diethyl ester. See Diethyl phthalate
Phthalic acid, dioctyl ester. See n-Dioctyl phthalate
o-Phthalic imide. See Phthalimide
Phthalimide
CAS 85-41-6
Synonyms: 1,3-Isindole-1,3-dione; Isoindole-1,3-dione; 1,3-Isoindolinedione; o-Phthalic imide
Empirical: C₈H₅NO₂
Properties: Wh. to lt. tan powd. or flakes; sol. in
Hazardous Decomp. Prods.: Heat to decomp., emits toxic fumes of NOx.

Toxicology:
- Hazardous Decomp. Prods.: Hydrogen
- Hazardous Decomp. Prods.: Reproductive effector
- Precautions against dust formation: Take precautions against dust formation; avoid static discharge if dust formation occurs
- Storage: Refrigerate
- Uses: Colorant for contact lenses

Regulatory:
- FDA 21 CFR §73.3124, 178.3297; exempt from certification, permanently listed for use in medical devices; OSHA nonhazardous; Canada DSL

Manuf./Distrib.: Aceto [Link]

Phthalo green. See Phthalocyanine green
Phthalol. See Diethyl phthalate
Phylloquinone; α-Phylloquinone; trans-Phylloquinone; Phyloquinone. See Vitamin K1
Phytocalcium. See Calcium phytoate
Phytodione. See Vitamin K1
Phytoglycogen. See Glycogen
Phytomenadione; Phytonadione (INCI): 3-Phytomenadione. See Vitamin K1
Piazone. See Pyrazine
PIB. See Polysobutene
Picea glauca; Picea mariana; Picea oil. See Spruce oil
2-Picoline. See α-Picoline
3-Picoline. See β-Picoline
4-Picoline. See γ-Picoline

α-Picoline
CAS 109-06-8; EINECS/ELINCS 203-643-7
UN 2924 (DOT)
Synonyms: 2-Methylpyridine; α-Methylpyridine; 2-Picoline; o-Picoline
Empirical: C6H7N
Formula: C6H4N(CH3)
Properties: Colorless liq., strong unpleasant odor; very sol. in water; misc. with alcohol, ether, oxygenated solvs.; m.w. 93.13; dens. 0.943; vapor pressure 10 mm Hg (24.4 C); m.p. -70 C; b.p. 128-129 C; flash pt. 26 C; ref. index 1.500
Toxicology:
- LD50 (oral, rat) > 5 mg/kg; nonirritating to eyes, skin; mutagen; TSCA listed
Precaution: Probably combustible; airborne dust may be an explosion hazard; avoid dust formation; take precautions against static discharge if dust formation occurs

Hazardous Decomp. Prods.: Hydrogen chloride can be formed in fire
Storage: Refrigerate
Uses: Colorant for contact lenses
Regulatory: FDA 21 CFR §73.3124, 178.3297; exempt from certification, permanently listed for use in medical devices; OSHA nonhazardous; Canada DSL

Manuf./Distrib.: Aceto [Link]

Phthalocyanine green
CAS 1328-53-6; EINECS/ELINCS 215-524-7
Synonyms: Brilliant green phthalocyanine; CI 74260; Copper phthalocyanine green; Cyanine green toner; Pacific green no. 6491; Phthalocyanine brilliant green; Phthalo green; Pigment green 7; Pigment green phthalocyanine; Polychloro copper phthalocyanine; Thalo green No. 1
Classification: Phthalocyanine color
Empirical: C32Cl16CuN8
Properties: Grn. powd.; odorless; sol. in conc. H2SO4; sol. (mg/ml): < 1 mg in water, DMSO, 95% ethanol, acetone (21 C); m.w. 1127.21
Toxicology:
- LD50 (oral, mouse) 5 g/kg, (IP, mouse) 1175 mg/kg; mildly toxic by IP route; mildly toxic by ing.; experimental teratogen, reproductive effector; TSCA listed
- Precaution: Flammable exposed to heat and flame; mixts. with hydrogen peroxide + iron

Manuf./Distrib.: Aceto [Link]
Chemical Component Cross-Reference

(II) sulfate + sulfuric acid may ignite and explode

Hazardous Decomp. Prods.: Heated to decom., emits toxic fumes of NOx

Uses: Organic intermediate for pharmaceuticals

Regulatory: Canada DSL


β-Picoline
CAS 108-99-6; EINECS/ELINCS 203-636-9
UN 2924 (DOT)

Synonyms: 3-Methylpyridine; 3-Picoline; m-Picoline; Pyridine, 3-methyl-

Empirical: C₆H₇N

Properties: Colorless liq.; sweetish, not unpleasant odor; sol. in water, alcohol, ether; m.w. 93.13; dens. 0.957; f.p. -18 C; b.p. 144 C; flash pt. 36 C; ref. index 1.5050

Toxicology: LCLo (inh., rat, 2 h) 8700 ppm; LD₅₀ (oral, rat) 400 mg/kg, (IP, rat) 150 mg/kg; poison by IV and IP routes; mod. toxic by ing.; mildly toxic by inh.; severe primary irritant to eyes and skin; TSCA listed

Precaution: Flamm. exposed to heat, flames, oxidizers

Hazardous Decomp. Prods.: Heated to decom., emits toxic fumes of NOx

Uses: Solvent in synthesis of pharmaceuticals; raw material in the production of vitamin B₃

Regulatory: Canada DSL


m-Picoline. See β-Picoline

α-Picoline. See α-Picoline

γ-Picoline. See γ-Picoline

o-Picoline. See α-Picoline

3-Picoline-N-oxide. See 3-Methylpyridine-1-oxide

Picolinic acid
CAS 98-98-6; EINECS/ELINCS 202-719-7

Synonyms: 2-Carboxypyridine; 2-Pyridinecarboxylic acid; Pyridine-2-carboxylic acid; α-Pyridinecarboxylic acid; o-Pyridinecarboxylic acid

Classification: 6-membered aromatic heterocyclic

Empirical: C₆H₅NO₂

Properties: Red needles; very sol. in glac. acetic acid; sol. in hot water, alcohol; pract. insol. in ether, chloroform, CS₂; m.w. 123.12; m.p. 139-142 C, sublimes

Toxicology: LD₅₀ (IP, mouse) 360 mg/kg, (IV, mouse) 487 mg/kg; poison by ing. and IP routes; mod. toxic by IV route; irritant; TSCA listed

Hazardous Decomp. Prods.: Heated to decom., emits toxic fumes of NOx

Uses: Intermediate for the production of pharmaceuticals (local anesthetics) and metal salts that are used as nutritional supplements

Regulatory: Canada DSL

3-Picolinic acid. See Nicotinic acid
Picrasma excelsa. See Quassia
Pigment black 10. See Carbon, activated
Pigment black 11. See CI 77499; Iron oxide
black
Pigment black 16. See Zinc
Pigment blue 15 (INCI). See Copper phthalocyanine blue
Pigment blue 27. See CI 77510; Ferric ferrocyanide
Pigment Blue 36. See Chromium-cobalt-aluminum oxide
Pigment blue 64. See D&C Blue No. 9; Indanthrene blue
Pigment blue 66. See D&C Blue No. 6; Indigo
Pigment brown 6. See CI 77499; CI 77492; Ferric oxide
Pigment brown 7. See CI 77499; CI 77492; Ferric oxide
Pigment green 7. See Phthalocyanine green
Pigment green 17. See Chromium oxide (ic)
Pigment green 18. See Chromium hydroxide green
Pigment green phthalocyanine. See Phthalocyanine green
Pigment metal 1. See Aluminum; CI 77000
Pigment metal 2. See Copper; CI 77400
Pigment metal 3. See Gold
Pigment metal 4. See Lead
Pigment metal 6. See Zinc
Pigment orange 5. See D&C Orange No. 17
Pigment red 4. See D&C Red No. 36; 1-[(2-Chloro-4-nitrophenyl) azo]-2-naphthalenol
Pigment red 53. See D&C Red No. 8
Pigment red 53:1. See D&C Red No. 9
Pigment red 57. See CI 15850; D&C Red No. 6
Pigment red 57:1. See D&C Red No. 7
Pigment red 63:1. See D&C Red No. 34
Pigment red 64:1. See D&C Red No. 31
Pigment red 100. See D&C Red No. 39
Pigment red 101; Pigment red 102. See Ferric oxide
Pigment white 4. See CI 77947; Zinc oxide
Pigment white 6. See Titanium dioxide
Pigment white 14. See CI 77163; Bismuth oxychloride

†=pharmaceutical grade

Pigment white 18. See Calcium carbonate
Pigment white 19. See Kaolin
Pigment white 21. See Barium sulfate
Pigment white 25. See Calcium sulfate dihydrate
Pigment white 26. See Talc
Pigment white 27. See Silica, fumed
Pigment yellow 42. See CI 77492; Iron oxide yellow monohydrate
Pigment yellow 43. See CI 77492
Pimenta acris; Pimenta acris oil. See Bay (Pimenta acris) oil
Pimenta leaf oil; Pimenta officinalis; Pimenta officinalis leaf oil. See Pimenta (Pimenta officinalis) leaf oil
Pimenta oil. See Allspice (Pimenta officinalis) leaf oil
Pimenta (Pimenta officinalis) leaf oil
CAS 8016-45-3; 977157-17-7
FEMA 2901
Synonyms: Pimenta leaf oil; Pimenta officinalis; Pimenta officinalis leaf oil; Pimento leaf oil
Definition: Oil form steam distillation of Pimenta officinalis, contg. mainly eugenol
Properties: Pale yel. to brn. liq.; spicy odor; sol. in fixed oils, propylene glycol; insol. in glycerin, min. oil; dens. 1.037-1.050; ref. index 1.531 (20 C)
Toxicology: LD50 (oral, rat) 3600 mg/kg; mod. toxic by ing.; severe skin irritant
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §182.20, GRAS; FEMA GRAS

Pimenta racemosa oil. See Bay (Pimenta acris) oil
Pimento leaf oil. See Pimenta (Pimenta officinalis) leaf oil
Pimento oil. See Allspice (Pimenta officinalis).
Pimpinella anisum; Pimpinella anisum oil. See Anise (Pimpinella anisum) oil.

Pineapple (Ananas sativus) juice
Synonyms: Ananas sativus; Ananas sativus juice; Pineapple juice

Definition: Liq. obtained from the fruit of the pineapple, Ananas sativus
Uses: Natural flavor for pharmaceuticals

Use Level: 1-10%
Regulatory: FDA 21CFR §172.515, 175.300, 175.320; FEMA GRAS; Australia; Canada; DSL; Japan ENCS (no. 4-593); Philippines; PICCS

Manuf./Distrib.: Adrian Amer.

Trade Names: alpha-Pinene P&F

(-)-alpha-Pinene. See alpha-Pinene

beta-Pinene

CAS 127-91-3; 18172-67-3
Uses: Synthetic flavor for Pharmaceuticals

β-Pinene

CAS 80-56-8; 7785-26-4 (L, -); 7785-70-8 (D, +);
EINECS/ELINCS 201-291-9; 232-077-3 (L,-);
232-087-8 (D, +)
UN 2368 (DOT); FEMA 2902

Synonyms: (+)-alpha-Pinene; (1R)-(+)alpha-Pinene; (1S)-(−)-alpha-Pinene; 2-Pinene. See alpha-Pinene

2(10)-Pinene. See beta-Pinene

alpha-Pinene

CAS 127-91-3; 18172-67-3 (D,-);
EINECS/ELINCS 204-872-5, 172.515, 175.300, 175.320; FEMA GRAS; Australia; Canada; DSL; Japan ENCS (no. 4-593); Philippines; PICCS

Manuf./Distrib.: Adrian Amer.

Trade Names: alpha-Pinene P&F

(-)-alpha-Pinene. See alpha-Pinene

beta-Pinene

CAS 127-91-3; 18172-67-3 (D,-);
EINECS/ELINCS 204-872-5; 242-060-2 (D,-)
FEMA 2903

Synonyms: 6,6-Dimethyl-2-methylenebicyclo[3.1.1] heptane; 6,6-Dimethyl-2-methylene[3.1.1] heptane; Nopinene; Nopinene; 2(10)-Pinene; Pseudopinene; Pseudopinene

Classification: cyclic terpene hydrocarbon

Definition: Most commonly avail. as (-) isomer
### Chemical Component Cross-Reference

**Empirical:** C_{10}H_{16}

**Properties:** Colorless liq., terpene odor; sol. in alcohol, chloroform, ether, most org. solvs.; insol. in water; m.w. 136.24; dens. 0.859; m.p. -61 C; b.p. 165-167 C; soften. pt. 112-118 C; flash pt. 32 C; ref. index 1.4763; tenacity 2 hrs. on blotter

**Toxicology:** LD50 (oral, rat) 4700 mg/kg; mildly toxic by ing.; irritating to eyes, skin, respiratory system; TSCA listed

**Precaution:** Flammable; fire risk

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Storage:** Store in cool, dry place in tightly sealed containers, protected from heat, light

**Uses:** Synthetic flavor for pharmaceuticals; moisture barrier on soft gelatin capsules and on powders of ascorbic acid or its salts

**Use Level:** 1-10%

**Regulatory:** FDA 21CFR §172.280, 172.515, 175.300, 175.320; FEMA GRAS; Canada DSL

**Manuf./Distrib.:** Adrian Amer.
- [http://www.adrianusa.com](http://www.adrianusa.com)
- Arizona Oils Ltd [http://www.arizonachemical.com](http://www.arizonachemical.com)
- B D Aromatics [http://www.bd aromatics.com](http://www.bd aromatics.com)
- Berje [http://www.berjeinc.com](http://www.berjeinc.com)
- Chinessence [http://www.chinessence.com](http://www.chinessence.com)
- Citrus and Allied Essences [http://www.citrusandallied.com](http://www.citrusandallied.com)
- DRT [http://www.drt.fr](http://www.drt.fr)
- De Monchy Aromatics [http://www.demonchyaromatics.com](http://www.demonchyaromatics.com)
- Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
- Marlin Chems. Ltd [http://www.marlinchemicals.co.uk](http://www.marlinchemicals.co.uk)
- Millennium [http://www.millenniumchem.com](http://www.millenniumchem.com)
- Penta Mfg. [http://www.pentamfg.com](http://www.pentamfg.com)
- Polarome Int'l. [http://www.polarome.com](http://www.polarome.com)
- SAFC Specialties [http://www.saFCspecialties.com](http://www.saFCspecialties.com)
- Takasago Int'l. [http://www.takasago.com](http://www.takasago.com)

**Trade Names:** beta-Pinene P&F

**Pinus palustris**
- Tar oil

**Synonyms:** Pine tar; Pinus; Pinus palustris; Pinus palustris tar; Tar, pine

**Definition:** Prod. obtained by destructive distillation of the wood of the pine, *Pinus palustris*

**Properties:** Dk. brn. to blk. sticky visc. liq. or semisolid; strong odor; sharp taste; sol. in alcohol, acetone, fixed and volatile oils, sodium hydroxide sol'n.; sl. sol. in water; dens. 1.03-1.07; b.p. 240-400 C; flash pt. (CC) 54.4 C; hardens with aging

**Toxicology:** TSCA listed

**Precaution:** Combustible; fire risk; subject to spontaneous heating

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating vapors

**HMIS:** Health 0, Flammability 2, Reactivity 0

**Uses:** Medicine (cough syrups)

**Regulatory:** FDA 21CFR §177.2600; Canada DSL

**Manuf./Distrib.:** Alfa Chem
- [http://www.alfachem1.com](http://www.alfachem1.com)
- Arizona† [http://www.arizonachemical.com](http://www.arizonachemical.com)
- Crowley Tar Prods. [http://www.crowleychemical.com](http://www.crowleychemical.com)
- Dujodwala Resins & Terpenes [http://www.dujodwala.com](http://www.dujodwala.com)
- H.M. Royal [http://www.hmroyal.com](http://www.hmroyal.com)
- Integra† [http://www.integrachem.com](http://www.integrachem.com)
- Mosselman NV [http://www.mosselman.be](http://www.mosselman.be)
- Penta Mfg.† [http://www.pentamfg.com](http://www.pentamfg.com)
- Ruger [http://www.rugerchemical.com](http://www.rugerchemical.com)
- Spectrum Quality Prods.† [http://www.spectrumchemical.com](http://www.spectrumchemical.com)

**Pine (Pinus palustris) tar oil**

**Synonyms:** Pine tar oil; Tar oil; Tar oil, wood

**Definition:** Volatile oil from steam distillation of pine tar, *Pinus palustris* or other spp.

**Properties:** Almost colorless liq. when freshly distilled; turns dk. reddish-brn.; strong odor and taste; sol. in ether, chloroform, alcohol, carbon disulfide; dens. 0.862-0.872; flash pt. 62.2 C

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**Pine needle, dwarf, oil; Pine needle oil; Pine needle oil, dwarf. See Pine (Pinus pumilio) needle oil**

**Pine needle oil, Scotch; Pine needle oil, Scotch type; Pine needle, Scotch, oil. See**

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**Handbook of Pharmaceutical Additives, Third Edition**

1880
**Chemical Component Cross-Reference**

**Precaution:** Combustible  
**Uses:** Natural flavor for pharmaceuticals  
**Regulatory:** FDA 21CFR §172.510; FEMA GRAS

### Pine (Pinus pumilio) needle oil

**CAS:** 8000-26-8  
**UN:** NA 1993 (DOT); FEMA 2904  
**Synonyms:** Dwarf pine needle oil; Knee pine oil; Mountain pine oil; Pine needle oil; Dwarf, oil; Pine needle oil; Pine needle oil, dwarf; Pine montana oil; Pinus mugo oil; Pinus pumilio oil; Siberian fir oil  
**Definition:** Oil from steam distillation of needles of Pinus pumilio  
**Properties:** Colorless to pale yel. liq.; pleasant odor; bitter pungent taste; very sol. in chloroform, ether; sol. in 5-8 vols. 90% alcohol; insol. in water; dens. 0.853-0.871; ref. index 1.475 (20 C)  
**Toxicology:** LD50 (oral, rat) 6880 mg/kg; mildly toxic by ing.; primary irritant; a human skin irritant; TSCA listed  
**Precaution:** Flammable exposed to heat or flame; can react vigorously with oxidizers  
**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes  
**HMIS:** Health 1, Flammability 2, Reactivity 0  
**Storage:** Keep cool, well closed; protect from light  
**Uses:** Natural flavor and fragrance in pharmaceuticals, topicals

### Pine (Pinus sylvestris) needle oil

**CAS:** 8000-26-8  
**FEMA:** 2906  
**Synonyms:** Fir-wood oil; Pine needle oil, Scotch; Pine needle oil, Scotch type; Pine needle, Scotch, oil; Scotch fir oil; Scotch pine needle oil  
**Definition:** Volatile oil from needles and twigs from Pinus sylvestris, contg. dipentene, pinene, sylvestrene, cadinene, bornyl acetate  
**Properties:** Ylsh. liq.; sol. in fixed oils, min. oil, 10 vol. 90% alcohol; sl. sol. in propylene glycol; insol. in water, glycerin; dens. 0.884-0.886 (15/15 C); b.p. 200-220 C; flash pt. (CC) 172 F; ref. index 1.473 (20 C)  
**Toxicology:** LD50 (oral, rat) 6880 mg/kg; mildly toxic by ing.; mild irritant; weak allergen; TSCA listed  
**Precaution:** Combustible  
**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes  
**HMIS:** Health 1, Flammability 2, Reactivity 0  
**Storage:** Keep cool, well closed; protect from light  
**Uses:** Natural flavor for pharmaceuticals  
**Regulatory:** FDA 21CFR §172.510; FEMA GRAS

**Manuf./Distrib.:**  
- Alfa Chem†  
  [http://www.alfachem1.com](http://www.alfachem1.com); Arizona†  
  [http://www.arizonachemical.com](http://www.arizonachemical.com); Foote & Jenks†; Integra†  
  [http://www.integrachem.com](http://www.integrachem.com); Lebermuth  
  [http://www.lebermuth.com](http://www.lebermuth.com); Millennium†  
  [http://www.millenniumchem.com](http://www.millenniumchem.com); Pangaea Sciences†  
  [http://www.pangaeasciences.com](http://www.pangaeasciences.com); Penta  
  Mfg.† [http://www.pentamfg.com](http://www.pentamfg.com); Polarome Int'1.  
  [http://www.polarome.com](http://www.polarome.com); Spectrum Quality Prods.†  
  [http://www.spectrumchemical.com](http://www.spectrumchemical.com)

**Pine rosin.** See Rosin  
**Pine tar.** See Pine (Pinus palustris) tar  
**Pine tar oil.** See Pine (Pinus palustris) tar oil  
**Pinus.** See Pine (Pinus palustris) tar  
**Pinus montana oil; Pinus mugo oil.** See Pine (Pinus pumilio) needle oil  
**Pinus palustris; Pinus palustris tar.** See Pine (Pinus palustris) tar  
**Pinus pumilio oil.** See Pine (Pinus pumilio) needle oil  
**PIP; Piperazidine.** See Piperazine

**Piperazine**  
**CAS:** 110-85-0; EINECS/ELINCS 203-808-3  
**UN:** 2579 (DOT)  
**Synonyms:** Diethylenediamine; 1,4-Diethylenediamine; N,N-Diethylenediamine; Hexahydro-1,4-diazine; Hexahypropyrazine; PIP; Piperazidine; Piperazine anhydrous; Pyrazine hexahydrate  
**Classification:** Heterocyclic nitrogen compd.  
**Empirical:** C₄H₁₀N₂  
**Formula:** HNC₂H₄NHCH₂CH₂
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>1-Piperazineethanamine</th>
<th>Piperazineethanamine; 2-Piperazoeylamine; 1-(1-Piperazinyl)-2-aminoethane; 2-Piperazin-1-yl ethylamine. <strong>See Aminooxyethylpiperazine</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pipera cubeba; Pipera cubeba oil; Pipera cubebaus fruit oil</td>
<td><strong>See Cubeb (Piper cubeba) oil</strong></td>
</tr>
<tr>
<td>Piperaidine</td>
<td>CAS <strong>110-89-4</strong>; EINECS/ELINCS <strong>203-813-0</strong></td>
</tr>
<tr>
<td>UN 2401 (DOT); FEMA <strong>2908</strong></td>
<td></td>
</tr>
<tr>
<td>Synonyms: Azacyclohexane; Cyclopentimine; Hexahydropyridine; Hexazane; Pentamethylenimine</td>
<td><strong>Classification:</strong> Heterocyclic nitrogen compd.</td>
</tr>
<tr>
<td>Empirical: <strong>C₅H₁₁N</strong></td>
<td>Formula: <strong>NH(CH₂)₄CH₂</strong></td>
</tr>
<tr>
<td><strong>Properties:</strong> Colorless clear liq.; amine-like odor; sol. in alcohol, acetone, diethyl ether, benzene, chloroform, oxygenated and aromatic solvs.; misc. with water; m.w. 85.15; dens. 0.862 (20/4 C); vapor pressure 40 mm Hg (29.2 C); ref. index 1.453 (20 C)</td>
<td><strong>Toxicology:</strong> LD₅₀ (oral, rat) 0.52 ml/kg, (skin, rabbit) 320 mg/kg, (inh., mammal) 6500 mg/m³; toxic by ing., skin contact, IP routes; mildly toxic by inh. route; mildly toxic by subcut. route; mildly toxic by inh.: skin irritant; causes burns; experimental carcinogen, teratogen, reproductive effects; mutagenic data; TSCA listed</td>
</tr>
<tr>
<td><strong>Precaution:</strong> Highly flammable; very dangerous fire hazard exposed to heat, flame, or oxidizers; can react vigorously with oxidizers; explodes on contact with 1-perchloryl piperidine, dicynanofurazan, N-nitrosocyananilide</td>
<td><strong>Storage:</strong> Hygroscopic; flammable 2, Reactivity 0</td>
</tr>
<tr>
<td><strong>Uses:</strong> Syn. flavor for pharmaceuticals</td>
<td><strong>Regulatory:</strong> FDA 21CFR §175.150; Canada DSL</td>
</tr>
<tr>
<td><strong>Features:</strong> Sweet flavor</td>
<td><strong>Manuf./Distrib.:</strong> Advanced ChemTech†</td>
</tr>
</tbody>
</table>

### Properties
- Wh. to sl. off-wh. lumps or flakes; mild ammoniacal or fishy odor; sol. in water, alcohol, glycerin, glycols, oxygenated and aromatic solvs.; insol. in ether; m.w. 86.14; sp.gr. 0.97; m.p. 109.6°C; b.p. 148.5°C; flash pt. (TCC) 229°F; sublimes on heating; mod. strong base

### Toxicology
- LD₅₀ (oral, rat) 1900 mg/kg, (IV, rat) 1340 mg/kg, (subcut., rat) 3700 mg/kg, (skin, rabbit) 4 g/kg; mod. toxic by ing., skin contact, IV, subcut. routes; mildly toxic by inh.; skin and severe eye irritant; may cause incoordination, numbness, seizures, memory problems, headache, dizziness, eye problems, nausea, vomiting, diarrhea, abdominal cramps, hives, skin rashes, joint pain, bronchospasm, anemia; TSCA listed

### Precaution
- DOT: Corrosive material; combustible; absorbs CO₂ from air; can react vigorously with oxidizers

### Hazardous Decomp. Prods.
- Heated to decom., emits highly toxic fumes of NOₓ

### NFPA
- Health 3, Flammability 3, Reactivity 0

### Storage
- Hygroscopic; deliq.; light-sensitive

### Uses
- Mfg. of antihistamines, tranquilizers, analgesics, sedatives, hormones, therapeutics; treatment of burns, shock, hypertension, treatment of burns, shock, hypertension, treatment of burns, shock, hypertension, treatment of burns, shock, hypertension

### Regulatory
- FDA 21CFR §175.105; Canada DSL

### Manufacturers/Distributors
- AMRESCO†
- Akzo Nobel
- Aldrich†
- Sigma-Aldrich; Alfa Aesar†
- Alfa Chem†
- Alken Amines Chem. Ltd
- Allchem Ind. http://www.allchem.com
- BASF†
- C & P Sales
- Dow†
- Dow Chemical
- Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality
- Penta Mfg.† http://www.pentamfg.com;
- Raschig; Reilly Ind.† http://www.reillyind.com; SAFC Specialties

### Additional Information
- **Piperazine anhydrous.** **See Piperazine**

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Chemical Component Cross-Reference

- http://www.safcspecialties.com
- Sigma http://www.sigma-aldrich.com/belgium
- Spectrum Quality Prods.† http://www.spectrumchemical.com

Piperin.  See Piperine

Piperine  CAS 94-62-2; EINECS/ELINCS 202-348-0
FEMA 2009
Synonyms: 1-[5-(1,3-Benzodioxol-5-yl)-1-oxo-2,4-pentadienyl] piperidine (E,E)-; 1,3-Benzodioxol-5-yl-oxo-2,4-pentadienyl piperine; 5-Benzo [1,3] dioxol-5-yl-1-piperidin-1-yl-penta-2,4-dien-1-one; Piperin; 1-Piperoylpiperidine
Empirical: C17H19NO3
Properties: Prisms, tasteless with burning aftertaste; sol. in benzene, acetic acid; 1 g sol. in 15 ml alcohol, 36 ml ether; pract. insol. in water, petrol. ether; m.w. 285.33; m.p. 130 C
Toxicology: LD50 (oral, rat) 514 mg/kg, (IP, rat) 34 mg/kg; toxic by ing. and IP routes; experimental teratogen, reproductive effects; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Piperitone  α-Piperitone.  See d-Piperitone

d-Piperitone  CAS 89-81-6; 6091-50-5 (α-); EINECS/ELINCS 201-942-7
FEMA 2910
Synonyms: 3-Carvomenthene; 4-Isopropyl-1-methyl-1-cyclohexen-3-one; 6-Isopropyl-3-methylcyclohex-2-ene; 1-p-Menth-3-one; p-Menth-1-en-3-one; 1-Methyl-4-isopropyl-1-cyclohexen-3-one; 3-Methyl-6-(1-methylethyl)-2-cyclohexen-1-one; Piperitone; α-Piperitone
Empirical: C10H16O
Properties: Colorless liq., camphor-like odor, sharp minty flavor; sol. in alcohol; insol. in water; m.w. 152.23; dens. 0.926 (20/4 C); b.p. 233 C; sp.gr.0.9344; m.p. -20.2 C; b.p. 245 C (0 mm); flash pt. (CC) 98 C; ref. index 1.4848;
Tenacity 12 hrs. on blotter
Toxicology: LD50 (oral, rat) 2100 mg/kg; mod. toxic by ing.; skin irritant; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Storage: Store in cool, dry place in tightly sealed containers, protected from heat and light
Uses: Synthetic flavor for pharmaceuticals
Features: Cherry, strawberry-like flavor
Use Level: < 2%
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia; Canada DSL; Japan ENCS (no. 5-513); Philippines PICCS
Piperonyl aldehyde. See Heliotropine

Piperonyl isobutyrate
CAS 5461-08-5; EINECS/ELINCS 226-745-3
FEMA 2913
Synonyms: 1,3-Benzodioxol-5-yl methyl isobutyrate; Heliotropyl isobutyrate; Heliotropin isobutyrate; 3,4-Methylenedioxybenzyl isobutyrate; Piperonyl isobutyrate; Piperonyl 2-methyl propanoate
Empirical: C_{12}H_{14}O_{4}
Properties: Colorless oily liq., fruity berry odor; sol. in alcohol; insol. in water; m.w. 222.24; dens. 1.154; b.p. 91-92 °C (0.005 mm); flash pt. > 230 °F
Uses: Synthetic flavor for pharmaceuticals
Features: Berry, jam-like flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Piperonyl isobutyrate; Piperonyl 2-methyl propanoate. See Piperonyl isobutyrate

1-Piperonylpiperidine. See Piperine

PIPP. See p-Isopropylphenol

Piroctone olamine
CAS 68890-66-4; EINECS/ELINCS 272-574-2
Synonyms: 1-Hydroxy-4-methyl-6-(2,4,4-trimethylpentyl)-2-(1H)-pyridinone, 2-aminoethanol salt; 1-Hydroxy-4-methyl-6-(2,4,4 trimethylpentyl)pyridin-2-(1H)-one, compd. with 2-aminoethanol (1:1)
Classification: Amine salt
Empirical: C_{14}H_{23}NO_2 • C_{2}H_{7}NO
Properties: Wh. to ylsh. powd.; sol. in aq. alcoholic sol'ns., surfactants; m.p. 135 °C (dec.)
Toxicology: Irritating to skin, respiratory system; risk of serious eye damage
Uses: Preservative
Regulatory: Canada DSL
Trade Names: Octopirox®
Pivalic acid chloride; Pivaloyl chloride. See Pivaloyl chloride

†=pharmaceutical grade

Pivaloyl chloride
Pivaloyl chloride
CAS 3282-30-2; EINECS/ELINCS 221-921-6
UN 2438 (DOT)
Synonyms: 2,2-Dimethylpropanoyl chloride; 2,2-Dimethylpropionyl chloride; Neopantanoyl chloride; Pivalic acid chloride; Pivaloyl chloride; Pivalyl chloride; Trimethylacetyl chloride
Empirical: C_{5}H_{10}ClO
Formula: (CH_{3})_{3}CCOCl
Properties: Liq.; sol. in ether; hydrolyzed by water and alcohol; m.w. 120.58; dens. 0.979; b.p. 105-106 °C; flash pt. 19 °C; ref. index 1.4120
Toxicology: Toxic; corrosive irritant to eyes, skin, mucous membranes; lachrymator; TSCA listed
Precaution: Liq. is flamm. exposed to heat, flame, or oxidizers; reacts violently with water
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of Cl^–
Storage: Hygroscopic
Uses: Coupling agent in mfg. of antibiotics

Pivaloyl chloride
PLA. See Poly (DL-lactic acid); Poly (lactic acid)

Plain caramel. See Caramel
Plaster of Paris. See Calcium sulfate hemihydrate; Calcium sulfate
Plastics, epoxy. See Epoxy resin
Platy talc. See Talc
PMA; PMAC; PMAS. See Phenylmercuric acetate
PMM; PMMA. See Polymethyl methacrylate
PMN. See Phenylmercuric nitrate
POE (4). See PEG-4
POE (8). See PEG-8
POE (9). See PEG-9
POE (12). See PEG-12
POE (14). See PEG-14
POE (16). See PEG-16
POE (20). See PEG-20
### Chemical Component Cross-Reference

| POE (32) | See PEG-32 |
| POE (40) | See PEG-40 |
| POE (60) | See PEG-60 |
| POE (75) | See PEG-75 |
| POE (90) | See PEG-90 |
| POE (100) | See PEG-100 |
| POE (150) | See PEG-150 |
| POE (180) | See PEG-180 |
| POE (200) | See PEG-200 |
| POE (350) | See PEG-350 |
| POE (10000) | See PEG-1000 |
| POE (14000) | See PEG-14M |
| POE (2000) | See PEG-2M |
| POE (20000) | See PEG-20M |
| POE (23000) | See PEG-23M |
| POE (35000) | See PEG-35M |
| POE (4000) | See PEG-4M |
| POE (45000) | See PEG-45M |
| POE (5000) | See PEG-5M |
| POE (6000) | See PEG-6M |
| POE (7000) | See PEG-7M |
| POE (8000) | See PEG-8M |
| POE (9000) | See PEG-9M |
| POE (90000) | See PEG-90M |
| POE (20) | almond glycerides. See PEG-20 almond glycerides |
| POE (60) | almond glycerides. See PEG-60 almond glycerides |
| POE (8) | beeswax. See PEG-8 beeswax |
| POE (8) | behenate. See PEG-8 behenate |
| POE (20) | behenate. See PEG-20 behenate |
| POE (5) | behenyl ether. See Beheneth-5 |
| POE (10) | behenyl ether. See Beheneth-10 |
| POE (20) | behenyl ether. See Beheneth-20 |
| POE (30) | behenyl ether. See Beheneth-30 |
| POE (8) | caprylate/caprate glycerides. See PEG-8 caprylic/capric glycerides |
| POE (6) | caprylic/capric glycerides. See PEG-6 caprylic/capric glycerides |
| POE (3) | castor oil. See PEG-3 castor oil |
| POE (5) | castor oil. See PEG-5 castor oil |
| POE (8) | castor oil. See PEG-8 castor oil |
| POE (9) | castor oil. See PEG-9 castor oil |
| POE (10) | castor oil. See PEG-10 castor oil |
| POE (15) | castor oil. See PEG-15 castor oil |
| POE (17) | castor oil. See PEG-17 castor oil |
| POE (20) | castor oil. See PEG-20 castor oil |
| POE (25) | castor oil. See PEG-25 castor oil |
| POE (26) | castor oil. See PEG-26 castor oil |
| POE (30) | castor oil. See PEG-30 castor oil |
| POE (32) | castor oil. See PEG-32 castor oil |
| POE (33) | castor oil. See PEG-33 castor oil |
| POE (35) | castor oil. See PEG-35 castor oil |

†=pharmaceutical grade

<p>| POE (36) | castor oil. See PEG-36 castor oil |
| POE (40) | castor oil. See PEG-40 castor oil |
| POE (50) | castor oil. See PEG-50 castor oil |
| POE (52) | castor oil. See PEG-52 castor oil |
| POE (56) | castor oil. See PEG-56 castor oil |
| POE (60) | castor oil. See PEG-60 castor oil |
| POE (180) | castor oil. See PEG-180 castor oil |
| POE (200) | castor oil. See PEG-200 castor oil |
| POE (10) | cetyl alcohol. See Ceteth-10 |
| POE (2) | cetyl ether. See Cetealth-2 |
| POE (5) | cetyl ether. See Cetealth-5 |
| POE (6) | cetyl ether. See Cetealth-6 |
| POE (7) | cetyl ether. See Cetealth-7 |
| POE (10) | cetyl ether. See Cetealth-10 |
| POE (12) | cetyl ether. See Cetealth-12 |
| POE (15) | cetyl ether. See Cetealth-15 |
| POE (16) | cetyl ether. See Cetealth-16 |
| POE (20) | cetyl ether. See Cetealth-20 |
| POE (23) | cetyl ether. See Cetealth-23 |
| POE (24) | cetyl ether. See Cetealth-24 |
| POE (25) | cetyl ether. See Cetealth-25 |
| POE (30) | cetyl ether. See Cetealth-30 |
| POE (40) | cetyl ether. See Cetealth-40 |
| POE (10) | cetyl ether phosphate. See Cetealth-10 phosphate |
| POE (22) | cetyl/oleyl ether. See Cetoleath-22 |
| POE (2) | cetyl/stearyl ether. See Ceterealth-2 |
| POE (3) | cetyl/stearyl ether. See Ceterealth-3 |
| POE (4) | cetyl/stearyl ether. See Ceterealth-4 |
| POE (6) | cetyl/stearyl ether. See Ceterealth-6 |
| POE (7) | cetyl/stearyl ether. See Ceterealth-7 |
| POE (9) | cetyl/stearyl ether. See Ceterealth-9 |
| POE (10) | cetyl/stearyl ether. See Ceterealth-10 |
| POE (11) | cetyl/stearyl ether. See Ceterealth-11 |
| POE (12) | cetyl/stearyl ether. See Ceterealth-12 |
| POE (14) | cetyl/stearyl ether. See Ceterealth-14 |
| POE (15) | cetyl/stearyl ether. See Ceterealth-15 |
| POE (16) | cetyl/stearyl ether. See Ceterealth-16 |
| POE (18) | cetyl/stearyl ether. See Ceterealth-18 |
| POE (20) | cetyl/stearyl ether. See Ceterealth-20 |
| POE (25) | cetyl/stearyl ether. See Ceterealth-25 |
| POE (30) | cetyl/stearyl ether. See Ceterealth-30 |
| POE (33) | cetyl/stearyl ether. See Ceterealth-33 |
| POE(20) | C16 fatty alcohol. See Isoceteth-20 |
| POE (24) | cholesteryl ether. See Choleteth-24 |
| POE (5) | coconut amine. See PEG-5 cocamine |
| POE (15) | coconut amine. See PEG-15 cocamine |
| POE (20) | corn glycerides. See PEG-20 corn glycerides |
| POE (60) | corn glycerides. See PEG-60 corn glycerides |
| POE (4) | dilaurate. See PEG-4 dilaurate |
| POE (6) | dilaurate. See PEG-6 dilaurate |</p>
<table>
<thead>
<tr>
<th>Chemical Component Cross-Reference</th>
<th>†=pharmaceutical grade</th>
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<td>POE (8) dilaurate. See PEG-8 dilaurate</td>
<td>glycercyl cocoate</td>
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<td>POE (8) ditallate. See PEG-8 ditallate</td>
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<td>POE (24) hydrogenated lanolin. See PEG-24</td>
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<td>Chemical Component Cross-Reference</td>
<td>†= pharmaceutical grade</td>
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<td>hydrogenated lanolin</td>
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<td>POE (5) lanolin ether. See Laneth-5</td>
<td>POE (4) monooleate. See PEG-4 oleate</td>
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<td>POE (5) lauryl ether carboxylic acid, sodium salt. See Sodium laureth-5 carboxylate</td>
<td>POE (2) monostearate self-emulsifying. See PEG-2 stearate SE</td>
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<td>POE (20) methyl glucose ether. See Methyl gluceth-20</td>
<td>POE (13) monotallate. See PEG-13 tallate</td>
</tr>
<tr>
<td>POE (20) methyl glucose sesquistearate. See PEG-20 methyl glucose sesquistearate</td>
<td>POE (23) monotallate. See PEG-23 tallate</td>
</tr>
<tr>
<td>POE (8) monococoate. See PEG-8 cocoate</td>
<td>POE (66) monotallate. See PEG-660 tallate</td>
</tr>
<tr>
<td>POE (6) monoisostearate. See PEG-6 isostearate</td>
<td>POE (3) myristyl ether laurate. See Myreth-3 laurate</td>
</tr>
<tr>
<td>POE (5) nonylphenol. See Nonoxynol-5</td>
<td>POE (3) myristyl ether myristate. See Myreth-3 myristate</td>
</tr>
<tr>
<td>POE (2) nonyl phenyl ether. See Nonoxynol-2</td>
<td>POE (5) nonyl phenyl ether. See Nonoxynol-5</td>
</tr>
<tr>
<td>POE (4) nonyl phenyl ether. See Nonoxynol-4</td>
<td>POE (6) nonyl phenyl ether. See Nonoxynol-6</td>
</tr>
<tr>
<td>POE (5) nonyl phenyl ether. See Nonoxynol-5</td>
<td>POE (7) nonyl phenyl ether. See Nonoxynol-7</td>
</tr>
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<td>POE (6) nonyl phenyl ether. See Nonoxynol-6</td>
<td>POE (8) nonyl phenyl ether. See Nonoxynol-8</td>
</tr>
<tr>
<td>POE (7) nonyl phenyl ether. See Nonoxynol-7</td>
<td>POE (9) nonyl phenyl ether. See Nonoxynol-9</td>
</tr>
<tr>
<td>Chemical Component Cross-Reference</td>
<td>†=pharmaceutical grade</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>POE (10) nonyl phenyl ether. <strong>See Nonoxynol-10</strong></td>
<td>POE (25) oleyl ether. <strong>See Oleth-25</strong></td>
</tr>
<tr>
<td>POE (12) nonyl phenyl ether. <strong>See Nonoxynol-12</strong></td>
<td>POE (3) oleyl ether phosphate. <strong>See Oleth-3 phosphate</strong></td>
</tr>
<tr>
<td>POE (13) nonyl phenyl ether. <strong>See Nonoxynol-13</strong></td>
<td>POE (10) oleyl ether phosphate. <strong>See Oleth-10 phosphate</strong></td>
</tr>
<tr>
<td>POE (15) nonyl phenyl ether. <strong>See Nonoxynol-15</strong></td>
<td>POE (20) oleyl ether phosphate. <strong>See Oleth-20 phosphate</strong></td>
</tr>
<tr>
<td>POE (17) nonyl phenyl ether. <strong>See Nonoxynol-17</strong></td>
<td>POE (10) oleyl ether phosphate, diethanolamine salt. <strong>See DEA-oleth-10 phosphate</strong></td>
</tr>
<tr>
<td>POE (20) nonyl phenyl ether. <strong>See Nonoxynol-20</strong></td>
<td>POE (25) PABA. <strong>See PEG-25 PABA</strong></td>
</tr>
<tr>
<td>POE (25) nonyl phenyl ether. <strong>See Nonoxynol-25</strong></td>
<td>POE (1) POP (4) cetyl ether. <strong>See PPG-4-ceteth-1</strong></td>
</tr>
<tr>
<td>POE (30) nonyl phenyl ether. <strong>See Nonoxynol-30</strong></td>
<td>POE (1) POP (8) cetyl ether. <strong>See PPG-8-ceteth-1</strong></td>
</tr>
<tr>
<td>POE (35) nonyl phenyl ether. <strong>See Nonoxynol-35</strong></td>
<td>POE (10) POP (4) cetyl ether. <strong>See PPG-4-ceteth-10</strong></td>
</tr>
<tr>
<td>POE (40) nonyl phenyl ether. <strong>See Nonoxynol-40</strong></td>
<td>POE (20) POP (4) cetyl ether. <strong>See PPG-4-ceteth-20</strong></td>
</tr>
<tr>
<td>POE (50) nonyl phenyl ether. <strong>See Nonoxynol-50</strong></td>
<td>POE (20) POP (5) cetyl ether. <strong>See PPG-5-ceteth-20</strong></td>
</tr>
<tr>
<td>POE (100) nonyl phenyl ether. <strong>See Nonoxynol-100</strong></td>
<td>POE (20) POP (8) cetyl ether. <strong>See PPG-8-ceteth-20</strong></td>
</tr>
<tr>
<td>POE (3) octyl phenyl ether. <strong>See Octoxynol-3</strong></td>
<td>POE (10) POP (5) cetyl ether phosphate. <strong>See PPG-5-ceteth-10 phosphate</strong></td>
</tr>
<tr>
<td>POE (5) octyl phenyl ether. <strong>See Octoxynol-5</strong></td>
<td>POE (9) POP (2) cetyl/stearyl ether. <strong>See PPG-2-ceteareth-9</strong></td>
</tr>
<tr>
<td>POE (6) octyl phenyl ether. <strong>See Octoxynol-6</strong></td>
<td>POE/POP copolymer. <strong>See EO/PO block polymer or copolymer</strong></td>
</tr>
<tr>
<td>POE (8) octyl phenyl ether. <strong>See Octoxynol-8</strong></td>
<td>POE (50) POP (12) lanolin. <strong>See PPG-12-PEG-50 lanolin</strong></td>
</tr>
<tr>
<td>POE (9) octyl phenyl ether. <strong>See Octoxynol-9</strong></td>
<td>POE (65) POP (12) lanolin oil. <strong>See PPG-12-PEG-65 lanolin oil</strong></td>
</tr>
<tr>
<td>POE (10) octyl phenyl ether. <strong>See Octoxynol-10</strong></td>
<td>POE (5) POP (5) lauryl ether. <strong>See PPG-5-laureth-5</strong></td>
</tr>
<tr>
<td>POE (11) octyl phenyl ether. <strong>See Octoxynol-11</strong></td>
<td>POE (9) POP (3) lauryl ether. <strong>See PPG-3-laureth-9</strong></td>
</tr>
<tr>
<td>POE (13) octyl phenyl ether. <strong>See Octoxynol-13</strong></td>
<td>POE (10) propylene glycol. <strong>See PEG-10 propylene glycol</strong></td>
</tr>
<tr>
<td>POE (16) octyl phenyl ether. <strong>See Octoxynol-16</strong></td>
<td>POE (8) propylene glycol cocoate. <strong>See PEG-8 propylene glycol cocoate</strong></td>
</tr>
<tr>
<td>POE (20) octyl phenyl ether. <strong>See Octoxynol-20</strong></td>
<td>POE (25) propylene glycol monostearate. <strong>See PEG-25 propylene glycol stearate</strong></td>
</tr>
<tr>
<td>POE (25) octyl phenyl ether. <strong>See Octoxynol-25</strong></td>
<td>POE (120) propylene glycol monostearate. <strong>See PEG-120 propylene glycol stearate</strong></td>
</tr>
<tr>
<td>POE (30) octyl phenyl ether. <strong>See Octoxynol-30</strong></td>
<td>POE (55) propylene glycol oleate. <strong>See PEG-55 propylene glycol oleate</strong></td>
</tr>
<tr>
<td>POE (40) octyl phenyl ether. <strong>See Octoxynol-40</strong></td>
<td>POE (25) propylene glycol stearate. <strong>See PEG-25 propylene glycol stearate</strong></td>
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<tr>
<td>POE oleate. <strong>See PEG oleate</strong></td>
<td>POE (8) ricinoleate. <strong>See PEG-8 ricinoleate</strong></td>
</tr>
<tr>
<td>POE (10) oleic acid. <strong>See PEG-10 oleate</strong></td>
<td>POE (40) sorbitan diisostearate. <strong>See PEG-40</strong></td>
</tr>
<tr>
<td>POE (2) oleyl ether. <strong>See Oleth-2</strong></td>
<td></td>
</tr>
<tr>
<td>POE (3) oleyl ether. <strong>See Oleth-3</strong></td>
<td></td>
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<tr>
<td>POE (5) oleyl ether. <strong>See Oleth-5</strong></td>
<td></td>
</tr>
<tr>
<td>POE (10) oleyl ether. <strong>See Oleth-10</strong></td>
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</tr>
<tr>
<td>POE (12) oleyl ether. <strong>See Oleth-12</strong></td>
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</tr>
<tr>
<td>POE (16) oleyl ether. <strong>See Oleth-16</strong></td>
<td></td>
</tr>
<tr>
<td>POE (20) oleyl ether. <strong>See Oleth-20</strong></td>
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</tr>
</tbody>
</table>

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Chemical Component Cross-Reference

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<th>Cross-Reference</th>
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<td>sorbitan diiostearate</td>
<td>POE (20) sorbitan monoisoostearate. See Polysorbate 21</td>
</tr>
<tr>
<td>POE (40) sorbitol septaoleate.</td>
<td>See PEG-40 sorbitan peroleate</td>
</tr>
<tr>
<td>POE (20) sorbitan isostearate</td>
<td>POE (40) sorbitol septaoleate. See PEG-40 sorbitan peroleate</td>
</tr>
<tr>
<td>POE (20) sorbitan isooleate</td>
<td>POE (4) stearyl alcohol. See Steareth-10</td>
</tr>
<tr>
<td>POE (20) sorbitan laurate.</td>
<td>POE (20) stearyl alcohol. See Steareth-20</td>
</tr>
<tr>
<td>POE (20) sorbitan laurate</td>
<td>POE stearyl ether. See Steareth</td>
</tr>
<tr>
<td>POE (20) sorbitan eroleate</td>
<td>POE (2) stearyl ether. See Steareth-2</td>
</tr>
<tr>
<td>POE (20) sorbitan eroleate</td>
<td>POE (7) stearyl ether. See Steareth-7</td>
</tr>
<tr>
<td>POE (20) sorbitan eroleate</td>
<td>POE (8) stearyl ether. See Steareth-8</td>
</tr>
<tr>
<td>POE (20) sorbitan eroleate</td>
<td>POE (10) stearyl ether. See Steareth-10</td>
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<tr>
<td>POE (20) sorbitan eroleate</td>
<td>POE (16) stearyl ether. See Steareth-16</td>
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<td>POE (20) stearyl ether. See Steareth-20</td>
</tr>
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<td>POE (20) sorbitan eroleate</td>
<td>POE (21) stearyl ether. See Steareth-21</td>
</tr>
<tr>
<td>POE (20) sorbitan eroleate</td>
<td>POE (25) stearyl ether. See Steareth-25</td>
</tr>
<tr>
<td>POE (20) sorbitan tristearate.</td>
<td>POE (100) stearyl ether. See Steareth-100</td>
</tr>
<tr>
<td>POE (20) sorbitan tristearate.</td>
<td>POE (13) tallate. See PEG-13 tallate</td>
</tr>
<tr>
<td>POE (20) sorbitan tristearate.</td>
<td>POE (23) tallate. See PEG-23 tallate</td>
</tr>
<tr>
<td>POE (20) sorbitan tristearate.</td>
<td>POE (8) tallow ether. See Talloweth-8</td>
</tr>
<tr>
<td>POE (20) sorbitan tristearate.</td>
<td>POE (11) tallow ether. See Talloweth-11</td>
</tr>
<tr>
<td>POE (20) sorbitan tristearate.</td>
<td>POE (25) tallow ether. See Talloweth-25</td>
</tr>
<tr>
<td>POE (20) sorbitan tristearate.</td>
<td>POE (10) tridecyl ether. See Trideceth-10</td>
</tr>
<tr>
<td>POE (20) sorbitan tristearate.</td>
<td>POE (15) tridecyl ether. See Trideceth-15</td>
</tr>
<tr>
<td>POE (20) sorbitan tristearate.</td>
<td>POE (100) tridecyl ether. See Trideceth-100</td>
</tr>
<tr>
<td>POE (20) sorbitan tristearate.</td>
<td>POE (7) tridecyl ether carboxylic acid. See Trideceth-7 carboxylic acid</td>
</tr>
<tr>
<td>POE (20) sorbitan tristearate.</td>
<td>Pogostemon cablin. See Patchouli (Pogostemon cablin) oil; Patchouli (Pogostemon cablin) extract</td>
</tr>
<tr>
<td>POE (20) sorbitan tristearate.</td>
<td>Pogostemon cablin oil. See Patchouli (Pogostemon cablin) oil</td>
</tr>
<tr>
<td>POE (20) sorbitan tristearate.</td>
<td>Pogostemon patchouli extract. See Patchouli (Pogostemon cablin) extract</td>
</tr>
<tr>
<td>POE (20) sorbitan tristearate.</td>
<td>Pogostemon patchouli oil. See Patchouli (Pogostemon cablin) oil</td>
</tr>
<tr>
<td>POE (20) sorbitan tristearate.</td>
<td>Pogostemon patchouli oil. See Patchouli (Pogostemon cablin) oil</td>
</tr>
</tbody>
</table>

†=pharmaceutical grade
Polacriline potassium
CAS 39394-76-5
Synonyms: Methacrylic acid polymer with divinylbenzene, potassium salt
Definition: Potassium salt of a low crosslinked carboxylic cation-exchange resin prepared from methacrylic acid and divinylbenzene
Properties: Wh. to off-wh. free-flowing powd., odorless to faint odor, tasteless; pract. insol. in water and in most liqs.
Uses: Tablet disintegrant in pharmaceutical orals
Regulatory: FDA approved for orals; NF compliance

Polianthes tuberosa: Polianthes tuberosa oil.
See Tuberose (Polianthes tuberosa) oil

Policosanol. See Octacosanol

Polidronium chloride
CAS 75345-27-6
Empirical: C₁₆H₃₆N₂O₆
Uses: Antistat, film-former for pharmaceuticals; preservative in soft lens prods.
Trade Names Containing: ONAMER® M

Poloxamer 105
CAS 9003-11-6 (generic)
Classification: Polyoxymethylene, polyoxypropylene block polymer
Formula: HO(CH₂CH₂O)x(CCH₃H₂CH₂O)y(CH₂CH₂O)₂H, avg. x = 11, y = 16, z = 11
Properties: Nonionic
Toxicology: LD₅₀ (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed
Uses: Surfactant for pharmaceuticals; emulsifier, wetting agent, solubilizer, stabilizer in flavor concs.
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

Poloxamer 108
CAS 9003-11-6 (generic)
Classification: Polyoxymethylene, polyoxypropylene block polymer
Formula: HO(CH₂CH₂O)x(CCH₃H₂CH₂O)y(CH₂CH₂O)₂H, avg. x = 46, y = 16, z = 46
Properties: Nonionic
Toxicology: LD₅₀ (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed
Uses: Surfactant, emulsifier, wetting agent, solubilizer for pharmaceuticals
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

Poloxamer 123
CAS 9003-11-6 (generic)
Classification: Polyoxymethylene, polyoxypropylene block polymer
Formula: HO(CH₂CH₂O)x(CCH₃H₂CH₂O)y(CH₂CH₂O)₂H, avg. x = 7, y = 21, z = 7
Properties: Nonionic
Toxicology: LD₅₀ (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed
Uses: Surfactant, wetting agent, emulsifier, solubilizer for pharmaceuticals
Regulatory: FDA 21CFR §176.210
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

Handbook of Pharmaceutical Additives, Third Edition
1890
Poloxamer 124
CAS 9003-11-6 (generic)
Classification: Polyoxethylene, polyoxypropylene block polymer
Formula: \[ \text{HO(CH}_2\text{CH}_2\text{O})_x\text{(CH}_3\text{CH}_2\text{O})_y\text{(CH}_2\text{CH}_2\text{O})_z\text{H}, \quad \text{avg. } x = 11, y = 21, z = 11 \]
Properties: Colorless liq., mild odor; sol. in water, alcohol, IPA, propylene glycol, xylene; m.w. 2090-2360; m.p. 16 C; pH 5.0-7.5 (1 in 40); nonionic
Toxicology: LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed
Uses: Surfactant, emulsifier, wetting agent for pharmaceuticals
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: Pluronic® L44NF; Synperonic® PE/L44

Poloxamer 181
CAS 9003-11-6 (generic); 53637-25-5
Classification: Polyoxethylene, polyoxypropylene block polymer
Formula: \[ \text{HO(CH}_2\text{CH}_2\text{O})_x\text{(CH}_3\text{CH}_2\text{O})_y\text{(CH}_2\text{CH}_2\text{O})_z\text{H}, \quad \text{avg. } x = 3, y = 30, z = 3 \]
Properties: Nonionic
Toxicology: LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed
Uses: Surfactant, emulsifier in pharmaceuticals; emulsifier, solubilizer, wetting agent, stabilizer in flavor concs.
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: Synperonic® PE/L61

Poloxamer 184
CAS 9003-11-6 (generic)
Classification: Polyoxethylene, polyoxypropylene block polymer
Formula: \[ \text{HO(CH}_2\text{CH}_2\text{O})_x\text{(CH}_3\text{CH}_2\text{O})_y\text{(CH}_2\text{CH}_2\text{O})_z\text{H}, \quad \text{avg. } x = 13, y = 30, z = 13 \]
Properties: Dens. 1.018; flash pt. > 110 C; nonionic
Toxicology: LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed
Uses: Emulsifier, solubilizer, wetting agent in pharmaceuticals
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names Containing: Lubrajel® WA

Poloxamer 185
CAS 9003-11-6 (generic)
Classification: Polyoxethylene, polyoxypropylene block polymer
Formula: \[ \text{HO(CH}_2\text{CH}_2\text{O})_x\text{(CH}_3\text{CH}_2\text{O})_y\text{(CH}_2\text{CH}_2\text{O})_z\text{H}, \quad \text{avg. } x = 19, y = 30, z = 19 \]
Properties: Nonionic
Toxicology: LD50 (oral, rat) 2300 mg/kg;
Chemical Component Cross-Reference

†=pharmaceutical grade

Uses: Emulsifier, solubilizer, wetting agent in pharmaceuticals


Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

Poloxamer 188
CAS 9003-11-6 (generic)
Synonyms: Poloxalene
Classification: Polyoxyethylene, polyoxypropylene block polymer

Formula: 
\[ \text{HO(CH}_2\text{CH}_2\text{O)}_x\text{(CC}_3\text{H}_3\text{HCH}_2\text{O)}_y\text{(CH}_2\text{CH}_2\text{O)}_z\text{H} \]
avg. \( x = 75 \), \( y = 30 \), \( z = 75 \)

Properties: Whh. flakeable solid, nearly odorless; sol. in water, alcohol; m.w. 3850; m.p. 50 C min.; cloud pt. > 100 C (10% aq.); pH 5-7.5 (1 in 40); nonionic

Toxicology: LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed

Uses: Surfactant, emulsifier, solubilizer, wetting agent, stabilizer in pharmaceuticals, intravenous, orals


Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

Trade Names: Synperonic® PE/L81

Poloxamer 197
CAS 9003-11-6 (generic)
Classification: Polyoxyethylene, polyoxypropylene block polymer

Formula: 
\[ \text{HO(CH}_2\text{CH}_2\text{O)}_x\text{(CC}_3\text{H}_3\text{HCH}_2\text{O)}_y\text{(CH}_2\text{CH}_2\text{O)}_z\text{H} \]
avg. \( x = 52 \), \( y = 35 \), \( z = 52 \)

Properties: Nonionic

Toxicology: LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed

Uses: Emulsifier, solubilizer, wetting agent in pharmaceuticals; solubilizer, stabilizer in flavor concs.


Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

Poloxamer 234
CAS 9003-11-6 (generic)
Classification: Polyoxyethylene, polyoxypropylene block polymer

Formula: 
\[ \text{HO(CH}_2\text{CH}_2\text{O)}_x\text{(CC}_3\text{H}_3\text{HCH}_2\text{O)}_y\text{(CH}_2\text{CH}_2\text{O)}_z\text{H} \]
avg. \( x = 22 \), \( y = 39 \), \( z = 22 \)

Properties: Nonionic

Toxicology: LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed

Uses: Emulsifier, solubilizer, wetting agent in pharmaceuticals; solubilizer, stabilizer in flavor concs.


Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

Poloxamer 231
CAS 9003-11-6 (generic)
Classification: Polyoxyethylene, polyoxypropylene block polymer

Empirical: \( (\text{C}_3\text{H}_7\text{O} \cdot \text{C}_2\text{H}_4\text{O})_x \)

Formula: 
\[ \text{HO(CH}_2\text{CH}_2\text{O)}_x\text{(CC}_3\text{H}_3\text{HCH}_2\text{O)}_y\text{(CH}_2\text{CH}_2\text{O)}_z\text{H} \]
avg. \( x = 6 \), \( y = 39 \), \( z = 6 \)

Properties: Nonionic

Toxicology: LD50 (oral, rat) 2300 mg/kg; (IP, rat) 1140 mg/kg; mod. toxic by ing., IP route; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Emulsifier, solubilizer, wetting agent in pharmaceuticals; solubilizer, stabilizer in flavor concs.


Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

Trade Names: Synperonic® PE/L81
### Poloxamer 235

**CAS**: 9003-11-6 (generic)<br>
**Classification**: Polyoxyethylene, polyoxypropylene block polymer<br>
**Formula**: \( \text{HO(\(\text{CH}_2\text{CH}_2\text{O}\)\(_x\)(\(\text{CCH}_3\text{HCH}_2\text{O}\)\(_y\)(\(\text{CH}_2\text{CH}_2\text{O}\)\(_z\)\text{H, avg. } x = 27, y = 39, z = 27\)

**Properties**: Nonionic<br>
**Toxicology**: LD\(_{50}\) (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed<br>
**Uses**: Emulsifier, solubilizer, wetting agent in pharmaceuticals; solubilizer, stabilizer in flavor concs.<br>
**Manuf./Distrib.**: Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)<br>
**Trade Names**: Synperonic® PE/P85

### Poloxamer 237

**CAS**: 9003-11-6 (generic)<br>
**Classification**: Polyoxyethylene, polyoxypropylene block polymer<br>
**Formula**: \( \text{HO(\(\text{CH}_2\text{CH}_2\text{O}\)\(_x\)(\(\text{CCH}_3\text{HCH}_2\text{O}\)\(_y\)(\(\text{CH}_2\text{CH}_2\text{O}\)\(_z\)\text{H, avg. } x = 62, y = 39, z = 62\)

**Properties**: Wh. prilled or cast solid, odorless to mild odor; sol. in water, alcohol; sparingly sol. in IPA, xylene; m.w. 6840-8830; m.p. 49 C; pH 5.0-7.5 (1 in 40); nonionic<br>
**Toxicology**: LD\(_{50}\) (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed<br>
**Uses**: Emulsifier, solubilizer, wetting agent in pharmaceuticals; solubilizer, stabilizer in flavor concs.<br>
**Manuf./Distrib.**: Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium); Spectrum Quality Prods.† [http://www.spectrumchemical.com](http://www.spectrumchemical.com)<br>
**Trade Names**: Pluronic® F87NF; Synperonic® PE/F87

### Poloxamer 238

**CAS**: 9003-11-6 (generic)<br>
**Classification**: Polyoxyethylene, polyoxypropylene block polymer<br>
**Formula**: \( \text{HO(\(\text{CH}_2\text{CH}_2\text{O}\)\(_x\)(\(\text{CCH}_3\text{HCH}_2\text{O}\)\(_y\)(\(\text{CH}_2\text{CH}_2\text{O}\)\(_z\)\text{H, avg. } x = 10, y = 47, z = 10\)

**Properties**: Nonionic<br>
**Toxicology**: LD\(_{50}\) (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed<br>
**Uses**: Emulsifier, solubilizer, wetting agent in pharmaceuticals; solubilizer, stabilizer in flavor concs.<br>
**Manuf./Distrib.**: Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium); Spectrum Quality Prods.† [http://www.spectrumchemical.com](http://www.spectrumchemical.com)<br>
**Trade Names**: Pluronic® F87NF; Synperonic® PE/F87

### Poloxamer 282

**CAS**: 9003-11-6 (generic)<br>
**Classification**: Polyoxyethylene, polyoxypropylene block polymer<br>
**Formula**: \( \text{HO(\(\text{CH}_2\text{CH}_2\text{O}\)\(_x\)(\(\text{CCH}_3\text{HCH}_2\text{O}\)\(_y\)(\(\text{CH}_2\text{CH}_2\text{O}\)\(_z\)\text{H, avg. } x = 21, y = 47, z = 21\)

**Properties**: Nonionic<br>
**Toxicology**: LD\(_{50}\) (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed<br>
**Uses**: Emulsifier, solubilizer, wetting agent in pharmaceuticals; solubilizer, stabilizer in flavor concs.<br>
**Manuf./Distrib.**: Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium); Spectrum Quality Prods.† [http://www.spectrumchemical.com](http://www.spectrumchemical.com)<br>
**Trade Names**: Pluronic® F87NF; Synperonic® PE/F87

### Poloxamer 284

**CAS**: 9003-11-6 (generic)<br>
**Classification**: Polyoxyethylene, polyoxypropylene block polymer<br>
**Formula**: \( \text{HO(\(\text{CH}_2\text{CH}_2\text{O}\)\(_x\)(\(\text{CCH}_3\text{HCH}_2\text{O}\)\(_y\)(\(\text{CH}_2\text{CH}_2\text{O}\)\(_z\)\text{H, avg. } x = 21, y = 47, z = 21\)

**Properties**: Nonionic<br>
**Toxicology**: LD\(_{50}\) (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed<br>
**Uses**: Emulsifier, solubilizer, wetting agent in...}
Chemical Component Cross-Reference

pharmaceuticals; solubilizer, stabilizer in flavor concs.


Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

Poloxamer 288
CAS 9003-11-6 (generic)
Classification: Polyoxyethylene, polyoxypropylene block polymer
Formula:
\[
\text{HO(CH}_2\text{CH}_2\text{O})_x(C\text{CH}_3\text{HCH}_2\text{O})_y(C\text{CH}_2\text{CH}_2\text{O})_z\text{H},
\text{avg. } x = 122, y = 47, z = 122
\]
Properties: Nonionic
Toxicology: LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed
Uses: Emulsifier, solubilizer, wetting agent in pharmaceuticals; solubilizer, stabilizer in flavor concs.


Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

Poloxamer 331
CAS 9003-11-6 (generic)
Classification: Polyoxyethylene, polyoxypropylene block polymer
Formula:
\[
\text{HO(CH}_2\text{CH}_2\text{O})_x(C\text{CH}_3\text{HCH}_2\text{O})_y(C\text{CH}_2\text{CH}_2\text{O})_z\text{H},
\text{avg. } x = 7, y = 54, z = 7
\]
Properties: Colorless liq.; sol. in alcohol; very sl. sol. in water; m.w. 3800; dens. 1.018 (25/25 C); visc. 756 cp; cloud pt. 11 C (10% aq.); nonionic
Toxicology: LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed
Hazardous Decomp. Prods.: Heated to decom., emits acrid smoke and irritating fumes
Uses: Surfactant, emulsifier, solubilizer, wetting agent in pharmaceuticals, orals; solubilizer, stabilizer in flavor concs.


Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

Poloxamer 333
CAS 9003-11-6 (generic)
Classification: Polyoxyethylene, polyoxypropylene block polymer
Formula:
\[
\text{HO(CH}_2\text{CH}_2\text{O})_x(C\text{CH}_3\text{HCH}_2\text{O})_y(C\text{CH}_2\text{CH}_2\text{O})_z\text{H},
\text{avg. } x = 20, y = 54, z = 20
\]
Properties: Nonionic
Toxicology: LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed
Uses: Emulsifier, solubilizer, wetting agent in pharmaceuticals; solubilizer, stabilizer in flavor concs.


Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

Poloxamer 334
CAS 9003-11-6 (generic)
Classification: Polyoxyethylene, polyoxypropylene block polymer
Formula:
\[
\text{HO(CH}_2\text{CH}_2\text{O})_x(C\text{CH}_3\text{HCH}_2\text{O})_y(C\text{CH}_2\text{CH}_2\text{O})_z\text{H},
\text{avg. } x = 31, y = 54, z = 31
\]
Properties: Nonionic
Toxicology: LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed
Uses: Emulsifier, solubilizer, wetting agent in pharmaceuticals; solubilizer, stabilizer in flavor concs.


Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

Poloxamer 335
CAS 9003-11-6 (generic)
Classification: Polyoxyethylene, polyoxypropylene block polymer
Formula:
Poloxamer 338
CAS 9003-11-6 (generic)
Classification: Polyoxethylene, polyoxypropylene block polymer
Formula: HO(CH₂CH₂O)x(CCH₃HCH₂O)y(CH₂CH₂O)zH, avg. x = 128, y = 54, z = 128
Properties: Wh. prilled or cast solid, odorless to mild odor; sol. in water, alcohol; sparingly sol. in propylene glycol; m.w. 12,700-17,400; m.p. 57°C; pH 5.0-7.5 (1 in 40); nonionic
Toxicology: LD₅₀ (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed
Uses: Emulsifier, solubilizer, wetting agent in pharmaceuticals; solubilizer, stabilizer in flavor concs.
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: Pluronic® F108NF; Synperonic® PE/L121

Poloxamer 401
CAS 9003-11-6 (generic)
Classification: Polyoxylene, polyoxypropylene block polymer
Formula: HO(CH₂CH₂O)x(CCH₃HCH₂O)y(CH₂CH₂O)zH, avg. x = 6, y = 67, z = 6
Properties: Nonionic
Toxicology: LD₅₀ (oral, rat) 2300 mg/kg; moderately toxic by ingestion,
Uses: Emulsifier, solubilizer, wetting agent in pharmaceuticals; solubilizer, stabilizer in flavor concs.
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium
Trade Names: Synperonic® PE/L121
Poloxamer 407
CAS 9003-11-6 (generic)
Classification: Polyoxyethylene, polyoxypropylene block polymer
Formula: 
\[ \text{HO(CH}_2\text{CH}_2\text{O})_x(\text{CCH}_3\text{HCH}_2\text{O})_y(\text{CH}_2\text{CH}_2\text{O})_z\text{H}, \]
\[ \text{avg. } x = 98, \text{ } y = 67, \text{ } z = 98 \]
Properties: Wh. prilled or cast solid, odorless to mild odor; sol. in water and alcohol; m.w. 9840-14,600; m.p. \( \approx 56 \) C; pH 5.0-7.5 (1 in 40); nonionic
Toxicology: LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed
Uses: Emulsifier, solubilizer, wetting agent in pharmaceuticals; solubilizer, stabilizer in flavor concs.
Trade Names: Lutrol® F 127; Lutrol® F micro 127; Lutrol® F micro 68; Pluronic® F127NF; Synperonic® PE/F127

Poloxamine 304
CAS 11111-34-5 (generic)
Definition: Polyoxyethylene, polyoxypropylene block polymer of ethylene diamine
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, thickener, wetting agent, dispersant, solubilizer, stabilizer for pharmaceuticals
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com
Trade Names: Tetronic® 304
See also EO/PO ethylenediamine block copolymer

Poloxamine 504
CAS 11111-34-5 (generic)
Definition: Polyoxyethylene, polyoxypropylene block polymer of ethylene diamine
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, thickener, wetting agent, dispersant, solubilizer, stabilizer for pharmaceuticals
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com
Trade Names: Tetronic® 504
See also EO/PO ethylenediamine block copolymer

Poloxamine 701
CAS 11111-34-5 (generic)
Definition: Polyoxyethylene, polyoxypropylene block polymer of ethylene diamine
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, thickener, wetting agent, dispersant, solubilizer, stabilizer for pharmaceuticals
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com
Trade Names: Synperonic® T/701; Tetronic® 701
See also EO/PO ethylenediamine block copolymer

Poloxamine 702
CAS 11111-34-5 (generic)
Definition: Polyoxyethylene, polyoxypropylene block polymer of ethylene diamine
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, thickener, wetting agent, dispersant, solubilizer, stabilizer for pharmaceuticals
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com
Trade Names: Synperonic® T/702
See also EO/PO ethylenediamine block copolymer

Poloxamine 704
CAS 11111-34-5 (generic)
Definition: Polyoxyethylene, polyoxypropylene block polymer of ethylene diamine
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, thickener, wetting agent, dispersant, solubilizer, stabilizer for pharmaceuticals
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com
Trade Names: Synperonic® T/704
See also EO/PO ethylenediamine block copolymer

Poloxamine 707
CAS 11111-34-5 (generic)
Definition: Polyoxyethylene, polyoxypropylene
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS Number</th>
<th>Definition</th>
<th>Properties</th>
<th>Toxicology</th>
<th>Uses</th>
<th>Manufacturing/Distribution</th>
<th>Trade Names</th>
<th>See also</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poloxamine 901</td>
<td>11111-34-5</td>
<td>A synthetic polymer made from oxirane (ethylene oxide), methylolxyrane (propylene oxide) and the synthetic compound, (1, 2-ethanediyl)di(nitrii)tetraakis (propanol)</td>
<td>Nonionic</td>
<td>TSCA listed</td>
<td>Emulsifier, thickener, wetting agent, dispersant, solubilizer, stabilizer for pharmaceuticals</td>
<td>Aldrich <a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a></td>
<td>Tetronic® 901</td>
<td>EO/PO ethylenediamine block copolymer</td>
</tr>
<tr>
<td>Poloxamine 904</td>
<td>11111-34-5</td>
<td>Polyoxyethylene, polyoxypropylene block polymer of ethylene diamine</td>
<td>Nonionic</td>
<td>TSCA listed</td>
<td>Emulsifier, thickener, wetting agent, dispersant, solubilizer, stabilizer for pharmaceuticals</td>
<td>Aldrich <a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a></td>
<td>Tetronic® 904</td>
<td>EO/PO ethylenediamine block copolymer</td>
</tr>
<tr>
<td>Poloxamine 908</td>
<td>11111-34-5</td>
<td>Polyoxyethylene, polyoxypropylene block polymer of ethylene diamine</td>
<td>Nonionic</td>
<td>TSCA listed</td>
<td>Emulsifier, thickener, wetting agent, dispersant, solubilizer, stabilizer for pharmaceuticals</td>
<td>Aldrich <a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a></td>
<td>Tetronic® 908</td>
<td>EO/PO ethylenediamine block copolymer</td>
</tr>
<tr>
<td>Poloxamine 1101</td>
<td>11111-34-5</td>
<td>Polyoxyethylene, polyoxypropylene block polymer of ethylene diamine</td>
<td>Nonionic</td>
<td>TSCA listed</td>
<td>Emulsifier, thickener, wetting agent, dispersant, solubilizer, stabilizer for pharmaceuticals</td>
<td>Aldrich <a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a></td>
<td>Tetronic® 1101</td>
<td>EO/PO ethylenediamine block copolymer</td>
</tr>
<tr>
<td>Poloxamine 1102</td>
<td>11111-34-5</td>
<td>Polyoxyethylene, polyoxypropylene block polymer of ethylene diamine</td>
<td>Nonionic</td>
<td>TSCA listed</td>
<td>Emulsifier, thickener, wetting agent, dispersant, solubilizer, stabilizer for pharmaceuticals</td>
<td>Aldrich <a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a></td>
<td>Tetronic® 1102</td>
<td>EO/PO ethylenediamine block copolymer</td>
</tr>
<tr>
<td>Poloxamine 1104</td>
<td>11111-34-5</td>
<td>Polyoxyethylene, polyoxypropylene block polymer of ethylene diamine</td>
<td>Nonionic</td>
<td>TSCA listed</td>
<td>Emulsifier, thickener, wetting agent, dispersant, solubilizer, stabilizer for pharmaceuticals</td>
<td>Aldrich <a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a></td>
<td>Tetronic® 1104</td>
<td>EO/PO ethylenediamine block copolymer</td>
</tr>
<tr>
<td>Poloxamine 1107</td>
<td>11111-34-5</td>
<td>Polyoxyethylene, polyoxypropylene block polymer of ethylene diamine</td>
<td>Nonionic</td>
<td>TSCA listed</td>
<td>Emulsifier, thickener, wetting agent, dispersant, solubilizer, stabilizer for pharmaceuticals</td>
<td>Aldrich <a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a></td>
<td>Tetronic® 1107</td>
<td>EO/PO ethylenediamine block copolymer</td>
</tr>
</tbody>
</table>
Poloxamine 1301
CAS 11111-34-5 (generic)
Definition: Polyoxyethylene, polyoxypropylene block polymer of ethylene diamine
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, thickener, wetting agent, dispersant, solubilizer, stabilizer for pharmaceuticals
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com
Trade Names: Synperonic® T/1301; Tetronic® 1301
See also EO/PO ethylenediamine block copolymer

Poloxamine 1302
CAS 11111-34-5 (generic)
Definition: Polyoxyethylene, polyoxypropylene block polymer of ethylene diamine
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, thickener, wetting agent, dispersant, solubilizer, stabilizer for pharmaceuticals
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com
See also EO/PO ethylenediamine block copolymer

Poloxamine 1304
CAS 11111-34-5 (generic)
Definition: Polyoxyethylene, polyoxypropylene block polymer of ethylene diamine
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, thickener, wetting agent, dispersant, solubilizer, stabilizer for pharmaceuticals
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com
Trade Names: Tetronic® 1304
See also EO/PO ethylenediamine block copolymer

Poloxamine 1307
CAS 11111-34-5 (generic)
Definition: Polyoxyethylene, polyoxypropylene block polymer of ethylene diamine
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, thickener, wetting agent, dispersant, solubilizer, stabilizer for pharmaceuticals
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com
Trade Names: Tetronic® 1307
See also EO/PO ethylenediamine block copolymer

Poloxamine 1501
CAS 11111-34-5 (generic)
Definition: Polyoxyethylene, polyoxypropylene block polymer of ethylene diamine
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, thickener, wetting agent, dispersant, solubilizer, stabilizer for pharmaceuticals
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com

Poloxamine 1502
CAS 11111-34-5 (generic)
Definition: Polyoxyethylene, polyoxypropylene block polymer of ethylene diamine
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, thickener, wetting agent, dispersant, solubilizer, stabilizer for pharmaceuticals
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com

Poloxamine 1504
CAS 11111-34-5 (generic)
Definition: Polyoxyethylene, polyoxypropylene block polymer of ethylene diamine
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, thickener, wetting agent, dispersant, solubilizer, stabilizer for pharmaceuticals
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com

Poloxamine 1508
CAS 11111-34-5 (generic)
Definition: Polyoxyethylene, polyoxypropylene block polymer of ethylene diamine
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, thickener, wetting agent,
Chemical Component Cross-Reference

**dispersant, solubilizer, stabilizer for pharmaceuticals**

Manuf./Distrib.: Aldrich [http://www.sigma-aldrich.com]

See also EO/PO ethylenediamine block copolymer

Poly (N-acetyl-D-glucosamine). See Chitin

Polyacrylamide

CAS 9003-05-8

Synonyms: Acrylamide homopolymer; Acrylamide, polymers; PAA; 2-Propanamide, homopolymer

Definition: Polyamide of acrylic monomers contg. not more than 0.2% acrylamide monomer

Empirical: \((C_3H_5NO)_x\)

Formula: \([\text{CH}_2\text{CHCONH}_2]^x\)

Properties: Wh. solid; water-sol. high polymer; m.w. 10,000-18,000,000; dens. 1.302

Toxicology: LD50 (oral, mouse) 12,950 mg/kg, (IP, rat) 3600 mg/kg; mod. toxic by IP route; low toxicity by ing.; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Storage: Hygroscopic

Uses: Film-former in imprinting gelatin capsules; ingred. in antibiotic gels

Regulatory: FDA 21CFR §172.255, 173.10, 173.315 (10 ppm in wash water), 175.105, 176.170, 176.180; Canada DSL


Trade Names: Synthalen® K; Synthalen® M

Trade Names Containing: Sepigel™ 305

Poly (acrylamide-sodium acrylate). See Acrylamide/sodium acrylate copolymer

Polyacrylate. See Polyacrylic acid

Polyacrylic acid

CAS 9003-01-4 (generic)
Chemical Component Cross-Reference

Polyalkyleneoxide modified polydimethylsiloxane
CAS 68440-66-4
Uses: Surfactant, antifoam, dispersant, emulsifier, leveling agent, flow control agent, lubricant, slip agent for pharmaceuticals
Regulatory: Canada DSL
Trade Names: Silwet® L-7500
Trade Names Containing: Sag 471; Silwet® L-7602

Polyamide
CAS 9012-24-2; 25038-54-4
Synonyms: Nylon
Classification: Polymer
Definition: A high m.w. polymer in which amide linkages (-CONH) occur along the molecular chain; may be either natural or synthetic; natural polyamides include casein, soybean and peanut proteins, zein; synthetic polyamides typified by various nylon
Empirical: (C₆H₁₁NO)x
Properties: M.w. 22,000-45,000; dens. 1.20; m.p. 283-319 C
Toxicology: Poison by inhalation; tumorigen; TSCA listed
Uses: In membranes for liq. separations for medical applcs., pharmaceutical mfg. for reverse osmosis and nanofiltration processes
Regulatory: FDA 21CFR §175.300, 177.1200, 177.2600, 178.3570; Canada DSL
Ashley Polymers http://www.ashleypoly.com; Avachem; BASF http://www.basf.com; Bayer http://www.bayerus.com; CarboMer† http://www.carbomer.com
DSM Chem. N. Am.; Degussa AG http://www.degussa.com; Dujodwala Resins & Terpenes

†=pharmaceutical grade

Matteson-Ridolfi http://www.mattrid.com
Monomer-Polymer & Dajac Labs http://www.monomerpolymer.com
Reichhold http://www.reichhold.com; Rit-Chem http://www.ritchem.com; Sparkford Chems. Ltd http://www.sparkford.co.uk;
Zimmer AG http://www.zimmer-ag.de
Trade Names Containing: Filmtec®

Polyamide 6. See Nylon 6
Polyamide 12. See Nylon 12
Polyamide 612. See Nylon 612

Polyaminopropyl biguanide
CAS 28757-47-3; 70170-61-5
Classification: Organic compd.
Regulatory: USA not restricted; Europe listed

Polyarabinogalactan. See Arabinogalactan

Polybutene
CAS 9003-28-5; 9003-29-6; EINECS/ELINCS 500-004-7
Synonyms: Butene, homopolymer; 1-Butene, homopolymer; Butene polymer; Butene, polymers; PB; Poly-1-butene; Polybutene-1; Polybutene resin; Poly-1-butene resin; Polybutenes; Polybutylene; Polybutylene resin; Polymerized 1-butene
Classification: Polymer
Definition: A semicrystalline thermoplastic formed by polymerization of 1-butene
Empirical: (C₄H₈)x
Formula: [CH₂CH(CH₃)₂]ₙ
Properties: Colorless visc. liq.; misc. with min. oil; insol. in water; m.w. 500-75,000; dens. 0.910; pour pt. -60 to 50 C
Toxicology: May asphyxiate; TSCA listed
Precaution: Combustible
Uses: Plasticizer in pharmaceuticals
Regulatory: FDA 21CFR §175.105, 175.125, 175.1570, 177.2600, 178.3570; Canada DSL
Poly-1-butene: Polybutene-1. See Polybutene
Polybutene, hydrogenated. See Hydrogenated polybutene
Polybutene resin; Poly-1-butene resin; Polybutenes. See Polybutene

Polylulate
CAS 24936-97-8
Classification: Polyester
Uses: Pharmaceuticals (implants)
Regulatory: FDA approved for implants

Polybutylene. See Polybutene
Polybutylene glycol; Poly (butylene oxide). See Polytetramethylene ether glycol
Polybutylene resin. See Polybutene
Polycoprolactam. See Nylon 6

Polycarbonate
CAS 24936-68-3
Synonyms: PC; PC resin; Polycarbonate resin
Classification: Polyester
Definition: Thermoplastic resin derived from bisphenol A and phosgene or diphenyl carbonate; noncorrosive; resist. to weather, ozone, heat; high impact str.; high dielec. str.; dimensionally stable; stable to min. acids; poor solv. resist.
Empirical: \((\text{C}_6\text{H}_{12}\text{O}_3)\)_n
Formula: \((\text{COOCH}_3)(\text{CH}_3)\text{C}_6\text{H}_5\text{O})_n\)
Properties: Transparent; sol. in chlorinated hydrocarbons; insol. in aliphatic alcohols; dens. 1.2 kg/l; ref. index 1.5850; tens. str. 65 MPa; tens. mod. 2400 MPa; elong. 80-120% (break)

Precaution: Combustible but self-extinguishing; attacked by strong alkalis and aromatic hydrocarbons
Uses: Medical apps.
Regulatory: FDA 21CFR §177.1200, 177.1580, 178.1005
Trade Names: Calibre™ 2060-10; Calibre™ 2060-15; Calibre™ 2060-22

Polycarbonate resin. See Polycarbonate

Polycarbophil
CAS 9003-01-4 (generic)
Definition: Acrylic acid polymer crosslinked with divinyl glycol
Properties: Wh. to creamy wh. gran., char. ester-like odor; swells in water; insol. in water, dil. acids, dil. alkalis, common org. solvs.
Uses: Rheology control agent, bioadhesive for pharmaceuticals; controlled-release tablet binder; moisture enhancer; drug delivery matrix; adsorbent in antidiarrheal prods.
Regulatory: Canada DSL
Trade Names: Noveon® AA-1 Polycarbophil, USP

Polychloro copper phthalocyanine. See Phthalocyanine green
Poly (chloroethylene). See Polyvinyl chloride
Polycosanol. See Octacosanol

**Polycosanol**

See Octacosanol

**Polydecene**

CAS 37309-58-3

**Synonyms**: Decene, homopolymer

**Definition**: Polymer formed by polymerization of decene

**Empirical**: \((C_{10}H_{20})_x\)

**Formula**: \((CHCH_3(CH_2)_7CH_2)_x\)

**Uses**: Binder in pharmaceutical topicals

**Manuf./Distrib.**: Somerset Cosmetic Co.

http://www.makingcosmetics.com/

**Trade Names Containing**: Pionier® 17106

**Polydextrorse**

CAS 68424-04-4

INS1200; E1200

**Definition**: Random polymer formed from condensation of D-glucose

**Properties**: Off-wh. to lt. tan amorphous powd.; bland, nonsweet taste; very sol. in water; partly sol. in glycerin, propylene glycol; insol. in ethanol; m.p. > 130 C

**Hazardous Decomp. Prods.**: Heated to decomp., emits acrid smoke and irritating fumes

**Storage**: Hygroscopic

**Uses**: Humectant, bulking agent, bodying agent, texturizer in pharmaceuticals

**Features**: Replaces bulk and mouthfeel of sugar and/or fat

**Regulatory**: FDA 21CFR §172.841; Canada DSL

**Manuf./Distrib.**: AB R Lundberg

http://www.norfoods.se/lundberg; Agric. & Chem. Prods. Ltd; Arnaud S.A.


Spectrum Quality Prods.


**Trade Names**: Sta-Lite® 370; Sta-Lite® III; Sta-Lite® III F

**Trade Names Containing**: Xylitab® 100

**Polydimethylsiloxane**

CAS 9016-00-6; 63148-62-9

INS900a

**Synonyms**: Dimethylpolysiloxane; Methyl silicone; Methyl silicone resin; PDMS; Poly (oxy (dimethylsilylene)); Silicone fluid; Silicone oil

**Definition**: Polymer with silicone backbone (Si-O) with methyl groups (CH₃) attached; most common polymer in silicone industry

**Empirical**: \((C_2H_6OSi)_x\)

**Properties**: Colorless clear visc. oily liq.; insol. in water; m.w. (74.15)x; dens. 0.980; vapor pressure 5 mm Hg (20 C); flash pt. 235 F; ref. index 1.4040

**Toxicology**: LD (IP, rat) > 2 g/kg; TDLo (implant, rat) 1500 mg/kg; may cause eye, skin, respiratory and digestive tract irritation; may be harmful by inh., ing., or skin absorp.; questionable carcinogen; tumorigen; experimental neoplastigen; experimental reproductive effector; mutagenic data; target organs: lungs, thorax, respiratory, endocrine

**Precaution**: Flamm.; incompat. with strong oxidizers, strong acids, strong bases, boiling water

**Hazardous Decomp. Prods.**: CO, CO₂, silicon oxide; heated to decomp., emits acrid smoke and irritating fumes; emits toxic fumes under fire conditions

**Storage**: Store in cool, dry place in tightly closed container

**Uses**: Antifoam for drug fermentations

**Regulatory**: FDA 21CFR §145.180, 146.185, 173.340, 175.105, 175.200, 176.1200, 176.170, 176.210, 177.1200, 177.2260, 177.2800, 178.3570, 178.3910, 181.28; Canada DSL

**Manuf./Distrib.**: Acros Org.

http://www.acros.com; Aldrich†

http://www.sigma-aldrich.com; CoKEM Assoc.†; Degussa†

http://www.degussa.com; Dow Corning†

http://www.dowcorning.com

Fluka http://www.sigma-aldrich.com; GE Silicones† http://www.gesilicones.com;

RTD Hallstar† http://www.rtdhallstar.com;


**Trade Names**: Foam Blast® 106; Silbione™ 70426R; Silfar® 1000; Silfar® 350; Silfar® 500

**Trade Names Containing**: Dow Corning® Antifoam M Compd.; Sag 730; Silbione™ 70451; Silbione™ 70454

See also Dimethicone

**Polycosanol, methyl end-blocked.** See Dimethylosiloxane

**Polymethyl siloxy cyclics.** See Cyclomethicone

**Polydimethylsiloxoypropyl polyethoxy**
Chemical Component Cross-Reference

- Phosphate. See Dimethicone copolyol phosphate
- Polydimethylsiloxypolymethoxy undecylate. See Dimethicone copolyol undecylate
- Poly (dimethylsiox) among other terms. See Stearoxydimethicone
- Poly (divinylbenzene-co-trimethyl) (vinylbenzyl) ammonium chloride). See Chloromethylated aminated styrene-divinylbenzene resin

Polyester adipate
- Uses: Plasticizer in pharmaceuticals; skin patch drug delivery
- Manufacturer/Distributor: C.P. Hall
  - Trade Names: Admex® 760

Polyester, linear, high m.w. See Polyethylene terephthalate

Polyether glycol. See Polyethylene glycol

Polymers, epoxy resins. See Epoxy resin

Polyethylene
- CAS: 9002-88-4; EINECS/ELINCS 200-815-3
- Synonyms: Ethene, homopolymer; Ethene polymer; Ethylene-homopolymer; Ethylene latex; Ethylene polymer; Ethylene polymers; Ethylene resin; PE; Polyethylene resins; Polyethylene wax; Polythene
- Definition: Thermoplastic resin obtained by polymerizing ethylene
- Empirical: \((\text{C}_2\text{H}_4)_x\)
- Formula: \[[\text{CH}_2\text{CH}_2]_x\]
- Properties: Wh. translucent partially cryst./partially amorphous plastic solid, odorless; sol. in hot benzene; insol. in water; m.w. 1500-100,000; dens. 0.92 (20/4 C); m.p. 85-110 C
- Toxicology: LC50 (inh., mouse, 30M) 12 g/m³; TDLo (implant, rat) 33 mg/kg; no known skin toxicity; ing. of lg. oral doses has produced kidney and liver damage; suspected carcinogen and tumorgen by implants; TSCA listed
- Precaution: Combustible; reacts violently with F₂
- Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
- Storage: Store in well closed containers
- Uses: Excipient emollient, humectant, film-former, abrasive for pharmaceuticals, dentals, ophthalmics, orals, topicals, vaginals; thickener for gels

†=pharmaceutical grade
- Features: Nonirritating abrasive
- Regulatory: FDA 21 CFR §172.260, 172.615 (m.w. 2000-21,000), 173.20, 175.105, 175.300, 176.180, 176.200, 176.210, 177.1200, 177.1390, 177.1395, 177.1520, 177.1615, 177.1620, 177.2210, 177.2600, 178.1005, 178.3570, 178.3850; FDA approved for dentals, ophthalmics, orals, topicals, vaginals

Manufacturer/Distributor: A. Schulman
  - http://www.aschulman.com; ABCR
  - http://www.acros.com; Aldrich†
  - http://www.sigma-aldrich.com; Arkema
  - http://www.total.com/
  - Asahi Chem. Ind. http://www.asahi-kasei.co.jp; Ashland
  - http://www.ashchem.com; CarboMer
  - http://www.carbomer.com; ChevronPhillis
  - http://www.cpcchem.com; Chisso Am.
  - Cognis http://www.cognis.de; DSM Chem.
  - N. Am.; Dow http://www.dow.com; Eastman
  - http://www.eastman.com; Equistar
  - http://www.equistarchem.com
  - ExxonMobil
    - http://www.exxonmobilchemical.com
  - Fabrichem http://www.fabricheminc.com
  - Fluka http://www.sigma-aldrich.com
  - Huntsman http://www.huntsman.com
  - Monomer-Polymer & Dajac Labs
    - http://www.monomerpolymer.com; Rohm & Haas http://www.rohmhaas.com
    - http://www.acusol.com; Solvay Advanced Polymers
    - http://www.solvayadvancedpolymers-us.com; Sparkford Chems. Ltd
    - http://www.sparkford.co.uk; Westlake Plastics http://www.westlakeplastics.com
  - Trade Names: A-C® 6; A-C® 8; A-C® 9; A-C® 617; A-C® 617A
  - Trade Names Containing: Pionier® 1533
    - Pionier® KWH-AP; Pionier® KWH-Pharma
    - Pionier® KWH-Soft; Pionier® PIAH
    - Pionier® PLW; Pionier® PLW 5.5; Pionier® WWH-N; Pionier® WWH-Soft

Poly (ethylene-co-acrylic acid). See Ethylene/acrylic acid copolymer

Poly (ethylene-co-methacrylic acid). See Ethylene/methacrylic acid copolymer

Poly (ethylene-co-vinyl acetate). See Ethylene/VA copolymer

Polyethylene glycol
- CAS: 25322-68-3 (generic); EINECS/ELINCS
Polyethylene glycol 300. See PEG-6
Polyethylene glycol 400. See PEG-8
Polyethylene glycol 600. See PEG-12
Polyethylene glycol 1000. See PEG-20
Polyethylene glycol 1500. See PEG 1500
Polyethylene glycol 4000. See PEG-75
Polyethylene glycol cetyl ether. See Ceteth
Polyethylene glycol dilaurate. See PEG dilaurate
Polyethylene glycol distearate. See PEG
Chemical Component Cross-Reference

distearate
Polyethylene glycol monomethyl ether. See Methoxy PEG
Polyethylene glycol monooleate. See PEG oleate
Polyethylene glycol monooleyl ether. See Oleth-10
Polyethylene glycol monostearate. See PEG stearate
Polyethylene glycol oleate. See PEG oleate
Polyethylene glycol oleyl ether. See Oleth
Polyethylene glycols monohexadecyl ether; Polyethylene glycols monohexadecyl ether. See Ceteth
Polyethylene, high-density
CAS 9002-88-4; EINECS/ELINCS 200-815-3
Synonyms: HDPE
Definition: Thermoplastic linear polyethylene
Empirical: \((C_2H_4)_x\)
Formula: \([CH_2CH_2]_x\)
Properties: Beads; swollen by hydrocarbon and chlorinated solvs.; insol. in water, cold org. solvs.; m.w. 50,000; tens. str. 24-28 MPa; tens. mod. 1050-1500 MPa; elong. 350-400% (break)
Toxicology: LD50 (oral, rat) > 3 g/kg; LC50 (inh., mouse, 30 min) 12 g/m²; cancer suspect agent; TSCA listed
Uses: Wax additive for pharmaceuticals

†=pharmaceutical grade


Trade Names: ACumist® B-6

Polyethylene, linear low density
CAS 9002-88-4
Synonyms: LLDPE; Polyethylene-LLD
Definition: Thermoplastic with linear structure with short side-chains produced by the comonomer
Formula: \([CH_2CH_2]_x\)
Properties: Beads; swollen by hydrocarbon and chlorinated solvs.; insol. in water, cold org. solvs.; m.w. varies widely; dens. 0.91-0.94 kg/l; m.p. 122-124 C; tens. str. 18-25 MPa; tens. mod. 350-500 MPa; elong. 300-400% (break)
Uses: In pharmaceutical ointments

Trade Names: Petrothene® GA 818-073

Polyethylene-LLD. See Polyethylene, linear low density
Poly (ethylene oxide). See Polyethylene glycol
Polyethylene oxide cetyl ether; Polyethylene oxide hexadecyl ether. See Ceteth
Polyethylene oxide monooleate; Poly
### Polyethylene terephthalate

**CAS**: 25038-59-9  
**Synonyms**: Ethylene terephthalate polymer; PET; Polyester, linear, high m.w.; Polymethylpentene terephthalate film; Poly (oxy-1,2-ethanedioloxycarbonyl-1,4-phenylene-carbonyl); Poly (oxyethyleneoxyterephthaloyl); Terephthalic acid-ethylene glycol polyester  
**Classification**: Organic compd.; polymer  
**Empirical**: \((\text{C}_10\text{H}_8\text{O}_4)_n\)  
**Properties**: Solid; sol. in hot m-cresol, trifluoroacetic acid, o-chlorophenol; dens. 1.38; dec. \(\approx 250\) C; tens. str. 140 MPa (biaxially-oriented film), 50 MPa (molding grades); Vicat soften. pt. 261 C  
**Toxicology**: Irritant; experimental tumorigen; questionable carcinogen; mutagen; TSCA listed  
**Hazardous Decomp. Prods.**: Heated to decomp., emits acrid smoke and irritating fumes  
**Uses**: Surgical aid  
**Regulatory**: FDA 21CFR §177.1630, 177.2260, 177.2800, 178.1005; Canada DSL  
**Trade Names**: Eastar™ PETG Copolyester 6763  
**Polyethylene terephthalate film**: See Polyethylene terephthalate

### Polyethylene wax

**CAS**: 9002-88-4; EINECS/ELINCS 200-815-3  
**Synonyms**: Polyethylene resin  
**Empirical**: \((\text{C}_2\text{H}_4)_n\)  
**Formula**: \((-\text{CH}_2\text{CH}_2\_)_n\)
Chemical Component Cross-Reference

**Decaester with decaglycerol**

*Definition:* Decaester of oleic acid and polyglycerin-10

*Empirical:* C_{210}H_{382}O_{31}

*Properties:* HLB 3.0; nonionic

*Uses:* Emulsifier, dispersant, lubricant, solubilizer, emollient for pharmaceuticals, delivery/absorp. enhancement, dermatologicals, suppositories

*Regulatory:* FDA 21CFR §172.854; Canada DSL

*Manuf./Distrib.:* A&E Connock

[http://www.connock.co.uk](http://www.connock.co.uk); ABITEC† http://www.abiteccorp.com

*Trade Names:* Caprol® 10G10O

*Trade Names Containing:* DREWPOL® 10-10-O Polyglyceryl-10 decastearate

*CAS:* 39529-26-5; EINECS/ELINCS 254-495-5

*Synonyms:* Decaglycerol decastearate; Decaglyceryl decastearate; Octadecanoic acid, decaester with decaglycerol

*Definition:* Decaester of stearic acid and polyglycerin-10

*Empirical:* C_{210}H_{402}O_{31}

*Properties:* Nonionic

*Uses:* Emulsifier, solubilizer, dispersant for pharmaceuticals

*Regulatory:* FDA 21CFR §172.854

*Manuf./Distrib.:* A&E Connock

[http://www.connock.co.uk](http://www.connock.co.uk)

*Polylglyceryl-3 diisostearate*  

*CAS:* 63705-03-3 (generic); 66082-42-6; 85404-84-8; EINECS/ELINCS 291-548-1

*Synonyms:* Isooctadecanoic acid, diester with 1,2,3-propanetriol trimer; Isooctadecanoic acid, diester with triglycerol; Triglycerol diisostearate

*Definition:* Diester of isostearic acid and polyglycerin-3

*Empirical:* C_{45}H_{86}O_{9}

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Emulsifier, emollient, thickener, solvent for pharmaceuticals, creams, lotions; excipient

*Manuf./Distrib.:* A&E Connock

[http://www.connock.co.uk](http://www.connock.co.uk)

*Trade Names:* Lameform® TGI; Plurol® Diisostearique

*Trade Names Containing:* Pionier® KW 2020 Pharma; Pionier® KWH-Pharma

*Polylglyceryl-2 dioleate*  

*CAS:* 67965-56-4; 60219-68-3

*Synonyms:* Diglyceryl dioleate; 9-Octadecenoic acid, diester with oxybis[propanediol]; 9-Octadecenoic acid, diester with 3,3'-oxybis[1,2-propanediol]

*Definition:* Diester of oleic acid and diglycerol

*Empirical:* C_{42}H_{78}O_{7}

*Properties:* Nonionic

*Uses:* W/o emulsifier for pharmaceuticals

*Trade Names:* DGDO Polyglyceryl-6 dioleate

*CAS:* 9007-48-1 (generic); 76009-37-5; EINECS/ELINCS 278-358-4

*Synonyms:* Dioleic acid, diester with hexaglycerol; Hexaglycerol dioleate; Hexaglycerol dioleate; 9-Octadecenoic acid, diester with hexaglycerol

*Definition:* Diester of oleic acid and polyglycerin-6

*Empirical:* C_{54}H_{102}O_{15}

*Properties:* Nonionic

*Uses:* Dispersant, emollient, emulsifier, solubilizer, humectant, wetting agent for pharmaceuticals, delivery/absorp. enhancement, dermatologicals, suppositories

*Regulatory:* FDA 21CFR §172.854

*Manuf./Distrib.:* A&E Connock

[http://www.connock.co.uk](http://www.connock.co.uk)

*Trade Names:* Caprol® MPGO; Plurol® Oleique Polyglyceryl-10 dioleate  

*CAS:* 9007-48-1 (generic); 33940-99-7; EINECS/ELINCS 291-548-1

*Synonyms:* Dioleic acid, diester with hexaglycerol; Hexaglycerol dioleate; Dioleic acid, diester with triglycerol; 9-Octadecenoic acid, diester with triglycerol

*Definition:* Diester of oleic acid and polyglycerin-10

*Empirical:* C_{54}H_{102}O_{15}

*Properties:* Nonionic

*Uses:* Emulsifier, surfactant in medicinals, pharmaceuticals, skin care prod.

*Manuf./Distrib.:* Somerset Cosmetic Co.


*Polylglyceryl-6 dipalmitate*  

*Uses:* Emulsifier in medicinals, pharmaceuticals, skin care prods.

*Polylglyceryl-10 dipalmitate*  

*Synonyms:* Decaglycerol dipalmitate

*Properties:* Nonionic

*Uses:* Emulsifier, surfactant in medicinals,
### Polyglyceryl-2 dipolyhydroxystearate
- **CAS**: 144470-58-6; 156531-21-4
- **Trade Names**: Polyaldo® 10-2-P
- **Synonyms**: Disteeric acid, diester with hexaglycerol; Hexaglycerol diesterate; Hexaglyceryl diesterate; Octadecanoic acid, diester with hexaglycerol
- **Definition**: Diester of stearic acid and polyglycerin-2
- **Empirical**: C_{54}H_{106}O_{15}
- **Properties**: Nonionic
- **Uses**: W/o emulsifier, coupling agent, bodying agent, emulsifier, visc. modifier for delivery/absorp. enhancement, dermatologicals, suppositories; excipient
- **Regulatory**: FDA 21CFR §172.854
- **Manuf./Distrib.**: DeWolf Chem. [http://www.dewolfchem.com](http://www.dewolfchem.com)
- **Trade Names Containing**: Eumulgin® VL 75

### Polyglyceryl-6 distearate
- **CAS**: 9009-32-9 (generic); 34424-97-0; 61725-93-7 (generic); EINECS/ELINCS 252-010-1
- **Synonyms**: Disteeric acid, diester with hexaglycerol; Hexaglycerol diesterate; Hexaglyceryl diesterate; Octadecanoic acid, diester with hexaglycerol
- **Definition**: Diester of stearic acid and polyglycerin-6
- **Empirical**: C_{54}H_{106}O_{15}
- **Properties**: Nonionic
- **Uses**: Coupling agent, bodying agent, emulsifier, visc. modifier for delivery/absorp. enhancement, dermatologicals, suppositories; excipient
- **Regulatory**: FDA 21CFR §172.854
- **Manuf./Distrib.**: DeWolf Chem. [http://www.dewolfchem.com](http://www.dewolfchem.com)
- **Trade Names**: Polyaldo® 10-6-O KFG

### Polyglyceryl-10 distearate
- **CAS**: 9009-32-9 (generic); 12764-60-2; 61725-93-7 (generic)
- **Synonyms**: Decaglycerin distearate; Decaglyceryl distearate; Octadecanoic acid, diester with decaglycerol
- **Definition**: Diester of stearic acid and polyglycerin-10
- **Empirical**: C_{54}H_{106}O_{15}
- **Properties**: Nonionic
- **Uses**: W/o emulsifier for topical pharmaceuticals
- **Regulatory**: FDA 21CFR §172.854
- **Manuf./Distrib.**: DeWolf Chem. [http://www.dewolfchem.com](http://www.dewolfchem.com)
- **Trade Names**: Polyaldo® 10-6-O KFG

### Polyglyceryl-10 laurate
- **CAS**: 34406-66-1
- **Synonyms**: Decaglycerin monoester; Decaglyceryl monoester; ISO-octanoic acid, monoester with hexaglycerol
- **Definition**: Ester of isostearic acid and polyglycerin-4
- **Empirical**: C_{36}H_{72}O_{14}
- **Properties**: Nonionic
- **Uses**: Emulsifier, solubilizer, dispersant for pharmaceuticals
- **Regulatory**: FDA 21CFR §172.854
- **Manuf./Distrib.**: Somerset Cosmetic Co. [http://www.makingcosmetics.com/](http://www.makingcosmetics.com/)
- **Trade Names**: Polyaldo® 10-6-O KFG

### Polyglyceryl-10 hexaoleate
- **Synonyms**: Decaglycerin hexaoleate
- **Definition**: Hexaester of oleic acid and polyglycerin-10
- **Properties**: Nonionic
- **Uses**: W/o and o/w emulsifier, emollient, and lubricant for pharmaceuticals
- **Regulatory**: FDA 21CFR §172.854
- **Manuf./Distrib.**: Somerset Cosmetic Co. [http://www.makingcosmetics.com/](http://www.makingcosmetics.com/)
- **Trade Names**: Polyaldo® 10-6-O KFG

### Polyglyceryl-10 isostearate
- **CAS**: 133738-23-5
- **Synonyms**: Decaglycerin monoester; ISO-octadecanoic acid, monoester with hexaglycerol
- **Definition**: Ester of isostearic acid and polyglycerin-10
- **Empirical**: C_{48}H_{96}O_{22}
- **Properties**: Nonionic
- **Uses**: Emulsifier, solubilizer, dispersant for pharmaceuticals
- **Regulatory**: FDA 21CFR §172.854
- **Manuf./Distrib.**: Somerset Cosmetic Co. [http://www.makingcosmetics.com/](http://www.makingcosmetics.com/)
- **Trade Names**: Polyaldo® 10-6-O KFG
Chemical Component Cross-Reference

acid, monoester with decaglycerol

Definition: Ester of lauric acid and polyglycerin-10
Empirical: C_{42}H_{84}O_{22}
Properties: Nonionic
Uses: Emulsifier, solubilizer, dispersant for pharmaceuticals
Regulatory: FDA 21CFR §172.854
Trade Names: Decaglyn 1-L

Polyglyceryl-10 linoleate
CAS 102643-06-1
Synonyms: Decaglycerin monolinoleate
Definition: Ester of linoleic acid and polyglycerin-10
Properties: Nonionic
Uses: Emulsifier, solubilizer, dispersant for pharmaceuticals
Regulatory: FDA 21CFR §172.854
Trade Names: Decaglyn 1-LN

Polyglycerylmethacrylate. See Glyceryl polymethacrylate

Polyglyceryl-3 methyl glucose distearate
Definition: Diester of stearic acid and the condensation prod. of methylglucose and polyglycerin-3
Properties: Nonionic
Uses: O/w emulsifier for topical pharmaceuticals, creams/lotions, sun prod s.
Trade Names: TEGO® Care 450

Polyglyceryl-10 myristate
CAS 87390-32-7
Synonyms: Decaglycerin monomyristate; Tetradecanoic acid, monoester with decaglycerol
Definition: Ester of myristic acid and polyglycerin-10
Empirical: C_{44}H_{88}O_{22}
Properties: Nonionic
Uses: Emulsifier, solubilizer, dispersant for pharmaceuticals
Regulatory: FDA 21CFR §172.854
Trade Names: Decaglyn 1-M

Polyglyceryl-10 octaoleate
CAS 66734-10-9
Synonyms: Decaglycerol octaoleate; Decaglyceryl octaoleate
Definition: Octaester of oleic acid and polyglycerin-10
Properties: HLB 4.0; nonionic
Uses: Emulsifier, solubilizer, dispersant for pharmaceuticals, w/o and o/w emulsions, creams, lotions, internal use
Regulatory: FDA 21CFR §172.854

Polyglyceryl-4 oleate
CAS 9007-48-1 (generic); 71012-10-7
Synonyms: 9-Octadecenoic acid, monoester with tetraglycerol; Polyglyceryloleate; Tetraglyceryl monooleate
Definition: Ester of oleic acid and polyglycerin-4

Polyglyceryloleate. See Polyglyceryl-4 oleate

Polyglyceryl-2 oleate
CAS 9007-48-1 (generic); 9009-31-8; 49553-76-6; EINECS/ELINCS 256-367-4
Synonyms: Diglyceryl monooleate; 9-Octadecenoic acid, ester with 1,2,3-propanetriol (1:2); 9-Octadecenoic acid, monoester with oxybis [propanediol]; Oleic acid, monoester with oxybis (propanediol)
Definition: Ester of oleic acid and diglycerin
Empirical: C_{24}H_{46}O_{6}
Properties: Nonionic
Toxicology: TSCA listed
Uses: W/o emulsifier for pharmaceuticals
Regulatory: FDA 21CFR §172.854
Trade Names: DGMO-CV; Nofable PGO-902L; Nofable PGO-992L

Polyglyceryl-3 oleate
CAS 33940-98-6; EINECS/ELINCS 251-749-7
Synonyms: 9-Octadecenoic acid, monoester with triglycerol; Oleic acid, monoester with triglycerol; Triglyceryl monooleate; Triglyceryl oleate
Classification: Polyglycerol ester
Definition: Ester of oleic acid and polyglycerin-3
Empirical: C_{27}H_{52}O_{8}
Properties: Yel. liq.; HLB 6.5; nonionic
Toxicology: Nonirritant to eyes; not a serious irritant to skin; vapors from heated material sl. irritating by inh.; noncarcinogenic; nonmutagenic; TSCA listed
Hazardous Decomp. Prods.: COx
Storage: Store in dry area away from heat and sparks; keep containers closed when not in use; maintain good ventilation
Uses: Emulsifier, solubilizer, dispersant for pharmaceuticals, w/o and o/w emulsions, creams, lotions, internal use
Regulatory: FDA 21CFR §172.854
Manuf./Distrib.: A&E Connock http://www.connock.co.uk; ABITEC† http://www.abiteccorp.com
Trade Names: Caprol® 3GO; Cremophor® GO31; Isolan® GO 33; Lumulse® PGO K; Mazol® PGO-31 K
Trade Names Containing: Protegin® W; Protegin® WX

Polyglyceryl-4 oleate
CAS 9007-48-1 (generic); 71012-10-7
Synonyms: 9-Octadecenoic acid, monoester with tetraglycerol; Polyglyceryloleate; Tetraglyceryl monooleate
Definition: Ester of oleic acid and polyglycerin-4

†=pharmaceutical grade
Chemical Component Cross-Reference

Empirical: C_{30}H_{58}O_{10}
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier in pharmaceutical ointments
Regulatory: FDA 21CFR §172.854
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk
Trade Names: Nofable PGO-904L; Nofable PGO-904M; Nofable PGO-994L; Nofable PGO-994M
Trade Names Containing: Emulsynt® 1055

Poliglyceryl-6 olate
CAS 9007-48-1 (generic); 79665-92-2
Synonyms: Hexaglycerin monooleate; Hexaglyceryl oleate; 9-Octadecenoic acid, monoester with hexaglycerol; 1,2,3-Propanetriol, homopolymer, (Z)-9-octadecenoate
Definition: Ester of oleic acid and poliglycerin-6
Empirical: C_{36}H_{70}O_{14}
Properties: Nonionic
Toxicology: TSCA listed
Uses: O/w emulsifier for pharmaceuticals
Regulatory: FDA 21CFR §172.854
Trade Names: Nofable PGO-906L; Nofable PGO-906M; Nofable PGO-996L; Nofable PGO-996M; Plurol® Oleique CC 497

Poliglyceryl-8 olate
CAS 9007-48-1 (generic); 75719-56-1
Synonyms: 9-Octadecenoic acid, monoester with octaglycerol; Octaglycerol oleate; 1,2,3-Propanetriol, homopolymer, (Z)-9-octadecenoate
Definition: Ester of oleic acid and poliglycerin-8
Empirical: C_{42}H_{82}O_{18}
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier
Regulatory: FDA 21CFR §172.854
Trade Names: Nofable PGO-908L; Nofable PGO-908M; Nofable PGO-998L; Nofable PGO-998M; Polyaldo® 10-1-O

Poliglyceryl-10 olate
CAS 9007-48-1 (generic); 79665-93-3; EINECS/ELINCS 279-230-0
Synonyms: Decaglycerin monooleate; Decaglyceryl monooleate; 9-Octadecenoic acid, monoester with decaglycerol; Oleic acid, monoester with decaglycerol
Definition: Ester of oleic acid and poliglycerin-10
Empirical: C_{48}H_{94}O_{22}
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, solubilizer, dispersant for pharmaceuticals
Regulatory: FDA 21CFR §172.854
Trade Names: Caprol® PGE860; Decaglyyn 1-OV; Nofable PGO-900L; Nofable PGO-900M; Nofable PGO-990L; Nofable PGO-990M; Polyaldo® 10-1-O

Poliglyceryl-2-PEG-4 stearate
Synonyms: Diglyceryl PEG-4 stearate
Definition: Ether of PEG-4 stearate and diglycerin
Empirical: C_{32}H_{64}O_{10}
Properties: Nonionic
Uses: Emulsifier, thickener for pharmaceuticals
Manuf./Distrib.: Somerset Cosmetic Co.
http://www.makingcosmetics.com/

Poliglyceryl polyricinoleate
INS476; E476
Synonyms: Glyceran esters of condensed castor oil fatty acids; Glycerol esters of condensed castor oil fatty acids; PGPR; Polyglycerol esters of interesterified ricinoleic acid; Polyglycerol esters of polycondensed fatty acids from castor oil
Definition: Polyglycerol esters of interesterified ricinoleic acid
Properties: Lt. brn. highly visc. liq.; sol. in edible oils and fats; insol. in cold and hot water; does not crystallize @ 0 C; nonionic
Uses: Emulsifier, stabilizer in pharmaceuticals
Regulatory: Europe listed; UK approved; ADI 0-7.5 mg/kg body wt. (FAO/WHO)
Trade Names: Tilol GCT-R

Poliglyceryl-3 polyricinoleate
CAS 29894-35-7
Properties: Nonionic
Uses: Emulsifier
Trade Names: Imwitor® 600

Poliglyceryl-2 sesquisostearate
CAS 67938-21-0; EINECS/ELINCS 267-821-6
Synonyms: Diglycerol sesquisostearate; Di(iso octadecanoic) acid, diester with oxydi(propanediol); Isooctadecanoic acid, sesquiester with diglycerol
Definition: Mixture of mono and diesters of isostearic acid and a dimer of glycerin
Properties: Nonionic
Uses: Emulsifier for pharmaceuticals
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk
Trade Names Containing: Pionier® 1533;
Polyglyceryl-6 sesquioleate
Synonyms: Hexaglycerol sesquioleate; Hexaglyceryl sesquioleate
Properties: Nonionic
Uses: Emulsifier for pharmaceuticals

Polyglyceryl-2 sesquioleate
Synonyms: Diglycerine sesquioleate; Diglyceryl sesquioleate; 9-Octadecenoic acid, sesquiolester with diglycerol
Definition: Mixture of mono and diesters of oleic acid and a dimer of glycerin
Properties: HLB 3.5; nonionic
Uses: Emulsifier for pharmaceuticals

Polyglyceryl-3 shortening
Synonyms: Triglycerol monoshortening; Triglyceryl monoshortening
Properties: Nonionic
Uses: Emulsifier for medicinals, pharmaceuticals, skin care prods.
Trade Names: Polyaldo® TGMSH

Polyglyceryl-2 stearate
CAS 9009-32-9 (generic); 12694-22-3; EINECS/ELINCS 235-777-7
Synonyms: Diglycerol monostearate; Octadecanoic acid, monoester with diglycerol; 9-Octadecanoic acid, monoester with oxybis [propanediol]; Stearic acid, monoester with oxybis (propanediol)
Definition: Ester of stearic acid and diglycerin
Empirical: C_{24}H_{48}O_{6}
Properties: Nonionic
Uses: W/o emulsifier for pharmaceuticals
Trade Names: DGMS

Polyglyceryl-3 stearate
CAS 37349-34-1 (generic); 27321-72-8; 26855-43-6; 61790-95-2; EINECS/ELINCS 248-403-2
Synonyms: Octadecanoic acid, monoester with triglycerol; Octadecanoic acid, monoester with tri-1,2,3-propanetriol diether; Stearic acid, monoester with triglycerol; Triglyceryl stearate
Definition: Ester of stearic acid and polyglycerin-
Chemical Component Cross-Reference

Polyglycol 1000. See PEG-20
Polyglycol 4000. See PEG-75
Polyglycol distearate. See PEG distearate
Polyglycol monooleate. See PEG oleate
Poly (hexamethylenedodecanediamide). See Nylon 612
Poly (iminocarbonylpentamethylene); Poly [imin (1-oxo-1,6-hexanediyl)]. See Nylon 6
Polyisobutylene. See Hydrogenated polyisobutylene

Polyisobutylene
CAS 9003-27-4

Synonyms: Isobutene homopolymer; Isobutylene polymer; Isobutylene homopolymer; Isobutylene polymer; Isobutylene resin; 2-Methyl-1-propene, homopolymer; 2-Methylpropene polymer; PIB; Polyisobutylene; Polymerized 2-methylpropene; 1-Propene, 2-methyl-, homopolymer; Propene, 2-methyl-, polymers

Classification: Polymer
Definition: Homopolymer of isobutylene
Empirical: \((C_4H_8)_x\)
Formula: \([\text{CH}_2\text{C(CH}_3\text{)CHCH}_2]_x\)

Properties: M.w. (56.11)x; dens. 0.920; ref. index 1.5045

Toxicology: May cause eye/skin/digestive/respiratory tract irritation; TSCA listed
Precaution: Incompat. with strong oxidizing agents

Hazardous Decomp. Prods.: CO, CO₂
Storage: Store in cool, dry place in tightly closed container

Uses: Excipient, emollient, carrier in pharmaceuticals, injectables

Regulatory: FDA 21CFR §172.615 (min. m.w. 37,000), 175.105, 175.125, 175.300, 176.180, 177.1200, 177.1210, 177.1390, 177.1420, 177.2800, 178.1005, 178.1010, 178.3570, 178.3740, 178.3910; Japan approved; FDA approved for injectables; Canada DSL


†=pharmaceutical grade

Trade Names Containing: Fancorsil P

Polyisoprene

CAS 9003-31-0

Synonyms: 1,3-Butadiene, 2-methyl-, homopolymer; IR; Isoprene rubber; 2-Methyl-1,3-butadiene, homopolymer; cis-Polyisoprene; cis-1,4-Polyisoprene; trans-Polyisoprene; cis-1,4-Polyisoprene rubber

Classification: Thermoplastic elastomer
Definition: Polymer of isoprene; major component of natural rubber, also made synthetically; avail. in range of std., oil-extended and carbon blk.-filled grades; props. vary with catalysts used in mfg. (lithium, titanium)

Empirical: \((C_5H_8)_x\)
Formula: \([\text{CH}_2\text{C(CH}_3\text{)CHCH}_2]_x\)
Properties: M.w. (68.118)x; dens. 0.90-0.94 kg/l

Toxicology: TSCA listed
Precaution: Supports combustion
Uses: Elastomer in pharmaceuticals

Regulatory: FDA 21CFR §175.105, 175.125, 176.180, 177.2600; Canada DSL


Trade Names Containing: Heyplast NC 90 Z trans-Polyisoprene. See Polyisoprene; Gutta percha
cis-1,4-Polyisoprene rubber. See Polyisoprene

Poly (lactic acid)

CAS 26100-51-6

Synonyms: PLA; Poly-L-lactic acid; Poly-L-lactide

Definition: Synthesized from lactic acid monomer which is mostly produced by carbohydrate fermentation of corn dextrose

Properties: Dens. 1.250 kg/m³; m.p. 130-180 C

Environmental: Biodeg.
Uses: Material for drug delivery systems; surgical implants

Manuf./Distrib.: ABCR http://www.abcr.de; Absorbable Polymers† http://www.durect.com; Aldrich† http://www.sigma-aldrich.com; Alkermes† http://www.alkermes.com; CarboMer†
Poly (DL-lactic acid)
Synonyms: PLA
Classification: Aliphatic polyester polymer
Properties: M.w. 6,000-600,000; hygroscopic
Environmental: Biodeg.
Storage: Protect from moisture; long-term storage @ 4°C
Uses: Biocompatible polymer for use in medicine, controlled-release implants, microspheres, microcapsules, sustained-release coatings
Features: Sterilizable

Poly-L-lactic acid. See Poly (lactic acid)

Poly (lactic acid-glycolic acid)
CAS 34346-01-5
Classification: Biopolymer
Environmental: Biodeg.
Uses: Material for drug delivery systems, medical applics., sutures, bone pins, periodontal membranes
Manuf./Distrib.: DuPont http://www.dupont.com

Poly-L-lactide. See Poly (lactic acid)

Poly (laurolactam). See Nylon 12

Polylysine
Synonyms: Poly-l-lysine
Classification: Polyamide
Empirical: (C6H12N2O)x
Formula: [NHCHCO(CH2)4NH2]x
Toxicology: May cause allergic skin sensitivity reactions; may have histamine-releasing props. under certain conditions
Uses: Coating agent for pharmaceuticals
Trade Names: Peptide CPC®

Poly-l-lysine. See Polylysine

Poly (maleic anhydride-methyl vinyl ether). See PVM/MA copolymer

Polymannuronic acid. See Alginic acid

†=pharmaceutical grade

Polymeric sodium metaphosphate. See Sodium metaphosphate
Polymerized 1-butene. See Polybutene
Polymerized 2-methylpropene. See Polysobutene
Polymerized siloxane. See Silicone

Polymethylacrylate
Uses: Cation exchange resin for prep. of antibiotics, medicines, and purification of pharmaceuticals
Trade Names: Diaion® WK10; Diaion® WK11; Diaion® WK100; Diaion® WT01S

Poly (methylene) wax. See Paraffin

Polymethyl methacrylate
CAS 9011-14-7
Synonyms: Methacrylic acid methyl ester polymers; Methyl methacrylate homopolymer; Methyl methacrylate polymer; Methyl methacrylate polymers; Methyl methacrylate resin; 2-Methyl-2-propenoic acid methyl ester homopolymer; PMM; PMMA; 2-Propenoic acid, 2-methyl-, methyl ester, homopolymer
Classification: Thermoplastic polymer
Definition: Polymer of methyl methacrylate; hard transparent amorphous material
Empirical: (C5H8O2)x
Formula: [CH2CCH3COOCH3]n
Properties: Powd., gran., cast sheet and block; sol. in ethyl acetate, chlorinated solvs.; m.w. 60,000 (molding grades), 1,000,000 (cast sheet); dens. 1.188; ref. index 1.4100; tens. str. 72 MPa; tens. mod. 2400 MPa
Toxicology: TDLo (implant, rat) 127 mg/kg; toxic; severe irritant; questionable carcinogen; experimental tumorigen by implant; target organ: liver, kidneys, bladder; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Thermoplastic resin used extensively in medicine and dentistry
Regulatory: FDA 21CFR §175.105, 175.300, 176.180, 177.1010, 178.3790; Canada DSL
Chemical Component Cross-Reference

Poly (methyl vinyl ether-alt-maleic acid). See Methyl vinyl ether/maleic acid copolymer

Poly (methyl vinyl ether-alt-maleic anhydride); Poly(methyl vinyl ether/maleic anhydride). See PVM/MA copolymer

Polyols
Classification: Polyhydric alcohol
Formula: CH$_2$OH(CHOH)$_n$CH$_2$OH
Properties: Solid (m.w. > 1000), liq. (m.w. < 600)
Toxicology: Low toxicity; high doses can cause kidney damage
Uses: Moisture absorbent in dental prods.
Regulatory: FDA approved for dentals

Polyorganosiloxanes. See Silicone
Polysiloxane. See Silicone, hydrated
Polyox. See Polyethylene glycol
Poly[1-(2-oxo-1-pyrrolidinyl) ethylene]. See PVP
Poly (1-(2-oxo-1-pyrrolidinyl) ethylene) iodine complex. See PVP-iodine
Poly (oxy-1,4-butenediyl)-α-hydro-ω-hydroxy-; Poly (oxybutylene) glycol; Poly (oxy-1,4-butylene) glycol. See Polytetramethylene ether glycol
Poly (oxy (dimethlysilylene)). See Dimethyldimethylsiloxane; Polymethylpolysiloxane
Poly [oxy (dimethlysilylene)]. α-hydro-ω-hydroxy-. See Dimethiconol
Polyoxy (dimethlysilylene), α-(trimethylsilyl)-ω-hydroxy. See Dimethylsiloxane
Poly (oxy (dimethlysilylene)), α-(trimethylsilyl)-ω-methyl-. See Dimethicone
Poly(oxy-1,2-ethanediyl), α-(3-carboxy-1-oxo-3-sulfo propyl)-ω-(dodecyl oxy)-, disodium salt. See Disodium laureth sulfoxuccinate
Poly (oxy-1,2-ethanediyl), α-(4-(3,4-dihydro-2,5,7,8-tetramethyl-2-(4,8,12-trimethyltridecyl)-2H-1-benzopyran-6-yl)oxy)-1,4-ioxobutyl)-ω-hydroxy-, (2R-(2R(4R,8R)))-. See Tocophersolan
Poly (oxy-1,2-ethanediyl), α-hexadecyl-ω-hydroxy-. See Ceteth
Poly (oxy-1,2-ethanediyl), α-hydro-ω-hydroxy-. See Polyethylene glycol

†=pharmaceutical grade

Poly (oxy-1,2-ethanediyl), α-9-octadecenyl-ω-hydroxy-, (Z)-. See Oleth
Poly (oxy-1,2-ethanediyl), α-(1-oxooctadecyl)-ω-hydroxy-. See PEG stearate
Poly (oxy-1,2-ethanediolxyloxy carbonyl-1,4-phenylenecarbonyl). See Polyethylene terephthalate
Poly(oxy-1,2-ethanediyl), α-sulfo-ω-(dodecyloxy)-, sodium salt. See Sodium laureth sulfate
Polyoxyethylene-grafted polydimethylsiloxane. See Dimethicone copolyol
Poly (oxyethylene) hexadecyl ether; Poly (oxyethylene) monocetyl ether. See Ceteth
Polyoxyethylene monoglycerides. See Ethoxylated mono- and diglycerides
Poly (oxyethylene) monooleate. See PEG oleate
Polyoxyethylene monooleyl ether. See Oleth
Polyoxyethylene monostearate. See PEG stearate
Poly (oxyethylene) oleate; Poly (oxyethylene) oleic acid ester. See PEG oleate
Poly (oxyethylenoxytetraphthaloyl). See Polyethylene terephthalate
Poly (oxyethylene) palmityl ether. See Ceteth
Polyoxyethylene/polyoxypropylene copolymer. See EO/PO block polymer or copolymer
Polyoxyethylene (4) Sorbitan Monolaurate. See Polysorbate 21
Polyoxyyl 35 castor oil. See PEG-35 castor oil
Polyoxyyl 40 castor oil. See PEG-40 castor oil
Polyoxyyl 20 cetostearyl ether. See Ceteareth-20
Polyoxyyl 4 dilaurate. See PEG-4 dilaurate
Polyoxyyl 150 distearate. See PEG-150 distearate
Polyoxyyl 40 hydrogenated castor oil. See PEG-40 hydrogenated castor oil
Polyoxyyl 75 lanolin. See PEG-75 lanolin
Polyoxyyl oleyl ether. See Oleth
Polyoxyyl 10 oleyl ether. See Oleth-10
Polyoxyyl 2 stearate. See PEG-2 stearate
Polyoxyyl 8 stearate. See PEG-8 stearate
Polyoxyyl 20 stearate. See PEG-20 stearate
Polyoxyyl 40 stearate. See PEG-40 stearate
Polyoxyyl 50 stearate. See PEG-50 stearate
Polyoxyyl 55 stearate. See PEG-55 stearate
Polyoxyethylmethylen. See Paraformaldehyde
Polyoxyethylene glycols. See Formaldehyde
Polyoxymethylene (9). See PP-G-9
Polyoxymethylene (26). See PP-G-26
Polyoxymethylene/polyoxyethylene block polymer;
Polyoxymethylene/polyoxyethylene copolymer. See EO/PO block polymer or copolymer
Poly (oxytetramethylene); Poly (oxytetramethylene) diol. See Polytetramethylene ether glycol
Polyphenylmethyl siloxane. See Phenyl trimethicone
Polypropene. See Polypropylene
Polypropylene
CAS 9003-07-0
Synonyms: Atactic polypropylene; Isotactic polypropylene; Polypropene; PP; Propathene; 1-Propene, homopolymer; Propene polymer; Propene polymers; Propylene polymer; Syndiotactic polypropylene
Classification: Thermoplastic polymer
Definition: Polymer of propylene monomers;
three forms: isotactic (fiber-forming), syndiotactic, atactic (amorphous)
Empirical: (C₃H₆)x
Formula: [CH₂(CH₃)CH]x
Properties: Wh. translucent solid; m.w. > 40,000; dens. 0.90; m.p. 168-171 C; Isotactic: solid; pract. insol. in cold org. solvs.; sol. in hot decalin, hot tetralin, boiling tetrachloroethane; dens. 0.090-0.92; m.p. 165 C; tens. str. 28-35 MPa; flex. mod. 1000-1700 MPa
Toxicology: LD₅₀ (oral, mouse) 3200 mg/kg, (IP, rat) > 110 g/kg, (IV, rat) > 99 g/kg; mod. toxic by ing. and IP routes; questionable carcinogen; tumorigen; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Excipient in pharmaceuticals, injectables
Regulatory: FDA 21 CFR §175.105, 175.300, 177.1200, 177.1520, 179.45; FDA approved for injectables; Canada DSL
Manuf./Distrib.: A. Schulman
http://www.aschulman.com; Aldrich†
http://www.sigma-aldrich.com; Allchem Ind.
http://www.allchem.com; Ampacet
http://www.ampacet.com; Ashland
http://www.ashchem.com

Polypropylene glycol
CAS 25322-69-4 (generic); EINECS/ELINCS 200-338-0
Synonyms: α-Hydro-ω-hydroxypropoly [oxy (methyl-1,2-ethanediyl)]; α-Hydro-ω-hydroxypropylene (oxypropylene); Oxirane, methyl-, homopolymer; Poly (propylene oxide); PPG; Propylene oxide homopolymer
Classification: Aliphatic organic compd.
Empirical: (C₃H₆O₂)n
Formula: HO(C₃H₆O)nH, n = 4-70
Properties: Colorless clear visc. liq., sl. bitter taste; sol. in water, aliphatic ketones, alcohol; insol. in ether, aliphatic hydrocarbons; m.w. 400-2000; dens. 1.001-1.007; m.p. does not cryst.; flash pt. > 390 F
Toxicology: LD₅₀ (oral, rat) 4190 mg/kg; mildly toxic by ing.; skin and eye irritant; linked to sensitive reactions; TSCA listed
Precaution: Combustible exposed to heat or flame; reactive with oxidizers
Polyol (propylene oxide). See Polypropylene glycol

Poly (propylene oxide). See Polypropylene glycol

Polyquaternium-1
CAS 68518-54-7
Classification: Polymeric quaternary ammonium salt
Uses: Antistat, film-former for pharmaceuticals; preservative in soft lens prods.
Trade Names Containing: ONAMER® M

Polysilicic acid. See Silica, hydrated

Polysilicone-2
Synonyms: Polysilicone II
Definition: Polymer formed by reaction of tetradecene with polymerized tetramethylcyclotetrasiloxane
Uses: Humectant
Manuf./Distrib.: Siltech LLC

†=pharmaceutical grade

http://www.sigma-aldrich.com

Polysilicone II. See Polysilicone-2

Polysilicone-3
Synonyms: Glythiosilanetriol acetyl methionate
Definition: Prepared from an alkylthiosulfate substituted N-acetylthiethanol silanol by hydrolysis in the presence of dextran
Uses: Emollient
Trade Names: Methisol C+

Polysiloxane polyether copolymer. See Dimethicone copolyol

Polysiloxane PCA. See Polysiloxo pyrrolidone carboxylic acid

Polysiloxo pyrrolidone carboxylic acid
Synonyms: Polysiloxo PCA
Classification: Organosilicone
Uses: Emollient, conditioner
Trade Names: Monasil® PCA

Poly (sodium metaphosphate). See Sodium metaphosphate

Polysorbate 20
CAS 9005-64-5 (generic); 68154-33-6
FEMA 2915; INS432
Synonyms: PEG-20 sorbitan laurate; POE (20) sorbitan monolaurate; Sorbitmacrogol laurate 300; Sorbitan, monododecanoate, poly(oxy-1,2-ethanediyl) derivs.
Definition: Mixture of laurate esters of sorbitol and sorbitol anhydrides, with ≈ 20 moles ethylene oxide
Empirical: C₅₈H₁₁₄O₂₆
Properties: Lemon to amber liq., char. odor, bitter taste; sol. in water, alcohol, ethyl acetate, methanol, dioxane; insol. in min. oil, min. spirits; m.w. 1227.72; HLB 16.9; acid no. 0-2; sapon. no. 40-50; hyd. no. 60-108; nonionic
Toxicology: LD₅₀ (oral, rat) 37 g/kg, (IV, mouse) 1420 mg/kg, (IP, rat) 3850 mg/kg; mod. toxic by IP, IV route; mildly toxic by ing.; human skin irritant; experimental teratogen, reproductive effects; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Surfactant, o/w emulsifier, solubilizer, wetting agent in pharmaceuticals, intravenous, parenterals, ophthalmics, orals, topicals, vaginals
Use Level: 1-15% (emulsifier for pharmaceuticals)
Chemical Component Cross-Reference

†=pharmaceutical grade

Regulatory: FDA 21 CFR §172.515, 173.310, 175.105, 175.300, 178.3400; FEMA GRAS; Europe listed; FDA approved for intravenous, parenterals, ophthalmics, orals, topicals, vaginals; USP/NF, BP, EP compliance

Manuf./Distrib.: CarboMer†
http://www.carbomer.com
Chemacon GmbH† http://www.chemacon.de; Fluka http://www.sigma-aldrich.com; Galbraith Labs† http://www.galbraith.com;
Mallinckrodt Baker† http://www.mallbaker.com
http://www.phoenixuk.com; Rhodia HPCII http://www.rhodia-hpcii.com; SAFC Specialties

Trade Names: Alkamuls® PSML-20; AvapoltM 20; Avapol™ 20K; Cremophor® PS 20; Crillet 1 HP
Crillet 1 NF; Crillet 1 Super; DeMULS PSML-20; Emalex ET-2020; Eumulgin® SML 20
Glycoperse® L-20 K; Kotilen-L/1; Lumisorb™ PSML-20 K; Montanox® 20 DF; Nissan Nonion LT-221
Rheodol TW-L120; Rheodol Super TW-L120; Ritabate 20; Sabolen MLE; Sabosorb MLE
Sorbilene L; Sorbithom TL; Tego® SML 20; T-Maz® 20
TWEEN® 20 Pharma

Trade Names Containing: Retinol P 50;
Solubilisant γ 2420; Solubilisant γ 2428;
Sorbithom TL-L; Vitamin F Water-Soluble CLR

Polysorbate 21
CAS 9005-64-5 (generic)
Synonyms: PEG-4 sorbitan laurate; POE (4) sorbitan monolaurate; Polyoxyethylene (4) Sorbitan Monolaureate

Definition: Mixture of laurate esters of sorbitol and sorbitol anhydrides, with ≈ 4 moles ethylene oxide

Properties: Yellow oily liquid; hydroxyl value 220-250; sapon. value 100-115; acid value 3.0; HLB 13.3; nonionic

Toxicology: Moderately toxic by intraperitoneal, intravenous routes; mildly toxic by ing.; skin irritant; TSCA listed

Uses: Emulsifier, solubilizer, wetting agent for pharmaceuticals

Regulatory: FDA 21 CFR §175.300

Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com
Sigma http://www.sigma-aldrich.com/belgium

Trade Names: Sorbithom TL-1

Polysorbate 40
CAS 9005-66-7 (generic)
INS434

Synonyms: POE (20) sorbitan monopalmitate; Sorbimacrogol palmitate 300; Sorbitan, monohexadecanoate, poly(oxy-1,2-ethanediyl) derivs.

Definition: Mixture of palmitate esters of sorbitol and sorbitol anhydrides, with ≈ 20 moles of ethylene oxide

Empirical: C₆₂H₁₂₂O₂₆

Properties: Yel. liq., faint char. odor; sol. in water, alcohol; insol. in min. and veg. oils; m.w. 1283.84; HLB 15.6; acid no. 2.2 max.; sapon. no. 41-52; hyd. no. 89-105; nonionic

Toxicology: LD50 (IV, rat) 1580 mg/kg; mod. toxic by IV route; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: O/w emulsifier, solubilizer, wetting agent in pharmaceuticals, parenterals, intramuscular injectables, orals, topicals

Regulatory: FDA 21 CFR §175.105, 175.300, 178.3400; Europe listed; UK approved; FDA approved for parenterals, intramuscular injectables, orals, topicals; USP/NF, BP, EP compliance

Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com

Trade Names: Montanox® 40 DF; Rheodol TW-P120; Ritabate 40; Sabolen MPE; Sabosorb MPE
Sorbilene P; Tween® 40 Pharma; Tween® 40

Polysorbate 60
CAS 9005-67-8 (generic)
FEMA 2916; INS435

Synonyms: PEG-20 sorbitan stearate; POE (20) sorbitan monostearate; Sorbimacrogol
Chemical Component Cross-Reference

stearate 300; Sorbitan, monoctadecanoate, poly (oxy-1,2-ethanediyl) derivs.

Definition: Mixture of stearate esters of sorbitol and sorbitol anhydrides, with ≈ 20 moles ethylene oxide

Empirical: C_{64}H_{126}O_{26}

Properties: Lemon to orange oily liq., faint char. odor, bitter taste; sol. in water, alcohol, aniline, ethyl acetate, toluene; insol. in min. and veg. oils; m.w. 1311.90; HLB 14.9; acid no. 2 max.; sapon. no. 45-55; hyd. no. 81-96; nonionic

Toxicology: LD50 (IV, rat) 1220 mg/kg; mod. toxic by IV route; questionable carcinogen; experimental tumorigen, reproductive effects; TSCA listed

Hazardous Decomp. Prods.: Heated to decom., emits acrid smoke and irritating fumes

Uses: Surfactant, emulsifier, solvent, solubilizer, wetting agent in pharmaceuticals, creams, rectals, topicals, vaginals; pharmaceutical and veterinary drug


Synonyms: PEG-4 sorbitan stearate; POE (4) sorbitan monostearate

Definition: Mixture of stearate esters of sorbitol and sorbitol anhydrides, with ≈ 4 moles EO

Empirical: C_{64}H_{126}O_{26}

Properties: Yellow oily liquid; m.w. 1311.70; dens. 1.044; flash pt. > 110 C; hydroxyl value 165-195; sapon. value 95-115; acid value 3.0; nonionic

Toxicology: Moderately toxic by intravenous route; TSCA listed

Uses: Emulsifier, solubilizer, lubricant for pharmaceuticals, suppositories, flavors, vitamins

Regulatory: FDA 21CFR §175.300


Trade Names: Avapol™ 60; Avapol™ 60K; Crillet 3; Crillet 3 NF; Crillet 3 Super; Eumulgin® SMS 20; Hetsorb S-20; Kotilen-S/1; Liposorb S-20K; Monopol TWS-1030; Montanox® 60 DF; Rheoldol TW-S120; Rheodol Super TW-S120; Ritabate 60; Sabolen MSE; Sorbilene S; Sorbitol T 60 P; Sorbithom TE-P; Sorgen TW60V; TS-10V; T-Maz® 60K; Tween® 60 Pharma

Trade Names Containing: Aquabase NF;
### Chemical Component Cross-Reference

| Trade Names: | Avapoi™ 65; Crillet 35; Kotilen-S/3; Liposorb TS-20A; Liposorb TS-20K; Rheodol TW-S320; Sabolen TSE; Sorbosorb TSE; Sorbithom TE-5; TS-30V; T-Maz® 65K |
| Trade Names Containing: | Fancor® Uni-enbase |
| Polysorbate 80 | CAS 9005-65-6 (generic); 37200-49-0; 61790-86-1 |
| FEMA 2917; INS433 | Synonyms: PEG-20 sorbitan oleate; POE (20) sorbitan monooleate; Sorbirmacrogol oleate 300 |
| **Definition:** | Mixture of oleate esters of sorbitol and sorbitol anhydrides, with \( \approx 20 \) moles EO |
| **Properties:** | Amber visc. liq.; faint odor; bitter taste; nonionic; very sol. in water; sol. in alcohol, fixed oils, cottonseed oil, corn oil, ethyl acetate, methanol, toluene; insol. in min. oil; dens. 1.06-1.10; visc. 270-430 cSt; HLB 10.0; nonionic |
| **Toxicology:** | LD50 (oral, mouse) 25 g/kg, (IP, rats) 6.3 ml/kg, (IV, rat) 179 mg/kg; mod. toxic by IV route; mildly toxic by ing.; eye irritant; questionable carcinogen; experimental tumorigen, reproductive effects; human mutagenic data; TSCA listed |
| **Hazardous Decomp. Prods.:** | Heated to decomp., emits acrid smoke and irritating fumes |
| **Uses:** | Pharmaceutical aid; surfactant, emulsifier, solubilizer, wetting agent, dispersant in pharmaceuticals, excipients, intramuscular injectables, intravenous, parenteral, ophthalmics, orals, otics, rectals, topicals, vaginals |
| **Regulatory:** | FDA 21CFR §73.1, §73.1001, 172.515, 172.840, 172.842, 173.340, 175.105, 175.300, 176.180, 178.3400, 573.860; USDA 9CFR §318.7, 381.147 (limitation 1% alone, 1% total combined with polysorbate 60); FEMA GRAS; Europe listed; UK approved; FDA approved for excipients, intramuscular injectables, intravenous, parenteral, ophthalmic, orals, otics, rectals, topicals, vaginals; USP/NF, BP, EP compliance |
| **†=pharmaceutical grade** |
| **Uses:** | O/w emulsifier, solubilizer, wetting agent, dispersant, suspending agent, visc. control agent, emollient in pharmaceuticals |
| **Regulatory:** | FDA 21CFR §175.300 |
| **Trade Names:** | Crillet 41; Sorbilene O 5; T-Maz® 80K; Tween® 81; Tween® 80 |
| **Trade Names Containing:** | Lubrasil® DS |

### Regulatory Information

- **Uses:** Pharmaceutic aid
- **Hazardous Decomp. Prods.:** Heated to decomps., emits acrid smoke and irritating fumes
- **Effect:** Toxicology: TSCA listed
- **Uses:** O/w emulsifier, solubilizer, wetting agent, dispersant, suspending agent, visc. control agent, emollient in pharmaceuticals
- **Regulatory:** FDA 21CFR §175.300
- **Trade Names:** Crillet 41; Sorbilene O 5; T-Maz® 80; Tween® 81
- **Trade Names Containing:** Lubrasil® DS

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**Handbook of Pharmaceutical Additives, Third Edition** 1919
Polysorbate 85
CAS 9005-70-3 (generic)
Synonyms: PEG-20 sorbitan trioleate; POE (20) sorbitan trioleate; Sorbitmacrogol trioleate 300
Definition: Mixture of olate esters of sorbitol and sorbitol anhydrides, with \( \approx 20 \) moles ethylene oxide
Properties: HLB 11.0; nonionic
Toxicology: Human skin irritant; TSCA listed
Uses: Surfactant, emulsifier, solubilizer for pharmaceuticals; solubilizer for flavors, essential oils
Regulatory: FDA 21CFR §175.300, 178.3400
Trade Names: Crillet 45; Rheodol TW-O320; Sabolen TOE; Sabosorb TOE; Sorbilene TO Sorbithom TO-5; Sorbon T-85; TO-30V; T-Maz® 85; T-Maz® 85 Special
T-Maz® 85K
Polysorbate 120. See PEG-20 sorbitan isostearate
Polysorbate 80 acetate
CAS 89964-07-8
Synonyms: POE (20) sorbitan monooleate acetate
Definition: Acetyl ester of polysorbate 80
Uses: Emulsifier in pharmaceuticals
Regulatory: Canada DSL
Manuf./Distrib.: Somerset Cosmetic Co. http://www.makingcosmetics.com/
Polystyrene
CAS 9003-53-6; EINECS/ELINCS 202-851-5
UN 2211
Synonyms: Atactic polystyrene; Benzene, ethenyl-, homopolymer; Ethenylbenzene homopolymer; Polystyrene latex;
Polystyrene resin; Polystyrol; PS; Styrene polymer; Styrene, polymerized; Vinylbenzene polymer
Classification: Hydrocarbon polymer
Definition: High molecular weight thermoplastic resin produced by free radical polymerization of styrene; grades: crystal, impact, expandable
Empirical: \((\text{C}_6\text{H}_5)\text{x}\)
Formula: \((\text{CH}(	ext{C}_6\text{H}_5)\text{CH}_2)_x\)
Properties: Colorless to ylsh. glassy solid or soft
t=pharmaceutical grade
colorless foam, penetrating odor; sol. in alcohol; sl. sol. in water; m.w. 2500-250,000;
dens. 1.047 kg/l; m.p. 86-91 C; soften. pt. 80-102 C; ref. index 1.5916; tens. str. 52 MPa;
tens. mod. 3900 MPa
Toxicology: TDLo (IV, rat, 2 wk intermittent) 200 mg/kg, (implant, rat) 1 mg/kg; severe eye irritant; may cause irritation to mucous membranes; can be narcotic in high concs.; questionable carcinogen; experimental tumorigen by implant; TSCA listed
Hazardous Decomp. Prods.: Heated to comp., emits acrid smoke and irritating fumes
Uses: Excipient in pharmaceuticals
Regulatory: FDA 21CFR §175.105, 175.125, 175.300, 175.320, 176.180, 177.1200, 177.1640, 177.2600, 178.1005
Aldrich† http://www.sigma-aldrich.com; Ampacet http://www.ampacet.com
ChevronPhillips http://www.cpchem.com;
Degussa AG http://www.degussa.com;
Dow Plastics http://www.dow.com/plastics;
Huntsman http://www.huntsman.com;
Lyondell http://www.lyondell.com;
Monomer-Polymer & Dajac Labs http://www.monomerpolymer.com; Nova Ltd http://www.novachem.com
Noveon http://www.carbopol.com;
http://www.noveoncoatings.com; Reichhold http://www.reichhold.com; Royce Int’l.
http://www.royceintl.com; Scott Bader http://www.scottbader.com; Sigma http://www.sigma-aldrich.com/belgium
Total Petrochemicals Bruxelles http://www.totalpetrochemicals.biz;
Westlake Plastics http://www.westlakeplastics.com; Whyte Chems. Ltd http://www.whytechemicals.co.uk
Trade Names: Diaion® HP20; Diaion® HP21;
Diaion® HPA25; Diaion® HPA75; Diaion® UBK530
PolyBead® Microspheres
Chemical Component Cross-Reference

**Polystyrene latex; Polystyrene resin; Polystyrol.** See Polystyrene

**Polysulfone resin**
CAS 25135-51-3
Synonyms: PSU
Definition: Amorphous engineering thermoplastic with high resist. to acids, alcohols and salt solns.; resist. to heat, oxidation, detergents; low flamm. and smoke emission; self-extinguishing; good creep resist. and elec. props.; dimensionally stable
Properties: Transparent hard rigid solid; sol. in aromatic hydrocarbons, ketones, chlorinated hydrocarbons; m.w. 30,000; dens. 1.24 kg/l; ref. index 1.6330; tens. str. 70 N/mm²; tens. mod. 2.5 N/mm²; elong. 75% (break)
Precaution: Combustible, but self-extinguishing
Uses: In membranes for liq. separations for medical applics., pharmaceutical mfg. for reverse osmosis and nanofiltration processes
Regulatory: FDA 21CFR §177.1655
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; BASF http://www.basf.com; CarboMer† http://www.carbomer.com
Trade Names Containing: Filmtec®

**Polyterpene resin.** See Terpene resin
Poly (tetramethylene ether) Poly (tetramethylene ether) diol. See Polytetramethylene ether glycol

**Polytetramethylene ether glycol**
CAS 25190-06-1
Synonyms: Glycols, polytetramethylene; Polybutylene glycol; Poly (butylene oxide); Poly (oxy-1,4-butanediyl)-α-hydro-α-hydroxy-; Poly (oxybutylene) glycol; Poly (oxy-1,4-butenylene) glycol; Poly (oxytetramethylene). Poly (oxytetramethylene) diol; Poly (tetramethylene ether); Poly (tetramethylene ether) diol; Poly (tetramethylene ether) glycol; Poly (tetramethylene glycol). Poly (tetramethylene oxide). Poly (tetramethylene oxide) glycol; PTMEG; PTMG; Tetrahydrofuran homopolymer
Classification: Polyether glycol
Empirical: (C4H8O)n • H2O
Formula: HO[(CH2)4O]nH
Properties: Wh. waxy solid melting to clear visc.

†=pharmaceutical grade

**Poly (tetramethylene ether) glycol; Poly (tetramethylene oxide); Poly (tetramethylene oxide) glycol.** See Polytetramethylene ether glycol

**Polythene.** See Polyethylene

**Polyurethane elastomer, thermoplastic**
Synonyms: Thermoplastic polyurethane elastomer; TPU
Classification: Thermoplastic elastomer
Definition: Polymer consistg. of hard segments embedded in a soft, elastomeric polyol phase; exc. abrasion/impact resist.; high str.; wide working temp. range; good hydrolytic stability; two types: polyether- or polyester-based
Properties: Solid
Trade Names: Pellethane® 2102-55D; Pellethane® 2102-65D; Pellethane® 2102-75A; Pellethane® 2102-80A; Pellethane® 2102-85A
Pellethane® 2102-90A; Pellethane® 2102-90AE; Pellethane® 2102-90AR; Pellethane® 2103-70A; Pellethane® 2103-80AE
Pellethane® 2103-80AEF; Pellethane® 2103-80AEN; Pellethane® 2103-80PF; Pellethane® 2103-85AE; Pellethane® 2103-90A
Pellethane® 2103-90AE; Pellethane® 2355-85ABR; Pellethane® 2355-95AE; Pellethane® 2363-55D; Pellethane® 2363-55DE
Chemical Component Cross-Reference

Pellethane® 2363-65D; Pellethane® 2363-75D; Pellethane® 2363-80A; Pellethane® 2363-80AE; Pellethane® 2363-90A
Pellethane® 2363-90AE

Polyurethane prepolymer
Uses: Foamable hydrophilic prepolymer for wound dressings, biocompat. coatings, drug delivery vehicles

Manuf./Distrib.: Air Prods.
http://www.airproducts.com; Bayer
http://www.bayerus.com; CasChem
http://www.cromptoncorp.com; Cytec
Conap http://www.conap.com
Hampshire http://www.hampshire-chemical.com; Huntsman Polyurethanes http://www.huntsman.com; Monomer-Polymer & Dajac Labs http://www.monomerpolymer.com; Noveon
http://www.carbopol.com;
http://www.noveoncoatings.com
Polyurethane Corp. of Am.; Polyurethane Spec.; Soluol http://www.soluol.com

Polyvidone; Polyvidonum. See PVP
Polyvidonum insoluble, crosslinked. See Crospovidone
Polyvinol. See Polyvinyl alcohol

Polyvinyl acetate
CA$ 9003-20-7
Synonyms: Acetic acid, ethenyl ester, homopolymer; Acetic acid, vinyl ester, polymer; Acetic acid vinyl ester polymers; Ethenyl acetate, homopolymer; Poly (vinylacetate); Polyvinyl acetate homopolymer; Polyvinyl acetate resin; PVA; PVAc; Vinyl acetate homopolymer; Vinyl acetate polymer; Vinyl acetate resin
Classification: Homopolymer

Definition: Homopolymer of vinyl acetate
Empirical: (C4H6O2)X
Formula: [CH2CHOOCOCH3]X
Properties: Water-wh. clear solid resin; sol. in benzene, acetone; insol. in water; dens. 1.191; ref. index 1.4670
Toxicology: LD (oral, rat) > 25 g/kg, (oral, mouse) > 25 g/kg; very low toxicity by ing.; tumorigen; TSCA listed
Hazardous Decomp. Prods.: Heated to decom., emits acrid smoke and irritating fumes
Storage: Refrigerate
Uses: Binder, emulsion stabilizer, film-former

†=pharmaceutical grade

for pharmaceuticals, orals

Regulatory: BP, EP compliance; FDA 21 CFR §73.1, 172.615 (m.w. 2000 min.), 175.105, 175.300, 175.320, 176.170, 176.180, 177.1200, 177.2260, 177.2800, 181.22, 181.30; Japan approved; FDA approved for orals; Canada DSL

Manuf./Distrib.: Acros Org.
http://www.acros.com; Air Prods.
http://www.airproducts.com; Aldrich
http://www.sigma-aldrich.com; Apollo
http://www.apollochemical.com; Ashland
http://www.ashchem.com
CarboMer† http://www.carbomer.com; Dow
http://www.dow.com; Gehring Montgomery
http://www.hampshire-chemical.com
Lenape Ind. http://www.lenape.com;
Monomer-Polymer & Dajac Labs http://www.monomerpolymer.com; Nat'l. Starch & Chem.
http://www.nationalstarch.com; Reichhold
http://www.reichhold.com
Rhodia http://www.rhodia.com; Rohm & Haas http://www.rohmhaas.com;
Wacker-Chemie AG http://www.wacker.de

Trade Names Containing: Kollicoat® SR 30 D; Kollidon® SR

Poly (vinylacetate). See Polyvinyl acetate
Poly (vinyl acetate-co-crotonic acid): Poly (vinyl acetate-crotonic acid). See Vinyl acetate/crotonic acid copolymer

Polyvinyl acetate homopolymer. See Polyvinyl acetate

Polyvinyl acetate phthalate
Synonyms: PVAP
Definition: Reaction prod. of phthalic anhydride and a partially hydrolyzed polyvinyl acetate
Properties: Wh. free-flowing powd., sl. acetic acid odor; sol. in methanol, alcohol; insol. in water, methylene chloride, chloroform; visc. 7-11 cps
Uses: Film-former, coating agent, visc. modifier for pharmaceutical tablets, enteric drug release

Regulatory: USP/NF compliance
Trade Names: Opaseal®; pHthalavin™
Trade Names Containing: Sureteric™

Polyvinyl acetate resin. See Polyvinyl acetate
Polyvinyl alcohol

CAS 9002-89-5 (super and fully hydrolyzed);
EINECS/ELINCS 209-183-3

Synonyms: Ethanol homopolymer; Polyvinol;
Polyvinyl alcohol, hydrolyzed; Polyvinyl alcohol resin; Polval; PVA; PVAl; PVAL, hydrolyzed; PVOH; Vinyl alcohol polymer

Classification: Polymer; aliphatic organic compd.

Definition: Water-sol. synthetic thermoplastic avail. as cast film, fiber or aq. sol'n.; film is characterized by oil resist., toughness, and high tens. str.

Empirical: (C2H4O)x

Formula: [CH2CHOH]x, avg. x = 500-5000

Properties: Wh. to cream amorphous powd. or gran., odorless; sol. in water; insol. in petrol. solvs.; m.w. (44.05)x, avg. 120,000; dens. 1.329; softens at 200 C with dec.; flash pt. (OC) 175 F; ref. index 1.49-1.53; pH 5-8 (4%)

Toxicology: TDLo (subcut., rat) 2500 mg/kg, (implant, rat) 10 g/kg; questionable carcinogen; experimental tumorigen by implant; TSCA listed

Precaution: Flamm. exposed to heat or flame; reactive with oxidizers; dust exposed to flame presents sl. explosion hazard

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

HMIS: Health 2, Flammability 2, Reactivity 1

Uses: Suspending agent, visc. builder in pharmaceuticals, ophthalmics, orals, injectables, topicals, vaginals; pharmaceutical finishing; ophthalmic lubricant; emulsifier; hydrogel for controlled-drug delivery; artificial tear prods.

Regulatory: FDA 21CFR §73.1, 175.105, 175.300, 175.320, 176.170, 176.180, 177.1200, 177.1670, 177.2260, 177.2800, 178.3910, 181.22, 181.30; Canada DSL; FDA approved for ophthalmics, orals, injectables, topicals, vaginals; USP/NF, BP, EP compliance


Trade Names Containing: Kollicoat® Protect

Polyvinyl alcohol, hydrolyzed. See Polyvinyl alcohol

Polyvinyl alcohol (partially hydrolyzed)

CAS 25213-24-5

Synonyms: Acetic acid ethenyl ester, polymer with ethenol; partially saponified PVOH

Uses: Binder, carrier, compounding agent

Regulatory: Canada DSL

Trade Names: Gohsenol GH-17; Gohsenol GL-05

Polyvinyl alcohol-polyethylene glycol copolymer

CAS 96734-39-3

Synonyms: PVA-PEG copolymer

Uses: Used in pharmaceutical coating
Chemical Component Cross-Reference

**Empirical:**
Definition:
Trade Names Containing: Kollicoat® IR; Kollicoat® IR White; Kollicoat® Protect

Polyvinyl alcohol resin. See Polyvinyl alcohol Poly (n-vinylbutyrolactam). See PVP

Polyvinyl chloride
CAS 8063-94-3; 9002-86-2; 51248-43-2; 93050-82-9; EINECS/ELINCS 208-750-2
Synonyms: Atactic poly (vinyl chloride); Chloroethene homopolymer; Chloroethylene polymer; Ethene, chloro-, homopolymer; Ethylene, chloro-, polymer; Expanded polyvinyl chloride; Poly (chloroethylene); Polyvinyl chloride latex; Polyvinyl chloride resin; PVC; Vinyl chloride homopolymer; Vinyl chloride polymer; Vinyl chloride resin; Vinyon

Definition: Synthetic thermoplastic high polymer in rigid, plasticized, std. and high impact grades; resist. to weathering, moisture, most acids, fats, petrol. hydrocarbons, fungus; dimensionally stable; good dielec. props.

Empirical: \((C_2H_3Cl)_n\)

Formula: \([CH_2CHClCH_2CHCl]_n\)

Properties: Wh. powd. or colorless gran.; m.w. 60,000-200,000; dens. 1.406; ref. index 1.54; Rigid: dens 1.35 kg/l; soften. pt. 58-80 C; tens. str. 35-50 MPa; elong. 35-40% (break); Plasticized: pellets; dens. 1.15-1.50 kg/l; tens. str. 10-25 MPa

Hazardous Decomp. Prods.: CO, CO2, hydrogen chloride, irritating/toxic fumes and gases; heated to decomp., emits toxic fumes of Cl- and phosgene

Storage: Store in cool, dry place; keep container closed when not in use

Toxicology: LC50 (inh., rat, 2 h) 171 g/m3; TDLo (oral, rat, 30 wks. continuous) 210 mg/kg, (implant, rat) 75 mg/kg; irritant; chronic inh. of dusts can cause pulmonary changes, blood effects, abnormal liver function; may cause necrotizing or contact dermatitis; questionable carcinogen; suspected tumorigen by ing. and implant; TSCA listed

Precaution: Incompat. with strong oxidizing agents, heat, light; reacts violently with F2

Uses: Excipient in pharmaceuticals, parenterals, topicals, dialysis

Regulatory: FDA 21CFR §175.300, 175.320, 176.180, 177.1200; FDA approved for parenterals

Manuf./Distrib.: A. Schulman

†=pharmaceutical grade

http://www.aschulman.com; ABD
http://www.abcd.com; Abadan Petrochem.
http://www.acros.com; Air Prods.
http://www.airproducts.com

Aldrich http://www.sigma-aldrich.com;
Allchem Ind. http://www.allchem.com;
Arkema http://www.total.com/
Ashland http://www.aschef.com; BASF AG

http://www.basf.de

Bencorp Int'l.; Celanese

http://www.celanesechemicals.com;

http://www.chemvip.com; Chisso Am.; Chisso http://www.chisso.co.jp/english/;
Continental Ind. Group
http://www.cigusa.com

E-A-R http://www.earson.com; Fluka
http://www.sigma-aldrich.com; Georgia Gulf
http://www.ggcom; Hummel Croton
http://www.hummelcroton.com

Magna-Kron http://www.magnakron.com;
Monomer-Polymer & Dajac Labs
http://www.monomerpolymer.com; Nat'l.

Starch & Chem.
http://www.nationalstarch.com; Norsk

Hydro AS

Noveon http://www.carbopol.com;
http://www.noveoncoatings.com

Occidental http://www.oxychem.com;

Omya Peralta http://www.omya-peralta.de;

PolyOne/Specialty Resins
http://www.polyone.com;

Renosol http://www.renosol.com; Sasol N. Am.
http://www.sasolnorthamerica.com

Shin-Etsu http://www.silicone.jp/e/; Sigma
http://www.sigma-aldrich.com/belgium;

Teknor Apex http://www.teknorapex.com;

Wacker-Chemie AG http://www.wacker.de;

Westchem http://www.westcheminc.com

Westlake Plastics http://www.westlakeplastics.com;

Whyte Chems. Ltd
http://www.whytechemicals.co.uk;

Zeon http://www.zeon.co.jp

Polyvinyl chloride latex: Polyvinyl chloride resin. See Polyvinyl chloride

Polyvinyl methyl ether-maleic anhydride. See PVM/MA copolymer
Poly(vinylpolypyrrolidone). See Crespovidone

Poly (1-vinyl-2-pyrrolidinone) homopolymer;
Chemical Component Cross-Reference

Polyvinylpyrrolidone.  See PVP
Poly (1-vinylpyrrolidone-co-2-dimethylaminoethyl methacrylate).  See PVP/dimethylaminoethylmethacrylate copolymer
Poly (1-vinylpyrrolidone-co-vinyl acetate).  See PVP/VA copolymer
Polyvinylpyrrolidone, crosslinked.  See Crospovidone
Polyvinylpyrrolidone-iodine complex.  See PVP-Iodine
Polyvinylpyrrolidone/vinyl acetate copolymer.  See PVP/VA copolymer
Ponceau 4R  See Acid red 18
Ponceau MX; Ponceau red.  See Acid red 26
Ponceau SX.  See CI 14700; FD&C Red No. 4
POP (30) cetyl ether.  See PPG-30 cetyl ether
Popcorn pyridine.  See 2-Acetylpyridine
POP (2) lanolin ether.  See PPG-2 lanolin alcohol ether
POP (5) lanolin ether.  See PPG-5 lanolin alcohol ether
POP (10) lanolin ether.  See PPG-10 lanolin alcohol ether
POP (20) lanolin ether.  See PPG-20 lanolin alcohol ether
POP (10) methyl glucose ether.  See PPG-10 methyl glucose ether
POP (20) methyl glucose ether.  See PPG-20 methyl glucose ether
POP (20) methyl glucose ether distearate.  See PPG-20 methyl glucose ether distearate
POP (26) monooleate.  See PPG-26 olate
POP (2) monosalicylate.  See Dipropylene glycol salicylate
POP (3) myristyl ether.  See PPG-3 myristyl ether
POP (2) myristyl ether propionate.  See PPG-2 myristyl ether propionate
POP (4) POE (1) cetyl ether.  See PPG-4-ceteth-1
POP (4) POE (10) cetyl ether.  See PPG-4-ceteth-10
POP (5) POE (20) cetyl ether.  See PPG-5-ceteth-20
POP (8) POE (1) cetyl ether.  See PPG-8-ceteth-1
POP (8) POE (20) cetyl ether.  See PPG-8-ceteth-20
POP (5) POE (10) cetyl ether phosphate.  See PPG-5-ceteth-10 phosphate
POP (2) POE (9) cetyl/stearyl ether.  See PPG-2-ceteareth-9

†=pharmaceutical grade

POPO/POE copolymer.  See EO/PO block polymer or copolymer
POP (12) POE (50) lanolin.  See PPG-12-PEG-50 lanolin
POP (12) POE (65) lanolin oil.  See PPG-12-PEG-65 lanolin oil
POP (3) POE (9) lauryl ether.  See PPG-3-laureth-9
POP (5) POE (5) lauryl ether.  See PPG-5-laureth-5
Poppy seed.  See Poppyseed (Papaver somniferum)

Poppyseed oil
Synonyms:  Maw oil; Oleum papaveris
Classification:  Vegetable oil
Definition:  Fixed oil derived from ripe seeds of the opium poppy, Papaver somniferum
Properties:  Sp. gr. 0.920-0.925; acid no. 0.4 max.; ref. index 1.473-1.478
Uses:  Olive oil substitute in pharmaceuticals; prep. of iodized oil fluid injection
Regulatory:  FDA 21CFR §175.300
Manuf./Distrib.:  Imperial-OEL-Import
http://www.imperial-oel-import.de;
Vliengenthart BV
http://www.vliengenthart.com

Poppyseed (Papaver somniferum)
CAS 977051-77-6
FEMA 2919
Synonyms:  Papaver somniferum; Poppy seed
Definition:  Papaver somniferum
Uses:  Natural flavor for pharmaceuticals
Regulatory:  FDA 21CFR §182.10, GRAS; FEMA GRAS; Japan approved

POP (15) stearyl ether.  See PPG-15 stearyl ether
Porcelain clay.  See Kaolin
Portland stone.  See Calcium carbonate
Potash.  See Potassium carbonate
Potash alum.  See Potassium alum dodecahydrate
Potash blue.  See Ferric ferrocyanide
Potash blue.  See Potassium hydroxide
Potash sulfated.  See Sulfated potash
Potassa.  See Potassium hydroxide
Potassium acetermino.  See Acesulfame potassium

Potassium acetate
CAS 127-08-2; EINECS/ELINCS 204-822-2
FEMA 2920; INS261(i); E261
Synonyms:  Acetic acid potassium salt; Diuretic salt
Chemical Component Cross-Reference

Classification: Aliphatic organic compd.
Definition: Potassium salt of acetic acid
Empirical: \( \text{C}_2\text{H}_3\text{KO}_2 \)
Formula: \( \text{CH}_3\text{COOK} \)

Properties:
- Colorless lustrous crist. or wh. crist. powd. or flakes, odorless or faint acetous odor, saline taste; sol. in water, alcohol, oxygenated solvs.; insol. in ether; m.w. 98.14; dens. 1.57; m.p. 292°C; dec. on heating
- Toxicology: LD50 (oral, rat) 3.25 g/kg; mod. toxic by ing.; TSCA listed
- Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of K2O

HMIS: Health 1, Flammability 0, Reactivity 0
Storage: Deliq.; keep tightly closed; store @ R.T.
Uses:
- Synthetic flavor for pharmaceuticals;
- raw material for pharmaceuticals, medicine, ophthalmics, rectals; diuretic drug;
- penicillin purification reagent
Regulatory:
- FDA 21CFR §172.515; FEMA GRAS; Europe listed; FDA approved for ophthalmics, rectals; BP, EP compliance; Canada DSL

Manuf./Distrib.: A.P. Chems. Ltd
  http://www.chemial.com; ADA Int'l.
  http://www.joinnet.net/ada/index.htm;
AMRESCO† http://www.amresco-inc.com;
Alfa Aesar† http://www.alfa.com; Alfa Chem† http://www.alfachem1.com
Allan http://www.allanchem.com; Am. Int'l.†
http://www.aicma.com; Asiamerica Int'l.†;
Celanese http://www.celanesecchemicals.com;
  http://www.celvimp.com; Charkit
  http://www.charkit.com
Chemacon GmbH† http://www.chemacon.de; Contract Chems.
  Ltd† http://www.contract-chemicals.com;
EMD Chems.;†
http://www.emdchemicals.com; FBC Ind.
  http://www.fbcindustries.com; Fluka
http://www.sigma-aldrich.com
GFS† http://www.gfschemicals.com;
Galard-Schlesinger Ind.†
  http://www.gallard-schlesinger.com;
General Chem.
  http://www.gencemcorpor.com; Heico
  http://www.rutherfordchemicals.com;
Honeywill & Stein
http://www.honeywill.co.uk
Integra† http://www.integrachem.com;
Lohmann http://www.lohmann-chemikalien.de; Mallinckrodt Baker†

†=pharmaceutical grade

Potassium acid carbonate. See Potassium bicarbonate
Potassium acid phosphate. See Potassium phosphate
Potassium acid sulfite. See Potassium bisulfite
Potassium acid tartrate
CAS 868-14-4; EINECS/ELINCS 212-769-1
INS336(i)
Synonyms:
- Acid potassium tartrate;
- Butanedioic acid, 2,3-dihydroxy-,
  monopotassium salt; Cream of tartar; 2,3-
  Dihydroxyssuccinic acid, potassium salt;
- Dipotassium L-(-)-tartrate; Monopotassium tartrate;
- Monopotassium L-(-)-tartrate;
- Potassium bitartrate; Potassium hydrogen tartrate;
- Potassium tartrate; Tartar; Tartar cream; L-Tartaric acid monopotassium salt

Definition: Salt of L(+)-tartaric acid
Empirical: \( \text{C}_4\text{H}_6\text{KO}_6 \)
Formula: \( \text{KHC}_4\text{H}_4\text{O}_6 \)

Properties:
- Colorless or sl. opaque crist. or wh. crist. powd., pleasant acid taste; sol. in water, sl. sol. in alcohol; m.w. 188.18; dens. 1.984
- Toxicology: LDLo (oral, rat) 22 g/kg; low toxicity by ing.; TSCA listed
- Precaution: Mixts. with carbon + nitrogen oxide ignite below 400°C

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of K2O
Uses: Cathartic; laxative; diuretic
Regulatory:
- FDA 21CFR §150.141, 150.161, 184.1077, GRAS; USDA 9CFR §318.7; BATF 27CFR §240.1051 (limitation 25 lb/1000 gal grape wine); Europe listed; UK approved;
Potassium alginate
CAS 9005-36-1
INS402; E402
Synonyms: Alginic acid, potassium salt; Potassium polymannuronate
Definition: Potassium salt of alginic acid
Empirical: (C_6H_7O_6K)_x
Properties: Wh. gran., odorless, tasteless; sol. in water; insol. in alcohol, chloroform, ether; m.w. 214.22
Toxicology: TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Gellant, thickener, suspending agent, emulsifier, stabilizer, bodying agent in creams, lotions, tablets, dental impression compds.
Regulatory: FDA 21CFR §184.1610, GRAS;
Europe listed; UK approved; Canada DSL
Trade Names: KELMAR®

Potassium alum. See Potassium alum dodecahydrate
Potassium alum dodecahydrate
CAS 7784-24-9; EINECS/ELINCS 233-141-3 INS522
Synonyms: Alum; Alum flour; Aluminum potassium sulfate; Alum meal; Alum; potassium; Cube alum; Kalinite; Potash alum; Potassium aluminum sulfate; Sulfuric acid, aluminum potassium salt (2:1:1), dodecahydrate
Classification: Inorganic aluminum salt
Empirical: AlH₂₄KO₂₀S₂
Formula: KA(SO₄)₂ • 12H₂O (dodecahydrate)
Properties: Transparent cryst. or wh. cryst. powd., odorless, sweetish astringent taste; sol. in glycerin; sol. 1 g/7.2 ml water; insol. in alcohol; m.w. 474.38; dens. 1.725; m.p. 92.5 C; b.p. loses 18 H₂O @ 64.5 C; pH 3.3 (0.2M aq.)
Toxicology: TDLo (oral, rat) 1120 mg/kg; irritant; nuisance dust
HMIS: Health 1, Flammability 0, Reactivity 0
Uses: OTC drug active; astringent; hardener for gelatin
Regulatory: FDA 21CFR §133.102, 133.106, 133.111, 133.141, 133.165, 133.181, 133.183, 133.195, 137.105, 137.155, 137.160, 137.165, 137.170, 137.175, 137.180, 137.185, 178.3120, 182.90, 182.1129, GRAS; Japan approved except for miso; BP, Ph.Eur. compliance
Potassium aluminum sulfate. See Potassium alum dodecahydrate

Potassium benzoate
CAS 582-25-2 (anhyd.); EINECS/ELINCS 209-481-3
INS212; E212
Synonyms: Benzoic acid potassium salt
Definition: Potassium salt of benzoic acid; avail. as the trihydrate
Empirical: C7H5KO2
Formula: C6H5COOK
Properties: Wh. gran. or cryst. powd., odorless or prac. odorless; sol. in water; sparingly sol. in alcohol; m.w.160.22; m.p. > 300 C; stable in air
Toxicology: Mild irritant to skin, eyes, and mucous membranes; TSCA listed
Precaution: Combustible exposed to heat or flame
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Storage: Hygroscopic
Uses: Antimicrobial, preservative for pharmaceuticals; lubricant for pharmaceutical tablets
Regulatory: FDA 21 CFR §166.110, 177.1210; USDA 9 CFR §318.7 (limitation 0.1%); BATF 27 CFR §240.1051 (limitation 0.1% in wine); Europe listed; USP/NF compliance; Canada DSL
Manuf./Distrib.: Aerchem
http://www.aerchem.com; Aldrich†
http://www.sigma-aldrich.com; Alfa Chem†
http://www.alfachem1.com; Am. Biorganics;
Am. Int’l.† http://www.aicma.com
Am. Tartaric Prods.
http://www.americanatartaric.com; Ashland†
http://www.ashchem.com; Asiamerica
Int’l.†; Atomergic Chemicals†
http://www.atomergic.com; Avatar†
http://www.avatarcorp.com
Brenntag Southeast†; Cargill Foods
http://www.cargillfoods.com; ChemTech
Specialties†
http://www.chemtechspecialties.com; China Nat’l. Chem. Construction
†=pharmaceutical grade
http://www.cnccc-shenzhen.com; DCV
Bionutritional
Danisco Cultor†
http://ingredients.danisco.com; Delta
Distributors†; FBC Ind.
http://www.fbcindustries.com; Fluka
http://www.sigma-aldrich.com; GFS†
http://www.gfschemicals.com
Haltermann GmbH†
http://www.haltermann-chemikalien.de; MPSI†
http://www.mp-solutionsinc.com; Mallinckrodt Baker
http://www.mallbaker.com; Noveon
Kalama†; Noveon
http://www.carbopol.com;
http://www.noveoncoatings.com
Optipure Chemco Ind.
http://www.optipure.com; Penta Mfg.†
http://www.pentamfg.com; Ruger†
http://www.rugerchemical.com; Sigma
http://www.sigma-aldrich.com/belgium;
Spectrum Quality Prods.†
http://www.spectrumchemical.com
Tilley http://www.tilleychem.com; Trigon
Chemie GmbH http://www.trigon-de.com;
Triple Crown Am.†
http://www.triplecrownamerica.com;
Universal Preserv-A-Chem†
http://www.upichem.com
V.L. Clark http://www.vlclark.com; Varsal
Instruments http://www.varsal.com;
Velsicol http://www.velsicol.com; Voigt
Westco http://www.westcochemicals.com
Trade Names: Probenz® PG

Potassium bicarbonate
CAS 298-14-6; EINECS/ELINCS 206-059-0
INS501(ii); E501
Synonyms: Acid potassium carbonate;
Carbonic acid monopotassium salt;
Monopotassium carbonate; Potassium acid carbonate; Potassium hydrogen carbonate
Classification: Inorganic salt
Empirical: CHKO3
Formula: KHCO3
Properties: Colorless prisms or wh. gran. powd., odorless, sl. salty taste; sol. 224 g/l in water (0

Handbook of Pharmaceutical Additives, Third Edition 1928
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS Number</th>
<th>Synonyms</th>
<th>Empirical</th>
<th>Formula</th>
<th>Properties</th>
<th>Toxicology</th>
<th>Uses</th>
<th>Regulatory</th>
<th>Manuf./Distrib.</th>
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</thead>
<tbody>
<tr>
<td><strong>Potassium bisulfite</strong></td>
<td><strong>CAS 7773-03-7</strong></td>
<td><strong>Potassium acid sulfite; Potassium hydrogen sulfite</strong></td>
<td><strong>HKO3S</strong></td>
<td><strong>KHSO3</strong></td>
<td>Wh. cryst. powd.; sulfur dioxide odor; sol. in water; insol. in alcohol; m.p. 190°C (dec.)</td>
<td>May cause allergic reactions incl. anaphylaxis</td>
<td>Antioxidant, preservative for pharmaceuticals, nebulizer sol'sns., parenterals, peritoneal dialysis sol'ns.; antiseptic</td>
<td>FDA 21CFR §182.3616 (not for use in meats), GRAS</td>
<td>Wm. Blythe Ltd <a href="http://www.wm-blythe.co.uk">http://www.wm-blythe.co.uk</a></td>
</tr>
<tr>
<td><strong>Potassium bitartrate</strong></td>
<td><strong>See Potassium acid tartrate</strong></td>
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<tr>
<td><strong>Potassium bromide</strong></td>
<td><strong>CAS 7758-02-3</strong></td>
<td><strong>Bromide salt of potassium; Tripotassium tribromide</strong></td>
<td><strong>BrK</strong></td>
<td><strong>KBr</strong></td>
<td>Colorless cubic crist.; sol. in water, glycerol, ether; sl. sol. in alcohol; m.w. 119.01; dens. 2.75; vapor pressure 1 mm Hg (795°C); m.p. 730°C; b.p. 1380°C; pH 5.5-8.5 (5%, 20°C)</td>
<td>LD50 (oral, rat) 3070 mg/kg, (IP, mouse) 1030 mg/kg; mod. toxic by ing. and IP routes; mild skin and eye irritant; large doses can cause CNS depression; prolonged inh. can cause skin eruptions; mutagenic data; TSCA listed</td>
<td></td>
<td>FDA 21CFR §173.315, 178.1010, 178.2010; BP, Ph.Eur. compliance; Canada DSL</td>
<td>Albemarle <a href="http://www.albemarle.com">http://www.albemarle.com</a>; Aldrich <a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a></td>
</tr>
</tbody>
</table>
### Chemical Component Cross-Reference

†=pharmaceutical grade

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</thead>
<tbody>
<tr>
<td>Potassium butyl 4-oxidobenzoate</td>
<td>American ash; Carbonate of potash; Carboxylic acid dipotassium salt; Dipotassium carbonate; Pearl ash; Potash; Potassium carbonate (2:1); Salt of tartar</td>
<td>Inorganic salt</td>
<td>CK$_2$O$_3$</td>
<td>Buffer in pharmaceuticals, orals, topicals</td>
<td>See Potassium butyl paraben</td>
<td>38566-94-8</td>
<td>254-009-1</td>
</tr>
<tr>
<td>Potassium butyl paraben</td>
<td>Synonyms: n-Butyl-4-hydroxybenzoate potassium salt; Butylparaben, potassium salt; Potassium butyl 4-oxidobenzoate</td>
<td></td>
<td>C$<em>{11}$H$</em>{14}$O•K</td>
<td>Preservative, bactericide, fungicide for pharmaceuticals</td>
<td>Nipabutyl Potassium</td>
<td>584-08-7</td>
<td>209-529-3</td>
</tr>
<tr>
<td>Potassium carbonate</td>
<td>Synonyms:</td>
<td>Inorganic salt</td>
<td>K$_2$CO$_3$</td>
<td>Buffer in pharmaceuticals, orals, topicals</td>
<td>See Potassium butyl paraben</td>
<td>584-08-7</td>
<td>209-529-3</td>
</tr>
</tbody>
</table>

### Properties

- **Wh. gran., translucent powd., odorless; alkaline taste; sol. in water; insol. in alcohol, acetone, glycerol; m.w. 138.20; dens. 2.428 (19 C); m.p. 891 C; b.p. dec.; noncombustible**
- **LD50 (oral, rat) 1870 mg/kg, (oral, mouse) 2570 mg/kg; poison by ing.; sol'ns. irritating to tissue; strong caustic; TSCA listed**
- **HMIS: Health 2, Flammability 0, Reactivity 0**
- **Storage:** Deliq., hygroscopic**
- **Uses:** Buffer in pharmaceuticals, orals, topicals

### Regulatory

- FDA 21CFR §73.85, 163.110, 163.111, 163.112, 172.560, 173.310, 184.1619, GRAS; USDA 9CFR §318.7; BATF 27CFR §240.1051; Canada DSL; Japan approved; Europe listed; UK approved; FDA approved for orals, topicals; USP/NF, BP, EP compliance

### Manuf./Distrib.

- AMRESCO†
- ASHTA
- Albemarle
- Albion Inorganic Chems.
- Alfa Aesar†
- Alfa Chem†
- Alloid China†
- Armand Prods.
- Ashland†
- Ashchem
- Asiamerica Int'l.†; BCH Brühl
- BassTech Int'l.
-巴斯科技 Int'l.
- Boith China†
- Charkit
- China Nat'l. Chem. Construction
- Church & Dwight
- Degussa AG/Health & Nutrition†; EMD
- EMD Chems.†
- Fluka
Chemical Component Cross-Reference

**Functional Foods†**

http://www.functionalfoods.com; GFS†
http://www.gfschemicals.com; Gallard-Schlesinger Ind.†
http://www.gallardschlesinger.com; Harcros
http://www.harcroschem.com; ICC Ind.
http://www.iccchem.com

Independent Chem.
http://www.independentchemical.com;
Integra† http://www.integrachem.com;
Lohmann http://www.lohmannchemikalien.de;
Mallinckrodt Baker†
http://www.mallbaker.com;
Mutchler†
http://www.mutchlerchem.com
Noah http://www.noahtech.com;
Occidental http://www.oxychem.com;
Penta Mfg.†
http://www.pentamfg.com;
Peter Whiting Ltd http://www.whiting-chemicals.co.uk;
Ruger†
http://www.rugerchemical.com
Sigma http://www.sigma-aldrich.com/belgium;
Spectrum Quality Prods.†
http://www.spectrumchemical.com;
Technichem
http://www.arrowtechnichem.com; Thomas Scientific†
http://www.thomasscifi.com;
Universal Preserv-A-Chem†
http://www.upichem.com
VWR Int'l.† http://www.vwrsp.com; Varsal Instruments
http://www.varsal.com; Voigt
Global Distrib.† http://www.vgdllc.com

**Potassium chloride**

CAS 7447-40-7; EINECS/ELINCS 231-211-8 INS508; E508

Synonyms: Chloropotassuril; Dipotassium dichloride; Muriate of potash; Potassium monochloride; Potassium muriate; Tripotassium trichloride

Classification: Inorganic salt

**Empirical:** CIK

**Formula:** KCl

**Properties:** Colorless to wh. crystals or powd., odorless, saline taste at low concs.; sol. in water, glycerin; sl. sol. in alcohol; insol. in abs. alcohol, ether, acetone; m.w. 74.55; dens. 1.987; m.p. 773 C (sublimes 1500 C); pH 7

**Toxicology:** LD50 (oral, rat) 2600 mg/kg, (IP, rat) 660 mg/kg, (IV, rat) 142 mg/kg; poison by ing., IV, and IP routes; mod. toxic by subcut. route; human poison by ing.; eye irritant; human systemic effects by ing. (nausea, blood clotting changes, arrhythmias); mutagenic data; TSCA listed

**Precaution:** Explosive reaction with BrF3; + potassium permanganate

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of K2O and Cl−

**NFPA:** Health 2, Flammability 0, Reactivity 0

**Storage:** Hygroscopic; store @ R.T.

**Uses:** Tonicity agent, flavor, sodium reduction aid, nutrient replacement in pharmaceuticals, injectables, parenterals, ophthalmics, orals, extended-release capsules

**Regulatory:** FDA 21CFR §150.141, 150.161, 166.110, 184.1622, GRAS, 201.306; USP/NF, BP, EP compliance

**Manuf./Distrib.:** AMRESCO†

http://www.amresco-inc.com; Agrium
http://www.agrium.com; Aldrich†
http://www.sigma-aldrich.com; Alfa Aesar†
http://www.sigma-aldrich.com; Alfa Chem†
http://www.alfachem1.com
Chemical Component Cross-Reference

Am. Ingreds.† http://www.americaningredients.com; Am.
Int'l.† http://www.aicma.com; Ashland†
http://www.ashchem.com; Asiamerica
Int'l.†; Atomergic Chemetals†
http://www.atomergic.com
Aventis Pharmaceuticals†
http://www.aventispharma-us.com;
Brenntag (UK) Ltd†
http://www.brenntag.co.uk; Camida Ltd†
http://www.camida.com; CharKit
http://www.charkit.com; Chemacon GmbH†
http://www.chemacon.de
Crystran Ltd http://www.crystran.co.uk;
Degussa AG/Health & Nutrition; EMD
Chems.† http://www.emdchemicals.com;
Fluka http://www.sigma-aldrich.com
Fortitech† http://www.fortitech.com
Forum Bioscience†
http://www.forum.co.uk; Functional Foods†
http://www.functionalfoods.com; GFS†
http://www.gfschemicals.com; Galbraith
Labs† http://www.galbraith.com; Gallard-
Schlesinger Ind.† http://www.gallard-
schlesinger.com
General Chem.
http://www.genchemcorp.com; Heico
http://www.rutherfordchemicals.com;
Independent Chem.
http://www.independentchemical.com;
Integra† http://www.integrachem.com;
Klinge Chems.† http://www.klinge-
chemicals.co.uk; Kraft Chem.†
http://www.kraftchemical.com; Lohmann†
http://www.lohmann-chemikalien.de;
Magnesia GmbH† http://www.magnesia.de;
Mallinckrodt Baker† http://www.mallbaker.com
Merck KGaA† http://www.merck.de; Morre-
Tec Ind. http://www.morretec.com; Morton
Int'l.† http://www.morton.com;
http://www.rohmhaas.com; Mutchler†
http://www.mutchlerchem.com; Noah
http://www.noahtech.com
O.C. Lugo http://www.oclugo.com; Penta
Mfg.† http://www.pentamfg.com; R.W.
Greeff† http://www.pechiney-
chemicals.com; Reheis†
http://www.reheis.com; Robeco
http://www.robecoinc.com
Ruger† http://www.rugerchemical.com; Sal
Chem. http://www.salchem.com; Sigma
http://www.sigma-aldrich.com/belgium;
Spectrum Quality Prods.†
http://www.spectrumchemical.com;
Thomas Scientific†
http://www.thomasssci.com
Tomita Pharmaceutical†
http://www.tomitaph.co.jp; Ubichem plc†
http://www.ubichem.com; Univar Ltd†
http://www.univar.co.uk; Universal Preserv-
A-Chem† http://www.upichem.com; VWR
Int'l.† http://www.vwrsp.com
Voigt Global Distrib.†
http://www.vgdllc.com

Trade Names: Standard KCl; Superfine KCl
Trade Names Containing: Gelcarin® DG 3252

Potassium citrate
CAS 866-84-2 (anhyd.); 6100-05-6
(monohydrate); EINECS/ELINCS 212-755-5;
231-905-0 (monohydrate)
INS332(ii); E332

Synonyms: Citric acid, tripotassium salt; 2-
Hydroxy-1,2,3-propanetricarboxylic acid, tripotassium salt; Potassium citrate tertiary
1,2,3-Propanetricarboxylic acid, 2-hydroxy,
tripotassium salt; Tripotassium citrate;
Tripotassium citrate monohydrate;
Tripotassium 2-hydroxypropane-1,2,3-
tricarboxylate

Classification: Nonaromatic acid salt

Definition: Potassium salt of citric acid

Empirical: C₆H₅O₇ • 3K (anhyd.); C₆H₅K₃O₇ •
H₂O (monohydrate)

Properties: Colorless or wh. cryst. or powd.,
odorless, cooling saline taste; sol. in water,
glycerol; insol. in alcohol; m.w. 306.41
(anhyd.), 324.42 (monohydrate); dens. 1.98;
dec. 230 C; pH 8.5; loses water of cryst. @
180 C, dec. @ 230 C

Toxicology: LD50 (IV, dog) 167 mg/kg; poison
by IV route; TSCA listed

Hazardous Decomp. Prods.: Heated to
decomp., emits toxic fumes of K₂O, acrid
smoke and irritating fumes

Storage: Deliq.; hygroscopic

Uses: Potassium and citrate source, buffer,
antacid in pharmaceuticals, orals,
extended-release tablets; antiurolithic;
urinary alkalizer; buffer, chelating agent in
oral care

Regulatory: FDA 21CFR §133.169, 133.173,
133.179, 150.141, 150.161, 175.300, 181.29,
184.1625, GRAS; USDA 9CFR §318.7;
Canada DSL; BATF 27CFR §240.1051
(limitation 25 lb/1000 gal wine); Japan
Potassium citrate tertiary. See Potassium citrate

Potassium cocoate
CAS 61789-30-8; EINECS/ELINCS 263-049-9
Synonyms: Coco fatty acids, potassium salts; Coconut acid, potassium salt; Coconut oil acids, potassium salts; Fatty acids, coconut oil, potassium salts; Fatty acids, coco, potassium salts; Potassium cocoanlate
Definition: Potassium salt of coconut acid
Properties: Anionic
Toxicology: TSCA listed
Uses: Surfactant, emulsifier, detergent, foaming agent in medicinal soaps
Features: Flash foamer
Regulatory: FDA 21CFR §175.105, 176.170, 176.200, 177.1200, 177.2600, 177.2800, 178.3910; Canada DSL
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk

Potassium coconate. See Potassium cocoate

Potassium dihydrogen orthophosphate; Potassium dihydrogen phosphate. See Potassium phosphate

Potassium dimethicone copolyol phosphate
CAS 150522-09-1
Definition: Potassium salt of dimethicone copolyol phosphate
Uses: Humectant, o/w emulsifier for pharmaceuticals, topicals
Trade Names: Pecosil® PS-100K
Chemical Component Cross-Reference

Potassium diphasphate. See Potassium phosphate

Potassium disulfite. See Potassium metabisulfite

Potassium ethyl 4-oxidobenzoate. See Potassium ethylparaben

Potassium ethylparaben
CAS 36457-19-9; EINECS/ELINCS 253-048-1
Synonyms: Ethyl-4-hydroxybenzoate potassium salt; Ethylparaben, potassium salt; Potassium ethyl 4-oxidobenzoate
Definition: Potassium salt of ethylparaben
Empirical: C9H10O3 • K
Uses: Preservative, fungicide, bactericide for pharmaceuticals
Manuf./Distrib.: Somerset Cosmetic Co.
http://www.makingcosmetics.com/

Potassium gluconate.
See Potassium D-gluconate

Potassium D-gluconate
CAS 299-27-4; EINECS/ELINCS 206-074-2
INS577; E577
Synonyms: D-Gluconic acid monopotassium salt; Gluconic acid potassium salt; D-Gluconic acid potassium salt; Monopotassium D(-)-pentahydroxy capronate; Potassium gluconate; Potassium pentahydroxycaproinat 
Potassium gluconate

Synonyms:
1,2,3-Propanetriol, monophosphate, dipotassium salt
Empirical: C3H7K2O6P
Formula: HOCH2(CHOH)3COO−K+
Properties: Wh. or ylsh. fine powd., odorless, sl. bitter taste; sol. in water, glycerin; insol. in alcohol, ether, chloroform, benzene; m.w. 234.3; m.p. 180 C (dec.)
Toxicology: LD50 (oral, rat) 10,380 mg/kg, (IP, rat) 2664 mg/kg, (subcut., rat) 9650 mg/kg; mod. toxic by IP route; mildly toxic by ing.; TSCA listed
Precaution: Avoid dust formation
Hazardous Decomp. Pros.: Heated to decom., emits toxic fumes of K2O
Uses: Mineral source, potassium carrier, nutrient, dietary supplement for pharmaceuticals, tablets, vitamin tablets
Regulatory: USDA 9CFR §318.7; Europe listed; UK approved; Canada DSL
Manuf./Distrib.: AAA Int'l.
htp://www.aaainternational.com; AB R Lundberg
http://www.norfoods.se/lundberg; Adept

†=pharmaceutical grade

Sol'n's. †: Akzo Nobel
http://www.akzonobel.com; Aldrich
http://www.sigma-aldrich.com
Alfa Chem † http://www.alfachem1.com;
Am. Int'l. † http://www.acma.com; Amerol
http://www.amerolcorp.com; Ashland †
http://www.ashchem.com; Asiamerica Int'l. †
Chemacon GmbH †
http://www.chemacon.de; Fluka
http://www.sigma-aldrich.com; Fortitech †
http://www.fortitech.com; Functional
Foods † http://www.functionalfoods.com;
Gallard-Schlesinger Ind. †
http://www.gallard-schlesinger.com
Generalchem † http://www.generichem.com;
Glucona Am. †; Jungbunzlauer †
http://www.jungbunzlauer.com; Lohmann
http://www.lohmman-chemikalien.de;
Mutchler † http://www.mutchlerchem.com
Penta Mfg. † http://www.pentamfg.com;
R.W. Greeff † http://www.pechinerychemicals.com; RIA Int'l. †
http://www.riausa.com; Roquette †
http://www.roquette.fr; Ruger †
http://www.rugerchemical.com
Shan Par Ind. † http://www.shanpar.com;
Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality
Prods. † http://www.spectrumchemical.com; Tomita
Pharmaceutical †
http://www.tomitaph.co.jp; Universal
V.L. Clark http://www.vlclark.com; Voigt
Global Distrib. † http://www.vgdllc.com; Zetapharm †
http://www.zetapharm.com

Trade Names: Gluconal® K-G

Potassium glycerophosphate
CAS 1319-69-3 (anhyd.); 1319-70-6; 1335-34-8;
EINECS/ELINCS 215-291-1
Synonyms: 1,2,3-Propanetriol, monophosphate, dipotassium salt
Empirical: C3H7K2O6P (anhyd.); C3H7K2O6P • 3H2O (trihydrate)
Properties: Pale yel. syrupy liq.; sol. in water; m.w. 248.27 (anhyd.)
Toxicology: LD50 (IP, rat) 935 mg/kg, (IV, rat) 286 mg/kg; poison by IV route; mod. toxic by IP route; TSCA listed
Hazardous Decomp. Pros.: Heated to decom., emits acrid smoke and irritating fumes
Uses: Dietary supplement, nutrient in...
Chemical Component Cross-Reference

potassium-2,4-hexadienoate.  See potassium sorbate
Potassium hydride.  See potassium hydroxide
Potassium hydrogen carbonate.  See potassium bicarbonate
Potassium hydrogenperoxomonosulfate.  See potassium caroate
Potassium hydrogen sulfite.  See potassium bisulfite
Potassium hydrogen tartrate.  See potassium acid tartrate
Potassium hydroxide

CAS 1310-58-3; EINECS/ELINCS 215-181-3
UN 1813 (DOT); UN 1814 (DOT); INS525; E525
Synonyms: Caustic potash; Lye; Potash lye; Potassa; Potassium hydroxide
Classification: Inorganic base
Empirical: HKO
Formula: KOH
Properties: Wh. flakes, lumps or pellets; sol. in water, alcohol, glycerol; sl. sol. in ether; m.w. 56.11; dens. 2.044; m.p. 405 C; b.p. 1320 C
Toxicology: ACGIH TLV/ICL 2 mg/m3; LD50 (oral, rat) 365 mg/kg; toxic by ing., inh.; strong caustic; eye and severe human skin irritant; ing. may cause violent throat pain and stricture of esophagus; mutagenic data; TSCA listed
Precaution: DOT: Corrosive material; releases heat in contact with water and acids; corrodes many metals when wet; violent exothermic reactions with water; potentially explosive reactions with chlorine dioxide, nitrobenzene, nitromethane
Hazardous Decomp. Pros.: Heated to decomp., emits toxic fumes of K2O; above

†=pharmaceutical grade

84 C reacts with reducing sugars to form CO
NFPA: Health 3, Flammability 0, Reactivity 1
Storage: Highly deliq.; hygroscopic
Uses: Alkalizer in pharmaceuticals, intravenous, parenterals, orals, topicals; caustic for wart removal; cuticle solvent; in escharotic preps.
Regulatory: FDA 21CFR §73.85, 163.110, 163.111, 163.112, 172.841, 175.210, 176.180, 176.210, 177.1600, 177.2800, 184.1631, GRAS; USDA 9CFR §381.147; Canada DSL; Europe listed; UK approved; FDA approved for intravenous, parenterals, orals, topicals; USP/NF, BP, EP, JP compliance

Manuf./Distrib.: AMRESCO†
http://www.amresco-inc.com; ASHTA
http://www.ashtachemicals.com; Albemarle
http://www.albemarl.com; Aldrich†
http://www.sigma-aldrich.com; Alfa Aesar†
http://www.alfa.com
Alfa Chem† http://www.alfachem1.com;
Amyl http://www.amyl.com; Arch Chems.
http://www.archchemicals.com; Ashland†
http://www.ashchem.com; Asiamerica Int'l.†
BCH Brühl http://www.bch-bruehl.de;
Borden & Remington
http://www.boremco.com/; Charkit
http://www.charkit.com; Degussa AG/Health & Nutrition; EMD Chems.
http://www.emdchemicals.com
Fluka http://www.sigma-aldrich.com; GFS†
Hydrite http://www.hydrite.com; Integra†
http://www.integratechn.com
K3 http://k3corp.com/; Mallinckrodt Baker†
http://www.mallbaker.com; Occidental
http://www.oxychem.com; Penta Mfg.†
http://www.pentamfg.com; Phoenix Nat.
Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality
Prods.† http://www.spectrumchemical.com
Thomas Scientific†
http://www.thomassci.com; Universal
Preserv-A-Chem†
http://www.upichem.com; VWR Int'l.†
http://www.vwrsp.com; Voigt Global Distrib.
http://www.vgdllc.com; Vulcan Chems.
http://www.vulcanmaterials.com/vc.asp
Chemical Component Cross-Reference

Potassium 2-hydroxybenzoate. See Potassium salicylate

Potassium α-hydroxypropionate; Potassium-L-2-hydroxypropionate. See Potassium lactate

Potassium iodate
CAS 7758-05-6; EINECS/ELINCS 231-831-9

Synonyms: Iodic acioidic acid, potassium salt
Empirical: \( \text{IKO}_3 \)
Formula: \( \text{KIO}_3 \)

Properties: Colorless cryst. or wh. cryst. powd.; sol. in water; insol. in alcohol; m.w. 214.00; dens. 3.89; m.p. 560 C; slow decomp. on heating

Toxicology: LD50 (IP, mouse) 136 mg/kg; LDLo (oral, mouse) 531 mg/kg; poison by ing., IP routes; TSCA listed

Precaution: Violent reaction with organic matter; explosive reactions possible

Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of \( \text{I}^- \) and \( \text{K}_2\text{O} \)

HMIS: Health 1, Flammability 0, Reactivity 3

Uses: Medicine (topical antiseptic)

Regulatory: BP compliance; FDA 21CFR §136.110, 184.1635, 582.80, GRAS; Canada DSL

Manuf./Distrib.: AMRESCO†
http://www.amresco-inc.com; Aceto†
http://www.aceto.com; Aldrich†
http://www.sigma-aldrich.com; Alfa Aesar†
http://www.alfa.com; Alfa Chem†
http://www.alfachem1.com
Allan http://www.allianchem.com; Am. Int'l.†
http://www.aiacman.com; Asiameirca Int'l.†; Atomergic Chemetals
http://www.atomergic.com; Clariant†
http://www.clariant.com;
http://www.clariant-northamerica.com
Clariant/Functional Chems.
http://www.fun.clariant.com; Dastech Int'l.†
http://www.dastech.com; Degussa
AG/Health & Nutrition; Fluka
http://www.sigma-aldrich.com; Fortitech†
http://www.fortitech.com
GFS† http://www.gfchemicals.com;
Integra† http://www.integrachem.com;
Mallinckrodt Baker†
http://www.mallbaker.com; Mutchler†
http://www.mutchlerchem.com; Noah
http://www.noahchemical.com

†=pharmaceutical grade

R.W. Greeff† http://www.pechinery-chemicals.com; RIA Int'l.†
http://www.riausa.com; Robeco†
http://www.robecoinc.com; Ruger
http://www.rugerchemical.com; Sigma
http://www.sigma-aldrich.com/belgium
Spectrum Quality Prods.,†
http://www.spectrumchemical.com;
Thomas Scientific†
http://www.thomassci.com; Universal
Preserv-A-Chem†
http://www.upichem.com; VWR Int'l.†
http://www.vwrsp.com; Voigt Global Distrib.
http://www.vgdllc.com
Wm. Blythe Ltd http://www.wm-blythe.co.uk

Potassium iodide. See Potassium iodine

Potassium iodine
CAS 7681-11-0; EINECS/ELINCS 231-659-4

Synonyms: Potassium iodide
Classification: Inorganic salt
Definition: Potassium salt of hydriodic acid
Empirical: \( \text{KI} \)
Formula: \( \text{KI} \)

Properties: Colorless to wh. cryst. granules or powd.; odorless; strong bitter saline taste; sol. in water, alcohol, acetone, glycerol, oxygenated solvs.; m.w. 166.02; dens. 3.123; m.p. 723 C; b.p. 1420 C; pH 7-9

Toxicology: LDLo (oral, mouse) 1862 mg/kg, (IV, rat) 167 mg/kg; Iodine salts can cause deformity, illness, and death of a fetus; may cause eye and skin irritation; ing. causes GI irritation with nausea, vomiting and diarrhea; inh. may cause respiratory tract irritation; chronic exposure can lead to iodism; TSCA listed

Environmental: Moderate potential to affect aquatic organisms

Precaution: Explosive reaction with charcoal + ozone; incompat. with oxidants, BrF3, FCIO, metallic salts

Hazardous Decomp. Prods.: Oxides of potassium, iodine; Heated to decomp., emits very toxic fumes of \( \text{K}_2\text{O} \) and \( \text{I}^- \)

Storage: Sl. hygroscopic; moisture- and light-sensitive; store @ R.T.

Uses: Source of dietary iodine in pharmaceuticals; antiseptic

Regulatory: FDA 21CFR §100.155, 172.375, 178.1010, 184.1634, 582.80, GRAS; BP, EP compliance; Canada DSL

Manuf./Distrib.: AMRESCO†
Chemical Component Cross-Reference

†=pharmaceutical grade

West Agro http://www.westagro.com;
Whyte Chems. Ltd
http://www.whychemicals.co.uk; Wm.
Blythe Ltd http://www.wm-blythe.co.uk;
Xinchem† http://www.finechemnet.com

Trade Names Containing: Punctilious® SDA 25A-1 190 Proof

Potassium isothiocyanate. See Potassium thiocyanate

Potassium Kurrol’s salt. See Potassium metaphosphate

Potassium lactate
CAS 996-31-6; EINECS/ELINCS 213-631-3; 288-752-8
INS326; E326

Synonyms: Lactic acid, monopotassium salt;
Monopotassium 2-hydroxypropanoate acid;
Potassium α-hydroxypropionate;
Potassium-L-2-hydroxypropionate;
Propanoic acid, Z-hydroxy-, monopotassium salt

Definition: Potassium salt of lactic acid

Empirical: C3H5KO3
Formula: CH3CHOHCOOK

Properties: Wh. solid, odorless; m.w. 128.17

Toxicology: Eye irritant; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Storage: Hygroscopic

Uses: Humectant, antimicrobial, preservative for pharmaceuticals

Regulatory: FDA 21CFR §184.1639, GRAS; not authorized for infant formulas; Europe listed;
UK approved; Canada DSL

Manuf./Distrib.: AB R Lundberg
http://www.norfoods.se/lundberg; Degussa AG/Health & Nutrition; FBC Ind.
http://www.fbcindustries.com; Ferro Pfanstiehl Europe†; Ferro Pfanstiehl Labs†
http://www.pfanstiehl.com
GFS† http://www.gfschemicals.com;
Generichem† http://www.generichem.com;
Integra† http://www.integrachem.com;
Lohmann http://www.lohmann-chemikalien.de; PURAC Am.†
http://www.purac.com
Premium Ingreds.
http://www.premiumingredients.com;
Reliable Biopharmaceutical†
http://www.reliablebiopharm.com; Universal
Chemical Component Cross-Reference

Preserv-A-Chem†
http://www.upichem.com; Wilke Int’l.
http://www.wilkeinternational.com

Trade Names: Purasal® HiPure P

Potassium metabisulfite
CAS 4429-42-9; 16731-55-8; EINECS/ELINCS 240-795-3
UN NA 2693 (DOT); INS224; E224
Synonyms: Dipotassium disulfite; Dipotassium pyrosulfite; Disulfurous acid dipotassium salt; KMS; Potassium disulfite; Potassium pyrosulfite
Classification: Inorganic salt
Empirical: K₂O₅S₂
Formula: K₂S₂O₅
Properties: Colorless to wh. gran. or powd., pungent sharp odor; sol. in water, insol. in alcohol; m.w. 222.32; dens. 2.3; m.p. > 300 C; dec. at 150-190 C; oxidizes in air and moisture to sulfate
Toxicology: TDLo (oral, rat) 35 g/kg; low toxicity; irritant; experimental tumorigen, reproductive effects; mutagen; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of SOx and K₂O
HMIS: Health 1, Flammability 0, Reactivity 2
Storage: Moisture-sensitive; keep dry and well closed
Uses: Antiseptic, preservative, antioxidant in pharmaceuticals, injectables, parenterals, intravenous, otics, rectals
Regulatory: FDA approved for injectables, parenterals, intravenous, otics, rectals; USP/NF compliance; Canada DSL
Manuf./Distrib.: Aldrich† http://www.sigma-aldrich.com; Allchem Ind.
http://www.allchem.com; Am. Int’l.† http://www.aicma.com; BASF
http://www.basf.com; Charkit
http://www.charkit.com
FMC Foret http://www.fmeforet.com; Fluka http://www.sigma-aldrich.com; Fuerst Day
Lawson http://www.fdl.co.uk; GFS† http://www.gfchemicals.com; ICC Ind.
http://www.iccchem.com
Integra† http://www.integrachem.com;

†=pharmaceutical grade

Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality Prods.† http://www.spectrumchemical.com;
Thomas Scientific† http://www.thomassci.com; Universal

Potassium metaphosphate
CAS 7790-53-6; EINECS/ELINCS 232-212-6
Synonyms: Metaphosphoric acid potassium salt; Monopotassium metaphosphate; Potassium Kurrol’s salt; Potassium polymetaphosphate
Classification: Mineral salt
Definition: Straight-chain polyphosphate
Empirical: KO₃P
Formula: KPO₃
Properties: Wh. powd., odorless; sol. in dil. sodium salt sol’ns.; pract. insol. in water; m.w. 118.07; dens. 2.45; m.p. 807 C
Toxicology: Nuisance dust
Storage: Store in cool, dry place; protect against moisture
Uses: Buffer in pharmaceuticals, orals; microencapsulation systems
Regulatory: FDA approved for orals; USP/NF compliance; Japan approved; Canada DSL
Manuf./Distrib.: BK Giulini Chemie http://www bk-giulini.com/e-index1.htm;
Spectrum Quality Prods.
http://www.spectrumchemical.com

Trade Names Containing: Lipothix™ 100-B; Lipothix™ 200-S

Potassium 6-methyl-1,2,3-oxathiazine-4(3H)-1,2,2-dioxide. See Acesulfame potassium

Potassium methylparaben
CAS 26112-07-2; EINECS/ELINCS 247-464-2
Synonyms: 4-Hydroxybenzoic acid, methyl ester, potassium salt; Methylparaben, potassium salt
Definition: Potassium salt of methylparaben
Empirical: C₆H₉O₃ • K
Uses: Preservative, bactericide, fungicide in pharmaceuticals
Manuf./Distrib.: Somerset Cosmetic Co.
http://www.makingcosmetics.com/

Potassium monochloride; Potassium muriate. See Potassium chloride

Potassium octadecanoate. See Potassium
Chemical Component Cross-Reference

stearate
Potassium 9-octadecenoate; Potassium cis-9-octadecenoic acid. See Potassium oleate

Potassium oleate
CAS 143-18-0; EINECS/ELINCS 205-590-5
INS 470; E470a
Synonyms: 9-Octadecenoic acid, potassium salt; 9-Octadecenoic acid (Z)-, potassium salt; Oleic acid potassium salt; Potassium 9-octadecenoate; Potassium cis-9-octadecenoic acid
Definition: Potassium salt of oleic acid
Empirical: C18H33O2 • K
Formula: CH3(CH2)7CH=CH(CH2)7COOK
Properties: Ylsh., gray-tan, or brownish paste; sol. in water, alcohol; m.w. 320.56; HLB 20.0; anionic
Toxicology: Eye irritant; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decom., emits toxic fumes of K2O
Uses: Surfactant, emulsifier
Regulatory: FDA 21CFR §172.863, 175.105, 175.300, 176.170, 176.200, 176.210, 177.1200, 177.2260, 177.2600, 177.2800, 178.3910, 181.22, 181.29; Canada DSL
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk; Aldrich
http://www.sigma-aldrich.com; Avatar†
http://www.avatarcorp.com; Concord
http://www.concordchemical.com; Fluka
http://www.sigma-aldrich.com
Independent Chem.
http://www.independentchemical.com;
Norman, Fox http://www.norfoxx.com;
Original Bradford Soap Works
http://www.bradfordssoap.com; Viva
http://www.sodiumstearate.com
Trade Names: Nofable BO-90K; Nofable BO-99K

Potassium orthophosphate. See Potassium phosphate

Potassium PCA
CAS 4810-50-8; EINECS/ELINCS 225-373-9
Synonyms: L-Proline, 5-oxo-, monopotassium salt
Definition: Potassium salt of PCA
Empirical: C5H7NO3 • K
Formula: CH3(CH2)7CH=CH(CH2)7COOK
Properties: Sol. in water; m.w. 167.2
Toxicology: Very sl. irritating to eyes; nonirritant to skin
Uses: Moisturizer for dermatological soaps
Trade Names: Kalidone®
Chemical Component Cross-Reference

Int'l.† http://www.dastech.com; Fluka http://www.sigma-aldrich.com
Trade Names: Cairox® Potassium Permanganate USP Grade

Potassium peroxydisulfate; Potassium peroxydisulfate. See Potassium persulfate

Potassium persulfate
CAS 7727-21-1; EINECS/ELINCS 231-781-8
UN 1492 (DOT); INS922
Synonyms: Dipotassium persulfate; Peroxydisulfuric acid dipotassium salt; Potassium peroxydisulfate; Potassium peroxydisulfate
Empirical: $\text{K}_2\text{O}_8\text{S}_2$
Formula: $\text{K}_2\text{S}_2\text{O}_8$
Properties: Colorless or wh. cryst., odorless; sol. in 50 parts water with gradual decomp.; insol. in alcohol; m.w. 270.33; dens. 2.477; m.p. 100 C (dec.)
Toxicology: ACGIH TLV/TWA 5 mg(S$_2$O$_5$)/m$^3$; mod. toxic; irritant; allergen; TSCA listed
Precaution: Powerful oxidizer; flamm. when exposed to heat or by chemical reaction; reactive with reducing materials; liberates oxygen above 100 C (dry), 50 C (sol'n.)
Hazardous Decomp. Prods.: Heated to decomp., emits highly toxic fumes of SO$_x$ and K$_2$O
Storage: Keep well closed in cool place
Uses: Oxidizing agent in pharmaceuticals; antiseptic

†=pharmaceutical grade

Regulatory: FDA 21CFR §172.210, 175.105, 175.210, 176.170, 177.1210, 177.2600; USDA 9CFR §381.147; Canada DSL


Potassium phosphate
CAS 7778-77-0; EINECS/ELINCS 231-913-4 INS340(i)
Synonyms: MKP; Monopotassium orthophosphate; Monopotassium phosphate; Phosphoric acid monopotassium salt; Potassium acid phosphate; Potassium biphosphate; Potassium dihydrogen orthophosphate; Potassium dihydrogen phosphate; Potassium diphosphate; Potassium orthophosphate; Potassium phosphate monobasic; Potassium phosphate primary
Classification: Inorganic salt
Empirical: $\text{H}_2\text{K}_2\text{O}_4\text{P}$
Formula: $\text{H}_2\text{O}_4\text{P} \cdot \text{K}$
Properties: Colorless cryst. or wh. cryst. powd., odorless; acid in reaction; sol. in water; insol. in alcohol; m.w. 136.09; dens. 2.338; m.p. 253 C; pH 4.5 (1%); stable in air; anionic
Toxicology: No known toxicity; nuisance dust
Precaution: Corrosive
HMIS: Health 1, Flammability 0, Reactivity 0
Storage: Hygroscopic; store @ R.T.
Uses: Buffer, sequestrant in pharmaceuticals,
### Chemical Component Cross-Reference

**injectables, parenterals, intravenous, ophthalmics, orals, otics; nutrient in antibiotic prod.; urinary acidifier**

**Regulatory:** FDA 21CFR §101.9, 160.110, 175.105; USDA 9CFR §318.7, 381.147; Japan approved; Europe listed; UK approved; FDA approved for injectables, parenterals, intravenous, ophthalmics, orals, otics; USP/NF, BP, EP compliance; Canada DSL

**Manuf./Distrib.:** AB R Lundberg

**Potassium phosphate dibasic**

CAS **7758-11-4** (anhyd.); **16788-57-1** (trihydrate); EINECS/ELINCS **231-834-5**

**INS340(ii)**

**Synonyms:** Dibasic potassium phosphate; Dipotassium hydrogen orthophosphate; Dipotassium hydrogen phosphate; Dipotassium monophosphate; Dipotassium orthophosphate; Dipotassium phosphate; DKP; Phosphoric acid dipotassium salt

**Classification:** Inorganic salt

**Empirical:** HK$_2$O$_4$P

**Formula:** K$_2$HPO$_4$

**Properties:** Colorless or wh. cryst. or powd.; odorless; sol. in water; sl. sol. in alcohol; m.w. 174.18 (anhyd.), 228.23 (trihydrate); pH 8.5-9.6 (5%)

**Toxicology:** No known toxicity; nuisance dust

**Hazardous Decomp. Prods.:** Phosphorous oxides may be released in fire

**HMIS:** Health 1, Flammability 0, Reactivity 0

**Storage:** Deliq., hygroscopic; store @ R.T.

**Uses:** Buffer, sequestrant in pharmaceuticals, intramuscular injectables, orals; urinary acidifier; nutrient in antibiotic prod.

**Regulatory:** FDA 21CFR §73.85, 133.169, 133.173, 133.179, 175.105, 182.6285, GRAS; USDA 9CFR §318.7, 381.147; FDA approved for intramuscular injectables, orals; Canada DSL; Europe listed; UK approved; Japan approved

**Manuf./Distrib.:** AB R Lundberg

**†=pharmaceutical grade**
Potassium phosphate monobasic. See Potassium phosphate primary.

Potassium polyanunnuronate. See Potassium alginate

Potassium polymetaphosphate. See Potassium polyphosphate

Potassium propylparaben
CAS 84930-16-5; EINECS/ELINCS 284-597-5
Synonyms: Potassium propyl 4-oxidobenzoate; Propylparaben, potassium salt

Definition: Potassium salt of propylparaben
Empirical: C_{10}H_{12}O_{3} • K
Uses: Preservative for pharmaceuticals
Manuf./Distrib.: Somerset Cosmetic Co.

Potassium sodium copper chlorophyllin. See Chlorophyllin-copper complex

Potassium sodium tartrate
CAS 304-59-6; EINECS/ELINCS 206-156-8
INS 337
Synonyms: 2,3-Dihydroxybutanedioic acid, monopotassium monosodium salt; Monopotassium monosodium tartrate; Potassium sodium L-(+)-tartrate; Potassium sodium tartrate anhydrous; Rochelle salt; Seignette salt; Sodium potassium tartrate
Classification: Organic salt
Definition: Sodium potassium salt of L-tartaric acid; avail. as the tetrahydrate
Empirical: C_{4}H_{4}KNaO_{6}
Formula: KNaC_{4}H_{4}O_{6}
Properties: Colorless cryst. or wh. cryst. powd., cooling saline taste; freely sol. in water; pract. insol. in alcohol; m.w. 210.16
Toxicology: TSCA listed
HMIS: Health 1, Flammability 1, Reactivity 0
Uses: Cathartic
Regulatory: BP, EP compliance; FDA 21 CFR §133.169, 133.173, 133.179, 150.141, 150.161, 184.1804; Europe listed; UK approved; Canada DSL
Chemical Component Cross-Reference

Potassium sodium L-(+)-tartrate; Potassium sodium tartrate anhydrous. See Potassium sodium tartrate

Potassium sodium tartrate tetrahydrate
CAS 6100-16-9; 6381-59-5; EINECS/ELINCS 205-698-2; 206-156-8

INS337
Synonyms: Monopotassium monosodium tartrate tetrahydrate; Rochelle salt; Seignette salt; Sodium potassium tartrate
Empirical: C₇H₂₆KO₆ • 4H₂O
Formula: KOOC(OH)CH(OH)COONa • 4H₂O
Properties: Colorless cryst. or wh. cryst. powd., cooling saline taste; sol. in 0.9 part water; almost insol. in alcohol; m.w. 282.23; dens. 1.79; m.p. 70-80 C; loses 3 H₂O @ 100 C, becomes anhyd. @ 130-140 C, dec. @ 220 C; pH 7-8
Precaution: Incomp. with acids, calcium or lead salts, magnesium sulfate, silver nitrate
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of K₂O
Storage: Light-sensitive
Uses: Cathartic in medicine
Regulatory: FDA 21CFR §133.118, 133.123, 133.124, 133.169, 133.173, 133.179, 133.187, 133.188, 150.141, 150.161, 166.110, 182.90, 182.3640, GRAS; USDA 9CFR §318.7; BATF 27CFR §240.1051; Canada DSL; FEMA GRAS, CIR approved; Japan approved with limitations; JSCI approved 0.5% max.; Europe listed 0.8% max.; FDA approved for orals, topicals; USP/NF, BP, EP compliance
Manuf./Distrib.: AAA Int'l.
http://www.aaainternational.com; AB R Lundberg
http://www.norfoods.se/lundberg; AD Int'l.

Empirical: C₆H₇O₂ • K
Formula: CH₃CH=CHCH=CHCOOK
Properties: Wh. cryst., powd., or pellets, char. odor; sol. 58.2% in water @ 20 C, 6.5% in alcohol @ 20 C; m.w. 150.23; dens. 1.363 (25/20 C); m.p. 270 C (dec.)
Toxicology: LD50 (oral, rat) 4920 mg/kg, (IP, mouse) 1300 mg/kg; mod. toxic by IP route; mildly toxic by ing.; skin irritant; mutagenic data; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of K₂O
Storage: Light-sensitive
Uses: Mold and yeast inhibitor in aq. sol'ns.; antimicrobial, preservative in pharmaceuticals, orals, topicals; hard/rigid gas-permeable lens prods.; OTC drug active
Regulatory: FDA 21CFR §133.118, 133.123, 133.124, 133.169, 133.173, 133.179, 133.187, 133.188, 150.141, 150.161, 166.110, 182.90, 182.3640, GRAS; USDA 9CFR §318.7; BATF 27CFR §240.1051; Canada DSL; FEMA GRAS, CIR approved; Japan approved with limitations; JSCI approved 0.5% max.; Europe listed 0.8% max.; FDA approved for orals, topicals; USP/NF, BP, EP compliance
Manuf./Distrib.: AAA Int'l.
http://www.aaainternational.com; AB R Lundberg
http://www.norfoods.se/lundberg; AD Int'l.
Chemical Component Cross-Reference

<table>
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<th>Chemical Component</th>
<th>Cross-Reference</th>
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</table>

Potassium (E,E)-sorbate. See Potassium sorbate

Potassium stearate
CAS 593-29-3; EINECS/ELINCS 209-786-1
INS470; E470a
Synonyms: Octadecanoic acid, potassium salt; Potassium octadecanoate; Stearic acid, potassium salt
Classification: Sat. aliphatic carboxylic acid salt
Definition: Potassium salt of stearic acid
Empirical: C_{18}H_{35}KO_{2}
**Chemical Component Cross-Reference**

**Formula:** CH₃(CH₂)₁₆COOK

**Properties:** Whh. powd., sl. fatty odor; readily sol. in hot water producing alkaline sol’ns.; sol. in diethyl ether, ethanol, chloroform, carbon disulfide; slowly sol. in cold water; m.w. 322.63

**Toxicology:** Essentially nontoxic; inh. of high concs. of dust may cause coughing, mild temporary irritation; sl. eye irritant; ing. may cause irritation, nausea, diarrhea; TSCA listed

**Precaution:** Probable combustible dust; may form explosive dust-air mixts.; incompat. with acids (reacts vigorously)

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Storage:** Store in cool area away from ignition sources

**Uses:** Surfactant, emulsifier in pharmaceutical ointments

**Regulatory:** TSCA listed

**Potassium sulfate**

**CAS 7778-80-5; EINECS/ELINCS 231-915-9**

**INS515(i); E515**

**Synonyms:** Potassium sulfate (2:1); Sulfate of potash; Sulfuric acid, dipotassium salt

**Classification:** Inorganic salt

**Empirical:** K₂O₄S

**Formula:** K₂SO₄

**†=pharmaceutical grade**

**Properties:** Colorless to wh. cryst. or cryst. powd.; odorless; bitter saline taste; sol. in water; insol. in alcohol, acetone; m.w. 174.26; dens. 2.66; m.p. 1067 C; b.p. 1689 C

**Toxicology:** LD₅₀ (oral, rat) 6600 mg/kg; mod. toxic by subcut. route; mod. toxic to humans by ing.; ing. of large doses causes severe GI effects; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of K₂O and SOₓ

**Uses:** Medicine (cathartic)

**Regulatory:** BP, EP compliance; FDA 21CFR §73.85, 184.1643, GRAS; Europe listed; UK approved; Canada DSL

**Manuf./Distrib.:** AMRESCO†
http://www.amresco-inc.com; Adept Sol’ns.†; Aldrich http://www.sigma-aldrich.com; Alfa Aesar†
http://www.alfa.com; Alfa Chem†
http://www.alfachem1.com; Am. Int'l.†
http://www.aicma.com; Ashland†
http://www.ashchem.com; Asiamerica Int'l.†; Chem-Supply
http://www.emdchemicals.com; Fluka http://www.sigma-aldrich.com; GFS†
http://www.gfschemicals.com; General Chem.
http://www.rutherfordchemicals.com; Hummel Croton
http://www.hummelcroton.com; Integra†
http://www.integrachem.com; Lohmann http://www.lohmann-chemikalien.de; Mallinckrodt Baker†
http://www.mallbaker.com; Noah http://www.noahitech.com; Penta Mfg.†
http://www.pentamfg.com; Ruger http://www.rugerchemical.com; Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality Prods.†
http://www.spectrumchemical.com; Thomas Scientific†
http://www.thomassci.com; Universal Preserv-A-Chem†
Chemical Component Cross-Reference

Potassium sulfate (2:1). See Potassium sulfate

Potassium sulfite
CAS 10117-38-1; EINECS/ELINCS 233-321-1
INS225

Synonyms: Sulfurous acid dipotassium salt; Sulfurous acid potassium salt
Classification: Inorganic salt
Empirical: O₃S • 2K
Formula: K₂SO₃
Properties: Wh. cryst. or gran. powd., odorless; sol. in water; sl. sol. in alcohol; m.w. 158.26
Toxicology: Harmful and irritating substance; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of K₂O and SO₃
Uses: Preservative in pharmaceuticals; medicine (cathartic)
Regulatory: FDA 21CFR §73.85, GRAS; Canada DSL

Potassium sulfocyanate. See Potassium thiocyanate

Potassium tartrate. See Potassium acid tartrate

Potassium thiocyanate
CAS 333-20-0; EINECS/ELINCS 206-370-1

Synonyms: Potassium isothiocyanate; Potassium rhodanate; Potassium rhodanide; Potassium sulfocyanate; Potassium thiocyanate; Rhodanide; Thiocyanic acid potassium salt
Classification: Inorganic salt
Empirical: CKNS
Formula: K₂C≡N
Properties: Colorless to wh. transparent cryst. powd., odorless; sol. in cold water, acetone, ethanol, amyl alcohol; m.w. 97.19; dens.

Potassium thiosulfate (2:1). See Potassium sulfite

Potassium thiosulfite
CAS 10117-38-1; EINECS/ELINCS 233-321-1
INS225

Synonyms: Sulfurous acid dipotassium salt; Sulfurous acid potassium salt
Classification: Inorganic salt
Empirical: O₃S • 2K
Formula: K₂SO₃
Properties: Wh. cryst. or gran. powd., odorless; sol. in water; sl. sol. in alcohol; m.w. 158.26
Toxicology: Harmful and irritating substance; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of K₂O and SO₃
Uses: Preservative in pharmaceuticals; medicine (cathartic)
Regulatory: FDA 21CFR §73.85, GRAS; Canada DSL

Potassium thiocyanate. See Potassium thiocyanate

†=pharmaceutical grade

1.886; m.p. 173 C; dec. 500 C; pH 5.3-8.7 (5%)

Toxicology: LD50 (oral, rat) 854 mg/kg; LDLo (subcut., rabbit) 55 mg/kg, (IV, rabbit) 150 mg/kg, (oral, human) 80 mg/kg (hallucinations, convulsions, muscle weakness); poison by IV route; mod. toxic by subcut. and ing.; human poison by ing.; lg. doses may cause skin eruptions, psychoses, collapse; experimental teratogen; TSCA listed

Precaution: Incompat. with calcium chlorite and perchloryl fluoride

Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of CN⁻, K₂O, SO₃, and NOₓ

Storage: Hygroscopic; deliq.; moisture-sensitive

Uses: Intermediate for pharmaceuticals; medicine (hypotensive)

Regulatory: Canada DSL

Trade Names Containing: Sebomine SB12
Chemical Component Cross-Reference

Potassium thiocyanide. See Potassium thiocyanate

Potassium undecylenoyl hydrolyzed animal protein. See Potassium undecylenoyl hydrolyzed collagen

Potassium undecylenoyl hydrolyzed collagen
CAS 68951-92-8
Synonyms: Potassium undecylenoyl hydrolyzed animal protein; Proteins, hydrolysates, reaction prods. with 10- undecenoyl chloride, potassium salts
Definition: Potassium salt of condensation prod. of undecylenic acid chloride and hydrolyzed collagen
Properties: Anionic
Toxicology: TSCA listed
Uses: Antifungal agent
Trade Names: Lamepon® UD

Potassuril. See Potassium D-glucosonate

Potato (Solanum tuberosum) starch
CAS 9005-25-8; 169105-05-9; 977000-07-9; EINECS/ELINCS 232-679-6
Synonyms: Solanum tuberosum
Definition: Natural substance obtained from potatoes, Solanum tuberosum, contg. amylose and amylopectin
Empirical: (C₆H₁₀O₅)n
Properties: Irreg. ovoid or spherical gran.; swells in hot water to form a gel on cooling
Toxicology: May cause allergic reactions and stuffy nose in hypersensitive persons; TSCA listed
Uses: Emollient in pharmaceuticals, used with glycerin to form a soothing protectant for eczema, skin rash, and chapped skin
Regulatory: FDA 21CFR §173.310, 175.105, 182.70; BP, EP compliance
Manuf./Distrib.: Adept Sol’ns; Aldrich
http://www.sigma-aldrich.com; Avebe Am.
http://www.avebe.com; CarboMer
http://www.carbomer.com; Cerestar USA
http://www.cerestar.com; Chemstar Prods.
http://www.chemstar.com; Food Ingred.
Tech. Ltd http://www.fit-ltd.com; Generichem
http://www.generichem.com; Havero Hoogweurt BV http://www.havero.nl
Houghton Chem.
http://www.houghtonchemical.com; Lance
Prods. http://www.lanceproducts.com; Mutchler
http://www.mutchlerchem.com;

†=pharmaceutical grade

Omya Peralta http://www.omya-peralta.de;
Penta Mfg.† http://www.pentamfg.com
Quadra; Roquette† http://www.roquette.fr;
Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality
Prods.†
http://www.spectrumchemical.com; VWR
Int’l.† http://www.vwrsp.com
Trade Names: Potato Starch B

Potato starch. See Starch

Pot marigold. See Calendula officinalis

Poval. See Polyvinyl alcohol

Povidone. See PVP

Povidone-iodine. See PVP-iodine

Powdered cellulose. See Cellulose

Powdered skim milk. See Nonfat dry milk

PP. See Polypropylene

PPG. See Polypropylene glycol

PPG-3. See Tripropylene glycol

PPG-9
CAS 25322-69-4 (generic)
Synonyms: Polyoxypolypropylene (9); Polypropylene glycol (9); PPG 400
Definition: Polymer of propylene oxide
Formula: H(OCH₂CHCH₃)nOH, avg. n = 9
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emollient, solvent in pharmaceuticals; intermediate yielding esters useful as lubricants, defoamers in pharmaceuticals
Features: Provides low odor, low irritation, low toxicity
Regulatory: FDA 21CFR §173.310, 175.105, 176.200, 176.210
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com
Trade Names: Jeffox® PPG-400

PPG-26
CAS 25322-69-4 (generic)
Synonyms: Polyoxypolypropylene (26); Polypropylene glycol (26); PPG 2000
Definition: Polymer of propylene oxide
Formula: H(OCH₂CHCH₃)nOH, avg. n = 26
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emollient, solvent in pharmaceuticals; intermediate yielding esters useful as lubricants, defoamers in pharmaceuticals
Features: Provides low odor, low irritation, low toxicity
化学成分交叉索引

†=制药级

Handbook of Pharmaceutical Additives, Third Edition 1948
Chemical Component Cross-Reference

PPG-8-ceteth-20
CAS 9087-53-0 (generic); 37311-01-6 (generic)
Synonyms: POE (20) POP (8) cetyl ether; POP (8) POE (20) cetyl ether
Definition: Polyoxypropylene, polyoxyethylene ether of cetyl alcohol
Formula: \( \text{CH}_3(\text{CH}_2)_{14}\text{CH}_2(\text{OCH}_3\text{CHCH}_2)_x(\text{OCH}_2\text{CH}_2)_y\text{O} \)
\( \text{H} \), avg. \( x = 8 \), avg. \( y = 20 \)
Properties: Nonionic
Toxicology: TSCA listed
Uses: Surfactant, emulsifier, solubilizer, dispersant for pharmaceuticals
Features: Hydrophilic
Trade Names: PBC-44

PPG-5-ceteth-10 phosphate
CAS 50643-20-4
Synonyms: POE (10) POP (5) cetyl ether phosphate; POP (5) POE (10) cetyl ether phosphate
Definition: Mixture of esters of phosphoric acid and the polyoxypropylene, polyoxyethylene ether of cetyl alcohol
Properties: Anionic
Uses: Surfactant, conditioner, emulsifier, gellant for topical pharmaceuticals; corrosion inhibitor and antigellant in aerosol antiperspirants

PPG-30 cetyl ether
CAS 9035-85-2 (generic)
Synonyms: POP (30) cetyl ether; PPG (30) cetyl ether
Definition: Polypropylene glycol ether of cetyl alcohol
Formula: \( \text{CH}_3(\text{CH}_2)_{14}\text{CH}_2(\text{OCH}_3\text{CHCH}_2)_n\text{OH} \), avg. \( n = 30 \)
Properties: Liq.; sol. in oils, alcohol; insol. in water; nonionic
Toxicology: No known toxicity; TSCA listed
Uses: Emollient, moisturizer, surfactant, coupling agent, cosolvent, plasticizer, wetting agent, spreading agent, penetrant, lubricant, superfatting agent in pharmaceuticals
Manuf./Distrib.: Somerset Cosmetic Co. http://www.makingcosmetics.com/

PPG (30) cetyl ether. See PPG-30 cetyl ether

PPG-20 lanolin alcohol ether
CAS 68439-53-2 (generic)
Synonyms: POP (20) lanolin ether; PPG (20) lanolin ether; PPG-20 lanolin ether
Definition: Polypropylene glycol ether of lanolin alcohol with avg. propoxylation value of 20
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, emollient, conditioner, spreading agent, dispersant, plasticizer for pharmaceuticals, dermatological vehicles
Manuf./Distrib.: Somerset Cosmetic Co. http://www.makingcosmetics.com/

PPG-10 lanolin alcohol ether
CAS 68439-53-2 (generic)
Synonyms: POP (10) lanolin ether; PPG (10) lanolin ether; PPG-10 lanolin ether
Definition: Polypropylene glycol ether of lanolin alcohol with avg. propoxylation value of 10
Properties: Liq.; sol. in isopropyl esters, veg. oils, ethanol; nonionic
Toxicology: TSCA listed
Uses: Spreading agent, dispersant, plasticizer, emollient for pharmaceuticals
Manuf./Distrib.: Somerset Cosmetic Co. http://www.makingcosmetics.com/

PPG-20 lanolin alcohol ether
CAS 68439-53-2 (generic)
Synonyms: POP (20) lanolin ether; PPG (20) lanolin ether; PPG-20 lanolin ether
Definition: Polypropylene glycol ether of lanolin alcohol with avg. propoxylation value of 20
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, emollient, conditioner, spreading agent, dispersant, plasticizer for pharmaceuticals
Manuf./Distrib.: Somerset Cosmetic Co. http://www.makingcosmetics.com/

PPG (2) lanolin ether; PPG-2 lanolin ether. See PPG-2 lanolin alcohol ether

PPG (5) lanolin ether; PPG-5 lanolin ether. See PPG-5 lanolin alcohol ether

PPG (10) lanolin ether; PPG-10 lanolin ether.
Chemical Component Cross-Reference

See PPG-10 lanolin alcohol ether
PPG (20) lanolin ether; PPG-20 lanolin ether.
See PPG-20 lanolin alcohol ether

PPG-5-laureth-5
CAS 68439-51-0 (generic)
Synonyms: POE (5) POP (5) lauryl ether; POP (5) POE (5) lauryl ether
Definition: Polyoxypropylene, polyoxyethylene ether of lauryl alcohol
Empirical: C_{37}H_{76}O_{11}
Formula: \( \text{CH}_3\text{(CH}_2\text{)}_{10}\text{CH}_2\text{(OCH}_3\text{CH}_2\text{)}_x\text{(OCH}_2\text{CH}_2\text{)}_y\text{O} \), \( \text{avg. } x = 5, \text{avg. } y = 5 \)
Uses: Superfatting agent, emollient for pharmaceuticals, skin care prods.
Manuf./Distrib.: DeWolf Chem.
http://www.dewolfchem.com; Somerset Cosmetic Co.
http://www.makingcosmetics.com/

PPG-3-laureth-9
CAS 9004-94-3
Synonyms: POE (9) POP (3) lauryl ether; POP (3) POE (9) lauryl ether
Definition: Polyoxypropylene, polyoxyethylene ether of lauryl alcohol
Empirical: C_{39}H_{80}O_{13}
Formula: \( \text{CH}_3\text{(CH}_2\text{)}_{10}\text{CH}_2\text{(OCH}_3\text{CH}_2\text{)}_x\text{(OCH}_2\text{CH}_2\text{)}_y\text{O} \), \( \text{avg. } x = 3, \text{avg. } y = 9 \)
Properties: Nonionic
Uses: Surfactant, emulsifier, dispersant, solubilizer, visc. control agent for pharmaceuticals
Manuf./Distrib.: Somerset Cosmetic Co.
http://www.makingcosmetics.com/

PPG-10 methyl glucose ether
CAS 61849-72-7 (generic)
Synonyms: POP (10) methyl glucose ether
Definition: Polypropylene glycol ether of methyl glucose
Empirical: C_{37}H_{74}O_{16}
Formula: CH_3(CH_2)_{12}(CH_2O)(OCHCH_3CH_2)_nOH, \( \text{avg. } n = 10 \)
Properties: Nonionic
Uses: Solvent and solubilizer for topical pharmaceuticals
Regulatory: Canada DSL
Trade Names: Glucam® P-10

PPG-20 methyl glucose ether distearate
CAS 93821-74-0
Synonyms: POP (20) methyl glucose ether distearate; PPG-20 methyl glucoside distearate
Definition: Diester of PPG-20 methyl glucose ether and stearic acid
Uses: Humectant, moisturizer, conditioner, emollient for pharmaceuticals
Regulatory: Canada DSL
Trade Names: Glucam® P-20 Distearate

PPG-20 methyl glucoside distearate. See PPG-20 methyl glucose ether distearate

PPG-20 methyl glucoside
PPG (26) monoooleate. See PPG-26 olate

PPG-3 myristyl ether
CAS 63793-60-2 (generic)
Synonyms: POP (3) myristyl ether; Tripropylene glycol myristyl ether
Definition: Polypropylene glycol ether of myristyl alcohol
Empirical: C_{23}H_{48}O_{4}
Formula: \( \text{CH}_3\text{(CH}_2\text{)}_{12}\text{CH}_2\text{(OCH}_3\text{CH}_2\text{)}_n\text{OH} \), \( \text{avg. } n = 3 \)
Properties: Liq.; insol. in water; sol. in alcohol, min. oil; nonionic
Uses: Emollient
Trade Names: Promyristyl PM-3

PPG-2 myristyl ether propionate
CAS 111497-87-1
Synonyms: Dipropylene glycol, myristyl ether, propionate; POP (2) myristyl ether propionate
Definition: Ester of propionic acid and the polypropylene glycol ether of myristyl alcohol
Empirical: C_{20}H_{52}O_{4}
Formula: \( \text{CH}_3\text{(CH}_2\text{)}_{12}\text{CH}_2\text{(OCH}_3\text{CH}_2\text{)}_n\text{OH} \), \( \text{avg. } n = 3 \)
Properties: Nonionic
Uses: Solvent and solubilizer for topical pharmaceuticals
Regulatory: Canada DSL
Trade Names: Glucam® P-10

PPG-20 methyl glucose ether
CAS 61849-72-7 (generic)
Synonyms: POP (20) methyl glucose ether; PPG (20) methyl glucose ether

†=pharmaceutical grade

Definition: Polypropylene glycol ether of methyl glucose
Formula: CH_3(CH_2H_{10}O_5)(OCHCH_3CH_2)_nOH, \( \text{avg. } n = 20 \)
Properties: Nonionic
Uses: Solvent and solubilizer for topical pharmaceuticals
Trade Names: Glucam® P-20

PPG (20) methyl glucose ether. See PPG-20 methyl glucose ether

PPG-20 methyl glucose ether distearate
CAS 93821-74-0
Synonyms: POP (20) methyl glucose ether distearate; PPG-20 methyl glucoside distearate
Definition: Diester of PPG-20 methyl glucose ether and stearic acid
Uses: Humectant, moisturizer, conditioner, emollient for pharmaceuticals
Regulatory: Canada DSL
Trade Names: Glucam® P-20 Distearate

PPG-20 methyl glucoside distearate. See PPG-20 methyl glucose ether distearate

PPG (26) monoooleate. See PPG-26 olate

PPG (2) monosalicylate. See Dipropylene glycol salicylate

PPG-3 myristyl ether
CAS 63793-60-2 (generic)
Synonyms: POP (3) myristyl ether; Tripropylene glycol myristyl ether
Definition: Polypropylene glycol ether of myristyl alcohol
Empirical: C_{23}H_{48}O_{4}
Formula: \( \text{CH}_3\text{(CH}_2\text{)}_{12}\text{CH}_2\text{(OCH}_3\text{CH}_2\text{)}_n\text{OH} \), \( \text{avg. } n = 3 \)
Properties: Liq.; insol. in water; sol. in alcohol, min. oil; nonionic
Uses: Emollient
Trade Names: Promyristyl PM-3

PPG-2 myristyl ether propionate
CAS 111497-87-1
Synonyms: Dipropylene glycol, myristyl ether, propionate; POP (2) myristyl ether propionate
Definition: Ester of propionic acid and the polypropylene glycol ether of myristyl alcohol
Empirical: C_{20}H_{52}O_{4}
Formula: \( \text{CH}_3\text{(CH}_2\text{)}_{12}\text{CH}_2\text{(OCH}_3\text{CH}_2\text{)}_n\text{OH} \), \( \text{avg. } n = 3 \)
Properties: Nonionic
Uses: Solvent and solubilizer for topical pharmaceuticals
Regulatory: Canada DSL
Trade Names: Glucam® P-10

PPG-20 methyl glucose ether
CAS 61849-72-7 (generic)
Synonyms: POP (20) methyl glucose ether; PPG (20) methyl glucose ether

†=pharmaceutical grade

Definition: Polypropylene glycol ether of methyl glucose
Formula: CH_3(CH_2H_{10}O_5)(OCHCH_3CH_2)_nOH, \( \text{avg. } n = 20 \)
Properties: Nonionic
Uses: Solvent and solubilizer for topical pharmaceuticals
Trade Names: Glucam® P-20

PPG (20) methyl glucose ether. See PPG-20 methyl glucose ether

PPG-20 methyl glucose ether distearate
CAS 93821-74-0
Synonyms: POP (20) methyl glucose ether distearate; PPG-20 methyl glucoside distearate
Definition: Diester of PPG-20 methyl glucose ether and stearic acid
Uses: Humectant, moisturizer, conditioner, emollient for pharmaceuticals
Regulatory: Canada DSL
Trade Names: Glucam® P-20 Distearate

PPG-20 methyl glucoside distearate. See PPG-20 methyl glucose ether distearate

PPG (26) monoooleate. See PPG-26 olate

PPG (2) monosalicylate. See Dipropylene glycol salicylate

PPG-3 myristyl ether
CAS 63793-60-2 (generic)
Synonyms: POP (3) myristyl ether; Tripropylene glycol myristyl ether
Definition: Polypropylene glycol ether of myristyl alcohol
Empirical: C_{23}H_{48}O_{4}
Formula: \( \text{CH}_3\text{(CH}_2\text{)}_{12}\text{CH}_2\text{(OCH}_3\text{CH}_2\text{)}_n\text{OH} \), \( \text{avg. } n = 3 \)
Properties: Liq.; insol. in water; sol. in alcohol, min. oil; nonionic
Uses: Emollient
Trade Names: Promyristyl PM-3

PPG-2 myristyl ether propionate
CAS 111497-87-1
Synonyms: Dipropylene glycol, myristyl ether, propionate; POP (2) myristyl ether propionate
Definition: Ester of propionic acid and the polypropylene glycol ether of myristyl alcohol
Empirical: C_{20}H_{52}O_{4}
Formula: \( \text{CH}_3\text{(CH}_2\text{)}_{12}\text{CH}_2\text{(OCH}_3\text{CH}_2\text{)}_n\text{OH} \), \( \text{avg. } n = 3 \)
Properties: Nonionic
Uses: Solvent and solubilizer for topical pharmaceuticals
Regulatory: Canada DSL
Trade Names: Glucam® P-10

PPG-20 methyl glucose ether
CAS 61849-72-7 (generic)
Synonyms: POP (20) methyl glucose ether; PPG (20) methyl glucose ether
PPG-26 oleate  
CAS 31394-71-5 (generic)  
Synonyms: POP (26) monooleate; PPG (26) monooleate  
Definition: Polypropylene glycol ester of oleic acid  
Formula: $\text{CH}_3(\text{CH}_2)_7\text{CH}=\text{CH}(\text{CH}_2)_7\text{CO(OCHCH}_3\text{CH}_2)_n\text{O}$  
H, avg. $n = 26$  
Properties: Nonionic  
Toxicology: TSCA listed  
Uses: Emollient, lubricant, defoamer, viscosity control agent, dispersant, spreading agent in pharmaceuticals, topicals  
Regulatory: FDA 21CFR §175.300, 176.210; FDA approved for topicals  
Trade Names: Crodamol PMP  
PPG-12-PEG-50 lanolin  
CAS 68458-88-8 (generic)  
Synonyms: POE (50) POP (12) lanolin; POP (12) POE (50) lanolin  
Definition: Polyoxypropylene, polyoxyethylene deriv. of lanolin  
Formula: $R(\text{OCHCH}_3\text{CH}_2)_x(\text{OCH}_2\text{CH}_2)_y\text{OH}, R$ rep. lanolin radicals, avg. $x = 12$, avg. $y = 50$  
Properties: Nonionic  
Toxicology: LD50 (oral, rat) 32 g/kg; TSCA listed  
Uses: O/w emulsifier, solubilizer, emollient, solubilizer for topical pharmaceuticals  
Regulatory: Canada DSL  
Trade Names: Laneto AWS; Lanexol AWS  
PPG-12-PEG-65 lanolin oil  
Synonyms: POE (65) POP (12) lanolin oil; POP (12) POE (65) lanolin oil  
Definition: Polyoxypropylene, polyoxyethylene deriv. of lanolin oil  
Formula: $R(\text{OCHCH}_3\text{CH}_2)_x(\text{OCH}_2\text{CH}_2)_y\text{OH}, R$ rep. lanolin radical, avg. $x = 12$, avg. $y = 65$  
Properties: Liq.; sol. in water and alcohol; nonionic  
Toxicology: LD50 (oral, rat) > 5 g/kg  
Uses: Emulsifier, emollient, penetrant, moisturizer for pharmaceuticals  
Trade Names: Fluiolan AWS; Ritalan® AWS; Vigilan™ AWS  
PPG-2 salicylate. See Dipropylene glycol salicylate  
PPG-15 stearyl ether  
CAS 25231-21-4 (generic)  
Synonyms: POP (15) stearyl ether; PPG (15) stearyl ether  
Definition: Polypropylene glycol ether of stearyl alcohol  
Formula: $\text{CH}_3(\text{CH}_2)_{16}\text{CH}_2(\text{OCHCH}_3\text{CH}_2)_n\text{OH}$, avg. $n = 15$  
Properties: Nonionic  
Toxicology: TSCA listed  
Uses: Surfactant, emulsifier, dispersant, solubilizer, visc. control agent, emollient, solvent, lubricant in pharmaceuticals, topicals  
Regulatory: FDA approved for topicals  
Manuf./Distrib.: ABITEC†  
Manuf./Distrib.: A&E Connock  
http://www.connock.co.uk  
Trade Names: Acconon E; Lipocol P-15  
PPG (15) stearyl ether. See PPG-15 stearyl ether  
1Ppropene-1,2,3-tricarboxylic acid ethyl ester. See Ethyl aconitate, mixed esters  
PPS. See Pentosan polysulfate sodium  
Precipitated barium sulfate. See Barium sulfate  
Precipitated calcium carbonate. See Calcium carbonate  
Precipitated calcium phosphate. See Calcium hydroxide phosphate; Calcium phosphate tribasic  
Precipitated calcium sulfate. See Calcium sulfate dihydrate  
Precipitated chalk. See Calcium carbonate  
Precipitated silica. See Silica, hydrated; Silica, amorphous  
Precipitated sulfur. See Sulfur  
Precirol. See Glycerol di/tristearate  
Pregelatinized starch. See Starch  
Prenol: Prenyl alcohol. See 3-Methyl-2-buten-1-ol  
Prepared chalk. See Calcium carbonate  
Primary active amyl alcohol. See 2-Methyl-1-butanol  
Primary ammonium phosphate. See Ammonium phosphate  
Primary amyl acetate. See Amyl acetate  
Primary amyl alcohol. See n-Amyl alcohol  
Primary decyl alcohol. See Decyl alcohol  
Primary isoamyl alcohol. See Isoamyl alcohol  
Primary octyl alcohol. See Caprylic alcohol  
Primary sodium phosphate. See Sodium phosphate
**Chemical Component Cross-Reference**

**Pro.** See L-Proline

**Procaine**
CAS 59-46-1

**Synonyms:** 4-Aminobenzoic acid 2- (diethylamino) ethyl ester; p-Aminobenzoic acid diethylaminoethyl ester; p- Aminobenzoic acid-2-diethylaminoethyl ester; p-Aminobenzoic acid-2-diethylaminoethanol; 2-Diethylaminoethyl p-aminobenzoate; 4- (Diethylamino) ethyl 4-aminobenzoate; β- Diethylaminoethyl-4-aminobenzoate; Diethylaminoethyl-p-aminobenzoate; Novocaine

**Empirical:** C13H20N2O2

**Properties:** Solid; sol. in alcohol, ether, benzene, chloroform; when freshly precipitated, 1 g dissolves in 200 ml water; m.w. 236.32; m.p. 61-62 C

**Toxicology:** LD50 (oral, mouse) 350 mg/kg, (IP, mouse) 45 mg/kg; poison by ing., IP, IV, subcut. routes; human systemic effects by intramuscular route; potential adverse reactions incl. skin reactions, swelling, continuous asthma attacks, severe allergic reactions, anxiety, nervousness, respiratory arrest

**Hazardous Decomp. Prods.:** Heated to decomp., emits very toxic fumes of HCl and NOx

**Storage:** Hygroscopic

**Uses:** Local anesthetic; used in intramuscular injectables; penicillin adjunct

**Regulatory:** FDA approved for use in rectals, intramuscular injectables; BP, Ph.Eur. compliance


**Procaine hydrochloride**
CAS 51-05-8; EINECS/ELINCS 200-077-2

**Synonyms:** 4-Aminobenzoic acid 2- (diethylamino) ethyl ester hydrochloride; p- Aminobenzoic acid-2-diethylaminoethyl ester, hydrochloride; p- Aminobenzoyl diethylaminoethanol

**†=pharmaceutical grade**

hydrochloride; Anesthesol; Benzoic acid, 4- amino-, 2-(diethylamino) ethyl ester, monohydrochloride; Benzoic acid, p-amino-, 2-(diethylamino) ethyl ester, monohydrochloride; Diethylamino ethanol- 4-aminobenzoate hydrochloride; 2- (Diethylamino) ethyl 4-aminobenzoate hydrochloride; 2-Diethylaminoethyl-p- aminobenzoate hydrochloride; Ethyl-p- aminobenzoate hydrochloride

**Empirical:** C13H20N2O2 • ClH

**Properties:** Wh. cryst. powd., odorless, tasteless; sol. in dil. acids; less sol. in chloroform, ether, alcohol; very sl. sol. in water; m.w. 272.81; m.p. 88-92 C

**Toxicology:** LD50 (oral, rat) 200 mg/kg, (IP, rat) 160 mg/kg, (IV, rat) 38 mg/kg; poison by ing., subcut., IV, IP routes; systemic CNS excitation reported in adults; acne renal failure possible; possibly human reproductive effects; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits very toxic fumes of HCl and NOx

**HMIS:** Health 2, Flammability 1, Reactivity 0

**Storage:** Light/air sensitive

**Uses:** Local anesthetic in medicine, suntan preps., rectals, intramuscular injectables

**Regulatory:** FDA approved for use in rectals, intramuscular injectables; BP, Ph.Eur. compliance

Chemical Component Cross-Reference

Richman†
http://www.richmanchemical.com; Rochem Int'l.  http://www.rochemintl.com; Ruger†
http://www.rugerchemical.com; Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality Prods.†
http://www.spectrumchemical.com
Stason Pharmaceuticals†
http://www.vwrsp.com; Voigt Global Distrib.† http://www.vgdllc.com; ZenPharm Int'l.†
http://www.zenpharm.com

Process white.  See Barium sulfate
Proline (INCI).  See L-Proline

L-Proline
CAS 147-85-3; EINECS/ELINCS 205-702-2
FEMA 3319

Synonyms:  Pro; Proline (INCI); 2-Pyrrolidine carboxylic acid; Pyrrolidine-2-carboxylic acid

Classification:  Amino acid
Definition:  Avail. commercially as the L(-)-enantiomer

Empirical:  C_{5}H_{9}NO_{2}
Formula:  (CH_{2})_{3}NHCHCOOH

Properties:  Colorless or wh. cryst. or cryst. powd.; sol. in alcohol, water; insol. in ether; m.w. 115.13; m.p. 220-222 C with dec.

Toxicology:  Nonirritating; mutagen; TSCA listed

Uses:  Flavor for pharmaceuticals; peptide drug raw material; biochemical and nutritional research; culture media; infusion sol'ns.; diagnostic aids

Regulatory:  FDA 21CFR §172.320 (4.2% max.); FEMA GRAS; Japan approved; Canada DSL
Manuf./Distrib.:  ADA Int'l.  http://www.joinme.net/ada/index.htm;
AMRESCO† http://www.amresco-inc.com;
Ajinomoto† http://www.ajinomoto.co.jp; http://www.ajinomoto.com;
Alfa Chem† http://www.alfaachem1.com
Am. Biorganics; Anmar Int'l.†  http://www.anmarinternational.com;
Ashland† http://www.ashchem.com;
Asiamerica Int'l.†; Austin† http://www.austinchemical.com
Bachem† http://bachem.com; Boith China† http://www.boith.com; Degussa http://www.degussa.com; Fluka

†=pharmaceutical grade
http://www.sigma-aldrich.com; Fuerst Day Lawson http://www.fdl.co.uk
George Uhe† http://www.uhe.com; H&A (Canada) Ind.† http://www.hacanada.com
Penta Mfg.† http://www.pentamfg.com;
Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality Prods.†
http://www.spectrumchemical.com;
Synasia† http://www.synasia.com; Triple Crown Am.†
http://www.triplecrownamerica.com;
Varsal Instruments http://www.varsal.com;
Voigt Global Distrib.† http://www.vgdllc.com

DL-Proline, 5-oxo-, compd. with N2-coco acyl-L-arginine ethyl ester.  See PCA ethyl cocoyl arginate

Proline, 5-oxo-, compd. with lysine (1:1).  See Lysine PCA

L-Proline, 5-oxo-, monopotassium salt.  See Potassium PCA

Propanal.  See Propionaldehyde

Propanal, 3-(methylthio) -.  See 3-Methylthiopropionaldehyde

2-Propanamine.  See Isopropylamine

1-Propanaminium, 2-(acetoxy)-3-carboxy-N,N,N-trimethyl-chloride, (R)- (9CI).  See Acetyl-L-carnitine hydrochloride

1-Propanaminium, 3-amino-N-(carboxymethyl)-N,N-dimethyl-, N-castor-oil acyl derivs., hydroxides, inner salts.  See Ricinoleamidopropyl betaine

1-Propanaminium, 3-amino-N-(carboxymethyl)-N,N-dimethyl-, N-coco acyl derivs., hydroxides, inner salts.  See Cocamidopropyl betaine

1-Propanaminium, N-(3-aminopropyl)-2-hydroxy-N,N-dimethyl-3-sulfo-N-coco acyl derivs., hydroxides, inner salts.  See
Cocamidopropyl hydroxysultaine

1-Propanaminium, 2,3-dihydroxy-N,N-dimethyl-N-[3-{1-oxo-9,12-octadecadienylamino} propyl]-, 3-phosphate triester, trichloride. See Linoleamidopropyl PG-dimonium chloride phosphate

1-Propanaminium, N-ethyl-N,N-dimethyl-3-[1-oxoricinoleyl) amino]-, ethyl sulfate. See Ricinoleamidopropyl ethyldimonium ethosulfate

1-Propanaminium, 3-(D-gluconoylamino)-N-(2-hydroxyethyl)-N,N-dimethyl-, chloride. See Quaternium-22

Propane

CAS 74-98-6; EINECS/ELINCS 200-827-9
UN 1075 (DOT); UN 1978 (DOT); INS944; E944

Synonyms: Dimethylmethane; Liquefied petroleum gas; Petroleum gases, liquefied; n-Propane; Propane liquefied; Propyl hydride

Classification: Sat. aliphatic hydrocarbon

Empirical: C₃H₈

Formula: CH₃CH₂CH₃

Properties: Colorless gas, nat. gas odor; easily liquefied under pressure at R.T.; noncorrosive; sol. in ether, alcohol, chloroform, org. solvs.; sl. sol. in water, acetone; m.w. 44.09; sp.gr. 0.513 (0 C, as liq.), 1.56 (0 C, as vapor); f.p. -189.9 C; b.p. -42.5 C; flash pt. -104 C

Toxicology: OSHA PEL/TWA 1000 ppm; simple asphyxiant; narcotic in high concs.; overexposure may cause dizziness, disorientation, excitation; liq. propane may cause frostbite to skin and eyes; TSCA listed

Precaution: Flamm.; dangerous fire hazard exposed to heat, flame; explosive limits in air 2.4-9.5%; vigorously reactive with oxidizers; explosive as vapor exposed to heat or flame; explosive with ClO₂; violent exothermic reaction with barium peroxide, heat

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 1, Flammability 4, Reactivity 0

Storage: Store in cool, dry, well-ventilated area out of direct sunlight

Uses: Aerosol propellant in pharmaceuticals, topicals

Regulatory: FDA 21CFR §173.350, 184.1655, GRAS; FDA approved for topicals; USP/NF compliance; Canada DSL


n-Propane. See Propane
2-Propaneamine. See Isopropylamine
1-Propanecarboxylic acid. See n-Butyric acid
Propanedioic acid. See Malonic acid
Propane dioic acid butyl ethyl ester. See Butyl ethyl malonate
Propanedioic acid diethyl ester. See Diethyl malonate
1,2-Propanediol; Propane-1,2-diol. See Propylene glycol
Propane-1,2-diol alginate. See Propylene glycol alginate
1,3-Propanediol, 2-amino-2-ethyl. See Aminoethyl propanediol
1,3-Propanediol, 2,2-bis (acyloxy) methyl). See Pentaoxyethyl tetraacetate
1,3-Propanediol, 2-bromo-2-nitro. See 2-Bromo-2-nitropropane-1,3-diol
1,2-Propanediol carbonate; 1,2-Propanediol cyclic carbonate. See Propylene carbonate
1,2-Propanediol dibenzoate. See Propylene glycol dibenzoate
1,2-Propanediol monododecanoate. See Propylene glycol laurate
1,2-Propanediol monostearate. See Propylene glycol stearate
1,2-Propanediol, 3-(octadecyloxy)-. See Batyl alcohol
1,2-Propanediol, reaction prods. with aluminum chloride hydroxide (Al₂Cl(OH)₃). See Aluminum chlorohydrex PG
Propanediolone. See Pyruvaldehyde
1,2-Propanedione, 1-phenyl-. See 1-Phenyl-1,2-propanedione
1,2-Propanediyl carbonate. See Propylene carbonate
Propane-1,2-diyl dibenzoate. See Propylene glycol dibenzoate
**Chemical Component Cross-Reference**

<table>
<thead>
<tr>
<th>Chemical Component</th>
<th>Pharmaceutical Grade</th>
</tr>
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<tbody>
<tr>
<td>1,2,3-Propanetricarboxylic acid, 2-hydroxy-, tributyl ester</td>
<td><strong>See Acetyl trioctyl citrate</strong></td>
</tr>
<tr>
<td>1,2,3-Propanetricarboxylic acid, 2-hydroxy-, mono-octadecanoate</td>
<td><strong>See Glyceryl stearate</strong></td>
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<tr>
<td>1,2,3-Propanetricarboxylic acid, 2-hydroxy-, monosodium salt</td>
<td><strong>See Sodium citrate</strong></td>
</tr>
<tr>
<td>1,2,3-Propanetricarboxylic acid, 2-hydroxy-, octadecyl ester</td>
<td><strong>See Stearyl citrate</strong></td>
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<tr>
<td>1,2,3-Propanetricarboxylic acid, 2-hydroxy-, tributyl ester</td>
<td><strong>See Tributyl citrate</strong></td>
</tr>
<tr>
<td>1,2,3-Propanetricarboxylic acid, 2-hydroxy-, tripotassium salt</td>
<td><strong>See Potassium citrate</strong></td>
</tr>
<tr>
<td>Propanetricarboxylic acid, 2-hydroxy-, tris (2-ethylhexyl) ester</td>
<td><strong>See Trioctyldodecyl citrate</strong></td>
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<tr>
<td>1,2,3-Propanetriol; Propane-1,2,3-triol</td>
<td><strong>See Glycerin</strong></td>
</tr>
<tr>
<td>1,2,3-Propanetriol, homopolymer, (Z)-9-octadecenoate</td>
<td><strong>See Polylgyceryl-8 oleate; Polylgyceryl-6 oleate</strong></td>
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<tr>
<td>1,2,3-Propanetriol, mono (dihydrogen phosphate), dipotassium salt</td>
<td><strong>See Potassium glycerophosphate</strong></td>
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<tr>
<td>1,2,3-Propanetriol octadecanoate</td>
<td><strong>See Glyceryl stearate</strong></td>
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<tr>
<td>1,2,3-Propanetriol triacetate</td>
<td><strong>See Triacetin</strong></td>
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<tr>
<td>1,2,3-Propanetriol tribenzoate</td>
<td><strong>See Glyceryl tribenzoate</strong></td>
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<td>1,2,3-Propanetriol tridocosanoate</td>
<td><strong>See Tribehenin</strong></td>
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<td>1,2,3-Propanetriol tridecanoate</td>
<td><strong>See Trilaurin</strong></td>
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<td>1,2,3-Propanetriol tri (12-hydroxystearate)</td>
<td><strong>See Trihydroxystearin</strong></td>
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<td>1,2,3-Propanetriol trilactate</td>
<td><strong>See Trilactin</strong></td>
</tr>
<tr>
<td>1,2,3-Propanetriol trioctadecanoate</td>
<td><strong>See Triisostearin</strong></td>
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<td>Propanoic acid</td>
<td><strong>See Propionic acid</strong></td>
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<tr>
<td>Propanoic acid anhydride</td>
<td><strong>See Propionic anhydride</strong></td>
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<td>Propanoic acid butyl ester</td>
<td><strong>See n-Butyl propionate</strong></td>
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<td>Propanoic acid, calcium salt</td>
<td><strong>See Calcium propionate</strong></td>
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<td>Propanoic acid cyclohexyl ester</td>
<td><strong>See Cyclohexyl propionate</strong></td>
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<td>Propanoic acid, 2,2-dimethyl-, iso-octadecyl ester</td>
<td><strong>See Isostearil neopentanoate</strong></td>
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<td>Propanoic acid ethyl ester</td>
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<td>Propanoic acid, hexyl ester</td>
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<td>Propanoic acid, 2-hydroxy-</td>
<td><strong>See Lactic acid</strong></td>
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<td>Propanoic acid, 2-hydroxy-, ammonium salt</td>
<td><strong>See Ammonium lactate</strong></td>
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<td>Propanoic acid, 2-hydroxy-, butyl ester</td>
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<td>Propanoic acid, 2-hydroxy-, calcium salt</td>
<td><strong>See Calcium lactate</strong></td>
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<td>Propanoic acid, 2-hydroxy-, C12-15 alkyl esters</td>
<td><strong>See C12-15 alkyl lactate</strong></td>
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<td>Propanoic acid, 2-hydroxy-, monopotassium salt</td>
<td><strong>See Potassium lactate</strong></td>
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<td>Propanoic acid, 2-mercapto-</td>
<td><strong>See 2-Mercaptopropionic acid</strong></td>
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<td>Propanoic acid, 2-methyl-, 3,7-dimethyl-2,6-octadienyl ester, (Z)-</td>
<td><strong>See Neryl isobutyrate</strong></td>
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<td>Propanoic acid methyl ester</td>
<td><strong>See Methyl propionate</strong></td>
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<tr>
<td>Chemical Component Cross-Reference</td>
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<td>Propanoic acid 1-methyl ethyl ester. See Isopropyl propionate</td>
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<td>Propanoic acid, 2-methyl-, hexyl ester. See Hexyl isobutyrate</td>
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<tr>
<td>Propanoic acid, 2-methyl-, 1-methyl-1-(4-methyl-3-cyclohexen-1-yl) ethyl ester. See Terpinyl isobutyrate</td>
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<td>Propanoic acid, 2-methyl-, 2-phenoxyethyl ester. See Phenoxyethyl isobutyrate</td>
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<td>Propanoic acid, 2-methylpropyl ester. See Isobutyl propionate</td>
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<td>Propanoic acid octyl ester. See Octyl propionate</td>
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<td>Propanoic acid, 2-oxo-. See Pyruvic acid</td>
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<td>Propanoic acid-2-phenylethyl ester. See Phenethyl propionate</td>
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<td>Propanoic acid, propyl ester. See Propyl propionate</td>
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<td>Propanoic acid sodium salt. See Sodium propionate</td>
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<td>Propanoic acid, 3,3’-thiobis-, diocadecyl ester. See Distearyl thiodipropionate</td>
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<td>Propanoic acid, 3,3’-thiobis-, ditetradecyl ester. See Dimyristyl thiodipropionate</td>
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<td>Propanoic anhydride. See Propionic anhydride</td>
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<td>1-Propanol; Propanol-1; Propan-1-ol. See Propyl alcohol</td>
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<td>2-Propanol; Propan-2-ol. See Isopropyl alcohol</td>
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<td>n-Propanol. See Propyl alcohol</td>
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<tr>
<td>2-Propanol, 1-ethoxy-. See Propylene glycol ethanol ether</td>
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<td>2-Propanol, 2-methyl-. See t-Butyl alcohol</td>
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<tr>
<td>Propanol, ((1-methyl-1,2-ethanediyl) bis (oxy)) bis-. See Tripropylene glycol</td>
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<td>Propanolone. See Pyruvaldehyde</td>
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<tr>
<td>2-Propanol, 1-phenoxy-. See Phenoxysopropanol</td>
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<td>1-Propanol, 1-phenyl-. See 1-Phenyl-1-propanol</td>
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<td>1-Propanol, 3-phenyl-. See Hydrocinnamic alcohol</td>
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<td>1,2,3-Propanol tridecanoate. See Tricaprin</td>
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<td>Propanone; 2-Propanone. See Acetone</td>
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<td>2-Propanone, 1-(p-methoxyphenyl)-. See 1-(p-Methoxyphenyl)-2-propanone</td>
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<td>Propan-2-yl benzoate. See Isopropyl benzoate</td>
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<td>Propathene. See Polypropylene</td>
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<td>Propellant 11. See Trichlorofluoromethane</td>
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<td>Propellant 12. See Dichlorodifluoromethane</td>
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<td>Propellant 23. See Trifluoromethane</td>
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<td>Propellant 114. See 1,2-</td>
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<td>†=pharmaceutical grade</td>
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<td>Dichlorotetrafluoroethane</td>
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<td>Prop-2-enal; 2-Propenal. See Acrolein</td>
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<td>2-Propenal, 3-phenyl-. See Cinnamal</td>
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<td>2-Propenamide, homopolymer. See Polyacrylamide</td>
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<td>2-Propenamide, polymer with 2-propenoic acid, sodium salt. See Acrylamide/sodium acrylate copolymer</td>
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<td>1-Propene, homopolymer. See Polypropylene</td>
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<td>1-Propene, 2-methyl-, homopolymer. Propene, 2-methyl-, polymers. See Polysisobutene</td>
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<td>Propenenitrile copolymer. See Acrylonitrile copolymer</td>
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<td>2-Propenenitrile, homopolymer, hydrolyzed, block, reaction prods. with N,N-dimethyl-1,3-propanediamine. See Acrylic acid/acrylonitrogens copolymer</td>
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<td>Propene polymer; Propene polymers. See Polypropylene</td>
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<td>2-Propene-1-thiol; Propene-3-thiol. See Allyl mercaptan</td>
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<td>1-Propene-1,2,3-tricarboxylic acid; 1,2,3-Propenetricarboxylic acid. See Aconitic acid</td>
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<td>1,2,3-Propenetriol trisooctadecanoate. See Trisostearin</td>
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<td>2-Propenoic acid with ethene. See Ethylene/acrylic acid copolymer</td>
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<td>2-Propenoic acid, ethyl ester. See Ethyl acrylate</td>
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<td>2-Propenoic acid, homopolymer. See Polyacrylic acid</td>
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<td>2-Propenoic acid, 3-(2-hydroxyphenyl)-δ-lactone. See Coumarin</td>
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<td>2-Propenoic acid, 3-(4-methoxyphenyl)-, compd. with 2,2’-iminobis (ethanol). See DEA methoxycinnamate</td>
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<td>2-Propenoic acid, 3-(4-methoxyphenyl)-, 2-ethylhexyl ester. See Octyl methoxycinnamate</td>
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<td>2-Propenoic acid, 2-methyl-. See Methacrylic acid</td>
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<td>2-Propenoic acid, 2-methyl-, 2-(dimethylamino)ethyl ester, polymer with 1-ethenyl-2-pyrolidendine. See PVP/dimethylaminoethacrylate copolymer</td>
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<td>Propenoic acid methyl ester; 2-Propenoic acid methyl ester. See Methyl acrylate</td>
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<td>2-Propenoic acid, 2-methyl-, methyl ester. See Methyl methacrylate</td>
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<tr>
<td>2-Propenoic acid, 2-methyl-, methyl ester,</td>
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<tr>
<td>Handbook of Pharmaceutical Additives, Third Edition</td>
<td></td>
</tr>
<tr>
<td>1956</td>
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</tbody>
</table>
### 4-Propenylcatechol methylene ether

- **See Isosafrole**

### Propenyl cinnamate

- **See Allyl cinnamate**

### 2-Propenyl cyclohexanecacetate

- **See Allyl cyclohexanecacetate**

### 2-Propen-1-yl cyclohexane butyrate

- **See Allyl cyclohexanebutyrate**

### 2-Propenyl 3-cyclohexanepropanoate

- **See Allyl cyclohexanepropionate**

### 2-Propenyl disulfide

- **See Allyl disulfide**

### 2-Propenyl-6-ethoxyphenol

- **See Propenylguaethol**

### Propenylguaethol

- CAS: 94-86-0; EINECS/ELINCS 202-370-0
- FEMA: 2922

#### Synonyms:
- 6-Ethoxy-m-anol
- 1-(4-Ethoxy-3-hydroxyphenyl) propene
- 1-Ethoxy-2-hydroxy-4-propenylbenzene
- Ethoxy propenylphenol
- 2-Ethoxy-5-propenylphenol
- 2-Ethoxy-5-prop-1-enylphenol
- Hydroxymethyl anethol
- Hydroxymethyl anethole
- Isosafroegenol
- 2-Propenyl-6-ethoxyphenol

#### Classification:
- Aromatic alcohol

#### Definition:
- Commercial grades are mixt. of cis- and trans-isomers

#### Empirical:
- C_{11}H_{14}O_{2}

#### Formula:
- C_{2}H_{5}OC_{6}H_{3}(OH)(C_{3}H_{5})

#### Properties:
- Wh. cryst. powd., vanilla-like odor and taste; sol. in fixed oils, alcohol, hydrocarbon solvs.; insol. in water; m.w. 178.25; m.p. 35 °C (cis), 86 °C (trans); flash pt. > 212 °F

#### Toxicology:
- LD₅₀ (oral, rat) 2400 mg/kg; mod. toxic by ing.; TSCA listed

#### Precaution:
- Combustible liq.

#### Hazardous Decomp. Prods.:
- Heated to decomp, emits acrid smoke and fumes

#### Uses:
- Synthetic flavor for pharmaceuticals

#### Features:
- Sweet, artificial vanilla or medicinal flavor

#### Regulatory:
- FDA 21CFR §172.515; FEMA GRAS; Canada DSL

#### Manufacturer/Distributor:
- Advanced BioTech
  - [http://www.adv-bio.com](http://www.adv-bio.com)
- Chart
  - [http://www.chartcorp.com](http://www.chartcorp.com)
- De Monchy Aromatics
  - [http://www.demonchyaromatics.com](http://www.demonchyaromatics.com)
- Fuerst Day Lawson
  - [http://www.fdl.co.uk](http://www.fdl.co.uk)
- R.C. Treatt & Co. Ltd
  - [http://www.rctreatt.com](http://www.rctreatt.com)
Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Chemical Component</th>
<th>CAS Number</th>
<th>UN Number</th>
<th>Precaution</th>
<th>Toxicology</th>
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<tr>
<td>Propenyl guaiacol</td>
<td>79-09-4</td>
<td>204-623-0</td>
<td>TSCA listed</td>
<td>Highly flammable, dangerous fire hazard exposed to heat or flame; reacts vigorously with oxidizers; explosive limits 2.9-17%</td>
</tr>
</tbody>
</table>

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Storage: Store refrigerated

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; SARA reportable; HAP; Canada DSL

Manufacturers/Distributors:
- BASF AG [http://www.basf.de]
- Celanese [http://www.celanesechemicals.com]
- Dow [http://www.dow.com]
- Eastman [http://www.eastman.com]
- Fluka [http://www.sigma-aldrich.com]
- Mfg. [http://www.pentamfg.com]
- SAFC Specialties [http://www.saftreatt.com]
- Spectrum Quality Prods. [http://www.spectrumchemical.com]
- TSCA listed

‡=pharmaceutical grade

Toxicology: ACGIH TLV/TWA 10 ppm; LD50 (oral, rat) 3500 mg/kg, (skin, rabbit) 500 mg/kg; LDLo (IV, rabbit) 1320 mg/kg; poison by IP route; mod. toxic by ing., skin contact, IV routes; corrosive irritant to eyes, skin.
Propionic acid, calcium salt. See Calcium propionate

Propionic acid, cinnamyl ester. See Cinnamyl propionate

Propionic acid cyclohexyl ester. See Cyclohexyl propionate

Propionic acid-3,7-dimethyl-2,6-octadien-1-yl ester. See Neryl propionate

Propionic acid, ethyl ester. See Ethyl propionate

Propionic acid, geranyl ester. See Geranyl propionate

Propionic acid, hexyl ester. See Hexyl propionate

Propionic acid, 2-hydroxy-. See Lactic acid

Propionic acid, isobutyl ester. See Isobutyl propionate

Propionic acid, isopentyl ester. See Isoamyl propionate

Propionic acid isopropyl ester. See Isoamyl propionate

Propionic acid, 2-methyl-. See Isobutyric acid

Propionic acid, 3-methylbutyl ester. See Isoamyl propionate

Propionic acid, 2-methylene-. See Methacrylic acid

Propionic acid, neryl ester. See Neryl propionate

Propionic acid octyl ester. See Octyl propionate
Propionic acid phenethyl ester. See Phenethyl propionate
Propionic acid, propyl ester. See Propyl propionate
Propionic acid sodium salt. See Sodium propionate
Propionic acid tetrahydrofurfuryl ester. See Tetrahydrofurfuryl propionate
Propionic acid, 3,3'-thiobis-, dioctadecyl ester. See Distearyl thiodipropionate
Propionic acid, 3,3'-thiodi, didodecyl ester. See Dilauryl thiodipropionate
Propionic aldehyde. See Propionaldehyde
Propionic anhydride
CAS 123-62-6
UN 2496
Synonyms: Methylacetic anhydride; Propanoic acid anhydride; Propanoic anhydride
Empirical: C₆H₁₀O₃
Properties: Liq.; pungent odor; dec. in water; m.w. 130.14; dens. 1.015; m.p. -43 C; b.p. 167 C; flash pt. 73 C
Toxicology: Corrosive; causes skin and eye burns; harmful if swallowed; lachrymator; mist or vapor irritating to eyes and respiratory tract
Precaution: Combustible liq. and vapor; reacts with water
HMIS: Health 3, Flammability 2, Reactivity 1
Storage: Moisture-sensitive
Uses: Nutritional supplement; flavoring agent
Regulatory: Canada DSL
Manuf./Distrib.: Acros Org.
  http://www.acros.com; Aldrich†
  http://www.sigma-aldrich.com; Alfa Aesar
  http://www.alfa.com; Celanese
  http://www.celanesechemicals.com;
  http://www.chemvip.com; Lancaster
  Synthesis http://www.alfa.com
  Spectrum Quality Prods.†
  http://www.spectrumchemical.com
Trade Names: Eastman® Propionic Anhydride, Kosher
Propionic ether. See Ethyl propionate
[2-(1-Propoxymethyl) ethyl] benzene. See Acetaldehyde phenethyl propyl acetal
Propyl acetate
CAS 109-60-4; EINECS/ELINCS 203-686-1
UN 1276 (DOT); FEMA 2925
Synonyms: Acetic acid propyl ester; Acetic acid n-propyl ester; 1-Acetoxypropane; 1-Propyl acetate; n-Propyl acetate; n-Propyl...
Chemical Component Cross-Reference

Celanese  
http://www.celanseschemicals.com;  
http://www.chemvip.com; Chem-Supply  
http://www.chemsupply.com.au; Coyne  
http://www.coynechemical.com; Dow  
http://www.dow.com; Eastman  
http://www.eastman.com  
http://www.gjchemical.com; General Chem.  
http://www.genchemcorp.com; Grau Aromatics  http://www.grau-aromatics.de;  
HCH Marketing  
Houghton Chem.  
http://www.houghtonchemical.com; Hukill  
http://www.hukill.com; Lluch Essence  
http://www.lluch-essence.com; Moore Ingreds.  
http://www.moorelab.com; Oxford Chems. Ltd  
http://www.oxfordchemicals.com  
Quaker City; SAFC Specialties  
http://www.saftspecialties.com; V. Mane Fils SA  http://www.mane.com

1-Propyl acetate.  See Propyl acetate  
2-Propyl acetate.  See Isopropyl acetate  
n-Propyl acetate.  See Propyl acetate  
Propylacetic acid.  See n-Valeric acid  
Propylacetone; N-Propyl acetone.  See 2-Hexanone  

Propyl alcohol  
CAS 71-23-8; EINECS/ELINCS 200-746-9  
UN 1274 (DOT); FEMA 2928  
Synonyms: Albacol; Alcohol C3; Ethyl carbinol; 1-Hydroxypropane; Normal propyl alcohol; Optal; 1-Propanol; Propanol-1; Propan-1-ol; n-Propanol; 1-Propyl alcohol; n-Propyl alcohol; Propyl alcohol  
Classification: Aliphatic alcohol  
Empirical: \( \text{C}_3\text{H}_8\text{O} \)  
Formula: \( \text{CH}_3\text{CH}_2\text{CH}_2\text{OH} \)  

Properties: Colorless clear liq., alcoholic and sl. stupefying odor; very sol. in benzene; sol. in water, ethyl alcohol, ether, acetone, propylene glycol; misc. with oxygenated solvs.; dissolves fat; m.w. 60.10; sp.gr. 0.804 (20/4 C); vapor pressure 10 mm Hg (14.7 C); m.p. -127 C; b.p. 97-98 C; flash pt. (TCC) 23 C; ref. index 1.385 (20 C)  

Toxicology: ACGIH TLV/TWA 200 ppm; STEL 250 ppm (skin); LD50 (oral, rat) 1.87 g/kg; (IP, rat) 2164 mg/kg, (IV, rat) 590 mg/kg; poison by subcut. route; mod. toxic by inh., ing., IP, IV routes; toxic by skin absorption; skin and severe eye irritant; drying effect on skin may lead to cracking, fissuring, and infections; mildly irritating to mucous membranes; questionable carcinogen; mutagenic data; TSCA listed  

Environmental: VOC; BOD5 1.50; COD 2.18; ThOD 2.40  

Precaution: Highly flamm.; dangerous fire hazard exposed to heat, flame, oxidizers; explosive limits in air 2-13%; incompat. with oxidizing agents (increases risk of fire and explosion); ignites on contact with potassium t-butoxide  

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes  

NFPA: Health 1, Flammability 3, Reactivity 0  
Storage: Store in tightly closed containers in cool, well-ventilated area separate from work place; limit quantities in use  
Uses: Solvent in pharmaceuticals, topicals, liniments; synthetic flavor for pharmaceuticals, mouthwashes, gargles; antiseptic  

Features: Sweet flavor  

Regulatory: FDA 21CFR §172.515, 175.105, 176.180, 176.210, 177.1200, 573.880; FEMA GRAS; FDA approved for topicals; Australia AICS; Canada DSL; Japan MITI  

http://www.amyl.com; Ashland  
http://www.ashchem.com  
Augustus Oils Ltd  http://www.augustus-oils.ltd.uk; Axxence Aromatic GmbH  
http://www.axxence.com;  
http://www.axxence.de; BASF  
http://www.basf.com; Baychem; Burdick & Jackson  http://www.bandj.com  
Celanese  
http://www.celanseschemicals.com;  
http://www.chemvip.com; Chemcentral  
http://www.chemcentral.com; Coyne  
http://www.coynechemical.com; Dow  
http://www.dow.com; Eastman  
http://www.eastman.com  
Fluka  http://www.sigma-aldrich.com;  
General Chem.  
http://www.genchemcorp.com; Grau Aromatics  http://www.grau-aromatics.de;  
Houghton Chem.  
http://www.houghtonchemical.com; Hukill  
http://www.hukill.com
Chemical Component Cross-Reference


†=pharmaceutical grade

Propyl benzoate
CAS 2315-68-6; EINECS/ELINCS 219-020-8
FEMA 2931
Synonyms: Benzoic acid, n-propyl ester; n-Propyl benzoate
Definition: Ester of n-propyl alcohol and benzoic acid
Empirical: C_{10}H_{12}O
Properties: Colorless oily liq., balsamic nutty odor, sweet fruity nut-like taste; sol. in alcohol; insol. in water; m.w. 164.21; dens. 1.026; b.p. 230-231 C; m.p. -51 to -52 C; flash pt. 98 C; ref. index 1.5100
Uses: Synthetic flavor for pharmaceuticals
Use Level: 0.5% max. as benzoic acid in finished cosmetics
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Grau Aromatics http://www.grau-aromatics.de

Propyl butanoate.
See Propyl butyrate

Propyl butyrate
CAS 105-66-8; EINECS/ELINCS 203-320-0
FEMA 2934
Synonyms: Butanoic acid propyl ester; Butyric acid, propyl ester; Propyl butanoate; n-Propyl butyrate
Empirical: C_{7}H_{14}O
Formula: CH_{3}CH_{2}CH_{2}COOCH_{2}CH_{2}CH_{3}
Properties: Colorless liq.; sol. in oxygenated solvs.; misc. with alcohol, ether; sl. sol. in water; m.w. 130.19; dens. 0.87 (20/4 C); m.p. -95 C; b.p. 142-144 C; flash pt. 37 C; ref. index 1.400 (20 C)
Toxicology: LD50 (oral, rat) 15,000 mg/kg; sl. toxic by ing.; irritant to mucous membranes; narcotic in high concs.; TSCA listed
Precaution: Flamm.
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating vapors
Uses: Synthetic flavor for pharmaceuticals
Features: Fruity sweet apricot pineapple rancid sweaty odor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
n-Propyl butyrate. See Propyl butyrate
Propyl caproate. See Propyl hexanoate
Propyl carbinol. See Butyl alcohol

Propyl cinnamate
CAS 7778-83-8; EINECS/ELINCS 231-916-0
FEMA 2938
Synonyms: Cinnamic acid propyl ester; 3-Phenyl-2-propenoic acid propyl ester; N-Propyl beta-phenyl acrylate; N-Propyl cinnamate; Propyl 3-phenyl-2-propenoate; N-Propyl 3-phenyl propenoate

Empirical: C12H14O2
Properties: Colorless visc. liq.; sol. in alcohol; insol. in water; m.w. 190.24; sp. gr. 1.025; ref. index 1.551
Uses: Synthetic flavor for pharmaceuticals

Features: Musty vine amber odor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: Degussa AG/Health & Nutrition

N-Propyl cinnamate. See Propyl cinnamate

1-Propyldisulfamylpropane. See Propyl disulfide

Propyl disulfide
CAS 629-19-6; EINECS/ELINCS 211-079-8
FEMA 3228
Synonyms: Dipropyl disulfide; 1-Propyldisulfamylpropane

Empirical: C6H14S2
Formula: CH3CH2CH2SSCH2CH2CH3
Properties: Garlic, onion odor; m.w. 150.31; dens. 0.957 (20/4 C); m.p. -86 C; b.p. 195 C; flash pt. 64 C; ref. index 1.498 (20 C)

Toxicology: TDLo (oral, rat) 4508 mg/kg; TSCA listed

Precaution: Combustible liq.; stench
Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA

Propylene aldehyde. See Acrolein

Propylene carbonate
CAS 108-32-7; EINECS/ELINCS 203-572-1
Synonyms: Carbonic acid, cyclic propylene ester; Carbonic acid, 1,2-propylene glycol ester; 1,3-Carbonyl dioxypropane; Cyclic methylethylene carbonate; Cyclic propylene carbonate; Cyclic 1,2-propylene carbonate; 1,3-Dioxolan-2-one, 4-methyl; Dipropylene carbonate; 4-Methyl-1,3-dioxolan-2-one; 1-Methyl ethylene carbonate; 1,2-Propanediol carbonate; 1,2-Propanediyl carbonate; Propylene glycol cyclic carbonate

Classification: Organic compd.; carbonic acid ester

Empirical: C4H6O3
Properties: Colorless clear liq.; odorless; very sol. in water; misc. with acetone, benzene, chloroform, ether, ethyl acetate; m.w. 102.10; dens. 1.2069 (20/20 C); vapor pressure 0.03 mm Hg (20 C); m.p. -48.8 C; b.p. 242.1 C; flash pt. (OC) 135 C; ref. index 1.422 (20 C); pH 8.8; can remain liq. (supercools) below its f.p.

Toxicology: LD50 (oral, rat) 29 g/kg, (skin, rabbit) 20 ml/kg; mildly toxic by ing.; human skin irritant; eye irritant; TSCA listed

Environmental: Biodeg.; VOC; ThOD 1.25

Precaution: Combustible exposed to heat or flame; incompat. with strong oxidizing agents (increases fire risk), acids, bases, reducing agents (decomp. can occur)

Hazardous Decomp. Prods.: May produce propylene oxide if an acid, base, or salt is present in an aq. sol'n. of propylene carbonate; heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 1, Flammability 1, Reactivity 0
### Chemical Component Cross-Reference

**Storage:** Store in cool, dry, well-ventilated area, out of direct sunlight; avoid generating mist  
**Uses:** Flavor for pharmaceuticals; topicals  
**Features:** Medicinal, minty flavor  
**Regulatory:** FDA 21CFR §175.105; FDA approved for topicals; NF compliance; Canada DSL


**Trade Names Containing:** Bentone Gel® EUG V; Miglyol® 840 Gel B; Miglyol® Gel B; Miglyol® Gel T; Softisan® Gel

1,2-Propylene carbonate. See Propylene carbonate

#### Propylene glycol

**CAS:** 57-55-6; 4254-15-3 (+); 4254-14-2 (-); 4254-16-4 (±); EINECS/ELINCS 200-338-0  
**FEMA:** 2940; INS: 1520; E1520  
**Synonyms:** 1,2-Dihydroxypropane; 2-Hydroxypropanol; Isopropylene glycol; Methyl ethylene glycol; Methyl ethyl glycol; Methyl glycol; Monopropylene glycol; PG; 1,2-Propanediol; Propane-1,2-diol; 1,2-Propylene glycol; α-Propylene glycol; Trimethyl glycol  
**Classification:** Aliphatic dihydric alcohol  
**Empirical:** C₃H₈O₂  
**Formula:** CH₃CHOHCH₂OH

#### Properties:
- Colorless clear visc. liq., odorless, sl. acid taste; sol. in water, essential oils, acetone, chloroform, ether, ethanol; misc. with oxygenated solvs.; m.w. 76.11; dens. 1.0362; vapor pressure 0.08 mm (20 C); m.p. -60 C; b.p. 188.2 C; flash pt. (OC) 99 C; autoignition temp. 510 C

#### Toxicology:
- LD₅₀ (oral, rat) 25 ml/kg, (IP, rat) 6660 mg/kg, (IV, rat) 6423 mg/kg, (skin, rabbit) 20,800 mg/kg; sl. toxic by ing., skin contact, IP, IV, subcut. routes; eye and human skin irritant; human systemic effects by ing. (anesthesia, convulsions, EEG changes); experimental teratogen, reproductive effector; mutagenic data; TSCA listed

#### Environmental:
- VOC; BOD₅ 1.08; COD 1.63; ThOD 1.68

#### Precaution:
- Combustible exposed to heat or flame; explosive as vapor exposed to heat or flames; explosive limits 2.6-12.6%; reactive with oxidizers; can increase risk of fire and explosion

#### Hazardous Decomp. Prods.:
- Heated to decomp., emits acrid smoke and irritating fumes

#### NFPA:
- Health 0, Flammability 1, Reactivity 0

#### Storage:
- Store in cool, dry area; hygroscopic

#### Uses:
- Solvent, emulsifier, vehicle, humectant, preservative, plasticizer in pharmaceuticals, orals, otics, parenterals, stabilizer in vitamin preps.; protectant in hemorrhoidal prods.

#### Use Level:
- 10-25% (oral sol'ns.), 10-80% (parenterals), 5-80% (topicals)

#### Regulatory:
- FDA 21CFR §73.30, 169.175, 169.176, 169.177, 169.178, 169.180, 169.181, 175.300, 175.320, 176.180, 176.210, 177.1390, 177.1680, 177.2420, 177.2600, 177.2800, 178.3300, 184.1666, 582.4666, GRAS; USDA 9CFR §318.7, 381.147; Canada DSL; BATF 27CFR §240.1051; EPA reg., approved for some drugs; Japan approved with limitations; Europe listed; FEMA GRAS; FDA approved for orals, parenterals, topicals; USP/NF, BP, EP, JP compliance
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<th>Chemical Component Cross-Reference</th>
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<tr>
<td>Ashland†</td>
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<tr>
<td>Baychem; Bayer†</td>
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<td>Brown†</td>
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<tr>
<td>C.P. Hall</td>
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<tr>
<td>Distributors†</td>
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<tr>
<td>EMD Chems.†</td>
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<tr>
<td><a href="http://http://www.lluch-essence.com">http://http://www.lluch-essence.com</a>; Lyondell†</td>
</tr>
</tbody>
</table>

†=pharmaceutical grade

| http://http://www.lyondell.com; Magnesia GmbH† |
| Mallinckrodt Baker† |
| http://http://www.mallbaker.com; MelChem |
| http://http://www.melchem.com; Merck KGaA† |
| http://http://www.merck.de; Miljac |
| http://http://www.miljac.com; Mutchler† |
| Polysciences† |
| http://http://www.polysciences.com; Primachem; R.C. Treat & Co. Ltd |
| http://http://www.rcrtreatt.com; RITA |
| http://http://www.ritacorp.com; Romil Ltd |
| http://http://www.romil.com |
| Ruger† | http://http://www.rugerchemical.com; SAFC Specialties |
| http://http://www.seeler.com; Shell† |
| Showa Denko† | http://http://www.sdk.co.jp; Sigma |
| Thomas Scientific† |
| http://http://http://www.thomassci.com; Univar Ltd† |
| http://http://www.vwrsp.com; Veckridge Voight Global Distrib.† |
| http://http://www.vgdllc.com; Westco |
| http://http://www.westcochemicals.com; Whyte Chems. Ltd |
| http://http://www.whytechemicals.co.uk |

Trade Names: | PG USP; Poly-Chill® Fluid; Propylene Glycol USP, FCC |

Trade Names Containing: | Aloe-Moist™; Amerol® A Liquid; Anti1® 141 Liq.; Arlacel® 186; Blue Algae Extract |
| Ceraphyl® 70; Cremogen® Camomile Forte 728790; CustoBlend® BAT; Extrapone Avocado Special; GPG™ 3565 |
| GPG™ 7030; Germaben® II; Hydrajel® PL; Hydrael® VM; Liquid Germall® Plus |
| Lubrajel® CG; Lubrajel® MS; Lubrajel® Oil; Lubrajel® RC; Lubrajel® RR |

1965
Chemical Component Cross-Reference

Lubrajel® TW; Lubrajel® WA; Nipaguard® MPS; Origanox OS; Oxynex® 2004
Phosal® 50 PG; Phytoderm Complex G; Pronalen® Licorice HSC; Rezal® 36GPG; Stableact® C
Unifluorid D 401; Unigerm G-2; Uninontan U 34

1,2-Propylene glycol; α-Propylene glycol. See Propylene glycol

Propylene glycol alginate
CAS 9005-37-2
FEMA 2941; INS405
Synonyms: Alginic acid, ester with 1,2-propanediol; Hydroxypropyl alginate; Propane-1,2-diol alginate
Definition: Mixture of propylene glycol esters of alginic acid
Empirical: C72H112O56
Formula: (C9H14O7)8
Properties: Wh. to ylsh. fibrous or gran. powd., pract. odorless and tasteless; sol. in water, dil. organic acids, hydroalcoholic mixts.; m.w. 1873.6; DE 0.75-0.85
Toxicology: LD50 (oral, rat) 7200 mg/kg; mildly toxic by ing.; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Flavoring adjuvant, suspending agent, thickener, gellant, film-former, emulsifier, formulation aid, stabilizer, solvent, defoamer, binder, visc. control agent in pharmaceuticals, orals
Features: Reactive with milk
Regulatory: FDA 21CFR §133.133, 133.134, 133.162, 133.178. 172.210, 172.820, 172.858, 173.340, 176.170, GRAS; FEMA GRAS; Japan approved (1% max.); Canada DSL; Europe listed; UK approved; FDA approved for orals; USP/NF compliance
Manuf./Distrib.: AB R Lundberg
http://www.norfoods.se/lundberg; Adept Sol’ns.; Ashland
http://www.ashchem.com; B2E
http://www.protectivechemicals.com; CP Kelco http://www.cpkelco.com
CarboMer† http://www.carbomer.com; FMC Biopolymer

†=pharmaceutical grade

Trade Names: KELCOLOID® HVF; KELCOLOID® LVF; KELCOLOID® O; KELCOLOID® S; MANUCOL® Ester ER/K TIC Pretested® Colloid 602 Powder

Propylene glycol caprylate
CAS 31565-12-5
Synonyms: Caprylic acid, monoester with 1,2-propanediol; Octanoic acid, 2-hydroxypropyl ester; Octanoic acid, monoester with 1,2-propanediol
Definition: Ester of caprylic acid and propylene glycol
Empirical: C11H22O3
Formula: CH3(CH2)6COOCH2CHCH3OH
Uses: Emollient, solubilizer, solvent for pharmaceuticals
Trade Names: Capryol® PGMC; Imwitor® 408
Trade Names Containing: Labrafac PC

Propylene glycol caprylate/caprate
Uses: Excipient, amphiphilic oil, permeation enhancer, coemulsifier for pharmaceuticals, creams, ointments, gels, and lotions
Trade Names: Labrafac PC

Propylene glycol, caprylate caprate diester. See Propylene glycol dicaprylate/dicaprate

Propylene glycol cyclic carbonate. See Propylene carbonate

Propylene glycol diacetate
CAS 623-84-7; EINECS/ELINCS 210-817-6
Synonyms: 1,2-Diacetoxypropane; α-Propylene glycol diacetate
Empirical: C7H13O4
Properties: Transparent liq., fruit-like odor; sol. in water; m.w. 160.19; dens. 1.040-1.060; m.p. ~ 31 C; b.p. 190.2 C; flash pt. 87 C; ref. index 1.413-1.415 (20 C); pH 4-6 (5%)
Toxicology: LD50 (oral, rat) 13,530 mg/kg, (oral, guinea pig) 3420 mg/kg; mod. toxic by ing.; primary irritant; eye and human skin irritant; experimental teratogen; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Emulsifier, solubilizer in pharmaceuticals, otics
Regulatory: FDA approved for otics; Canada DSL
α-Propylene glycol diacetate. See Propylene glycol diacetate

Propylene glycol dibenzoate
CAS 19224-26-1; EINECS/ELINCS 242-894-7
FEMA 3419
Synonyms: 1,2-Propanediol dibenzoate; Propane-1,2-diyl dibenzoate
Empirical: C_{17}H_{116}O_{4}
Properties: Colorless cl. liq.; sol. in alcohol; insol. in water; m.w. 284.31; sp.gr. 1.146; b.p. 232.00 °C @ 12.00 mm; acid no. 1.0 max.; flash pt. (COC) 199 °C; ref. index 1.544
Uses: Flavor for pharmaceuticals
Features: Mild ethereal odor
Regulatory: FDA 21CFR §175.105; FEMA GRAS; Canada DSL

Propylene glycol dicaprate
cas 56519-72-3; 53824-77-4; EINECS/ELINCS 258-814-9
Synonyms: Decanoic acid, 1-methyl-1,2-ethanediyl ester; n-Decanoic acid, 1,3-propanediyl ester; Propylene glycol didecanoate
Definition: Diester of propylene glycol and capric acid
Empirical: C_{23}H_{44}O_{4}
Formula: CH_{3}(CH_{2})_{8}COOCH_{2}CHCH_{3}OCO(CH_{2})_{8}CH_{3}
Properties: Colorless liq.; m.w. 384.60; low visc.; cloud pt. 0.6 °C
Toxicology: TSCA listed
Uses: Solubilizer, extender, carrier for pharmaceuticals
Regulatory: FDA 21CFR §172.856, 173.340, 175.300, 176.170, 176.210, 177.2800; Canada DSL

Propylene glycol dicaprylate/dicaprate
CAS 58748-27-9; 68583-51-7; 68988-72-7; EINECS/ELINCS 271-516-3
Synonyms: Caprylic, capric acid, propylene glycol diester; Decanoic acid, 1-methyl-1,2-ethanediyl ester mixed with 1-methyl-1,2-ethanediyl dioctanoate; Decanoic acid, mixed diesters with octanoic acid and propylene glycol; Octanoic acid, mixed diesters with decanoic acid and propylene glycol; Propylene glycol, caprylate caprate diester; Propylene glycol dicaprylate-caprate
Definition: Mixture of the propylene glycol diesters of caprylic and capric acids
Formula: C_{10}H_{20}O_{2} • C_{8}H_{16}O_{2} • C_{3}H_{8}O_{2}
Properties: Liq.; insol. in water; dens. 0.92 kg/l; pour pt. -40 °C; flash pt. (COC) 184 °C; nonionic
Toxicology: TSCA listed
Uses: Coupling agent, solvent, vehicle, diluent, carrier for flavors, fragrance oils, sol. colorants, vitamins, medicinals; emollient for pharmaceuticals, creams, lotions

Trade Names: Captex® 100

Propylene glycol dicaprate
CAS 7384-98-7; EINECS/ELINCS 230-962-9
Synonyms: Octanoic acid, 1-methyl-1,2-ethanediyl ester
Definition: Diester of propylene glycol and caprylic acid
Empirical: C_{19}H_{36}O_{4}
Formula: CH_{3}(CH_{2})_{8}COOCH_{2}CHCH_{3}OCO(CH_{2})_{6}CH_{3}
Properties: Colorless liq.; m.w. 328.491
Toxicology: TSCA listed
Uses: Emollient, visc. control agent, solvent, solubilizer for pharmaceuticals; solvent for sl. sol. act. substances
Features: Good compat. with oily materials

Trade Names: BGL™ 355; Captex® 200; Captex® 200P; Estol 1526; Lexol® PG-865
Propylene glycol didecanoate. See Propylene glycol dicaprate

Propylene glycol diethylhexanoate. See Propylene glycol dioctanoate

Propylene glycol dinonanoate. See Propylene glycol dipelargonate

Propylene glycol dioctanoate

CAS 56519-71-2; 93981-97-6; EINECS/ELINCS 301-185-3

Synonyms: 2-Ethylhexanoic acid, 1-methyl-1,2-ethanediyl ester; 1-Methylethylene 2-ethylhexanoate; Octanoic acid, 1,3-propanediyl ester; Propylene glycol diethylhexanoate

Definition: Diester of propylene glycol and 2-ethylhexanoic acid

Empirical: C_{19}H_{36}O_4

Formula:

\[\text{CH}_3(\text{CH}_2)_3\text{CHCH}_3\text{CH}_2\text{COOCH}_2\text{CHCH}_3\text{OCOC}_2(\text{CH}_2)_3\text{CH}_3\]

Properties: Sol. in alcohol, min. oil; sp.gr. 0.921; flash pt. (COC) 159 C; ref. index 1.4350

Uses: Emollient, moisturizer, lubricant, penetrant, carrier, vehicle, humectant in pharmaceuticals, dermatologicals, dry skin prods., suppositories; solvent, carrier, vehicle in flavors, fragrances, vitamins, antibiotics, medicinals; vehicle for nutritional prods.

Manuf./Distrib.: A&E Connock
http://www.connock.co.uk; Inolex
http://www.inolex.com

Trade Names: Captex® 800; Lexol® PG-800

Propylene glycol dipelargonate

CAS 41395-83-9; EINECS/ELINCS 255-350-9

Synonyms: Nonanoic acid, 1-methyl-1,2-ethanediyl ester; Propylene glycol dinonanoate

Definition: Diester of propylene glycol and pelargonic acid

Empirical: C_{21}H_{40}O_4

Formula:

\[\text{CH}_3(\text{CH}_2)_7\text{COOCH}_2\text{CHCH}_3\text{OCO}(\text{CH}_2)_7\text{CH}_3\]

Properties: Liq.; m.w. 356.55; dens. 0.896; m.p. -100 C; flash pt. (COC) 43 C

Toxicology: LD50 (oral, rat) 4400 mg/kg, (skin, rabbit) 8100 mg/kg; mildly toxic by ing. and skin contact; vapor irritating to eyes, nose, and throat; absorbed through skin, but health effects unlikely; mod. to severe eye irritant; probable lacrymator; low oral toxicity

Precaution: Combustible exposed to heat and flame; incompat. with oxidizing agents (increases fire/explosion hazard), strong acids (may cause decomp. of ethers)

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Storage: Store in cool, dry, well-ventilated area,
Propylene glycol isostearate

CAS: 68171-38-0; EINECS/ELINCS: 269-027-5

Synonyms: Isooctadecanoic acid, monoester with 1,2-propanediol; Propylene glycol monoisostearate

Definition: Ester of propylene glycol and isostearic acid

Empirical: C₂₁H₄₂O₃

Toxicology: TSCA listed

Uses: Emollient, emulsifier, superfatting agent in pharmaceuticals; solubilizer for fragrances in low alcohol or oil preps.

Regulatory: Canada DSL

Manuf./Distrib.: A&E Connock
http://www.connock.co.uk; Mosselman NV
http://www.mosselman.be

Propylene glycol laurate

CAS: 142-55-2; 10108-22-2; 27194-74-7; EINECS/ELINCS: 205-542-3

Synonyms: Dodecanoic acid, 2-hydroxypropyl ester; Dodecanoic acid, monoester with 1,2-propanediol; 2-Hydroxypropyl dodecanoate; 2-Hydroxypropyl laurate; Lauric acid, monoester with 1,2-propanediol; PGML; 1,2-Propanediol monododecanoate; Propylene glycol monolaurate

Definition: Ester of propylene glycol and lauric acid

Empirical: C₁₇H₃₄O₃

Formula: CH₃(CH₂)₁₀COOCH₂CH₃OH

Properties: Yel to pale amber oily liq.; m.w. 258.40; dens. 0.911; m.p. 0-12 C; HLB 4.5; flash pt. (COC) 188 C; nonionic

Toxicology: Nontoxic but can cause allergic reactions in hypersensitive persons; TSCA listed

Uses: Surfactant, emulsifier, coemulsifier, stabilizer, wetting agent, lubricant, plasticizer, emollient, solvent, excipient, permeation enhancer in pharmaceuticals


Manuf./Distrib.: A&E Connock
http://www.connock.co.uk; ChemService
http://www.chemservice.com; Inolex
http://www.inolex.com; Lambent Tech.
http://www.lambentcorp.com; Ruger
http://www.rugerchemical.com
Stepan http://www.stepan.com; Velsicol
http://www.velsicol.com

Trade Names: Capmul® PG-12; Imwitor® 412; Lauroglycol® 90; Lauroglycol® FCC; Schercemol PGML

Propylene glycol laurate SE

Properties: Anionic

Uses: Emulsifier, coemulsifier, stabilizer, wetting agent, lubricant in pharmaceuticals

Trade Names: Cithrol PGML S/E

Propylene glycol monoethyl ether. See Propylene glycol ethyl ether

Propylene glycol monoisostearate. See Propylene glycol isostearate

Propylene glycol monolaurate. See Propylene glycol laurate

Propylene glycol monomyristate. See Propylene glycol myristate

Propylene glycol monoricinoleate. See Propylene glycol ricinoleate

Propylene glycol monostearate. See Propylene glycol stearate

Propylene glycol myristate

CAS: 29059-24-3; EINECS/ELINCS: 249-395-3

Synonyms: Myristic acid, monoester with 1,2-propanediol; Propylene glycol monomyristate; Tetradecanoic acid, monoester with 1,2-propanediol

Definition: Ester of propylene glycol and myristic acid

Empirical: C₁₇H₃₄O₃

Formula: CH₃(CH₂)₁₂COOCH₂CH₃OH

Toxicology: TSCA listed

Uses: Wetting agent, lubricant, opacifier, dispersant, w/o emulsifier, detergent, defoamer, emollient in pharmaceuticals


Manuf./Distrib.: A&E Connock
http://www.connock.co.uk

Propylene glycol octadecanoate. See Propylene glycol stearate
Propylene glycol oleate

CAS: 1330-80-9; EINECS/ELINCS: 215-549-3

Synonyms: 9-Octadecenoic acid, monoester with 1,2-propanediol; Oleic acid, monoester with 1,2-propanediol

Definition: Ester of propylene glycol and oleic acid

Empirical: C_{21}H_{40}O_{3}

Formula: CH_{3}(CH_{2})_{7}CH=CH(CH_{2})_{7}COOCH_{2}CHCH_{3}OH

Properties: Nonionic

Toxicology: TSCA listed

Uses: Emollient, emulsifier, coemulsifier, stabilizer, wetting agent, lubricant in pharmaceuticals

Regulatory: FDA 21CFR §172.856, 173.340, 175.300, 176.210, 177.2800; Canada DSL

Manuf./Distrib.: A&E Connock
http://www.connock.co.uk; A.P. Chems. Ltd
http://www.chemial.com; ChemService

Propylene glycol oleate SE

Definition: Self-emulsifying grade of propylene glycol oleate that contains some sodium and/or potassium oleate

Properties: Anionic

Uses: Emulsifier, emulsifier, coemulsifier, stabilizer, wetting agent, lubricant in pharmaceuticals

Trade Names: Cithrol PGMO S/E

Propylene glycol palmitate

Definition: Ester of propylene glycol and palmitic acid

Properties: Nonionic

Uses: Surfactant for pharmaceuticals

Propylene glycol palmito/stearate

Uses: Emulsifier, stabilizer in pharmaceuticals

Regulatory: BP, EP compliance

α-Propylene glycol 1-phenyl ether. See Phenoxyisopropanol

Propylene glycol ricinoleate

CAS: 26402-31-3; EINECS/ELINCS: 247-669-7

Synonyms: 12-Hydroxy-9-octadecenoic acid, monoester with 1,2-propanediol; (R)-12-Hydroxyoleic acid, monoester with 1,2-propanediol; Propylene glycol monoricinoleate

Definition: Ester of propylene glycol and ricinoleic acid

Empirical: C_{21}H_{40}O_{4}

Propylene glycol stearate


FEMA: 2942

Synonyms: Monostearin; Octadecanoic acid, monoester with 1,2-propanediol; PGMS; 1,2-Propanediol monostearate; Propylene glycol monostearate; Propylene glycol octadecanoate; Prostearin; Stearic acid, monoester with 1,2-propanediol

Definition: Ester of propylene glycol and stearic acid

Empirical: C_{21}H_{42}O_{3}

Formula: CH_{3}(CH_{2})_{16}COOCH_{2}CHCH_{3}OH

Properties: Wh. to cream flakes, bland typ. fatty odor and taste; sol. in min. oil, IPM, oleyl alcohol; insol. in water, glycerin, propylene glycol; m.w. 342.63; m.p. 35-38 C; HLB 3.4; acid no. 4 max.; iodine no. 3 max.; sapon. no. 155-165; hyd. no. 160-175; nonionic

Toxicology: LD50 (IP, mouse) 200 mg/kg; poison by IP route; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Surfactant, dispersant, emulsifier, solubilizer, lubricant, excipient, thickener, vehicle in pharmaceuticals, rectals, vaginals, creams and lotions; humectant in dry skin prods.

Propyylene glycol stearate SE
CAS 91031-35-5; EINECS/ELINCS 292-936-3

Definition: Self-emulsifying grade of propylene glycol stearate containing some sodium and/or potassium stearate

Properties: Anionic

Uses: Emulsifier, coemulsifier, stabilizer, wetting agent, lubricant, pearlescent, spreading agent in pharmaceuticals

Manuf./Distrib.: A&E Connock
http://www.connock.co.uk; Mosselman NV
http://www.mosselman.be; Ruger

Propyylene oxide homopolymer. See Polypropylene glycol

Propylene phenoxetyl; Propylene phenoxytol; Propylene phenoxytol. See Phenoxyisopropanol

Propylene polymer. See Polypropylene

2-Propyl ethanoate. See Isopropyl acetate

n-Propyl ethanoate. See Propyl acetate

Propyl formate
CAS 110-74-7; EINECS/ELINCS 203-798-0
UN 1281 (DOT); FEMA 2943

Synonyms: Formic acid propyl ester; n-Propyl formate; n-Propyl methanoate

Empirical: C₄H₈O₂
Formula: HCOC₃H₇

Properties: Colorless liq., pleasant odor, bittersweet flavor; sol. in 45 parts water; misc. with alcohol, ether; m.w. 88.10; dens. 0.901 (20 C); vapor pressure 100 mm (29.5 C); m.p. -93 C; b.p. 81-82 C; flash pt. (CC) -3 C; ref. index 1.3771 (20 C)

Toxicology: LD₅₀ (oral, rat) 3980 mg/kg, (oral, mouse) 3400 mg/kg; mod. toxic by ing.; skin, eyes, mucous membrane irritant; TSCA listed

Precaution: Flamm.; dangerous fire risk exposed to heat, flame, or oxidizers; lower explosion limit 2.3%; ignites on contact with potassium-t-butoxide; explosive as vapor exposed to heat or flame

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals

Features: Sweet berry-like flavor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: Cargill Flavors & Fruit Systems USA
http://www.flavors-fruit-systems.com; Grau Aromatics
http://www.grau-aromatics.de; Oxford Chems. Ltd
http://www.oxfordchemicals.com; SAFC Specialties
http://www.safcspecialties.com; Xinchem
http://www.finechemnet.com

n-Propyl formate. See Propyl formate

Propylformic acid. See n-Butyric acid

Propyl 2-furanacrylate
CAS 623-22-3; EINECS/ELINCS 210-780-6
FEMA 2945
Synonyms: 3-(2-Furanyl)-2-furan acrylic acid propyl ester; n-Propyl-2-furanacrylate; Propyl 3-(2-furyl) acrylate; Propyl β-furylacrylate; Propyl-3-furylpipenoate
Definition: Ester of n-propanol and furanacrylic acid
Empirical: \( \text{C}_{10}\text{H}_{12}\text{O}_3 \)
Properties: Colorless liq., lt. strawberry apple/pear-like odor; sol. in alcohol; insol. in water; m.w. 180.21; dens. 1.0744; b.p. 236°C; ref. index 1.5229
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Degussa AG/Health & Nutrition

n-Propyl-2-furanacrylate; Propyl 3-(2-furyl) acrylate; Propyl β-furylacrylate; Propyl-3-furylpipenoate. See Propyl 2-furanacrylate

Propyl gallate
CAS 121-79-9; EINECS/ELINCS 204-498-2
FEMA 2947; INS310
Synonyms: Gallic acid propyl ester; PG; n-Propyl gallate; Propyl 3,4,5-trihydroxybenzoate; n-Propyl 3,4,5-trihydroxybenzoate; 3,4,5-Trihydroxybenzene-1-propylcarboxylate; 3,4,5-Trihydroxybenzoic acid propyl ester; 3,4,5-Trihydroxybenzoic acid, n-propyl ester
Classification: Aromatic ester
Definition: Aromatic ester of propyl alcohol and gallic acid
Empirical: \( \text{C}_{10}\text{H}_{12}\text{O}_5 \)
Formula: \((\text{HO})_3\text{C}_6\text{H}_2\text{COOCH}_2\text{CH}_2\text{CH}_3\)
Properties: Ivory fine powd. or crystals, odorless, sl. bitter taste; sol. in alcohol, ether, oils, oxygenated solvs.; sl. sol. in water, 2-butanol; m.w. 212.22; m.p. 147-149°C; b.p. dec. > 148°C
Toxicology: LD50 (oral, rat) 3.8 g/kg, (IP, rat) 0.38 g/kg; poison by ing. and IP routes; a sensitizer but not a primary irritant; questionable carcinogen; experimental tumorigen, teratogen, reproductive effects; mutagenic data; TSCA listed
Precaution: Combustible exposed to heat or flame; reactive with oxidizers; darkens in presence of iron and iron salts
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
HMIS: Health 2, Flammability 1, Reactivity 0
Uses: Antioxidant and preservative in pharmaceuticals, topicals, parenterals, intramuscular injectables
Use Level: 0.01-0.1%
Regulatory: FDA 21CFR §166.110, 172.615, 175.125, 175.300, 175.380, 175.390, 176.170, 177.1010, 177.1210, 177.1350, 181.22, 181.24 (0.005% migrating from food pkg.), 184.1660 (0.02% max. of fat or oil), 582.3660, GRAS; Canada DSL; USDA 9CFR §318.7, 381.147; FEMA GRAS; Japan approved (0.1 g/kg max.); Europe listed; UK approved; FDA approved for intramuscular injectables, topicals; USP/NF, BP, EP compliance
**Trade Names:** Progallin® P

**n-Propyl gallate.** See Propyl gallate

**Propyl heptanoate**

CAS 7778-87-2; EINECS/ELINCS 231-917-6
FEMA 2948

Empirical: C10H20O2
Formula: CH3(CH2)5CO2CH2CH2CH3

Properties: Colorless liq.; m.w. 172.27; dens. 0.869; m.p. -64 C; b.p. 208 C; flash pt. 170 F

Uses: Synthetic flavor for pharmaceuticals

Features: Sweet ripe fruity apple pear pineapple grape strawberry wine green odor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL


**Propyl hexanoate**

CAS 626-77-7; EINECS/ELINCS 210-963-0
FEMA 2949

Synonyms: Hexanoic acid propyl ester; Propyl caproate; n-Propyl hexanoate

Classification: Nonaromatic ester

Empirical: C9H18O2

Properties: Colorless liq.; fruity, ester-like, tropical odor; insol. in water; sol. in most org. solvs.; m.w. 158.24; dens. 0.867; vapor dens. 5.4; m.p. -96 C; b.p. 187 C; flash pt. 63 C; ref. index 1.4120

Toxicology: Skin, eye, respiratory system irritant; TSCA listed

Precaution: Flamm.; wear protective gloves, splash-proof goggles; incompat. with strong oxidizers

Storage: Keep away from heat, sparks, open flame; keep in original, tightly closed container

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: Advanced Synthesis Tech.
### Chemical Component Cross-Reference

- **Handbook of Pharmaceutical Additives, Third Edition**
- **http://www.advancedsynthesis.com**; Citrus and Allied Essences

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<tr>
<td><strong>Propyl isobutyrate</strong></td>
<td><strong>CAS 644-49-5</strong>; EINECS/ELINCS 211-417-4</td>
<td><strong>FEMA 2936</strong></td>
<td><strong>Synonyms</strong>: Isobutyric acid propyl ester; 2-Methyl propanoic acid propyl ester; n-Propyl isobutyrate; Propyl 2-methyl propanoate</td>
<td><strong>Empirical</strong>: C₇H₁₄O₂</td>
<td><strong>Formula</strong>: (CH₃)₂CHCO₂CH₂CH₃</td>
<td><strong>Properties</strong>: Colorless cl. liq.; sol. in alcohol; sl. sol. in water; m.w. 130.19; flash pt. 29 C</td>
<td><strong>Toxicology</strong>: TSCA listed</td>
<td><strong>Uses</strong>: Synthetic flavor for pharmaceuticals</td>
<td><strong>Features</strong>: Pineapple-like flavor</td>
<td><strong>Regulatory</strong>: FDA 21CFR §172.515; FEMA GRAS; Canada DSL</td>
<td><strong>Advanced Synthesis Tech.</strong></td>
<td><strong>Health 1, Flammability 0, Reactivity 0</strong></td>
<td><strong>Health 1, Flammability 0, Reactivity 0</strong></td>
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<td><strong>Propyl isomentanoate</strong></td>
<td><strong>CAS 557-00-6</strong>; EINECS/ELINCS 209-148-2</td>
<td><strong>FEMA 2960</strong></td>
<td><strong>Synonyms</strong>: Isovaleric acid propyl ester; Propyl isomentanoate; n-Propyl isomentanoate; Propyl 3-methylbutyrate; n-Propyl-β-methylbutyrate</td>
<td><strong>Empirical</strong>: C₉H₁₄O₃</td>
<td><strong>Formula</strong>: C₉H₁₄O₃</td>
<td><strong>Properties</strong>: Colorless mobile liq., fruity odor, bittersweet flavor; sol. in alcohol; insol. in water; m.w. 144.21; dens. 0.8617; b.p. 156-157 C; flash pt. 47 C; ref. index 1.4031</td>
<td><strong>Toxicology</strong>: LD₅₀ (oral, rabbit) 8222 mg/kg</td>
<td><strong>Uses</strong>: Synthetic flavor for pharmaceuticals</td>
<td><strong>Regulatory</strong>: FDA 21CFR §172.515; FEMA GRAS; Canada DSL</td>
<td><strong>Advanced Synthesis Tech.</strong></td>
<td><strong>Health 1, Flammability 0, Reactivity 0</strong></td>
<td><strong>Health 1, Flammability 0, Reactivity 0</strong></td>
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### Additional Information

- **Propyl paraben**: CAS **94-13-3**; EINECS/ELINCS **202-307-7**; FEMA **2951**; INS216; E216
- **Synonyms**: 4-Hydroxybenzoic acid, propyl ester; p-Hydroxybenzoic acid, propyl ester; p-Hydroxypropyl benzoate; Propyl 4-hydroxybenzoate; n-Propyl p-hydroxybenzoate; Propyl p-hydroxybenzoate; Propyl parahydroxybenzoate; Propyl parasept
- **Classification**: Organic ester; aromatic alcohol
- **Definition**: Ester of n-propyl alcohol and p-hydroxybenzoic acid
- **Empirical**: C₁₀H₁₂O₃
- **Properties**: Colorless cryst. or wh. powd., sl. char. odor; sol. in alcohol, ether, acetone, oxygenated solvs.; sl. sol. in boiling water; m.w. 180.22; m.p. 95-98 C
- **Toxicology**: LD₅₀ (oral, mouse) 6332 mg/kg, (IP, mouse) 200 mg/kg, (subcut., mouse) 1650 mg/kg; poison by IP route; mod. toxic by subcut. route; mildly toxic by ing.; an allergen; inh. of powd. may cause respiratory irritation; may cause asthma, rashes, hyperactivity, eye and skin irritation, contact dermatitis; TSCA listed
- **Precaution**: Conc. dust may present an explosion hazard; incompat. with alkalis and strong oxidizing agents; burning may produce phenolic vapors and CO
- **Hazardous Decomp. Prods.**: Heated to decomp., emits acid smoke and fumes
- **HMIS**: Health 1, Flammability 0, Reactivity 0
- **Uses**: Antimicrobial, preservative, antifungal, antibacterial in pharmaceuticals, injectables, parenterals, intravenous, ophthalmics, orals, rectals, topicals,
Chemical Component Cross-Reference

vaginals; dental anesthetics

Use Level: 0.003-1%; 0.03% (eye wash); 0.003-0.05% (drug extracts); 0.05% (tablets); 0.04% (ointment bases); 0.1% (suppositories); 0.5% max. (as benzoic acid, in finished cosmetics)

Regulatory: FDA 21CFR §150.141, 150.161, 172.515, 181.22, 181.23, 184.1670; FEMA GRAS; USA CIR approved, EPA reg.; Japan listed; Europe listed; UK approved; Canada DSL; FDA approved for injectables, parenterals, intravenous, ophthalmics, orals, rectals, topicals, vaginals; USP/NF compliance

Manuf./Distrib.: AB R Lundberg
http://www.norfoods.se/lundberg; AXO Chem.† http://www.axochemical.com;
Aceto http://www.aceto.com; Acme-Hardesty† http://www.acme-hardesty.com;
Aldrich† http://www.sigma-aldrich.com
Avata† http://www.avatacorp.com;
Clariant† http://www.clariant.com;
Clariant/Northern America http://www.clariant-northamerica.com;
CoKEM Assoc.†; Cornelius Chem. Co. Ltd† http://www.cornelius.co.uk; Dastech Int’l.†
http://www.dastech.com; Degussa AG/Health & Nutrition; Fluka
http://www.sigma-aldrich.com
Functional Foods† http://www.functionalfoods.com; GMI
Prods.† http://www.gmi-originales.com;
Goldlink Industries http://www.goldlinkindustries.com; ISP
Sutton Labs; Inolex† http://www.inolex.com
Baker http://www.mallbaker.com; Merck KGaA http://www.merck.de
Mutcher† http://www.mutchlerchem.com;
Napp Tech.† http://www.napptech.com;
Norman, Fox http://www.normfoxx.com;
Omya Peralta http://www.omya-peralta.de;
Penta Mfg.† http://www.pentamfg.com
Phoenix Nat. Prods.
http://www.phoenixuk.com; Protameen
http://www.protameen.com; R.W. Greeff†

†=pharmaceutical grade

http://www.pechini-chemicals.com; RITA†
http://www.ritacorp.com; RTD Hallstar†
http://www.rtdhallstar.com
Spectrum Quality Prods.† http://www.spectrumchemical.com
Thornley http://www.thornleycompany.com;

Trade Names: Nipasol M
Trade Names Containing: Cephalin; Colhibin; Elhibin®; Germaben® II; Nipaguard® BPX
Nipaguard® MPA; Nipaguard® MPS; Nipasept®; Nipastat®; Phenonip®
Pronalen® Sensitive Skin; Sensiline®;
Unigerm G-2; Uniphen P-23

Propylparaben, potassium salt. See Potassium propylparaben

Propylparaben; Propylparaben sodium salt. See Sodium propylparaben

Propyleneoxybenzoate; Propyl parasert. See Propylparaben

Propyl phenethyl acetate. See Acetaldehyde phenethyl propyl acetate

α-Propylenphenethyl alcohol
CAS 705-73-7; EINECS/ELINCS 211-887-0
FEMA 2953

Synonyms: Benzylbutyl alcohol; Benzylpropyl carbinol; Benzyl-n-propyl carbinol; 1-Phenyl-2-pentanol; DL-1-Phenylpentan-2-ol

Classification: aromatic alcohol

Empirical: C_{11}H_{16}O

Properties: Colorless oily liq., mild green sweet odor; sol. in alcohol; almost insol. in water; m.w. 164.25; dens. 0.98; b.p. 247 C; flash pt. 221 F

Uses: Synthetic flavor for pharmaceuticals

Features: Sweet flavor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com

4-Propylphenol
CAS 645-56-7
FEMA 3649

Synonyms: p-Propylphenol

Classification: aromatic alcohol

Empirical: C_{9}H_{12}O

Handbook of Pharmaceutical Additives, Third Edition 1975
Chemical Component Cross-Reference

†=pharmaceutical grade

Properties: Cryst.; sol. in alcohol; very sl. sol. in water; m.w. 136.19; dens. 0.983; m.p. 21-22 C; b.p. 232 C; flash pt. 232 F

Toxicology: LD50 (oral, rat) 500 mg/kg, (IP, mouse) 81 mg/kg, (skin, mammal) 2150 mg/kg; poison by ing. and IP routes; mod. toxic by skin contact; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FEMA GRAS; Canada DSL

Manuf./Distrib.: SAFC Specialties

http://www.safcspecialties.com

p-Propylphenol. See 4-Propylphenol

Propyl phenylacetate

CAS 4606-15-9; EINECS/ELINCS 225-012-5

FEMA 2955

Synonyms: n-Propyl thioacetate; n-Propyl-α-toluate

Definition: Ester of n-propanol and phenylacetic acid

Empirical: C11H14O2

Properties: Colorless liq., honey-like apricot-rose odor, sweet honey-like taste; sol. in alcohol; almost insol. in water; m.w. 178.23; dens. 0.990 (15.5 C); b.p. 253 C; flash pt. 106 C; ref. index 1.4955

Toxicology: TSCA listed

Uses: Synthetic flavor for pharmaceuticals

Features: Apricot, honey-like flavor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI

Manuf./Distrib.: Grau Aromatics

http://www.grau-aromatics.de; SAFC Specialties

http://www.safcspecialties.com

Propyl 3-phenyl-2-propenoate; N-Propyl 3-phenyl propenoate. See Propyl cinnamate

Propyl propanoate. See Propyl propionate

Propyl propionate

CAS 106-36-5; EINECS/ELINCS 203-389-7

UN 3272 (DOT; UN IATA); FEMA 2958

Synonyms: Propanoic acid, propyl ester; Propionic acid, propyl ester; Propyl propanoate; n-Propyl propionate

Empirical: C6H12O2

Formula: CH3CH2COOCH2CH2CH3

Properties: Clear liq., complex fruity odor; sol. in 200 parts water; misc. with alcohol, ether; m.w. 116.16; dens. 0.881 (20/4 C); vapor pressure 10 mm Hg (19.4 C); m.p. -76 C; b.p. 120-122 C; flash pt. 22 C; ref. index 1.3935 (20 C)

Toxicology: LD50 (oral, rat) 10,331 mg/kg; LC50 (inh., unspecified mammal) 16,900 mg/m³; mod. toxic by ing.; very mildly toxic by inh.; skin irritant; TSCA listed

Precaution: Flamm. exposed to heat or flame; can react with oxidizers

Hazardous Decomp. Prods.: Heated to decomp., emits CO, CO2, acrid smoke and irritating fumes

Storage: 6 mos. when stored at 60 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, cold, air

Uses: Synthetic flavor for pharmaceuticals

Features: Fruity flavor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI

Manuf./Distrib.: Adept Sol’ns.; Advanced Synthesis Tech.

http://www.advancedsynthesis.com; Ashland http://www.ashchem.com; Axxence Aromatic GmbH


http://www.safcspecialties.com

n-Propyl propionate. See Propyl propionate

Propyl thioacetate. See Propyl propionate

Propyl phenylacetate

CAS 4606-15-9; EINECS/ELINCS 225-012-5

FEMA 2955

Synonyms: Propyl trans-2-methyl-2-butenoate; Propyl 2-methyl crotonate

Empirical: C8H14O2

Formula: CH3CH=C(CH3)CO2CH2CH2CH3

Properties: Colorless cl. liq.; m.w. 142.20; sol. in alcohol; insol. in water; dens. 0.904; flash pt. 137 F

Uses: Synthetic fragrance for pharmaceuticals

Features: Apple, fruity odor

Use Level: 2.0% in the fragrance concentrate

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI

Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com

n-Propyl-α-toluate. See Propyl phenylacetate

Propyl 3,4,5-trihydroxybenzoate; n-Propyl 3,4,5-trihydroxybenzoate. See Propyl
Chemical Component Cross-Reference

gallate
Prostearin. See Propylene glycol stearate

Protamine sulfate
CAS 9009-65-8; 53597-25-4
Synonyms: Salmine sulfate
Definition: Mixt. of simple proteins obtained from
the sperm or testes of certain species of fish;
has property of neutralizing heparin
Toxicology: LD50 (IP, rat) 120 mg/kg, (IV, rat)
75 mg/kg, (subcut., mouse) 200 mg/kg;
poison by IP, IV, subcut. routes; human
systemic effects (anaphylaxis, blood
pressure decrease, decreased urine vol.);
TSCA listed
Hazardous Decomp. Prods.: Heated to
decom., emits toxic fumes of NOx
and SOx
Uses: Pharmaceuticals (parenterals,
injectables)
Regulatory: FDA approved for parenterals;
USP/NF compliance
Manuf./Distrib.: Aldrich http://www.sigma-
aldrich.com; Sigma http://www.sigma-
aldrich.com/belgium; Spectrum Quality
Prods. http://www.spectrumchemical.com

Protease
CAS 9014-01-1; 9074-09-3; 9074-07-1;
EINECS/ELINCS 232-752-2; 232-642-4
INS1101(i)
Synonyms: Alcalase; Bacillus subtilis
Carlsberg; Detergent enzyme; Maxatase;
Protease, bacterial, alkaline; Proteinase;
Proteolytic enzymes; Subtilisin; Subtilisin
Carlsberg; Subtilisins
Classification: Enzyme
Properties: Gran.; sol. in water; m.w. ≈ 27,000
Toxicology: TWA 0.00006 mg/m³; LD50 (oral,
rat) 3700 mg/kg; mod. toxic by ing.; primary
irritant to eyes, skin, respiratory
tract; sensitizer; TSCA listed
Hazardous Decomp. Prods.: Heated to
decom., emits toxic fumes of NOx
Storage: Hygroscopic; packaged under argon;
freeze
Uses: Enzyme for hydrolysis of proteins;
digestive aids; wound debriding agent;
blood typing aid
Regulatory: Canada, Japan approved
Manuf./Distrib.: Aldrich http://www.sigma-
aldrich.com; Am. Biorganics; Fluka
http://www.sigma-aldrich.com; PMP
Fermentation Prods.
http://www.pmpinc.com; Pangaea Sciences

†=pharmaceutical grade

Protease, bacterial, alkaline. See Protease
Protein, animal, hydrolyzed. See Hydrolyzed
collagen
Proteinase. See Protease
Protein hydrolysate. See Hydrolyzed
collagen
Protein hydrolysates. See Hydrolyzed protein
Protein hydrolysates, milk. See Hydrolyzed
milk protein
Protein hydrolysates, vegetable. See
Hydrolyzed vegetable protein
Protein hydrolysates, wheat germ. See
Hydrolyzed wheat protein
Protein hydrolysates, wheat germ, [3-
(dodecyldimethylammonio)-2-
hydroxypropyl], chlorides. See
Laurdimonium hydroxypropyl hydrolyzed
wheat protein
Protein hydrolysate, yeast. See Hydrolyzed
yeast protein
Proteins, collagen, hydrolysate. See
Hydrolyzed collagen
Proteins, glycin soya. See Soybean (Glycine
soja) protein
Proteins, hydrolysates, reaction prods. with
10-undecenoyl chloride, potassium salts.
See Potassium undecylenoyl hydrolyzed
collagen
Proteins, milk. See Casein
Proteins, milk, hydrolysate. See Hydrolyzed
milk protein
Proteins, milk, hydrolysates. See Hydrolyzed
casein
Proteins, soy. See Soybean (Glycine soja)
protein
Proteins, vegetable, hydrolysate. See
Hydrolyzed vegetable protein

Proteins, wheat, hydrolyzed. See Hydrolyzed wheat protein

Protein, vegetable, hydrolyzed. See Hydrolyzed vegetable protein

Proteolytic enzymes. See Protease

Protocatechualdehyde. See 3,4-Dihydroxybenzaldehyde

Protocatechualdehyde dimethyl ether. See Veratraldehyde

Protocatechualdehyde, methyl-. See Vanillin

Protocatechuic aldehyde dimethyl ether. See Veratraldehyde

Protocatechuic aldehyde ethyl ether. See Ethyl vanillin

Protocatechuic aldehyde methylene ether. See Heliotropane

Protovanol. See Vanilla

Provitamin A. See Carotene

Provitamin B5. See D-Panthenol; DL-Panthenol

Prunolide. See γ-Nonalactone

Prunus amygdalus. Prunus amygdalus amara oil; Prunus amygdalus oil. See Bitter almond (Prunus amygdalus amara) oil

Prunus armeniaca. Prunus armeniaca oil. See Apricot (Prunus armeniaca) kernel oil

Prunus avium. Prunus cerasus. See Cherry pit extract

Prunus dulcis. See Sweet almond (Prunus amygdalus dulcis) oil

Prunus laurocerasus; Prunus laurocerasus oil. See Cherry laurel (Prunus laurocerasus) oil

Prunus persica. See Peach (Prunus persica) kernel oil

Prunus serotina; Prunus serotina bark extract; Prunus serotina extract. See Wild cherry (Prunus serotina) bark extract

Prunus spinosa; Prunus spinosa berries. See Blackthorn berries (Prunus spinosa)

Prussian blue. See CI 77510; Ferric ferrocyanide

PS. See Polystyrene

Pseudoacetic acid. See Propionic acid

Pseudopinen; Pseudopinene. See β-Pinene

Pseudothiourea. See Thiourea

Pseudotsuga menziesi. Pseudotsuga menziesi balsam; Pseudotsuga menziesi resin. See Balsam Oregon (Pseudotsuga menziesi)

Pseudourea. See Urea

PSU. See Polysulfone resin

Psyllium

CAS 8063-16-9

Synonyms: Psyllium gum; Psyllium husks; Psyllium powd.; Psyllium seed husks

Definition: Vegetable mucilage preparation

Properties: Dark-reddish brn., odorless, almost tasteless

Uses: Laxative and antidiarrheal in humans and animals; cleansing agent in the colon; human cardiac care; nutritional supplements; food supplement, colic remedy in animals

Regulatory: BP, EP compliance; FDA 21CFR §135

Manuf./Distrib.: Alfa Chem

http://www.alfachem1.com; Barrington†

http://www.barringtonchem.com; Charles Bowman http://www.charlesbowman.com;

Fortitech http://www.fortitech.com;

Frutarom† http://www.frutarom.com

George Uhe http://www.uhe.com; P.L. Thomas http://www.plthomas.com;

Spectrum Quality Prods.† http://www.spectrumchemical.com; Thew Arnott & Co. Ltd

http://www.thewarnott.co.uk; V.L. Clark

http://www.viclark.com

Psyllium gum; Psyllium husks; Psyllium powd.; Psyllium seed husks. See Psyllium

PTAP. See p-t-Amylphenol

Pteroylglutamic acid; Pteroylmmonoglutamic acid. See Folic acid

PTME; PTMG. See Polytetramethylene ether glycol

PTSA. See p-Toluene sulfonic acid

PTZ. See Phenothiazine

Pudding Grass; Pulegium. See Pennyroyal (Mentha pulegium) extract

d-β-Pulegomenthol. See d-Neomenthol

Pulegon. See d-Pulegone

Pulegone

CAS 15932-80-6

FEMA 2963

Synonyms: 1-Isopropylidene-4-methyl-2-cyclohexanone; 4(8)-Menth-3-one; d-p-Menth-4(8)-en-3-one; p-Menth-4(8)-en-3-one; 1-Methyl-4-isopropylidene-3-cyclohexanone

Classification: Ketone

Empirical: C10H16O

Properties: Oily liq.; pleasant odor of peppermint/camphor; misc. with alcohol, ether, chloroform; pract. insol. in water; m.w. 152.24;
Chemical Component Cross-Reference

dens. 0.936 (20/4 C); b.p. 223-224 C; flash pt. 55 C; ref. index 1.487 (20 C)

Toxicology: LD50 (oral, rat) 470 mg/kg, (IP, mouse) 150 mg/kg, (subcut., mouse) 1709 mg/kg, (skin, rabbit) 3090 mg/kg; poison by IP route; mod. toxic by ing., skin contact, subcut. routes; may cause convulsions, brain/blood changes; skin irritant; TSCA listed

Precaution: Flammable.

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals

Features: Minty flavor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL; u

Manuf./Distrib.: Atomergic Chemicals†
http://www.atomergic.com; Penta Mfg.†
http://www.pentamfg.com; SAFC Specialties http://www.safcspecialties.com

See also d-Pulegone

(+)-Pulegone; (+)-(R)-Pulegone. See d-Pulegone

d-Pulegone

CAS 89-82-7; EINECS/ELINCS 201-943-2; FEMA 2963

Synonyms: Cyclohexanone, 5-methyl-2-(1-methylthylidene)-, (R)-; (R)-2-Isopropylidene-5-methylcyclohexanone; (R)-(+) p-Menth-4(8)-en-3-one; (R)-p-Menth-4(8)-en-3-one; (R)-5-Methyl-2-(1-methylthylidene) cyclohexanone; Pulegon; Pulegone; (+)-Pulegone; (+)-(R)-Pulegone; (R)-(+) Pulegone

Classification: Nonaromatic ketone

Definition: Ketone found in pennyroyal and dedeoma oil

Empirical: C10H16O

Properties: Oily liq.; pleasant odor of peppermint/camphor; misc. with alcohol, ether, chloroform; pract. insol. in water; m.w. 152.26; dens. 0.936; b.p. 224 C; flash pt. 185 F; ref. index 1.4870

Toxicology: LDLo (IV, dog) 330 mg/kg; toxic; poison by IV route; may cause cardiac and vascular changes; irritant; TSCA listed

Precaution: Combustible

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating vapors

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; Canada DSL

†=pharmaceutical grade


(R)-(+) Pulegone. See d-Pulegone

Pumice

CAS 1332-09-8; EINECS/ELINCS 310-127-6

Synonyms: Pumice powd.

Definition: Substance of volcanic origin consisting chiefly of complex silicates of aluminum and alkali metals

Properties: Solid; insol. in cold water; sp. gr. 2.3

Toxicology: Toxic to lungs

Precaution: Wear protective gloves, lab coat, and dust respirator

HMIS: Health 1, Flammability 0, Reactivity 0

Storage: No special storage requirements

Uses: Abrasive, visc. control agent in pharmaceuticals

Regulatory: USP/NF compliance; Canada DSL

Manuf./Distrib.: Fluka http://www.sigma-aldrich.com; Pfaltz & Bauer http://www.pfaltzandbauer.com; Riedel-deHaën; Ruger†
http://www.rugerchemical.com; Spectrum Quality Prods.†
http://www.spectrumchemical.com

Pumice powd. See Pumice

Pure quartz. See Quartz

Purified gum spirits. See Turpentine

Purified oxgall. See Ox bile extract

1H-Purine-2,6-dione, 3.7-dihydro-1,3,7-trimethyl-. See Caffeine

Purple medick extract. See Alfalfa (Medicago sativa) extract

Purple salt. See Potassium permanganate

PVA. See Polyvinyl acetate; Polyvinyl alcohol

PVAc. See Polyvinyl acetate

PVAL; PVAL, hydrolyzed. See Polyvinyl alcohol

PVAP. See Polyvinyl acetate phthalate

PVA-PEG copolymer. See Polyvinyl alcohol-polyethylene glycol copolymer

PVC. See Polyvinyl chloride

PVM/MA. See PVM/MA copolymer

PVM/MA copolymer

CAS 9011-16-9; 52229-50-2

Synonyms: 2,5-Furandione, polymer with methoxyethene; 2,5-Furandione, polymer with methoxyethylene; Methyl vinyl
ether/maleic anhydride copolymer; Poly (maleic anhydride-methyl vinyl ether); Poly (methyl vinyl ether-alt-maleic anhydride); Poly(methyl vinyl ether/maleic anhydride); Polyvinyl methyl ether-maleic anhydride; PVM/MA

**Definition:** Copolymer of methyl vinyl ether and maleic anhydride

**Empirical:** \((C_4H_2O_3 \cdot C_3H_6O)_x\)

**Formula:** \([–CH_2CHOCH_3CHCOOCOCH–]_n\)

**Properties:** Wh. powd.; sol. in water, oxygenated solvs.; m.w. 20,000-67,000; anionic

**Toxicology:** Toxic; cancer suspect agent; TSCA listed

**Uses:** Dispersant, coupling agent, stabilizer, thickener in pharmaceuticals; film-former in spray bandages; bioadhesives; complexing agent for sustained-release iron preps.; dentifrices; oral care agent

**Regulatory:** Canada DSL

**Manuf./Distrib.:** ABCR [http://www.abcr.de]


**Trade Names:** Gantrez® S-97; Luviform® FA 119; Luviform® FA 139

**Trade Names Containing:** Gantrez® AN-119; Gantrez® AN-139; Gantrez® AN-139 BF; Gantrez® AN-149; Gantrez® AN-169

**Hydrajel® VM; Lubrajel® Oil**

**PVM/MA copolymer, butyl ester**

**CAS** 54018-18-7; 54578-91-5; 53200-28-5

**Synonyms:** 2-Butenedioic acid, polymer with methoxyethene, butyl ester; 2-Butenedioic acid, polymer with methoxyethene, monobutyl ester; Butyl ester of PVM/MA copolymer (INCI); Methoxyethene, polymer with 2-butenedioic acid, monobutyl ester

**Definition:** Polymer consisting of partial butyl ester of the polycarboxylic acid formed from vinyl methyl ether and maleic anhydride

**Empirical:** \((C_{11}H_{18}O_5)_n\)

**Formula:** -

- \([CH_2CHOCH_3CHOHCHCOOC_4H_9]_n\) -

**Toxicology:** LD50 (oral, rat) > 25,600 mg/kg; TSCA listed

**Uses:** Binder, film-former in sustained- or controlled-release pharmaceutical tablet coatings

**PVOH. See Polyvinyl alcohol**

**PVP**

**CAS** 9003-39-8; EINECS/ELINCS 201-800-4

**INS1201; E1201**
Chemical Component Cross-Reference

- http://www.barringtonchem.com; Blagden Spec. Chems. Ltd†
- http://www.blagdenspecchem.co.uk; Camida Ltd† http://www.camida.com
- CarboMer† http://www.carbomer.com;
- Chemacon GmbH† http://www.chemacon.de; DanChem Tech.
- http://www.danchem.com; Fluka http://www.sigma-aldrich.com;
- Monomer-Polymer & Dajac Labs http://www.monomerpolymer.com;
- Mutchler† http://www.mutchlerchem.com; Napp Tech.† http://www.napptech.com;
- Omya Peralta http://www.omya-peralta.de
- Parchem Trading† http://www.parchem.com
- Penta Mfg.† http://www.pentamfg.com;
- Research Organics http://www.resorg.com; Ruger† http://www.rugerchemical.com
- Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality Pros.† http://www.spectrumchemical.com
- Univar Ltd† http://www.univar.co.uk;

Trade Names: Kollidon® 12PF; Kollidon® 17PF; Kollidon® 30; Kollidon® 90F; Plasdone® C-15 Plasdone® C-30; Plasdone® K-12; Plasdone® K-17; Plasdone® K-25; Plasdone® K-29/32 Plasdone® K-90; Plasdone® K-90D; PVP K-15; PVP K-15 Sol’n.; PVP K-30 PVP K-60; PVP K-60 Sol’n.; PVP K-90; PVP K-90 Sol’n.; PVP K-120

Trade Names Containing: Kollidic® SR 30 D; Kollidon® SR; Ludipress®; Ludipress® LCE; PVP/Si-10 Stableact® C

PVP-I. See PVP-iodine

PVP/dimethiconylacrylate/polycarbamyl/polyglycol ester
Synonyms: PVP/dimethiconylacrylate/polyurethane

†=pharmaceutical grade

**Definition:** Copolymer of vinylpyrrolidone, acrylated dimethiconol, and polyurethane

**Uses:** Binder, film-former for pharmaceutical topical solutions

**Trade Names:** Pecogel® S-1120

**PVP/dimethiconylacrylate/polycarbamyl/polyglycol ester interpolymer. See**

**Definition:** Copolymer of vinylpyrrolidone, dimethylaminoethyl methacrylate, and polyurethane

**Uses:** Binder, emulsion stabilizer, film-former for pharmaceuticals, topical creams, lotions

**Features:** Humidity-resistant

**Regulatory:** Canada DSL

**Trade Names:** Pecogel® GC-310; Pecogel® GC-1110

**PVP/dimethylaminoethyl methacrylate copolymer**

**Synonyms:** Poly (1-vinylpyrrolidone-co-2-dimethylaminoethyl methacrylate); 2-Propenoic acid, 2-methyl-, 2-(dimethylamino)ethyl ester, polymer with 1-ethenyl-2-pyrrolidinone; Vinylpyrrolidone/dimethylaminoethyl methacrylate copolymer

**Definition:** Polymer from vinylpyrrolidone and dimethylaminoethylmethacrylate monomers

**Toxicology:** Irritant

**Uses:** Binder, emulsion stabilizer, film-former for pharmaceuticals, topical solutions

**Features:** Polymeric hydrogel

**Regulatory:** TSCA listed

**Trade Names:** Pecogel® GC-310; Pecogel® GC-1110

**PVP/eicosene copolymer**

**CAS:** 28211-18-9

**Synonyms:** 1-Eicosene, polymer with 1-ethenyl-2-pyrrolidinone; 1-Ethenyl-2-pyrrolidinone, polymer with 1-eicosene; 2-Pyrrolidinone, 1-ethyl-, polymer with 1-eicosene

**Definition:** Copolymer of PVP, dimethylaminoethylmethacrylate, and polyurethane

**Uses:** Binder, film-former in pharmaceutical topical solutions

**Features:** Polymeric hydrogel

**Regulatory:** TSCA listed

**Trade Names:** Pecogel® GC-310; Pecogel® GC-1110

**PVP/iodine**
Chemical Component Cross-Reference

Regulatory: Canada DSL
Trade Names: Ganex® V-220

PVP / Hexadecene copolymer. See 2-Pyrrolidinone, 1-ethenyl, hexadecyl homopolymer

PVP-iodine
CAS 25655-41-8
Synonyms: Betadine; 1-Ethenyl-2-pyrrolidinone homopolymer compd. with iodine; Poly (1-(2-oxo-1-pyrrolidinyl) ethylene) iodine complex; Polyvinylpyrrolidone-iodine complex; Povidone-iodine; PVP-I; 2-Pyrrolidinone, 1-ethenyl-, homopolymer, compd. with iodine; 1-Vinyl-2-pyrrolidone polymer, compd. with iodine
Definition: Complex of polyvinylpyrrolidone and iodine
Empirical: (C₆H₉NO)ₓ • xI
Properties: Ylsh. brn. amorphous powd., sl. char. odor; sol. in water forming acidic sol’ns.; sol. in alcohol; pract. insol. in chloroform, CCl₄, ether, hexane, acetone; m.p. 300 C (dec.)
Toxicology: LD₅₀ (oral, rat) > 8 g/kg, (IV, rat) 640 mg/kg, (subcut., rat) 3450 mg/kg; mod. toxic by subcut., and IV routes; mildly toxic by ing.; primary irritant; sensitizer; human systemic effects by skin contact (hemorrhage, dermatitis); human mutagenic data; target organs: thyroid, kidneys; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx and I⁻
HMIS: Health 1, Flammability 1, Reactivity 0
Storage: Moisture-sensitive
Uses: Microbicide in OTC drugs, gels, ointments, soaps, solutions, aerosols, antiseptics; medical disinfectant; antimicrobial in presurgical scrubs; topical anti-infective; OTC drug active
Regulatory: USP, BP, EP, JP compliance; Canada DSL

†=pharmaceutical grade

Functional Foods† http://www.functionalfoods.com
H&A (Canada) Ind.† http://www.hacanada.com; ISP† http://www.ispcorp.com; Marcus Research Lab† http://www.marcus-research.com;
Mutchler† http://www.mutchlerchem.com; Napp Tech.† http://www.napptech.com
Penta Mfg.† http://www.pentamfg.com; Pharmiran N. Am.† http://www.pharmiran.com;
RTD Hallstar† http://www.rtdhallstar.com; Ruger† http://www.rugerchemical.com;
Sea-Land http://www.sealandchem.com
Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality Prods.† http://www.spectrumchemical.com

Trade Names: PVP-Iodine 30/06; PVP-Iodine 30/06 M10

PVPP. See Crospovidone; PVP

PVPP/polycarbamyl polyglycol ester
Synonyms: PVP/polyurethane interpolymer
Definition: Copolymer of PVP and polyurethane
Uses: Film-former for pharmaceutical topicals

Trade Names: Pecogel® H-12; Pecogel® H-115; Pecogel® H-1220

PVPP/polycarbamyl polyglycol ester
Synonyms: Acetic acid ethenyl ester, polymer with 1-ethenyl-2-pyrrolidinone; Copolyvidonum; 1-Ethenyl-2-pyrrolidinone, polymer with acetic acid ethenyl ester; Poly (1-vinylpyrrolidone-co-vinyl acetate); Polyvinylpyrrolidone/vinyl acetate copolymer; PVP/VA; Vinylpyrrolidone/vinyl acetate copolymer

Definition: Copolymer of vinyl acetate and vinylpyrrolidone monomers
Formula: (C₆H₉NO • C₄H₆O₂)ₓ
Properties: Powd.; m.w. ≈ 50,000 avg.
Toxicology: TSCA listed
Uses: Solubilizer, visc. modifier/stabilizer in pharmaceuticals; film-former for antiseptic/anesthetic spray bandages, antibiotic sprays, spray gloves/masks; tablet binder/coating agent

Manuf./Distrib.: Adept Sol’ns.†; Aldrich

Chemical Component Cross-Reference

Regulatory: Canada DSL
Trade Names: Ganex® V-220

PVP / Hexadecene copolymer. See 2-Pyrrolidinone, 1-ethenyl, hexadecyl homopolymer

PVP-iodine
CAS 25655-41-8
Synonyms: Betadine; 1-Ethenyl-2-pyrrolidinone homopolymer compd. with iodine; Poly (1-(2-oxo-1-pyrrolidinyl) ethylene) iodine complex; Polyvinylpyrrolidone-iodine complex; Povidone-iodine; PVP-I; 2-Pyrrolidinone, 1-ethenyl-, homopolymer, compd. with iodine; 1-Vinyl-2-pyrrolidone polymer, compd. with iodine
Definition: Complex of polyvinylpyrrolidone and iodine
Empirical: (C₆H₉NO)ₓ • xI
Properties: Ylsh. brn. amorphous powd., sl. char. odor; sol. in water forming acidic sol’ns.; sol. in alcohol; pract. insol. in chloroform, CCl₄, ether, hexane, acetone; m.p. 300 C (dec.)
Toxicology: LD₅₀ (oral, rat) > 8 g/kg, (IV, rat) 640 mg/kg, (subcut., rat) 3450 mg/kg; mod. toxic by subcut., and IV routes; mildly toxic by ing.; primary irritant; sensitizer; human systemic effects by skin contact (hemorrhage, dermatitis); human mutagenic data; target organs: thyroid, kidneys; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx and I⁻
HMIS: Health 1, Flammability 1, Reactivity 0
Storage: Moisture-sensitive
Uses: Microbicide in OTC drugs, gels, ointments, soaps, solutions, aerosols, antiseptics; medical disinfectant; antimicrobial in presurgical scrubs; topical anti-infective; OTC drug active
Regulatory: USP, BP, EP, JP compliance; Canada DSL

†=pharmaceutical grade

Functional Foods† http://www.functionalfoods.com
H&A (Canada) Ind.† http://www.hacanada.com; ISP† http://www.ispcorp.com; Marcus Research Lab† http://www.marcus-research.com;
Mutchler† http://www.mutchlerchem.com; Napp Tech.† http://www.napptech.com
Penta Mfg.† http://www.pentamfg.com; Pharmiran N. Am.† http://www.pharmiran.com;
RTD Hallstar† http://www.rtdhallstar.com; Ruger† http://www.rugerchemical.com;
Sea-Land http://www.sealandchem.com
Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality Prods.† http://www.spectrumchemical.com

Trade Names: PVP-Iodine 30/06; PVP-Iodine 30/06 M10

PVPP. See Crospovidone; PVP

PVPP/polycarbamyl polyglycol ester
Synonyms: PVP/polyurethane interpolymer
Definition: Copolymer of PVP and polyurethane
Uses: Film-former for pharmaceutical topicals

Trade Names: Pecogel® H-12; Pecogel® H-115; Pecogel® H-1220

PVPP/polycarbamyl polyglycol ester
Synonyms: Acetic acid ethenyl ester, polymer with 1-ethenyl-2-pyrrolidinone; Copolyvidonum; 1-Ethenyl-2-pyrrolidinone, polymer with acetic acid ethenyl ester; Poly (1-vinylpyrrolidone-co-vinyl acetate); Polyvinylpyrrolidone/vinyl acetate copolymer; PVP/VA; Vinylpyrrolidone/vinyl acetate copolymer

Definition: Copolymer of vinyl acetate and vinylpyrrolidone monomers
Formula: (C₆H₉NO • C₄H₆O₂)ₓ
Properties: Powd.; m.w. ≈ 50,000 avg.
Toxicology: TSCA listed
Uses: Solubilizer, visc. modifier/stabilizer in pharmaceuticals; film-former for antiseptic/anesthetic spray bandages, antibiotic sprays, spray gloves/masks; tablet binder/coating agent

Manuf./Distrib.: Adept Sol’ns.†; Aldrich

Handbook of Pharmaceutical Additives, Third Edition 1982
Chemical Component Cross-Reference

http://www.sigma-aldrich.com; Alfa Chem†
http://www.alfachem1.com; Generichem†
http://www.generichem.com; ISP
http://www.ispcorp.com
Spectrum Quality Prods.†
http://www.spectrumchemical.com

Trade Names: Plasdone® S-630; PVP/VA S-630

Trade Names Containing: PVP/VA E-335;
PVP/VA E-535; PVP/VA E-635; PVP/VA E-735; PVP/VA I-335
PVP/VA I-535; PVP/VA I-735

2H-Pyran-2,4(3H)-dione, 3-acetyl-6-methyl-
monosodium salt. See Sodium
dehydroacetaete

Pyranine. See CI 59040
Pyranine conc. See D&C Green No. 8

Pyrazine
CAS 290-37-9; EINECS/ELINCS 206-027-6
FEMA 4015
Synonyms: 1,4-Diazabenzene; 1,4-Diazone; p-
Diazone; Paradiazine; Plazine
Empirical: C₄H₆N₂
Properties: M.w. 80.09; dens. 1.031; m.p. 53-56
C; b.p. 115-116 C; flash pt. 132 F
Toxicology: LD₅₀ (IP, mouse) 2730 mg/kg
mod. toxic by IP route; mutagen; TSCA listed
Precaution: Flamm.

Hierarchical Decomp. Prods.: Heated to
decomps., emits toxic vapors of NOₓ
Uses: Flavor for pharmaceuticals
Features: Sweet flavor
Regulatory: FEMA GRAS; Canada DSL
Manuf./Distrib.: Advanced Synthesis Tech.
http://www.advancedsynthesis.com
Eramex Aromatics http://www.earamex.de;
Fleurchem http://www.fleurchem.com
Fluka http://www.sigma-aldrich.com; SAFC
Specialties http://www.safcspecialties.com
Sigma http://www.sigma-
aldrich.com/belgium

Pyrazine hexahydride. See Piperazine
Pyrazine, 2-methyl. See 2-Methylpyrazine
1-Pyrazinylethanone; Pyrazin-1-ylethan-1-one;
1-Pyrazin-2-yl-ethanone. See 2-
Acetylpyrazine
1H-Pyrazole-3-carboxylic acid, 4,5-dihydro-5-
ox-1-(4-sulphonylphenyl)-4-[(4-sulphonylphenyl)
azo]-, trisodium salt. See FD&C Yellow No.
5; Tartrazine
1-(3-Pyridenyl) ethanone. See 3-
Acetylpyridine

Pyridine
CAS 110-86-1; EINECS/ELINCS 203-809-9
UN 1282 (DOT); FEMA 2966
Synonyms: Azabenzene; Azine
Classification: Heterocyclic aromatic compd.
Empirical: C₅H₅N
Formula: NCHCHCHCH
Properties: Colorless to pale yel. liq., char.
disagreeable odor, sharp burning taste; sol. in
water, alcohol, ether, chloroform, petrol. ether,
oils, other org. liqs.; misc. with oxygenated and
aromatic solvs.; m.w. 79.10; dens. 0.98272
(20/4 C); vapor pressure 10 mm Hg (13.2 C);
m.p. -41.6 C; b.p. 115-116 C; flash pt. (CC) 20
C; ref. index 1.510 (20 C); pH 8.5 (0.2 molar
sol'n. in water)

Toxicology: ACGIH TLV/TWA 5 ppm; LD₅₀
(oral, rat) 1.58 g/kg, (skin, rabbit) 1121
mg/kg; poison by IP route; mod. toxic by
ing., IV, subcut.; may cause human CNS
depression, irritation of skin and
respiratory tract; may cause severe
corrosive damage to eyes; ing. may cause
mouth/throat irritation, nausea, vomiting,
diarrhea; large doses may produce GI
turbances, kidney/liver damage,
convulsions, unconsciousness, death;
mutagenic data; TSCA listed
Precaution: Highly flamm.; dangerous fire
hazard exposed to heat, flame, oxidizers;
volatile with steam; incompat. with
oxidizing materials, strong acids or bases,
formamide, iodine, maleic anhydride, silver
perchlorate, perchromates, etc.

Hierarchical Decomp. Prods.: Heated to
decomps., emits highly toxic fumes of NOₓ
NFPA: Health 2, Flammability 3, Reactivity 0
Storage: Store in cool, dry, well-ventilated area
out of direct sunlight
Uses: Solvent in pharmaceuticals; synthesis of
vitamins, drugs; synthetic flavor; sedative;
acid scavenger; chem. intermediate
Regulatory: FDA 21CFR §172.515, 177.1580,
177.1585; FEMA GRAS; BP, EP compliance;
Canada DSL
Manuf./Distrib.: Alfa Aesar†
http://www.alfa.com; Alfa Chem†
http://www.alfachem1.com; Alchem Ind.
http://www.allchem.com; BCH Brühl
http://www.bch-bruehl.de; Bencorp Int'l.
Berje http://www.berjeinc.com; Daicel
Fabrichem http://www.fabricheminc.com;
Fluka http://www.sigma-aldrich.com;
Chemical Component Cross-Reference

Global Chemsources
http://www.globalchemsources.com
H&A (Canada) Ind.† http://www.hacanada.com; Honeywell Perf.
Integra http://www.integrachem.com; Koei
Chem. http://www.koeichem.com; Kowa
Am. http://www.kowa.com
Mallinckrodt Baker† http://www.mallbaker.com; Pechiney
http://www.pentamfg.com; Pharmrime N.
Am.† http://pharmrime.com; Raschig
Reagents http://www.reagents.com; Reilly
Ind.† http://www.reillyind.com; Romil Ltd
http://www.romil.com; Ruger†
http://www.rugerchemical.com; SAFC
Specialties http://www.safcspecialties.com
Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality
Prods.† http://www.spectrumchemical.com; Total
VWR Int'l.† http://www.vwrsp.com; Whyte
Chems. Ltd
http://www.whytechemicals.co.uk

Pyridine-3-carboxylic acid. See Nicotinic acid
3-Pyridinecarboxamide. See Niacinamide
2-Pyridinecarboxylic acid; Pyridine-2-
carboxylic acid. See Picolinic acid
Pyridine-3-carboxylic acid: 3-
Pyridinecarboxylic acid. See Nicotinic acid
α-Pyridinecarboxylic acid. See Picolinic acid
Pyridine-β-carboxylic acid. See Niacinamide
o-Pyridinecarboxylic acid. See Picolinic acid
Pyridine-3-carboxylic acid amide; 3-
Pyridinecarboxylic acid amide. See
Niacinamide
2-Pyridinecarboxylic acid, chromium salt.
See Chromium picolate
2,6-Pyridinediamine. See 2,6-Diaminopyridine
3,4-Pyridinedimethanol, 5-hydroxy-6-methyl-.
See Pyridoxine
3,4-Pyridinedimethanol, 5-hydroxy-6-methyl-
3,4-dioctanoate. See Pyridoxine
dicaprylate
Pyridine, 2,6-dimethyl-. See 2,6-Lutidine
Pyridine-2,6-diylidiamine. See 2,6-
Diaminopyridine
Pyridine, 3-methyl-. See β-Picoline
Pyridine, 4-methyl-. See γ-Picoline
†=pharmaceutical grade

Pyridine, 3-methyl-; 1-oxide. See 3-
Methylpyridine-1-oxide
2-Pyridinepropanamine,γ-(4-chlorophenyl)-
N,N-dimethyl-,(2)-2- butenedioate(1:1) (9CI).
See Chlorpheniramine maleate
2-Pyridinemethiol-1-oxide, zinc salt. See Zinc
pyrithione
Pyridinium, 1-(2-
hydroxyethylcarbamoylmethyl)-, chloride,
dodecanoate; Pyridinium, 1-(2-oxo-2-(2-(1-
oxododecyl) oxy) ethyl) amino) ethyl)-,
chloride. See Lapryrium chloride
1-Pyrindin-3-yi ethanone. See 3-Acetylpyridine

Pyridoxine
CAS 65-23-6; EINECS/ELINCS 200-603-0
Synonyms: 4,5-Bis-hydroxymethyl-2-
methylpyridin-3-ol; 4,5-Dimethylol-3-
hydroxy-2-methylpyridine; 3-Hydroxy-4,5-
dimethylol-α-picoline; 5-Hydroxy-6-methyl-
3,4-pyridinedimethanol; 3-Hydroxy-2-
picoline-4,5-dimethanol; 2-Methyl-4,5-bis
(hydroxymethyl)-3-hydroxypyridine; 2-
Methyl-3-hydroxy-4,5-bis (hydroxymethyl)
pyridine; 2-Methyl-3-hydroxy-4,5-
dihydroxymethyl pyridine; 3,4-
Pyridinedimethanol, 5-hydroxy-6-methyl-
Pyridoxol; Pyroxidine; Vitamin B6
Classification: 6-membered aromatic
heterocyclic
Definition: Avail. commercially as the
hydrochloride, phosphate, or tripalmitate
dervs.
Empirical: C₈H₁₁NO₃
Properties: Needles; m.w. 169.20; m.p. 159-162
C
Toxicology: LD50 (oral, rat) 4 g/kg, (IP, mouse)
966 mg/kg, (subcut., rat) 3100 mg/kg, (IV,
rat) 657 mg/kg; mod. toxic by ing., subcut.,
IV, IP routes; irritant; human systemic
effects (ataxia, local anesthetic,
paresthesia); TSCA listed
Hazardous Decomp. Prods.: Heated to
decomp., emits toxic fumes of NOx
Uses: Vitamin; dietary supplement; oil control
agent in pharmaceutical skin care prods.
Regulatory: FDA 21CFR §101.9, 184.1555,
GRAS; Canada DSL
Manuf./Distrib.: Aceto† http://www.aceto.com;
Adept Sol'ns.†; Aldrich http://www.sigma-
aldrich.com; Alfa Chem†
http://www.alfachem1.com; Anmar Int'l.†
http://www.anmarinternational.com
Chemical Component Cross-Reference

Vitamin B₆ dipalmitate
Classification: Substituted aromatic compd.
Definition: Oil-sol. vitamin B₆ deriv.
Empirical: C₄₀H₇₁NO₅
Uses: Conditioner
Trade Names: DP

Pyridoxine HCl
CAS 58-56-0; EINECS/ELINCS 200-386-2
Synonyms: Adermine hydrochloride; 3-Hydroxy-4,5-dihydroxymethyl-2-methylpyridine HCl; 3-Hydroxy-4,5-dimethylol-α-picoline hydrochloride; 5-Hydroxy-6-methyl-3,4-pyrindinediacarbinol hydrochloride; 5-Hydroxy-6-methyl-3,4-pyrindinemethanol hydrochloride; 2-Methyl-3-hydroxy-4,5-bis (hydroxymethyl) pyridine hydrochloride; Pyridoxine hydrochloride; Pyridoxinum chloride; Pyridoxinium hydrochloride; Pyridoxol hydrochloride; Vitamin B₆ hydrochloride
Classification: Substituted aromatic compd.
Empirical: C₈H₁₁NO₃ • ClH
Properties: Colorless to wh. platelets or cryst. powd., odorless; sol. in water, alcohol, acetone, propylene glycol; sl. sol. in other org. solvs.; insol. in ether, chloroform; m.w. 205.66; m.p. 204-206 C (dec.); pH 2.0-3.5 (5% aq.)
Toxicology: LD₅₀ (oral, rat) 4000 mg/kg, (IV, rat) 530 mg/kg, (subcut., rat) 3 g/kg; poison by IV route; mod. toxic by ing.; prolonged high doses may cause ataxia; human reproductive effects; experimental teratogen; human mutagenic data; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of NOₓ and HCl
Uses: Dietary supplement, nutrient for pharmaceuticals and vitamin fortification
Regulatory: FDA 21CFR §101.9, 107.100, 184.1676, GRAS; Japan approved; BP, EP compliance; Canada DSL
Manuf./Distrib.: AMC Chems.†; Aldrich
http://www.sigma-aldrich.com; Alfa Chem http://www.alfachem1.com; Amerol
http://www.amerolcorp.com; BASF AG†
http://www.basf.de
Charles Bowman†
http://www.charlesbowman.com;
Chemacon GmbH†
http://www.chemacon.de; Daiichi Fine
Daiichi Pharmaceutical
Chemical Component Cross-Reference

http://www.daiichipharm.co.jp/english;
Degussa AG/Health & Nutrition
Fluka  http://www.sigma-aldrich.com;
Fuerst Day Lawson  http://www.fdl.co.uk;
Galbraith Labs†  http://www.galbraith.com;
Mallinckrodt Baker†  http://www.mallbaker.com;  Premium Ingreds.
http://www.premiumingredients.com
Rochem Int’l.  http://www.rochemintl.com;
Ruger†  http://www.rugerchemical.com;
Sigma  http://www.sigma-aldrich.com/belgium;  Spectrum Quality Prods.†
http://www.spectrumchemical.com;  Unipex
http://www.unipex.com
Voigt Global Distrib.†  http://www.vgdl.com

Trade Names:  Pyridoxine Hydrochloride USP, FCC
Trade Names Containing:  B6-97® Pyridoxine Hydrochloride for DC; Descote® Pyridoxine Hydrochloride 33%/3%; Rocoat® Pyridoxine Hydrochloride 33%/3%

Pyridoxine hydrochloride; Pyridoxinium chloride; Pyridoxinum hydrochloride.  See Pyridoxine HCl
Pyridoxol.  See Pyridoxine
Pyridoxal hydrochloride.  See Pyridoxine HCl
2-pyridyl methyl ketone.  See 2-Acetylpyridine
Pyritohione zinc.  See Zinc pyrithione

Pyrithyldione
CAS 77-04-3
Synonyms:  3,3-Diethyl-2,4(1H,3H)-pyridinedione
Properties:  M.w. 167.21; b.p. 187-189 C (14 mm)
Uses:  Pharmaceuticals (topicals); hypnotic sedative
Regulatory:  FDA approved for topicals
Manuf./Distrib.:  Aldrich†  http://www.sigma-aldrich.com; Sigma  http://www.sigma-aldrich.com/belgium

Pyroacetic acid; Pyroacetic ether.  See Acetone
Pyrobenzol; Pyrobenzole.  See Benzene
Pyrocatechin; Pyrocatechrol; Pyrocatechol; Pyrocatecholic acid.  See Pyrocatechol

Pyrocatechol
CAS 120-80-9; EINECS/ELINCS 204-427-5
Synonyms:  1,2-Benzenediol; o-Benzenediol; Catechol; Cl 76500; 1,2-Dihydroxybenzene;
†=pharmaceutical grade

o-Dihydroxybenzene; o-Dioxybenzene; o-Diphenol; o-Hydroquinone; 2-Hydroxyphenol; o-Hydroxyphenol; Oxynic acid; o-Phenylenediol; Pyrocatechin; Pyrocatecholin; Pyrocatechic acid; Pyrocatechuic acid

Classification:  Aromatic hydrocarbon; phenol
Empirical:  C₆H₆O₂
Formula:  C₆H₄(OH)₂

Properties:  Colorless monocl. leaflets; discolored by lit. and air; sol. in water, oxygenated solvs., chloroform, alcohol, benzene, ether; m.w. 110.11; dens. 1.371 (15 C); vapor pressure 10 mm (118.3 C); m.p. 105 C; b.p. 240 C; flash pt. 127 C

Toxicology:  LD50 (oral, rat) 260 mg/kg, (subcut., mouse) 247 mg/kg, (skin, rabbit) 800 mg/kg; toxic; poison by ing., subcut., IP, IV, parental routes; mod. toxic by skin contact; corrosive; skin irritant; allergen; readily absorbed thru skin; tumorigen; experimental reproductive effects; human mutagenic data; target organs: liver, kidneys, nerves; TSCA listed

Precaution:  Oxygen-sensitive; combustible exposed to heat or flame; can react vigorously with oxidizers; hypergolic reaction with conc. nitric acid

Hazardous Decomp. Prods.:  Heated to decomp., emits acrid smoke and irritating fumes

Storage:  Light- and air-sensitive; store under nitrogen
Uses:  Synthesis of pharmaceuticals; antiseptic
Regulatory:  SARA §313 reportable; HAP; Canada DSL
Manuf./Distrib.:  Aldrich  http://www.sigma-aldrich.com; Coalite Chems.
http://www.coalitechemicals.com; EMD Chems.†  http://www.emdchemicals.com;
Filo  http://www.filochemical.com; Fluka  http://www.sigma-aldrich.com
Spectrum Quality Prods.†  http://www.spectrumchemical.com

Pyrocatechol dimethyl ether.  See o-Dimethoxybenzene
Pyrocatechol methyl ether.  See Guaiacol
Pyrocatechuic acid.  See Pyrocatechol
Pyrocellulose.  See Cellulose
Chemical Component Cross-Reference

Pyrodextrin. See Dextrin
Pyrogallic acid. See Pyrogallol

Pyrogallol
CAS 87-66-1; EINECS/ELINCS 201-762-9
Synonyms: 1,2,3-Benzenetriol; CI 76515;
Pyrogallic acid; 1,2,3-Trihydroxybenzene
Classification: Phenol
Definition: An aromatic alcohol of pyrogallic acid
Empirical: C₆H₅O₃
Formula: C₆H₆O₃
Properties: Wh. lustrous cryst. solid; sol. in water, alcohol, ether, oxygenated solvs.; sl. sol. in benzene, chloroform; m.w. 126.12; dens. 1.453 (4/4 C); vapor pressure 10 mm Hg (167.7 C); m.p. 131-133 C; b.p. 309 C
Toxicology: LD₅₀ (oral, mouse) 300 mg/kg, (IP, mouse) 400 mg/kg, (subcut., mouse) 566 mg/kg; poison by ing., subcut., IV, IP routes; human poison by ing., subcut., routes; readily absorbed through skin; severe skin and eye irritant; ing. causes severe GI irritation, kidney/liver damage, convulsions, seizures, dyspnea, circulatory collapse, death; questionable carcinogen; experimental tumorigen, teratogen, reproductive effector; mutagenic data; TSCA listed
Precaution: Incompat. with alkalis, NH₃, antipyrine, phenol, iron and lead salts, iodine, KMnO₄
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
HMIS: Health 2, Flammability 1, Reactivity 0
Storage: Light-sensitive
Uses: Pharmaceutical intermediate; synthetic drugs; medicine; colorant (with ferric ammonium citrate) in plain or chromic catgut sutures; external antimicrobial; soothes irritated skin
Use Level: 3% max. total ferric ammonium citrate and pyrogallol (sutures)
Regulatory: FDA 21CFR §73.1025, 73.1375, permanently listed for use in medical devices; Canada DSL
Manuf./Distrib.: Aldrich† http://www.sigma-aldrich.com; Alfa Chem† http://www.alfachem1.com; Atomergic Chemets‡ http://www.atomergic.com; Biddle Sawyer† http://www.biddlesawyer.com; Burlington Bio-Medical CarboMer† http://www.carbomer.com; Celanese

†=pharmaceutical grade

Pyrogallol dimethyl ether: Pyrogallol 1,3-dimethyl ether. See 2,6-Dimethoxy phenol
Pyrogallinic acid: See Hydroquinone
Pyroguaic acid: See Guaiacol
2-Pyrol. See 2-Pyrolidone

Pyrogalline acid
CAS 8030-97-5; EINECS/ELINCS 232-450-0
FEMA 2967
Synonyms: Pyrogalline acid extract; Pyrogalline liquor; Pyrogalline vinegar; Wood vinegar
Definition: Mixt. of materials derived from wood distillation, contg. methanol, acetic acid, acetone, furfural, various tars, etc.
Properties: Yel. to red liq.; acetic acid and wood tar odor; misc. with water and alcohol; dens. 1.018-1.030
Toxicology: TSCA listed
Uses: Flavor for pharmaceuticals
Features: Smoke woody phenolic bacon odor
Regulatory: FDA 21CFR §101.22; FEMA GRAS; Canada DSL

Pyrogalline acid extract
CAS 8028-47-5; EINECS/ELINCS 232-432-2
FEMA 2968
Synonyms: 'Liquid smoke'; Pyrogalline acids extracts; Pyrogalline vinegar
Definition: Extract derived from pyrogalline acid which is the condensed volatile material obtained from the destructive distillation of
Chemical Component Cross-Reference

**wood**

*Properties*: Yel. to red liq., smoke odor; dens. 1.018-1.030

*Uses*: Synthetic flavor for pharmaceuticals

*Regulatory*: FDA 21 CFR §172.515; FEMA GRAS; Canada DSL

*Manuf./Distrib.*: Degussa AG/Health & Nutrition

**Pyroligneous acid extract**. See *Pyroligneous acid*

**Pyroligneous acids extracts**. See *Pyroligneous acid extract*

**Pyroligneous vinegar**. See Pyroligneous acid; Pyroligneous acid extract

**Pyroligneous acid**. See Acetic acid

**Pyromucic acid methyl ester**. See Methyl 2-furoate

**Pyromucic aldehyde**. See Furfural

**Pyrophylite**

*CAS* 12269-78-2

*Synonyms*: Agalmatolite; Hydrated aluminum silicate

*Definition*: Naturally occurring mineral substance consisting predominantly of hydrous aluminum silicate

*Empirical*: Al₂O₃ • 4SiO₂ • H₂O

*Formula*: Al₂Si₄O₁₀(OH)

*Properties*: Colorless, wh., green, gray, brown; pearly to greasy luster; dens. 2.8-2.9; hardness (Mohs) 1-2

*Uses*: Colorant for external pharmaceuticals; diluent, carrier

*Regulatory*: FDA 21 CFR §73.1400, 73.2400; exempt from certification, permanently listed for drug use

*Manuf./Distrib.*: Chem-Materials

*Trade Names*: Pyrax® ABB; Pyrax® B; Pyrax® WA

*See also* Aluminum silicate

**Pyroracemic acid**. See *Pyruvic acid*

**Pyroracemic aldehyde**. See *Pyruvaldehyde*

**Pyrostannous phosphate**. See Stannous pyrophosphate

**Pyrosulfurous acid disodium salt**. See Sodium metabisulfite

**Pyroxidine**. See Pyridoxine

**Pyroxylic spirit**. See Methyl alcohol

**Pyroxylin**; Pyroxylin plastic; Pyroxylin rods. See Nitrocellulose

†=pharmaceutical grade

**Pyroxylin solution**. See Collodion

**Pyroxylin**

*CAS* 109-97-7; EINECS/ELINCS 203-724-7

*FEMA* 3386

*Synonyms*: 1-Aza-2,4-cyclopentadiene; Azole; Divinylengimine; Imidole; Monopyrrole

*Definition*: Constituent of coal tar and bone oil

*Empirical*: C₄H₅N

*Formula*: CH=CHNHCH=CH

*Properties*: Colorless to yel.-brn. oily liq.; chloroform-like odor; burning, pungent taste; sol. in alcohol, ether, dil. acids, fixed oils, benzene; insol. in water, dil. alkalis; m.w. 67.09; dens. 0.966 (20/4 C); f.p. -24 C; b.p. 129-131 C; flash pt. 36 C; ref. index 1.5091 (20 C)

*Toxicology*: LD50 (IP, mouse) 98 mg/kg, (subcut., mouse) 61 mg/kg; LDLo (oral, rabbit) 147 mg/kg; poison by ing., subcut., IP routes; toxic by inh.; harmful liq.; irritant; mutagen; TSCA listed

*Precaution*: Flamm.; mod. fire risk; readily polymerizes by action of light and turns brown; can react with oxidizers; violent reaction with 2-nitrobenzaldehyde

*Hazardous Decomp. Prods.*: Heated to decomp., emits highly toxic fumes of NOx

*Storage*: Photosensitive; protect from moisture; store under nitrogen; refrigerate

*Uses*: Flavor for pharmaceuticals; mfg. of pharmaceuticals

*Regulatory*: FEMA GRAS; Canada DSL

*Manuf./Distrib.*: Advanced Synthesis Tech.

*Trade Names*: Ganex® V-216

*See also* N-Methyl-2-pyrrolidone

2-Pyrrolidine carboxylic acid; Pyrrolidine-2-carboxylic acid. See L-Proline

2-Pyrrolidinone; α-Pyrrolidinone. See 2-Pyrrolidone

2-Pyrrolidinone, 1-dodecyl-. See Lauryl pyrrolidone

2-Pyrrolidinone, 1-ethenyl, hexadecyl homopolymer

*CAS* 63231-81-2

*Synonyms*: PVP / Hexadecene copolymer

*Formula*: (C₂₂H₄₁NO)ₓ

*Properties*: Yel. visc. liq.

*Uses*: Surfactant

*Trade Names*: Ganex® V-216
2-Pyrrolidinone, 1-ethenyl-, homopolymer.  
See Crospovidone
2-Pyrrolidinone, 1-ethenyl-, homopolymer, compd. with iodine.  
See PVP-iodine
2-Pyrrolidinone, 1-ethenyl-, polymer with 1-eicosene.  
See PVP/eicosene copolymer
2-Pyrrolidinone, 1-(2-hydroxyethyl)-.  
See N-Hydroxyethylpyrrolidone

**Pyrrolidone.  See 2-Pyrrolidone**

**2-Pyrrolidone**

*CAS 616-45-5; EINECS/ELINCS 204-648-7*

**Synonyms:** 4-Aminobutyrilic acid lactam; γ-Aminobutyric acid lactam; γ-Aminobutyrilic lactam; Butyrolactam; γ-Butyrolactam; LAM; 2-Oxopyrrolidone; 2-Pyro; 2-Pyrrolidinone; α-Pyrrolidinone; Pyrrolidone; Pyrrolidone-2; α-Pyrrolidone

**Empirical:** C₄H₇NO

**Formula:** CH₂CH₂CH₂C(O)NH

**Properties:** Colorless to lt. yel. liq. or solid; sol. in water, ethanol, ethyl ether, chloroform, benzene, ethyl acetate, carbon disulfide; misc. with oxygenated, chlorinated, and aromatic solvs.; insol. in aliphatic solvs.; m.w. 85.12; dens. 1.11 kg/l (20 C); m.p. 25 C; b.p. 245 C; solvs.; insol. in aliphatic solvs.; m.w. 85.12; dens. 1.265 (20/4 C); m.p. 11.8 C; flash pt. 265 F

**Toxicology:** LD₅₀ (oral, rat) 6500 mg/kg, (IP, rat) 160 mg/kg; LDLo (subcut., mouse) 10 g/kg; mildly toxic by ing., subcut. route; mutagen; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of NOₓ

**Uses:** Process solvent, solubilizer for pharmaceuticals; solvent for veterinary medicine; pharmaceutical intermediate; synthesis of piracetam; treatment of cerebral distress

**Regulatory:** Canada DSL


**Trade Names:** 2-Pyr®; Soluphor® P

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**Chemical Component Cross-Reference**

2-Pyrrolidinone, 1-ethenyl-, homopolymer.  See Crospovidone
2-Pyrrolidinone, 1-ethenyl-, homopolymer, compd. with iodine.  See PVP-iodine
2-Pyrrolidinone, 1-ethenyl-, polymer with 1-eicosene.  See PVP/eicosene copolymer
2-Pyrrolidinone, 1-(2-hydroxyethyl)-.  See N-Hydroxyethylpyrrolidone

**Pyrrolidone.  See 2-Pyrrolidone**

**2-Pyrrolidone**

*CAS 616-45-5; EINECS/ELINCS 204-648-7*

**Synonyms:** 4-Aminobutyric acid lactam; γ-Aminobutyric acid lactam; γ-Aminobutyrilic lactam; Butyrolactam; γ-Butyrolactam; LAM; 2-Oxopyrrolidone; 2-Pyro; 2-Pyrrolidinone; α-Pyrrolidinone; Pyrrolidone; Pyrrolidone-2; α-Pyrrolidone

**Empirical:** C₄H₇NO

**Formula:** CH₂CH₂CH₂C(O)NH

**Properties:** Colorless to lt. yel. liq. or solid; sol. in water, ethanol, ethyl ether, chloroform, benzene, ethyl acetate, carbon disulfide; misc. with oxygenated, chlorinated, and aromatic solvs.; insol. in aliphatic solvs.; m.w. 85.12; dens. 1.11 kg/l (20 C); m.p. 25 C; b.p. 245 C; solvs.; insol. in aliphatic solvs.; m.w. 85.12; dens. 1.265 (20/4 C); m.p. 11.8 C; flash pt. 265 F

**Toxicology:** LD₅₀ (oral, rat) 6500 mg/kg, (IP, rat) 160 mg/kg; LDLo (subcut., mouse) 10 g/kg; mildly toxic by ing., subcut. route; mutagen; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of NOₓ

**Uses:** Process solvent, solubilizer for pharmaceuticals; solvent for veterinary medicine; pharmaceutical intermediate; synthesis of piracetam; treatment of cerebral distress

**Regulatory:** Canada DSL


**Trade Names:** 2-Pyr®; Soluphor® P

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**Pyruvaldehyde**

*CAS 78-98-8; EINECS/ELINCS 201-164-8*

**FEMA 2969**

**Synonyms:** Acetyl formaldehyde; Acetylformyl; 1-Ketopropionaldehyde; 2-Ketopropionaldehyde; α-Ketopropionaldehyde; Methylglyoxal; 2-Oxopropanol; Propanedio; Propanolone; Pyroracemic aldehyde; Pyruvic aldehyde

**Empirical:** C₃H₄O₂

**Formula:** CH₃COCHO

**Properties:** Yel. mobile liq., pungent stinging odor, carmellic sweet odor; sol. in alcohol, ether, benzene; m.w. 72.06; dens. 1.178; b.p. 72 C; ref. index 1.4002 (17.5 C)

**Toxicology:** LD₅₀ (oral, rat) 1165 mg/kg, (IP, mouse) 179 mg/kg; harmful liq.; poison by IP route; mod. toxic by ing.; eye irritant; tumorigen; mutagen; TSCA listed

**Precaution:** Combustible exposed to heat or flame

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Storage:** Hygroscopic

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Caramel flavor

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Manuf./Distrib.:** Fluka http://www.sigma-aldrich.com; SAFC Specialties http://www.safcspecialties.com; Sigma http://www.sigma-aldrich.com/belgium

**Pyruvic acid**

*CAS 127-17-3; EINECS/ELINCS 204-824-3*

**UN 3265 (DOT; UN IATA); FEMA 2970**

**Synonyms:** Acetylformic acid; 2-Ketopropionic acid; α-Ketopropionic acid; 2-Oxopropanoic acid; 2-Oxopropionic acid; Propanoic acid, 2-oxo-; Pyroracemic acid

**Classification:** Aliphatic organic compd.

**Empirical:** C₃H₄O₃

**Formula:** CH₃COOH

**Properties:** Colorless liq., acetic acid odor; misc. with water, alcohol, ether, oxygenated solvs.; m.w. 88.06; dens. 1.265 (20/4 C); m.p. 11.8 C; b.p. 165 C (760 mm, dec.); flash pt. 82 C; ref.
Chemical Component Cross-Reference

index 1.4138 (20 C)

Toxicology: LD50 (subcut., mouse) 3533 mg/kg; corrosive; causes burns; TSCA listed

Precaution: Combustible; polymerizes and dec. on standing unless pure and kept in airtight container; incompat. with strong oxidizers, reducers

Hazardous Decomp. Prods.: Heated to decomp., emits CO, CO2, acrid smoke and irritating fumes

Storage: Unstable in storage; air- and light-sensitive; store refrigerated in airtight container; handle under nitrogen

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI

Manuf./Distrib.: Advanced BioTech
http://www.adv-bio.com; Advanced Synthesis Tech.


SAFC Specialties http://www.safcsp.com; Sigma http://www.sigma-aldrich.com; Silicon http://www.sigma-aldrich.com/belgium;

Spectrum Quality Prods.† http://www.spectrumchemical.com; Synasia† http://www.synasia.com

Pyruvic acid ethyl ester. See Ethyl pyruvate

Pyruvic aldehyde. See Pyruvaldehyde

Pyruvophenone. See 1-Phenyl-1,2-propanedione

Quartz
CAS 14808-60-7; EINECS/ELINCS 238-878-4

Synonyms: Agate; Amethyst; Chalcedony; Crystalline silica; Flint; Free crystalline silica; Onyx; Pure quartz; Quartz glass; Rose quartz; Sand; Sea sand; Silica; Silica,‡

†=pharmaceutical grade

crystalline quartz; Silica flour; Silica glass; Silica, quartz; Silicic anhydride; Silicon dioxide

Classification: Inorg. silicon compd.

Definition: Crystallized silicon dioxide

Empirical: O2Si

Formula: SiO2

Properties: Wh. to reddish cryst. solid; odorless; insol. in acids except HF; insol. in water; m.w. 60.08 dens. 2.65; m.p. 1713 C; b.p. 2230 C; hardness (Mohs) 7; stable below 8 C; noncombustible

Toxicology: ACGIH TLV/TWA 0.1 mg/m3 (respirable fraction); LDLo (IV, rat) 90 mg/kg; TDLo (IP, rat) 45 mg/kg; LCLo (inh., human, 10 yr., intermittent) 300 µg/m3; harmful dust; poison by intratracheal and IV routes; hazard by inh.; human systemic effects by inh. (cough, dyspnea, liver effects); can cause serious lung disease, death; irritating to eyes, respiratory system; confirmed carcinogen; experimental tumorigen, neoplastigenic data; TSCA listed

Precaution: Incompat. with OF2, vinyl acetate, strong oxidizing agents

Hazardous Decomp. Prods.: None

Storage: Store in sealed containers or enclosed areas; protect from damage; minimize airborne dust

Uses: Filtration in pharmaceuticals

Regulatory: Canada DSL; Korea ECL (no. 9212-5667); Japan ENCS (no. 1-548); Australia AICS; Philippines PICCS


Trade Names Containing: Sillitin Z 86 Puriss; Terra Alba; Veegum® D; Veegum® K

See also Silica

Quartz glass. See Quartz
Quassia
CAS 68915-32-2; EINECS/ELINCS 272-809-9
FEMA 2971
Synonyms: Bitter ash; Bitter wood; Picrasma excelsa; Quassia amara
Definition: Wood of Picrasma excelsa or Quassia amara, contg. bitter principle quassin
Properties: Ylsh-wh. to bright yel. chips or fibrous coarse grains, sl. odor, very bitter taste
Uses: Bitter tonic in pharmaceuticals; medicine; anthelmintic; tonic; bitter
Regulatory: FDA 21CFR §172.510; Japan approved
Manuf./Distrib.: Bio-Botanica http://www.biobotanica.com; Chart http://www.chartcorp.com
Quassia amara. See Quassia
Quaternary ammonium compds., benzyl-C8-18-alkyldimethyl, chlorides. See Benzalkonium chloride
Quaternary ammonium compds., benzyl-C12-18-alkyldimethyl, salts with 1,2-benzisothiazol-3-(2H)-one 1,1-dioxide (1:1). See Benzalkonium saccharinate
Quaternary ammonium compds., benzylcoco alkylidimethyl, chlorides. See Cocoalkonium chloride
Quaternary ammonium compds., carboxymethyl (coco alkyl) dimethyl hydroxides, inner salts. See Coco-betaine
Quaternary ammonium compds., coco alkyl trimethyl, chlorides. See Cocotrimonium chloride
Quaternary ammonium compds., di-C8-10-alkyldimethyl, chlorides, di-C8-10-alkyldimethyl ammonium chlorides. See Dicapryl/dicaprylyl dimonium chloride
Quaternary ammonium compds., ethyl (2-hydroxy-C14-C16-alkyl) bis [3-(ethylidimethylammonio) propyl]-, ethyl sulfates (salts) (1:3). See Quaternium-75
Quaternary ammonium compds., (hydrogenated tallow alkyl) trimethyl, chlorides. See Hydrogenated tallowtrimonium chloride
Quaternary ammonium compds., (hydroxyethyl) dimethyl (3-mink oil amidopropyl), chlorides. See Quaternium-26
Quaternary ammonium compds., tallow alkyl trimethyl, chlorides. See Tallowtrimonium chloride
Quaternium-5. See Distearidimonium chloride
Quaternium-10. See Steartrimonium chloride
Quaternium-12. See Didecyldimonium chloride
Quaternium 13. See Myrtrimonium bromide
Quaternium-14
CAS 27479-28-3; EINECS/ELINCS 248-486-5
Synonyms: Dodecyl dimethyl ethylbenzyl ammonium chloride; Dodecyl (ethylbenzyl) dimethylammonium chloride; N-Dodecyl-ar-ethyl-N,N-dimethylbenzenemethanaminium chloride
Classification: Quaternary ammonium salt
Empirical: C_{23}H_{42}N • Cl
Properties: Water-sol.; cationic
Toxicology: Causes dermatitis; TSCA listed
Uses: Antimicrobial for pharmaceuticals
Features: Effective against bacteria but not yeast
Regulatory: FDA 21CFR §172.165, 173.320; Canada DSL
Trade Names Containing: SO/SAN® 30M
Quaternium-15
CAS 4080-31-3; 51229-78-8; EINECS/ELINCS 223-805-0
Synonyms: Chlorallyl methenamine chloride; N-(3-Chloroallyl) hexaminium chloride; 1-(3-Chloroallyl)-3,5,7-triaza-1-azoniaadamantane chloride; Methenamine 3-chloroallylochloride
Classification: Quaternary ammonium salt
Empirical: C_{9}H_{16}ClN_{4} • Cl
Formula: C_{6}H_{12}N_{4}(CH_{2}CHCHCl)Cl
Properties: Cationic
Toxicology: TSCA listed
Uses: Antimicrobial, preservative for pharmaceuticals, topicals, esp. water-sol. creams and lotions, eyewashes
Features: Formaldehyde-releasing
Use Level: 0.02-0.03%; 0.02% (topicals)
Regulatory: FDA 21CFR §175.105, 176.170, 177.1680; CIR approved; Europe listed; Japan not approved; FDA approved for topicals; Canada DSL
Manuf./Distrib.: Sigma http://www.sigma-aldrich.com/belgium
Quaternium-17. See Cetethyldimonium bromide
Quaternium-22
CAS 51812-80-7; 82970-95-4; EINECS/ELINCS 257-440-3
Synonyms: γ-Gluconamidopropyl dimethyl 2-hydroxyethyl ammonium chloride; 3-(D-Gluconoylamino)-N-(2-hydroxyethyl)-N,N-dimethyl-1-propanaminium chloride; 1-Propanaminium, 3-(D-gluconoylamino)-N-(2-hydroxyethyl)-N,N-dimethyl-, chloride
Classification: Quaternary ammonium salt
Empirical: C_{13}H_{29}N_{2}O_{7} • Cl
Properties: Lt. amber liq.; sol. in water, 70% ethanol, glycerin, propylene glycol; insol. in IPM, min. oil; sp.gr. 1.170-1.210; Cationic
Toxicology: Nonirritating to skin and eyes; TSCA listed
Uses: Antistat, film-former, emollient, humectant, conditioner in pharmaceuticals, skin care prods.
Regulatory: Canada DSL
Manuf./Distrib.: Somerset Cosmetic Co. http://www.makingcosmetics.com/

Quaternium-24
CAS 32426-11-2; EINECS/ELINCS 518-035-5
Synonyms: 1-Decanaminium, N,N-dimethyl-N-octyl, chloride; Decyl dimethyl octyl ammonium chloride; Octyl decyl dimethyl ammonium chloride
Classification: Quaternary ammonium salt
Empirical: C_{20}H_{44}N • Cl
Formula: [C_{17}H_{35}CONH(CH_{2})_{3}N(CH_{3})_{2}CH_{2}COOC_{14}H_{29}]^{+}Cl^{-}
Properties: Soft amber gel; m.p. 27-32 C; cationic
Toxicology: Mild eye irritant, sl. skin irritant
Uses: Emollient
Regulatory: Canada DSL
Manuf./Distrib.: Somerset Cosmetic Co. http://www.makingcosmetics.com/
Trade Names: Ceraphyl® 70

Quaternium-26
CAS 68921-83-5; EINECS/ELINCS 272-964-2
Synonyms: Stearamidopropyl dimethyl (myristyl acetate) ammonium chloride
Classification: Quaternary ammonium salt
Empirical: C_{39}H_{79}N_{2}O_{3} • Cl
Formula: [RCO–NH(CH_{2})_{3}N(CH_{3})_{2}CH_{2}COOC_{14}H_{29}]^{+}Cl^{-}
Properties: Cationic
Uses: Emollient
Regulatory: Canada DSL
Manuf./Distrib.: Somerset Cosmetic Co. http://www.makingcosmetics.com/
Trade Names: Finquat® CT

Quaternium-31. See Dicetylidonium chloride

Quaternium-61
CAS 111905-55-6
Synonyms: Dimer acid, bis[amidopropyl-N,N-dimethyl-N-ethyl ammonium ethosulfate]
Classification: Quaternary ammonium salt
Properties: Cationic
Uses: Conditioner for topical pharmaceuticals, skin care prods.
Trade Names: Schercoquat DAS

Quaternium-70
CAS 68921-83-5; EINECS/ELINCS 272-964-2
Synonyms: Stearamidopropyl dimethyl (myristyl acetate) ammonium chloride
Classification: Quaternary ammonium salt
Empirical: C_{39}H_{79}N_{2}O_{3} • Cl
Formula: [RCO–NH(CH_{2})_{3}N(CH_{3})_{2}CH_{2}COOC_{14}H_{29}]^{+}Cl^{-}
Properties: Soft amber gel; m.p. 27-32 C; cationic
Toxicology: LD50 (oral, rat) > 5 g/kg; mild eye irritant; sl. skin irritant
Uses: Emollient
Regulatory: Canada DSL
Manuf./Distrib.: Somerset Cosmetic Co. http://www.makingcosmetics.com/
Trade Names Containing: Ceraphyl® 70

Quaternium-75
Synonyms: Quaternary ammonium compds., ethyl (2-hydroxy-C14-C16-alkyl) bis [3-(ethyldimethylammonio) propyl]-, ethyl sulfates (salts) (1:3)
Classification: Quaternary ammonium compd.
Uses: Inged. in scalp treatments
Trade Names: Finquat® CT

Quaternium-80
CAS 134737-05-6
Classification: Quaternary ammonium salt
Properties: Cationic
Uses: Refatting agent for pharmaceuticals
Trade Names: Abil®-Quat 3272

Queen of the meadow extract. See Meadowsweet (Spiraea ulmaria) extract
Quicklime. See Calcium oxide
Chemical Component Cross-Reference

Quicksilver. See Mercury
Quillaja; Quillaja; Quillaja bark. See Quillaja (Quillaja saponaria)

Quillaja (Quillaja saponaria)
CAS 68990-67-0; 977002-27-9; EINECS/ELINCS 273-620-4
FEMA 2973; INS999
Synonyms: China bark extract; Murillo bark extract; Panama bark; Panama bark extract; Panama wood extract; Quillaja; Quillaja; Quillaja bark; Quillaja saponaria; Soapbark
Definition: Plant material derived from the dried bark of Quillaja saponaria contg. sapotoxin, tannin, and quillaja
Properties: Lt. brn. to pink powd. or aq. sol'n.; bittersweet aromatic taste; sol. in water, alcoholic beverages
Uses: Natural flavor in pharmaceuticals
Regulatory: BP compliance; FDA 21CFR §172.510; FEMA GRAS; Japan approved

Quillaja saponaria. See Quillaja (Quillaja saponaria)

Quinaldine
CAS 91-63-4; EINECS/ELINCS 202-085-1
Synonyms: Chinaldine; 2-Methylquinoline; α-Methylquinoline
Empirical: C_{10}H_{8}N
Formula: C_{9}H_{6}NCH_{3}
Properties: Colorless oily liq.; turns reddish-brn. in air; quinoline odor; sol. in alcohol, ether, chloroform, oxygenated and chlorinated solvs.; insol. in water; m.w. 143.19; dens. 1.058; m.p. -2 C; b.p. 248 C; flash pt. 79 C; ref. index 1.6120
Toxicology: LD50 (oral, rat) 1230 mg/kg, (skin, rabbit) 1870 mg/kg; mod. toxic by ing. and intr.

Quine. See Quin (Pyrus cydonia) seed

Quine chloride. See Quin hydrochloride

Quine sulfate. See Quin hydrochloride

Quine sulfate. See Quin sulfate

Quin hydrochloride
CAS 130-89-2 (anhyd.); 6119-47-7 (dihydrate); EINECS/ELINCS 231-437-7
FEMA 2976
Synonyms: 6-Methoxycinchonan-9-ol monohydrochloride; Quinine chloride; Quinine monohydrochloride; Quinine muriate
Empirical: C_{20}H_{25}ClN_{2}O_{2}
Formula: C_{20}H_{25}N_{2}O_{2} • HCl (anhyd.);
Quinine sulfate dihydrate

**CAS 6119-70-6;** EINECS/ELINCS 212-359-2
UN 2811; FEMA 2977

**Synonyms:** Quinine sulfate (2:1) dihydrate

**Empirical:** C_{40}H_{50}N_{4}O_{8}S • 2H_{2}O

**Formula:** (C_{20}H_{24}N_{2}O_{2})_{2} • H_{2}SO_{4} • 2H_{2}O

**Properties:** Dull needles or rods; sl. sol. in chloroform and ether; m.w. 782.96; m.p. 233-235 C

**Toxicology:** LDLo (oral, mouse) 800 mg/kg; human poison and human systemic effects by ing. (blood agranulocytosis, fibrous hepatitis, flaccid paralysis without anesthesia, nausea, vomiting, tinnitus, visual changes); experimental reproductive effects; mutagenic data; TSCA listed

**Precaution:** Incompat. with ammonia, alkalis, limewater, tannic acid, iodine, iodides, acetates, citrates, tartrates, benzoates, salicylates

**Hazardous Decomp. Prods.:** Heated to decomp., emits very toxic fumes of SO_{x} and NO_{x}

**Storage:** Light sensitive; keep well closed, protect from light

**Uses:** Antimalarial drug; muscle relaxant

**Regulatory:** FDA 21CFR §172.575; FEMA GRAS; BP, Ph.Eur. compliance

Chemical Component Cross-Reference


Quinine sulfate (2:1) dihydrate. See Quinine sulfate dihydrate

Quinizarin green SS. See D&C Green No. 6; Solvent green 3

Quinol. See Hydroquinone

8-Quinol. See 8-Hydroxyquinoline

Quinol dimethyl ether. See p-Dimethoxybenzene

Quinoline

CAS 91-22-5; EINECS/ELINCS 202-051-6

UN 2656 (DOT); FEMA 3470

Synonyms: 1-Azanaphthalene; 1-Benzazine; 1-Benzine; Benzo[b]pyridine; Chinoleone; Chinolin; Chinoline; Leucol; Leucoline

Empirical: C9H7N

Formula: C9H8N=CHCH=CH

Properties: Colorless liq., penetrating unpleasant odor; sol. in hot water; misc. with alcohol, ether, CS2, oxygenated solvs.; difficultly sol. in cold water; m.w. 129.16; dens. 1.093 (20/4 C); vapor pressure 1 mm (59.7 C); m.p. -17 to -13 C; b.p. 236-238 C; flash pt. 92 C; ref. index 1.625 (20 C)

Toxicology: LD50 (oral, rat) 331 mg/kg, (skin, rabbit) 540 mg/kg; LDLo (IP, mouse) 64 mg/kg; toxic; poison by ing., subcut., IP routes; mod. toxic by skin contact; primary skin irritant; severe eye irritant; readily absorbed through skin; may cause retinitis; questionable carcinogen; experimental neoplastigen, tumorigen; mutagen; target organ: liver; TSCA listed

Precaution: Combustible exposed to heat or flames; explosive reaction possible with hydrogen peroxide; violent reaction with dinitrogen tetroxide, perchromates; incompat. with linseed oil + thionyl chloride; maleic anhydride; unpredictably violent

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx

Storage: Hygroscopic; photosensitive; protect from light and moisture

Uses: Synthetic flavor for pharmaceuticals; antimalarial

Regulatory: FEMA GRAS; HAP; Canada DSL


Quinoline yellow. See CI 47005; D&C Yellow No. 10; Acid yellow 3

Quinoline yellow base. See CI 47000

Quinoline yellow spirit soluble; Quinoline yellow SS. See D&C Yellow No. 11

Quinoline yellow WS. See D&C Yellow No. 10

8-Quinolinol; Quinolin-8-ol. See 8-Hydroxyquinoline

8-Quinolinol benzoate; 8-Quinolinol benzoate (salt); 8-Quinolinol compd. with benzoic acid (1:1). See 8-Hydroxyquinoline benzoate

8-Quinolinol hydrogen sulfate (2:1). See 8-Hydroxyquinoline sulfate

8-Quinolinol monobenzoate. See 8-Hydroxyquinoline benzoate

8-Quinolinol sulfate; 8-Quinolinol sulfate (2:1) (salt). See 8-Hydroxyquinoline sulfate

2-(2-Quinolyl)-1,3-indandione. See CI 47000; D&C Yellow No. 11

2-(2-Quinolyl)-1,3-indandione disulfonic acid disodium salt. See Acid yellow 3

Quinophenol. See 8-Hydroxyquinoline

R 11. See Trichlorofluoromethane

R 12. See Dichlorodifluoromethane

R 13. See Chlorotrifluoromethane

R 21. See Dichlorofluoromethane

R 23. See Trifluoromethane

R 113. See Trichlorotrifluoroethane
Chemical Component Cross-Reference

R 114. See 1,2-Dichlorotetrafluoroethane
R 116. See Hexafluoroethane
R 134a. See Tetrafluoroethane
Racemethionine. See DL-Methionine
Racemic limonene. See dl-Limonene
Racemic mandelic acid. See Mandelic acid
Racemic menthol. See Menthol
Racemic pantethine alcohol. See DL-Panthenol
Raney copper. See Copper
Rapeseed. See Canola oil

Rapeseed (Brassica campestris) oil
CAS 8002-13-9; 120962-03-0; EINECS/ELINCS 232-299-0

Synonyms: Brassica campestris oil; Brassica oleifera; Canola oil (low erucic acid rapeseed oil); Colza oil; HEAR; High-erucic acid rapeseed oil; LEAR; Low-erucic acid rapeseed oil; Rapeseed oil; Rapeseed oil, blown

Definition: Vegetable oil expressed from seeds of Brassica campestris

Properties: Brn. viscous liq., yel. when refined, noxious odor; sol. in chloroform, ether, CS₂; dens. 0.913-0.916; m.p. 17-22 C; solidifies at 0 C; iodine no. 97-105; sapon. no. 170-177 C; flash pt. 162 C; ref. index 1.4720-1.4752

Toxicology: Toxic; allergic potential; can cause acne-like skin eruptions

Precaution: Subject to spontaneous heating

NFPA: Health 0, Flammability 1, Reactivity 0

Uses: Excipient in pharmaceutical orals

Regulatory: FDA 21CFR §175.105, 176.210, 177.1200, 177.2800, 184.1555; Japan approved (extract); FDA approved for orals; BP, EP compliance (refined)

Manuf./Distrib.: Aarhus Karlshamn A/S†
   http://www.aak.com; Aldivia
   http://www.aldivia.com; Alfa Aesar
   http://www.alfa.com; Alnor Oil
   http://www.alnoroil.com; Anar
   Anglia Oils† http://www.angliaoils.co.uk;
   Arista Ind.
   http://www.aristaindustries.com; Degen
   http://www.degenoil.com/contact.htm;
   Degussa AG/Health & Nutrition; Freund
   Chem. Co. Ltd† http://www.freund.co.jp
   Georgia-Pacific/Actrachem
   http://www.gp.com/chemical; Jarchem Ind.
   http://www.jarchem.com; John L Seaton Ltd
   http://www.seatons-uk.co.uk; Lambert
   Mosselman NV http://www.mosselman.be

†=pharmaceutical grade

Noveon http://www.carbopol.com;
http://www.noveoncoatings.com; Penta
Mfg. http://www.pentamfg.com; Sea-Land
http://www.sealandchem.com; St. Lawrence
http://www.stlawrencechem.com;
Stevenson Cooper
http://www.stevensoncooper.com
Vliengenthart BV
Werner G. Smith
http://www.wernergsmith.com

See also Canola oil

Rapeseed oil; Rapeseed oil, blown. See Rapeseed (Brassica campestris) oil

Raspberry ketone. See 4-(p-Hydroxyphenyl)-2-butanoine

Raspberry ketone methyl ether. See 4-p-Methoxyphenyl-2-butanoine

Raw linseed oil. See Linseed (Linum usitatissimum) oil

Red 36. See CI 12085

Red cinchona bark extract. See Cinchona succirubra extract

Red cockscomb. See Amaranth

Red 33, disodium salt. See CI 17200

Red dye no. 2. See Amaranth

Red iron oxide; Red iron trioxide. See Ferric oxide

Red no. 2. See Amaranth

Red no. 22 Japan. See D&C Red No. 34

Red no. 40. See FD&C Red No. 40

Red ochre. See Ferrous oxide

Red oil. See Sulfated castor oil; Oleic acid

Red pepper. See Capsicum

Red petrolatum
CAS 8009-03-8; EINECS/ELINCS 232-373-2

Definition: Minimally refined variety of petrolatum

Uses: Emollient, UV absorber in OTC drugs

See also Petrolatum

Red precipitate. See Mercury oxide (ic), red

Red sage. See Sage (Salvia officinalis)

Red thyme oil. See Thyme oil red

Refined solvent naphtha. See VM&P naphtha

Refrigerant 12. See Dichlorodifluoromethane

Refrigerant 21. See Dichlorofluoromethane

Refrigerant 23. See Trifluoromethane

Refrigerant 113. See Trichlorotrifluoroethane

Refrigerant 114. See 1,2-Dichlorotetrafluoroethane

Refrigerant 116. See Hexafluoroethane

Rennase. See Rennet
Rennet

**CAS:** [9001-98-3; 9042-08-4]

**Synonyms:** Bovine rennet; Chymosin; Rennase; Rennet, calf; Rennin; Rennin, calf

**Definition:** A dried extract containing rennin, the milk-clotting enzyme from calf stomach

**Properties:** Ylsh.-wh. powd., peculiar odor, sl. salty taste; partly sol. in water and dil. alcohol; m.w. = 31,000; strongly affected by UV light

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Storage:** Sl. hygroscopic

**Uses:** Binder, enzyme, extender, processing aid, stabilizer, thickener in pharmaceuticals; digestive enzyme

**Regulatory:** FDA 21CFR §131.160, 131.162, 133.102, 133.106, 133.108, 133.111, 133.113, 133.118, 133.127, 133.129, 133.133, 133.136, 133.138, 133.141, 133.144, 133.147, 133.149, 133.150, 133.152, 133.153, 133.155, 133.156, 133.162, 133.164, 133.165, 133.181, 133.182, 133.183, 133.184, 133.185, 133.187, 133.189, 184.1685, GRAS; USDA 9CFR §318.7 (rennet treated calcium reduced dried milk and calcium lactate, limitation 3.5% in sausages), 381.147; Canada, Japan approved

**Manuf./Distrib.:** Bayer

- [http://www.bayerus.com](http://www.bayerus.com); Chr. Hansen Inc
- [http://www.chr-hansen.com](http://www.chr-hansen.com); DSM Food Spec.
- [http://www.dsm.com](http://www.dsm.com); Danisco Cultor
- [http://www.danisco.com](http://www.danisco.com); Degussa
- [http://www.agnutrition.com](http://www.agnutrition.com); AG/Health & Nutrition
- [http://www.haavero.nl](http://www.haavero.nl); Haver Hoogwegen BV
- [http://www.nzmp.com](http://www.nzmp.com); NZMP Australia
- [http://www.pfizer.com](http://www.pfizer.com); Pfizer Int'l.
- [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium); Sigma

**Trade Names:** Maxiren®

**Rennet, calf; Rennin; Rennin, calf. See Rennet**

**Resin. See Rosin**

**Resinoid benzoin. See Gum benzoin**

**Resin tolu. See Balsam tolu (Myroxylon balsamum)**

**Resorcin. See Resorcinol**

**Resorcin brown. See D&C Brown No. 1**

**Resorcine. See Resorcinol**

**Resorcinol**

- **CAS:** [108-46-3; EINECS/ELINCS 203-585-2]
- **UN:** 2876 (DOT); FEMA 3589
- **Synonyms:** 1,3-Benzenediol; m-Benzenediol; CI 76505; 1,3-Dihydroxybenzene; m-Dihydroxybenzene; m-Dioxybenzene; m-

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**Properties:** Aromatic alcohol; phenol

**Empirical:** C₆H₄(OH)₂

**Formula:** C₆H₄(OH)₂

**Properties:** Wh. cryst. solid; unpleasant sweet taste; discolors to pink in light and air; very sol. in alcohol, ether, glycerol, CCl₄, acetic acid, pyridine, amyl alcohol, liq. ammonia; sol. in water, acetone, dimethyl sulfoxide, oxygenated solvs.; sl. sol. in chloroform, benzene; m.w. 110.12; dens. 1.285 (15 C); vapor pressure 1 mm (108.4 C); m.p. 110 C; b.p. 280.5 C; flash pt. (CC) 127 C

**Toxicology:** ACGIH TLV/TWA 10 ppm; STEL 20 ppm; LD50 (oral, rat) 301 mg/kg, (IP, mouse) 215 mg/kg, (subcut., mouse) 213 mg/kg, (skin, rabbit) 3360 mg/kg; poison by ing., IP, parenteral, subcut. routes; mod. toxic by skin contact and IV route; human poison by ing.; skin and severe eye irritant; may cause hyperemia, dermatitis, edema, methemoglobinemia, cyanosis, convulsions, dyspnea, death; questionable carcinogen; experimental tumorigen; human mutagenic data; TSCA listed

**Precaution:** Flammable exposed to heat or flame; can react with oxidizers; potentially explosive with conc. nitric acid; incompat. with alkalis, ferric salts, spirit nitrous ether, etc.; keep away from food

**Hazardous Decomp. Prods.:** CO, CO₂, C; heated to decomp., emits acrid smoke and irritating fumes

**HMIS:** Health 3, Flammability 1, Reactivity 0

**Storage:** Hygroscopic; protect from light

**Uses:** Flavor for pharmaceuticals; antimicrobial in vaginal creams; topical antiseptic; keratolytic agent

**Regulatory:** BP, EP compliance; FDA 21CFR §177.1210; FEMA GRAS; Canada DSL

**Manuf./Distrib.:** Alfa Chem†

- [http://www.alfachem1.com](http://www.alfachem1.com); Allchem Ind.
- [http://www.allchem.com](http://www.allchem.com); Atomergic
- [http://www.atomergic.com](http://www.atomergic.com); Chemetals†
- [http://www.austinchemical.com](http://www.austinchemical.com); Austin
- [http://www.beckmannchem.de](http://www.beckmannchem.de); Beckmann Chemikalien
- [http://www.chemvip.com](http://www.chemvip.com); Cardolite
- [http://www.celanesechemicals.com](http://www.celanesechemicals.com); Celanese
- [http://www.havero.nl](http://www.havero.nl); Haver Hoogwegen BV
- [http://www.alfachem1.com](http://www.alfachem1.com); Alchem Ind.
- [http://www.allchem.com](http://www.allchem.com); Atomergic
- [http://www.atomergic.com](http://www.atomergic.com); Chemetals†
- [http://www.austinchemical.com](http://www.austinchemical.com); Austin
- [http://www.beckmannchem.de](http://www.beckmannchem.de); Beckmann Chemikalien
- [http://www.chemvip.com](http://www.chemvip.com); Cardolite
- [http://www.celanesechemicals.com](http://www.celanesechemicals.com); Celanese
- [http://www.havero.nl](http://www.havero.nl); Haver Hoogwegen BV
Resorcinol dimethyl ether. See m-Dimethoxybenzene
Resorcinolphthalain. See Fluorescein
Resorcinol phthalein sodium. See D&C Yellow No. 8; Fluorescein sodium

Retinol
CAS 86-26-8; 11103-57-4; EINECS/ELINCS 200-683-7; 234-328-2

Synonyms: Anti-infective vitamin; Antixerophthalmic vitamin; Axerophthol; 3,7-Dimethyl-9-(2,6,6-trimethyl-1-cyclohexen-1-yl)-2,4,6,8-nonatraen-1-ol; Oleovitamin A; all-trans-Retinol; Retrovitamin A; Vitamin A; Vitamin A Alcohol; all-trans-Vitamin A alcohol

Classification: Organic compd.

Empirical: C20H30O

Properties: Yel. prisms or cryst., nearly odorless or mild fishy odor; sol. in abs. alcohol, methanol, chloroform, ether, fats, oils; pract. insol. in water, glycerin; m.w. 286.46; m.p. 54-58 C; b.p. 137-138 C (0.000001 mm)

Toxicology: LD50 (oral, rat) 2000 mg/kg; mod. toxic by ing.; human teratogenic effects; experimental teratogen, reproductive effects; human mutagenic data; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Nutrient, dietary supplement in pharmaceuticals, orals, parenterals


Chemical Component Cross-Reference

Trade Names Containing: Retinol P 50
all-trans-Retinol. See Retinol
Retinol acetate. See Retinyl acetate
Retinol, hexadecanoate; Retinol palmitate. See Retinyl palmitate

Retinyl acetate
CAS 127-47-9; EINECS/ELINCS 204-844-2
Synonyms: Acetic acid, retinyl ester; Retinol acetate; all-trans-Retinyl acetate; Vitamin A acetate; trans-Vitamin A acetate; Vitamin A alcohol acetate
Definition: Ester of retinol and acetic acid
Empirical: C₁₂H₂₂O₂
Properties: Pale yel. prismatic cryst.; m.w. 328.54; m.p. 57-58 C
Toxicology: LD₅₀ (oral, mouse, 10 day) 4100 mg/kg; mod. toxic by ing.; questionable carcinogen; experimental neoplastigen, teratogen, reproductive effects; mutagenic data; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Nutrient, dietary supplement for vitamin reinforcement for feeds, infant formulas
Regulatory: FDA 21CFR §184.1930, GRAS; Canada DSL
Sigma http://www.sigma-aldrich.com/belgium

Trade Names: Vitamin A Palmitate USP, FCC Type P1.7

Trade Names Containing: Vitamin A and D-3 Blend; Vitamin A Palmitate 1.0 in Sunflower Oil; Vitamin A Palmitate 1.7 USP/EP/FCC; Vitamin A Palmitate 500; Vitamin A, C & E Liposomes

Rhamnose
CAS 3615-41-6
FEMA 3730
Synonyms: 6-Deoxy-L-mannose; Isodulcit; L-Mannomethylose; L-Rhamnose
Classification: Deoxyhexose monosaccharide
Empirical: C₆H₁₂O₅
Properties: Wh. cryst.; sweet taste; sol. in water, methanol; m.w. 164.16; m.p. 82-92 C
Toxicology: Harmful by ing.; irritating to skin, eyes, respiratory system
Hazardous Decomp. Prods.: CO, CO₂, acrid fumes
Storage: 6 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air
Uses: Synthetic sweetener in pharmaceuticals
Regulatory: FEMA GRAS; Japan approved; Australia AICS; Canada DSL
Manuf./Distrib.: Adept Sol’ns.†; EMD Chems.† http://www.emdchemicals.com; Ferro
### Chemical Component Cross-Reference

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### Synthetic flavor for pharmaceuticals

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|                                   |           | http://www.spectrumchemical.com; Treatt USA |}

### Toxicology

**LD50 (oral, rat)** > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; skin irritant; TSCA listed

### Compostible

Hazardous Decomp. Prods.: Heated to comp., emits acrid smoke and irritating fumes

### Uses

Synthetic flavor for pharmaceuticals

### Regulatory

FDA 21CFR §172.515; FEMA GRAS; Canada DSL

### Manufacturer/Distributor

Fleurchem

http://www.fleurchem.com; Lluch Essence

http://www.lluch-essence.com; http://www.charabot.com; Fleurchem

http://www.fleurchem.com; Millenium/F&F

http://www.millenniumchem.com; Fuerst Day Lawson

http://www.fdl.co.uk; Fuerst Day

http://www.pfanstiehl.com; Fuerst Day

http://www.uhe.com; Fuerst Day

http://www.kadenbio.com; Fuerst Day

http://www.pfanstiehl.com; Fuerst Day

http://www.pfanstiehl.com; Fuerst Day

http://www.rctreatt.com; Fuerst Day

http://www.riausa.com; Fuerst Day

http://www.fdl.co.uk; Fuerst Day

http://www.riausa.com; Fuerst Day

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http://www.riausa.com; Fuerst Day

http://www.rctreatt.com; Fuerst Day

http://www.pfanstiehl.com; Fuerst Day

http://www.rctreatt.com; Fuerst Day
Rhodinyl formate
CAS 141-09-3; EINECS/ELINCS 205-456-6
FEMA 2984
Synonyms: 3,7-Dimethyl-7-octen-1-ol formate; 3,7-Dimethyl-6 or 7-octen-1-yl methanoate; Rhodinyl methanoate
Classification: floral ester
Empirical: C₁₁H₂₀O₂
Properties: Colorless to pale yel. liq.; sol. in alcohol and fixed oils; insol in water, glycerin, and propylene glycol; m.w. 184.28; sp. gr. 0.903-0.911; b.p. 220.00 C @ 760.00 mm; acid no. 1 max.; ref. index 1.45100 - 1.459
Uses: Synthetic flavor for pharmaceuticals
Features: Rose dried leaf odor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Fleurchem http://www.fleurchem.com

Rhodinyl isobutyrate
CAS 138-23-8; EINECS/ELINCS 205-318-5
FEMA 2983
Synonyms: 3,7-Dimethyl-6 or 7-octen-1-yl isobutyrate; 3,7-Dimethyl-6 or 7-octen-1-yl 2-methyl propanoate; Rhodinyl 2-methyl propanoate
Classification: floral ester
Empirical: C₁₄H₂₆O₂
Properties: Colorless oily liq.; sweet red rose spicy odor; sp.gr. 0.89; ref. index 1.448-1.453 (20 C)
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: City Chem. http://www.citychemical.com

Rhodinyl isopentanoate. See Rhodinyl isovalerate
Rhodinyl isovalerate
CAS 7778-96-3; EINECS/ELINCS 231-919-7
FEMA 2987
Synonyms: (S)-3,7-Dimethyloct-7-enyl isovalerate; (S)-3,7-Dimethyl-7-enyl 3-methylbutanoate; Rhodinyl isopentanoate
Classification: floral ester
Empirical: C₁₅H₂₈O₂

Rhodinyl methanoate. See Rhodinyl formate
Rhodinyl 2-methyl propanoate. See Rhodinyl isobutyrate
Rhodinyl phenylacetate
CAS 10486-14-3; EINECS/ELINCS 234-003-5
FEMA 2985
Synonyms: Acetic acid, phenyl-, 3,7-dimethyl-7-octenyl ester; Benzeneacetic acid, 3,7-dimethyl-7-octenyl ester, (S)-; 3,7-Dimethyl-7-octenyl phenylacetate; Phenylacetic acid 3,7-dimethyl-7-octenyl ester; Rhodinyl α-toluate
Classification: floral ester
Empirical: C₁₈H₂₆O₂
Properties: M.w. 274.44
Toxicology: LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; TSCA listed
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: City Chem. http://www.citychemical.com

Rhodinyl propionate
CAS 105-89-5; EINECS/ELINCS 203-343-6
FEMA 2986
Synonyms: Citronellyl propionate; 7-Octen-1-ol, 3,7-dimethyl-, propanoate; 7-Octen-1-ol, 3,7-dimethyl-, propionate
Classification: floral ester
Empirical: C₁₃H₂₄O₂
Properties: Colorless oily liq., sweet odor/flavor; sol. in alcohol; almost insol. in water; m.w. 212.37; b.p. 255 C; flash pt. 100 C; ref. index 1.4570
Toxicology: LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; primary irritant
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Rhus succedanea; Rhus succedanea cera; Rhus succedanea wax. See Japan (Rhus succedanea) wax
Riboflavin

CAS 83-88-5; EINECS/ELINCS 201-507-1

INS 101(i); E 101i

Synonyms:

Riboflavin; Vitamin B2; Riboflavin; Flavin; Riboflavin; Riboflavine; Vitamin B2; Vitamin B

Classification: Organic compd.

Empirical: C17H20N4O6

Properties: Orange to yel. cryst., sl. odor, bitter taste; sl. sol. in water, alcohol; insol. in ether, chloroform; m.w. 376.41; m.p. 282 C (dec.)

Toxicology: LD50 (IP, rat) 560 mg/kg, (subcut., rat) 5000 mg/kg; LDLo (IV, mouse) 365 mg/kg; poison by IV route; mod. toxic by IP and subcut. routes; mutagenic data; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits fumes of NOx

Uses: Dietary supplement, colorant in pharmaceuticals; medicine; principal growth-promoting factor of Vitamin B2 complex (functions as protein in tissue respiration, builds and maintains healthy human tissue); protects eyes from sensitivity to light

Regulatory: FDA 21CFR §73.450, 101.9, 107.100, 136.115, 137.165, 137.185, 137.260, 137.305, 139.115, 139.117, 139.122, 139.155, 184.1695, GRAS; Europe listed; Canada DSL 137.100, 136.115, 137.165, 137.185, 137.260, 184.1695, GRAS; Europe listed; UK, Japan approved; BP, EP compliance; Canada DSL 137.100, 136.115, 137.165, 137.185, 137.260, 184.1695, GRAS; Europe listed; UK, Japan approved; BP, EP compliance; Canada DSL

Manuf./Distrib.: AB R Lundberg

ChemTech Specialties† http://www.chemtechspecialties.com
Chemacon GmbH† http://www.chemacon.de; CoKEM Assoc.† Cornelius Chem. Co. Ltd† http://www.cornelius.co.uk; Degussa AG/Health & Nutrition; Delta Distributors†; EMD Chems.† http://www.emdchemicals.com; Fluka Bioscience http://www.forum.co.uk; GDL Int'l† http://www.gdlinternational.com
Westco Fine Ingreds.† http://www.westcofine.com; Xinchem† http://www.xinchem.com; Zetapharm† http://www.zetapharm.com

Trade Names: Riboflavin High Flow
Trade Names Containing: Descote® Riboflavin

†=pharmaceutical grade
Chemical Component Cross-Reference

33\(^1/3\)%; Descote® Thiamine Mononitrate
33\(^1/3\)%; Rocoat® Riboflavin 33\(^1/3\); Unipertan P-24; Unipertan P-2002

Riboflavine. See Riboflavin
Riboflavin monophosphate monosodium salt; Riboflavin 5´-monophosphate sodium salt dihydrate; Riboflavin 5´-phosphate ester monosodium salt. See Riboflavin-5´-phosphate sodium

Riboflavin-5´-phosphate sodium
CAS 130-40-5 (dihydrate); EINECS/ELINCS 204-988-6
INS101(ii); E101ii

Synonyms: Riboflavin monophosphate monosodium salt; Riboflavin 5´-monophosphate sodium salt dihydrate; Riboflavin 5´-phosphate ester monosodium salt; Sodium riboflavin phosphate (INCI); Vitamin B\(_2\) phosphate sodium

Definition: Ester of riboflavin and sodium phosphate

Empirical: C\(_{17}\)H\(_{20}\)N\(_4\)NaO\(_9\)P • 2H\(_2\)O

Properties: Yel. to orange-yel. cryst. powd., sl. odor; sol. in water; m.w. 514.36

Precaution: Dec. by light when in sol’n.

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NO\(_x\) and Na\(_2\)O

Storage: Hygroscopic; store frozen (-55 to -22 C); protect from light

Uses: Nutrient, dietary supplement in pharmaceuticals; enzyme cofactor vitamin

Regulatory: FDA 21CFR §184.1697, GRAS; Europe listed; UK, Japan approved; BP, EP compliance; Canada DSL

Manuf./Distrib.: AMRESCO
Functional Foods;†

†=pharmaceutical grade

Trade Names: Riboflavin-5´-Phosphate Sodium USP, FCC
Riboflavin 5´- (sodium hydrogen phosphate); Riboflavin sodium phosphate. See Riboflavin-5´-phosphate sodium

Rice bran oil. See Rice (Oryza sativa) bran oil
Rice bran wax. See Rice (Oryza sativa) wax
Rice oil. See Rice (Oryza sativa) bran oil

Rice (Oryza sativa) bran oil
CAS 68553-81-1; 84696-37-7; EINECS/ELINCS 271-397-8

Synonyms: Oils, rice bran; Oryza sativa; Rice bran oil; Rice oil

Definition: Oil expressed from rice bran, Oryza sativa

Properties: Golden yel. oil; misc. with hexane and other fat solvs.; negligible sol. in water; dens. 0.916-0.921; vapor pressure very low; cloud pt. < -7 C; acid no. < 2; iodine no. 92-115; sapon. no. 180-190; ref. index 1.470-1.473

Hazardous Decomp. Prods.: CO\(_2\) from combustion

Uses: Edible oil, emollient for pharmaceuticals; solvent for ointments

Regulatory: FDA 21CFR §175.105, 176.200, 176.210, 177.2260, 177.2800; Canada DSL

Manuf./Distrib.: Alzo
Rice (Oryza sativa) starch
CAS 9005-25-8; 53112-52-0; 75138-75-9; 977000-08-0
Synonyms: Oryza sativa; Oryza sativa starch; Rice starch
Definition: Starch obtained from rice, Oryza sativa
Empirical: (C6H10O5)n
Toxicology: LD50 (IP, mouse) 6600 mg/kg; primary irritant; may cause mechanical irritation by blocking pores and putrefying; may cause allergic reaction; TSCA listed
HMIS: Health 0, Flammability 1, Reactivity 0
Uses: Demulcent, emollient, film-former, binder for pharmaceuticals
Features: Forms a soothing and protective film
Regulatory: FDA 21CFR §175.105, 178.3520; BP, EP compliance
Manuf./Distrib.: Adept Sol'ns.; Aldrich
http://www.sigma-aldrich.com; Alfa Chem
http://www.alfachem1.com; CarboMer
http://www.carbomer.com; Functional Foods
http://www.functionalfoods.com
Penta Mfg.
http://www.pentamfg.com
Rhodia HPCII
http://www.rhodia-hpcii.com
Ruger
http://www.rugerchemical.com
Sigma
http://www.sigma-aldrich.com/belgium; Spectrum Quality Prods.
http://www.spectrumchemical.com
U.S. Synthetics

Rice (Oryza sativa) wax
CAS 8016-60-2; EINECS/ELINCS 232-409-7
INS908
Synonyms: Oryza sativa; Oryza sativa bran wax; Rice bran wax; Rice wax; Waxes, rice bran
Definition: Wax obtained from rice bran, the broken hulls of rice grains, Oryza sativa
Properties: Tan to brn. hard wax; sol. in chloroform, benzene; insol. in water; m.p. 75-80 C; iodine no. 20 max.; sapon. no. 75-120
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Wax for pharmaceuticals; coating for tablets
†=pharmaceutical grade
Regulatory: FDA 21CFR §172.615, 172.890, 178.3860 (limitation 1% in polymer); Japan approved; Canada DSL
Manuf./Distrib.: Freeman Ind.
http://www.freemanllc.com
Trade Names: Ricebran Wax SP 8000

Rice starch. See Rice (Oryza sativa) starch;
Rice starch

Rice syrup solids
Synonyms: RSS
Properties: Bland to mild caramel taste; sol. in water
Uses: Sweetener, humectant, carrier, bulking agent for pharmaceuticals
Manuf./Distrib.: Adept Sol'ns.; Alfa Chem
http://www.alfachem1.com; Spectrum Quality Prods.
http://www.spectrumchemical.com

Rice wax. See Rice (Oryza sativa) wax
Ricinoleic acid. See Ricinoleic acid
Ricini oleum. See Castor (Ricinus communis) oil

Ricinoleamidopropyl betaine
CAS 71850-81-2; 86089-12-5; EINECS/ELINCS 289-181-7
Synonyms: N-(Carboxymethyl)-N,N-dimethyl-3-[1-oxoricinoleyl] amino]-1-propanaminium hydroxide, inner salt; 1-Propanaminium, 3-amino-N-(carboxymethyl)-N,N-dimethyl-, N-caster-oil acyl derivs., hydroxides, inner salts; Ricinoleamidopropyl dimethyl glycine Classification: Zwitterion (inner salt)
Empirical: C25H48N2O4
Properties: Amphoteric
Uses: Antistat, surfactant, conditioner in medicated cleansers
Trade Names: Rewoteric® AM R40

N-Ricinoleamidopropyl-N,N-dimethylamine-N-ethyl ammonium ethyl sulfate. See Ricinoleamidopropyl ethyldimionium ethosulfate
Ricinoleamidopropyl dimethyl glycine. See Ricinoleamidopropyl betaine
Ricinoleamidopropyl ethyl dimethyl ammonium ethyl sulfate. See Ricinoleamidopropyl ethyldimionium ethosulfate
Ricinoleamidopropyl ethyldimionium ethosulfate
CAS 112324-16-0
Synonyms: N-Ethyl-N,N-dimethyl-3-[(1-
oxoricinoleyl) amino]-1-propanaminium ethosulfate; 1-Propanaminium, N-ethyl-N,N-dimethyl-3-[(1-oxoricinoleyl) amino]-ethyl sulfate; N-Ricinoleamidopropyl-N,N-dimethylamine-N-ethyl ammonium ethyl sulfate; Ricinoleamidopropyl ethyl dimethyl ammonium ethyl sulfate

Classification: Quaternary ammonium salt

Formula: C_{25}H_{51}N_{2}O_{2} \cdot C_{2}H_{5}O_{4}S

Uses: Conditioner, antistat, emollient, emulsifier, gloss aid, softener for pharmaceuticals, anhyd. systems, clear and opacified prods.

Regulatory: Canada DSL

Trade Names: Lipoquat R

Trade Names Containing: Lipowax ES-C

Ricinoleic acid

CAS 141-22-0; EINECS/ELINCS 205-470-2

Synonyms: Castor oil acid; 12-Hydroxy-9-octadecenoic acid; 12-Hydroxy-cis-9-octadecenoic acid; cis-12-Hydroxyoctadec-9-enoic acid; 12-Hydroxyoleic acid; 9-Octadecenoic acid, 12-hydroxy-; Oleic acid, 12-hydroxy-; Ricinoleic acid; Ricinolic acid

Classification: Unsaturated fatty acid

Empirical: C_{18}H_{34}O_{3}

Formula:

\[ \text{CH}_3(\text{CH}_2)_5\text{CH(OH)}\text{CH}_2\text{CH}=\text{CH}(\text{CH}_2)_7\text{COOH} \]

Properties: Colorless to pale yel. visc. liq.; sol. in alcohol, acetone, ether, chloroform, oxygenated solvs.; insol. in water; m.w. 298.45; dens. 0.940 (27.4/4 C); m.p. 5.5 C; b.p. 245 C (10 mm); ref. index 1.4716 (20 C)

Toxicology: TDL0 (subcut., rabbit, 17 wks intermittent) 390 mg/kg; questionable carcinogen; experimental tumorigen; TSCA listed

Precaution: Combustible

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

HMIS: Health 1, Flammability 0, Reactivity 0

Uses: Acidifier in vaginal jellies to maintain or restore normal vaginal acidity

Regulatory: Canada DSL

Manuf./Distrib.: Acros Org.  
http://www.acros.com; Alnor Oil  
http://www.alnoroil.com; Am. Radiolabeled Chems.  
http://www.arc-inc.com; CasChem  
http://www.rutherfordchemicals.com/caschem.html; Chempri

†=pharmaceutical grade

Fluka http://www.sigma-aldrich.com;  
Fuerst Day Lawson http://www.fdl.co.uk;  
http://www.mbio.com; Indofine  
http://www.indofinechemical.com; Marlin Chems. Ltd  
http://www.marlinchemicals.co.uk; Mosselman NV http://www.mosselman.be;  
Pfaltz & Bauer  
http://www.pfaltzandbauer.com; Ruger  
http://www.rugerchemical.com; Sea-Land  
http://www.sealandchem.com; Sigma  
http://www.sigma-aldrich.com/belgium; TCI Am.  
http://www.tciamerica.com

Ricinoleic acid, methyl ester, acetate. See Methyl acetyl ricinoleate

Ricinolic acid. See Ricinoleic acid

Ricinus communis oil; Ricinus oil. See Castor (Ricinus communis) oil

Rock candy. See Sucrose

Rock salt. See Sodium chloride

Rodinol. See β-Citronellol

Roman chamomile extract. See Chamomile (Anthemis nobilis) extract

Rosa canina. See Dog rose (Rosa canina) hips oil; Dog rose (Rosa canina) hips extract

Rosa canina fruit oil. See Dog rose (Rosa canina) hips oil

Rosa canina hips extract. See Dog rose (Rosa canina) hips extract

Rosa centifolia; Rosa centifolia water. See Rose (Rosa centifolia) water

Rose absolute; Rose absolute Bulgarian; Rose blossom oil; Rose centifolia oil; Rose concrete; Rose Damascena oil. See Rose oil

Rose ether. See Phenoxethanol

Rose geranium oil. See Rose geranium (Pelargonium graveolens) oil

Rose geranium (Pelargonium graveolens) oil  
CAS 977143-78-4  
FEMA 2508

Synonyms: Geranium, rose, oil; Pelargonium graveolens oil; Rose geranium oil

Definition: Oil derived from Pelargonium graveolens

Uses: Natural flavor for pharmaceuticals

Regular: FDA 21CFR §182.20, GRAS; FEMA GRAS

Manuf./Distrib.: SAFC Specialties
Rosemary (Rosmarinus officinalis) extract

CAS 84604-14-8; EINECS/ELINCS 283-291-9

Synonyms: Rosemary extract; Rosmarinus officinalis; Rosmarinus officinalis extract

Definition: Oleoresin extracted from rosemary leaves, Rosmarinus officinalis

Uses: Natural antioxidant for dermatologicals

Regulatory: BP, EP compliance; FDA 21CFR §182.20, GRAS

Manuf./Distrib.: Active Organics

Trade Names Containing: Crodamor Rosemary Oil forte

Rosemary (Rosmarinus officinalis) oil

CAS 8000-25-7; EINECS/ELINCS 283-291-9

FEMA 2992

†=pharmaceutical grade

Synonyms: Rosemary oil; Rosmarinus officinalis; Rosmarinus officinalis flower oil; Rosmarinus officinalis oil

Definition: Volatile oil obtained from flowering tops of Rosmarinus officinalis, contg. α-pinene, camphene, and cineole

Properties: Colorless to pale yel. liq., rosemary odor, camphoraceous taste; sol. in 10 vols 80% alcohol; pract. insol. in water; dens. 0.894-0.912 (25/25 C); ref. index 1.464-1.476 (20 C); tenacity 2 hrs. on blotter

Toxicology: LD50 (oral, rat) 5000 mg/kg, (skin, rabbit) > 10 g/kg; low toxicity by ing. and skin contact; skin irritant; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

HMIS: Health 1, Flammability 1, Reactivity 0

Storage: Keep cool, well closed; protect from light, heat

Uses: Natural flavor for pharmaceuticals; carminative; in perfumery, liniments

Regulatory: BP, EP compliance; FDA 21CFR §182.20, GRAS; 27CFR 21.65, 21.151; FEMA GRAS; Japan approved (rosemary); Europe listed, no restrictions; Australia; Canada DSL; Philippines PICCS

Manuf./Distrib.: Alfa Chem
Astral Extracts
http://www.astralextracts.com; Berje http://www.berjeinc.com
Buckton Page Ltd
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Rose oil</th>
<th>Rose oil Bulgarian; Rose oil, Damascena; Rose oil otto; Rose otto; turkish rose otto</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS 8007-01-0</td>
<td>EINECS/ELINCS 290-260-3; FEMA 2988; 2989</td>
</tr>
<tr>
<td>Synonyms: Attar of rose; Bulgarian rose oil; Concrete rose Bulgarian; Concrete rose Moroccan; Concrete rose Turkish; Essence of rose; Integral rose; Otto of rose; Rose absolute; Rose absolute Bulgarian; Rose blossom oil; Rose centifolia oil; Rose concrete; Rose Damascena oil; Rose de grasse; Rose leaf oil; Rose oil Bulgarian; Rose oil, Damascena; Rose oil otto; Rose otto; turkish rose otto</td>
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<tr>
<td>Definition: Volatile oil obtained from the flowers of Rosa spp., contg. geraniol, citronellol</td>
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</tr>
<tr>
<td>Properties: Colorless to pale yel. visc. liq., char. rose odor and taste; congeals @ 18-22 C to a translucent cryst. mass; sol. in fatty oils, chloroform; sparingly sol. in alcohol; very sl. sol. in water; dens. 0.848-0.863 (30/15 C); ref. index 1.457-1.463 (30 C)</td>
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<tr>
<td>Toxicology: LD50 (oral, rat) 12,560 mg/kg, (IP, rat) 1045 mg/kg, (skin, rabbit) 2500 mg/kg; mod. toxic by skin contact; mildly toxic by ing.; primary irritant; sensitizer; TSCA listed</td>
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<tr>
<td>Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes</td>
<td></td>
</tr>
<tr>
<td>Storage: Photosensitive; protect from light; keep cool, well closed; store @ 0-4 C</td>
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</tr>
<tr>
<td>Uses: Natural flavor for pharmaceuticals, lozenges, dentals, topicals, commonly in the form of rose water</td>
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</tr>
<tr>
<td>Regulatory: FDA 21CFR §182.20, GRAS; FEMA GRAS; Europe listed, no restrictions; NF compliance; Canada DSL</td>
<td></td>
</tr>
</tbody>
</table>

### Regulatory

- **Uses:** Natural flavor for pharmaceuticals, lozenges, dentals, topicals, commonly in the form of rose water

### Safety

- **Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

### Storage

- **Storage:** Photosensitive; protect from light; keep cool, well closed; store @ 0-4 C

### Uses

- **Uses:** Natural flavor for pharmaceuticals, lozenges, dentals, topicals, commonly in the form of rose water

### Regulatory

- **Regulatory:** FDA 21CFR §182.20, GRAS; FEMA GRAS; USP/NF compliance

### Manuf./Distrib.

- **Advanced BioTech** http://www.adv-bio.com
- **Alfa Chem†** http://www.alfachem1.com
- **Arista Ind.†** http://www.aristaindustries.com
- **Berje** http://www.berjeinc.com
- **Buckton Page Ltd** http://www.bucktonpage.com

### Synonyms

- **Synonyms:** Attar of rose; Bulgarian rose oil; Concrete rose Bulgarian; Concrete rose Moroccan; Concrete rose Turkish; Essence of rose; Integral rose; Otto of rose; Rose absolute; Rose absolute Bulgarian; Rose blossom oil; Rose centifolia oil; Rose concrete; Rose Damascena oil; Rose de grasse; Rose leaf oil; Rose oil Bulgarian; Rose oil, Damascena; Rose oil otto; Rose otto; turkish rose otto

### Quality

- **Quality** http://www.spectrumchemical.com
- **Prods.†** http://www.spectrumchemical.com; Spectrum Quality Prods.

### Trade Names

- **Trade Names:** Custosense Rosemary

### Suppliers

- **Charabot USA** http://www.charabot.com
- **Chart** http://www.chartcorp.com; Citrus and Allied Essences
- **U.S. Synthetics** http://www.ultrainternational.com; V. Mane
- **De Monchy Aromatics** http://www.demonchyaromatics.com
- **Eramex Aromatics** http://www.eramex.de
- **Fluka** http://www.sigma-aldrich.com; Foote & Jenks†; Integra†
- **Foote & Jenks†** http://www.integrachem.com; Millennium† http://www.millenniumchem.com; Penta Mfg.† http://www.pentamfg.com
- **Polarome Int'l.** http://www.polarome.com
- **Ruger** http://www.rugerchemical.com
- **SAFC Specialties** http://www.safcspecialties.com; Spectrum Quality Prods.† http://www.safcspecialties.com
- **Charabot USA** http://www.charabot.com
- **Chart** http://www.chartcorp.com; Citrus and Allied Essences
- **U.S. Synthetics** http://www.ultrainternational.com; V. Mane
- **De Monchy Aromatics** http://www.demonchyaromatics.com
- **Eramex Aromatics** http://www.eramex.de
- **Fluka** http://www.sigma-aldrich.com; Foote & Jenks†; Integra†
- **Foote & Jenks†** http://www.integrachem.com; Millennium† http://www.millenniumchem.com; Penta Mfg.† http://www.pentamfg.com
- **Polarome Int'l.** http://www.polarome.com
- **Ruger** http://www.rugerchemical.com
- **SAFC Specialties** http://www.safcspecialties.com; Spectrum Quality Prods.† http://www.safcspecialties.com
- **Charabot USA** http://www.charabot.com
- **Chart** http://www.chartcorp.com; Citrus and Allied Essences
- **U.S. Synthetics** http://www.ultrainternational.com; V. Mane
- **De Monchy Aromatics** http://www.demonchyaromatics.com
- **Eramex Aromatics** http://www.eramex.de
- **Fluka** http://www.sigma-aldrich.com; Foote & Jenks†; Integra†
- **Foote & Jenks†** http://www.integrachem.com; Millennium† http://www.millenniumchem.com; Penta Mfg.† http://www.pentamfg.com
- **Polarome Int'l.** http://www.polarome.com
- **Ruger** http://www.rugerchemical.com
- **SAFC Specialties** http://www.safcspecialties.com; Spectrum Quality Prods.† http://www.safcspecialties.com

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**Handbook of Pharmaceutical Additives, Third Edition**

2007
**Chemical Component Cross-Reference**

<table>
<thead>
<tr>
<th>Chemical Component</th>
<th>Chemical Component</th>
<th>China†</th>
<th>Germany-Maybach</th>
<th>Japan†</th>
<th>Japan†</th>
<th>Japan†</th>
<th>Japan†</th>
<th>Japanese†</th>
<th>Lookup</th>
<th>France‡</th>
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<tbody>
<tr>
<td>Rose water.</td>
<td>See Rose (Rosa centifolia) water</td>
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<td>Rosewood oil.</td>
<td>See Bois de rose (Aniba rosalaeodora) oil</td>
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<td>Rosin</td>
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<tr>
<td>CAS 8050-09-7; 8052-10-6; EINECS/ELINCS 232-475-7</td>
<td>Synonyms: Colophane; Colophonium; Colophony; Disproportionated rosin; Gum rosin; Pine rosin; Resin; Rosin gum; Wood rosin; Yellow pine rosin; Yellow resin</td>
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<tr>
<td>Classification: Nonaromatic anhydride</td>
<td>Definition: Residue from distilling off the volatile oil from the oleoresin obtained from Pinus palustris and other species of Pinaceae</td>
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<td>Empirical: C20H30O2</td>
<td>Properties: Pale yel. to amber translucent solid; sl. turpentine odor and taste; sol. in alcohol, benzene, ether, glacial acetic acid, oils, carbon disulfide; insol. in water; m.w. 302.46; dens. 1.07-1.09; soften. pt. (R&amp;B) 78 C; m.p. 100-150 C; flash pt. 187 C; anionic</td>
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<td>Toxicology: May be harmful by inh., ing., or skin absorption; may cause eye/skin irritation; may cause contact dermatitis; may cause sensitization by inh., skin contact</td>
<td>TSCA listed</td>
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<td>Precaution: Combustible; incompat. with strong oxidizing agents</td>
<td>Hazardous Decomp. Prods.: CO, CO2; emits toxic fumes under fire conditions</td>
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<td>HMIS: Health 1, Flammability 1, Reactivity 0</td>
<td>Storage: Store away from heat; keep tightly closed</td>
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<tr>
<td>Uses: Pharmaceutical aid; stiffener in coated and sustained-action tablets, orals, ointments</td>
<td>Regulatory: FDA 21CFR §73.1, 172.210, 172.510, 172.615, 175.105, 175.125, 175.300, 176.170, 176.200, 176.210, 177.1200, 177.1210, 177.2600, 178.3120, 178.3800, 178.3850, 178.3870, 179.45; Canada DSL; Japan approved; FDA approved for orals</td>
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</tbody>
</table>

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**Handbook of Pharmaceutical Additives, Third Edition**

2008
Chemical Component Cross-Reference

fruticosus extract.  See Blackberry (Rubus fruticosus) extract
Rubus villosus extract.  See Blackberry (Rubus villosus) extract

Rue
CAS 977051-88-9 (R. graveolens)
FEMA 2994
Definition:  Herb of Ruta montana, R. graveolens, R. bracteosa, or R. calepensis
Properties:  Yel. to amber liq., fatty odor; sol. in fixed oils, min. oil; insol. in glycerin, propylene glycol
Hazardous Decomp. Prods.:  Heated to decomp., emits acrid smoke and irritating fumes
Uses:  Natural flavor for pharmaceuticals
Regulatory:  FDA 21CFR §184.1698 (limitation 2 ppm), GRAS; FEMA GRAS
Manuf./Distrib.:  Degussa AG/Health & Nutrition

Rue ketone.  See 2-Undecanone
Rue oil.  See Rue (Ruta graveolens) oil

Rue (Ruta graveolens) oil
CAS 8014-29-7
FEMA 2995
Synonyms:  Rue oil; Ruta graveolens; Ruta graveolens herb oil; Ruta graveolens oil
Definition:  Volatile oil distilled from the herb of the rue, Ruta graveolens or other species, contg. about 90% methyl nonyl ketone, methyl anthranilate
Properties:  Pale yel. to amber liq., char. sharp fatty odor; sol. in fixed oils, min. oil. 3 vols 70% alcohol; pract. insol. in water; insol. in glycerin, propylene glycol; dens. 0.832-0.845 (15/15 C); solid. pt. 8-10 C; ref. index 1.430-1.440 (20 C)
Toxicology:  LD50 (oral, mouse) 2070 mg/kg, (skin, rabbit) > 5 g/kg; mod. toxic by ing.; skin irritant; frequent dermal contact produces erythema, vesication; ing. of large quantities causes epigastric pain, nausea, vomiting, confusion, convulsions, death; may cause abortion; TSCA listed
Hazardous Decomp. Prods.:  Heated to decomp., emits acrid smoke and irritating fumes
Storage:  Keep cool, well closed; protect from light
Uses:  Natural flavor for pharmaceuticals
Use Level:  0.78%max. in skin cosmetics exposed to sunlight
Regulatory:  FDA 21CFR §184.1699, GRAS; FEMA GRAS; Canada DSL

†=pharmaceutical grade


Run-by-the-Ground.  See Pennyroyal (Mentha pulegium) extract
Rusco extract; Ruscus aculeatus; Ruscus aculeatus extract.  See Butcherbroom (Ruscus aculeatus) extract
Ruta graveolens; Ruta graveolens herb oil; Ruta graveolens oil.  See Rue (Ruta graveolens) oil

SA.  See Salicylic acid
SAA.  See Succinic anhydride
Saccharated lime (INCI).  See Calcium saccharate
Saccharimide.  See Saccharin

Saccharin
CAS 81-07-2; EINECS/ELINCS 201-321-0 INS954
Synonyms:  Anhydro-o-sulfaminebenzoic acid; 1,2-Benzisothiazolin-3-one-1,1-dioxide; 3-Benzisothiazolinone-1,1-dioxide; o-Benzoic acid sulfinamide; o-Benzosulfinamide; 2,3-Dihydroxy-1,2-benzothiazolin-3-one-1,1-dioxide; 3-Oxo-2,3-dihydro-1,2-benzisothiazole-1,1-dioxide; Saccharimide; Saccharin acid; Saccharin acid form; Saccharin insoluble; Saccharum-o-Sulfobenzimide; o-Sulfobenzoic acid imide
Classification:  Organic compd.; o-toluene sulfonamide
Definition:  Sodium salt of orthosulfobenzimide; artificial sweetener, 300 times as sweet as natural sugar
Empirical:  C7H5NO3S
Properties:  Wh. cryst., odorless, bitter metallic aftertaste; sol. in boiling water, alcohol, benzene, amyl acetate, ethyl acetate; sl. sol. in ether, chloroform; m.w. 183.18; dens. 0.828; m.p. 226-230 C
Toxicology:  LD50 (oral, mouse) 17 g/kg; mild acute toxicity by ing.; may cause allergic reactions incl. urticaria, nausea, vomiting, diarrhea; has been linked to bladder cancer in test animals; not considered human carcinogen by recent findings; experimental teratogen, reproductive effects; mutation data reported:  TSCA listed
Hazardous Decomp. Prods.:  Heated to decomp., emits toxic NOx and SOx
HMIS:  Health 2, Flammability 1, Reactivity 0

Saccharin acid; Saccharin acid form. See Saccharin

Saccharin ammonium; Saccharinate ammonium. See Ammonium saccharin

Saccharin calcium. See Calcium saccharin

Saccharine soluble. See Saccharin sodium anhydrous

Saccharin insoluble. See Saccharin

Saccharin sodium. See Saccharin sodium anhydrous

Saccharin sodium anhydrous

CAS 128-44-9; EINECS/ELINCS 204-886-1

FEMA 2997; INS954

Synonyms: 1,2-Benzisothiazol-3(2H)-one 1,1-dioxide, sodium salt; 1,1-Dioxide-1,2-benzisothiazol-3(2H)-one sodium salt; Saccharine soluble; Saccharin sodium; Saccharin, sodium salt; Saccharin soluble; Sodium-1,2-benzisothiazolin-3-one-1,1-dioxide; Sodium benzosulfimide; Sodium o-benzosulfimide; Sodium 2,3-dihydro-1,2-benzisothiazolin-3-one-1,1-dioxide; Sodium saccharide; Sodium saccharin (INCI); Sodium saccharinate; Sodium saccharin; Soluble gluside; Soluble saccharin; o-Sulfonbenzoic acid imide sodium salt

Classification: Organic compd.

Definition: Sodium salt of saccharin; avail. commercially as the dihydrate

Empirical: C7H4NO3S • Na

Properties: Wh. cryst. or cryst. powd., odorless or faint aromatic odor, very sweet taste; very sol. in water, sl. sol. in alcohol; m.w. 205.17

Toxicology: LD50 (oral, rat) 1280 mg/kg, (IP, mouse) > 500 mg/kg; mod. toxic by ing. and IP routes; confirmed carcinogen; experimental neoplastigen, tumorigen, teratogen, reproductive effects; human mutagenic data; TSCA listed

Hazardous Decomp. Prods.: Heated to
Chemical Component Cross-Reference

Decomp., emits very toxic fumes of SO₃, Na₂O, and NO₂.

HMIS: Health 1, Flammability 0, Reactivity 0

Uses: Syn. nonnutritive sweetener in pharmaceuticals, buccals, dentals, parenterals, inhalants, orals, toothpaste

Regulatory: FDA 21CFR §145.116, 145.126, 145.131, 145.136, 145.171, 145.176, 145.181, 150.141, 150.161, 180.37, GRAS; USDA 9CFR §318.7; FEMA GRAS; Japan approved (0.1-2 g/kg residual); Canada DSL; FDA approved for buccals, dentals, parenterals, inhalants, orals, rectals, toothpaste; USP/NF, BP, EP compliance

Manuf./Distrib.: AAA Intl.†; AB R Lundberg
http://www.aaainternational.com; AB R Lundberg

AA Int'l.; ADA Int'l.
http://www.joinme.net/ada/index.htm; AMC Chems.†; Aceto† http://www.aceto.com

Adept Sol'ns.; Aldrich† http://www.sigma-aldrich.com

Alfa Chem† http://www.alfachem1.com; Amalgamet†
http://www.amalgamet.com; Ashland†

http://www.ashchem.com

Asiamerica Int'l.; BASF MicroCheck
http://www.basfbiocides.com; BCH Brühl
http://www.bch-bruehl.de; Brenntag
Southeast; Camida Ltd†
http://www.camida.com

CarboMer† http://www.carbomer.com; ChemTech Specialties†
http://www.chemtechspecialties.com

Chemacon GmbH†
http://www.chemacon.de; Chemco France†
http://www.chemco-france.com/chemco/chemco.nsf/HTML/0E5A87A7C8BCC9C12570E00040301E;

CoKEM Assoc.†

Cornelius Chem. Co. Ltd†
http://www.cornelius.co.uk; Dastech Int'l.†
http://www.dastech.com; Delta
Distributor; Fuerst Day Lawson
http://www.fdl.co.uk; GMI Prods.†
http://www.gmi-originates.com

George Uhe† http://www.uhe.com; H&A (Canada) Ind.† http://www.hacanada.com

Helm NY† http://www.helmnewyork.com;

Integra† http://www.integraham.com;

Jungbunzlauer† http://www.jungbunzlauer.com

MPSI† http://www.mp-solutionsinc.com;

Magnesia GmbH† http://www.magnesia.de;

Mallinckrodt Baker†

†=pharmaceutical grade

http://www.mallbaker.com; Mutchler†
http://www.mutchlerchem.com; PMC Spec.†
http://www.pmcsig.com

Penta Mfg.† http://www.pentamfg.com;

Peter Whiting Ltd† http://www.whiting-chemicals.co.uk; Pharmrite N. Am.†
http://pharmrite.com; R.W. Greeff†
http://www.pechinery-chemicals.com; RIA Int.† http://www.riausa.com

Ruger† http://www.rugerchemical.com;

Sinochem Liaoning http://www.sinochemliaoning.com;

Sinochem Tianjin http://www.sinochemtianjin.com; Spectrum Quality Prods.†

Ubichem plc† http://www.ubichem.com;

Univar Ltd† http://www.univar.co.uk;

Universal Preserv-A-Chem†
http://www.upichem.com; VWR Int.†

http://www.vwrsp.com; Varsal Instruments†
http://www.varsal.com

Trade Names: SynCal® GS; SynCal® GSD; SynCal® S; SynCal® SDS

Saccharin sodium dihydrate
CAS 6155-57-3; EINECS/ELINCS 204-886-1
FEMA 2997

Synonyms: Sodium o-benzosulfamide dihydrate; Sodium saccharin dihydrate

Classification: Organic compd.

Definition: Sodium salt of saccharin

Empirical: C₇H₄NNaO₃S • 2H₂O

Properties: Wh. cryst. powd. or gran.; odorless; intense sweet taste; sol. in water; m.w. 241.20

Toxicology: LD₅₀ (IP, mouse) 17,500 mg/kg, (IV, dog) 2500 mg/kg; tumorigen, reproductive effects; mutagenic data

Uses: Syn. nonnutritive sweetener in pharmaceuticals, buccals, dentals, parenterals, inhalants, orals, rectals, toothpaste

Regulatory: FEMA GRAS

Manuf./Distrib.: AMC Chems.†; Aceto†
http://www.aceto.com; Aldrich† http://www.sigma-aldrich.com; BASF MicroCheck http://www.basfbiocides.com;

Jungbunzlauer http://www.jungbunzlauer.com

R.W. Greeff† http://www.pechinery-chemicals.com; Spectrum Quality Prods.†
http://www.spectrumchemical.com; Voigt Global Distrib.† http://www.vgdllc.com
Saccharin, sodium salt; Saccharin soluble.  
See Saccharin sodium anhydrous

Saccharomyces cerevisiae extract  
CAS 84604-16-0; EINECS/ELINCS 283-294-5
Synonyms: Yeast ferment extract
Uses: Ingred. in skin treatment
Manuf./Distrib.: Chemos GmbH  
http://www.chemos-group.com
Trade Names Containing: Eashave; Iricalmin

Saccharomyces lysate extract  
Definition: Extract of saccharomyces lysate
Uses: Moisturizer, anti-inflammatory, promoting wound healing in skin care prods.
Features: Live yeast cell deriv.
Trade Names: Biodynes® TRF

Saccharose. See Sucrose
Saccharose acetate isobutyrate. See Sucrose acetate isobutyrate

Saccharose distearate. See Sucrose distearate

Saccharose mono/distearate. See Sucrose polystearate

Saccharose palmitate. See Sucrose palmitate
Saccharosonic acid. See Erythorbic acid
Saccharum. See Saccharin; Sucrose
Saccharum lactis; Saccharar lactis. See Lactose

Safflower (Carthamus tinctorius) oil  
CAS 8001-23-8; EINECS/ELINCS 232-276-5
Synonyms: Carthamus tinctorious oil;  
Carthamus tinctorius; Safflower oil;  
Safflower oil (unhydrogenated); Safflower seed oil
Definition: Oily liq. obtained from seeds of Carthamus tinctorius consisting principally of triglycerides of linoleic acid
Properties: Lt. yel. oily liq.; sl. veg. odor; sol. in oil and fat solvs.; misc. with ether, chloroform; insol. in water; dens. 0.921-0.9215 (25/25 C); iodine no. 135-150; sapon. no. 188-194; ref. index 1.472-1.475
Toxicology: Human skin and eye irritant; ing. in large volumes produces vomiting; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: CO2 from combustion; heated to decomp., emits acrid smoke and irritating fumes
HMIS: Health 0, Flammability 1, Reactivity 0
Storage: Light-sensitive; becomes rancid on exposure to air

†=pharmaceutical grade

Uses: Emollient, vehicle, solvent for pharmaceuticals, orals, topicals, creams, lotions; medicine (laxative, diaphoretic)
Features: Oleaginous
Regulatory: FDA 21CFR §175.105, 175.300, 176.200, 176.210, GRAS; Japan approved (safflower); USP/NF, BP, EP compliance; Canada DSL
Manuf./Distrib.: ABITEC
http://www.abiteccorp.com; Albon Muller  
http://www.albonmuller.com; Aldivia  
http://www.aldivia.com; Aldrich  
http://www.sigma-aldrich.com; Alfa Chem  
http://www.alfachem1.com
Alnor Oil http://www.alnoroil.com; Alzo  
http://www.alzointernational.com; Anglia  
Oils† http://www.angliaoils.co.uk; Arista  
Ind.† http://www.aristaindustrries.com
Avatar† http://www.avatarcorp.com
Charkit http://www.charkit.com; Croda
Chem. Europe Ltd http://www.croda.co.uk
Croda Inc http://www.croda.com; http://www.crodausa.com; Desert Whale
Jojoba http://www.desertwhale.com
KIC Chems.† http://www.kicchemicals.com  
http://www.kicgroup.com; Lambert Tech.
http://www.lambertcorp.com; Lipo  
http://www.lipochemicals.com
Mosselman NV http://www.mosselman.be
Protameen http://www.protameen.com
Ruger http://www.rugerchemical.com
Sea-Land http://www.sealandchem.com
Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality  
Prods.† http://www.spectrumchemical.com
Thornley http://www.thornleycompany.com;  
Vliengenthart BV http://www.vliengenthart.com; Voigt Global  
Distrib.† http://www.vgdlc.com
Welch, Holme & Clark http://www.welch-holme-clark.com

Trade Names: EmCon™ SAF; Phytol™ SAF-HO; Super Refined® Safflower USP
Trade Names Containing: Phosal® 50 SA+; Phosal® 75 SA

Safflower oil. See Safflower (Carthamus tinctorius) oil
Safflower oil, hybrid. See Hybrid safflower (Carthamus tinctorius) oil
Safflower oil (unhydrogenated); Safflower seed oil. See Safflower (Carthamus tinctorius) oil
Saffron. See Saffron (Crocus sativus)
Saffron (Crocus sativus)
CAS 977051-90-3
FEMA 2998; INS164
Synonyms: Crocus; Crocus sativus; Saffron
Definition: Dried stigmata of Crocus sativus, contg. glycoside picrocrocin, coloring principles crocin and crocetin
Empirical: C_44H_64O_26 (crocetin); C_20H_24O_4 (crocin)
Properties: Reddish-brn. or golden yel. odiferous powd., sl. bitter taste; Crocin: yel.-orange; sol. in hot water; sl. sol. in abs. alcohol, glycerin, propylene glycol; m.w. 1008.97; m.p. 186 C (dec.); Crocetin: brick-red rhomb.; m.w. 328.41; m.p. 285 C (dec.)
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §73.500, 101.22, 169.140, 169.150, 182.10, GRAS; USDA 9CFR §318.7; FEMA GRAS; Japan approved, restricted as color

Safrole, dihydrosafrole. See Dihydrosafrole
Sage. See Sage (Salvia officinalis)
Sage oil. See Sage (Salvia officinalis) oil
Sage oil clary. See Clary (Salvia sclarea) oil
Sage oil, Dalmatian; Sage oil, Dalmatian type. See Sage (Salvia officinalis) oil
Sage oil, Spanish. See Sage (Salvia lavandulaefolia) oil

†=pharmaceutical grade

Sage (Salvia lavandulaefolia) oil
CAS 977125-77-1; 8016-65-7
FEMA 3003
Synonyms: Sage oil, Spanish; Salvia lavandulaefolia; Salvia lavandulaefolia oil; Spanish sage oil
Definition: Essential oil obtained from steam distillation of Salvia lavandulaefolia, contg. essential oil thujone, α-pinene, cineol, borneol, and d-camphor
Properties: Colorless to pale yel. oily liq.; sol. in alcohol, fixed oils, glycerin, min. oil, propylene glycol; insol. in water; dens. 0.909-0.932; ref. index 1.468 (20 C)
Toxicology: LD50 (oral, rat) 2600 mg/kg; mod. toxic by ing.; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §182.20, GRAS; FEMA GRAS

Sage (Salvia officinalis)
CAS 977002-44-0
FEMA 3000
Synonyms: Garden sage; Red sage; Sage; Salvia; Salvia officinalis
Definition: Plant material derived from dried, crushed leaves of the sage, Salvia officinalis
Properties: Warm spicy odor, flavor
Toxicology: No known toxicity
Uses: Natural flavor for pharmaceuticals; aromatic; astringent; in gargles for throat, tonsils, for ulceration of mouth and throat
Regulatory: BP, EP compliance; FDA 21CFR §101.22, 182.10, GRAS; FEMA GRAS; Japan approved

Sage (Salvia officinalis) oil
CAS 8016-64-6; 8022-56-8; 84776-73-8
UN 2319; FEMA 3001
Chemical Component Cross-Reference

**Synonyms:** Dalmatian sage oil; Sage oil; Sage oil, Dalmatian; Sage oil, Dalmatian type; Salvia officinalis; Salvia officinalis oil; Salvia oil

**Definition:** Oil obtained from steam distillation of the herb of the sage, Salvia officinalis of the mint family; main constituents are α-thujone and camphor

**Properties:** Pale yel. liq., thujone odor and taste; sol. in alcohol, fixed oils, paraffin oil, min. oil; sl. sol. in propylene glycol; insol. in water, glycerin; dens. 0.903-0.925; flash pt. (TCC) 51.11 C; ref. index 1.457 (20 C)

**Toxicology:** LD50 (oral, rat) 2600 mg/kg; mod. toxic by ing.; human skin irritant; mutagenic data; TSCA listed

**Precaution:** Wear suitable clothing, gloves, face/eye protection

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**HMIS:** Health 2, Flammability 1, Reactivity 0

**Uses:** Natural flavor for pharmaceuticals

**Regulatory:** BP, EP compliance; FDA 21CFR §182.20, GRAS; FEMA GRAS


**Trade Names:** Custosense Sage

**Sago starch.** See Starch

**SAH.** See Salicylaldehyde

**SAIB.** See Sucrose acetate isobutyrate

**Saigon cinnamon.** See Cinnamon (Cinnamomum cassia) oil

**Saigon cinnamon leaf oil.** See Cinnamon (Cinnamomum zeylanicum) leaf oil

**Sal chalybis.** See Ferrous sulfate anhydrous

**Sal ethyl.** See Ethyl salicylate

**Salicylaldehyde.** See Salicylaldehyde

**Salicylaldehyde**

CAS 90-02-8; EINECS/ELINCS 201-961-0

**FEMA 3004**

**Synonyms:** 2-Formylphenol; o-Formylphenol; 2-Hydroxybenzaldehyde; o-Hydroxybenzaldehyde; SAH; Salicylal; Salicylic aldehyde

**Empirical:** C7H6O2

**Formula:** C6H4OHCHO

**Properties:** Colorless to straw-colored oily liq., bitter almond-like odor, burning taste; sol. in alcohol, ether, oxygenated and aromatic solvs.; sl. sol. in water; m.w. 122.12; dens. 1.166 (20/4 C); m.p. 1-5 C; b.p. 79-80 C (11 mm); flash pt. 77 C; ref. index 1.573 (20 C)

**Toxicology:** LD50 (oral, rat) 520 mg/kg, (IP, mouse) 231 mg/kg, (subcut., rat) 900 mg/kg, (skin, rabbit) 3000 mg/kg; mod. toxic by ing., skin contact, subcut. routes; skin irritant; readily absorbed through skin; experimental teratogen, reproductive effector; target organs: nerves, liver, kidneys; TSCA listed

**Precaution:** Flamm. exposed to heat or flame; can react with oxidizers

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Synthetic flavor for pharmaceuticals

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL


**Salicylaldehyde methyl ether.** See o-Methoxybenzaldehyde

**Salicylamide**

CAS 65-45-2; EINECS/ELINCS 200-609-3
**Chemical Component Cross-Reference**

**Synonyms:** Benzamide, 2-hydroxy-2-Hydroxybenzamide; o-Hydroxybenzamide  
**Classification:** Aromatic amide  
**Empirical:** C7H7NO2  
**Formula:** C6H4(OH)CONH2  
**Properties:** Wh. or lt. pink cryst. powd.; somewhat bitter taste; sol. in hot water, alcohol, ether, chloroform, oxygenated and chlorinated solvs.; sl. sol. in cold water, naphtha, CCl4; m.w. 137.14; m.p. 139-142 C; b.p. 270 C (dec.)  
**Toxicology:** LD50 (oral, rat) 980 mg/kg, (IP, rat) 600 mg/kg, (IV, mouse) 313 mg/kg; toxic; poison by ing., IV, IP routes; primary irritant; sensitiz.; can cause dizziness, drowsiness, nausea, vomiting, allergic reactions, blood dyscrasias; eye irritant; experimental teratogen, reproductive effector; TSCA listed  
**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of NOx  
**HMIS:** Health 1, Flammability 0, Reactivity 0  
**Uses:** Medicine (analgescic, antipyretic, anti-inflammatory agent)  
**Regulatory:** Canada DSL  
**Manuf./Distrib.:** Aceto†; http://www.aceto.com  
**Advanced Synthesis Tech.**  
**http://www.advancedsynthesis.com**  
**Aldrich** http://www.sigma-aldrich.com; CPI Chems.†; http://www.sigma-aldrich.com; EMD Chems.  
**http://www.emdchemicals.com**  
**Fluka** http://www.sigma-aldrich.com; Nantong ChangChem  
**http://www.pentamfg.com**; R.W. Greeff  
**http://www.pechiney-chemicals.com**  
**Ruger†** http://www.rugerchemical.com  
**Sigma** http://www.sigma-aldrich.com; Xinchem†  
**http://www.finechemnet.com**  

**Salicylic acid**  
**CAS:** 69-72-7; EINECS/ELINCS 200-712-3  
**FEMA:** 3985  
**Synonyms:** 2-Hydroxybenzoic acid; o-Hydroxybenzoic acid; Orthohydroxybenzoic acid; SA  
**Classification:** Aromatic acid  
**Empirical:** C7H6O3  
**Formula:** HOOC6H4COOH  
**Properties:** Wh. cryst. or cryst. powd., sweetish to acrid taste; discolored by light; sol. in alcohol, ether, oxygenated and chlorinated solvs.; sl. sol. in water, benzene, chloroform;
Chemical Component Cross-Reference

http://www.gfschemicals.com; GMI Prods.†
http://www.gmi-origines.com; Gallard-Schlesinger Ind.† http://www.gallard-schlesinger.com
George Uhe† http://www.uhe.com; Helm NY† http://www.helmnewyork.com; Integra† http://www.integrachem.com; KIC Chems.†
Lluch Essence http://www.lluch-essence.com; MPS† http://www.mpsolutionsinc.com; Mallinckrodt Baker† http://www.mallbaker.com; Mutchler†
Rona† http://www.emdchemicals.com/rona/1000.asp; Ruger† http://www.rugerchemical.com; SAFC Specialties†
http://www.safcspecialties.com; Sigma http://www.sigma-aldrich.com/belgium
Spectrum Quality Prods.† http://www.spectrumchemical.com; Thornley http://www.thornleycompany.com;
Xinchem† http://www.finechemnet.com
Trade Names Containing: Liponyl N30SA
†=pharmaceutical grade
Salicylic acid, magnesium salt. See Magnesium salicylate
Salicylic acid octyl ester. See Octyl salicylate
Salicylic acid pentyl ester. See Amyl salicylate
Salicylic acid phenyl ethyl ester. See Phenethyl salicylate
Salicylic acid, potassium salt. See Potassium salicylate
Salicylic acid sodium salt. See Sodium salicylate
Salicylic aldehyde. See Salicylaldehyde
Salicylic ether; Salicylic ethyl ester. See Ethyl salicylate
Salicylsulfonic acid. See 5-Sulfosalicylic acid
Saline. See Sodium chloride
Salmine sulfate. See Protamine sulfate
Salol. See Phenyl salicylate
Sal soda. See Sodium carbonate
Salt. See Sodium chloride
Sal tartar. See Sodium tartrate
Salt cake. See Sodium sulfate
Salt of tartar. See Potassium carbonate
Salt of tin. See Stannous pyrophosphate
Salvia. See Sage (Salvia officinalis)
Salvia lavandulaefolia; Salvia lavandulaefolia oil. See Sage (Salvia lavandulaefolia) oil
Salvia officinalis; Salvia officinalis oil; Salvia oil. See Sage (Salvia officinalis) oil
Salvia sclarea. See Clary (Salvia sclarea) oil
Sambucus nigra. See Elder flowers; Sambucus nigra oil
Sambucus nigra oil
CAS 68916-55-2
Synonyms: Elder flowers oil; Sambucus nigra
Definition: Volatile oil obtained from Sambucus nigra and other species of Sambucus
Toxicology: TSCA listed
Uses: Natural flavor for pharmaceuticals; mild astringent; in salves to treat burns, rashes, minor skin ailments
Regulatory: FDA 21CFR §172.510, 182.20, GRAS; Canada DSL
Manuf./Distrib.: Payan & Bertrand http://www.payanbertrand.com/
Sand. See Quartz
Sandalwood, East Indian, oil; Sandalwood oil. See Sandalwood (Santalum album) oil
Sandalwood (Santalum album) oil
CAS 8006-87-9
FEMA 3005
Synonyms: Arheol; East Indian sandalwood oil; Sandalwood, East Indian, oil;
Chemical Component Cross-Reference

Sandalwood oil; Sandalwood, white, oil; Sandalwood, yellow, oil; Santal oil; α-Santalol; Santalum album; White sandalwood oil; Yellow sandalwood oil

Definition: Volatile oil obtained from heartwood of Santalum album

Empirical: C_{15}H_{24}O

Properties: Colorless to pale yel. visc. liq., char. sandalwood odor and taste; very sol. in fixed oils, propylene glycol; sol. in 5 vols 70% alcohol; very sl. sol. in water; insol. in water, glycerin; m.w. 220.39; dens. 0.965-0.980; b.p. 166-167°C (14 mm); flash pt > 212°F; ref. index 1.500-1.510 (20°C)

Toxicology: LD_50 (oral, rat) 5580 mg/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; primary skin irritant; sensitizer; TSCA listed

Precaution: Combustible liq.

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

HMIS: Health 1, Flammability 1, Reactivity 0

Storage: Keep cool, well closed; protect from light

Uses: Natural flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.510; FEMA GRAS; Canada DSL


Trade Names: Custosense Sandalwood

Sandalwood, white, oil; Sandalwood, yellow, "†=pharmaceutical grade oil; Santal oil. See Sandalwood (Santalum album) oil

Santalol

CAS 11031-45-1; 115-71-9 (α); 77-42-9 (β); EINECS/ELINCS 234-262-4; 204-102-8 (α); 201-027-2 (β)

FEMA 3006

Synonyms: Argeol; 5-(2,3-Dimethyltricyclo[2.2.1.0^{2,6}] hept-3-yl)-2-methylpent-2-en-1-ol; α-Santalol; β-Santalol; d-α-Santalol

Classification: Sesquiterpene alcohol

Empirical: C_{15}H_{24}O

Properties: Colorless liq., sweet sandalwood odor; sol. in 3 parts 70% alcohol; insol. in water; m.w. 220.34; dens. 0.971-0.973; b.p. 300°C; ref. index 1.504-1.508

Toxicology: α: LD_50 (oral, rat) 3800 mg/kg, (skin, rabbit) > 5 g/kg; primary irritant; TSCA listed

Precaution: Combustible

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

α-Santalol. See Santalol; Sandalwood (Santalum album) oil

β-Santalol; d-α-Santalol. See Santalol

α-Santalol, acetate; β-Santalol, acetate. See Santalyl acetate

Santalum album; Santalum album oil. See Sandalwood (Santalum album) oil

Santalyl acetate

CAS 1323-00-8; EINECS/ELINCS 215-349-6

FEMA 3007

Synonyms: 5-(2,3-Dimethyltricyclo[2.2.1.0^{2,6}] hept-3-yl)-2-methylpent-2-en-1-ol acetate; α-Santalol, acetate; β-Santalol, acetate

Definition: Mixt. of α- and β-isomers from acetylation of santalol

Properties: Colorless to yelsh. liq., sandalwood-like odor; sol. in most common org. solvs. incl. alcohol; insol. in water; m.w. 262.40; b.p. 20.8°C (3 mm); dens. 0.982-0.985; flash pt. 212°F; ref. index 1.4894-1.4901

Precaution: Combustible

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: Degussa AG/Health & Nutrition; Penta Mfg.
Santalyl phenylacetate
CAS 1323-75-7; EINECS/ELINCS 215-358-5
FEMA 3008

Synonyms: Phenyl acetic acid santalyl ester; α-Santalyl phenyl acetate; β-Santalyl phenyl acetate; Santalyl α-toluate

Empirical: C_{23}H_{30}O_2

Properties: Colorless liq., sandalwood-like odor; sl. sol. in alcohol; m.w. 338.49; acid no. 1 max.

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: Degussa AG/Health & Nutrition

α-Santalyl phenyl acetate; β-Santalyl phenyl acetate; Santalyl α-toluate. See Santalyl phenylacetate

Sarcosine
CAS 107-97-1; EINECS/ELINCS 203-538-6

Synonyms: Methylaminocetic acid; N-Methylglycine; Methyl glycocoll

Empirical: C_{3}H_{7}NO_2

Formula: CH_{3}NHCH_{2}COOH

Properties: Wh. cryst. solid; sweet taste; sol. in water; m.w. 89.09; m.p. 208°C (dec.)

Toxicology: No known toxicity; mutagen; TSCA listed

Precaution: Combustible

Storage: Hygroscopic, deliq.

Uses: Synthesis of foaming anti-enzyme comps. for pharmaceuticals, toothpaste

Regulatory: Canada DSL


Trade Names Containing: Sepicontrol A5

Sarsaparilla

Synonyms: Sarsaparilla root

Definition: Dried root of Smilax spp.

Uses: Vehicle, flavor in medicaments, herbal and homeopathic preps.

Features: Usually as decoction or extract

Regulatory: JP compliance (S. glabra)

Manuf./Distrib.: Frutarom http://www.frutarom.com

Sassafras (Sassafras officinale) extract
CAS 84787-72-4; EINECS/ELINCS 284-113-2

FEMA 3010

Synonyms: Sassafras albidum; Sassafras officinale; Sassafras officinale extract

Definition: Extract of bark and roots of Sassafras officinale or S. albidum

Properties: Spicy aromatic odor, flavor

Uses: Natural flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.580, must be aq. extract, saffrole-free; FEMA GRAS; Japan approved (sassafras)


Saturated C14-C22 fatty acid. See Stearic acid

Satureia hortensis; Satureja hortensis. See Summer savory (Satureia hortensis)

Saussurea lappa. See Costus (Saussurea lappa) oil

Savory. See Summer savory (Satureia hortensis)

Sazzio. See Alginic acid
Chemical Component Cross-Reference

SBA. See 2-Butanol
SBE-β-CD. See Sulfobutylether β-cyclodextrin
SBP. See Naphtha, hydrotreated light
Scatole. See Scatole
Schardinger α-dextrin. See Cyclodextrin
Schardinger β-dextrin. See β-Cyclodextrin
SCMC. See Carboxymethylcellulose sodium
Scotch fir oil; Scotch pine needle oil. See Pine (Pinus sylvestris) needle oil
Scouring rush extract. See Horsetail (Equisetum arvense) extract
SCS. See Sodium cumenesulfonate
SD. See Streptodornase

SD alcohol 3-A
CAS 97702-59-2
Classification: Specially denatured alcohol
Definition: Ethyl alcohol (100 gal) denatured with methyl alcohol (5 gal)
Toxicology: Methanol may modify and increase toxic symptoms caused by ing. and exposure to fumes
Uses: Solvent in pharmaceutical tablet coatings; astringent; diluent
Regulatory: FDA 21CFR §73.1, 27CFR §20.11, 21.35
Manuf./Distrib.: Eastman
http://www.eastman.com

SD alcohol 12-A
Classification: Specially denatured alcohol
Definition: Ethyl alcohol (100 gal) denatured with benzene (5 gal) or toluene (5 gal)
Uses: Solvent for mfg. of pharmaceuticals
Regulatory: FDA 27CFR §20.11, 21.74
Manuf./Distrib.: Eastman
http://www.eastman.com

SD alcohol 23-H
Classification: Specially denatured alcohol
Definition: Ethyl alcohol (100 gal) denatured with acetone USP (8 gal) and MIBK (1.5 gal)
Uses: Solvent for mfg. of pharmaceuticals
Regulatory: FDA 27CFR §20.11, 21.49
Trade Names: SDA-23H

SD alcohol 29-8
Classification: Specially denatured alcohol
Definition: Ethyl alcohol denatured with ethyl acrylate
Uses: Solvent for mfg. of pharmaceuticals
Trade Names: SDA-29-8

SD alcohol 35-A
Classification: Specially denatured alcohol
Definition: Ethyl alcohol (100 gal) denatured with ethyl acetate 100% ester content (4.25 gal) or

arro
teq

†=pharmaceutical grade

Uses: Solvent for mfg. of pharmaceuticals
Regulatory: FDA 27CFR §21.82

SD alcohol 40
Classification: Specially denatured alcohol
Definition: Ethyl alcohol (100 gal) denatured with t-butyl alcohol (1/8 gal) and 1.5 oz of either brucine alkaloid, brucine sulfate NF, quassin, or combination thereof
Uses: Solvent, astringent, diluent, thickener, solidifier, liquefier in pharmaceuticals
Regulatory: FDA 27CFR §20.11, 21.76
Manuf./Distrib.: Eastman
http://www.eastman.com

SDS. See Sodium lauryl sulfate
Sea salt. See Sodium chloride
Sea sand. See Quartz
Seawater magnesia. See Magnesium oxide
Sebacic acid, dibutyl ester. See Dibutyl sebacate
Sebacic acid, diethyl ester. See Diethyl sebacate
9,10-Secocholesta-5,7,10(19)-trien-3-ol, (3β,5z,7e); 9,10-Seco(5Z,7E)-5,7,10(19)-cholestratrien-3-ol. See Cholecalciferol
9,10-Secoergosta-5,7,10(19),22-tetraen-3-β-ol; 9,10-Seco (5Z,7E,22E)-5,7,10(19),22-ergostatetraen-3-ol. See Ergocalciferol
Secondary ammonium phosphate. See Ammonium phosphate, dibasic
Secondary butyl alcohol. See 2-Butanol
Secondary calcium phosphate. See Calcium phosphate dibasic
Secondary caprylic alcohol. See 2-Octanol
Secondary cellulose acetate. See Cellulose acetate
Secondary magnesium phosphate. See Magnesium phosphate dibasic
Secondary propyl alcohol. See Isopropyl alcohol
Seignette salt. See Potassium sodium
Chemical Component Cross-Reference

\[\text{tartrate tetrahydrate; Potassium sodium} \]
\[\text{tartrate}\]
Selacholeic acid.  See Nervonic acid
Selenium monosulfide.  See Selenium sulfide

Selenium sulfide
CAS 7446-34-6
UN 2811
Synonyms: Selenium monosulfide; Selsun sulfide; Sulfur selenide
Empirical: SSe
Formula: SeS
Properties: Orange-yel. tablets or powd.; faint odor; sol. in CS\(_2\); sol. < 1 mg/ml in water, DMSO, 95% ethanol, methanol, acetone, toluene; pract. insol. in most other org. solvs.; m.w. 111.02: dens. 3.056 g/ml (0 C); m.p. 111.03 C; b.p. dec. @ 118-119 C
Toxicology: ACGIH TLV/TWA 0.2 mg(Se)/m\(^3\); LD50 (oral, rat) 38 mg/kg; poison by ing.; toxic by inh.; danger of cumulative effects; may cause vomiting, anorexia, anemia, fatty degeneration of liver, garlic odor of breath, metallic taste, weakness, tremors, sweating, irritability, sensitization, eye irritation/keratitis/conjunctivitis/injuries, skin burns, dermatitis, nose/throat irritation, etc.; repeated use may cause loss of hair; may damage liver, nervous system; experimental carcinogen
Precaution: Probably combustible; ignition takes place when ground with silver oxide
Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of SO\(_x\) and selenium
Storage: Store under ambient temps.
Uses: Antifungal and antiseborrhoeic used with detergent as a dandruff shampoo and for treatment of seborrhoeic blepharitis; veterinary medicine (topical treatment for eczema and dermatomycoses)
Regulatory: BP, EP compliance; Canada DSL
Manuf./Distrib.: Spectrum Quality Prods.† http://www.spectrumchemical.com; Voigt Global Distrib.† http://www.vgdllc.com

Senna (Cassia obovata) extract
CAS 85085-71-8; EINECS/ELINCS 285-393-9
Synonyms: Cassia obovata; Cassia obovata extract; Senna leaf extract
Definition: Extract of leaves of Cassia obovata
Uses: Natural flavor for pharmaceuticals; cathartic, laxative; stimulant in laxative prods.

†=pharmaceutical grade
Chemical Component Cross-Reference

- http://www.alfachem1.com; Anmar Int'l.
- http://www.anmarinternational.com;
- Ashland; http://www.ashchem.com
- Asiamerica Int'l.; Austin
- http://www.austinchemical.com; Bachem
- http://bachem.com; Degussa AG/Health & Nutrition; Flamma Spa
- http://www.flamma.it
- Fluka; http://www.sigma-aldrich.com;
- Fortitech; http://www.fortitech.com; Fuerst Day Lawson; http://www.fdli.co.uk; Integra
- http://www.integrachem.com; Kyowa Hakko Kogyo; http://www.kyowa.co.jp
- Mallinckrodt Baker
- http://www.mallbaker.com; Nippon Rikagaku Yuhin
- http://www.pentamfg.com; R.W. Greeff
- Sigma; http://www.sigma-aldrich.com/belgium; Spectrum Quality Prods.
- http://www.spectrumchemical.com;
- Synasia; http://www.synasia.com; Triple Crown Am.
- http://www.triplecrownamerica.com;
- Universal Preserv-A-Chem
- http://www.upichem.com
- Varsal Instruments; http://www.varsal.com;
- Voigt Global Distrib.; http://www.vgdllc.com

(S)-(+)-Serine. See L-Serine

Serpentaria (Aristolochia clematitis) extract
CAS 84775-44-0; EINECS/ELINCS 283-873-2
Synonyms: Aristolochia clematitis;
Aristolochia clematitis extract; Aristolochia extract; Birthwort extract; Serpentaria extract; Snakeroot; Snakeweeds
Definition: Extract of rhiomes of Aristolochia clematitis
Properties: Yel. rods turn red on drying
Toxicology: No known toxicity when applied to the skin; can affect heart and blood pressure when ingested
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.510

Serpentaria extract. See Serpentaria (Aristolochia clematitis) extract
Sesame oil; Sesame seed oil. See Sesame (Sesamum indicum) oil

†=pharmaceutical grade

Sesame (Sesamum indicum) oil
CAS 8008-74-0; EINECS/ELINCS 232-370-6
Synonyms: Benne oil; Gingelly oil; Gingilli oil; Sesame oil; Sesame seed oil; Sesamum indicum; Sesamum indicum oil; Teel oil
Definition: Refined fixed oil obtained from the seeds of Sesamum indicum
Properties: Bland ylsh. oily liq., pract. odorless, bland taste; sl. sol. in alcohol; misc. with ether, chloroform, hexane, carbon disulfide; negligible sol. in water; dens. 0.916-0.921; vapor pressure very low; iodine no. 103-116; sapon. no. 188-195; flash pt. 491 F; ref. index 1.4575-1.4598 (60 C)
Toxicology: LD50 (IP, mouse) > 50 g/kg, (IV, rabbit) 678 µg/kg; poison by IV route; primary irritant; human skin irritant; may cause allergic reactions, primarily contact dermatitis; questionable carcinogen; experimental tumorigen; TSCA listed
Precaution: Combustible exposed to heat or flame
Hazardous Decomp. Prods.: CO2 from combustion; heated to decomp., emits acrid smoke and irritating fumes
NFPA: Health 0, Flammability 1, Reactivity 0
Storage: Light-sensitive
Uses: Solvent, vehicle, lubricant, emollient in pharmaceuticals, parenterels, orals, topicals; USP/NF, JP compliance; BP, EP compliance (refined); Canada DSL
Manuf./Distrib.: A&E Connock
- http://www.connock.co.uk
- Aarhus Karlshamm A/S; http://www.aak.com;
- Adept Sol'ns.; Albany Muller
- http://www.albanmuller.com; Aldivia
- http://www.aldivia.com
- Aldrich; http://www.sigma-aldrich.com;
- Alfa Chem; http://www.alfachem1.com;
- Allchem Int'l. Ltd
- http://www.allchem.co.uk; Alzo
- http://www.alzointernational.com; Anglia Oils
- http://www.angliaoils.co.uk
- Arista Ind.; http://www.aristaindustries.com;
- Asiamerica Int'l.; Avatar
- http://www.avatacorp.com; Barrington
Chemical Component Cross-Reference

†=pharmaceutical grade

Sesamol

CAS 533-31-3; EINECS/ELINCS 208-561-5

Synonyms: 1,3-Benzodioxol-5-ol; 5-Hydroxy-1,3-benzodioxole; 3,4-

Methylenedioxyphenol; Methylene ether of oxyquinone; Phenol, 3,4-(methylenedioxy); 1,2,4-Trihydroxybenzene-1,2-methylene ether

Definition: Natural component of sesame seed oil

Empirical: C7H6O3

Properties: Colorless to brn. cryst. solid; may be sol. in water, ethanol, MEK; m.p. 63-65 C

Toxicology: LD50 (IP, mouse) 470 mg/kg; may be harmful by inh., ing., or skin absorp.; irritating to eyes, skin, mucous membranes, upper respiratory tract; prolonged contact can cause eye damage, severe irritation or burns; was found to reduce activity in the hexobarbital sleeping time assay; TSCA listed

Precaution: Incompat. with strong oxidizing agents

Hazardous Decomp. Prods.: Toxic fumes of CO, CO2; emits toxic fumes under fire conditions

Storage: Store in cool, dry place; keep tightly closed

Uses: Solvent and vehicle for fat-sol. substances in pharmaceuticals, liniments, ointments


Trade Names: Lipovol SES; Super Refined® Sesame NF

Sesamum indicum; Sesamum indicum oil

See Sesame (Sesamum indicum) oil

Seychelles cinnamon leaf oil. See Cinnamon (Cinnamomum zeylanicum) leaf oil

SFS. See Sodium formaldehyde sulfoxylate

Shaddock oil. See Grapefruit (Citrus grandis) oil

Handbook of Pharmaceutical Additives, Third Edition 2022
Shark liver oil
CAS 68990-63-6; EINECS/ELINCS 273-616-2
Definition: Oil expressed from fresh livers of sharks and other Elasmobranchii species
Properties: Yel. to red-brown liq., strong odor; sol. in ether, chloroform, benzene, carbon disulfide, oxygenated and chlorinated solvs.; dens. 0.917-0.928; iodine no. 125-155; sapon. no. 170-187; ref. index 1.4784 (20 C)
Uses: Emollient, topical protectant, for skin care and hemorrhoidal preps.; nutrient; vitamin A source
Regulatory: FDA 21CFR §175.105, 176.210, 177.2800
Trade Names: Fancol™ Karite Butter; Kelisema Shea Butter; Lipex 102; Lipex 205; Shea Butter
Trade Names Containing: SheAloe™

Shea butter (Butyrospermum parkii) extract
CAS 68424-59-9
Synonyms: Butyrospermum parkii; Shea butter extract
Definition: Extract of shea butter, Butyrospermum parkii
Uses: Emollient, spreading agent for ointments, suppositories
Regulatory: Canada DSL
Manuf./Distrib.: Aarhus Karlshamn A/S† http://www.aak.com/
Trade Names: Fancol™ Karite Extract
Trade Names Containing: Fancol™ VB; Stimu-Tex® AS

Shea butter (Butyrospermum parkii) unsaponifiables
Synonyms: Butyrospermum parkii; Butyrospermum parkii unsaponifiables; Shea butter unsaponifiables; Unsaponifiable shea butter
Classification: Fatty acids
Definition: Fraction of shea butter which is not saponified during processing
Uses: Emollient
Trade Names: Shea Unsaponifiable

Shea butter. See Shea butter (Butyrospermum parkii) extract
Shea butter fruit. See Shea butter (Butyrospermum parkii) extract
Shea butter (Butyrospermum parkii)
CAS 68424-60-2; 977026-99-5; EINECS/ELINCS 293-515-7
Synonyms: Butyrospermum parkii; Butyrospermum parkii butter; Butyrospermum parkii fruit; Galam butter; Karite butter; Shea butter; Shea butter fruit
Definition: Natural fat obtained from fruit of the Karite tree, Butyrospermum parkii
Properties: Gray-wh. solid; dens. 0.9175; iodine no. 53-65; sapon. no. 178-190
Uses: Emollient, consistency agent, lubricant, moisturizer, vehicle, carrier, visc. modifier, skin protectant, fatting agent for pharmaceutical dermatologicals,
Shea butter unsaponifiables. See Shea butter (Butyrospermum parkii) unsaponifiables

Shellac
CAS 9000-59-3; EINECS/ELINCS 232-549-9
INS904; E904
Synonyms: Bleached shellac; Button lac; Garnet lac; Gum lac; Lac; Lacca; Lac resin; Shellac gum; Shellac orange S-40; Stick lac; White shellac
Classification: Fatty acid
Definition: Purified and bleached lac, the resinous secretion of the insect Laccifer (Tachardia) lacca
Properties: Off-wh. to brn. amorphous gran. solid, very little odor; slowly sol. in alcohol; sl. sol. in acetone, ether, benzene, petrol. ether; insol. in water; dens. ≈ 1.15 kg/l; m.p. 115-120 C; acid no. 73-89 (reg.), 75-91 (refined)
Toxicology: Nonallergenic; may cause contact dermatitis
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
HMIS: Health 1, Flammability 2, Reactivity 0
Uses: Enteric coating agent, stabilizer for pharmaceuticals, slow-release tablets, in solid oral dosage forms, microencapsulation preps., dental impression comps.
Features: Improves tablet stability
Regulatory: FDA 21CFR §73.1, 175.105, 175.300, 175.380, 175.390, 182.99; 27CFR §21.126, 212.61, 212.90; 40CFR §180.1001; Japan approved; Europe listed; UK approved; FDA approved for orals; USP/NF, BP, EP compliance; Canada DSL; JP compliance (purified shellac and white shellac)
Mantrose-Haeuser† http://www.mbzgroup.com; Marlin Chems. Ltd http://www.marlinchemicals.co.uk; P.L. Thomas http://www.plthomas.com; Pangaea Sciences†

†=pharmaceutical grade

http://www.pangaeasciences.com; Punda Mercantile http://www.punda.com
Univar Ltd† http://www.univar.co.uk; Worlée-Chemie http://www.worlee.de
Trade Names Containing: Certified® Pharmaceutical Glaze; CertiSeal® FC 300; CertiSeal® FC 300 A; Crystalac® Continuous Glaze; Lac-Coat 40E-2 Opaglos®

Sheelac cera. See Shellac wax
Shellac gum; Shellac orange S-40. See Shellac

Shellac wax
CAS 97766-50-2; EINECS/ELINCS 307-913-6
Synonyms: Lac resin wax; Shellac cera; Waxes and waxy substances, shellac
Definition: Waxy fraction of bleached shellac obtained by physical means
Properties: Hard brown solid
Uses: Emollient, film-former in pharmaceuticals
Regulatory: FDA 21CFR §101.4
Manuf./Distrib.: Somerset Cosmetic Co. http://www.makingcosmetics.com/

Shell silver. See Silver
SHMP. See Sodium hexametaphosphate
Shorea butter; Shorea stenoptera. See Shorea stenoptera butter

Shorea stenoptera butter
CAS 91770-65-9; EINECS/ELINCS 294-851-7
Synonyms: Shorea butter; Shorea stenoptera
Definition: Natural fat obtained from Shorea stenoptera
Uses: Emollient for pharmaceuticals, cosmetics
Manuf./Distrib.: Aarhus Karlshamn A/S† http://www.aak.com/

Siam benzoin. See Gum benzoin
Siberian fir oil. See Pine (Pinus pumilio) needle oil
Silane, dichlorodimethyl-, reaction prods. with silica. See Silica dimethyl silylate
Silane, dichlorodimethyl-, reaction products with silica. See Silica, hydrophobic Silane, dichlorodiphenyll.
Chemical Component Cross-Reference

Diphenyl dichlorosilane

Silanediol salicylate

Uses: Anti-inflammatory, moisturizer, tissue regenerator, anti-free radical agent for health prods.

Trade Names: D.S.B. C

Trade Names Containing: Capillisil®

Silane, oxybis (trimethyl)-. See Hexamethyldisiloxane

Silane, phenyltrichloro-; Silane, trichlorophenyl-. See Phenyltrichlorosilane

Silane, trimethyl (octadeoxylo)-. See Stearoxytrimethylsilane

Silica

EINECS/ELINCS 231-545-4
INS551; E551

Synonyms: Silicic anhydride; Silicium dioxide; Silicon dioxide

Classification: Inorganic oxide

Definition: Occurs in nature as agate, amethyst, chalcedony, cristobalite, flint, quartz, sand, tridymite, diatomite. The designation silica (silicon dioxide) incl. cryst., amorphous forms which are hydrated or hydroxylated

Empirical: O₂Si

Formula: SiO₂

Properties: Transparent crystals or amorphous very fine powd.; prac. insol. in water, alcohol, and acids except hydrofluoric; m.w. 60.09; dens. 2.2 (amorphous), 2.65 (quartz, 0 C); vapor pressure 10 mm Hg (1732 C); m.p. 1710 C; b.p. 2230 C; lowest coeff. of heat expansion; melts to a glass; pH 3.5-4.4

Toxicology: LD₅₀ (oral, rat) 3160 mg/kg; poison by IP, IV, intratracheal routes; mod. toxic by ing.; prolonged inh. of dust can cause silicosis; suspected human carcinogen; TSCA listed

Precaution: Reacts violently with CIF₃, MNF₃, OF₂

HMIS: Health 1, Flammability 0, Reactivity 0

Storage: Hygroscopic

Uses: Thickener, glidant, carrier, suspending agent, anticaaking agent, desiccant in pharmaceuticals, orals, rectals, vaginals; tablet binder/disintegrant, oil adsorbent, stabilizer; carrier in water-sol. drugs

Regulatory: FDA 21CFR §73.1, 172.230, 172.480 (limitation 2%), 173.340, 175.105, 175.300, 176.170, 176.200, 176.210, 177.1200, 177.1460, 177.2420, 177.2600, 178.3297, 182.90, 182.1711, GRAS; USDA 9CFR §318.7; Japan approved (2% max. as anticaking), other restrictions; Europe listed; UK approved; FDA approved for orals, rectals, vaginals; USP/NF, BP, EP compliance

Manuf./Distrib.: Akzo Nobel

http://www.akzonobel.com; Aldrich†
http://www.sigma-aldrich.com; Am. Int'l.
http://www.aicma.com; Ashland†
http://www.ashchem.com; Atlantic Equip.
BYK-Chemie GmbH http://www.byk-chemie.com; Bangs Labs†
http://www.bangs-labs.com; Cabot Carbon Ltd; Cabot† http://w1.cabot-corp.com;
Celite http://www.worldminerals.com
Charles B. Chrystal†
http://www.cbchrystal.com; Chemacon GmbH† http://www.chemacon.de; Chisso Am.; Degussa AG/Health & Nutrition;
DuPont http://www.dupont.com
Engelhard http://www.engelhard.com;
Fluka http://www.sigma-aldrich.com;
Galbraith Labs† http://www.galbraith.com;
Gelest http://www.gelest.com; INEOS Silicas Am.† http://www.ineossilicas.com
Millennium† http://www.millenniumchem.com; Nippon Aerosil†
http://www.ppg.com; http://www.ppgchloralkali.com; PQ
Spectrum Quality Prods.† http://www.spectrumchemical.com; St. Lawrence http://www.stlawrencechem.com; Triple Crown Am.†
Whatman† http://www.whatman.com

Trade Names: Sorbosil AC33; Sorbosil AC35; Sorbosil AC77; Sorbosil TC15; Syloid® 244FP
**Synonyms:**

- Amorphous silica
- Hydrated amorphous silica
- Silica, amorphous; Silica, amorphous hydrated
- Silica, colloidal; Silica, fumed; Silica gel
- Silica, hydrated

**Trade Names Containing:**

- Covitol® 700
- Descote® Nicotinamide 33¹/₃%; Dow
- Corning® Antifoam M Compd.; Dry Vitamin
- D₃ Type 100 SD; Dry Vitamin E 75™ HP
- Dry Vitamin E Acetate 50% SD; DSS Tablet
- Grade; Niacinimide Free Flow;
- ReadyPress® C; ReadyPress® C w/RH
- Rocoat® Nicotinamide 33¹/₃%; Sag 471; Sag
- 710; Sag 730; Vitamin B₁₂ 0.1% SD

**See also** Diatomaceous earth; Quartz; Silica,
- amorphous; Silica, amorphous hydrated;
- Silica, colloidal; Silica, fumed; Silica gel;
- Silica, hydrated

**Silica acid.** See Silica, hydrated

**Silica aerogel.** See Silica gel

**Silica, amorphous**

CAS: 112926-00-8; EINECS/ELINCS: 231-545-4

**Synonyms:**

- Amorphous silica gel;
- Polyethyleneimine-silica; Precipitated silica;
- Silica, amorphous precipitated; Silica,
- amorphous, precipitated and gel; Silica gel
dessicant

**Classification:**

Mineral

**Properties:**

- Sp.gr. 2-2.3; oil absorp. 28; GE
- brightness 90-94; ref. index 1.45; hardness
- (Mohs) 5-6

**Toxicology:**

- ACGIH TLV/TWA 10 mg/m³ (total
dust); hazardous dust; avoid inh.

**Storage:**

Hygroscopic

**Uses:**

Carrier, moisture control agent,
- anticaking agent in pharmaceuticals

**Regulatory:**

Canada DSL

**Manuf./Distrib.:**

- Aldrich [http://www.sigma-
- alrich.com]; Am. Int'l.
- http://www.aicma.com; Cabot/Cab-O-Sil
- http://www.cabot-
- corp.com/cabosil/cabosil.nsf; Celite
- http://www.worldminerals.com; Degussa
- http://www.degussa.com
- INEOS Silicas Am.
- http://www.ineossilicas.com; J.M.
- Huber/Chems. [http://www.huber.com];
- Kaopolite; MPSI [http://www.mp-
- solutionsinc.com]; Nalco
- http://www.nalco.com
- PPG Ind. [http://www.ppg.com];
- http://www.ppchloralkali.com; Reade
- Advanced Materials [http://www.reade.com];
- Sigma [http://www.sigma-
- alrich.com/belgium]

**Trade Names:**

- Hi-Sil® T-600; RxCIPIENTS® GL
- 100 Series Glidant; RxCIPIENTS® GL 200
- Series Glidant; Sident® 22S; SilCRON® G-

**†=pharmaceutical grade**

- 100
- SilCRON® G-100T; SilCRON® G-600;
- SilCRON® G-601; SilCRON® G-602;
- SilCRON® G-640
- SilCRON® G-650; Sipermat® 160PQ;
- Sipermat® 500LS; Sylysia 310P; Sylysia 320
- Sylysia 350; Sylysia 370; Sylysia 430;
- Sylysia 530; Sylysia 550
- Sylysia 730; Sylysia 740

**See also** Silica, amorphous hydrated; Silica, fumed

**Silica, amorphous fumed.** See Silica, fumed

**Silica, amorphous hydrated**

CAS: 7631-86-9; EINECS/ELINCS: 231-545-4

**Synonyms:**

- Amorphous silica; Hydrated amorphous silica; Silica, amorphous; Silica
dioxide

**Empirical:** O₂Si

**Properties:**

Transparent cryt. or amorphous powd.; tasteless; sol. in HF; sl. sol. in water;
- m.w. 60.09; dens. 2.2; m.p. 1716-1736 C; b.p.
- 2230 C; ref. index 1.46; melts to glass at
- ordinary temps.; chem. resist. to most reagents

**Toxicology:**

- ACGIH TLV/TWA 10 mg/m³ (total
dust), when toxic impurities absent;
- nuisance particulate; transient dermatitis
- which causes skin dehydration and loss of
- skin oils

**HMIS:**

Health 2, Flammability 0, Reactivity 0

**Uses:**

Visc. control agent

**Regulatory:**

Canada DSL

**Manuf./Distrib.:**

- Akzo Nobel [http://www.akzonobel.com]; Archway Sales
- [http://www.crminerals.com]; Cabot/Cab-O-
- Sil [http://www.cabot-
- corp.com/cabosil/cabosil.nsf; Chem-
- D.N. Lukens [http://www.dnlukens.com];
- Degussa [http://www.degussa.com]; Gelest
- [http://www.gelest.com]; H.M. Royal
- [http://www.hmroyal.com]; INEOS Silicas
- Am. [http://www.ineossilicas.com]
- J.M. Huber/Chems. [http://www.huber.com];
- L.V. Lomas [http://www.lvlomas.com];
- Lenape Ind. [http://www.lenape.com]; MPSI
- [http://www.mp-solutionsinc.com];
- Millennium [http://www.millenniumchem.com]
- Nalco [http://www.nalco.com]; PPG Ind.
- [http://www.ppqcorp.com]; Tamms Ind.
Silica, amorphous precipitated; Silica, amorphous, precipitated and gel. See Silica, amorphous; Silica acid (polynorhto). See Silica, hydrated

Silica, colloidal

EINECS/ELINCS 231-545-4

Synonyms: Colloidal silica; Colloidal silicon dioxide; Silica sol; Silicon dioxide colloidal

Definition: A stable dispersion of discrete, colloid-size particles of amorphous silica in aq. sol’n.

Uses: Excipient, glidant, anticaking agent, suspending agent, visc. builder in pharmaceuticals

Regulatory: USP/NF, BP, EP compliance


Trade Names Containing: Kollidon® SR

See also Silica; Silica, amorphous

Silica, crystalline quartz. See Quartz

Silica dimethyl silylate

CAS 60842-32-2; 68611-44-9; EINECS/ELINCS 271-893-4

Synonyms: Silane, dichlorodimethyl-, reaction prods. with silica

Definition: Silica deriv. in which the surface of the fumed silica has been modified by the addition of dimethyl silyl groups

Uses: Adsorbent, suspending agent in pharmaceuticals

Trade Names: Aerosil® R974

Silica dioxide. See Silica, amorphous hydrated

Silica flour. See Quartz

Silica, fumed

CAS 112945-52-5; EINECS/ELINCS 231-545-4

Synonyms: Amorphous silica dust; CI 77711; Colloidal silica; Colloidal silicon dioxide; Fossil flour; Fumed silica; Fumed silicon dioxide; Pigment white 27; Silica, amorphous; Silica, amorphous fumed; Silica, pyrogenic; Silicic anhydride; Silicon dioxide

Definition: High surface area aggregate particles of silica, with min. 89.5% SiO2 content

Empirical: O2Si

Formula: SiO2

Properties: Wh. to gray fine dusty powd.; odorless; sol. in hydrofluoric acid; insol. in water; m.w. 60.09; sp.gr. 2.1; dens. ≈ 2 lb/ft3 (unpacked); BET surf. area 200-300 m2/g; m.p. 1600 C; ref. index 1.46; hydrophilic

Toxicology: ACGIH TLV 10 mg/m3; nuisance dust; LD50 (oral, rat) 3160 mg/kg, (IV, rat) 15 mg/kg; LDLo (IP, rat) 50 mg/kg; poison by IP, IV, and intratracheal routes; mod. toxic by ing.; hazard by inh.; silica fume may cause drying of skin after prolonged exposure; contact lenses should not be worn for handling material; much less toxic than crystalline forms; does not cause silicosis; questionable carcinogen; mutagenic data; tumorigen

Precaution: Incompat. with strong oxidizers, fluorine, oxygen difluoride, chlorine trifluoride

Storage: Hygroscopic

Uses: Thickener, thixotrope, reinforcing agent, excipient, flow aid, anticaking agent, stabilizer, adsorbent, glidant, suspending agent, antisetttling agent for pharmaceuticals (toothpaste, tablets, powds., aerosols, suspensions, ointments,
Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Regulatory:</th>
<th>Canada DSL</th>
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</thead>
<tbody>
<tr>
<td>Trade Names:</td>
<td>Aeroperl® 300 Pharma; Aerosil® 90; Aerosil® 150; Aerosil® 200 Pharma; Aerosil® 200 VV Pharma; Aerosil® 380; Aerosil® R812; Aerosil® R972; Cab-O-Sil® EH-5; Cab-O-Sil® H-5; Cab-O-Sil® HS-5; Cab-O-Sil® LM-150; Cab-O-Sil® M-5; Cab-O-Sil® M-5P; Cab-O-Sil® MS-55; Cab-O-Sil® PTG; Wacker HDK® H20; Wacker HDK® N20; Wacker HDK® N20 P; Wacker HDK® N20 ST; Wacker HDK® V15</td>
</tr>
<tr>
<td>Trade Names Containing:</td>
<td>Cab-O-Sil® TS-530</td>
</tr>
<tr>
<td>See also</td>
<td>Silica; Silica, amorphous</td>
</tr>
</tbody>
</table>

Silica gel

| CAS | 63231-67-4; 977052-02-0; EINECS/ELINCS 231-545-4 |
| Synonyms: | Metasilicic acid; Silica aerogel |
| Definition: | A regenerative adsorbent consisting of coherent, continuous three-dimensional network of spherical particles of colloidal silica |
| Empirical: | O2Si |
| Formula: | SiO2 |
| Properties: | Odorless; insol. in water; m.w. 60.09; sp.gr. 2.1 |
| Toxicology: | LD50 (mice) 8000 mg/kg; PEL 6 mg/m3; nontoxic; avoid prolonged breathing of dust; TSCA listed |
| HMIS: | Health 2, Flammability 0, Reactivity 0 |
| Uses: | Anticaking agent, antifoam component in pharmaceuticals, buccals, dentals, orals |
| Regulatory: | FDA 21CFR §182.1711, GRAS; BATF 27CFR §240.1051; FDA approved for buccals, dentals, orals; Canada DSL |

| †=pharmaceutical grade |


See also Silica; Silica, colloidal

Silica gel dessicant. See Silica, amorphous
Silica glass. See Quartz
Silica hydrate. See Silica, hydrated

Silica, hydrated

| CAS | 1343-98-2; EINECS/ELINCS 215-683-2 |
| Synonyms: | Hydrated silica (INCI); Hydrosilicic acid; Polyorthosilicic acid; Polysilicic acid; Precipitated silica; Silica acid; Silic acid (polortho); Silica hydrate; Silica, precipitated; Silic acid; Silicious acid hydrated; Silicon hydroxide |
| Classification: | Inorganic oxide |
| Definition: | Occurs in nature as opal; jelly-like precipitate obtained when sodium silicate sol'n. is acidified |
| Empirical: | ≈ H2O3Si |
| Formula: | SiO2 • xH2O, x varies with method of precipitation and extent of drying |
| Properties: | Wh. amorphous powd. or lumps; sol. in hot fixed alkaline hydroxide sol'n.; insol. in water or acids except hydrofluoric; m.w. 60.08 + water |
| Toxicology: | TLV/TWA 10 mg/m3 (total dust); eye irritant; poison by IV route; TSCA listed |
| Uses: | Adsorbent, carrier, filler, rheology control agent, flow aid, thickener in pharmaceuticals, skin protectants; abrasive, thickener in dentifrices |
Silica, hydrophobic
CAS 68611-44-9; EINECS/ELINCS 271-893-4
Synonyms: Silane, dichlorodimethyl-, reaction products with silica
Formula: (SiO2)n(CH3)x
Properties: Inert
Environmental: Environmentally friendly
Uses: Excipient, glidant, visc. adjuster in pharmaceuticals, vitamins, and nutraceuticals
Regulatory: USP/NF, EP compliance
Trade Names: Sideron® 8; Sideron® 9; Sideron® 10; Sipernat® 22LS; Sipernat® 22S
Sipernat® 160; Sipernat® 300DS; Sipernat® 310; Sipernat® 320; Sipernat® D10
Sorbosil AC39; Tixosil® 63; Tixosil® 73; Tixosil® 123; Tixosil® 331
Tullanox® HM-100; Tullanox® HM-150; Tullanox® HM-250
Silica, precipitated. See Silica, hydrated
Silica, pyrogenic. See Silica, fumed
Silica, quartz. See Quartz
Silica sol. See Silica, colloidal
Silicate (2-), hexafluoro-, diammonium. See Ammonium silicofluoride
Siliceous earth. See Diatomaceous earth
Silicic acid. See Silica, hydrated
Silicic acid, aluminum magnesium salt. See Magnesium aluminosilicate
Silicic acid, aluminum sodium salt. See Sodium silicofluoride
Silicic acid, calcium salt. See Calcium silicate
Silicic acid hydrate; Silicic acid hydrated. See Silica, hydrated
Silicic acid, lithium, magnesium, sodium salt. See Smectite
Silicic acid, lithium magnesium sodium salt. See Sodium magnesium silicate
Silicic acid, magnesium salt (1:1). See Magnesium silicate
Silicic acid, magnesium salt (1:2). See Magnesium trisilicate
Silicic anhydride; Silicium dioxide. See Silica
Siloxane; Siloxanes

Classification: Organosilicon compd.; thermosetting siloxane polymer

Definition: Family of syn. polymers contg. a repeating silicon-oxygen backbone with organo side groups attached via carbon-silicon bonds; classified as fluids, resins, and elastomers

Formula: [—OSiR₂—]ₙ, R not equal to H

Properties: Liq., semisolid, or solid; cis 1 to >1,000,000 cs; water repellent; sol. in most organic solvents

Toxicology: Silicone-related diseases can occur, e.g., siloxane-induced synovitis and lymphadenopathy, acute and chronic pneumonitis from 'bleeding' from ruptured bag-gel breast implants, pulmonary lesions, granulomatous reactions

Precaution: Unhalogenated types combustible

Uses: Biomaterial for medicine (implants, prosthetic devices); defoamer

Features: Thermal and oxidative stability; chemically inert; good dielec. str.; low surf. tens.

Regulatory: FDA 21 CFR §175.300

Manuf./Distrib.: Ashland
http://www.ashchem.com; Bayer
http://www.bayerus.com; Chemcentral
http://www.chemcentral.com; Clariant
http://www.clariant.com;
http://www.clariant-northamerica.com;
Crucible
D.N. Lukens http://www.dnlukens.com;
Degussa AG/Aerosil & Silanes
http://www.degussa-bioactives.com; Dow Corning http://www.dowcorning.com;
Genesee Polymers http://www.gpcsilicones.com; Lambent
Tech. http://www.lambentcorp.com; PPG
Ind. http://www.ppg.com;
http://www.ppgchloralkali.com
Ruger† http://www.rugerchemical.com;
Soluol http://www.soluol.com; Taylor
http://www.taylorchemical.com; Wacker
Silicones† http://www.wackersilicones.com

Trade Names: Dow Corning® Antifoam 1520- US; Foam Blast® 150K; Foamkill® 830;
Foamkill® 836A; Rhodorsil® Silcolapse® 5020
Silfoam® Emulsion SE 21; Silfoam® Emulsion SE 23; Silfoam® Emulsion SE 25

See also Cyclomethicone; Dimethicone; Simethicone

Simethicone
Silicone alkylmethyl glycol
CAS 212335-52-9
Synonyms: Alkylmethyl siloxane copolymer
Classification: Organosiloxane
Uses: Emulsifier for pharmaceutical topicals
Trade Names Containing: Dow Corning® Emulsifier 10

Silicone emulsion
Synonyms: Siloxane emulsion
Classification: Organosiloxane
Toxicology: No known toxicity
Uses: Desiccant, water repellent, defoamer for pharmaceuticals, orals, topicals; film former for tablets and microencapsulations
Regulatory: FDA approved for orals, topicals

Manuf./Distrib.: Atlas Refinery
http://www.atlasrefinery.com; Avatar†
http://www.avatarcorp.com; Brenntag AG†
http://www.brenntag.de; Clariant
http://www.clariant.com;
http://www.clariant-northamerica.com;
Crucible
Degussa AG/Aerosil & Silanes
http://www.degussa-bioactives.com; Dow Corning http://www.dowcorning.com;
Genesee Polymers http://www.gpcsilicones.com; Lambent
Tech. http://www.lambentcorp.com; PPG
Ind. http://www.ppg.com;
http://www.ppgchloralkali.com
Ruger† http://www.rugerchemical.com;
Soluol http://www.soluol.com; Taylor
http://www.taylorchemical.com; Wacker
Silicones† http://www.wackersilicones.com

Trade Names: Dow Corning® Antifoam 1520-US; Foam Blast® 150K; Foamkill® 830;
Foamkill® 836A; Rhodorsil® Silcolapse® 5020
Silfoam® Emulsion SE 21; Silfoam® Emulsion SE 23; Silfoam® Emulsion SE 25

See also Cyclomethicone; Dimethicone; Simethicone

Silicone fluid. See Polymethylsiloxane
Silicone oil. See Dimethylsiloxane; Polydimethylsiloxane
Silicone oils. See Dimethylsiloxane
Silicone polymer. See Silicone
Silicon hydroxide. See Silica, hydrated
Silicon phenyl trichloride. See Phenyltrichlorosilane
Silicon powder, amorphous. See Silicon
Siloxane. See Silicone
**Handbook of Pharmaceutical Additives, Third Edition**

**Siloxane, dimethyl**: See Dimethylsiloxane

**Siloxane emulsion**: See Silicone emulsion

**Siloxanes**: See Silicone

**Siloxanes and silicones, 3-[(2-aminoethyl amino)propyl, methyl, dimethyl, docosanoates**: See Dimethicone propylethylendiamine behenate

**Siloxanes and silicones, dimethyl**: See Dimethylsiloxane

**Siloxanes and silicones, dimethyl, 3-hydroxypropyl methyl ethers with polyethylene glycol dihydrogen phosphate**: See Dimethicone copolyol phosphate

**Siloxanes and silicones, dimethyl, hydroxy-terminated**: See Dimethiconol

**Siloxanes and silicones, dimethyl, hydroxy-terminated, ethoxylated propoxylated**: See Dimethicone copolyol

**Siloxanes and silicones, dimethyl, methyl stearyl**: See Stearyl dimethicone

**Siloxanes and silicones, dimethyl, (octadecyloxy)-terminated**: See Stearoxy dimethicone

**Siloxanes and silicones, dimethyl, reaction prods. with silica**: CAS 67762-90-7

**Synonyms**: Dimethyl silicones and siloxanes, reaction prods. with silica; Methylated silica

**Uses**: Rheology control agent, reinforcing agent, free-flow agent

**Regulatory**: Canada DSL

**Trade Names Containing**: Sag 471

**Siloxanes and silicones, α-D-mannopyranuronoyl-oxy methyl, hydroxy-terminated**: See Methylsilanol mannuronate

**Silver**: CAS 7440-22-4; EINECS/ELINCS 231-131-3

**UN 3089; INS 174; E174**

**Synonyms**: Argentum; Cl 77820; Shell silver; Silver atom; Silver, colloidal

**Classification**: Metallic element

**Empirical**: Ag

**Properties**: Soft ductile malleable lustrous wh. metal; sol. in fused alkali hydroxides in presence of air, in fused alkali peroxides; insol. in water; not attacked by water or atmospheric oxygen; inert to most acids; at wt. 107.868; dens. 10.50 (15 C); m.p. 961.93 C; b.p. 2212 C; exc. conductor of heat and electricity

**Toxicology**: ACGIH TLV/TWA 0.1 mg/m³ (metal), 0.01 mg/m³ (sol. compds. as Ag); STEL (15 min) 0.3 mg/m³; TCLo (inh., human) 1 mg/m³; nontoxic but prolonged absorption of compds. can cause grayish discoloration of skin (argyria); human systemic effects (skin effects) on inh.; overexposure may cause nasal septum, skin irritation, ulceration, GI upset; questionable carcinogen; experimental tumorigen; TSCA listed

**Precaution**: DOT: Flamm. solid; flamm. in dust form when exposed to flame or by chem. reaction with C₂H₂, NH₃, bromoazide, CIF₃, ethylene imine, H₂O₂, oxalic acid, H₂SO₄, tartaric acid; incomp. with acetylene, carboxylic acids, etc.

**Uses**: Antibacterial in pharmaceuticals; ingred. in dental alloys; surgical cements; colloidal silver as nucleating agent in medicine

**Regulatory**: FDA 21CFR §73.2500; Canada DSL


**Silver atom; Silver, colloidal**: See Silver

**Silver matt powder**: See Tin

**Silver nitrate**: CAS 7761-88-8; EINECS/ELINCS 231-853-9

**UN 1493 (DOT)**

**Synonyms**: Nitric acid silver (1+) salt; Silver (1+) nitrate; Silver (I) nitrate (1:1)

**Empirical**: AgNO₃

**Properties**: Colorless or wh. cryst.; becomes gray or grayish blk. on exposure to light in presence of org. matter; very sol. in water, ammonia; sol. in boiling alcohol; sparingly sol. in alcohol; sl. sol. in ether; m.w.169.88; dens. 4.352 (19 C); m.p. 212 C; b.p. 444 C (dec.); pH 5.5 (sol'n.)

**Toxicology**: ACGIH TLV/TWA 0.01 mg(Ag)/m³; LD₅₀ (IP, mouse) 23,783 µg/kg; LDLo (oral,
Chemical Component Cross-Reference

rabbit) 800 mg/kg, (IV, rabbit) 8800 µg/kg; poison by ing., IV, subcut., IP routes; human poison; ing. can cause severe or fatal gastroenteritis; irritating to eyes (severe), skin, and respiratory tract; chronic exposure causes argyria; questionable carcinogen; experimental tumorigen, reproductive effector; human mutagenic data; TSCA listed

Precaution: Strong oxidizer that reacts dangerously with many acids and phosphorus derivs.; incompat. with alkalis, Al, antimony salts, arsenic, bromides, C, carbonates, chlorides, copper, ethanol, ferrous salts, oils, phosphates, sulfur, etc.

Hazardous Decomp. Prods.: Heated to decomp., emits toxic Ag and fumes of NOx

HMIS: Health 3, Flammability 1, Reactivity 3

Storage: Store @ R.T.

Uses: Antiseptic; in ophthalmic sol’ns.

Regulatory: FDA 21CFR §176.300; BP, EP compliance; Canada DSL


†=pharmaceutical grade

Silver (1+) nitrate; Silver (I) nitrate (1:1). See Silver nitrate

Silybum marianum; Silybum marianum extract. See Lady’s thistle (Silybum marianum) extract

Simaldrate. See Magnesium aluminometasilicate

Simethicone

CAS 8050-81-5

Synonyms: α-(Trimethylsilyl)-ω-methylpoly[oxy(dimethylsilylene)], mixt. with silicon dioxide

Definition: Mixture of dimethicone with an avg. chain length of 200-350 dimethylsiloxane units and hydrated silica gel

Formula: (CH₃)₃SiO[Si(CH₂)₂O]ₙSi(CH₃)₃, n = 200-350

Properties: Hazy translucent visc. fluid; sol. in chloroform, ether; insol. in water and alcohol; dens. 0.965-0.970; ref. index ≈ 1.404; nonionic

Toxicology: LD₅₀ (IV, dog) 900 mg/kg

HMIS: Health 0, Flammability 1, Reactivity 0

Uses: Antifoam, water repellent for pharmaceuticals, fermentation; coating agent in orals, rectals, topicals, emulsions, oral suspensions, capsules; ointment base; anti-flatulence oral dosages

Regulatory: Europe listed; UK approved; FDA approved for orals, rectals, topicals; USP/NF compliance

Chemical Component Cross-Reference


- Beta-sitosterol (INCI)

- Sine adipe lac. See Nonfat dry milk

- β-Sitosterol

- CAS 83-46-5; EINECS/ELINCS 201-480-6

- Synonyms: Beta-sitosterol (INCI); (3β)-Stigmaster-5-en-3-ol

- Classification: Sterol

- Empirical: C29H50O

- Properties: Wh. to tan powd.; characteristic odor; m.w. 414.69; m.p. 138.5 C

- Toxicology: LD50 (oral, mouse) >25000 mg/kg; skin and eye irritant; nontoxic

- Precaution: Keep away from heat and ignition sources; do not breathe dust or ingest; avoid strong oxidizing agents; wear splash goggles, dust respirator, lab coat, and protective gloves

- HMIS: Health 2, Flammability 1, Reactivity 0

- Storage: Store in a tightly closed container in a cool, well-ventilated area @≤ 24 C

- Uses: Ingred. for treatment of diaper rash

- Regulatory: Canada DSL


†=pharmaceutical grade


Skatol. See Skatole

Skatole

- CAS 83-34-1; EINECS/ELINCS 201-471-7

- FEMA 3019

- Synonyms: 3-Methyldindole; 3-Methyl-1H-indole; β-Methyldindole; 3-MI; Skatole; Skatol

- Classification: 5-Membered fused aromatic heterocyclic

- Empirical: C9H9N

- Properties: Wh. scales or powd.; browns on aging; fecal odor; sol. in water, alcohol, chloroform, ether, benzene; sol. 1 g/10 ml methanol; m.w. 131.18; m.p. 95-97 C; b.p. 265-266 C; flash pt. 132 C

- Toxicology: LD50 (oral, rat) 175 mg/kg; poison by ing., IV, and IP routes; mod. toxic by subcut. route; TSCA listed

- Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx

- Storage: Protect from light; keep tightly closed

- Uses: Synthetic flavor for pharmaceuticals

- Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL


- Slaked lime. See Calcium hydroxide

- Sloe berries. See Blackthorn berries (Prunus spinososa)

- SLS. See Sodium lauryl sulfate

- Smallage oil. See Lovage (Levisticum officinale) oil

Smectite

- CAS 53320-86-8; EINECS/ELINCS 258-476-2

- Synonyms: Hydrous sodium lithium magnesium silicate; Lithium magnesium sodium silicate (INCI); Magnesium lithium sodium silicate; Silicic acid, lithium, magnesium, sodium salt; Sodium lithium
magnesium silicate

Definition: Synthetic silicate clay consisting mainly of lithium, magnesium, and sodium silicates

Properties: Wh. powd.
Uses: Thickener, thixotrope

Regulatory: Canada DSL
Manuf./Distrib.: Southern Clay Prods. 
http://www.scprod.com

Trade Names: Laponite® D; Optigel® CG

Smellage oil. See Lovage (Levisticum officinale) oil

SMFP. See Sodium fluorophosphate

Smilax aristolochiaefolia; Smilax aristolochiaefolia extract. See Sarsaparilla (Smilax aristolochiaefolia) extract

SMO. See Sorbitan oleate

SMS. See Sorbitan stearate

Snakeroot; Snakeweed. See Serpentaria (Aristolochia clematitidis) extract

Soapbark. See Quillaja (Quillaja saponaria)

Soap clay. See Bentonite

Soda ash; Soda calcined. See Sodium carbonate

Soda chlorate. See Sodium chlorate

Soda lime
CAS 8006-28-8; EINECS/ELINCS 287-539-7
UN 1907 (DOT)

Synonyms: Calcaria absorbens; Cal sodada; Calx sodica

Definition: Mixt. of calcium hydroxide and sodium and/or potassium hydroxide

Properties: Wh. or grayish wh. gran.; partly sol. in water; almost completely sol. in 1M acetic acid; rapidly deteriorates on exposure to air

Toxicology: Toxic by ing., inh.; corrosive irritant to skin, eyes, mucous membranes

Precaution: Incompat. with trichloroethylene which is decomposed by warm alkali to produce a toxic end prod.; absorbs CO₂ from air

Storage: Air- and moisture-sensitive; must be stored in airtight containers

Uses: Sorbent for carbon dioxide for pharmaceuticals, in closed-circuit anesthetic apparatus, determining basal metabolic rate

Regulatory: USP/NF, BP compliance
Manuf./Distrib.: Aldrich† http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

Soda lye. See Sodium hydroxide

†= pharmaceutical grade

Soda mint. See Sodium bicarbonate

Soda niter; Soda nitre. See Sodium nitrate

Soda phosphate. See Sodium phosphate dibasic anhydrous

Sodium acetate (INCI). See Sodium acetate anhydrous

Sodium acetate anhydrous
CAS 127-09-3; 977127-84-6; EINECS/ELINCS 204-823-8
FEMA 3024; INS262(i); E262

Synonyms: Acetic acid sodium salt anhydrous; Sodium acetate (INCI)

Classification: Saturated aliphatic carboxylic acid salt

Empirical: C₂H₃NaO₂

Formula: CH₃COONa

Properties: Colorless to wh. cryst., gran. powd., or flakes, odorless or faint acetous odor, sl. bitter saline taste; sol. in water, alcohol; m.w. 82.04; sp.gr. 1.53; m.p. 324 C; pH 7.5-9.2 (3%)

Toxicology: LD₅₀ (oral, rat) 3530 mg/kg, (subcut., mouse) 8000 mg/kg, (IV, mouse) 335 mg/kg, (skin, rabbit) > 10 g/kg; poison by IV route; mod. toxic by ing.; skin and eye irritant; migrates to food from pkg. material; TSCA listed

Precaution: Combustible dust; may form explosive dust-air mixts.; violent reactions with F₂, KNO₃, diketene

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of Na₂O

HMIS: Health 1, Flammability 0, Reactivity 0

Storage: Hygroscopic; store @ R.T.

Uses: Buffer, alkalizer in pharmaceuticals, parenterals, ophthalmics, orals, topicals, eyewashes; diuretic to reduce body water; in kidney dialysis

Regulatory: FDA 21CFR §150.141, 150.161, 173.310, 182.70, 184.1721, GRAS; FEMA GRAS; Japan approved; Europe listed; UK approved; FDA approved for parenterals, ophthalmics, orals, topicals; USP/NF, BP, EP compliance; Canada DSL

Manuf./Distrib.: AB R Lundberg
http://www.norfoods.se/lundberg;

AMRESCO† http://www.amresco-inc.com;


Aceto http://www.aceto.com; Alfa Aesar† http://www.alfa.com

Allan http://www.allanchem.com; Am. Int’l.† http://www.aicma.com; Ashland† http://www.ashchem.com; Asiamerica
Sodium acetate trihydrate

CAS 6131-90-4; EINECS/ELINCS 204-823-8

†=pharmaceutical grade

Synonyms: Acetic acid sodium salt trihydrate
Classification: Aliphatic organic compd.
Empirical: C₂H₃NaO₂ • 3H₂O
Formula: CH₃COONa • 3H₂O
Properties: Wh. cryst. or gran. solid; sol. in water forming sl. alkaline sol'n.; sol. in alcohol; m.w. 136.08; pH 7.5-9.2 (3%); loses water of cryst. above 120 C
Toxicology: Irritant; mutagen; TSCA listed
HMIS: Health 1, Flammability 0, Reactivity 0
Storage: Store @ R.T.
Uses: Flavor, adjuvant, pH control agent in pharmaceuticals, orals, parenterals
Regulatory: BP, EP compliance; FDA 21CFR §184.1721, GRAS; FDA approved for parenterals, orals, injectables
Manuf./Distrib.: AMRESCO
http://www.amresco-inc.com; Aldrich
http://www.sigma-aldrich.com; Allan
http://www.allanchem.com; China Nat'l. Chem. Construction
http://www.cnccc-shenzhen.com; Daito Chem. Ind.†
http://www.dcg.co.jp; Degussa AG/Health & Nutrition
http://www.dujodwala.com; Dujodwala Resins & Terpenes
http://www.emdchemicals.com; EMD Chems.†
http://www.emdchemicals.com; FBC Ind.
http://www.fbccompany.com; Fallek
http://www.iccchem.com/fallchem.htm; Fallek
http://www.sigma-aldrich.com; Fluka
http://www.sigma-aldrich.com; GFS†
http://www.sigma-aldrich.com; Gallard-Schlesinger Ind.†
http://www.sigma-aldrich.com; Harcros
http://www.harcroschem.com; Heico
http://www.rutherfordchemicals.com; Honeywill & Stein
http://www.honeywill.co.uk; Integra†
http://www.integrachem.com; Jarchem Ind.
http://www.jarchem.com; Kemira ChemSolutions BV
http://www.kemira.com; Lohmann
http://www.lohmann-chemikalien.de; Lonza
http://www.lonza.com; Mallinckrodt Baker†
http://www.mallbaker.com; Nicet
http://www.niacet.com; Noah
http://www.noahscience.com; Penta Mfg.†
http://www.pentafoods.com; Richman†
http://www.richmanchemical.com; Ruger†
http://www.sigma-aldrich.com; SAFC Specialties
http://www.safcspecialties.com; Sigma
http://www.sigma-aldrich.com/belgium; Spectrum Quality Prods.†
http://www.spectrumchemical.com; St. Lawrence
http://www.stlawrencechem.com; Thomas
Scientific† http://www.thomassci.com; Universal
Preserv-A-Chem†
http://www.upichem.com; VWR Int'l.†
http://www.vwr.com; Varsal Instruments
http://www.varsal.com; Voigt Global Distrib.†
http://www.vgdllc.com; Wego Chem. & Min.
http://www.wegochemical.com; Xinchem†
http://www.finechemnet.com
Chemical Component Cross-Reference

Empirical: \( \text{C}_7\text{H}_{13}\text{NO}_4\text{S} \cdot \text{Na} \)

Properties: M.w. 230.23

Uses: Protective colloid

Regulatory: Canada DSL

Trade Names: AMPS® 2403 Monomer

Sodium alginate: See Algin

Sodium alkylbenzene sulfonate, branched. See Sodium dodecylbenzenesulfonate

Sodium alkyl sulfate
CAS 8036-54-2

Properties: HLB 40.0; anionic

Uses: Pharmaceutical dentals, topicals

Regulatory: FDA approved for dentals, topicals

Sodium aluminosilicate. See Sodium silicoaluminate

Sodium aluminum chlorohydroxy lactate
CAS 8038-93-5; 97660-24-7; EINECS/ELINCS 307-534-6

Synonyms: Aluminum, chlorohydroxy lactate sodium complexes

Definition: Sodium salt of a complex of lactic acid and aluminum chlorohydrate

Uses: Deodorant

Regulatory: Canada DSL


Sodium aluminosilicate. See Sodium silicoaluminate

Sodium aminobenzoate
CAS 555-06-6

Synonyms: Aminobenzoate sodium; 4-Aminobenzoic acid, monosodium salt; p-Aminobenzoic acid sodium salt; PAB; Sodium 4-aminobenzoate; Sodium p-aminobenzoate

Empirical: \( \text{C}_7\text{H}_6\text{NNaO}_2 \)

Properties: Wh. to yel. cryst. or cryst. powd., odorless; sol. in water with gradual air oxidation; very sl. sol. in alcohol; insol. in chloroform, ether; m.w. 198.11; dec. 218 C; pH 7-8 (10%); relatively stable in air

Toxicology: Human mutagenic data; TSCA listed

Precaution: Combustible

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of \( \text{Na}_2\text{O} \)

HMIS: Health 1, Flammability 1, Reactivity 0

Storage: Light-sensitive; darkens on exposure to light

Uses: Nutrient, dietary supplement, antioxidant, preservative in pharmaceuticals, parenterals

Regulatory: FDA 21 CFR §155.200, 182.3731, GRAS; USDA 9 CFR §318.7; Japan approved; Europe listed; UK approved; FDA approved for parenterals; USP/NF, BP, EP compliance; Canada DSL

Sodium benzoate

CAS 532-32-1; EINECS/ELINCS 208-534-8
FEMA 3025; INS211; E211

Synonyms: Benzoate of soda; Benzoate sodium; Benzoic acid sodium salt; Sodium benzoic acid

Classification: Aromatic carboxylic acid salt

Definition: Sodium salt of benzoic acid

Empirical: C7H5NaO2

Formula: C6H5COONa

Properties: Wh. gran. or cryst. powd., odorless, sweetish astringent taste; very sol. in water; sparingly sol. in alcohol; m.w. 144.11; m.p. > 300 C; pH ≈ 8; stable in air

Toxicology: LD50 (oral, rat) 4.07 g/kg, (IV, rat) 1714 µg/kg, (intramuscular, mouse) 2306 mg/kg; poison by subcut., IV routes; mod. toxic by ing., IP, intramuscular routes; may cause human intolerance reaction, asthma, rashes, hyperactivity, nausea, vomiting; experimental teratogen, reproductive effects; mutagenic data; TSCA listed

Precaution: Combustible when exposed to heat or flame; incompat. with acids, ferric salts

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of Na2O

HMIS: Health 1, Flammability 0, Reactivity 0

Storage: Hygroscopic

Uses: Antimicrobial, preservative, antifungal in pharmaceuticals, orals, parenterals, dentifrices, injectables, topicals, dentals; clinical reagent (bilirubin assay); lubricant for pharmaceutical tablets; antiseptic; medicine (treatment for rheumatoid arthritis, cystitis, acute tonsillitis); liver function test reagent

Features: Rec. esp. in sl. acidic media

Use Level: 0.1% (parenterals), 0.08% (dentifrices), 4.75-5% (injectables), 0.02-0.5% (orals); 0.5% max. (as benzoic acid in finished cosmetics)

Regulatory: FDA 21CFR §146.152, 146.154, 150.141, 150.161, 166.40, 166.110, 181.22, 181.23, 184.1733; GRAS; USDA 9CFR §318.7; BATF 27CFR §240.1051; EPA reg.; Canada DSL; FEMA GRAS; Japan approved with limitations; Europe listed 0.5% as acid; FDA approved for dentals, orals, rectals, topicals; USP/NF, BP, EP compliance

Manufacturers/Distributors: AAA Int'l.†

Trade Names: Optigel® CMO

Sodium L-ascorbate. See Sodium ascorbate

Sodium benzonite

Uses: Suspending agent, gellant, binder for pharmaceuticals

Manufacturers/Distributors: Am. Colloid†

Trade Names: Optigel® CMO

Sodium-1,2-benzisothiazolin-3-one-1,1-
## Chemical Component Cross-Reference

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Chemical Component Cross-Reference


Trade Names: Sodium Benzoate, Powder FCC Food Grade/E211/EP Grade
Trade Names Containing: DSS Granular; Nipacomin A; Vitamin B12 0.1% SD

Sodium benzoic acid. See Sodium benzoate
Sodium o-benzosulfamide dihydrate. See Saccharin sodium dihydrate
Sodium benzosulfimide; Sodium o-benzosulfimide. See Saccharin sodium anhydrous
Sodium diborate decahydrate. See Sodium borate decahydrate
Sodium bicarbonate
CAS 144-55-8; EINECS/ELINCS 205-633-8
INS500(ii); E500

Synonyms: Baking soda; Bicarbonate of soda; Carbonic acid monosodium salt; Monosodium carbonate; Soda mint; Sodium acid carbonate; Sodium hydrogen carbonate

Classification: Inorganic salt
Empirical: CHNaO₃
Formula: NaHCO₃
Properties: Wh. powd. or cryst. lumps, sl. alkaline taste; sol. in water; sl. sol. in ethanol; m.w. 84.01; dens. 2.159; stable in dry air, slowly dec. in moist air; pH 8.3 (0.1M sol'n.)

Toxicology: LD₅₀ (oral, rat) 4220 mg/kg; low toxicity by ing.; irritant; harmless to the skin; leaves an alkaline residue that may cause irritation; nuisance dust; human systemic effects (potassium/sodium level changes, inc. urine volume, metabolic acidosis; nausea, vomiting, respiratory changes); excessive ing. of sodium may be detrimental to certain persons; experimental teratogen; mutagen; TSCA listed

HMIS: Health 1, Flammability 0, Reactivity 0
Storage: Moisture-sensitive; store in cool, dry place; keep containers sealed

Uses: Alkalizer, pH adjuster in pharmaceuticals, effervescent tablets, injectables, parenterals, ophthalmics, orals; antibiotic mgf.; antacid; abrasive in dentifrices; mouthwash; OTC drug active

Regulatory: FDA 21CFR §73.85, 137.180, 137.270, 155.191, 163.110, 163.111, 163.112, 173.385, 178.1010, 182.1736, 184.1736,

†=pharmaceutical grade
GRAS; USDA 9CFR §318.7, 381.147; Canada DSL; Japan approved; Europe listed; FDA approved for injectables, parenterals, ophthalmics, orals; USP/NF, BP, EP compliance

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http://www.vgdllc.com

Trade Names: Sodium Bicarbonate Fine
Granular USP/FCC
Trade Names Containing: Effer-Soda™;
Lipothix™ 100-B

Sodium biphosphate. See Sodium phosphate
Sodium 1,4-bis (2-ethylhexyl) sulfosuccinate;
Sodium bis (2-ethylhexyl) sulfosuccinate.
See Dioctyl sodium sulfosuccinate

Sodium bisulfate
CAS 7681-38-1; EINECS/ELINCS 231-665-7
UN 1821 (solid) (DOT); UN 2837 (sol’n.) (DOT);

INS514(ii); E514
Synonyms: Acid sodium sulfate; Nitre cake;
Sodium acid sulfate; Sodium acid sulfate
solid; Sodium bisulfate, fused; Sodium
bisulfate solid; Sodium hydrogen sulfate;
Sodium pyrosulfate; Sulfuric acid
monosodium salt

Empirical: HNaO₄S
Formula: NaHSO₄

Properties: Colorless cryst. or wh. fused lumps;
odorless; sol. in water; dec. by ethanol; m.w.
120.07; dens. 2.435 (13 C); m.p. > 315 C
dec.

Toxicology: Corrosive irritant to respiratory
system, mucous membranes, skin, and
eyes; causes burns; mutagenic data; TSCA
listed

Precaution: Corrosive; reacts with moisture to
form sulfuric acid; incompat. with calcium
hypochlorite

Hazardous Decomp. Prods.: Heated to
decom., emits toxic fumes of SO₃ and
Na₂O

Storage: Hygroscopic; keep well closed

Uses: Pharmaceuticals (inhalants, ophthalmics,
orals)

Regulatory: FDA 21CFR §175.105, 182.3739,
GRAS (not for use in meats, vitamin B₁
sources, raw fruits and vegetables); FDA
approved for inhalants, ophthalmics, orals;
Canada DSL

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### Sodium bisulfate, fused; Sodium bisulfate solid

**See Sodium bisulfate**

### Sodium bisulfite

**CAS** 7631-90-5; **EINECS/ELINCS** 231-548-0

**UN 2693 (sol’n.) (DOT); UN 2949; INS222; E222**

**Synonyms:** Acid sodium sulfite; Hydrogen sulfite sodium; Sodium acid sulfite; Sodium bisulfite (1:1); Sodium bisulfite, solid; Sodium bisulfite, solution; Sodium hydrogen sulfite; Sodium sulfhydrate; Sulfurous acid monosodium salt

**Classification:** Inorganic salt

**Empirical:** HO₃S • Na

**Formula:** NaHSO₃

**Properties:** Wh. cryst. powd., SO₂ odor, disagreeable taste; very sol. in hot or cold water; sl. sol. in alcohol; m.w. 104.06; dens. 1.48; m.p. 315 C

**Toxicology:** ACGIH TLV/TWA 5 mg/m³; LD₅₀ (oral, rat) 2000 mg/kg, (IP, rat) 475 mg/kg, (IV, rat) 115 mg/kg; poison by IV and IP routes; mod. toxic by ing.; corrosive irritant to skin, eyes, mucous membranes; allergen; mutagenic data; TSCA listed

**Precaution:** Corrosive

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of SO₃ and Na₂O

**HMIS:** Health 1, Flammability 0, Reactivity 0

**Uses:** Pharmaceutical aid; antioxidant, stabilizer in pharmaceuticals, parenterals, inhalants, ophthalmics, orals, topicals; antiseptic; used primarily in sympathomimetic and aminoglycoside medications

**Use Level:** 0.3-0.75%

(sympathomimetic/aminoglycoside medications)

**Regulatory:** FDA 21 CFR §161.173, 173.310, 177.1200, 182.3739, GRAS; Europe listed; FDA approved for parenterals, inhalants, ophthalmics, orals, topicals; SARA reportable; Canada DSL

**Manuf./Distrib.:** Aldrich† [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Alfa Chem† [http://www.alfachem1.com](http://www.alfachem1.com); Ashland

**†=pharmaceutical grade**

http://www.ashchem.com; BASF†

http://www.basf.com; Brown

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http://www.sigma-aldrich.com; Grillo-Werke AG† [http://www.grillo.de](http://www.grillo.de); Harcros

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http://www.rhodia.com; Robeco

http://www.robecoinc.com; Ruger

http://www.rugerchemical.com

Sal Chem. [http://www.salchem.com](http://www.salchem.com); Sigma

http://www.sigma-aldrich.com/belgium; Southern Ionics

http://www.southernionics.com; Spectrum Quality Prods.†

http://www.spectrumchemical.com

VWR Int'l.† [http://www.vwrsp.com](http://www.vwrsp.com); Voigt

Global Distrib. [http://www.vgdllc.com](http://www.vgdllc.com); Wm.

Blythe Ltd [http://www.wm-blythe.co.uk](http://www.wm-blythe.co.uk)

**See also Sodium metabisulfite**

### Sodium borate

**CAS** 1330-43-4 (anhyd.); 1332-28-1; **EINECS/ELINCS** 215-540-4

**E285**

**Synonyms:** Borates, tetra, sodium salt, anhydrous; Borax, fused; Sodium borate anhydrous; Sodium pyroborate anhydrous; Sodium tetraborate anhydrous

**Classification:** Borate/sodium salt

**Empirical:** B₄Na₂O₇
Formula: Na$_2$B$_4$O$_7$

Properties: Colorless to wh. cryst. or powd., odorless; mod. sol. in water, glycerol; insol. in alcohol; m.w. 201.22; dens. 1.730; m.p. 741 C; b.p. 1575 C (dec.)

Toxicology: ACGIH TLV/TWA 1 mg/m$^3$; TDLo (oral, male, 30 days) 16,750 µg/kg; harmful solid; inh. hazard; irritant; experimental reproductive effects; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of Na$_2$O, boron

Storage: Hygroscopic; keep tightly closed

Uses: Alkalizer, preservative, emulsifier in pharmaceuticals, ophthalmics, foot preps., scalp lotions

Regulatory: FDA 21CFR §175.105, 175.210, 176.180, 177.2800, 181.22, 181.30; FDA approved for ophthalmics; USP/NF, BP, EP compliance; Canada DSL


Sodium borate anhydrous. See Sodium borate
Chemical Component Cross-Reference

†=pharmaceutical grade

Handbook of Pharmaceutical Additives, Third Edition

2043
Sodium C12-18 alcohols sulfate. See Sodium C12-18 alkyl sulfate

Sodium C12-15 alkyl sulfate
Synonyms: Sodium C12-15 alcohols sulfate
Definition: Sodium salt of the sulfate of C12-15 alcohols
Properties: Anionic
Uses: Surfactant, emulsifier in pharmaceuticals, creams, lotions, ointments

Sodium C12-18 alkyl sulfate
Synonyms: Sodium C12-18 alcohols sulfate
Definition: Sodium salt of the sulfate of a mixture of synthetic fatty alcohols with 12-18 carbons in alkyl chain
Properties: Anionic
Uses: Surfactant, emulsifier for pharmaceuticals, creams, lotions, ointments, liniments

Trade Names Containing: Galenol® 1618 KS

Sodium caprylate
CAS 1984-06-1; EINECS/ELINCS 217-850-5
INS470; E470a
Synonyms: Caprylic acid sodium salt; Octanoic acid sodium salt; Sodium octanoate; Sodium n-octanoate
Classification: Nonaromatic acid salt
Empirical: C8H15NaO2
Formula: CH3(CH2)6COONa
Properties: Clear; sol. in water; m.w. 166.20; m.p. ≈ 245 C
Toxicology: Mutagen; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating vapors
Uses: Excipient in pharmaceutical ointments
Regulatory: FDA 21CFR§172.863; BP, EP compliance; Canada DSL
Napp Tech.† http://www.napptech.com; Parchem Trading† http://www.parchem.com; Penta Mfg.† http://www.pentamfg.com; RTD Hallstar†

†=pharmaceutical grade

Sodium caprylate sulfate. See Sodium octyl sulfate

Sodium carbomer
Synonyms: Carbomer, sodium salt
Classification: Sodium polyacrylic acid polymer
Definition: Sodium salt of carbomer
Uses: Visc. control agent
Trade Names: Pionier® NP 37 G

Sodium carbonate
CAS 497-19-8 (anhyd.); 5968-11-6 (monohydrate); 6132-02-1 (decahydrate); EINECS/ELINCS 207-838-8
INS500(i); E500
Synonyms: Bisodium carbonate; Calcined soda; Carbonic acid disodium salt; Crystol carbonate; Disodium carbonate; Natron; Sal soda; Soda ash; Soda calcined; Sodium carbonate (2:1); Washing soda
Classification: Inorganic salt
Empirical: CO3 • 2Na
Formula: Na2CO3
Properties: Colorless to wh. cryst. or cryst. powd., odorless, alkaline taste; sol. in water, glycerol; insol. in alcohol; m.w. 105.99 (anhyd.), 124.00 (monohydrate); dens. 2.509 (0 C); m.p. 109 C (loses water 851 C); b.p. dec., does not form vapor; pH 11.5 (1% aq.)
Toxicology: LD50 (oral, rat) 4090 mg/kg, (IP, mouse) 117 mg/kg, (subcut., mouse) 2210 mg/kg; LC50 (inh., rat, 2 h) 2300 mg/m3; poison by IP route; mod. toxic by inh. and subcut. routes; mildly toxic by ing.; skin and eye irritant; experimental reproductive effects; migrates to food from pkg. materials; TSCA listed
Precaution: Violent reactions with Al, P2O5, H2SO4, F2, Li, 2,4,6-trinitrotoluene
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of Na2O
HMIS: Health 1, Flammability 0, Reactivity 0
Storage: Hygroscopic
Uses: Alkalizer, antacid, reagent in pharmaceuticals, injectables, parenterals,
Chemical Component Cross-Reference

ophthalmics, orals, rectals, mouthwashes, foot preps., vaginal douches

Regulatory: FDA 21CFR §73.85, 163.110, 163.111, 163.112, 172.824, 173.310, 184.1742, GRAS; USDA 9CFR §318.7, 381.147; Canada DSL; Japan approved; Europe listed; FDA approved for injectables, parenterals, ophthalmics, orals, rectals; USP/NF, BP, EP, JP compliance; BP, EP compliance (decahydrate)

Manuf./Distrib.: AAE Chemie NV†
http://www.aaechemie.com
AB R Lundberg
http://www.norfoods.se/lundberg/
AMRESCO† http://www.amresco-inc.com
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Chems.† http://www.emdchemicals.com
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GFS† http://www.gfschemicals.com
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Rhodia http://www.rhodia.com
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Sal Chem.
http://www.salchem.com
Sigma http://www.sigma-aldrich.com/belgium
Solvay SA
http://www.solvay.com
Spectrum Quality
Prods.†

†=pharmaceutical grade

Sodium carbonate (2:1). See Sodium carbonate

Sodium 2-(1-carboxyethoxy)-1-methyl-2-oxoethyl octadecanoate. See Sodium stearyl lactylate

Sodium carboxymethylcellulose. See Carboxymethylcellulose sodium

Sodium carboxymethyl hydroxyethyl cellulose. See Carboxymethyl hydroxyethyl cellulose

Sodium carboxymethyl tallow polypropylamine

Synonyms:
- Tallowamphopolycarboxyglycinate

Classification: Organic compd.

Formula: R[NCH2CH2CH2CH2COONa]nNCH2COONaC2H2COONa, R rep. tallow alkyl groups, n = 1-4

Properties: Amphoteric

Uses: Anti-irritant

Trade Names: Ampholak® 7TX; Ampholak® 7TX/C

Sodium carrageenan

CAS 9061-82-9; 60616-95-7

INS407

Synonyms: Carrageenan, sodium salt; Sodium carrageenate; Sodium carragenate

Definition: Sodium salt of carrageenan; mixt. of highly sulfated polygalactosides extracted from seaweed

Toxicology: LD50 (oral, rat) 5650 mg/kg, (oral, mouse) 8730 mg/kg; mildly toxic by ing.; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of SOx and Na2O

Uses: Emulsifier, stabilizer, thicker in pharmaceuticals, orals

Sodium carrageenate; Sodium carragenate.
See Sodium carrageenan

Sodium caseinate
CAS 9004-36-3; 9005-46-3
Synonyms: Casein-sodium; Casein-sodium complex; Casein sodium salt; Caseins, sodium complexes
Definition: Sodium salt of casein
Properties: Wh. coarse powd., odorless, tasteless; insol. in water, alcohol
Toxicology: TLDo (subcut., mouse, 15 days intermittent) 45 g/kg; questionable carcinogen; experimental tumorigen; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of Na2O
Uses: Bacteriological media ingred.
Regulatory: FDA 21CFR §135.110, 135.140, 166.110, 182.1748, GRAS; USDA 9CFR §318.7, 381.147; BATF 27CFR §240.1051, GRAS; Japan approved
Trade Names: Sodium Caseinate Spray F&P

Sodium cellulose glycolate. See Carboxymethylcellulose sodium

Sodium cetyl sulfate
CAS 59186-41-3
Synonyms: Sodium cetearyl sulfate; Sodium cetyl/stearyl sulfate
Definition: Sodium salt of a mixture of cetyl and stearyl sulfate
Empirical: C18H38O4S • C16H34O4S • 2Na
Formula: CH3(CH2)nCH2OSO3Na, n = 14 and 16
Properties: M.w. 719.16; anionic
Toxicology: LD50 (oral, rat) 1200 mg/kg, (IP, mouse) 596 mg/kg; mod. toxic by ing. and IP routes; human poison by unspecified routes; human systemic effects by ing.: blood hemolysis, pulmonary changes; damages red blood corpuscles (humans); skin, eye, and mucous membrane irritant; mutagenic data; TSCA listed
Precaution: DOT: Oxidizer; dangerous fire risk; contact with organic materials may cause fire; corrosive; may react explosively with agric. materials, ammonium salts, grease, leather, powd. metals, nonmetals, etc.; violent reactions or ignition possible
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of Cl– and Na2O
Uses: Astringent; pharmaceutical injectables
Regulatory: FDA 21CFR §175.105, 178.3120; FDA approved for injectables; Canada DSL
**Chemical Component Cross-Reference**

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<td>Sigma</td>
<td><a href="http://www.sigma-aldrich.com.belgium">http://www.sigma-aldrich.com.belgium</a>; Solvay SA</td>
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</table>

**Sodium chlorate, aqueous sol'n. See Sodium chlorate**

**Sodium chloride**

CAS 7647-14-5; EINECS/ELINCS 231-598-3

**Synonyms:** Brine; Common salt; Halite; Rock salt; Saline; Salt; Sea salt; Sodium chloride, natural; Sodium chloride, refined; Table salt; White crystal

**Classification:** Inorganic salt

**Definition:** Occurs in nature as the mineral halite

**Empirical:** ClNa

**Formula:** NaCl

**Properties:** Colorless transparent cryst. or wh. cryst. powd., saline taste; sol. 1 g/2.8 ml water; sol. in glycerin; very sl. sol. in alcohol; m.w. 58.45; dens. 2.17; m.p. 804 °C; f.p. -20.5 °C (23% aq.); pH 6.7-7.3

**Toxicology:** LD50 (oral, rat) 3.75 g/kg, (IP, rat) 6614 mg/kg, (IV, mouse) 645 mg/kg; poison by IP and intracervical routes; mod. toxic by ing., IV, subcut. routes; human systemic effects (blood pressure increase); skin/eye irritant; ing. of lg. amts. can irritate stomach; terminates human pregnancy by intraplacental route; experimental teratogen; human mutagenic data; TSCA listed

**Precaution:** Explosive reaction possible with dichloromaleic anhydride + urea; reaction with burning lithium forms dangerously reactive Na; molten salt reacts explosively with water @ 1100 °C; violent reaction with BrF3

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of Cl– and Na2O

HMIS: Health 1, Flammability 0, Reactivity 0

**Storage:** Hygroscopic; store @ R.T.

**Uses:** Preservative, flavor, tonicity agent in pharmaceuticals, injectables, dentals, parenterals, inhalants, ophthalmics, orals, rectals, topicals; nutrient; topical anti-inflammatory; emetic


**Manuf./Distrib.:** AMRESCO†

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Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Chemical Component Cross-Reference</th>
<th>Trade Names</th>
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</thead>
<tbody>
<tr>
<td>Alberger®</td>
<td>Aminogluten MG; Niaproof® Anionic Surfactant 4; Niaproof® Anionic Surfactant 8; Seanamin BD LS; Star Flake® Dendritic Salt</td>
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<tr>
<td>Sodium chloride, natural.</td>
<td>See Sodium chloride</td>
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<tr>
<td>Sodium chloride oxide.</td>
<td>See Sodium hypochlorite</td>
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<tr>
<td>Sodium chloride, refined.</td>
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<td>Sodium cholate; Sodium cholic acid.</td>
<td>See Ox bile extract</td>
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<td>Sodium citrate</td>
<td>CAS 18996-35-5; EINECS/ELINCS 242-734-6 INS331(i); E331</td>
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<td>Synonyms: 3-Carboxy-3-hydroxypentanedioic acid sodium salt; Citric acid monosodium salt; 2-Hydroxy-1,2,3-propanetricarboxylic acid, monosodium salt; Monosodium citrate (INCI); Monosodium citrate anhydrous; Monosodium-2-hydroxypropane-1,2,3-tricarboxylate; MSC; 1,2,3-Propanetricarboxylic acid, 2-hydroxy-; monosodium salt; Sodium citrate primary; Sodium dihydrogen citrate</td>
<td>Empirical: C₈H₇NaO₇</td>
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<tr>
<td>Formula: HO₂CCH₂C(OH)(CO₂H)CH₂CO₂Na</td>
<td>Properties: Wh. cryst.; odorless; salt or sl. acid taste; easily sol. in water; fairly sol. in ethanol; m.w. 214.11; m.p. 212 C</td>
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<tr>
<td>Toxicology: LD₅₀ (IP, rat) 1348 mg/kg, (IV, mouse) 49 mg/kg; poison by IV route; mod. toxic by IP route; TSCA listed</td>
<td>Precaution: Combustible; avoid dust formation</td>
</tr>
<tr>
<td>Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of Na₂O</td>
<td>Storage: Hygroscopic</td>
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<td>Uses: Sequestrant, buffer in pharmaceuticals, injectables, parenterals, inhalants, ophthalmics, orals, rectals, topicals, vaginals, supplements, tablets</td>
<td>Regulatory: FDA 21CFR §175.300, 181.29, GRAS; Europe listed; UK approved; FDA approved for injectables, parenterals, inhalants, ophthalmics, orals, rectals, topicals, vaginals; USP/NF, BP, EP compliance; Canada DSL; stabilizer in food pkg.; in food-contact coatings</td>
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<td>Manuf./Distrib.: AB R Lundberg</td>
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<td>Brown†</td>
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<td>Camida Ltd†</td>
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†=pharmaceutical grade

Handbook of Pharmaceutical Additives, Third Edition 2048
Trade Names Containing: Uninontan U 34; Vitamin B₁₂ 0.1% SD

See also Trisodium citrate

Sodium citrate anhydrous. See Trisodium citrate

Sodium citrate primary. See Sodium citrate

Sodium citrate tertiary. See Trisodium citrate

Sodium CMC; Sodium CM-cellulose. See Carboxymethylcellulose sodium

Sodium cocoamphodipropionate. See Disodium cocoamphodipropionate

Sodium cocoamphopropionate

CAS 68919-41-5; 93820-52-1; 94114-06-4;
EINECS/ELINCS 296-632-7; 302-643-5

Synonyms: Cocoamphopropionate; Coconut fatty acid amidoethyl-N-2-hydroxyethylaminopropionate; Imidazolium compds., 1-(2-carboxyethyl)-4,5-dihydro-3-(hydroxyethyl)-2-norcoco alkyl, hydroxides, monosodium salts

Classification: Amphoteric organic compd.

Formula: RCO–

Properties: Amphoteric

Uses: Surfactant

Features: Suitable for electrolyte sensitive formulations

Trade Names: Mackam™ CSF-CG

Sodium cocoate

CAS 61789-31-9; EINECS/ELINCS 263-050-4

Synonyms: Coconut fatty acid, sodium salt; Coconut oil fatty acids, sodium salt; Fatty acids, coconut oil, sodium salts; Fatty acids, coco, sodium salts; Sodium cocoate; Sodium coconut oil soap

Definition: Sodium salt of coconut acid

Properties: Anionic

Toxicology: May cause allergic skin rash; TSCA listed
### Sodium cocoyl methyl taurate

**See Sodium methyl cocoyl taurate**

### Sodium cocomonomoglyceride sulfonate

**Synonyms:** Fatty acids, coco, 2-hydroxy-3-sulfopropyl esters, sodium salts; Sodium coconut monoglyceride sulfonate

**Definition:** A synthetic compound derived from fatty acids obtained from coconut oil

**Formula:** \( \text{RCO-OCH}_2\text{CHOHCH}_2\text{SO}_3\text{Na} \), \( \text{RCO-} \) rep. fatty acids from coconut oil

**Uses:** Pharmaceuticals (dentals)

**Regulatory:** FDA approved for dentals

**Sodium coconate. See Sodium cocoate**

**Sodium coconut monoglyceride sulfonate. See Sodium cocomonomoglyceride sulfonate**

**Sodium coconut oil soap. See Sodium cocoate**

### Sodium cocoyl glutamate

**CAS 68187-32-6; EINECS/ELINCS 269-087-2**

**Synonyms:** L-Glutamic acid, N-coco acyl derivs., monosodium salts; Monosodium N-cocoyl-L-glutamate; Sodium N-cocoyl-L-glutamate

**Definition:** Sodium salt of the coconut acid amide of glutamic acid

**Formula:** \( \text{HOOCCH}_2\text{CH}_2\text{CHNHCROCOONa} \), \( \text{RCO-} \) rep. fatty acids from coconut oil

**Properties:** Anionic

**Toxicology:** TSCA listed

**Uses:** Surfactant

**Trade Names:** Amisoft CS-22

**Sodium N-cocoyl-L-glutamate. See Sodium cocoyl glutamate**

### Sodium cocoyl isethionate

**CAS 61789-32-0; 58969-27-0; EINECS/ELINCS 263-052-5**

**Synonyms:** Cocoyl sodium isethionate; Fatty acids, coconut oil, sulfoethyl esters, sodium salts; Fatty acids, coco, 2-sulfoethyl esters, sodium salts

**Definition:** Sodium salt of the coconut fatty acid ester of isethionic acid

**Formula:** \( \text{CH}_3(\text{CH}_2)_n\text{CH}_2\text{COOC}_2\text{H}_4\text{SO}_3\text{Na} \)

**Properties:** Wh. to off-wh. powd. or flake; ≈ 344; sol. in water; pH 4.5 - 6 (10% sol'n.); anionic

**Toxicology:** LD50 (oral, rat) 5,000mg/kg; TSCA listed

**Uses:** Surfactant, dispersant, foaming agent, conditioner for pharmaceuticals, topicals, dentifrices

**Regulatory:** Approved for topicals; Canada DSL

**Manuf./Distrib.:** Chemos GmbH

**Trade Names Containing:** BIO-TERGE® AS-40; BIO-TERGE® AS-90 Beads

### Sodium copper chlorophyllin

**See Chlorophyllin-copper complex**

### Sodium C12-15 pareth-15 sulfonate

**CAS 121546-77-8**

**Definition:** Sodium sulfonate of an ethoxylated synthetic fatty alcohol

**Formula:** \( \text{R(OCH}_2\text{CH}_2)_n\text{SO}_3\text{Na} \), \( \text{R rep.} \) C12-15 fatty alcohols, avg. \( n = 15 \)

**Properties:** Anionic

**Uses:** Surfactant

**Trade Names:** Avanel® S 150 CG; Avanel® S 150 CG N

### Sodium cumenesulfonate

**CAS 32073-22-6; EINECS/ELINCS 250-913-5; 248-938-7**
Chemical Component Cross-Reference

†=pharmaceutical grade

Sodium dehydroacetate
CAS 4418-26-2; EINECS/ELINCS 224-580-1
INS266
Synonyms: Dehydroacetic acid sodium salt; DHA-Na; 4-Hexenoic acid, 2-acetyl-5-hydroxy-3-oxo-\(\Delta^1\)-lactone, sodium deriv.; 3-(1-Hydroxyethylidene)-6-methyl-2H-pyran-2,4(3H)-dione sodium salt; 2H-Pyran-2,4(3H)-dione, 3-acetyl-6-methyl-, monosodium salt; Sodium dehydroacetic acid; Sodium dehydroxyacetate; Sodium 1-(3,4-dihydro-6-methyl-2,4-dioxo-2H-pyran-3-ylidene) ethanolate
Classification: Heterocyclic compd.
Empirical: \(\text{C}_8\text{H}_7\text{O}_4\cdot\text{Na}\)
Formula: \(\text{C}_8\text{H}_7\text{NO}_3\text{Na}\)
Properties: Wh. powd., odorless, sl. char. taste; sol. in water, propylene glycol, glycerin; insol. in most org. solvs.; heat stable to 120°C; m.w. 190.14; m.p. 109-111°C
Toxicology: LD50 (oral, rat) 15.25 g/kg, (IP, rat) 1350 mg/kg, (IV, rat) 3500 mg/kg; mod. toxic by IV and IP routes; mildly toxic by ing.; suspect carcinogen; experimental reproductive effecter, neoplastigen, tumorigen, teratogen; human mutagenic data; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of Na2O, SOx, and NOx
Uses: Nonnutritive sweetener in pharmaceuticals
Regulatory: FDA 21CFR §100.130, 189.135; prohibited in foods; BP, EP compliance; Canada DSL
Manuf./Distrib.: AB R Lundberg
http://www.norfoods.se/lundberg; ADA Int'l.
http://www.joinme.net/ada/index.htm; AMC Chems.; Abbott Labs
http://www.abbott.com; Allchem Int'l. Ltd
http://www.allchem.co.uk

Handbook of Pharmaceutical Additives, Third Edition 2051
Chemical Component Cross-Reference †=pharmaceutical grade

Manuf./Distrib.: Alzo
http://www.alzointernational.com; Fluka
http://www.sigma-aldrich.com; Jarchem
Ind. http://www.jarchem.com; Lonza
http://www.lonza.com; Ruger†
http://www.rugerchemical.com
Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality
Prods. http://www.spectrumchemical.com;

Sodium dehydroacetic acid; Sodium dehydroxyacetate. See Sodium dehydroacetate
Sodium deoxycholate; Sodium deoxycholic acid. See Sodium deoxycholate

Sodium deoxycholate
CAS 302-95-4; EINECS/ELINCS 206-132-7
Synonyms: Deoxycholy acid sodium; Deoxycholic acid sodium salt; 7-Deoxycholic acid sodium salt; (3-α,5-β,12-α)-3,12-Dihydroxy-cholan-24-oic acid monosodium salt; 3-α,12-α-Dihydroxy-5-β-cholan-24-oic acid sodium salt; Sodium deoxycholate; Sodium deoxyacetate

Empirical: C24H39NaO4
Properties: Sol. > 333 g/l in water (15 C); m.w. 414.56
Toxicology: LD50 (oral, rat) 1370 mg/kg, (IP, rat) 123 mg/kg, (subcut., rat) 2430 mg/kg, (IV, rat) 150 mg/kg; poisons by IP and IV routes; mod. toxic by ing. and subcut. routes; experimental reproductive effector; mutagenic data; TSCA listed

Hazardous Decomp. Prods.: Heated to decom., emits toxic fumes of Na2O
Storage: Hygroscopic; store @ R.T.
Uses: Pharmaceuticals (parenterals)
Regulatory: FDA approved for parenterals; Canada DSL
Manuf./Distrib.: AMRESCO†
http://www.amresco-inc.com; Aceto†
http://www.aceto.com; Aldrich†
http://www.sigma-aldrich.com; Fluka
http://www.sigma-aldrich.com; Marcors Development†
http://www.marcordev.com
Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality
Prods.† http://www.spectrumchemical.com

†=pharmaceutical grade

Sodium di (2-ethylhexyl) sulfosuccinate. See Dioctyl sodium sulfosuccinate.
Sodium 2,3-dihydro-1,2-benzisothiazolin-3-one-1,1-dioxide. See Saccharin sodium
Sodium dihydrogen citrate. See Sodium citrate
Sodium dihydrogen phosphate; Sodium dihydrogen phosphate (1:2:1). See Sodium phosphate
Sodium 1-(3,4-dihydro-6-methyl-2,4-dioxo-2H-pyran-3-ylidene) ethanolate. See Sodium dehydroacetate
Sodium dimethylbenzenesulfonate. See Sodium xylenesulfonate
Sodium 1,2-dimyristoyl-sn-glycero (3) phosphatidylcholine
CAS 116870-30-5
Synonyms: 1,2-Dimyristoyl-sn-glycero(3)phosphoglycerol sodium salt
Uses: Emulsifier, solubilizer for dermatology, mfg. of liposomes and mixed micelles for pharmaceuticals
Manuf./Distrib.: Akaal Organics
http://www.akaalorganics.com/

Sodium dioctyl sulfosuccinate. See Dioctyl sodium sulfosuccinate
Sodium dioleth-8 phosphate
Definition: Sodium salt of a complex mixture of phosphate diesters of oleth-8
Properties: Anionic
Uses: Emulsifier in pharmaceuticals; solubilizer for perfumes
Trade Names: DOP-8N

Sodium dioxide. See Sodium peroxide
Sodium 1,2-dipalmitoyl-sn-glycero (3) phosphatidylcholine
CAS 116870-31-6
Synonyms: L-α-1,2-Dipalmitoyl-sn-phosphatidylglycerol sodium salt
Uses: Emulsifier, solubilizer for dermatology, mfg. of liposomes and mixed micelles for pharmaceuticals
Manuf./Distrib.: Akaal Organics
http://www.akaalorganics.com/

Sodium diphosphate. See Tetrasodium pyrophosphate
Sodium 1,2-distearoyl-sn-glycero (3) phosphatidylcholine
Synonyms: 1,2-Distearoyl-sn-glycero(3)phosphoglycerol sodium salt
Chemical Component Cross-Reference

**Classification:** Phosphoglycerol

**Uses:** Emulsifier, solubilizer for dermatology, mfg. of liposomes and mixed micelles for pharmaceuticals

**Sodium dithionate; Sodium dithionite. See Sodium hydrosulfite**

**Sodium-N-dodecanoyl-N-methylglycinate. See Sodium lauroyl sarcosinate**

**Sodium dodecybenzenesulfonate**

CAS 25155-30-0; 68081-81-2; 68608-89-9; 85117-50-6; EINECS/ELINCS 246-680-4

**Synonyms:** Benzenesulfonic acid, dodecyl-, sodium salt; Dodecylbenzene sodium sulfate; Dodecylbenzenesulfonate, sodium salt; Dodecylbenzenesulfonic acid sodium salt; NaDBS; SDBS; Sodium alkylbenzene sulfonate, branched; Sodium laurel benzene sulfonate

**Classification:** Substituted aromatic compd.

**Empirical:** C_{18}H_{29}O_{3}S • Na

**Properties:** Wh. to lt. yel. flakes, granules, or powd.; m.w. 348.52; anionic

**Toxicology:** LD_{50} (oral, rat) 438 mg/kg, (oral, mouse) 1330 mg/kg, (IV, mouse) 105 mg/kg; poison by IV route; mod. toxic by ing.; skin and eye irritant; ing. can cause vomiting; TSCA listed

**Precaution:** Combustible

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of Na_{2}O

**Uses:** Surfactant in pharmaceuticals, topicals

**Regulatory:** FDA 21CFR §172.210, 173.315, 175.105, 175.300, 176.210, 177.1010, 177.1200, 177.1630, 177.2600, 177.2800, 178.1010, 178.3120, 178.3130, 178.3400; USDA 9CFR §318.7, 381.147; FDA approved for topicals; Canada DSL


†=pharmaceutical grade


**Sodium 2-(dodecylxyloxy)-2-oxoethane-1-sulfonate. See Sodium lauryl sulfoacetate**

**Sodium dodecyl sulfate; Sodium n-dodecyl sulfate. See Sodium lauryl sulfate**

**Sodium DTPA. See Pentasodium pentetate**

**Sodium etasulfate. See Sodium 2-ethylhexyl sulfate**

**Sodium 4-ethoxycarbonylphenoxonide. See Sodium ethylparaben**

**Sodium ethylenediaminetetraacetate. See Tetrasodium EDTA**

**Sodium (2-ethylhexyl) alcohol sulfate. See Sodium 2-ethylhexyl sulfate**

**Sodium 2-ethylhexyl sulfate**

CAS 126-92-1; EINECS/ELINCS 204-812-8

**Synonyms:** 2-Ethyl-1-hexanol, hydrogen sulfate, sodium salt; 2-Ethyl-1-hexanol sulfate sodium salt; 2-Ethylhexyl sodium sulfate; Mono (2-ethylhexyl) sulfate sodium salt; Sodium etasulfate; Sodium (2-ethylhexyl) alcohol sulfate; Sulfuric acid, mono (2-ethylhexyl) ester sodium salt

**Definition:** Sodium salt of 2-ethylhexyl sulfate

**Empirical:** C_{8}H_{17}O_{4}S • Na

**Properties:** M.w. 232.28; anionic

**Toxicology:** LD_{50} (oral, rat) 4 g/kg, (oral, mouse) 1550 mg/kg; poison by IP route; mod. toxic by ing., skin contact; skin and eye irritant; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits very toxic fumes of SO_{x} and Na_{2}O

**Uses:** Detergent, wetting agent, emulsifier, penetrant, stablizer for pharmaceuticals

**Features:** Low-foaming

**Regulatory:** FDA 21CFR §173.315, 175.105, 176.170; Canada DSL

Chemical Component Cross-Reference

ethyl p-hydroxybenzoate. See Sodium ethylparaben
Sodium ethylmercuric thiosalicylate; Sodium-o-(ethylmercurithio) benzoate; Sodium ethylmercurithiosalicylate; Sodium ethylmercury thiosalicylate. See Thimerosal

Sodium ethylparaben
CAS 35285-68-8; EINECS/ELINCS 252-487-6
INS 215; E215
Synonyms: Ethylparaben, sodium salt; 4-Hydroxybenzoic acid, ethyl ester, sodium salt; Sodium 4-ethoxycarbonylphenoxide; Sodium ethyl 4-hydroxybenzoate; Sodium ethyl p-hydroxybenzoate
Definition: Sodium salt of ethylparaben
Empirical: C9H10O3 • Na
Toxicology: May cause asthma, rashes, hyperactivity
Uses: Antimicrobial, preservative in pharmaceuticals, orals
Regulatory: FDA approved for orals; Canada DSL
Manuf./Distrib.: AB R Lundberg
Trade Names: Nipagin A Sodium
Trade Names Containing: Nipacombin A; Nipasept Sodium®

Sodium feldspar. See Sodium silicoaluminate

Sodium ferric EDTA
CAS 15708-41-5; EINECS/ELINCS 239-802-2
Synonyms: Acetic acid, (ethylenedinitrilo) tetra-, sodium salt; Edathamyl monosodium ferric salt; Ethylenediaminetetraacetic acid, ferric-sodium salt; Ethylenediaminetetraacetic acid, sodium ferric salt; ((Ethylene dinitrilo) tetraacetato)-ferate (1-), sodium; Ferisan; Ferric sodium edetate; Ferric sodium EDTA; Sodium feredetate; Sodium iron EDTA
Definition: Commercial prod. is the trihydrate
Empirical: C10H12FeN2O8 • Na
Properties: Greenish-yel. cryst.; m.w. 367.08
Toxicology: LD50 (oral, rat) 5 g/kg; mildly toxic by ing.; TSCA listed
Environmental: Biodegrad.; LC50 (fish, 96 h) 2592 mg/l
Precaution: Heated to decomp., emits toxic fumes of NOx, Na2O
Uses: Micronutrient
Regulatory: FDA 21CFR §175.105; Canada DSL
Trade Names: Dissolvine® E-FE-13

Sodium ferrocyanide
CAS 13601-19-9; 14434-22-1 (decahydrate); EINECS/ELINCS 237-081-9
INS 5535
Synonyms: Sodium ferrocyanide decahydrate; Sodium hexacyanoferrate; Sodium hexacyanoferrate (II); Yellow prussiate of soda
Definition: Avail. as the decahydrate
Empirical: C6FeN6Na4 • 10H2O
Formula: Na4Fe(CN)6 • 10H2O
Properties: Yel. cryst. or cryst. powd.; sol. in water; pract. insol. in most org. solvs.; m.w. 303.92 (anhyd.), 484.06 (decahydrate); dens. 1.458; dec. 435 C; loses water on heating above 50 C
Precaution: Do not mix with hot or conc. acids; protect from sunlight to avoid generation of hydrogen cyanide
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of CN–
Storage: Protect from sunlight
Uses: Pigment in pharmaceuticals
Regulatory: FDA 21CFR §172.490 (13 ppm max.), 573.1020, GRAS; BATF 27CFR §240.1051 (1 ppm max. residue in finished wine); Europe listed; UK approved; Canada DSL
Manuf./Distrib.: ABCR http://www.abcr.de; ADA Int'l.
Degussa Ltd; Fluka http://www.sigma-aldrich.com; Rit-Chem
http://www.spectrumchemical.com
Trade Names Containing: Star Flake® Dendritic Salt

Sodium fluoroacetate. See Sodium ferrocyanide

Sodium fluophosphate. See Sodium fluorophosphate

Sodium fluorescein. See D&C Yellow No. 8; Fluorescein sodium

Sodium fluoride
CAS 7681-49-4; EINECS/ELINCS 231-667-8
Chemical Component Cross-Reference

UN 1690 (DOT)
Synonyms: Sodium fluoride, solid and sol’n.; Sodium hydrofluoride; Sodium monofluoride
Classification: Inorganic salt
Empirical: FNα
Formula: NaF
Properties: Wh. powd. or colorless cryst., odorless; sol. 1 in 25 of water; pract. insol. in alcohol; m.w. 41.99; dens. 2.8 kg/l; vapor pressure 1 mm (1077 C); m.p. 993 C; b.p. 1700 C
Toxicology: ACGIH TLV/TWA 2.5 mg (F)/m3; LD50 (oral, rat) 52 mg/kg, (IP, rat) 22 mg/kg, (subcut., rat) 175 mg/kg, (IV, rat) 26 mg/kg; poison by ing., skin contact, IV, IP, subcut., and intramuscular routes; human poison by ing.; human systemic effects by ing. and intradermal routes; corrosive irritant to skin, eyes, mucous membranes; questionable carcinogen; experimental tumorigen, teratogen, reproductive effector; human mutagenic data; phytotoxic; TSCA listed
Precaution: Corrosive; keep away from food
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of F– and Na2O
NFPA: Health 3, Flammability 0, Reactivity 0
Uses: Active fluorocomponent for tooth decay prevention in toothpaste, chewing gum, mouth rinsing agent, dental floss (impregnation), drinking water fluoridation and other dentifrices.
Regulatory: FDA 21CFR §175.105, 177.2800; USP, BP, Ph.Eur. compliance; SARA reportable; Canada DSL
Manuf./Distrib.: AMRESCO†
 http://www.amresco-inc.com; Advance Research Chems.
 http://www.fluoridearc.com; Aldrich†
 http://www.sigma-aldrich.com; Alfa Aesar†
 http://www.alfa.com; Alfa Chem†
 http://www.alfachem1.com
Allchem Ind. http://www.allchem.com; Am. Int'l.† http://www.aicma.com; Asiamerica Int'l.†; Atomergic Chemetals†
 http://www.atomergic.com; BCH Brühl
 http://www.bch-bruehl.de
Bayer† http://www.bayerus.com; Celanese
 http://www.celanesechemicals.com;
 http://www.chemvip.com; Cerac
 http://www.cerac.com; China Nat'l. Chem.
Construction http://www.cncccs.com; CoKEM Assoc.†
†=pharmaceutical grade

Coyne http://www.coynechemical.com;
Crystran Ltd http://www.crystran.co.uk;
Dastech Int'l.† http://www.dastech.com;
EMD Chems.†
 http://www.emdchemicals.com; Fluka
 http://www.sigma-aldrich.com
GFS† http://www.gfschemicals.com;
General Chem.
 http://www.genchemcorp.com; Integra†
 http://www.integram.com; Mallinckrodt
Baker† http://www.mallbaker.com; Noah
 http://www.noahtech.com
Penta Mfg.† http://www.pentamfg.com;
Peter Whiting Ltd http://www.whiting-chemicals.co.uk; Rona
 http://www.emdchemicals.com/rona/1000.asp; Ruger† http://www.rugerchemical.com;
Sigma http://www.sigma-aldrich.com/belgium; Solvay GmbH
 http://www.solvay.com/de; Spectrum
Quality Prods.† http://www.spectrumchemical.com;
Thomas Scientific†
 http://www.thomassci.com; VWR Int'l.†
 http://www.vwrsp.com
Voigt Global Distrib.† http://www.vgdllc.com

Sodium fluoride, solid and sol’n. See Sodium fluoride

Sodium fluorophosphate
CAS 10163-15-2; EINECS/ELINCS 233-433-0
Synonyms: Disodium fluorophosphate; Disodium monofluorophosphate; Disodium phosphofluoridate; MFP; Phosphorofluoridic acid, disodium salt; SMFP; Sodium fluophosphate; Sodium monofluorophosphate (INCI); Sodium phosphorofluoridate; Sodium phosphorofluoridate
Classification: Inorg. salt
Empirical: FNα3O3P
Formula: FO3P • 2Na
Properties: Colorless cryst.; sol. 250 g/l in water; insol. in ethanol, ether; m.w. 143.95; m.p. 625 C; pH 6.5-8.0 (2%)
Toxicology: LD50 (oral, rat) 570 mg/kg, (IP, rat) 220 mg/kg; poison by IP route; toxic by inh., skin contact; mod. toxic by ing.; strong irritant; irritating to eyes, skin, respiratory system; questionable carcinogen; tumorigen; mutagen
Hazardous Decomp. Prods.: Heated to
Chemical Component Cross-Reference† = pharmaceutical grade

**Sodium formaldehyde hydrosulfite**  
*See Sodium formaldehyde sulfoxylate*

**Sodium formaldehyde sulfoxylate**  
CAS 149-44-0; 6035-47-8 (dihydrate); EINECS/ELINCS 295-739-4

**Synonyms:**  
Formaldehyde hydrosulfite; Formaldehyde sodium bisulfite adduct; Formaldehyde sodium sulfoxylate; Hydroxymethanesulfinic acid monosodium salt; Hydroxymethanesulfonic acid sodium salt; Methanesulfonic acid, hydroxy-, monosodium salt; Monosodium hydroxymethane sulfinate; Sodium formaldehyde hydrosulfite; Sodium hydroxymethane sulfinate; Sodium methanalsulfoxylate; Sodium sulfoxylate formaldehyde

**Definition:**  
Avail. as the dihydrate

**Empirical:**  
CH₃NaO₃S; CH₃NaO₃S • 2H₂O

**Formula:**  
HOCH₂SOONa or HOCH₂SOONa • 2H₂O

**Properties:**  
Wh. cryst., garlic odor; sol. in water; sl. sol. in alcohol, ether, chloroform, benzene; readily dec. by dil. acids; m.w. 118.09 (anhyd.), 154.11 (dihydrate); m.p. 64-68 C (dihydrate); pH 9.5-10.5 (2%)

**Toxicology:**  
LD₅₀ (oral, rat) > 2 g/kg; LD₅₀ (subcut., mouse) 3000 mg/kg; mod. toxic by ing. and subcut. routes; irritating to respiratory system; TSCA listed

**Hazardous Decomp. Prods.:**  
Heated to decomp., emits toxic fumes of SOₓ, Na₂O

**HMIS:**  
Health 2, Flammability 1, Reactivity 1

**Storage:**  
Keep well closed in cool place

**Uses:**  
Antioxidant in pharmaceuticals, parenterals, topicals; treatment of mercury poisoning

**Regulatory:**  
FDA 21CFR §175.105, 176.170, 177.1210, 177.2600; FDA approved for parenterals, topicals; USP/NF compliance; Canada DSL

**Manuf./Distrib.:**  

**Sodium glucoheptonate (INCI).**  
*See Sodium glucoheptonate*

**Sodium glucoheptonate**  
CAS 13007-85-7; 31138-65-5; EINECS/ELINCS 235-849-8

**Synonyms:**  
Gluceptate, sodium; Glucoheptonic acid, sodium salt; D-Glycero-D-gulo-heptonic acid, monosodium salt; Sodium gluceptate (INCI); Sodium D-glycero-D-gulo-heptonate

**Classification:**  
Organic salt

**Empirical:**  
C₇H₁₃NaO₈

**Formula:**  
HOCH₂(CHOH)₅COO– Na⁺

**Properties:**  
Lt. tan cryst. powd.; m.w. 248.16

**Uses:**  
Intravenous pharmaceuticals

**Regulatory:**  
FDA 21CFR §173.310, 176.150; FDA approved for intravenous; Canada DSL

**Manuf./Distrib.:**  
Sodium gluconate

CAS 527-07-1; EINECS/ELINCS 208-407-7

Synonyms: D-Gluconic acid monosodium salt; Gluconic acid sodium salt; Monosodium gluconate; Monosodium D(-)-pentahydroxy capronate; Sodium D-gluconate

Classification: Nonaromatic acid salt

Definition: Sodium salt of D-gluconic acid

Empirical: C₆H₁₁NaO₇

Formula: HOCH₂CHOHCHOHCHOHCHOHCOONa

Properties: Wh. to ylsh. cryst. powd., pleasant odor; sol. 59 g/100 ml water; sl. sol. in alcohol; insol. in ether; m.w. 218.16; m.p. 206°C (dec.)

Toxicology: LDLo (IV, rabbit) 7630 mg/kg; low toxicity by IV route; TSCA listed

Environmental: Easily biodegradable; presents no waste problem

Precaution: Avoid dust formation

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Storage: Keep in well-closed container in dry place

Uses: Chelating agent, nutrient, mineral source in pharmaceuticals, orals, injections

Regulatory: FDA 21CFR §178.1010, 182.6757, GRAS; Europe listed; UK approved; FDA approved for orals; Canada DSL


†=pharmaceutical grade
Sodium glyceryl olate phosphate
CAS 208539-93-9; 208539-94-0
Definition: Sodium salt of a complex mixture of phosphate esters of glyceryl monooleate
Properties: Anionic
Uses: Emulsifier for pharmaceuticals
Trade Names: Hectalite® 200
Sodium hectorite
Uses: Visc. builder, suspending agent, binder for pharmaceuticals
Trade Names: Hectalite® 200
Sodium hexametaphosphate
CAS 10124-56-8; EINECS/ELINCS 233-343-1
FEMA 3027
Synonyms: Glassy sodium; Hexametaphosphate sodium salt; Hexasodium metaphosphate; HMP; Metaphosphoric acid, hexasodium salt; Phosphate, sodium hexameta-; SHMP; Sodium polymetaphosphate
Classification: Inorganic salt
Empirical: O_{18}P_{6} • 6Na
Formula: (NaPO_{3})_{6}
Properties: Colorless to wh. powd. or flakes; odorless; sol. in water; m.w. 611.76; sp.gr. 2.181; m.p. 1184 F; pH 6.0-7.7; anionic
Toxicology: LD_{50} (oral, rat) 6200 mg/kg, (IP, mouse) 870 mg/kg, (subcut., mouse) 1300 mg/kg, (IV, mouse) 62 mg/kg; poison by IV route; mod. toxic by IP, subcut. routes; mildly toxic by ing.; may cause skin/eye/respiratory/digestive tract irritation; may cause flaccid paralysis, somnolence, convulsions, changes in tubules (incl. acute renal failure); TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of PO_{x} and Na_{2}O
HMIS: Health 1, Flammability 0, Reactivity 0
Storage: Store in cool, dry place in a tightly closed container

†=pharmaceutical grade
Uses: Pharmaceuticals (buccals)
Regulatory: FDA 21CFR §173.310, 182.90, 182.6760, 182.6769, GRAS; USDA 9CFR §318.7, 381.147; FEMA GRAS; FDA approved for buccals; Canada DSL
Manuf./Distrib.: AAA Int'l.
http://www.aaainternational.com; ABCR
http://www.abcr.de; ADA Int'l.
http://www.joinme.net/ada/index.htm; Am. Int'l.
http://www.aicma.com; BCH Brühl
http://www.bch-bruehl.de
China Nat'l. Chem. Construction
http://www.cnccc-shenzhen.com; Dastech
Int'l. http://www.dastech.com; FMC
http://www.fmccchemicals.com; Fisher Scientific
Fluka http://www.sigma-aldrich.com
Nalco http://www.nalco.com; Noah
http://www.noahtech.com; Rhodia
UK/Phosphorus Perf. Derivs.; Rhodia/Phosphorus Perf. Derivs.;
http://www.rhodia-ppd.com
Rhodia http://www.rhodia.com; Ruger
http://www.rugerchemical.com; Sal Chem.
http://www.salchem.com; Sinochem Liaoning
http://www.sinochemliaoning.com;
Spectrum Quality Prods.
http://www.spectrumchemical.com
Surfachem Ltd†
Voigt Global Distrib.
http://www.vgdllc.com; Wego Chem. & Min.
http://www.wegochem.com

Sodium hyaluronate
CAS 9067-32-7; EINECS/ELINCS 232-678-0
Synonyms: Hyaluronic acid, sodium salt
Definition: Sodium salt of hyaluronic acid, found naturally in eye fluids
Empirical: (C_{14}H_{20}NO_{11}Na)_{n}
Properties: Wh. powd.; m.w. 800,000-1,600,000
Toxicology: LD_{50} (oral, rat) > 800 mg/kg, (IP, mouse) 1500 mg/kg; poison by IV route; moderately toxic by intraperitoneal route; experimental teratogen; other experimental reproductive effects
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of Na_{2}O
Storage: Hygroscopic; keep under argon
Uses: Humectant, moisturizer, skin conditioner, film-former, thickener, gellant
Chemical Component Cross-Reference

**Handbook of Pharmaceutical Additives, Third Edition**

**Classification:**
- Empirical:
- Trade Name:
- Toxicology:
- Properties:
- Manuf./Distrib.:
- Regulatory:
- Formula:
- CAS
- Synonyms:
- UN 1384 (DOT)

**Chemical Component Cross-Reference**

†=pharmaceutical grade

**In pharmaceuticals**

**Regulatory:** BP, EP compliance; Canada DSL

**Manuf./Distrib.:** Acros Org.

http://www.acros.com; Biosynth Int'l.
http://www.biosynth.com; CarboMer
http://www.carbomer.com; Chong Kun
Dang Pharm.† http://www.ckdpharm.com;
Esperis http://www.esperis.it
http://www.mpbio.com; Indofine
http://www.indofinechemical.com; Kyowa Hakko Kogyo http://www.kyowa.co.jp
Nihon Surfactant
http://www.nikkol.co.jp/en/group_nissa.html;
Nikko Chems. Co. Ltd
http://www.nikkol.co.jp/index.html; Pfaltz & Bauer http://www.pfaltzandbauer.com;
Sigma http://www.sigma-aldrich.com/belgium; TCI Am.
http://www.tciamerica.com

**Trade Names:** Acido Ialuronico Sale Sodico; Sodium Hyaluronate Bio

**Trade Names Containing:** Eashave; Iricalmin

**Sodium hydrate.** See Sodium hydroxide

**Sodium hydrofluoride.** See Sodium fluoride

**Sodium hydrogen carbonate.** See Sodium bicarbonate

**Sodium hydrogen glutamate; Sodium hydrogen L-glutamate.** See MSG

**Sodium hydrogen phosphate.** See Sodium phosphate dibasic anhydrous

**Sodium hydrogen sulfite.** See Sodium bisulfite

**Sodium hydroxide**

CAS 7775-14-6 (anhyd.); EINECS/ELINCS 231-890-0

UN 1384 (DOT)

**Synonyms:** Disodium dithionate; Disodium dithionate; Dithionous acid disodium salt; Sodium dithionate; Sodium dithionate; Sodium hyposulfite; Sodium sulfoxylate

**Classification:** Inorganic salt

**Empirical:** Na$_2$O$_3$S$_2$

**Formula:** NaO$_2$SSO$_2$Na

**Properties:** Wh. or yel.-wh. large transparent cryst., bitter taste; sl. sol. in cold water; insol. in alcohol, conc. HCl; dec. in hot water; m.w. 174.10; dens. 2.189; m.p. 55 C; dec. 267 C

**Toxicology:** Toxic, irritant to skin; allergen;

**Toxicity:** Dec. violently when heated to 190 C, emitting toxic fumes of SO$_x$ and Na$_2$O

**Regulatory:** FDA 21CFR §176.170, 177.2800, 182.90; Japan approved (0.03-5 g/kg residual as sulfur dioxide), not permitted in certain foods; FDA approved for parenterals; Canada DSL

**Manuf./Distrib.:** Aastrid Int'l.†

http://www.aastrid.com; Aldrich†
http://www.sigma-aldrich.com; Allchem Ind.
http://www.allchem.com; Arch Chems.
http://www.archchemicals.com; BCH Brühl
http://www.bch-bruehl.de

http://www.chemvip.com; Clariant
http://www.clariant.com;
http://www.clariant-northamerica.com

Coyne http://www.coynechemical.com;
Dastech Int'l. http://www.dastech.com;
FMC Foret http://www.fmeforet.com; Fluka
http://www.sigma-aldrich.com

**ICC Ind.** http://www.iccchem.com;
Independent Chem.
http://www.independentchemical.com;

Monomer-Polymer & Dajac Labs

Olin/Chlor Alkali
http://www.olinchloralkali.com; PPG Ind.
http://www.ppg.com;
http://www.ppgchloralkali.com; Parchem
Trading† http://www.par-chem.com;
Robeco http://www.robecoinc.com; Sigma
http://www.sigma-aldrich.com/belgium

**Spectrum Quality Prods.**
http://www.spectrumchemical.com;


http://www.vulcanmaterials.com/vc.asp;
Chemical Component Cross-Reference

Whyte Chems. Ltd
http://www.whytechemicals.co.uk

Sodium hydroxide
CAS 1310-73-2; EINECS/ELINCS 215-185-5
UN 1823 (DOT); 1824 (DOT); INS524; E524
Synonyms: Caustic soda; Lye; Soda lye; Sodium hydrate; White caustic
Classification: Alkali hydroxide
Empirical: HNaO
Formula: NaOH

Properties: Wh. solid beads or pellets; absorbs water and CO2 from air; sol. in water, alcohol, methanol, glycerin; m.w. 40.00; dens. 2.12 (20/4 C); vapor pressure 1 mm (739 C); m.p. 318 C; b.p. 1390 C

Toxicology: ACGIH TLV/CL 2 mg/m³ of air; LD50 (IP, mouse) 40 mg/kg; LDLo (oral, rabbit) 500 mg/kg; poison by IP route; mod. toxic by ing.; corrosive irritant to eyes, skin, mucous membrane; mists and dusts cause small burns; inh. can damage upper respiratory tract and lungs; mutagenic data; TSCA listed

Precaution: DOT: Corrosive material; strong base; incompat. with acids and water; may ignite or react violently with many org. compds.; dangerous material to handle

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of Na₂O

NFPA: Health 3, Flammability 0, Reactivity 1
Storage: Deliq.

Uses: Alkalizer, buffer in pharmaceuticals, injectables, dentals, parenterals, inhalants, ophthalmics, orals, rectals, topicals, vaginals, eyewashes

Regulatory: FDA 21 CFR §73.85, 155.191, 155.194, 163.110, 163.111, 163.112, 172.560, 172.814, 172.892, 173.310, 176.170, 176.180, 176.210, 177.1600, 177.2800, 184.1763, GRAS; USDA 9 CFR §318.7, 381.147; BATF 27 CFR §21.101, 240.1051a; Canada DSL; Japan restricted; Europe listed; UK approved; FDA approved for injectables, dentals, parenterals, inhalants, ophthalmics, orals, rectals, topicals, vaginals; USP/NF, BP, EP compliance; SARA reportable

Manuf./Distrib.: AAE Chemie NV†
http://www.aaechemie.com; AMRESCO†
http://www.amresco-inc.com; Advance Research Chems.
http://www.fluoridearc.com; Akzo Nobel
http://www.akzonobel.com; Aldrich†
http://www.sigma-aldrich.com

†=pharmaceutical grade

Alfa Chem†
http://www.alfachem1.com;
Allied Universal; Altivia
http://www.altivia.com; Am. Biorganics;
Arch Chems.
http://www.archchemicals.com
Arkema http://www.total.com; Asahi
Asahi Denka Kogyo http://www.adk.co.jp;
Ashland†
http://www.ashchem.com;
Asiamerica Int’l†;
BCH Brühl http://www.bch-bruehl.de; Bay
Chem. & Supply; Bayer†
http://www.bayerus.com; Boith China
http://www.boith.com; Brenntag AG†
http://www.brenntag.de
Brenntag Southeast†; ChemTech
Specialties†
http://www.chemtechspecialties.com; DPC
Ind. http://www.dxsystemsco.com;
Degussa AG/Health & Nutrition; Delta
Distributors†
Dow http://www.dow.com; EMD Chems.†
http://www.emdchemicals.com; FMC
http://www.fmcchemicals.com; Fluka
http://www.sigma-aldrich.com
GE Plastics http://www.geplastics.com;
GFS† http://www.gfschemicals.com; GMI
Prods.† http://www.gmi-originates.com;
Galbraith Labs† http://www.galbraith.com;
General Chem.
http://www.genchemcorp.com

Georgia Gulf http://www.ggc.com; Georgia-
Pacific Resins
http://www gp.com/chemical; Harcos
http://www.harcroschem.com; Hawkins
Chem.† http://www.hawkinschemical.com
Hydrite http://www.hydrite.com; Integrat†
http://www.integrachem.com; Interstate
Jiangxi Liq. Ind. Chems. ; K.A. Steel
http://www.kasteelchemicals.com
MPS† http://www.mp-solutionsinc.com;
Mallinckrodt Baker†
http://www.mallbaker.com; Nissan Chem.
Ind. http://www.nissanchem.co.jp; Norsk

Hydro AS
Occidental http://www.oxychem.com
Olin/Chlor Alkali
http://www.oolinchloralkali.com; PCI Chems.
Canada http://www.piona.com; PPG Ind.
http://www.ppg.com;
http://www.ppgchloralkali.com; PVS
Chemical Component Cross-Reference

Primachem; Rasa Ind.
http://www.rasa.co.jp; Ruger†
http://www.rugerchemical.com; Sal Chem.
http://www.salchem.com
Sierra
http://www.sierrachemicalcompany.com;
Sigma  http://www.sigma-aldrich.com/belgium; Spectrum Quality Prods.†
http://www.spectrumchemical.com;
Thomas Scientific†
Vulcan Chems.
http://www.vulcanmaterials.com/vc.asp

Trade Names Containing: Kollicoat® MAE 100P

Sodium 4-hydroxybenzoate. See Sodium paraben
Sodium-o-hydroxybenzoate. See Sodium salicylate
Sodium p-hydroxybenzoate. See Sodium paraben
Sodium hydroxymethane sulfinate. See Sodium formaldehyde sulfoxylate
Sodium 4-[(2-hydroxy-1-naphthyl) azoxy] benzenesulfonate. See D&C Orange No. 4; Acid orange 7
Sodium-L-2-hydroxypropionate. See Sodium lactate
Sodium hypochlorite
CAS 7681-52-9; EINECS/ELINCS 231-668-3
UN 1791 (DOT)
Synonyms: Bleaching sol'n.; Dakins sol'n.; Hypochlorite sol'n.; Hypochlorous acid, sodium salt; Labarrque’s sol’n.; Liquid bleach; Sodium chloride oxide; Sodium oxychloride
Classification: Hypochlorous acid salt
Empirical: ClNaO
Formula: NaOCl
Properties: Pale greenish to yel. liq., chlorine bleach odor; sol. in water; reacts with many org. solvs.; m.w. 74.45; sp.gr. 1.1 (6% sol’n.);
m.p. -6 C (5%); dec. above 40 C; pH ≈ 11
Toxicology: LD50 (oral, mouse) 5800 mg/kg;
†=pharmaceutical grade

TDLo (IV, man) 45 mg/kg; mildly toxic by ing.; strong irritant to tissue; highly irritating to eyes, skin, respiratory tract; human systemic effects by ing.
(somnolence, blood pressure decrease, nausea, vomiting); tumorigen; human mutagenic data; TSCA listed

Environmental: Hazardous to environment
Precaution: Corrosive; strong oxidizer capable of igniting combustibles; highly explosive, sensitive to heat or friction; forms explosive prods. with amines; unstable in air; fire risk
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of Na2O and Cl–
HMIS: Health 2, Flammability 0, Reactivity 1
Uses: Antiseptic for wounds in medicine
Regulatory: FDA 21CFR §172.892; 173.315, 175.105, 176.170, 177.2800, 178.1010; Japan approved as bleaching agent, restricted as sterilizing agent; Canada DSL
Manuf./Distrib.: AAE Chemie NV†
http://www.aacchemie.com; AMRESCO†
http://www.amresco-inc.com; Ajinomoto http://www.ajinomoto.co.jp;
http://www.ajinomoto.com; Albemarle
http://www.albemarle.com; Aldrich†
http://www.sigma-aldrich.com
Allied Universal; Arch Chems.
http://www.archchemicals.com; Arkema
http://www.total.com/; Asahi Denka Kogyo
http://www.adk.co.jp; Ashland†
http://www.ashchem.com
Bio-Lab  http://www.wateradditives.com;
Brenntag AG†  http://www.brenntag.de;
DPC Ind.  http://www.dxsystemsco.com
Degussa AG/Health & Nutrition; Delta
http://www.deltachemical.com
Fluka  http://www.sigma-aldrich.com;
Galbraith Labs†  http://www.galbraith.com
Harcros  http://www.harcroschem.com
Hydrite  http://www.hydrite.com
Integra†  http://www.integrachem.com;
Mallinckrodt Baker†
http://www.mallbaker.com; Mitsubishi
Chem.  http://www.m-kagaku.co.jp/index_en.htm; Norsk Hydro
Occidental  http://www.oxychem.com;
Olin/Chlor Alkali
http://www.olinchloralkali.com; Penta Mfg.†
http://www.pentamfg.com; Robeco
http://www.robecoinc.com; Ruger†
http://www.rugerchemical.com
Sodium hypophosphite
CAS 7681-53-0
Synonyms: Phosphinic acid sodium salt; Sodium phosphinate
Empirical: $\text{H}_2\text{NaO}_2\text{P}$
Formula: $\text{NaH}_2\text{PO}_2$
Properties: Wh. gran. powd. or colorless pearly cryst. plates, odorless, bittersweet saline taste; sol. in water, alcohol, glycerin; m.w. 87.97
Toxicology: LD50 (IP, mouse) 1584 mg/kg; LDLo (subcut, rabbit) 50 mg/kg; poison by subcut. route; mod. toxic by IP route; TSCA listed
Precaution: Flamm. when exposed to heat or flame; eq. solns. may explode on evaporation; potentially explosive with oxidants; dec. with heat, evolving phosphine
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of POx and Na2O
Storage: Deliq.; store in cool, dry place away from oxidizing materials
Uses: Antioxidant, preservative, emulsifier, stabilizer in pharmaceuticals
Regulatory: FDA 21CFR §184.1764, GRAS; Canada DSL
Manuf./Distrib.: Aastrid Int'l.†
http://www.aastrid.com; Arkema†
http://www.total.com/; Biddle Sawyer et†
http://www.biddlesawyer.com; Boith China†
http://www.boith.com; China Nat'l Chem. Construction
http://www.cncccshenzhen.com
Dastech Int'l.† http://www.dastech.com;
Degussa AG/Health & Nutrition; Independent Chem.
http://www.independentchemical.com;
Integra† http://www.integrachem.com;
Mallinckrodt Baker†
http://www.mallbaker.com

Sodium hyposulfite. See Sodium thiosulfate anhydrous; Sodium hydrosulfite
Sodium iminodisuccinate. See Tetrasodium iminodisuccinate
Sodium 5,5´-indigotidisulfonate. See FD&C Blue No. 2; Acid blue 74
Sodium inosinate; Sodium 5´-inosinate. See Disodium inosinate

Sodium iodide
CAS 7681-82-5; EINECS/ELINCS 231-679-3
Synonyms: Sodium iodine; Sodium monoiode
Classification: Inorganic salt
Empirical: INa
Formula: NaI
Properties: Wh. or colorless cryst. or powd.; discolored by air; very sol. in water; sol. in alcohol and glycerin; m.w. 149.89; dens. 3.667; vapor pressure 1 mm Hg (767 C); m.p. 651 C; b.p. 1300 C
Toxicology: LD50 (oral, rat) 4340 mg/kg, (IV, rat) 1060 mg/kg, (IP, mouse) 430 mg/kg; mod. toxic by ing., IV, IP routes; primary skin and eye irritant; human teratogenic and reproductive effects by ing.; TSCA listed
Precaution: Reacts violently with BrF3, HClO4, oxidants
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of I- and Na2O
HMIS: Health 1, Flammability 0, Reactivity 1
Storage: Hygroscopic, deliq.; store @ R.T.
Uses: Antiseptic in pharmaceuticals, topical anti-infective prods., parenterals, vaginals; expectorant
Regulatory: FDA approved for parenterals, topicals, vaginals; BP, EP compliance; Canada DSL
Manuf./Distrib.: AMRESCO†
http://www.amresco-inc.com; Advance Research Chems.
http://www.fluoridearc.com; Ajay
Chemical Component Cross-Reference

- http://www.ajay-sqm.com; Aldrich†
- http://www.sigma-aldrich.com; Alfa Chem†
- http://www.alfachem1.com
- Allan http://www.allanchem.com; Am. Int'l.†
- http://www.aicma.com; Asiamerica Int'l.;†
- Atomergic Chemetals
- http://www.atomergic.com; Barrington†
- http://www.barringtonchem.com
- Clariant† http://www.clariant.com;
- Fluka http://www.sigma-aldrich.com
- GFS† http://www.gfschemicals.com; Helm
- Miljac http://www.miljac.com; Mutchler† http://www.mutchlerchem.com
- http://www.pechiney-chemicals.com
- Research Organics http://www.resorg.com;
- Robeco† http://www.robecoinc.com;
- Ruger† http://www.rugerchemical.com
- Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality Prods.† http://www.spectrumchemical.com
- Thomas Scientific† http://www.thomassci.com; Tomen Am.
- VWR Int'l.† http://www.vwrsp.com; Voigt Global Distrib.† http://www.vgdllc.com
- http://www.finechemnet.com

Trade Names Containing: Punctilious® SDA
25A-2 190 Proof

Sodium iodine. See Sodium iodide
Sodium iron EDTA. See Sodium ferric EDTA
Sodium isopropylbenzenesulfonate. See Sodium cumenesulfonate
Sodium iso thiocyanate. See Sodium thiocyanate
Sodium lactate
CAS 72-17-3; EINECS/ELINCS 200-772-0
INS325; E325
Synonyms: 2-Hydroxypropanoic acid

†=pharmaceutical grade

monosodium salt; Lacolin; Lactic acid, monosodium salt; Lactic acid, sodium salt; Sodium-L-2-hydroxypropionate

Definition: Sodium salt of lactic acid
Empirical: C₃H₅O₃ • Na
Formula: CH₃CHOHCOONa

Properties: Colorless or ylsh. syrupy liq.,

odorless to sl. odor, sl. salt taste; misc. in

water, alcohol; m.w. 112.07; m.p. 17 C; dec. 140 C; anionic

Toxicology: LD50 (IP, rat) 2000 mg/kg; mod.
toxic by IP route; eye irritant; TSCA listed

Precaution: Combustible

Hazardous Decomp. Prods.: Heated to
decomp., emits toxic fumes of Na₂O

HMIS: Health 1, Flammability 0, Reactivity 0

Storage: Very hygroscopic

Uses: Antimicrobial, preservative, emulsifier,

flavor, humectant, pH control agent, buffer for pharmaceuticals, orals, parenterals

Regulatory: FDA 21CFR §184.1768, GRAS (not for infant formulas); USDA 9CFR §318.7;
Japan approved; Europe listed; UK approved;
FDA approved for parenterals, orals; USP/NF (in solution), BP, EP compliance; Canada DSL

Manuf./Distrib.: AAA Int'l.†

http://www.aaainternational.com; AB R
Lundberg
http://www.norfoods.se/lundberg; ADM
http://www.admworld.com; AMRESCO†
http://www.amresco-inc.com; Alfa Chem†
http://www.alfachem1.com
Alzo http://www.alzointernational.com; Am.
Biorganics; Am. Ingreds.
http://www.americaningredients.com;
Asiamerica Int'l.;† Brenntag AG†
http://www.brenntag.de
Degussa AG/Health & Nutrition; EMD
FBC Ind. http://www.fbcindustries.com;
Ferro Pfanstiehl Europe†; Ferro Pfanstiehl
Labst http://www.pfanstiehl.com
GFS† http://www.gschemicals.com;
Haltermann GmbH
http://www.haltermann.com; Integra†
http://www.integrachem.com; Kemira
ChemSolutions BV http://www.kemira.com;
Lohmann http://www.lohmann-chemikalien.de
Mallinckrodt Baker†
http://www.mallbaker.com; PURAC Am.†
http://www.purac.com; Penta Mfg.†
http://www.pentamfg.com; Premium
Ingreds.
Chemical Component Cross-Reference

†=pharmaceutical grade

Handbook of Pharmaceutical Additives, Third Edition


Trade Names: Arlac S; Galaflow SL; Purasal® S; Purasal® S/PF 60

Sodium L-lactate
CAS 867-56-1; EINECS/ELINCS 212-762-3
Synonyms: (S)-2-Hydroxypropionic acid sodium salt; L-Lactic acid sodium salt
Empirical: C3H5NaO3
Formula: CH3CH(OH)COONa
Properties: Hygroscopic; m.w. 112.06
Uses: Pharmaceuticals (injectables, parenterals)
Regulatory: FDA approved for injectables, parenterals
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

Sodium laureth-5 carboxylate
CAS 33939-64-9 (generic); 38975-03-0
Synonyms: Laureth-5 carboxylic acid, sodium salt; PEG-5 lauryl ether carboxylic acid, sodium salt; 3,6,9,12,15-Pentaoxaheptacosanoic acid, sodium salt; POE (5) lauryl ether carboxylic acid, sodium salt; Sodium PEG (5) lauryl ether carboxylate; Sodium 3,6,9,12,15-pentaoxaheptacosanoate; Sodium POE (5) lauryl ether carboxylate
Definition: Sodium salt of the carboxylic acid derived from laureth-5
Empirical: C32H43NaO7
Formula: CH3(CH2)10CH2(OCH2CH2)nOCH2COONa, avg. n = 4
Properties: Anionic
Uses: Surfactant, foaming agent for medicated soaps and shampoos
Features: Mild

Sodium laureth-6 carboxylate
CAS 33939-64-9 (generic); 68987-89-3 (generic)
Synonyms: Laureth-6 carboxylic acid, sodium salt; PEG-6 lauryl ether carboxylic acid, sodium salt; Sodium POE (6) lauryl ether carboxylate
Definition: Sodium salt of the carboxylic acid derived from laureth-6
Empirical: C24H48NaO8
Formula: CH3(CH2)10CH2(OCH2CH2)nOCH2COONa, avg. n = 5
Properties: Anionic
Uses: Surfactant
Trade Names: Akypo®-Soft 45 NV

Sodium laureth sulfate
CAS 1335-72-4; 3088-31-1; 9004-82-4 (generic); 13150-00-0; 15826-16-1; 68585-34-2; 68891-38-3; EINECS/ELINCS 221-416-0
Synonyms: PEG (1-4) lauryl ether sulfate, sodium salt; Poly(oxy-1,2-ethanediyl), α-sulfo-ω-(dodecylxoy)-, sodium salt; Sodium lauryl ether sulfate; Sodium POE lauryl sulfate
Definition: Sodium salt of sulfated ethoxylated laurel alcohol
Formula: CH3(CH2)10CH2(OCH2CH2)nOSO3Na, avg. n = 1-4
Properties: Yel. liq. or paste; anionic
Toxicology: LD50 (oral, rat) 1600 mg/kg; mod. toxic by ing.; irritating to eyes and skin; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of SOx and Na2O
Uses: Surfactant, foaming agent for pharmaceuticals, topicals
Features: Flash foamer
Regulatory: FDA approved for topicals
Trade Names: Emal 20C; Emal 270; Emal E-27C; Protachem™ ES-2
Chemical Component Cross-Reference

Trade Names Containing: [BIO-TERGE® 804; DeCONC HS-30; STEPANOL® ABHS-15C]

Sodium lauroyl sarcosinate
CAS 137-16-6; EINECS/ELINCS 205-281-5

Synonyms: N-Lauroylsarcosine, sodium salt; N-Methyl-N-(1-oxododecyl) glycine, sodium salt; Sodium-N-dodecanoyl-N-methylglycinate; Sodium N-lauroyl sarcosinate

Definition: Sodium salt of lauroyl sarcosine

Functional: Anionic

Empirical: C15H28NNaO3

Formula: CH3(CH2)10CONCH3CH2COONa

Properties: White powd.; m.w. 293.38; anionic

Toxicology: TSCA listed

Uses: Surfactant, foam builder/stabilizer, wetting agent, detergent, lubricant, bacteriostat, penetrant, enzyme inhibitor in pharmaceuticals, orals, topicals, dental care preps., surgical scrubs, depilatories

Features: Mild

Regulatory: FDA 21CFR §175.105, 177.1200; FDA approved for orals, topicals; Canada DSL

Manuf./Distrib.: [Ashland†; ChemTech Specialties; Chemplex Chems.; Croda Inc; Croda USA; Chemtech Specialties; Chemplex Chemicals; Croda Inc; Croda USA; Fluka; Sigma-Aldrich; Hampshire Chemicals; Independent Chemicals; Kraft Chemicals; Lowenstein Dyes & Cosmetics; J. Lowenstein; Nantong ChangChem; Nihon Surfactant; Ashland; ChemTech Specialties; Chemplex Chems.; Croda Inc; Fluka; Sigma-Aldrich; Hampshire Chemicals; Independent Chemicals; Kraft Chemicals; Lowenstein Dyes & Cosmetics; Nantong ChangChem; Nihon Surfactant; R.T. Vanderbilt†; Seppic; Sigma; Sigma-Aldrich; Belgium; Stepan; Universal Preserv-A-Chem†; Upjohn Chemical; R.T. Vanderbilt†; Sigma-Aldrich; Belgium; Stepan; Universal Preserv-A-Chem†; Upjohn Chemical]

Trade Names: Crodasinic LS30; Crodasinic LS30 NP; Crodasinic LS35; Crodasinic LS95; Crodasinic LS95 NP; MAPROSYL® 30-B; Oramix® L30; Sarcosinate LN

Sodium N-lauroyl sarcosinate. See Sodium sulfate

†=pharmaceutical grade

Sodium lauryl sulfate
CAS 151-21-3; 68585-47-7; 68955-19-1; 73296-89-6; EINECS/ELINCS 205-788-1; 271-557-7; 273-257-1

INS487

Synonyms: Dodecyl alcohol, hydrogen sulfate, sodium salt; Dodecyl sodium sulfate; Dodecyl sulfate sodium salt; Lauryl sulfate sodium; Lauryl sulfate sodium salt; Monododecyl sodium sulfate; SDS; SLS; Sodium dodecyl sulfate; Sodium n-dodecyl sulfate; Sodium monododecyl sulfate; Sulfuric acid monododecyl ester sodium salt

Classification: Alkyl sulfate salt

Definition: Sodium salt of lauryl sulfate

Empirical: C12H25O4S • Na

Formula: CH3(CH2)10CH2OSO3Na

Properties: Wh. to cream crystals, flakes, or powd., faint fatty odor; mod. sol. in water; m.w. 288.38; sp.gr. > 1.1 (20 C); m.p. 204-207 C; anionic

Toxicology: LD50 (oral, rat) 1288 mg/kg, (IP, rat) 210 mg/kg, (IV, rat) 118 mg/kg; poison by IV, IP routes; mod. toxic by ing.; human skin irritant; experimental eye, severe skin irritant; mild allergen; experimental teratogen, reproductive effects; mutagenic data; TSCA listed

Precaution: Burns above 93.3 C; incompat. with strong oxidizers (increases fire risk)

Hazardous Decomp. Prods.: Thermal decomp. prods.: CO, CO2, SO2, H2S; heated to decomp., emits toxic fumes of SOx and Na2O

HMIS: Health 1, Flammability 0, Reactivity 0

Storage: Store in cool, dry, well-ventilated area, out of direct sunlight, away from incompat. materials

Uses: Emulsifier, wetting agent, solubilizer, dispersant in pharmaceuticals, oral liqs. and solids, topicals, dentals, vaginals

Use Level: 0.004-0.6 mg (oral solids); 0.01-0.02% (oral liqs.); 0.1-12.7% (topical pharmaceuticals)

Regulatory: FDA 21CFR §172.210, 172.822, 175.105, 175.300, 175.320, 176.170, 176.180, 176.210, 177.1200, 177.1210, 177.1630,
<table>
<thead>
<tr>
<th>Chemical Component Cross-Reference</th>
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<tr>
<td>177.2600, 177.2800, 178.1010, 178.3400,</td>
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<tr>
<td>179.45; USDA 9CFR §318.7, 381.147; Canada</td>
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<td>DSL; FDA approved for dentals, orals, topicals,</td>
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<td>vaginals; USP/NF, BP, EP compliance</td>
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<td>Manuf./Distrib.: AMRESCO†</td>
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<td>Alfa Chem† <a href="http://www.alfachem1.com">http://www.alfachem1.com</a>;</td>
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<td>DuPont <a href="http://www.dupont.com">http://www.dupont.com</a>; EMD</td>
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<td><a href="http://www.lonza.com">http://www.lonza.com</a>; Magnesia GmbH†</td>
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<td>Mallinckrodt Baker†</td>
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<td><a href="http://www.mallbaker.com">http://www.mallbaker.com</a>; Merck KGaA†</td>
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<td>Phoenix Nat. Prods.</td>
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<td>Rhodia HPCII† <a href="http://www.rhodia-hpcii.com">http://www.rhodia-hpcii.com</a>; Rhodia UK†; Rochem Int'l.</td>
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<td><a href="http://www.rochemintl.com">http://www.rochemintl.com</a>; Ruger†</td>
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<td>†=pharmaceutical grade</td>
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<td><a href="http://www.rugercorning.com">http://www.rugercorning.com</a>; Sea-Land</td>
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<td>Sigma <a href="http://www.sigma-aldrichcombelgium">http://www.sigma-aldrichcombelgium</a>; Spectrum Quality</td>
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<td>Synthetic† Ubichem plc† <a href="http://www.ubichem.com">http://www.ubichem.com</a>;</td>
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<td>Unger Fabrikker AS <a href="http://www.unger.no">http://www.unger.no</a>;</td>
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<td>Universal Preserv-A-Chem†</td>
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<td><a href="http://www.upichem.com">http://www.upichem.com</a>; VWR Int'l.†</td>
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<td><a href="http://www.vwrsp.com">http://www.vwrsp.com</a>; Vivion</td>
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<td><a href="http://www.vivioninc.com">http://www.vivioninc.com</a></td>
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Trade Names: Emal 0; Emal 10G; Emal 10PT; |
Galaxy 689; Galaxy 699 |
Galaxy 789; Galaxy 799; Paxnol SLS Pure; |
POLYSTEP B-3; Rhodapon® LSB |
STEPANOL® ME Dry; STEPANOL® WA-100 |
NF/USP; STEPANOL® WAC-P; STEPANOL® |
WA Extra; STEPANOL® WA Extra PCK |
STEPANOL® WA Paste; Sulfochem® SLP-95; |
Texapon® K-12 Needles; Texapon® K-12 |
P H; Texapon® K-1296 Needles |
Texapon® ZHC Powder; Zoharpon LAS; |
Zoharpon LAS Spray Dried; Zoharpon SLS |

Trade Names Containing: Aquacoat® ECD; |
Cerasynt® WM; Codex A; CustoBlend® |
BAC; CustoBlend® BAT |
Fattylan; Galenol® 1618 DSN; Kollicoat® IR |
White; Kollicoat® MAE 30 DP; Kollicoat® |
MAE 100P |
Kollicoat® SR 30 D; Kollidon® SR; Lanette® |
SX; Lanette® W; Lexemul® AS |
STEPANOL® 360; STEPANOL® ABHS-15C; |
Tegacid® Special |

Sodium lauryl sulfoacetate |
CAS 1847-58-1; EINECS/ELINCS 217-431-7 |

Synonyms: Acetic acid, sulfo-, 1-dodecyl ester, sodium salt; Acetic acid, sulfo-,
1-dodecyl ester, S-sodium salt; Dodecyl sodium sulfoacetate; Sodium 2- |
dodecylxoyloxy)-2-oxoethane-1-sulfonate; |
Sulfoacetate acid, 1-dodecyl ester, sodium |
salt; Sulfoacetate acid dodecyl ester S- |
sodium salt |

Classification: Organic salt |
Empirical: C₁₄H₂₈O₅S • Na |
Formula: CH₃(CH₂)₁₀CH₂OOCCH₂SO₃Na |
Properties: M.w. 330.46; anionic |
Toxicology: LD₅₀ (oral, rat) 700 mg/kg, (IP, rat)
Chemical Component Cross-Reference

980 mg/kg; mod. toxic by ing. and IP routes; irritating to skin and eyes; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits toxic vapors of SOx
Uses: Surfactant, emulsifier, wetting agent, detergent, foaming agent, thickener in pharmaceuticals, topicals, dentifrices
Regulatory: FDA approved for topicals; Canada DSL

Trade Names Containing: STEPAN-MILD® LSB

Sodium lithium magnesium silicate. See Smectite

Sodium magnesiu magnesium silicate
CAS 53320-86-8
Synonyms: Lithium magnesium sodium silicate; Silicic acid, lithium magnesium sodium salt; Synthetic magnesium lithium silicate
Definition: Synthetic silicate clay composed mainly of magnesium and sodium silicate
Properties: Dens. 20.83 lb/gal
Toxicology: TSCA listed
Precaution: Avoid exposure of dust aerosol to sparks or open flame; wear safety glasses and protective gloves; avoid breathing dust
Uses: Base, carrier for act. ingreds.; binder, suspending agent, thickener for pharmaceuticals, toothpaste; adsorbent
Features: Inert; easily dispersed at room temperature, stable in 5-12 pH range

Sodium mercaptoproacetate. See Sodium thioglycolate

Sodium merthiolate. See Thimerosal

Sodium metabisulfite
CAS 7681-57-4; EINECS/ELINCS 231-673-0
UN NA 2693 (DOT); INS223; E223
Synonyms: Disodium disulfite; Disodium pyrosulfite; Disulfurous acid disodium salt; Pyrosulfurous acid disodium salt; Sodium bisulfite; Sodium metabsulfite; Sodium pyrosulfite
Classification: Inorganic salt
Empirical: O₆S₂ • 2Na
Formula: Na₂S₂O₅
Properties: Colorless cryst. or wh. to ylsh. powd.; pungent SO₂ odor; sol. in water forming acidic sol'ns.; sol. in glycerin; sl. sol. in alcohol, oxygenated solvs.; m.w. 190.10; dens. 1.480
Toxicology: ACGIH TLV/TWA 5 mg/m³; LD50 (IV, rat) 115 mg/kg, (parenteral, mouse) 910 mg/kg; poison by IV route; mod. toxic by parenteral route; experimental reproductive effects; mutagen; tumorigen; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of SOx and Na₂O
HMIS: Health 1, Flammability 0, Reactivity 1
Storage: Moisture-sensitive; store @ R.T.
Uses: Antioxidant, reducing agent in pharmaceuticals, ophthalmics, orals, inhalants, injectables, parenterals, primarily in sympathomimetic and aminoglycoside medications
Use Level: 0.3-0.75% (sympathomimetic/aminoglycoside medications)
Regulatory: FDA 21CFR §173.310, 177.1200, 182.3766, GRAS; Europe listed; FDA approved for inhalants, injectables, parenterals, ophthalmics, orals; NF, BP, EP compliance; Canada DSL

Manuf./Distrib.: AB R Lundberg http://www.norfoods.se/lundberg;
AMRESCO† http://www.amresco-inc.com;
Aldrich† http://www.sigma-aldrich.com;
Alfa Aesar http://www.alfa.com;
Aldrich Ind. http://www.alfachem1.com;
Amalgamet http://www.amalgamet.com;
Ashland† http://www.ashchem.com;
BASF http://www.basf.com;
Biddle Sawyer† http://www.biddlesawyer.com;
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Brown http://www.brownchem.com;
Camida Ltd† http://www.camida.com;
Charkit† http://www.charkit.com;
Chem One http://www.chemone.com;
Coyne http://www.coynechemical.com;
EMD Chems.† http://www.emdchemicals.com;
Esseco SpA http://www.esseco.it;
FMC Foret http://www.fmcforet.com;
Filo http://www.filochemical.com;
Fluka http://www.sigma-aldrich.com;
Fuerst Day Lawson http://www.fdl.co.uk;
GFS† http://www.gfschemicals.com;
Grillo-Werke AG† http://www.grillo.de;
Integra† http://www.integrachem.com;
J.F. Henry; JTS Enterprises http://www.jtsenterprisesinc.com;
Kaltron/Pettibone http://www.kaltron.com;
Kraft Chem.† http://www.kraftchemical.com;
Mallinckrodt†
Sodium metaperiodate. See Sodium m-periodate

Sodium metaphosphate
CAS 10361-03-2; EINECS/ELINCS 233-782-9
Synonyms: Graham's salt; IMP; Insoluble metaphosphate; Insoluble sodium metaphosphate; Kurrol's salt; Maddrell's salt; Metaphos; Metaphosphoric acid, sodium salt; Polymeric sodium metaphosphate; Poly (sodium metaphosphate); Sodium metaphosphate, insoluble; Sodium polyphosphates, glassy; Sodium tetrapolyphosphate

Empirical: O₃P • Na
Formula: (NaPO₃)ₙ, n = 3-10 (cyclic) or larger (polymers)
Properties: Amorphous wh. solid; sol. in min. acids; pract. insol. in water and in aq. sol'ns. of pyrophosphates and hexametaphosphates; m.w. 101.96
Toxicology: LD₅₀ (IP, mouse) 830 mg/kg; mod. toxic by IP route; may cause changes in tubules incl. acute renal failure, acute tubular necrosis; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of Na₂O and PO₃
Uses: Dental polishing agent

Sodium N-methyl-N-cocoyl taurate. See Sodium methyl cocoyl taurate

Sodium methyl 4-hydroxybenzoate; Sodium methyl p-hydroxybenzoate. See Sodium methylparaben

Sodium N-methyl-N-(1-oxotetradecyl) aminoacetate. See Sodium myristoyl sarcosinate

Sodium methylparaben
CAS 5026-62-0; EINECS/ELINCS 225-714-1
INS219; E219
Synonyms: 4-Hydroxybenzoic acid, methyl ester, sodium salt; Methylparaben sodium; Methylparaben sodium salt; Sodium 4-(methoxycarbonyl) phenolate; Sodium
Chemical Component Cross-Reference

- methyl 4-hydroxybenzoate; Sodium methyl p-hydroxybenzoate
- Sodium methyl p-hydroxybenzoate

**Definition:** Sodium salt of methylparaben

**Empirical:** C₈H₇NaO₃

**Properties:** Wh. powd.; freely sol. in water; sparingly sol. in alcohol; insol. in fixed oils; m.w. 174.14; pH 9.5-10.5 (1 in 1000)

**Toxicology:** LD₅₀ (oral, mouse) 2 g/kg, (IP, mouse) 760 mg/kg

**Storage:** Hygroscopic

**Uses:** Antimicrobial, preservative in pharmaceuticals, orals

**Regulatory:** FDA approved for orals; BP, EP compliance; Canada DSL

**Manuf./Distrib.:** AB R Lundberg [http://www.norfoods.se/lundberg; Chemacon GmbH† [http://www.chemacon.de; Spectrum Quality Prods.† [http://www.spectrumchemical.com

**Trade Names:** Nipagin M Sodium

**Trade Names Containing:** Nipacombin A; Nipasept Sodium®

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Sodium myristyl sulfate

**CAS 1191-50-0; EINECS/ELINCS 214-737-2**

**Synonyms:** 7-Ethyl-2-methyl-4-hexadecanol sulfate sodium salt; Myristyl sulfate, sodium salt; Sodium tetradecyl sulfate; Sulfuric acid, monotetradecyl ester, sodium salt; Sulfuric acid, myristyl ester, sodium salt; 1-Tetradecanol, hydrogen sulfate, sodium salt; Tetradecyl sulfate, sodium salt

**Definition:** Sodium salt of myristyl sulfate

**Empirical:** C₁₄H₂₉O₄S • Na

**Formula:** CH₃(CH₂)₁₂CH₂OSO₃Na

**Properties:** Anionic

**Toxicology:** TSCA listed

**Uses:** Cleanser, foaming agent, penetrant, emulsifier, antistat, bactericide for dentifrices

**Trade Names:** Sarcosinate MN

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Sodium nitrate

**CAS 7631-99-4; EINECS/ELINCS 231-554-3**

**UN 1498 (DOT); UN 1499 (DOT); INS251**

**Synonyms:** Chile saltpeter; Cubic niter; Nitric acid, sodium salt; Soda niter; Soda nitre; Sodium nitrate (1:1)

**Empirical:** NaN₃O₃

**Formula:** NaNO₃

**Properties:** Colorless transparent cryt. or gran. powd.; odorless; saline sl. bitter taste; sol. in water, glycerol; sl. sol. in alcohol, oxygenated solvs.; m.w. 85.01; dens. 2.267; m.p. 308 C; dec. @ 380 C; pH 5.5-8.3 (5%)

**Toxicology:** LD₅₀ (oral, rat) 1267 mg/kg, (IV, mouse) 56 mg/kg; poison by IP, IV routes; experimental reproductive effector; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of SOₓ and Na₂O

**Uses:** Detergent, foaming agent, wetting agent, penetrant, and emulsifier for pharmaceuticals

**Regulatory:** FDA 21CFR §175.105, 177.1210, 177.2800; Canada DSL

**Manuf./Distrib.:** Aldrich [http://www.sigma-aldrich.com; Sigma [http://www.sigma-aldrich.com/belgium

**Trade Names Containing:** Niaproof® Anionic Surfactant 4
Chemical Component Cross-Reference

Sodium nitrate (1:1). See Sodium nitrate

Sodium nitrate
CAS 7632-00-0; EINECS/ELINCS 231-555-9
UN 1500 (DOT); INS250

Synonyms: Diazotizing salts; Nitrous acid
sodium salt

Empirical: \(\ce{NNaO2}\)
Formula: \(\text{NaNO}_2\)

Properties: Sl. ylsh. or wh. cryst. or powd., bitter sl. saline taste; sol. in water, sl. sol. in alcohol, ether, oxygenated solvs.; slowly oxidized by air; m.w. 69.00; dens. 2.168; m.p. 271°C; b.p. 320°C

Toxicology: LD50 (oral, rat) 85 mg/kg, (IV, rat) 65 mg/kg, (IP, mouse) 158 mg/kg; poison by ing., inh., subcut., IV, and IP routes; human poison by ing.; human systemic effects (coma, blood pressure changes, nausea, vomiting, methemoglobinemia); eye irritant; can reduce blood oxygen levels; questionable carcinogen; can produce nitrosamines associated with cancers; experimental neoplastigen, tumorigen, teratogen, reproductive effects; human mutagenic data; TSCA listed

Precaution: Flamm.; strong oxidizing agent; ignites by friction in contact with org. matter; may explode when heated above

†=pharmaceutical grade
Chemical Component Cross-Reference

100 F or on contact with cyanides, NH4+ salts, cellulose, etc.; incompat. with butadiene, phthalic acid and anhydride, reducers, etc.

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx and Na2O

HMIS: Health 2, Flammability 0, Reactivity 3

Storage: Hygroscopic; deliq. in air; oxygen-sensitive; store @ R.T.

Uses: Pharmaceuticals (antidote for cyanide poisoning)

Regulatory: BP, EP compliance; FDA 21 CFR §172.175, 172.177, 175.105, 175.300, 176.170, 176.180, 177.121, 177.260, 178.357, 381.147; Canada DSL; Japan approved (0.005-0.07 g/kg); Europe listed; UK approved

Manuf./Distrib.: AMRESCO

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Penta Mfg.† http://www.pentamfg.com;
Rochem Int’l. http://www.rochemintl.com;
Ruger† http://www.rugerchemical.com; Sal
†=pharmaceutical grade

Chem. http://www.salchem.com; Sigma
http://www.sigma-aldrich.com/belgium
Spectrum Quality Prods.† http://www.spectrumchemical.com;
Tomiyama Pure Chem. Ind.
http://www.tomypure.co.jp; Ube Ind.
http://www.vwrsp.com
Varsal Instruments http://www.varsal.com;
Voigt Global Distrib.† http://www.vgdllc.com

Sodium octadecanoate. See Sodium stearate
Sodium 9-octadecenoate. See Sodium oleate
Sodium 2-[(octadecylamino) carbonyl] benzoate. See Sodium phthalate stearyl amide

Sodium octanoate; Sodium n-octanoate. See Sodium caprylate

Sodium octoxynol-2 ethane sulfonate
CAS 2917-94-4; 67923-87-9; EINECS/ELINCS 220-851-3; 267-791-4

Synonyms: Entsfon; Entsfon sodium; 2-[2-[2-Octylenoxy] ethoxy] ethoxy] ethanesulfonic acid, sodium salt; Sodium 2-[2-[4-(1,1,3,3-tetramethylbutyl) phenoxy] ethoxy] ethoxy] ethanesulfonate

Classification: Organic compd.
Empirical: C20H34O6S • Na
Formula: C8H17C6H4O(CH2CH2O)2CH2CH2SO3Na
Properties: M.w. 425.54; anionic
Uses: Surfactant, emulsifier in pharmaceuticals, topicals
Regulatory: FDA 21 CFR §176.180; FDA approved for topicals; Canada DSL

Sodium octyl sulfate
CAS 142-31-4; EINECS/ELINCS 205-535-5

Synonyms: Octyl sodium sulfate; Octyl sulfate sodium salt; Sodium capryl sulfate; SOS; Sulfuric acid, mono-octyl ester, sodium salt
Empirical: C8H17NaO4S
Formula: CH3(CH2)7OSO3Na
Properties: M.w. 425.54; anionic
Uses: Surfactant, emulsifier in pharmaceuticals, topicals
Regulatory: FDA 21 CFR §176.180; FDA approved for topicals; Canada DSL

Sodium octyl sulfate
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Formula: CH3(CH2)7OSO3Na
Properties: M.w. 425.54; anionic
Uses: Surfactant, emulsifier in pharmaceuticals, topicals
Regulatory: FDA 21 CFR §176.180; FDA approved for topicals; Canada DSL
Sodium oleate
CAS 143-19-1; EINECS/ELINCS 205-591-0
INS470; E470a
Synonyms: 9-Octadecenoic acid, sodium salt; Sodium 9-octadecenoate
Definition: Sodium salt of oleic acid
Empirical: C_{18}H_{33}O_2 • Na
Formula: CH_3(CH_2)_7CH=CH(CH_2)_7COONa
Properties: Wh. powd., sl. tallow-like odor; sol. in ≈ 10 parts water, ≈ 20 parts alcohol; m.w. 304.50; m.p. 232-235 C; HLB 18.0; nonionic
Toxicology: LD_{50} (IV, mouse) 152 mg/kg; poison by IV route; mutagen; TSCA listed
Precaution: Combustible when exposed to heat or flame
Hazardous Decomp. Prods.: Heated to decomp., emits acrid toxic fumes of Na_2O
Uses: Surfactant, emulsifier, visc. control agent for pharmaceuticals
Regulatory: USP/NF compliance; FDA 21CFR §172.863, 175.105, 175.320, 176.170, 176.200, 176.210, 177.1200, 177.2600, 177.2800, 178.3910, 186.1771, GRAS
Trade Names: Nofable BO-90N; Nofable BO-99N

Sodium α-olefin (C14-C16) sulfonate. See Sodium C14-16 olefin sulfonate
Sodium PCA
CAS 28874-51-3 (L); 54571-67-4 (DL); EINECS/ELINCS 249-277-1 (L); 259-234-9 (DL)
Synonyms: 5-Oxo-DL-proline, sodium salt; 5-Oxo-L-proline, sodium salt; PCA-Na; PCA Soda; Sodium 5-oxo-L-proline; Sodium pyroglutamate; Sodium DL-2-pyrrolidone-5-carboxylate; Sodium L-2-pyrrolidone-5-carboxylate
Definition: Sodium salt of pyroglutamic acid
Empirical: C₅H₇NO₃ • Na
Properties: Colorless liq., odorless, sl. salty taste; m.w. 151.1
Toxicology: No known toxicity; nonirritant to skin, eye mucosa; TSCA listed
Storage: Extremely hygroscopic
Uses: Humectant, moisturizer for dermatological soaps, medicinals, nutritive creams and lotions, dentifrices
Trade Names: Ajidew N-50

Sodium PEG (5) lauryl ether carboxylate. See Sodium laureth-5 carboxylate
Sodium pentadecanecarboxylate. See Sodium palmitate
Sodium 3,6,9,12,15-pentaoxaheptacosanoate. See Sodium laureth-5 carboxylate
Sodium m-periodate. See Sodium m-periodate

Sodium m-periodate
CAS 7790-28-5; EINECS/ELINCS 232-197-6
Synonyms: Sodium metaperiodate; Sodium periodate
Empirical: INaO₄
Formula: NaIO₄
Properties: Colorless cryst.; very sol. in water; m.w. 213.89; dens. 3.865 (16 C); m.p. 300 C (dec.); dec. on heating with O₂ evolution
Toxicology: LD₅₀ (IP, mouse) 58 mg/kg; toxic by ing.; poison by IP route; irritant; TSCA listed
Precaution: Strong oxidizer; fire risk in contact with organic materials
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of I⁻ and Na₂O
Storage: Hygroscopic
Uses: Oxidizing agent for pharmaceuticals
Regulatory: Canada DSL
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Allan http://www.allanchem.com; Atomergic
Sodium peroxide
CAS 1313-60-6
UN 1504 (DOT)

Synonyms: Disodium dioxide; Disodium peroxide; Sodium dioxide; Sodium oxide

Empirical: Na₂O₂

Properties: Ylsh.-wh. powd.; sol. in cold water; m.w. 77.98; dens. 2.805; m.p. 460 °C; b.p. 657 °C (dec.); dec. on heating with loss of O₂

Toxicology: Severe irritant to eyes, skin, mucous membranes; TSCA listed

Precaution: Dangerous fire and explosion risk in contact with water, alcohols, acids, powdered metals and organic materials; strong oxidizing agent

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of Na₂O

Storage: Moisture-sensitive; keep dry

Uses: Oxidizing agent for pharmaceuticals; antiseptic; germicidal soaps

Regulatory: Canada DSL

Manuf./Distrib.: Allan
http://www.allanche.com; BASF AG
http://www.basf.de; Noah
http://www.noahtech.com; Spectrum
Quality Prods.
http://www.spectrumchemical.com

Sodium phenoxy acetate
CAS 3598-16-1

Synonyms: Phenoxyacetic acid sodium salt
Classification: Organic acid, sodium salt

Definition: Reaction prod. of sodium phenolate and sodium chloro acetate

Empirical: C₈H₇NaO₃

Properties: Off-wh. odorless powd.; m.w. 174.1

Toxicology: LD₅₀ (IV, mouse) 2 g/kg; skin irritant; TSCA listed

Uses: Fermentation of penicillin V; synthesis of esters of cortical hormones

Manuf./Distrib.: Sigma
http://www.sigma-aldrich.com/belgium

Trade Names: Niacet Sodium Phenoxy Acetate

Sodium phosphate
CAS 7558-80-7 (anhyd.); 10049-21-5
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Synonym</th>
<th>CAS</th>
<th>HMIS</th>
<th>UN NA</th>
<th>Toxicology</th>
<th>Storage</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium phosphate dibasic</td>
<td>Disodium acid phosphate; Disodium hydrogen orthophosphate; Disodium hydrogen phosphate; Disodium monohydrogen orthophosphate; Disodium monohydrogen phosphate; Disodium orthophosphatephosphate; Disodium phosphate; Disodium phosphoric acid; DSP; DSP-O; Exsiccated sodium phosphate; Phosphoric acid disodium salt; Soda phosphate; Sodium hydrogen phosphate; Sodium monohydrogen phosphate (2:1:1); Sodium phosphate dibasic</td>
<td>7558-79-4</td>
<td>Health 1, Flammability 0, Reactivity 1</td>
<td>9147 (DOT); FEMA 2398; INS339(ii)</td>
<td>LD50 (oral, rat) 17 g/kg, (IP, rat) 1 g/kg; poison by IV route, mod. toxic by IP, subcut., and intramuscular routes; mildly toxic by ing.; ing. of lg. amts. may cause diarrhea, nausea, vomiting, cramps; skin and eye irritant; TSCA listed</td>
<td>Hygroscopic; store in cool, dry, well-ventilated area, out of direct sunlight, away from incompatibles; keep tightly closed when not in use; limit quantities in storage</td>
<td>Inorganic salt; Phosphoric acid, disodium salt</td>
</tr>
</tbody>
</table>
Sodium phosphate dibasic heptahydrate

CAS 7782-85-6; EINECS/ELINCS 231-448-7
INS339(ii)

Synonyms: Dibasic sodium phosphate heptahydrate; Disodium hydrogen phosphate heptahydrate; Disodium orthophosphate heptahydrate; Disodium phosphate heptahydrate; DSP-7; Sodium monohydrogen phosphate heptahydrate (2:1:1:7)

Classification: Inorganic salt

Definition: Phosphoric acid, disodium salt

Empirical: HNa₂O₄P • 7H₂O

Formula: Na₂HPO₄ • 7H₂O

Properties: Colorless or wh. gran.; effloresces in warm dry air; sol. in water; insol. in alcohol; m.w. 268.07

Toxicology: LD₅₀ (oral, rat) 12,930 mg/kg; irritant

HMIS: Health 1, Flammability 0, Reactivity 1

Storage: Store @ R.T.

Uses: Buffer, emulsifier, sequestrant, stabilizer in pharmaceuticals

Manuf./Distrib.: AMRESCO

http://www.amresco-inc.com; Aldrich† http://www.sigma-aldrich.com; EMD Chems.† http://www.emdchemicals.com; FMC† http://www.fmcchemicals.com; Fluka

Sodium phosphate dibasic heptahydrate
Chemical Component Cross-Reference

http://www.sigma-aldrich.com
Lohmann http://www.lohmann-chemikalien.de; Mallinckrodt Baker† http://www.mallbaker.com;
Ruger† http://www.rugerchemical.com; Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality
Prods.† http://www.spectrumchemical.com; Voigt Global Distrib.† http://www.vgdllc.com

Sodium phosphate monobasic; Sodium phosphate primary. See Sodium phosphate
Sodium phosphinate. See Sodium hypophosphite
Sodium phosphorofluoridate; Sodium phosphorofluoridate. See Sodium fluorophosphate
Sodium phthalate stearyl amide
CAS 86432-23-7
Synonyms: Benzoic acid, 2-[(octadecylamino) carbonyl]-, monosodium salt; Sodium 2-
[(octadecylamino) carbonyl] benzoate; Sodium stearyl phthalamate
Classification: Org. compd.
Definition: Reaction prod. of phthalic anhydride and octadecylamine
Empirical: C_{26}H_{43}NO_{3} • Na
Uses: Rheology modifier, emulsion stabilizer, suspending agent for o/w emulsions, emollients, moisturizing creams/lotions, therapeutic prods.
Trade Names: STEPAN-MILD® RM1

Sodium POE (5) lauryl ether carboxylate. See Sodium laureth-5 carboxylate
Sodium POE (6) lauryl ether carboxylate. See Sodium laureth-6 carboxylate
Sodium POE lauryl sulfate. See Sodium laureth sulfate
Sodium POE tridecyl sulfate. See Sodium trideceth sulfate

Sodium polyacrylate
CAS 9003-04-7
Synonyms: PAAS; Polyacrylic acid, sodium salt; 2-Propenoic acid, homopolymer, sodium salt
Empirical: (C_{3}H_{4}O_{2})_x • xNa
Properties: M.w. 2000-2300; anionic
Toxicology: LD_{50} (oral, rat) > 40 g/kg; eye and
Chemical Component Cross-Reference

subcut. routes; can cause allergic reactions; TSCA listed

Precaution: Combustible

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of Na$_2$O

HMIS: Health 1, Flammability 0, Reactivity 0

Storage: Hygroscopic; deliq. in moist air

Uses: Antimicrobial, preservative, fungicide, mold inhibitor, flavor in pharmaceuticals, orals, to treat fungal infections of the skin

Regulatory: FDA 21CFR §133.123, 133.124, 133.169, 133.173, 133.179, 150.141, 150.161, 179.45, 180.23, 181.22, 181.23, 184.1784, GRAS; USDA 9CFR §318.7, 381.147; Canada DSL; Japan approved with limitations; Europe listed; FDA approved for orals; USP/NF compliance

Manuf./Distrib.: AB R Lundberg
Forum Bioscience† http://www.forum.co.uk; George Uhe† http://www.uhe.com; Honeywill & Stein† http://www.honeywill.co.uk; Integra† http://www.integrachem.com; Jungbunzlauer http://www.jungbunzlauer.com
Sodium 4-propoxycarbonylphenoxide;

†=pharmaceutical grade

Sodium propyl 4-hydroxybenzoate; Sodium propyl p-hydroxybenzoate. See Sodium propylparaben

Sodium propylparaben
CAS 35285-69-9; EINECS/ELINCS 252-488-1 INS217; E217

Synonyms: p-Hydroxybenzoic acid, propyl ester, sodium deriv.; 4-Hydroxybenzoic acid, propyl ester, sodium salt; Propyl-4-hydroxybenzoate, sodium salt; Propyl-p-hydroxybenzoate, sodium salt; Propylparaben sodium; Propylparaben sodium salt; Sodium 4-propoxycarbonylphenoxide; Sodium propyl 4-hydroxybenzoate; Sodium propyl p-hydroxybenzoate

Definition: Sodium salt of propylparaben

Empirical: C$_{10}$H$_{11}$O$_3$ • Na

Properties: Wh. powd., odorless; sol. in water; sparingly sol. in alcohol; insol. in fixed oils; m.w. 202.00; pH 9.5-10.5 (1 in 1000)

Toxicology: LD$_{50}$ (oral, mouse) 3700 mg/kg, (IP, mouse) 490 mg/kg, (IV, mouse) 180 mg/kg; poison by IV route; mod. toxic by ing. and IP routes; may cause asthma, rashes, hyperactivity

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of Na$_2$O

Storage: Hygroscopic

Uses: Antimicrobial, preservative, bactericide, fungicide for pharmaceuticals, orals

Regulatory: FDA approved for orals; USP/NF, BP, EP compliance; Canada DSL

Manuf./Distrib.: AB R Lundberg

Trade Names: Nipasol M Sodium
Trade Names Containing: Nipacombin A; Nipasept Sodium®

Sodium pyroborate anhydrous. See Sodium borate

Sodium pyroborate decahydrate. See Sodium borate decahydrate

Sodium pyroglutamate. See Sodium PCA

Sodium pyrophosphate; n-Sodium pyrophosphate. See Tetrasodium pyrophosphate

Sodium pyrosulfate. See Sodium bisulfate
Chemical Component Cross-Reference

Sodium pyrosulphite. See Sodium metabisulphite

Sodium pyrrolidone carboxylate
Uses: Excipient and rehydrating agent in topical pharmaceuticals
Regulatory: FDA approved for topicals

Sodium DL-2-pyrrolidone-5-carboxylate; Sodium L-2-pyrrolidone-5-carboxylate. See Sodium PCA

Sodium rhodanate; Sodium rhodanide. See Sodium thiocyanate

Sodium riboflavin phosphate (INCI). See Riboflavin-5-phosphate sodium

Sodium saccharide; Sodium saccharin (INCI); Sodium saccharinate. See Saccharin sodium anhydrous

Sodium saccharin dihydrate. See Saccharin sodium dihydrate

Sodium saccharine. See Saccharin sodium anhydrous

Sodium salicylate
CAS 54-21-7; EINECS/ELINCS 200-198-0
Synonyms: 2-Hydroxybenzoic acid monosodium salt; o-Hydroxybenzoic acid sodium salt; Salicylic acid sodium salt; Sodium-o-hydroxybenzoate; Sodium salicylic acid
Definition: Sodium salt of salicylic acid
Empirical: C7H5NaO3
Formula: HOOC6H4COONa
Properties: Wh. lustrous cryst. scales or amorphous powd., odorless or faint odor, saline taste; becomes pinkish on long exposure to light; sol. in water, glycerin, oxygenated solvs.; slowly sol. in alcohol; m.w. 160.11
Toxicology: LD50 (oral, rat) 930 mg/kg, (IP, rat) 542 mg/kg, (IV, mouse) 560 mg/kg; LDL0 (subcut., rat) 800 mg/kg; harmful solid; poison by subcut. route; mod. toxic by ing., IP, IV routes; mod. toxic to humans by ing.; irritant; may cause nasal allergy; human systemic effects (toxic psychosis, respiratory stimulation, nausea, vomiting, sweating); affects CNS; experimental teratogen; mutagenic data; TSCA listed
Precaution: Combustible; incompat. with ferric salts, min. acids, iodine, lead acetate, silver nitrate, sodium phosphate powd.
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of Na2O
HMIS: Health 1, Flammability 0, Reactivity 0
Storage: Hygroscopic; light-sensitive

†=pharmaceutical grade

Uses: Mild antiseptic, preservative in pharmaceuticals, orals, sunscreen lotions; analgesic to lower fever and kill pain in animals; antipyretic drug; antirheumatic preps.
Regulatory: FDA 21CFR §175.105; FDA approved for orals; BP, EP compliance; Canada DSL

Sodium salicylic acid. See Sodium salicylate

Sodium salt of crosslinked carboxymethyl ether cellulose. See Croscarmellose sodium

Sodium silicoaluminate
CAS 1344-00-9; EINECS/ELINCS 215-684-8 INS554
Synonyms: Aluminosilicic acid, sodium salt; Aluminum sodium silicate; Silicic acid,
<table>
<thead>
<tr>
<th>Chemical Component Cross-Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>aluminum sodium salt</strong>: Sodium aluminium silicate; Sodium aluminum silicate; Sodium feldspar; Zeolite; Zeolites</td>
</tr>
</tbody>
</table>

**Definition:** Series of hydrated sodium aluminum silicates; produced by reaction of sodium silicate and kaolinite clay

| Formula: | \( \text{Na}_2\text{O} : \text{Al}_2\text{O}_3 : \text{SiO}_2 \) with mole ratio \( \approx 1:1:13.2 \) |

**Properties:** Wh. fine amorphous powd. or beads, odorless and tasteless; insol. in water, alcohol, org. solvs.; partly sol. in strong acids and alkali hydroxides @ 80-100 C; pH 6.5-10.5 (20% slurry)

**Toxicology:** Irritant to skin, eyes, mucous membranes; mutagen; TSCA listed

**Precaution:** Noncombustible

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of \( \text{Na}_2\text{O} \)

**Uses:** Visc. control agent in pharmaceuticals, orals

**Regulatory:** FDA approved for orals; Canada DSL


<table>
<thead>
<tr>
<th>Sodium starch glycolate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CAS:</strong> 9063-38-1</td>
</tr>
</tbody>
</table>

**Synonyms:** Carboxymethyl starch sodium salt; Sodium carboxymethyl starch; Sodium starch glycolate; Starch carboxymethyl ether sodium salt

**Definition:** Sodium salt of a carboxymethyl ether of starch

| Formula: | \( (\text{C}_6\text{H}_9\text{O}_4 \cdot \text{O} \cdot \text{CH}_2 \cdot \text{COONa})_n \) |

**Properties:** Wh. powd., odorless, tasteless; pract. insol. in water; m.w. 500,000 - 11,000,000; pH 3-5 or 5.5-7.5 (1 g/30 ml aq. susp.)

**Toxicology:** TSCA listed

**Storage:** Hygroscopic; Sodium starch glycolate is stable and should be stored in a well-closed container to protect it from wide variations in humidity and temperature that may cause caking

**Uses:** Disintegrant for pharmaceutical tablets prepared by either direct-compression or wet-granulation processes, in buccals, orals

**Regulatory:** FDA approved for buccals, orals; USP/NF, BP, EP compliance; Canada DSL


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**Sodium stannate**

**CAS:** 12058-66-1; EINECS/ELINCS 235-030-5

**Synonyms:** Disodium tin trioxide; Sodium tin oxide; Tin sodium oxide

**Classification:** Inorganic salt

**Definition:** Avail. commercially as the trihydrate

| Empirical: | \( \text{Na}_2\text{O}_3\text{Sn} \cdot 3\text{H}_2\text{O} \); \( \text{H}_6\text{Na}_2\text{O}_6\text{Sn} \) |

**†=pharmaceutical grade**

| Formula: | \( \text{Na}_2\text{SnO}_3 \cdot 3\text{H}_2\text{O} \) or \( \text{Na}_2\text{Sn(OH)}_6 \) |

**Properties:** Wh. to lt. tan hexagonal cryst.; sol. in water forming alkaline sol'ns.; insol. in alcohol, acetone; m.w. 212.67 (anhyd.), 266.71 (trihydrate); dec. in air; loses 3H\(_2\)O @ 140 C

**Toxicology:** LD\(_{50}\) (oral, rat) 3457 mg/kg; TLV 2 mg/m\(^3\) of air; mutagen; TSCA listed

**HMIS:** Health 1, Flammability 0, Reactivity 0

**Storage:** Hygroscopic

**Uses:** Visc. control agent in pharmaceuticals, orals

**Regulatory:** FDA approved for buccals, orals; USP/NF, BP, EP compliance; Canada DSL

Sodium stearate

Synonyms: Octadecanoic acid, sodium salt; Sodium octadecanoate; Stearic acid, sodium salt

Classification: Sat. aliphatic carboxylic acid salt

Definition: Sodium salt of stearic acid

Empirical: \( \text{C}_{18}\text{H}_{35}\text{NaO}_2 \)

Formula: \( \text{CH}_3(\text{CH}_2)_{17}\text{COONa} \)

Properties: Wh. fine powd., fatty (tallow) odor; sol. in hot water and hot alcohol; slowly sol. in cold water and cold alcohol; insol. in many org. solvs.; m.w. 306.47

Toxicology: ACGIH TLV-TWA 10 mg/m\(^3\) (stearates); LD50 (oral, rat) > 5 g/kg (@ 25%), (skin, rabbit) > 3 g/kg (@ 10-25%); LDLo (IV, dog) 10 mg/kg; poison by IV and other routes; inh. of high concs. of dust may cause coughing, mild temporary irritation; nonirritating to skin; sl. eye irritant; ing. may cause irritation, nausea, diarrhea; TSCA listed

Precaution: Combustible dust; may form explosive dust-air mixts.; incompat. with acids (reacts vigorously)

Hazardous Decomp. Prods.: Thermal decomp. prods.: CO, CO\(_2\); heated to decomp., emits toxic fumes of Na\(_2\)O

HMIS: Health 1, Flammability 1, Reactivity 0

Storage: Light-sensitive; store in cool area away from ignition sources

Uses: Emulsifier, solubilizer, stiffener in pharmaceuticals, orals, topicals, glycerol suppositories; waterproofing agent, gellant in toothpaste; to treat skin diseases


Trade Names: Explosol©; Explosol® SSG-1; Explosol® SSG-2; Explotab®; Explotab® CLV

Explotab® Low pH; Glycolys®; Glycolys® LV Low viscosity; Glycolys® Low pH Acid stable; Primojel®

Tablo®; Vivastar® M 1500; Vivastar® P; Vivastar® P 1000; Vivastar® P 3500; Vivastar® P 5000; Vivastar® PSF

Sodium starch glycolate. See Sodium starch glycolate

Sodium stearate

CAS 822-16-2; EINECS/ELINCS 212-490-5

INS470; E470a

Synonyms: Octadecanoic acid, sodium salt; Sodium octadecanoate; Stearic acid, sodium salt

Classification: Sat. aliphatic carboxylic acid salt

Definition: Sodium salt of stearic acid

†=pharmaceutical grade
Trade Names:  Kemilub ES-F
Trade Names Containing:  Imwitor® 960K

Sodium stearoyl fumarate.  See Sodium stearyl fumarate

Sodium stearoyl fumarate
CAS 25383-99-7;  EINECS/ELINCS 246-929-7  
INS481(i); E481
Synonyms:  Lactic acid, bimol. ester, stearate,  
sodium salt;  Octadecanoic acid, 2-(1-carboxyethoxy)-1-methyl-2-oxoethyl ester,  
sodium salt;  Sodium 2-(1-carboxyethoxy)-1-methyl-2-oxoethyl octadecanoate;  Sodium  
stearyl-2-lactylate;  Sodium stearoyl-2-lactylate;  SSL;  Stearic acid, ester with lactic  
acid bimol. ester, sodium salt
Definition:  Sodium salt of the stearic acid ester  
of lactyl lactate
Empirical:  C24H44O6 • Na
Formula:  CH3(CH2)16COOCHCH3COOCHCH3COONa
Properties:  Wh. or cream-colored powd.;  
caramel odor; sol. in hot oil or fat; disp. in  
warm water; m.w. 450.60; m.p. 46-52 C; HLB  
10-12; anionic; HLB 10.0-12.0
Toxicology:  TSCA listed
Hazardous Decomp. Prods.:  Heated to  
decomp., emits acrid smoke and irritating  
fumes
Uses:  Emollient, emulsifier for  
pharmaceuticals
Regulatory:  FDA 21CFR §172.846, 177.1200;  
Europe listed; UK approved; Australian  
approved; Canada DSL  
Manuf./Distrib.:  AAA Int'l.  
http://www.aaainternational.com;  ABITEC†  
http://www.abiteccorp.com;  Adumim Food  
Ingreds.  http://www.adumim.co.il;  
Ashland† http://www.ashchem.com;  Food  
†=pharmaceutical grade

Sodium stearoyl-2-lactylate.  See Sodium  
stearyl lactylate  

Sodium stearoyl fumarate
CAS 4070-80-8
Synonyms:  Sodium stearoyl fumarate
Empirical:  C22H39NaO4
Properties:  Wh. fine powd.; sl. sol. in methanol;  
pract. insol. in water; m.w. 390.54; sapon. no.  
142-146
Hazardous Decomp. Prods.:  Heated to  
decomp., emits toxic fumes of Na2O
Uses:  Lubricant for pharmaceutical tablets  
and capsules
Features:  Inert; hydrophilic
Regulatory:  FDA 21CFR §172.826; USP/NF  
compliance  
Manuf./Distrib.:  Aceto† http://www.aceto.com;  
AstraZeneca† http://www.astrazeneca-us.com;  
Boscogen† http://www.boscogen.com; CPI Chems.†  
http://www.cpichem.com; Forum  
Bioscience† http://www.forum.co.uk  
Spectrum Quality Prods.† http://www.spectrumchemical.com;  Stason  
Pharmaceuticals† http://www.stason.com;  
Univar Ltd† http://www.univar.co.uk;  
Universal Preserv-A-Chem†  
http://www.upichem.com;  Voigt Global  
ZenPharm Int'l.†  
http://www.zenpharm.com;  Zetapharm†  
http://www.zetapharm.com
Trade Names:  Pruv™

Sodium stearoyl-2-lactylate.  See Sodium  
stearyl lactylate  

Sodium stearoyl phthalate.  See Sodium  
phthalate stearyl amide  

Sodium p-styrenesulfonate
CAS 2695-37-6;  EINECS/ELINCS 220-266-3  
Synonyms:  p-Sodium styrenesulfonate
Empirical:  C8H7NaO3S
Formula:  CH:CH2C6H4SO3Na
Properties:  Wh. to pale yel. cryst. powd.,
odorless; sol. in water; insol. in aromatics, high alcohols; m.w. 206.20; sp.gr. 5.5; m.p. 330°C

Toxicology: TSCA listed

Uses: Pharmaceutical ingred.; artificial biomembranes

Manuf./Distrib.: Aceto http://www.aceto.com;
Aldrich http://www.sigma-aldrich.com;
Fluka http://www.sigma-aldrich.com;
Monomer-Polymer & Dajac Labs http://www.monomerpolymer.com;
Polysciences http://www.polysciences.com;
Tosoh http://www.tosoh.co.jp;

Trade Names: Spinomar NaSS

p-Sodium styrenesulfonate. See Sodium p-styrenesulfonate

Sodium subsulfite. See Sodium thiosulfate anhydrous

Sodium sucaryl. See Sodium cyclamate

Sodium succinate

CAS 150-90-3; EINECS/ELINCS 205-778-7

FEMA 3277

Synonyms: Butanedioic acid disodium salt; Disodium butanedioate; Disodium succinate (INCI); Succinic acid disodium salt; Succinic acid sodium salt

Classification: Carboxylic acid salt

Definition: Disodium salt of succinic acid; avail. as the anhyd. salt or hexahydrate

Empirical: C4H4Na2O4

Formula: (CH2COONa)2 • 6H2O (hexahydrate)

Properties: Hexahydrate: Wh. gran. or cryst. powd.; sol. in 5 parts water; sol. in oxygenated solvs.; insol. in alcohol; m.w. 162.05 (anhyd.), 270.15 (hexahydrate); stable in air; loses all its water @ 120°C

Toxicology: LD50 (IV, mouse) 4.5 g/kg; sl. toxic by IV route; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating vapors

HMIS: Health 1, Flammability 0, Reactivity 0

Storage: Hygroscopic; store @ R.T.

Uses: Flavor for pharmaceuticals, orals; respiratory stimulant; urinary alkalizer; diuretic; cathartic

Regulatory: FDA approved for orals; FEMA GRAS; Japan approved; Canada DSL

Manuf./Distrib.: Alfa Chem†
http://www.alfachem1.com; Am. Int'l.†
http://www.aicma.com; Asiamerica Int'l.†;

†=pharmaceutical grade

DSM Fine Chems. Austria
http://www.dsmfinechemicals.com; Fluka
http://www.sigma-aldrich.com
Integra† http://www.integrachem.com;
Lohmann http://www.lohmann-chemikalien.de; Mallinckrodt Baker†
http://www.mallbaker.com; Mitsubishi-
Kagaku Foods http://www.mfc.co.jp/; NOF
http://www.nof.co.jp
Parchem Trading http://www.parchem.com; Penta Mfg.†
http://www.pentamfg.com; Ruger†
http://www.rugerchemical.com; SAFC
Specialties http://www.safcspecialties.com; Spectrum
Quality Prods.† http://www.spectrumsolution.com
VWR Int'l.† http://www.vwrsp.com

Sodium sulfate

CAS 7757-82-6; EINECS/ELINCS 231-820-9

INS514(j); E514

Synonyms: Disodium sulfate; Glauber's salt; Salt cake; Sodium sulfate (2:1); Sodium sulfate anhydrous; Sulfuric acid, disodium salt

Classification: Inorganic salt

Empirical: Na2O4S

Formula: Na2SO4

Properties: Wh. cryst. or powd., odorless, bitter saline taste; sol. in water, glycerol; insol. in alcohol; m.w. 142.04; dens. 2.671; m.p. 888°C

Toxicology: LD50 (oral, mouse) 5989 mg/kg, (IV, mouse) 1220 mg/kg; mod. toxic by IV route; mildly toxic by ing.; irritant; questionable carcinogen, experimental tumorigen, teratogen, reproductive effects, mutagen; TSCA listed

Precaution: Violent reaction with Al

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of SOx and Na2O

HMIS: Health 1, Flammability 0, Reactivity 0

Storage: Hygroscopic; store @ R.T.

Uses: Used to reduce body water in pharmaceuticals, parenterals, ophthalmics, orals, topicals

Regulatory: FDA 21CFR §172.615, 173.310, 177.1200, 186.1797, GRAS as indirect food additive; USDA 9CFR §318.7, 381.147; Japan approved; Europe listed; UK approved; FDA approved for parenterals, ophthalmics, orals, topicals; Canada DSL; BP, EP compliance

Manuf./Distrib.: AMRESCO†
Chemical Component Cross-Reference

†=pharmaceutical grade

http://www.amresco-inc.com; Akzo Nobel
Salt http://www.akzonobelsalt.com;
Aldrich† http://www.sigma-aldrich.com;
Alfa Aesar† http://www.alfa.com; Alfa
Chem† http://www.alfachem1.com
Allan http://www.allanchem.com; Arkema
http://www.total.com/; Ashland†
http://www.amresco-inc.com
Salt http://www.akzonobelsalt.com;
Aldrich† http://www.sigma-aldrich.com;
Alfa Aesar† http://www.alfa.com
Chem† http://www.alfachem1.com
Allan http://www.allanchem.com
http://www.total.com/; Asiamerica
Int'l.†
BASF http://www.basf.com
Brenntag AG† http://www.brenntag.de;
Charkit http://www.charkit.com; Chemacon
GmbH† http://www.chemacon.de
Degussa AG http://www.degussa.com
EMD Chems.† http://www.emdchemicals.com;
FMC Foret http://www.fmccoret.com; Fluka
http://www.sigma-aldrich.com;
GFS† http://www.gfchemicals.com; General
Giles http://www.gilescorporate.com
Harcros http://www.harcroschem.com;
Hoffmann-LaRoche http://www.rocheusa.com;
ICC Ind. http://www.iccchem.com; Independent
Chem.
http://www.independentchemical.com
Indspec http://www.indspec-chem.com;
Inspec Fibres GmbH http://www.P84.com;
Integra† http://www.integrachem.com; J.M.
Kemira Kemi AB http://www.kemirakemi.com
Lohmann http://www.lohmann-
chemikalien.de; Luigi Stoppani
http://www.stoppani.it; Mallinckrodt Baker†
http://www.mallbaker.com; Morton Int'l.
http://www.morton.com;
http://www.rohmhaas.com; Noah
http://www.noahtech.com
O.C. Lugo http://www.oclugo.com;
Occidental http://www.oxychem.com
Omya Peralta http://www.omya-perialta.de;
Penta Mfg.† http://www.pentamfg.com;
Robeco http://www.robecoinc.com
Ruger† http://www.rugerchemical.com; Sal
Saskatchewan Mins.
http://www.saskatchewanminerals.com;
Sigma http://www.sigma-
aldrich.com/belgium; Sinochem Liaoning
http://www.sinochemliaoning.com

Trade Names: RxCIPIENTS® FM1000
Sodium sulfate (2:1); Sodium sulfate
anhdyrous. See Sodium sulfate
Sodium sulfhydrate. See Sodium bisulfite

Sodium sulfite
CAS 7757-83-7; EINECS/ELINCS 231-821-4
INS221; E221
Synonyms: Disodium sulfite; Exsiccated
sodium sulfite; Sodium sulfite (2:1); Sodium
sulfite anhydrous; Sulfurous acid disodium
salt; Sulfurous acid sodium salt (1:2)
Classification: Inorganic salt
Empirical: Na2O3S
Formula: Na2SO3
Properties: Wh. to tan or pink powd. or
hexagonal crystals, odorless, salty sulfurous
taste; sol. in 3.2 parts water; sol. in glycerol;
pract. insol. in alcohol; m.w. 126.04; dens.
2.633 (15.4 C); b.p. dec.; pH ≈ 9
Toxicology: LD50 (oral, mouse) 820 mg/kg, (IP,
mouse) 950 mg/kg, (IV, rat) 115 mg/kg
poison by IV, subcut. routes; mod. toxic by
ing., IP routes; may provoke asthma;
destroys vitamin B1; human mutagenic
data; TSCA listed
Precaution: Reducing agent
Hazardous Decomp. Prods.: Heated to
decomp., emits very toxic fumes of Na2O
and SOx
HMIS: Health 2, Flammability 0, Reactivity 1
Storage: Moisture-sensitive
Uses: Antioxidant, reducing agent, antiseptic,
preservative, topical antifungal agent in
pharmaceuticals, injectables, inhalants,
oral, topical, primarily in
sympathomimetic and aminoglycoside
medications
Use Level: 0.3-0.75%
(sympathomimetic/aminoglycoside
medications)
Regulatory: FDA 21CFR §73.85, 172.615,
173.310, 177.1200, 182.3798, GRAS; Japan
approved (0.03-5 g/kg max. residual as sulfur
dioxide); Europe listed; FDA approved for
injectables, inhalants, oral, topical; NF, BP,
EP compliance; Canada DSL
Chemical Component Cross-Reference

Chemical Component Cross-Reference

Manuf./Distrib.: AMRESCO†
http://www.amresco-inc.com; Aldrich†
http://www.sigma-aldrich.com; Ashland†
http://www.ashchem.com; BASF
http://www.basf.com; BCH Brühl
http://www.bch-bruehl.de
Biddle Sawyer†
http://www.biddlesawyer.com; Brenntag
AG† http://www.brenntag.de; Chemacon
GmbH† http://www.chemacon.de; EMD
Esseco SpA http://www.esseco.it
FMC Foret http://www.fmcforet.com; Fluka
http://www.sigma-aldrich.com; General
Harcros http://www.harcroschem.com;
Independent Chem.
http://www.independentchemical.com
Indspec http://www.indspec-chem.com;
Integra† http://www.integrachem.com;
Mallinckrodt Baker†
http://www.nissanchem.co.jp; O.C.
Lugo http://www.oclugo.com
Penta Mfg.† http://www.pentamfg.com;
Rhodia http://www.rhodia.com; Ruger†
http://www.rugerchemical.com; Sal Chem.
http://www.salchem.com; Sigma
http://www.sigma-aldrich.com; General
Chem.
http://www.sigma-aldrich.com/belgium
Southern Ionics
http://www.southernionics.com; Spectrum
Quality Prods.†
http://www.spectrumchemical.com;
Thomas Scientific†
http://www.thomassci.com; Universal
VWR Int’l.† http://www.vwrsp.com
Vivion http://www.vivioninc.com; Voigt
Blythe Ltd† http://www.wm-blythe.co.uk

Trade Names: Sulftech®

Sodium sulfite (2:1); Sodium sulfite anhydrous.
See Sodium sulfite
Sodium sulfocyanate; Sodium sulfocyanide.
See Sodium thiocyanate
Sodium sulfoxylate. See Sodium hydrosulfite
Sodium sulfoxylate formaldehyde. See Sodium formaldehyde sulfoxylate

Sodium tallowate
CAS 8052-48-0; EINECS/ELINCS 232-491-4
Synonyms: Fatty acids, tallow, sodium salts; Tallow, sodium salt
Definition: Sodium salt of tallow acid

Toxicology: TSCA listed
Uses: Surfactant, emulsifier in pharmaceuticals, topicals
Regulatory: FDA 21CFR §175.105, 175.320, 176.170, 176.200, 177.2600, 177.2800, 178.3910; FDA approved for topicals; Canada DSL

Sodium tartrate
CAS 868-18-8 (anhyd.); EINECS/ELINCS 212-773-3
INS335(ii)
Synonyms: Bisodium tartrate; Disodium tartrate; Disodium L-(+)-tartrate; Sal tartar; L-Tartaric acid disodium salt
Definition: Disodium salt of L(+)-tartaric acid
Empirical: C4H4Na2O6
Properties: Colorless transparent cryst., odorless; sol. in water; insol. in alcohol; m.w. 194.05; dens. 1.80 kg/l
Toxicology: TDLo (oral, rabbit) 5290 mg/kg; mod. toxic by ingestion; TSCA listed
Hazardous Decomp. Prods.: Heated to decom., emits acrid smoke and irritating fumes
Uses: Pharmaceuticals (parenterals)
Regulatory: NF, FDA 21CFR §133.169, 133.173, 133.179, 150.141, 150.161, 184.1801, GRAS; USDA 9CFR §318.7; Europe listed; UK approved; FDA approved for parenterals; Canada DSL
Manuf./Distrib.: AB R Lundberg
http://www.norfoods.se/lundberg; Aldrich†
http://www.sigma-aldrich.com; Degussa AG/Health & Nutrition; George Uhe
http://www.independentchemical.com
Integra† http://www.integrachem.com;
Kimson; Lohmann http://www.lohmann-
chemikalien.de; Mallinckrodt Baker†
http://www.mallbaker.com; Novarina Srl
http://www.novarina.it
Shamrock Tech.
http://www.shamrocktechnologies.com

Sodium/TEA-undecenoyl collagen amino acids
Synonyms: Sodium/TEA-undecylenoyl animal collagen amino acids
Definition: Mixture of sodium and triethanolamine salts of the condensation prod. of undecylenic acid chloride and collagen amino acids
Properties: Anionic
Uses: Foaming lipoprotein, fungistat for
Chemical Component Cross-Reference

antidandruff shampoos

Sodium/TEA-undecylenoyl animal collagen amino acids. See Sodium/TEA-undecenoyl collagen amino acids

Sodium tetraborate anhydrous. See Sodium borate

Sodium tetraborate decahydrate. See Sodium borate decahydrate

Sodium tetradecene sulfonate. See Sodium C14-16 olefin sulfonate

Sodium tetradecyl sulfate. See Sodium myristyl sulfate

Sodium 2-[2-[4-[(1,1,3,3-tetramethylbutyl)phenoxy] ethoxy] ethoxy] ethanesulfonate. See Sodium octoxynol-2 ethane sulfonate

Sodium tetrapolyphosphate. See Sodium metaphosphate

Sodium tetrapropy phosphosphate. See Tetrasodium pyrophosphate

Sodium thiocyanate
CAS 540-72-7; EINECS/ELINCS 208-754-4

Synonyms: Sodium isothiocyanate; Sodium rhodanate; Sodium rhodanide; Sodium sulfocyanate; Sodium sulfocyanide; Sodium thiocyanide; Thiocyanate sodium; Thiocyanic acid, sodium salt

Classification: Inorganic compd.

Empirical: CNNaS

Formula: NaASCN

Properties: Colorless cryst.; sol. in water, alcohol, acetone; m.w. 81.07; m.p. 287 C

Toxicology: LD50 (oral, rat) 764 mg/kg, (IP, rat), 540 mg/kg, (IV, mouse) 484 mg/kg; poison by ing., IV, subcut. routes; mod. toxic by IP route; irritant; ing. of large doses may cause vomiting, convulsions; chronic exposure causes weakness, confusion, diarrhea, skin rashes; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of NOx, SOx, Na2O

Storage: Hygroscopic, deliq.; light-sensitive

Uses: Intermediate for pharmaceuticals; medicine (antihypertensive)

Regulatory: FDA 21 CFR §175.105; Canada DSL Manuf./Distrib.: AMRESCO†

http://www.amresco-inc.com; Akzo Nobel bv http://www2.akzonobel.nl/nl/home/
Aldrich† http://www.sigma-aldrich.com;
Alemark http://www.amsyn.com; Alfa Chem† http://www.alfachem1.com
Allan http://www.allanchem.com; Allchem Ind. http://www.allchem.com; Am. Int'l.†

†=pharmaceutical grade

http://www.alicma.com; Amber Syn.
http://www.amcs.com; Austin
http://www.austinchemical.com
Barker Ind. http://www.barkerind.com;
http://www.degussa.com; EMD Chems.
http://www.emdchemicals.com
Fluka http://www.sigma-aldrich.com; GFS†
http://www.gfschemicals.com; Integra†
http://www.integrachem.com; Mallinckrodt Baker† http://www.mallbaker.com;
Pechiney Chems. Div.
http://www.pechney-chemicals.com
Penta Mfg.† http://www.pentamfg.com;
Richman†
http://www.richmanchemical.com; Sigma
http://www.sigma-aldrich.com/belgium;
Spectrum Quality Prods.
http://www.spectrumchemical.com;
Thomas Scientific†
http://www.thomassci.com
Toyo Kasei Kogyo http://www.toykasei-kogyo.co.jp; VWR Int'l.†
http://www.vwrsp.com; Westco
http://www.wescochemicals.com

Sodium thiocyanide. See Sodium thiocyanate

Sodium thioglycolate
CAS 367-51-1; EINECS/ELINCS 206-696-4

Synonyms: Acetic acid, mercapto-, monosodium salt; Mercaptoacetic acid, sodium salt; NaTG; Sodium mercaptoacetate; Sodium thioglycollate; Thioglycolate sodium; Thioglycolic acid, sodium salt

Definition: Sodium salt of thioglycolic acid

Empirical: C2H3O2S • Na

Formula: HSCH2COONa

Properties: Wh. cryst. powd.; discolors on exposure to air or iron; mild char. odor; sol. in water; sl. sol. in alcohol; m.w. 114.10; b.p. > 200 C; pH 6.5-8.0

Toxicology: LD50 (oral, rat) 126 mg/kg, (IV, mouse) 504 mg/kg, (IV, rat) 540 mg/kg, (IV, mouse) 484 mg/kg; poison by IV, IP routes; mod. toxic by ing.; irritating to eyes, skin, mucous membranes, upper respiratory tract; may be toxic by skin absorption; may be harmful by inh.; may cause somnolence, tremor, convulsions, muscle weakness, coma, dyspnea, hypermotility, diarrhea, nausea,
Chemical Component Cross-Reference

vomiting; a death has been reported from absorp. of decomp. prods. from use in hair permanent waves; TSCA listed
Precaution: Combustible; incompat. with strong oxidizing agents, strong acids; oxygen-sensitive
Hazardous Decomp. Prods.: CO, CO₂; on decomp., yields toxic hydrogen sulfide; when heated to decomp., emits toxic fumes of SOₓ and Na₂O; emits toxic fumes under fire conditions
HMIS: Health 2, Flammability 1, Reactivity 1
Storage: Hygroscopic; refrigerate; freeze; store under nitrogen; keep tightly closed; protect from moisture; stench
Uses: Reducing agent in pharmaceuticals; bacteriology; microbial fermentation nutrient; depilatory
Regulatory: Canada DSL
Manuf./Distrib.: Acros Org.
http://www.spectrumchemical.com
TCI Am. http://www.tciamerica.com
Sodium thioglycollate. See Sodium thioglycollate
Sodium thiosulfate. See Sodium thiosulfate anhydrous
Sodium thiosulfate anhydrous
CAS 7772-98-7; EINECS/ELINCS 231-867-5
INS539
Synonyms: Disodium thiosulfate; Hypo; Sodium hyposulfite; Sodium sulfite; Sodium thiosulfate; Thiosulfuric acid disodium salt
Classification: Inorganic salt
Definition: Avail. as the anhyd. or pentahydrate salts
Empirical: Na₂O₃S₂
Formula: Na₂S₂O₃
Properties: Colorless cryst. or cryst. powd.; sol. in water; pract. insol. in alcohol; m.w. 158.11; dens. 1.667; dec. on heating
Toxicology: LD₅₀ (IP, mouse) 5200 mg/kg;
†=pharmaceutical grade
LDLo (dermal, rabbit) 4 g/kg; mod. toxic by subcut. route; mildly irritating to respiratory tract and skin (may cause dermatitis); TSCA listed
Precaution: Incompat. with oxidizers, metal nitrates, sodium nitrite; slowly dec. at R.T. and more rapidly in presence of light and heat
Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of Na₂O and SOₓ
HMIS: Health 1, Flammability 0, Reactivity 1
Storage: Hygroscopic; deliq. in moist air
Uses: Antioxidant in pharmaceuticals, intravenous, ophthalmics, orals; antidote for cyanide poisoning
Regulatory: FDA 21CFR §184.1807, GRAS; FDA approved for intravenous, ophthalmics, orals; USP/NF compliance; Canada DSL
Sodium tin oxide. See Sodium stannate
Sodium trideceth sulfate
CAS 25446-78-0 (n = 3); 66161-58-8 (n = 4);
EINECS/ELINCS 246-985-2
Synonyms: Ethanol, 2-(2-(tridecyloxy)ethoxy)ethoxy)-, hydrogen
Chemical Component Cross-Reference

**Sulfate, sodium salt; Sodium POE tridecyl sulfate; Sodium tridecyl ether sulfate; Sodium 2-(2-(2-(tridecyloxy)ethoxy)ethoxy)ethyl sulfate**

**Definition:** Sodium salt of sulfated ethoxylated tridecyl alcohol

**Formula:** $C_{13}H_{27}(OCH_2CH_2)_nOSO_3Na$, avg. n = 1-4

**Properties:** M.w. 435.58; anionic

**Toxicology:** TSCA listed

**Uses:** Surfactant, detergent, wetting agent, emulsifier, foaming agent for pharmaceuticals

**Regulatory:** FDA 21CFR §175.105; Canada DSL

**Manuf./Distrib.:** Cosmetic Supplies USA

**Trade Names:** CEDEPAL® TD-407; CEDEPAL® TDS 484

Sodium tridecyl ether sulfate; Sodium 2-(2-(2-(tridecyloxy)ethoxy)ethoxy)ethyl sulfate.

See Sodium trideceth sulfate

Sodium trimetaphosphate

**CAS 7785-84-4; EINECS/ELINCS 232-088-3**

**Synonyms:** Metaphosphoric acid trisodium salt; Trimetaphosphate sodium

**Classification:** Inorganic salt

**Empirical:** $O_9P_3 \cdot 3Na$

**Formula:** $(NaPO_3)_3$

**Properties:** Wh. cryst. or wh. cryst. powd.; sol. in water; m.w. 305.92

**Toxicology:** LD$_{50}$ (oral, mouse) > 100 mg/kg, (IP, rat) 3650 mg/kg; LDLo (IV, rabbit) 240 mg/kg; poison by IV route; mod. toxic by IP route; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of PO$_x$ and Na$_2$O

**Uses:** Buffer, chelating agent in pharmaceuticals, intravenous

**Regulatory:** FDA 21CFR §172.892; GRAS; FDA approved for intravenous; Canada DSL

**Manuf./Distrib.:** Alfa Chem†

**Trade Names:** CEDEPAL® TD-407; CEDEPAL® TDS 484

Sodium undec-10-enoate. See Sodium undecylenate

Sodium undecylenate

**CAS 3398-33-2; EINECS/ELINCS 222-264-8**

**Synonyms:** Sodium undec-10-enoate; 10-Undecenoic acid, sodium salt

**Definition:** Sodium salt of undecylenic acid

**Empirical:** $C_{11}H_{20}O_2 \cdot Na$

**Formula:** $CH_2=CH(CH_2)_{8}COONa$

**Properties:** Wh. powd., sweaty odor; limited sol. in most org. solvs.; sol. in water; dec. above 200 C

**Toxicology:** No known toxicity; irritant; TSCA listed

**NFPA:** Health 1, Flammability 0, Reactivity 0

**Uses:** Solubilizer in pharmaceuticals, topicals

**Regulatory:** FDA 21CFR §172.892; GRAS; FDA approved for topicals; Canada DSL

**Manuf./Distrib.:** Aldrich†

**Trade Names:** CEDEPAL® TD-407; CEDEPAL® TDS 484

Sodium vinylbenzenesulfonate, polymer with divinylbenzene. See Sulfonated divinylbenzene/styrene copolymer

Sodium xylenesulfonate

**CAS 1300-72-7; EINECS/ELINCS 215-090-9**

**Synonyms:** Dimethylbenzene sulfonic acid, sodium salt; Sodium dimethylbenzenesulfonate; SXS; Xylenesulfonic acid, sodium salt

**Definition:** Sodium salt of ring sulfonated mixed xylene isomers

**Empirical:** $C_8H_9O_3S \cdot Na$

**Formula:** $(CH_3)_{2}C_6H_3SO_3Na$

**Properties:** Lt. yel. liq.; m.w. 208.21; sp.gr. 1.23; m.p. 27 C; b.p. 157 C; pH 7-10 (3%); anionic

**Toxicology:** No known toxicity; irritant; TSCA listed

**NFPA:** Health 1, Flammability 0, Reactivity 0

**Uses:** Solubilizer in pharmaceuticals, topicals

**Regulatory:** FDA 21CFR §172.892; GRAS; FDA approved for topicals; Canada DSL

**Manuf./Distrib.:** Alfa Chem†

**Trade Names:** CEDEPAL® TD-407; CEDEPAL® TDS 484

Solanum tuberosum. See Potato (Solanum tuberosum) starch

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† = pharmaceutical grade
Chemical Component Cross-Reference

Soluble animal collagen. See Soluble collagen

Soluble collagen
Synonyms: Soluble animal collagen; Soluble native collagen
Definition: Nonhydrolyzed, native protein derived from connective tissue of young animals; consists of a mixt. of precursors of mature collagen
Properties: M.w. 285,000
Uses: Base in medicinal soaps
Manuf./Distrib.: Cognis/Care Chems.; Fluka

Soluble fluorescein. See D&C Yellow No. 8; Fluorescein sodium

Soluble gluside. See Saccharin sodium anhydrous

Soluble guncotton. See Nitrocellulose

Soluble indigo. See FD&C Blue No. 2; Acid blue 74

Soluble native collagen. See Soluble collagen

Soluble saccharin. See Saccharin sodium anhydrous

Soluble sulfur. See Sulfur

Solum diatomeae. See Diatomaceous earth

Solvent ether. See Ethyl ether

Solvent green 3
CAS 128-80-3; EINECS/ELINCS 204-909-5
Synonyms: 9,10-Anthracenedione, 1,4-bis [[4-methylphenyl] amino]--; 1,4-Bis [[4-methylphenyl]-amino]-9,10-anthracenedione; 1,4-Bis (p-tolylamino) anthraquinone; CI 61565; D&C Green No. 6; 1,4-Di-p-toluidinoanthraquinone; Green no. 2; Quinizarin green SS
Classification: Anthraquinone color
Empirical: C28H22N2O2
Properties: Dk. green cryst. or powd.; sol. in C6H6 or acids; insol. in water, ethanol; m.w. 418.50
Toxicology: LD50 (oral, rat) 3660 mg/kg; mod. toxic by ing.; eye irritant; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx
Uses: Colorant for external pharmaceuticals
Regulatory: D&C Green No. 6; FDA 21CFR §74.1206, 74.2206, 82.1206; FDA approved for topicals; permanently listed
Manuf./Distrib.: Aldrich† http://www.sigma-aldrich.com; Anar Int’l.

Solvent naphtha. See VM&P naphtha

Solvent naphtha (peroleum), medium heavy, aliphatic hydrocarbons. See Naphtha, medium aliphatic

Solvent naphtha (petroleum), light aliphatic. See Naphtha, light aliphatic

Solvent naphtha (petroleum), medium aliphatic. See Naphtha, medium aliphatic

Solvent red 23
CAS 85-86-9; EINECS/ELINCS 201-638-4
Synonyms: Benzeneazobenzeneazo-β-naphthol; CI 26100; D&C Red No. 17; Oil red; Oil scarlet; 1-[[(4-Phenylazo) phenyl] azo]-2-naphthalenol; 1-((p-Phenylazo) phenyl) azo-2-naphthol; Sudan ill; Tetrazobenzene-β-naphthol; Toney red
Classification: Diazo color
Empirical: C22H16N4O
Properties: Dk. red cryst. powd.; sol. in alcohols, ethanol, benzene; insol. in water; m.w. 352.40; m.p. 199 C (dec.)
Toxicology: LDLo (IP, rabbit) 250 mg/kg, (subcut., rabbit) 1000 mg/kg; poison by IP route; mod. toxic by subcut. and intrapleural routes; questionable carcinogen; mutagenic data; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx
Uses: Colorant for external pharmaceuticals
Regulatory: D&C Red No. 17; FDA 21CFR §74.1317, 74.2317, 82.1317
Manuf./Distrib.: Aldrich† http://www.sigma-aldrich.com; Anar Int’l.

Solvent yellow 6
CAS 144-62-7; EINECS/ELINCS 201-639-2
Synonyms: Benzeneazobenzeneazo-α-naphthol; CI 10002; D&C Yellow No. 8; Oil yellow; Oil scarlet; 1-((p-Phenylazo) phenyl) azo-2-naphthol; Sudan y; TSCA listed
Classification: Diazo color
Empirical: C22H16N4O
Properties: Dk. red cryst. powd.; sol. in alcohols, ethanol, benzene; insol. in water; m.w. 352.40; m.p. 199 C (dec.)
Toxicology: LDLo (IP, rabbit) 250 mg/kg, (subcut., rabbit) 1000 mg/kg; poison by IP route; mod. toxic by subcut. and intrapleural routes; questionable carcinogen; mutagenic data; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx
Uses: Colorant for external pharmaceuticals
Regulatory: D&C Red No. 17; FDA 21CFR §74.1317, 74.2317, 82.1317
Manuf./Distrib.: Aldrich† http://www.sigma-aldrich.com; Anar Int’l.

Solvent blue 7
CAS 128-74-6; EINECS/ELINCS 204-908-0
Synonyms: 9,10-Anthracenedione, 1,4-bis [[4-phenylamino)phenyl] azo]-2-naphthalenol; Benzeneazobenzeneazo-β-naphthol; CI 26100; D&C Blue No. 2; Oil blue; Oil scarlet; 1-((p-Phenylazo) phenyl) azo-2-naphthol; Sudan ill; Tetrazobenzene-β-naphthol; Toney blue
Classification: Diazo color
Empirical: C22H16N4O
Properties: Dk. red cryst. powd.; sol. in alcohols, ethanol, benzene; insol. in water; m.w. 352.40; m.p. 199 C (dec.)
Toxicology: LDLo (IP, rabbit) 250 mg/kg, (subcut., rabbit) 1000 mg/kg; poison by IP route; mod. toxic by subcut. and intrapleural routes; questionable carcinogen; mutagenic data; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx
Uses: Colorant for external pharmaceuticals
Regulatory: D&C Red No. 17; FDA 21CFR §74.1317, 74.2317, 82.1317
Manuf./Distrib.: Aldrich† http://www.sigma-aldrich.com; Anar Int’l.

†=pharmaceutical grade
### Chemical Component Cross-Reference

- **Solvent red 43**: See D&C Red No. 21
- **Solvent red 48**: See D&C Red No. 27
- **Solvent red 72**: See D&C Orange No. 5
- **Solvent red 73**: See D&C Orange No. 10
- **Solvent red 140**: See Acid red 51
- **Solvent violet 13**: See CI 60725; D&C Violet No. 2; Disperse blue 72
- **Solvent yellow 33**: See CI 47000; D&C Yellow No. 11
- **Solvent yellow 94**: See D&C Yellow No. 7; Fluorescein

### Sorbent-20

**CAS**: 53694-15-8 (generic)

**Synonyms**: PEG-20 sorbitol ether; PEG 1000 sorbitol ether; POE (20) sorbitol ether

**Definition**: PEG ether of sorbitol with an avg. 20 moles EO

**Properties**: Nonionic

**Uses**: Emulsifier, humectant for pharmaceuticals

**Trade Names**: Ethosperse® SL-20

### Sorbent-30 Tetraoleate

See PEG-30 sorbitan tetraoleate

### Sorbent-40 Tetraoleate

See PEG-40 sorbitan tetraoleate

### Sorbent-60 Tetraoleate

See PEG-60 sorbitan tetraoleate

### Sorbic acid

**CAS**: 110-44-1; 22500-92-1; EINECS/ELINCS 203-768-7

**INS**: 200; E200

**Synonyms**: (2-Butenylidene) acetic acid; Crotlyliden acetic acid; Hexadienic acid; Hexadienoic acid; 2,4-Hexadienoic acid; 1,3-Pentadiene-1-carboxylic acid; 2-Propenylacrylic acid

**Classification**: Organic acid; unsaturated aliphatic carboxylic acid

**Definition**: Commercial prod. is the trans,trans-isomer

**Empirical**: C\textsubscript{6}H\textsubscript{8}O\textsubscript{2}

**Formula**: CH\textsubscript{3}CH=CHCH=CHCOOH

**Properties**: Colorless needles or wh. powd., char. odor, almost tasteless; very sol. in alcohol, ether; sol. in acetone, acetic acid, hot water, oxygenated solvs.; mod. sol. in propylene glycol, ethyl ether; sl. sol. in oils, glycerol, cyclohexane, CCl\textsubscript{4}; m.w. 112.14; m.p. 134.5 C; b.p. 228 C (dec.); flash pt. (OC) 126-130 C; weakly acidic

**Toxicology**: LD\textsubscript{50} (oral, rat) 7360 mg/kg, (IP, mouse) 2820 mg/kg, (subcut., mouse) 2820 mg/kg; mod. toxic by IP, subcut. routes; mildly toxic by ing.: ing. of very lg. dose may cause nausea; severe human skin irritant; eye irritant; questionable carcinogen; experimental tumorigen, reproductive effects; mutagenic data; TSCA listed

**Precaution**: Combustible exposed to heat or flame; reactive with oxidizers

**Hazardous Decomp. Prods.**: CO, CO\textsubscript{2}; heated to decom., emits acrid smoke, irritating fumes

**HMIS**: Health 1, Flammability 0, Reactivity 0

**Storage**: Light-sensitive

**Uses**: Antimicrobial, preservative, antibacterial, antifungal for pharmaceuticals, orals, ophthalmics, topical dermatologicals incl. corticosteroid creams

**Use Level**: 0.05-0.5%; 0.1-0.13% (ophthalmics); 0.3% (oral enzyme prod., gelatin capsules)

**Regulatory**: FDA 21CFR §133.118, 133.123, 133.124, 133.169, 133.173, 133.179, 133.187, 146.115, 146.152, 146.154, 150.141, 150.161, 166.110, 172.872, 177.2260, 181.22, 181.23, 182.3089, GRAS; USDA 9CFR §318.7; Canada DSL; BATF 27CFR §240.1051; USA CIR approved, EPA reg.; JSCI approved 0.5% max.; Europe listed 0.6% max.; Japan approved with limitations; Europe listed; UK approved; FDA approved for orals, topicals; USP/NF, BP, EP compliance

**Trade Names Containing:** Dow Corning® 7-9245; Dow Corning® Q7-2587; Dow Corning® Medical Antifoam AF Emulsion; Vitamin B₁₂ 0.1% SD

**Sorbic acid ethyl ester.** See Ethyl sorbate

**Sorbic acid potassium salt.** See Potassium sorbate

**Sorbide nitrate; Sorbidinontrate.** See Isosorbide dinitrate

**Sorbimacrocolaurate 300.** See Polysorbate 20

**Sorbimacrocololeate 300.** See Polysorbate 80

**Sorbimacrocol palmitate 300.** See Polysorbate 40

**Sorbimacrocol stearate 300.** See Polysorbate 60

**Sorbimacrocoltrioleate 300.** See Polysorbate 85

**Sorbimacrocoltristearate 300.** See Polysorbate 65

**Sorbit.** See Sorbitol

**Sorbitan caprylate**

*Definition:* Monoester of caprylic acid and hexitol anhydrides derived from sorbitol

*Empirical:* \( C_{14}H_{26}O_6 \)

*Properties:* Nonionic

*Uses:* Emulsifier for pharmaceuticals

*Trade Names:* Nissan Nonion CP-08R

**Sorbitan dioctadecanoate.** See Sorbitan distearate
Chemical Component Cross-Reference

Sorbitan distearate
CAS 36521-89-8; EINECS/ELINCS 247-707-2
Synonyms: Anhydrosorbitol distearate; Sorbitan dioctadecanoate
Definition: Diester of stearic acid and the hexitol anhydrides derived from sorbitol
Properties: Nonionic
Uses: Emollient
Regulatory: FDA 21CFR §175.320
Trade Names: Emasol S-20

Sorbitan, esters, monododecanoate. See Sorbitan laurate
Sorbitan, esters, monohexadecanoate. See Sorbitan palmitate
Sorbitan, esters, monoocotadecanoate. See Sorbitan stearate
Sorbitan isoctadecanoate. See Sorbitan isostearate

Sorbitan isostearate
CAS 54392-26-6; 71902-01-7; EINECS/ELINCS 276-171-2
Synonyms: 1,4-Anhydro-D-glucitol, 6-isooctadecanoate; Anhydrosorbitol monoisostearate; Sorbitan monoisooctadecanoate
Definition: Monoester of isostearic acid and hexitol anhydrides derived from sorbitol
Empirical: C24H46O6
Properties: M.w. 346.52; nonionic
Toxicology: Experimental neoplastigen
Uses: Emulsifier, solubilizer, wetting agent, pigment dispersant for pharmaceuticals
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk; A.P. Chems. Ltd
http://www.chemical.com; Aldrich
http://www.sigma-aldrich.com; Ashland
http://www.ashchem.com; Fluka
http://www.sigma-aldrich.com; Jeen Int’l
http://www.jeen.com; Lonza
http://www.lonza.com; Mosselman NV
http://www.mosselman.be; Protameen
http://www.protameen.com; Rhodia HPCII
http://www.rhodia-hpcii.com
Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality
Prods.†
http://www.spectrumchemical.com;
Universal Preserv-A-Chem
http://www.upichem.com
Trade Names: Ablunol S-20; Arlacer® 20; Crill 1; Crill 1 NF; Dehymuls® SML
Glycomul® L K; Kosteran-L/1; Lumisorb™ SML K; Montane® 20; Nissan Nonion LP-20R, LP-20RS
Rheodol SP-L10; Rheodol Super SP-L10;
Sabosorb ML; Sorirol L; Sorgen 90
Span® 20 Pharma

Sorbitan monododecanoate. See Sorbitan laurate
Sorbitan, monododecanoate, poly(oxy-1,2-ethanediyl) derivs. See Polysorbate 20
Sorbitan, monohexadecanoate. See Sorbitan sesquisoostearate
Sorbitan, monohexadecanoate, poly(oxy-1,2-ethanediyl) derivs. See Polysorbate 40
Sorbitan monoisooctadecanoate. See Sorbitan isostearate

†=pharmaceutical grade
330-358; flash pt. > 230 F; ref. index 1.4740; nonionic
Toxicology: LD50 (oral, rat) 33,600 mg/kg;
TDLo (skin, mouse, 24 wk intermittent) 1350 mg/kg; sl. toxic by ing.; questionable carcinogen; experimental neoplastigen,
reproductive effects; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Emulsifier, solubilizer, wetting agent, surfactant in pharmaceuticals, ophthalmics, orals; emollient for skin care prod.
Regulatory: FDA 21CFR §175.320, 178.3400;
Europe listed; UK approved; FDA approved for ophthalmics, orals; USP/NF, BP, EP compliance; Canada DSL
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk; A.P. Chems. Ltd
http://www.chemical.com; Aldrich
http://www.sigma-aldrich.com; Ashland
http://www.ashchem.com; Fluka
http://www.sigma-aldrich.com; Jeen Int’l
http://www.jeen.com; Lonza
http://www.lonza.com; Mosselman NV
http://www.mosselman.be; Protameen
http://www.protameen.com; Rhodia HPCII
http://www.rhodia-hpcii.com
Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality
Prods.†
http://www.spectrumchemical.com;
Universal Preserv-A-Chem
http://www.upichem.com
Trade Names: Ablunol S-20; Arlacer® 20; Crill 1; Crill 1 NF; Dehymuls® SML
Glycomul® L K; Kosteran-L/1; Lumisorb™ SML K; Montane® 20; Nissan Nonion LP-20R, LP-20RS
Rheodol SP-L10; Rheodol Super SP-L10;
Sabosorb ML; Sorirol L; Sorgen 90
Span® 20 Pharma

Sorbitan laurate
CAS 1338-39-2; 5959-89-7; EINECS/ELINCS 215-663-3; 227-729-9
INS493; E493
Synonyms: Anhydrosorbitol monolaurate; Sorbitan, esters, monododecanoate; Sorbitan monododecanoate; Sorbitan monolaurate
Definition: Monoester of lauric acid and hexitol anhydrides derived from sorbitol
Empirical: C18H34O6
Properties: Yel. to amber oily liq., bland char. odor; sol. in methanol, alcohol, min. oil; sl. sol. in cottonseed oil, ethyl acetate; insol. in water;
m.w. 346.47; dens. 1.032; m.p. 18 C; HLB 8.6; acid no. 8 max.; sapon. no. 158-170; hyd. no.

Handbook of Pharmaceutical Additives, Third Edition 2092
Sorbitan monolaurate. See Sorbitan laurate
Sorbitan mono-octadecanoate. See Sorbitan stearate
Sorbitan, mono-octadecanoate, poly (oxy-1,2-ethanediyl) derivs. See Polysorbate 60
Sorbitan mono-9-octadecenoate; Sorbitan monooleate; Sorbitan monooleic acid ester. See Sorbitan oleate
Sorbitan monopalmitate. See Sorbitan palmitate
Sorbitan monostearate. See Sorbitan stearate
Sorbitan myristate
Definition: Monoester of myristic acid and hexitol anhydrides derived from sorbitol
Properties: Nonionic
Uses: Emulsifier, emulsion stabilizer, thickener for pharmaceuticals
Trade Names: Nissan Nonion MP-30R

Sorbitan, 9-octadecenoate (2:3). See Sorbitan sesquioleate

Sorbitan oleate
CAS 1338-43-8; 5938-38-5; EINECS/ELINCS 215-665-4
INS494; E494
Synonyms: Anhydrosorbitol monooleate; Monodehydrosorbitol monooleate; SMO; Sorbitan mono-9-octadecenoate; Sorbitan monooleate; Sorbitan monooleic acid ester
Definition: Monoester of oleic acid and hexitol anhydrides derived from sorbitol
Empirical: C24H44O6
Properties: Yel. to amber visc. liq., char. bland odor; misc. with min. and veg. oils; sl. sol. in ether; insol. in water, acetone, propylene glycol; m.w. 428.62; dens. 0.986; HLB 4.3; acid no. 8 max.; iodine no. 62-76; sapon. no. 145-160; hyd. no. 193-210; flash pt. > 230 F; ref. index 1.4800; nonionic
Toxicology: Skin irritant; human mutagenic data; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Emulsifier, solubilizer, wetting agent, surfactant in pharmaceuticals, orals, topicals
Regulatory: FDA 21CFR §73.1001, 173.75, 175.105, 175.320, 178.3400; Europe listed; UK approved; FDA approved for orals, topicals; USP/NF, BP, EP compliance; Canada DSL
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk; A.P. Chems. Ltd

Sorbitan palmitate
CAS 26266-57-9; EINECS/ELINCS 247-568-8
INS495; E495
Synonyms: 1,4-Anhydro-D-glucitol, 6-hexadecanoate; Monopalmitate sorbitan; Sorbitan, esters, monohexadecanoate; Sorbitan monopalmitate
Definition: Partial ester of palmitic acid with sorbitol mono- and di-anhydrides
Empirical: C22H44O6
Properties: Tan gran. waxy solid, faint tallow-like odor; sol. in ethyl acetate, warm abs. alcohol; sol. hazy in warm peanut or min. oil; insol. in water; m.w. 402.57; dens. 0.989; HLB 6.7; acid no. 8 max.; iodine no. 62-76; sapon. no. 145-160; hyd. no. 193-210; flash pt. > 230 F; ref. index 1.4700; nonionic
Chemical Component Cross-Reference

†=pharmaceutical grade

Toxicology: No known toxicity; skin and eye irritant; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating vapors
Uses: Surfactant, emulsifier, solubilizer, wetting agent in pharmaceuticals, intramuscular injectables
Regulatory: FDA 21CFR §175.320, 178.3400; Europe listed; UK approved; FDA approved for intramuscular injectables; USP/NF, BP, EP compliance; Canada DSL
Manuf./Distrib.: A&E Connock

Toxicology: Skin and eye irritant; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating vapors
Uses: W/o emulsifier, wetting agent, pigment dispersant, lubricant, coupling agent, solubilizer, antifoam in pharmaceuticals, topicals
Regulatory: FDA 21CFR §175.320; FDA approved for topicals; NF, BP, EP compliance; Canada DSL
Manuf./Distrib.: A&E Connock

Trade Names: Arlace® 83V Pharma; Crill 43; Dehymuls® SSO; Emasol O-15R; Montane® 83VG
Nissan Nonion OP-83RAT; Nofable SO-902; Nofable SO-992; Rheodol AO-15V; S-39-H Sabosorb SQ; Sorgen 30; Sorgen 30V
Trade Names Containing: Dehymuls® E

Sorbitan stearate
CAS 1338-41-6; 69005-67-8; EINECS/ELINCS 215-664-9
FEMA 3028; INS491; E491
Synonyms: Anhydro-d-glucitol monoocadecanoleate; Anhydrosorbitol monostearate; Anhydrosorbitol stearate; SMS; Sorbitan, esters, monooctadecanoleate; Sorbitan monoocadecanoleate; Sorbitan monostearate
Definition: Monoester of stearic acid and hexitol anhydrides derived from sorbitol
Empirical: C_{24}H_{46}O_{6}
Properties: Cream to tan waxy beads, bland odor and taste; sol. in ethyl acetate, veg. and min. oils; insol. in water, acetone, alcohol, propylene glycol; m.w. 430.70; m.p. 49-65 C; pour pt. 51-54 C; HLB 4.7; acid no. 5-10; sapon. no. 147-157; hyd. no. 235-260; nonionic
Toxicology: LD50 (oral, rat) 31 g/kg; very mildly toxic by ing.; primary skin irritant; experimental reproductive effects; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
### Chemical Component Cross-Reference

| Uses: Emulsifier, wetting agent, surfactant, stabilizer, solubilizer, coupling agent, defoamer in pharmaceuticals, topical, vaginal, oral, suntan creams |
| Uses: Surfactant for pharmaceuticals |
| Features: Lipophilic |
| Manuf./Distrib.: Lonza [http://www.lonza.com](http://www.lonza.com) |

**Sorbitan trioctadecanoate. See Sorbitan triesteare**

**Sorbitan, trioctadecanoate, poly (oxy-1,2-ethanediyl) derivs. See Polysorbate 65**

**Sorbitan tri-9-octadecenoate. See Sorbitan trioleate**

**Sorbitan trioleate**

CAS 26266-58-0; 85186-88-5; EINECS/ELINCS 247-569-3; 286-074-7

INS496

**Synonyms:** Anhydrosorbitol trioleate; Sorbitan tri-9-octadecenoate; STO

**Definition:** Triester of oleic acid and hexitol anhydrides derived from sorbitol

**Empirical:** C\textsubscript{60}H\textsubscript{108}O\textsubscript{8}

**Properties:** Yel. to amber oily liq.; sol. in alcohol, veg. oil, min. oil; insol. in water, ethylene glycol, propylene glycol; m.w. 957.52; dens. 0.956; HLB 1.8; acid no. 17 max.; iodine no. 77-85; sapon. no. 170-190; hyd. no. 50-75; flash pt. > 230 F; ref. index 1.4760; nonionic

**Toxicology:** Irritant; TSCA listed

**Uses:** Emulsifier, surfactant, solubilizer, emollient in pharmaceuticals, inhalants, oral, topical

**Regulatory:** FDA 21CFR §175.320, 178.3400; FDA approved for inhalants, orals, topicals; NF, BP, EP compliance; Canada DSL

| Manuf./Distrib.: A&E Connock [http://www.connock.co.uk](http://www.connock.co.uk); A.P. Chems. Ltd [http://www.chemical.com](http://www.chemical.com); Adumim Food Ingreds. [http://www.adumim.co.il](http://www.adumim.co.il); Ashland [http://www.ashchem.com](http://www.ashchem.com); Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com) |

**Trade Names:** Ablunol S-60; Adekaestol S-60; Arlacel® 60; Avester™ SMS sobitan ester; Crill 3

**Trade Names:** Ablunol S-85; Crill 45; Kemenst® S85; Kosteran-O/3 VH; Nissan Nonion OP-85R; Nofable SO-903; Nofable SO-993; Rheodol SP-O30; Sabosorb TO; Sorbirol TO

**Sorbitan tallate**

**Properties:** Nonionic

**Features:** Lipophilic

**Manuf./Distrib.:** Lonza [http://www.lonza.com](http://www.lonza.com)

**Uses:** Surfactant for pharmaceuticals

**Properties:** Nonionic

**Trade Names:** Ablunol S-60; Adekaestol S-60; Arlacel® 60; Avester™ SMS sobitan ester; Crill 3

**Trade Names:** Ablunol S-85; Crill 45; Kemenst® S85; Kosteran-O/3 VH; Nissan Nonion OP-85R; Nofable SO-903; Nofable SO-993; Rheodol SP-O30; Sabosorb TO; Sorbirol TO

**Sorbitan tallate**

**Properties:** Nonionic

**Features:** Lipophilic
Sorbin tristearate

CAS 26656-19-5; 72869-62-6; EINECS/ELINCS 247-891-4; 276-951-2
INS492; E492

Synonyms: Anhydrosorbitol tristearate; Sorbin trioctadecanoate; STS

Definition: Triester of stearic acid and hexitol anhydrides derived from sorbitol

Empirical: C₆₀H₁₁₄O₈

Properties: Wh. to tan waxy beads; sol. in IPA; insol. in water; m.w. 963.56; pour pt. 48 C; HLB 2.1; acid no. 12-15; sapon. no. 176-188; nonionic

Toxicology: No known toxicity; TSCA listed

Uses: Surfactant, emulsifier, lubricant, stabilizer, solubilizer, dispersant, wetting agent, visc. control agent in pharmaceuticals

Regulatory: FDA 21 CFR §175.320, 178.3400; Europe listed; UK approved; Canada DSL

Manuf./Distrib.: A&E Connock

Fluka http://www.sigma-aldrich.com; Lambent Tech.

Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality

Trade Names: Crill 35; Crill 41; Glycomul® TS; Kosteran-S/3; Lumisorb™ STS K Montane® 65; Saborsorb TS; Span® 65; Span® 65K

Sorbitol

CAS 50-70-4; 3959-43-3; EINECS/ELINCS 200-061-5

FEMA 3029; INS420; E420

Synonyms: Glucitol; D-Glucitol; Gluitol; Sorbit; Sorbite; D-Sorbit; D-Sorbitol; γ-Sorbitol; Sorbo; Sorbol

Classification: Hexahydric alcohol

Empirical: C₆H₁₄O₆

Formula: CH₂OHCOH(OH)CH(OH)CH(OH)CH₂OH

†=pharmaceutical grade

Properties: Wh. cryst. powd., gran. or flakes, odorless, sweet taste; sol. in water, hot alcohol, methanol, IPA, DMF, acetic acid, phenol, acetamide sol'n's., oxygenated solvs.; insol. in veg. and min. oils; m.w. 182.20; dens. 1.47 (-5 C); m.p. 93-97.5 C; b.p. 105 C; pH ≈ 7.0

Toxicology: LD50 (oral, rat) 15,900 mg/kg; mildly toxic by ing.; excess consumption may have laxative effect; intolerance manifested by abdominal pain, bloating, diarrhea; no known toxicity if used externally; mutagenic data; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acid smoke and irritating fumes

Storage: Hygroscopic

Uses: Bodying agent for liq. pharmaceuticals; humectant, plasticizer, nutritive sweetener, vehicle, excipient in pharmaceuticals, suspensions, sol'n's, syrups, elixirs, pellets, deformants, deodorants; tablet diluent; absorp. enhancer for vitamins; improves taste and mouthfeel for chewable tablets

Features: Oleaginous

Use Level: 70-72% (suspensions); 6-35% (sol'n's.); 5-25% (syrups); 5-20% (elixirs)

Regulatory: FDA 21 CFR §100.130, 101.9, 101.80, 175.300, 175.320, 176.180, 176.210, 177.1390, 177.2420, 182.90, 184.1835, GRAS; FEMA GRAS; Canada DSL; Japan approved; Europe listed; UK approved; FDA approved for dentals, intramuscular injectables, rectals, nutraceuticals, deodorants, tablet diluents; absorbs. enhancer for vitamins; improves taste and mouthfeel for chewable tablets

Manuf./Distrib.: AB R Lundberg

Asiameera Int'l.†; Avata† http://www.avatacorp.com; Barrington† http://www.barringtonchem.com; Baychem; Boehrle http://www.boehlechem.com
Brown† http://www.brownchem.com; CPI Chems.† http://www.cpcichem.com; Camida
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Chemical Component</th>
<th>Manufacturer/Website</th>
</tr>
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<tbody>
<tr>
<td>Sorbitan Oleate B-40</td>
<td><a href="http://www.chemco-chemco.com">http://www.chemco-chemco.com</a></td>
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<tr>
<td>Sorbitan Oleate B-60</td>
<td><a href="http://www.chemco-chemco.com">http://www.chemco-chemco.com</a></td>
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<tr>
<td>Sorbitan Oleate B-80</td>
<td><a href="http://www.chemco-chemco.com">http://www.chemco-chemco.com</a></td>
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<tr>
<td>Sorbitan Monostearate</td>
<td><a href="http://www.chemco-chemco.com">http://www.chemco-chemco.com</a></td>
</tr>
<tr>
<td>Sorbitan Monolaurate</td>
<td><a href="http://www.chemco-chemco.com">http://www.chemco-chemco.com</a></td>
</tr>
<tr>
<td>Sorbitan Monopalmitate</td>
<td><a href="http://www.chemco-chemco.com">http://www.chemco-chemco.com</a></td>
</tr>
</tbody>
</table>

**†=pharmaceutical grade**

### Trade Names:

- Meritol 121; Meritol 130; Meritol 160; Neosorb® 100T; Neosorb® 20/02 B
- Neosorb® 20/20 B; Neosorb® 70/70 B; Neosorb® 70/70 SB; Neosorb® 70/90 B; Neosorb® 70/90 SB
- Neosorb® HDS; Neosorb® P 20/60; Neosorb® P 30/60; Neosorb® P W
- Parteck™ SI 150
- Parteck™ SI 400 LEX; Parteck™ SI 400 L
- LRS; Parteck™ SI 500; Sorbifin®
<table>
<thead>
<tr>
<th>Chemical Component Cross-Reference</th>
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</thead>
<tbody>
<tr>
<td>Sorbitol Soln’. High Mannitol; Sorbo® 70%</td>
</tr>
<tr>
<td>Sorbitol Soln’. USP/FCC; Sorbogem™; Sorbogem™ 712; Sorbogem™ 834</td>
</tr>
<tr>
<td>Sorbogem™ 1162; Sorbogem™ 2016; Sorbogem™ Fines</td>
</tr>
</tbody>
</table>

**Trade Names Containing:** Formaxx™ CaCO₃ 70; Seaman BD LS 8460; Sorbitol Sol’n.

**Noncrystallizing:** Sorbitol Special™ Polyl Sol’n.

**D-Sorbitol; γ-Sorbitol. See Sorbitol**

**Sorbitol anhydride**

**Uses:** Ingred. in soft gelatin capsules

**Trade Names Containing:** Sorbitol Special™ Polyl Sol’n.

**Sorbo; Sorbil. See Sorbitol**

**Sorghum gum. See Starch**

**SOS. See Sodium octyl sulfate**

**SOSS. See Starch sodium octenyl succinate**

**Southern bentonite. See Bentonite**

**Soya alkyl diethanolamide. See Soyamide DEA**

**Soybean acid. See Soy acid**

**Soya bean oil. See Soybean (Glycine soja) oil**

**Soy acid**

**CAS 68308-53-2; EINECS/ELINCS 269-657-0**

**Synonyms:** Acids, soy; Fatty acids, soya; Soybean acid

**Definition:** Mixture of fatty acids derived from soybean oil

**Properties:** Liq. or solid; acid no. 194-204; iodine no. 123-140; sapon. no. 195-205

**Toxicology:** TSCA listed

**Uses:** Emollient, emulsifier in pharmaceuticals

**Regulatory:** FDA 21CFR §175.105, 177.2800, 178.3570; Canada DSL

**Manuf./Dist.: Sea-Land**

**http://www.sealandchem.com**

**Trade Names Containing:** Phosal® 50 PG

**Soya diethanolamide. See Soyamide DEA**

**Soya flour. See Soybean (Glycine soja) flour**

**Soya lecithin. See Lecithin**

**Soyamide DEA**

**CAS 68425-47-8; EINECS/ELINCS 270-355-6**

**Synonyms:** Amides, soya, N,N-bis (hydroxyethyl)-; N,N-Bis (hydroxyethyl) soya amides; Diethanolamide condensate from soybean oil fatty acids; Soya alkyl diethanolamide; Soya diethanolamide

**Definition:** Mixture of ethanolamides of soy acid

**Formula:** RCO–N(CH₂CH₂OH)₂, RCO– rep. fatty acids from soy

<table>
<thead>
<tr>
<th>Properties: Nonionic</th>
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<tbody>
<tr>
<td>Toxicology: TSCA listed</td>
</tr>
<tr>
<td>Uses: Conditioner and emollient for pharmaceuticals, topicals; emulsifier for w/o systems; dispersant for pigments; visc. builder; emulsion stabilizer</td>
</tr>
<tr>
<td>Regulatory: FDA 21CFR §172.710, 175.105, 176.180, 176.210, 177.2800; Canada DSL</td>
</tr>
<tr>
<td>Manuf./Distrib.: Cosmetic Supplies USA <a href="http://www.cosmeticsuppliesusa.com">http://www.cosmeticsuppliesusa.com</a></td>
</tr>
<tr>
<td>Trade Names: Schercomid SLS</td>
</tr>
</tbody>
</table>

**Soya oil. See Soybean (Glycine soja) oil**

**Soybean flour. See Soybean (Glycine soja) flour**

**Soybean (Glycine soja) flour**

**CAS 68513-95-1**

**Synonyms:** Flour, soy; Glycine soja; Soy flour; Soybean flour; Soy flour

**Definition:** Powd. prepared from fine grinding of soybean, Glycine max.

**Toxicology:** TSCA listed

**Uses:** Tablet disintegrant

**Regulatory:** Canada DSL


**Trade Names: Emcosoy STS IP®**

**Soybean (Glycine soja) oil**

**CAS 8001-22-7; EINECS/ELINCS 232-274-4**

**Synonyms:** Chinese bean oil; Glycine soja; Glycine soja oil; Glycine soja (soybean) lipids; Soya bean oil; Soya oil; Soybean oil; Soy oil

**Classification:** Fixed oil

**Definition:** Oil obtained from seeds of soya plant, Glycine soja, by extraction or expression; consists of triglycerides of oleic, linoleic, linolenic, and saturated acids

**Properties:** Pale yel. to brnsh. yel. oil, sl. char. odor and taste; sol. in alcohol, ether, chloroform, carbon disulfide; insol. in water; dens. 0.924-0.929; visc. 50.09 cps; vapor pressure very low; m.p. 22-31 C; iodine no. 120-141; sapon. no. 189-195; flash pt. 540 F; ref. index 1.471

**Toxicology:** May cause allergic reactions incl. hair damage and acne-like pimples; TSCA listed

**Precaution:** Combustible

**Hazardous Decomp. Prods.: CO₂ from combustion; heated to decomp., emits acrid smoke and irritating fumes**
**Chemical Component Cross-Reference**

**HMIS:** Health 0, Flammability 1, Reactivity 0  
**Storage:** Light-sensitive  
**Uses:** Vehicle, solvent in pharmaceuticals, orals, topicals, parenterals; dietary supplement; microbial fermentation nutrient  
**Features:** Oleaginous  
**Regulatory:** FDA 21CFR §175.105, 175.300, 176.200, 176.210, 177.280, GRAS; FDA approved for orals, topicals; USP/NF, BP, EP compliance; Canada DSL  
**Manuf./Distrib.:** A&E Connock†  
http://www.connock.co.uk; ADM  
http://www.admworld.com; Aarhus  
Alban Muller http://www.albanmuller.com; Aldivia http://www.aldivia.com; Aldrich† http://www.sigma-aldrich.com; Alnor Oil http://www.alnoroil.com; Alzo  
http://www.alzointernational.com  
http://www.amerolcorp.com; Anglia Oils† http://www.angliaoils.co.uk; Arista Ind.† http://www.ariastindustries.com  
Cargill Ind. Oils & Lubes http://www.techoils.cargill.com; Charkit† http://www.charkit.com; ChemService  
http://www.chemservice.com; Chesham Chems. Ltd† http://www.cheshamchemicals.co.uk; Croda Chem. Ltd† http://www.croda.co.uk  
http://www.lambentcorp.com  
†=pharmaceutical grade  
Lipo† http://www.lipochemicals.com; Mosselman NV http://www.mosselman.be;  
Mutchler† http://www.mutchlerchem.com; Penta Mfg.† http://www.pentamfg.com;  
Pokonobe Ind.;† http://www.pokonobe.com  
Reichhold http://www.reichhold.com;  
Spectrum Quality Prods.† http://www.spectrumchemical.com; St. Lawrence http://www.stlawrencechem.com  
Stevenson Cooper http://www.stevensoncooper.com; Thornley http://www.thornleycompany.com; U.S. Synthetics; Univar Ltd† http://www.univar.co.uk; Vivion http://www.vivioninc.com  
Vliengenthart BV http://www.vliengenthart.com; Voigt Global  
Trade Names: Pureco® Soybean; Super Refined® Soybean USP  
Trade Names Containing: Aloe Vera Oil Extract REG; Arnica Oil CLR; Carrot Oil CLR;  
Crodarom Calendula O; Phyto† SOY Sunflower Butter©  
**Soybean (Glycine soja) protein**  
CAS 9010-10-0; 68153-28-6; 977076-84-8; EINECS/ELINCS 232-720-8  
**Synonyms:** Glycine soja; Glycine soya protein; Isolated soy protein; Proteins, glycine soya; Proteins, soy; Soy protein; Soy protein, isolate; Soy protein isolated  
**Definition:** Protein obtained from the soybean, Glycine soja  
**Toxicology:** TSCA listed  
**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes  
**Uses:** Protein source, emulsifier, gellant, binder, emulsion stabilizer, extender for pharmaceuticals  
**Regulatory:** FDA 21CFR §166.110, 176.180, 182.90; GRAS; USDA 9CFR §318.7, 319,
**Spearmint (Mentha viridis) oil**

**CAS**: 8008-79-5

**FEMA**: 3032

**Synonyms**: Crispment oil; Curled mint oil; Mentha spicata; Mentha spicata oil; Mentha viridis; Mentha viridis oil; Spearmint oil; Spearmint oil, American

**Definition**: Volatile oil obtained from the dried tops and leaves of *Mentha viridis*, contg. chiefly carvone

**Properties**: Colorless or greenish-yel. liq., spearmint odor and taste; sol. in equal vol 80% alcohol; very sl. sol. in water; dens. 0.917-0.934 (25/25 C); ref. index 1.4820-1.4900 (20 C)

**Toxicology**: LD50 (oral, rat) 5 g/kg; mildly toxic by ing.; skin irritant; allergen causing skin rash; mutagenic data; TSCA listed

**Hazardous Decomp. Prods.**: Heated to decomp., emits acrid smoke and irritating fumes

**HMIS**: Health 0, Flammability 1, Reactivity 0

**Storage**: Keep cool, well closed; protect from light

**Uses**: Natural flavor and fragrance in pharmaceuticals, buccals, orals, toothpaste; mildly toxic by ing.; carminative; antispasmodic

**Regulatory**: FDA 21CFR §172.230, 182.20, GRAS; 27CFR §21.65, 12.128, 21.151; FEMA GRAS; Japan approved (spearmint); Europe listed, no restrictions; FDA approved for buccals, orals; BP, EP compliance; Canada DSL

**Manuf./Distrib.**: Frutarom

**http://www.frutarom.com**; I. P. Callison

**http://www.ipcallison.com**

**Spearmint (Mentha spicata) oil**

**CAS**: 977002-61-1

**FEMA**: 3030

**Synonyms**: Mentha spicata; Mentha viridis; Mint; Spearmint

**Definition**: Dried leaves and flowering tops of *Mentha spicata*

**Uses**: Natural flavor for pharmaceuticals; carminative

**Regulatory**: FDA 21CFR §182.10, GRAS; FEMA GRAS

**Manuf./Distrib.**: Acme-Hardesty

**http://www.acme-hardesty.com**; Adept

**Sol'n.s.**: Alfa Chem

**http://www.alfachem1.com**; Arista Ind.

**http://www.aristaindustries.com**

**Asiamech Int'l.**: Astral Extracts

**http://www.astralextracts.com**; Barnet

**Prods.**: http://www.barnetproducts.com

**Berje**: http://www.berjeinc.com; Buckton

**Page Ltd**: http://www.bucktonpage.com

**Chart**: http://www.chartcorp.com; Chemtex International

**http://www.chemtexinternational.com**
Chemical Component Cross-Reference

Spinacone. See Squalane
Spinacene. See Squalene
Spiraea extract; Spiraea ulmaria; Spiraea ulmaria extract. See Meadowsweet (Spiraea ulmaria) extract
Spirit of ethyl nitrite. See Ethyl nitrite
Spirit of Hartshorn. See Ammonium hydroxide
Spirit of nitrous ether. See Ethyl nitrite
 Spirits of salt. See Hydrochloric acid
Spirits of turpentine. See Turpentine
Spirits of wine. See Alcohol
Spirit of turpentine. See Turpentine
Spire [isobenzofuran-1(3H),9´-[9H] xanthen]-3-one, 3´,6´-dihydroxy-4´,5´-diodo-, disodium salt. See Acid red 95
Spire [isobenzofuran-1(3H),9´-[9H]-xanthen]-3-one, 3´,6´-dihydroxy-2´,4´,5´,7´-tetraiodo-, disodium salt. See Acid red 51
Spire [isobenzofuran-1(3H),9´-[9H] xanthen]-3-one, 2´,4´,5´,7´-tetrabromo-3´,6´-dihydroxy-, disodium salt. See Acid red 87
Spruce oil
CAS 8008-80-8
FEMA 3034
Synonyms: Hemlock oil; Picea glauca; Picea mariana; Picea oil; Tsuga canadensis; Tsuga oil
Definition: Oil obtained from needles and twigs of Picea glauca, P. mariana, or Tsuga canadensis
Properties: Colorless to lt. yel. oil, pleasant odor
Toxicology: LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.510; FEMA GRAS; Canada DSL
Manuf./Distrib.: Buckton Page Ltd
http://www.bucktonpage.com; Fleurchem http://www.fleurchem.com

Squalane
CAS 111-01-3; EINECS/ELINCS 203-825-6
Synonyms: Cosbiol; Dodecahydroxosqualene; Hexamethyltetrascosane; 2,6,10,15,19,23-Hexamethyltetrascosane; Perhydroxosqualene; Spinacane
Classification: Saturated hydrocarbon
Definition: Saturated branched chain hydrocarbon obtained by hydrogenation of...
Chemical Component Cross-Reference

shark liver oil or other natural oils

**Empirical:** C\textsubscript{30}H\textsubscript{62}

**Formula:**
\\[
[(\text{CH}_3)\text{2CHCH}_2\text{CH}_2\text{CH}(\text{CH}_3)\text{CH}_2\text{CH}_2\text{CH}_2\text{H}(\text{CH}_3)\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}]
\\]

**Properties:** Colorless oily liq., odorless, tasteless; sol. in ether, gasoline, petrol. ether, benzene, chloroform, hydrocarbon solvs.; misc. with veg. and min. oils, org. solvs., lipophilic substances; sl. sol. in methanol, ethanol, acetone, glc. acetic acid; m.w. 422.83; dens. 0.8115 (15/4 C); m.p. -38 C; b.p. 350 C; acid no. 0.2 max.; iodine no. 4 max.; sapon. no. 2 max.; flash pt. 218 C; ref. index 1.4530 (15 C); stable to air and oxygen

**Toxicology:** No known toxicity; skin irritant; TSCA listed

**Precaution:** Combustible

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating vapors

**HMIS:** Health 0, Flammability 1, Reactivity 0

**Uses:** Ointment base, bactericide, vehicle, emollient, lubricant in pharmaceuticals, topicals, carrier of lipid-sol. drugs in suppositories

**Features:** Oleaginous

**Regulatory:** FDA approved for topicals; USP/NF, BP, EP compliance; Canada DSL


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**Squalene**

CAS 111-02-4; EINECS/ELINCS 203-826-1

**Synonyms:** 2,6,10,15,19,23-Hexamethyl-2,6,10,14,18,22-tetracosahexaene; Spinacene; trans-Squalene; 2,6,10,14,18,22-Tetracosahexene, 2,6,10,15,19,23-hexamethyl-, (all E)-

**Definition:** Unsat. branched chain isoprenoid hydrocarbon found in shark liver oil

**Empirical:** C\textsubscript{30}H\textsubscript{50}

**Properties:** Oil, faint odor; insol. in water; sl. sol. in alcohol; sol. in lipids, org. solvs.; m.w. 410.73; dens. 0.858-0.860 (20 C); m.p. -75 C; b.p. 285 C (25 mm); ref. index 1.4965 (20 C); visc. 12 cps (25 C); flash pt. 200 C; ref. index 1.496 (20 C)

**Toxicology:** LD\textsubscript{50} (oral, mouse) 5 g/kg, (IV, mouse) 1800 mg/kg; mod. toxic by IV route; sl. toxic by ing.; TSCA listed

**Precaution:** Combustible

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating vapors

**HMIS:** Health 0, Flammability 1, Reactivity 0

**Uses:** Emollient, lubricant, protectant, vehicle for pharmaceuticals, topicals; pharmaceutical intermediate; pharmaceutical research

**Regulatory:** FDA approved for topicals; Canada DSL

Stannic chloride anhydrous. See Stannic chloride

Stannous chloride. See Stannous chloride anhydrous

Stannous chloride anhydrous. See Stannous chloride

Stannic chloride anhydrous

Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aldrich</td>
<td><a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a>; Arka</td>
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<tr>
<td>Aesar</td>
<td><a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a></td>
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<tr>
<td>Arkema</td>
<td><a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a>; Arka</td>
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<td>Atotech USA</td>
<td><a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a>; Arka</td>
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<td>Reagens Comiel SpA</td>
<td><a href="http://www.reagens.it">http://www.reagens.it</a>; Spectrum Quality</td>
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<td>Wm. Blythe Ltd†</td>
<td><a href="http://www.wm-blythe.co.uk">http://www.wm-blythe.co.uk</a>; Xinchem†</td>
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<tr>
<td>Aldrich</td>
<td><a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a>; Mason Corp.</td>
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Chemical Component Cross-Reference

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<th>Component</th>
<th>Manufacturer</th>
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</thead>
</table>

Stannous fluoride

CAS 7783-47-3 (anhyd.); EINECS/ELINCS 231-999-3

Synonyms: Fluoristan; Tin bifluoride; Tin difluoride; Tin fluoride

Classification: Inorg. salt

Empirical: F2Sn

Formula: SnF2

Properties: Wh. lustrous cryst. powd., bitter salty taste; sol. in water; almost insol. in methanol, ether, chloroform, alcohol; m.w. 156.69; dens. 4.57; m.p. 212-214 C; pH 2.8-3.5 (0.4%); sublimes 7 C

Toxicology: ACGIH TLV/TWA 2 mg(Sn)/m3; 2.5 mg(F)/m3; LD50 (oral, rat) 377 mg/kg, (IP, mouse) 15,610 µg/kg; poison by ing., IP routes; toxic by inh., skin contact; causes burns; questionable carcinogen; mutagenic data; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of F–

HMIS: Health 2, Flammability 0, Reactivity 1

Storage: Hygroscopic

Uses: Fluoride source, decay preventative in dentifrices, mouthwashes; intravenous pharmaceuticals

Regulatory: FDA approved for intravenous; Canada DSL


Stannous pyrophosphate

CAS 15578-26-4; EINECS/ELINCS 239-635-5

Synonyms: Diphosphoric acid, tin salt (1:2); Diphosphoric acid tin (2+) salt; Ditin diphosphate; Pyrostannous phosphate; Salt of tin

Empirical: O7P2Sn2

Formula: Sn2P2O7

Properties: Wh. powd.; insol. in water; sol. in HCl, aq. ammonia, alkaline pyrophosphate sol’n.; m.w. 411.32; dens. 4.009 (16 C)

Toxicology: Relatively nontoxic when used externally; TSCA listed

Uses: Oral care agent in dental preps.

Regulatory: FDA approved for dentals

Manuf./Distrib.: Sigma | http://www.sigma-aldrich.com/belgium

Stannous tartrate

CAS 815-85-0

Synonyms: Tin tartrate

Empirical: C4H4O6Sn

Formula: SnC4H4O6

Properties: Wh. heavy cryst. powd.; sol. in water, dil. HCl

Toxicology: TLV 0.1 mg(Sn)/m3 of air; toxic; TSCA listed

Uses: Intravenous pharmaceuticals

Regulatory: FDA approved for intravenous; Canada DSL

Manuf./Distrib.: Sigma | http://www.sigma-aldrich.com/belgium

Stannum. See Tin

Star anise. See Star anise (Illicium verum)

Star anise (Illicium verum)

CAS 977052-16-6; 8007-70-3

FEMA 2095

Synonyms: Anise, star; Illicium verum; Star anise

Definition: Derived from Illicium verum

Uses: Natural flavor for pharmaceuticals, oral hygiene prods.

Regulatory: BP, EP compliance; FDA 21CFR §101.22, 182.10, GRAS; FEMA GRAS; Japan
Star anise (Illicium verum) oil
CAS 68952-43-2; 8007-70-3
FEMA 2096

Synonyms: Anise, star; oil; Illicium verum; Illicium verum fruit oil; Illicium verum oil; Star anise oil

Definition: Oil derived from Illicium verum

Properties: Colorless to pale yel. semisolid; sol. in alcohol and dipropyl glycol; insol. in water; sp gr. 0.978-0.988; flash pt. (TCC) 182 F; ref. index .54820-1.56220

Uses: Natural flavor for pharmaceuticals

Features: Sweet, anise and fennel with a full-bodied sweetness and an herbal nuance odor

Regulatory: FEMA GRAS; Europe listed, no restrictions; Canada DSL

Manuf./Distrib.: Advanced BioTech
http://www.adv-bio.com; Doingcom†
http://www.doingcom.com; George Uhe
http://www.uhe.com; Hunan Xinyu
http://www.hunanxinyu.com; SAFC Specialties http://www.safcspecialties.com

Star anise oil. See Star anise (Illicium verum) oil

Starch
CAS 9005-25-8; EINECS/ELINCS 232-686-4

Synonyms: Arrowroot starch; Corn starch; Potato starch; Pregelatinized starch; Rice starch; Sago starch; Sorghum gum; α-Starch; Starch, converted; Starch, corn; Starch dust; Tapioca starch; Wheat starch

Classification: Carbohydrate polymer

Definition: Complex polysaccharide composed of units of glucose consisting of about one quarter amylose and three quarters amylopectin; derived from corn, wheat, potatoes, or tapioca

Empirical: (C6H10O5)n

Properties: Wh. amorphous powd. or gran., odorless, sl. char. taste; insol. in cold water, alcohol; forms gels in hot water; m.w. 162.14n

Toxicology: ACGIH TLV/TWA 10 mg/m3 of total dust (when toxic impurities not present); LD50 (IP, mouse) 6600 mg/kg; nuisance dust; mildly toxic by IP route; skin irritant; allergen; may cause contact dermatitis, peritonitis; TSCA listed

Precaution: Flamm. exposed to flame; can react with oxidizers; mod. explosive exposed to flame

Uses: Filler, binder, disintegrant, adsorbent, diluent, carrier for pharmaceutical tablets,

†=pharmaceutical grade

buccals, parenterals, orals, rectals, topicals, vaginals; rubber glove powd.

Regulatory: FDA 21CFR §137.105, 155.130, 169.150, 169.179, 175.105, 178.1010, 182.90, GRAS; FDA approved for buccals, parenterals, orals, rectals, topicals, vaginals; USP/NF, BP, EP compliance; Canada DSL

Manuf./Distrib.: ADM Corn Processing
http://www.adm.org/naen/ahn/cornprocessingng.asp; AMRESCO† http://www.amresco-inc.com; Adept Sol’ns;† Alco
http://www.alcochemical.com; Aldrich†
http://www.sigma-aldrich.com
http://www.blagdenspecchem.co.uk; Brøste http://www.broste.com
CarboMer† http://www.carbomer.com;
Cargill plc† http://www.cargill.com;
Cerestar Int’l† http://www.cerestar.nl;
Cerestar USA† http://www.cerestar.com;
Colorcon† http://www.colorcon.com
Corn Prods.† http://www.cornproducts.com; Eka Chems.
AB; Ferro Pfanstiehl Europe†; Fluka
http://www.sigma-aldrich.com;
Generichem† http://www.generichem.com
Grain Processing† http://www.grainprocessing.com; Integra†
http://www.integratech.com; Magnesia GmbH† http://www.magnesia.de;
Mallinckrodt Baker† http://www.mallbaker.com; Multi-Kem†
http://www.multikem.com
Mutchler† http://www.mutchlerchem.com;
Penta Mfg.† http://www.pentamfg.com;
Polysciences† http://www.polysciences.com; Primera Foods† http://www.primerafoods.com;
Sansho† http://www.sansho.co.jp
Sigma http://www.sigma-aldrich.com/belgium; Spectrum Quality Prods.†
http://www.spectrumchemical.com; Tate & Lyle UK† http://www.tateandlyle.com;
Thomas Scientific†
Chemical Component Cross-Reference

http://www.thomassci.com; U.S.
Synthetics†
Universal Preserv-A-Chem
http://www.upichem.com; VWR Int’l.†
http://www.vwrsp.com; Verion†; Vivion
http://www.vivioninc.com

Trade Names: C*PharmGel DC 93000
Trade Names Containing: Advantose™ FS 95; Barcroft™ CS90; Captex® CA; Destab™
Calcium Carbonate 90S Ultra 250; Destab™
Calcium Carbonate 95S Ultra 250
ReadyPress® C; ReadyPress® C w/RH;
Sugar Spheres NF Series
α-Starch. See Starch
Starch/acrylates/acrylamide copolymer
Definition: Polymer of starch, acrylamide and a
monomer consisting of acrylic acid,
methacrylic acid, or one of their simple esters
Uses: Superabsorbent polymer for wound
dressings, topical applics.
Trade Names: Water Lock® A-100; Water
Lock® A-120; Water Lock® A-140; Water
Lock® A-180
Starch aluminum octenyl succinate. See
Aluminum starch octenyl succinate
Starch carboxymethyl ether sodium salt. See
Sodium starch glycolate
Starch, corn. See Starch; Corn (Zea mays)
starch
Starch dust. See Starch
Starch, food, modified. See Food starch, modified
Starch glycerin
Synonyms: Starch glycerite
Definition: A preparation containing 100 g of
starch, 2 g of benzoic acid, 200 mL of purified
water, and 700 g of glycerin in each 1000 g
Uses: Emollient in pharmaceuticals; pill
excipient
Starch glycerite. See Starch glycerin
Starch gum. See Dextrin
Starch, hydrogen octenylbutanedioate,
aluminum salt; Starch,
octenylbutanedioate, aluminum salt. See
Aluminum starch octenyl succinate
Starch, pregelatinized
CAS 977050-93-3
Classification: Carbohydrate polymer
Definition: Starch that has been chemically or
mechanically processed to rupture all or part of
the gran. in the presence of water, and then
dried

†=pharmaceutical grade

Properties: Wh. to off-wh. fine to coarse powd.,
odorless, sl. char. taste; sl. sol. to sol. in cold
water; insol. in alcohol; pH 4.5-7
Uses: Binder, diluent, disintegrant for
pharmaceutical tablets and capsules
Regulatory: FDA 21CFR §175.105, 182.90; NF
compliance
Manuf./Distrib.: Adept Sol’ns.†; Avebe Am.†
http://www.avebe.com; Carboner†
http://www.carboomer.com; Cerestar USA†
http://www.cerestar.com; Chemstar Prods.
http://www.chemstar.com
Colorcon† http://www.colorcon.com;
Generichem† http://www.generichem.com;
Grain Processing†
http://www.grainprocessing.com; Honeywill
& Stein† http://www.honeywill.co.uk;
Mutchler† http://www.mutchlerchem.com
Nat’l. Starch & Chem.†
http://www.nationalstarch.com; Particle
Dynamics†
http://www.particledynamics.com; Peter
Whiting Ltd† http://www.whiting-
chemicals.co.uk; Roquette†
http://www.roquette.fr; Seppic†
http://www.seppic.com
Tate & Lyle UK†
http://www.tateandlyle.com; Univar Ltd†
http://www.univar.co.uk; Verion†
Trade Names: Starch 1500®; Starch 1500® G;
Starch 1500® LM
Trade Names Containing: Cal-Carb® 4457; Cal-
Carb® 4462; StarCap® 1500
Starch sodium octenyl succinate
INS1450; E1450
Synonyms: Modified starch; SOSS
Definition: Starch esterified with octenylsuccinic
anhydride
Properties: Wh. or nearly wh. powd. or gran.;
flakes, amorphous powd., or coarse particles if
pregelatinized
Uses: Stabilizer, thickener, binder, emulsifier
Manuf./Distrib.: AB R Lundberg
http://www.norfoods.se/lundberg
Trade Names Containing: Beta-Carotene Dry
Powd. 10% DC/GFP
Starch syrup. See Glucose, liquid
Starch, zea mays. See Corn (Zea mays)
starch
Stearalkonium bentonite
Synonyms: Benzenemethanaminium, N, N-
dimethyl- N-octadecyl-, reaction products
with bentonite

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**Chemical Component Cross-Reference**

**Stearalkonium chloride**
CAS 122-19-0; EINECS/ELINCS 204-527-9
UN 1993 (DOT)

**Definition:** A synthetic compound derived from stearic acid, a fatty acid and bentonite clay

**Uses:** Visc. control agent in pharmaceuticals, creams, ointments

**Manuf./Distrib.:** Somerset Cosmetic Co. http://www.makingcosmetics.com/

**Trade Names Containing:** Miglyol® Gel T

**Synonyms:** Ammonium, benzylidimethyloctadecyl-, chloride; Benzylidimethylstearyl ammonium chloride; Benzylstearyl dimethylammonium chloride; Dimethylbenzylidloctadecylammonium chloride; N,N-Dimethyl-N-octadecylbenzenemethanaminium chloride; Dimethylidloctadecylbenzyl ammonium chloride; Dimethyl stearyl benzyl ammonium chloride; Octadecyl dimethyl benzyl ammonium chloride; Stearyl benzyl dimethyl ammonium chloride; Stearyl dimethyl benzyl ammonium chloride

**Classification:** Quaternary ammonium salt

**Empirical:** C27H50N • Cl

**Formula:** C18H37(CH3)2(C6H5CH2)NCl

**Properties:** Wh. cryst. powd.; sol. in water, chloroform, benzene, acetone, xylene; m.w. 424.23; m.p. 35-40 C; cationic

**Toxicology:** LD50 (oral, rat) 1250 mg/kg, (IP, rat) 280 mg/kg; poison by IP route; mod. toxic by ing.; human skin and severe eye irritant; TSCA listed

**Precaution:** DOT: Flamm. liq.

**Hazardous Decomp. Prods.:** Heated to decomp., emits very toxic fumes of NOx, NH3, and Cl-

**Uses:** Antimicrobial, emulsifier in pharmaceuticals, topical

**Regulatory:** FDA 21CFR §172.165 (limitation 1.5-6 ppm), 173.320 (limitation 0.05 ppm raw sugarcane or raw beets), 175.105; FDA approved for topicals; Canada DSL

**Manuf./Distrib.:** Somerset Cosmetic Co. http://www.makingcosmetics.com/

**Stearalkonium hectorite**
CAS 94891-33-5; 12691-60-0; 71011-26-2; EINECS/ELINCS 305-633-9; 275-126-4

**Definition:** Reaction prod. of hectorite and stearalkonium chloride

**Uses:** Thixotrope, gellant, thickener in pharmaceuticals, topicals

**Regulatory:** FDA 21CFR §175.300; FDA approved for topicals

**Trade Names:** Bentone® 27 V CG

**Trade Names Containing:** BTC® 885

**Stearamide AMP**
CAS 36284-86-3

**Synonyms:** N-(2-Hydroxy-1,1-dimethylethyl) octadecanamide; Octadecanamide, N-(2-hydroxy-1,1-dimethylethyl)-

**Classification:** Organic compd.

**Empirical:** C22H45NO2

**Formula:** CH3(CH2)16CONHC(CH3)2CH2OH

**Properties:** Anionic

**Toxicology:** TSCA listed

**Uses:** Visc. control agent in dermatological prods.

**Manuf./Distrib.:** Somerset Cosmetic Co. http://www.makingcosmetics.com/

**Stearamide DEA**
CAS 93-82-3; EINECS/ELINCS 202-280-1

**Synonyms:** N,N-Bis (2-hydroxyethyl) octadecanamide; N,N-Bis (2-hydroxyethyl) stearamide; Diethanolamine stearic acid amide; Stearic acid diethanolamide; Stearoyl diethanolamide

**Definition:** Mixture of ethanolamides of stearic acid

**Empirical:** C22H45NO3

**Formula:** CH3(CH2)16CON(CH2CH2OH)2

**Properties:** M.w. 371.61; nonionic

**Toxicology:** TSCA listed

**Uses:** Emulsifier, opacifier, thickener, emulsion stabilizer, lubricant, conditioner, softener, pearlescent, dye carrier, gellant, lubricant in skin care prods.,
**Chemical Component Cross-Reference**

**dermatologicals**

**Regulatory:** FDA 21 CFR §175.105, 176.180, 177.2260, 177.2800; Canada DSL

**Manuf./Distrib.:** Cosmetic Supplies USA  
http://www.cosmeticsuppliesusa.com

**Trade Names Containing:** Cetina

**Stearamide DIBA-stearate**

**Synonyms:** Octadecanoic acid, 2-hydroxymethyl-3-(1-oxooctadecyl) aminopropyl ester  
**Classification:** Substituted dihydroxyisobutylamine  
**Empirical:** C₄₀H₇₉NO₄  
**Formula:** CH₃(CH₂)₁₆CONHCH₂CHCH₂OHCH₂OOC(CH₂)₁₆CH₃  
**Properties:** Nonionic  
**Uses:** Opacifier, visc. control agent, emulsifier, pearlescent in pharmaceuticals  
**Trade Names:** Polytex 10

**Stearamide MEA**

**CAS 111-57-9;** EINECS/ELINCS 203-883-2  
**Synonyms:** N-(2-Hydroxyethyl) octadecanamide; N-(2-Hydroxyethyl) stearamide; Monoethanolamine stearic acid amide; Stearoyl monoethanolamide  
**Classification:** Amidoamine  
**Empirical:** C₂₀H₄₁NO₂  
**Formula:** CH₃(CH₂)₁₆CONH(CH₂)₂OCO(CH₂)₁₆CH₃  
**Properties:** Wh. to yel. flakes; m.w. 327.55; nonionic  
**Toxicology:** TSCA listed  
**Uses:** Delivery system for hormones in veterinary medicine  
**Regulatory:** Canada DSL  
**Trade Names:** Rewomid® S 280

**Stearamide MEA-stearate**

**CAS 14351-40-7;** EINECS/ELINCS 238-310-5  
**Synonyms:** Octadecanoic acid, 2-[1-oxooctadecyl amino] ethyl ester; 2-[1-Oxo-octadecyl] amino] ethyl octadecanoate; Stearoyl monoethanolamide stearate  
**Classification:** Substituted ethanolamide  
**Empirical:** C₃₈H₇₅NO₃  
**Formula:** CH₃(CH₂)₁₆CONH(CH₂)₃N(CH₃)₂  
**Properties:** M.w. 368.64; cationic/nonionic  
**Toxicology:** TSCA listed  
**Uses:** Antistat, softener, surfactant, emulsifier, and conditioner in pharmaceuticals, skin care prods.  
**Regulatory:** Canada DSL  
**Trade Names:** Lipamine SPA; Tegamine® 18

**Stearamidopropyl dimethylammonium chloride.** See Quaternium-70

**Stearamidopropyl PG-dimonium chloride phosphate**

**CAS 83682-78-4;** EINECS/ELINCS 280-518-3  
**Synonyms:** Phosphoric acid, 2-hydroxy-3-[3-(1-oxooctadecylamino) propylidimethylammonio] propyl triester, trichloride  
**Classification:** Quaternary ammonium salt  
**Empirical:** C₇₈H₁₄₂Cl₃N₆O₁₆P  
**Formula:** [CH₃(CH₂)₁₆CONH(CH₂)₂N(CH₃)₂CH₂CHOHC H₂O]⁺₃PO • 3Cl⁻  
**Properties:** Cationic
Chemical Component Cross-Reference

†=pharmaceutical grade

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### Chemical Component Cross-Reference

**Regulatory:** FDA 21CFR §177.2800; FDA approved for rectals, topicals  
**Manuf./Distrib.:** Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)  
**Trade Names:** Brij® 76 Pharma; Lipocol S-10; Volpo S10  
**Trade Names Containing:** Cosmowax

#### Steareth-16
- **CAS:** 9005-00-9 (generic)  
- **Synonyms:** PEG-16 stearyl ether; POE (16) stearyl ether  
- **Definition:** PEG ether of stearyl alcohol  
- **Formula:** CH₃(CH₂)₁₆CH₂(OCH₂CH₂)ₙOH, avg. n = 16  
- **Properties:** Nonionic  
- **Uses:** Surfactant, emulsifier in pharmaceuticals  
- **Regulatory:** FDA 21CFR §177.2800  
- **Trade Names Containing:** Solulan® 16

#### Steareth-20
- **CAS:** 9005-00-9 (generic)  
- **Synonyms:** PEG-20 stearyl ether; PEG 100 stearyl ether; POE (20) stearyl alcohol; POE (20) stearyl ether; Stearyl alcohol EO (20)  
- **Definition:** PEG ether of stearyl alcohol  
- **Empirical:** C₅₈H₁₁₈O₂₁  
- **Formula:** CH₃(CH₂)₁₆CH₂(OCH₂CH₂)ₙOH, avg. n = 20  
- **Properties:** HLB 15.3; nonionic  
- **Toxicology:** LD₅₀ (oral, rat) 2900 mg/kg; mod. toxic by ing.; TSCA listed  
- **Uses:** Emulsifier, gellant, stabilizer, wetting agent, dispersant, thickener for pharmaceuticals  
- **Regulatory:** FDA 21CFR §177.2800  
- **Trade Names Containing:** TEGO® Care 150

#### Steareth-21
- **CAS:** 9005-00-9 (generic)  
- **Synonyms:** PEG-21 stearyl ether; POE (21) stearyl ether  
- **Definition:** PEG ether of stearyl alcohol  
- **Empirical:** C₆₀H₁₂₂O₂₂  
- **Formula:** CH₃(CH₂)₁₆CH₂(OCH₂CH₂)ₙOH, avg. n = 21  
- **Properties:** Nonionic  
- **Toxicology:** Eye irritant; TSCA listed  
- **Uses:** Surfactant and emulsifier in pharmaceuticals, topicals; solubilizer for fragrances  
- **Regulatory:** FDA 21CFR §177.2800; FDA approved for topicals  
- **Manuf./Distrib.:** Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)  
- **Trade Names:** Brij® 721; Lipocol S-21

#### Steareth-25
- **CAS:** 9005-00-9 (generic)  
- **Synonyms:** PEG-25 stearyl ether; POE (25) stearyl ether  
- **Definition:** PEG ether of stearyl alcohol  
- **Empirical:** C₆₈H₁₃₈O₂₆  
- **Formula:** CH₃(CH₂)₁₆CH₂(OCH₂CH₂)ₙOH, avg. n = 25  
- **Properties:** Nonionic  
- **Toxicology:** Eye irritant; TSCA listed  
- **Uses:** Emulsifier, dispersant, thickener for pharmaceuticals  
- **Regulatory:** FDA 21CFR §177.2800  
- **Manuf./Distrib.:** Aldrich [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Fluka [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)  
- **Trade Names Containing:** TEGO® Care 150

#### Steareth-80
- **CAS:** 9005-00-9 (generic)  
- **Properties:** Nonionic  
- **Toxicology:** TSCA listed  
- **Uses:** Surfactant, moisturizer, emulsifier  
- **Trade Names:** DeTHOX SA-80

#### Steareth-100
- **CAS:** 9005-00-9 (generic)  
- **Synonyms:** PEG-100 stearyl ether; POE (100) stearyl ether  
- **Definition:** PEG ether of stearyl alcohol  
- **Empirical:** C₂₁₈H₄₃₈O₁₀₁  
- **Formula:** CH₃(CH₂)₁₆CH₂(OCH₂CH₂)ₙOH, avg. n = 100  
- **Properties:** Nonionic

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Stearate 40. See PEG-40 stearate

Stearic acid
CAS 57-11-4; 67701-03-5; 68424-37-3;
EINECS/ELINCS 200-313-4; 266-928-5; 270-298-7
FEMA 3035; INS570; E570
Synonyms: Carboxylic acid C18; 1-Heptadecanecarboxylic acid; Octadecanoic acid; n-Octadecanoic acid; Pearl stearic; Saturated C14-C22 fatty acid; Stearophanic acid
Classification: Fatty acid
Empirical: C18H36O2
Formula: CH3(CH2)16COOH9
Properties: Wh. to ylsh.-wh. amorphous waxy solid, tallow-like odor and taste; very sl. sol. in water; sol. in alcohol, ether, acetone, CCl4; m.w. 284.47; dens. 0.847 (70 C); m.p. 69.3 C; acid no. 195-200; iodine no. 4 max.; flash pt. (CC) 385 F; ref. index 1.4299 b.p. 383 C; acid no. 195-200; iodine no. 4 max.; flash pt. (CC) 385 F; ref. index 1.4299 (80 C)
Toxicology: LD50 (IV, rat) 21.5 ± 1.8 mg/kg; poison by IV route; human skin irritant; possible sensitizer for allergic persons; questionable carcinogen; experimental tumorigen by implant; TSCA listed
Precaution: Combustible when exposed to heat or flame; heats spontaneously
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
HMIS: Health 1, Flammability 1, Reactivity 0
Uses: Emulsifier, solubilizer in pharmaceuticals, buccals, implants, orals, topicals, vaginals, sunscreens; tablet/capsule lubricant; lubricant/softener in suppositories, ointments; stearetes as pharmaceutical aids
Manuf./Distrib.: A&E Connock†
http://www.connock.co.uk; ADA Int'l.
Allchem Ind. http://www.allchem.com;
Allchem Int'l. Ltd† http://www.allchem.co.uk; Am. Int'l.† http://www.amriche.com; Anar; Ashland† http://www.ashchem.com
Chempri; Chesham Chems. Ltd† http://www.chemacon.de
Fluka http://www.sigma-aldrich.com; Frank B. Ross http://www.frankbross.com;
Functional Foods† http://www.functionalfoods.com; GMI Prods.† http://www.gmi-origi...
Stearic acid, aluminum dihydroxide salt; Stearic acid, aluminum salt. See Aluminum stearate

Stearic acid, barium salt. See Barium stearate

Stearic acid, calcium salt. See Calcium stearate

Stearic acid, cetyl ester. See Cetyl stearate

Stearic acid, compd. with 2,2’,2”-nitrilotriethanol (1:1). See TEA-stearate

Stearic acid diethanolamide. See Stearamide DEA

Stearic acid ester with lactate of lactic acid calcium salt. See Calcium stearoyl lactylate

Stearic acid, ester with lactic acid bimol. ester, sodium salt. See Sodium stearoyl lactylate

Stearic acid, ethylene diamine diamide. See Ethylene distearamide

Stearic acid, ethyl ester. See Ethyl stearate

Stearic acid, 2-ethylhexyl ester. See Octyl stearate

Stearic acid, hexadecyl ester. See Cetyl stearate

Stearic acid, 2-(2-hydroxyethoxy) ethyl ester. See PEG-2 stearate

Stearic acid, isobutyl ester. See Isobutyl stearate

Stearic acid, isocetyl ester; Stearic acid, isohexadecyl ester. See Isocetyl stearate
Chemical Component Cross-Reference

Stearic acid, isopropyl ester. See Isopropyl stearate
Stearic acid, magnesium salt. See Magnesium stearate
Stearic acid, methyl ester. See Methyl stearate
Stearic acid, 2-methylpropyl ester. See Isobutyl stearate
Stearic acid, monooester with ethylene glycol. See Glycol stearate
Stearic acid, monooester with glycerol. See Glycerol stearate
Stearic acid, monooester with oxybis (propanediol). See Polyglyceryl-2 stearate
Stearic acid, monooester with 1,2-propanediol. See Propylene glycol stearate
Stearic acid, monooester with triglycerol. See Polyglyceryl-3 stearate
Stearic acid monoethanolamide. See Stearamide MEA
Stearic acid myristyl ester. See Myristyl stearate
Stearic acid, 2-(octadecyloxy)-3-hydroxypropyl ester. See Batyl stearate
Stearic acid, 2-octyldodecyl ester. See Octyldodecyl stearate
Stearic acid, palmityl ester. See Cetyl stearate
Stearic acid polydiethanolamide. See Stearamide DEA
Stearic acid, potassium salt. See Potassium stearate
Stearic acid, sodium salt. See Sodium stearate
Stearic acid, tetradecyl ester. See Myristyl stearate
Stearic acid, zinc salt. See Zinc stearate
Stearic monoethanolamide stearate. See Stearamide MEA-stearate
Stearic monoglyceride. See Glycerol stearate
Stearin. See Tristearin
Stearol. See Stearyl alcohol

Stearone
CAS 504-53-0; EINECS/ELINCS 207-993-1
Synonyms: Diheptadecyl ketone; Distearoyl ketone; 18-Pentatracontanone; Pentatracontan-18-one
Classification: Aliphatic ketone
Empirical: C_{35}H_{70}O
Formula: CH_{3}(CH_{2})_{16}CO(CH_{2})_{16}CH_{3}
Properties: Insol. in water; stable to high temps., acids, alkalis
Toxicology: TSCA listed

†=pharmaceutical grade

Precaution: Combustible
Uses: Visc. control agent in pharmaceuticals
Regulatory: Canada DSL
Manuf./Distrib.: Aceto [http://www.aceto.com]

Stearophanic acid. See Stearic acid

Stearoxy dimethicone
CAS 68554-53-0
Synonyms: Dimethyl siloxy stearoxy siloxane polymer; Poly (dimethylsilox) stearoxy siloxane; Siloxanes and silicones, dimethyl, (octadecyloxy)-terminated
Definition: Polymer of dimethylpolysiloxane endblocked with stearyloxy groups
Toxicology: TSCA listed
Uses: Spreading agent, emollient, water barrier for antiperspirants, creams, lotions
Trade Names: Abil®-Wax 2434

Stearoxytrimethylsilane
CAS 18748-98-6; EINECS/ELINCS 242-554-8
Synonyms: Silane, trimethyl (octadecyloxy)-; Trimethyl (octadecyloxy) silane; Trimethyl (stearyloxy) silane
Classification: Organo-silicon compd.
Empirical: C_{21}H_{46}OSi
Formula: CH_{3}(CH_{2})_{16}CH_{2}OSi(CH_{3})_{3}
Properties: Clear liq.; m.w. 342.69
Uses: Emollient in pharmaceutical topicals
Regulatory: Canada DSL
Manuf./Distrib.: Somerset Cosmetic Co. [http://www.makingcosmetics.com/]
Trade Names Containing: Dow Corning® Silky Wax 10

Stearoyl diethanolamide. See Stearamide DEA
Stearoyl monoethanolamide. See Stearamide MEA

Steartrimonium chloride
CAS 112-03-8; EINECS/ELINCS 203-929-1
Synonyms: Ammonium, trimethyloctadecyl-, chloride; Monostearyl trimethyl ammonium chloride; Octadecyl trimethyl ammonium chloride; Quaternium-10; STAC; Stearyl trimethyl ammonium chloride; N,N,N-Trimethyl-1-octadecanaminium chloride; Trimethyl octadecyl ammonium chloride; Trimethyl stearyl ammonium chloride
Classification: Quaternary ammonium salt
Empirical: C_{21}H_{48}N • Cl
Formula: [CH_{3}(CH_{2})_{16}CH_{2}N(CH_{3})_{3}]^+Cl^–
Properties: M.w. 348.13; cationic
Toxicology: LD50 (oral, mouse) 536 mg/kg, (skin, mouse) 1600 mg/kg; poison by ing.;
### Stearyl alcohol

**CAS:** 112-92-5; EINECS/ELINCS 204-017-6  
**Synonyms:** C18 linear alcohol; Decyl octyl alcohol; Octadecanol; 1-Octadecanol; n-Octadecanol; Octadeyl alcohol; n-Octadecyl alcohol; Stearol  
**Classification:** Fatty alcohol  
**Empirical:** C_{18}H_{38}O  
**Formula:** CH_{3}(CH_{2})_{16}CH_{2}OH  
**Properties:** Wh. unctuous flakes or gran., faint odor, bland taste; sol. in alcohol, acetone, ether; insol. in water; m.w. 270.56; dens. 0.8124 (59/4 C); m.p. 55-60 C; b.p. 210.5 C (15 mm); acid no. 2 max.; iodine no. 2 max.; hyd. no. 195-220  
**Toxicology:** LD50 (oral, rat) 20 g/kg; TDLo (implant, mouse) 1000 mg/kg; mildly toxic by ing.; irritating to skin and eyes; may cause skin sensitivity; nonallergenic; questionable carcinogen; experimental neoplastigen; TSCA listed  
**Precaution:** Flamm. when exposed to heat or flame; can react with oxidizers  
**HMIS:** Health 1, Flammability 1, Reactivity 0  
**Uses:** Surfactant, emulsifier, emulsion stabilizer, emollient, stiffener in pharmaceuticals, orals, topicals, vaginals; astringent in anti-itch preps.  
**Regulatory:** FDA 21CFR §172.755, 172.864, 175.105, 175.300, 176.200, 176.210, 177.1010, 177.1200, 177.1390, 177.2800, 178.3480, 178.3910; FDA approved for orals, topicals, vaginals; USP/NF, BP, EP compliance; Canada DSL  
**Trade Names:** Daistat SM 80  
**Trade Names:** Cachalot® S-56; Crodacol S95 EP; Crodacol S95 NF; Hetol SA; Lanette® 18
Chemical Component Cross-Reference

†=pharmaceutical grade

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Chemical Component Cross-Reference

**ester; Hexanoic acid, 2-ethyl-, octadecyl ester; Octadecyl 2-ethylhexanoate; Stearyl 2-ethylhexanoate**

**Definition:** Ester of stearyl alcohol and 2-ethylhexanoic acid

**Empirical:** C₉₆H₁₈₂O₂

**Formula:** CH₃(CH₂)₁₀CH₂CH₃COO(CH₂)₁₂CH₃

**Uses:** Emollient in pharmaceuticals, topical; agent, pigment dispersant, spreading agent, solubilizer for pharmaceuticals, creams, lotions

**Regulatory:** TSCA listed


**Trade Names Containing:** Crodamol SCO; Super Refined® Crodamol SCO

### Stearyl stearate

**CAS:** 2778-96-3; 85536-04-5; EINECS/ELINCS 220-476-5, 287-484-9

**Synonyms:** Octadecanoic acid, octadecyl ester; Octadecyl stearate

**Definition:** Ester of stearyl alcohol and stearic acid

**Empirical:** C₃₆H₇₂O₂

**Formula:** CH₃(CH₂)₁₀COO(CH₂)₁₂CH₃

**Properties:** M.w. 536.98; m.p. 56 °C; flash pt. > 110 °C

**Toxicology:** TSCA listed

**Uses:** Emollient, thickener, visc. control agent, pigment dispersant, spreading agent, solubilizer for pharmaceuticals, creams, lotions

**Regulatory:** FDA 21CFR §172.510; Canada DSL

**Manuf./Distrib.:** A&E Connock

  http://www.connock.co.uk; AXO Chem.
  http://www.axochemical.com

**Trade Names:** Crodamol SCO; Super Refined® Crodamol SCO

### Stearalkonium hydroxide

**CAS:** 8046-19-3; EINECS/ELINCS 232-458-4

**Synonyms:** Gum storax; Liquidambar orientalis; Liquid storax; Storax; Storax gum; Styrax; Sweet gum; Sweet oriental gum

**Definition:** Balsam obtained from trunk of Liquidambar orientalis

**Properties:** Grayish-brn. semiliq. to semisolid, char. odor and taste; sol. in 1 part warm alcohol; sol. in ether, acetone, CS₂; insol. in water; flash pt. > 110 °C

**Toxicology:** May be harmful by inh., ing., skin absorb; mod. toxic when ingested; may cause irritation to eyes, mucus membranes, upper respiratory tract; can cause urinary problems when absorbed thru skin; can cause skin irritation, welts, and discomfort when applied topically; common allergen; TSCA listed

**Precaution:** Incompat. with strong oxidizing agents

**Hazardous Decomp. Prods.:** CO, CO₂; emits toxic fumes under fire conditions

**Storage:** Store @ R.T. in cool, dry place; keep tightly closed

**Uses:** Topical protectant in pharmaceuticals; expectorant; weak antiseptic; stimulant; parasiticide, formerly as ointment in treatment of parasitic skin diseases; embedding material in microscopy

**Regulatory:** FDA 21CFR §172.510; FEMA GRAS

**Manuf./Distrib.:** Bio-Botanica http://www.bio-botanical.com

### Stearyl trihydroxyethyl propylenediamine dihydrofluoride (INCI)

**Definition:** Ester of stearyl alcohol and dihydrofluoride (INCI)

**Synonyms:** Stearalkonium hydroxide

**Uses:** Emollient, thickener, visc. control agent, pigment dispersant, spreading agent, solubilizer for pharmaceuticals, creams, lotions

**Regulatory:** TSCA listed

**Trade Names:** Exceparl SS; Ritachol® SS

### Stearyl trimethyl ammonium chloride

**Definition:** Ester of stearyl alcohol and trimethyl ammonium chloride

**Synonyms:** Stearyl trimethyl ammonium chloride

**Uses:** Emollient, thickener, visc. control agent, pigment dispersant, spreading agent, solubilizer for pharmaceuticals, creams, lotions

**Regulatory:** TSCA listed

**Trade Names:** Exceparl SS; Ritachol® SS

### Stibine, trichloro-

**Definition:** Ester of stearyl alcohol and stearic acid

**Empirical:** C₃₆H₇₂O₂

**Formula:** CH₃(CH₂)₁₀CH₂CH₃COO(CH₂)₁₂CH₃

**Uses:** Emollient in pharmaceuticals, topical

**Regulatory:** Canad. DSL

**Manuf./Distrib.:** A&E Connock

  http://www.connock.co.uk; AXO Chem.
  http://www.axochemical.com

**Trade Names:** Crodamol SCO; Super Refined® Crodamol SCO

### Stearyl trihydroxyethyl propylenediamine dihydrofluoride (INCI)

**Definition:** Ester of stearyl alcohol and dihydrofluoride (INCI)

**Synonyms:** Stearalkonium hydroxide

**Uses:** Emollient, thickener, visc. control agent, pigment dispersant, spreading agent, solubilizer for pharmaceuticals, creams, lotions

**Regulatory:** TSCA listed

**Trade Names:** Exceparl SS; Ritachol® SS

### Stearyl trimethyl ammonium chloride

**Definition:** Ester of stearyl alcohol and trimethyl ammonium chloride

**Synonyms:** Stearyl trimethyl ammonium chloride

**Uses:** Emollient, thickener, visc. control agent, pigment dispersant, spreading agent, solubilizer for pharmaceuticals, creams, lotions

**Regulatory:** TSCA listed

**Trade Names:** Exceparl SS; Ritachol® SS
Chemical Component Cross-Reference

†=pharmaceutical grade

Handbook of Pharmaceutical Additives, Third Edition 2117
Chemical Component Cross-Reference

Styrallyl alcohol. See α-Methylbenzyl alcohol
Styrallyl propionate. See α-Methylbenzyl propionate
Styrallyl acetate. See α-Methylbenzyl acetate
Styrallyl alcohol. See α-Methylbenzyl alcohol
Styrallyl butyrate. See α-Methylbenzyl butyrate
Styrallyl formate. See α-Methylbenzyl formate
Styrallyl isobutyrate. See Methylbenzyl isobutyrate
Styrallyl propionate. See α-Methylbenzyl propionate
Styrax. See Gum benzoin; Storax (Liquidambar orientalis)
Styrax benzoin; Styralyx benzoin gum. See Gum benzoin

Styrene
CAS 100-42-5; EINECS/ELINCS 202-851-5
UN 2055 (DOT); FEMA 3233
Synonyms: Cinnamene; Cinnamenol; Cinnamol; Ethylenbenzene; Phenethylene; Phenylethene; Phenylethylene; Styrene monomer; Styrene monomer, inhibited; Styrol; Styrole; Styrolene; Styron; Styropor; Vinylbenzene; Vinylbenzol
Classification: Aromatic hydrocarbon; alkenylenzene
Empirical: C₈H₈
Formula: C₈H₈CH:CH₂
Properties: Colorless to ylsh. oily liq., penetrating odor; sol. in alcohol, ether, methanol, acetone, CS₂; sparingly sol. in water; m.w. 104.15; dens. 0.906 (20/4 C); m.p. -30.6 C; b.p. 145-146 C; flash pt. (CC) 31 C; ref. index 1.546 (20 C)
Toxicology: ACGIH TLV/TWA 50 ppm; STEL 100 ppm (skin); LD₅₀ (oral, rat) 5000 mg/kg, (IV, mouse) 90 mg/kg, (IP, mouse) 660 mg/kg; poison by ing., inh., IV routes; mod. toxic by IP; mildly toxic by inh. to humans; human systemic effects by inh. (eye/olfactory changes); skin, eye, mucous membrane irritant; human skin irritant; narcotic in high concns.; carcinogen; experimental teratogen, reproductive effector; human mutagenic data; TSCA listed
Precaution: Flamm.; dangerous fire hazard exposed to flame, heat, oxidizers; vapor explosive; slowly undergoes polymerization and oxidation on exposure to light and air, yielding peroxides; violent/explosive polymerizations possible;

†=pharmaceutical grade

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
NFPA: Health 2, Flammability 3, Reactivity 2
Storage: Storage hazard above 32 C
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21 CFR §172.515, 173.20, 173.25, 175.300, 175.320, 175.380, 175.390, 176.170, 176.180, 177.1010, 177.1020, 177.1030, 177.1040, 177.1210, 177.1630, 177.1640, 177.1810, 177.1820, 177.1830, 177.2260, 177.2420.; Canada DSL; 177.2600, 177.2710, 177.2800, 178.3790; FEMA GRAS; HAP


Styrene/acrylate copolymer. See Styrene/acrylates copolymer
Styrene/acrylates copolymer
CAS 9010-92-8
Synonyms: Styrene/acrylate copolymer; Styrene/acrylic; Styrene/acrylic copolymer;
Suberic acid  

**Synonyms:** Dicarboxylic acid C8; Hexane-1,6-dicarboxylic acid; Octanedioic acid; Octane-1,8-dioic acid  

**Empirical:** C8H14O4  

**Formula:** HOOC(CH2)6COOH  

**Properties:** Colorless crys.; sol. in alcohol, hot water; partly sol. in ether; sl. sol. in cold water; m.w. 174.20; m.p. 142-144 C; b.p. 230 C (15 mm); sublimes @ 300 C  

**Precaution:** Combustible  

**Uses:** Intermediate for synthesis of drugs  

**Regulatory:** Canada DSL  

**Manuf./Distrib.:** Advanced Synthesis Tech.  

**http://www.advancedsynthesis.com**

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**Sodium cyclamate**  

**Synonyms:** Calcium cyclamate; Saccharin  

**Empirical:** C7H5O4Na  

**Formula:** HOOCCH2CH2COONa  

**Properties:** Colorless crys., odorless, sour acid taste; very sol. in alcohol, ether, acetone, glycerin; sol. 77 g/l in water; m.w. 118.09; dens. 1.552; m.p. 185 C; b.p. 235 C (dec.)  

**Toxicology:** LD50 (oral, rat) 2260 mg/kg, (IP, mouse) 2702 mg/kg; mod. toxic by subcut. route; primary irritant; severe eye irritant; mutagen; TSCA listed  

**Precaution:** Combustible  

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes  

**Storage:** Store @ R.T.  

**Uses:** Germicide, buffer, neutralizer for pharmaceuticals, parenterals, orals, mouthwashes; laxative  

**Regulatory:** NF compliance; FDA 21 CFR §131.111, 131.136, 131.144, 172.230, 172.275, 172.861, 184.1091, 184.1094, 582.1091, GRAS; Japan approved; Europe listed; UK approved; FDA approved for parenterals, orals; Canada DSL  

**Manuf./Distrib.:** AMRESCO†  


**http://www.sigma-aldrich.com**

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**Sucaryl acid**  

**Synonyms:** Substituted hexa hydroxypropyridine  

**Empirical:** C8H14O4  

**Formula:** HOOC(CH2)6COOH  

**Properties:** Colorless monoclinic prisms or wh. cryst., odorless, sour acid taste; very sol. in alcohol, ether, acetone, glycerin; sol. 77 g/l in water; m.w. 118.09; dens. 1.552; m.p. 185 C; b.p. 235 C (dec.)  

**Toxicology:** LD50 (oral, rat) 2260 mg/kg, (IP, mouse) 2702 mg/kg; mod. toxic by subcut. route; primary irritant; severe eye irritant; mutagen; TSCA listed  

**Precaution:** Combustible  

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes  

**Storage:** Store @ R.T.  

**Uses:** Germicide, buffer, neutralizer for pharmaceuticals, parenterals, orals, mouthwashes; laxative  

**Regulatory:** NF compliance; FDA 21 CFR §131.111, 131.136, 131.144, 172.230, 172.275, 172.861, 184.1091, 184.1094, 582.1091, GRAS; Japan approved; Europe listed; UK approved; FDA approved for parenterals, orals; Canada DSL  

**Manuf./Distrib.:** AMRESCO†  


**http://www.sigma-aldrich.com**

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**Succinic acid**  

**Synonyms:** Substituted hexa hydroxypropyridine  

**Empirical:** C8H14O4  

**Formula:** HOOC(CH2)6COOH  

**Properties:** Colorless monoclinic prisms or wh. cryst., odorless, sour acid taste; very sol. in alcohol, ether, acetone, glycerin; sol. 77 g/l in water; m.w. 118.09; dens. 1.552; m.p. 185 C; b.p. 235 C (dec.)  

**Toxicology:** LD50 (oral, rat) 2260 mg/kg, (IP, mouse) 2702 mg/kg; mod. toxic by subcut. route; primary irritant; severe eye irritant; mutagen; TSCA listed  

**Precaution:** Combustible  

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes  

**Storage:** Store @ R.T.  

**Uses:** Germicide, buffer, neutralizer for pharmaceuticals, parenterals, orals, mouthwashes; laxative  

**Regulatory:** NF compliance; FDA 21 CFR §131.111, 131.136, 131.144, 172.230, 172.275, 172.861, 184.1091, 184.1094, 582.1091, GRAS; Japan approved; Europe listed; UK approved; FDA approved for parenterals, orals; Canada DSL  

**Manuf./Distrib.:** AMRESCO†  


**http://www.sigma-aldrich.com**

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**Sulphur**  

**Synonyms:** Substituted hexa hydroxypropyridine  

**Empirical:** C8H14O4  

**Formula:** HOOC(CH2)6COOH  

**Properties:** Colorless monoclinic prisms or wh. cryst., odorless, sour acid taste; very sol. in alcohol, ether, acetone, glycerin; sol. 77 g/l in water; m.w. 118.09; dens. 1.552; m.p. 185 C; b.p. 235 C (dec.)  

**Toxicology:** LD50 (oral, rat) 2260 mg/kg, (IP, mouse) 2702 mg/kg; mod. toxic by subcut. route; primary irritant; severe eye irritant; mutagen; TSCA listed  

**Precaution:** Combustible  

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes  

**Storage:** Store @ R.T.  

**Uses:** Germicide, buffer, neutralizer for pharmaceuticals, parenterals, orals, mouthwashes; laxative  

**Regulatory:** NF compliance; FDA 21 CFR §131.111, 131.136, 131.144, 172.230, 172.275, 172.861, 184.1091, 184.1094, 582.1091, GRAS; Japan approved; Europe listed; UK approved; FDA approved for parenterals, orals; Canada DSL  

**Manuf./Distrib.:** AMRESCO†  


**http://www.sigma-aldrich.com**

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**Subertic acid**  

**Synonyms:** Dicarboxylic acid C8; Hexane-1,6-dicarboxylic acid; Octanedioic acid; Octane-1,8-dioic acid  

**Empirical:** C8H14O4  

**Formula:** HOOC(CH2)6COOH  

**Properties:** Colorless crys.; sol. in alcohol, hot water; partly sol. in ether; sl. sol. in cold water; m.w. 174.20; m.p. 142-144 C; b.p. 230 C (15 mm); sublimes @ 300 C  

**Precaution:** Combustible  

**Uses:** Intermediate for synthesis of drugs  

**Regulatory:** Canada DSL  

**Manuf./Distrib.:** Advanced Synthesis Tech.  

**http://www.advancedsynthesis.com**
Succinic anhydride
CAS 108-30-5; EINECS/ELINCS 203-570-0

Synonyms: Butanedioic anhydride; Dihydro-2,5-furandione; 2,5-Diketotetrahydrofuran; SAA; Succinic acid anhydride; Succinyl oxide; Tetrahydro-2,5-dioxofuran

Empirical: C₄H₄O₃

Formula: OCCH₂CH₂COO

Properties: Colorless needles; sol. in chloroform, CCl₄, alcohol, chlorinated solvs.; very sl. sol. in ether, water; m.w. 100.08; dens. 1.503; vapor pressure 1 mm (92 C); m.p. 119-120 C; b.p. 261 C; sublimes @ 115 C and 5 mm pressure

Toxicology: LD₅₀ (oral, rat) 1510 mg/kg; TDLo (subcut., rat, 65 wks intermittent) 2600 mg/kg; mod. toxic by ing.; severe eye irritant; irritating to respiratory system; possible carcinogen; experimental neoplastigen and teratogen; mutagenic data; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Storage: Hygroscopic moisture-sensitive

Uses: Mfg. of pharmaceuticals

Regulatory: FDA 21CFR §172.892, 175.300, 175.380, 175.390, 176.170, 177.1210; Canada DSL


Succinic acid anhydride. See Succinic anhydride

Succinic acid diethyl ester. See Diethyl succinate

Succinic acid, 2,3-dihydroxy-. See L-Tartaric acid

Succinic acid, dimethyl ester. See Dimethyl succinate

Succinic acid disodium salt. See Sodium succinate

Succinic acid, hydroxy-. See N-Hydroxysuccinic acid

Succinic acid sodium salt. See Sodium

†=pharmaceutical grade
Succinyl oxide. See Succinic anhydride

Sucralose

CAS 56038-13-2
INS955

Synonyms: 1,6-Dichloro-1,6-dideoxy-β-D-fructofuranosyl-4-chloro-4-deoxy-α-D-galactopyranoside; 4,1´,6´-Trichlorogalactosucrose

Definition: Selectively chlorinated deriv. of sucrose

Empirical: C12H19Cl3O8

Properties: Wh. crystals or powd.; odorless; sweet taste; sol. in water, methanol, alcohol; sl. sol. in ethyl acetate; m.w. 397.66

Toxicology: LD50 (unreported, mouse) > 16 g/kg

Uses: Nonnutritive sweetener, flavor enhancer in pharmaceuticals

Regulatory: FDA 21CFR §172.831; USP/NF compliance

Manuf./Distrib.: CarboMer

Trade Names: Splenda®

Sucralose. See Sodium cyclamate

Sucrose

CAS 57-50-1; EINECS/ELINCS 200-334-9

Synonyms: Beet sugar; Cane sugar; Confectioner's sugar; β-D-Fructofuranosyl-α-D-glucopyranoside; α-D-Glucopyranosyl β-D-fructofuranoside; (α-D-Glucosido)-β-D-fructofuranoside; Granulated sugar; Rock candy; Saccharose; Saccharum; D-Sucrose; Sugar; Table sugar

Classification: Aliphatic polyhydric alcohol; disaccharide

Definition: Sugar obtained from Saccharum officinarum, Beta vulgaris and other sources; molecule of glucose linked to one of fructose; avail. commercially as naturally occurring (+)-enantiomer

Empirical: C12H22O11

Properties: Wh. crystals or powd.; odorless; sweet taste; very sol. in water; sol. in alcohol, glycerol, pyridine; insol. in ether, chloroform; m.w. 342.30; dens. 1.587 (25/4 C); m.p. 160-186 C (dec.); ref. index 1.34783 (10%, 20 C)

Toxicology: ACGIH TLV/TWA 10 mg/m3; PEL-TWA 15 mg/m3 (total dust), 5 mg/m3 (respirable fraction); LD50 (oral, rat) 29,700 mg/kg, (IP, mouse) 14,000 mg/kg; pract. nontoxic by ing.; inh. of high concs. of dust may cause coughing, mild temporary irritation; experimental teratogen; mutagenic data; TSCA listed

Precaution: May form explosive dust-air mixts.; incompat. with oxidizers (increases fire/explosion risk); vigorous reaction with nitric acid or sulfuric acid; avoid static charge, sparks, temps. above 160 C

Hazardous Decomp. Prods.: CO, CO2; heated to decomp., emits acrid smoke and irritating fumes

HMIS: Health 0, Flammability 1, Reactivity 0

Storage: Store in tightly closed, labeled containers away from incompat. materials, @ R.T.; avoid generating dusts

Uses: Sweetener, flavor, preservative, antioxidant (in form of invert sugar) in pharmaceuticals, buccals, orals, rectals, topicals, medicinal syrups; coating agent, diluent, granulation agent, and excipient for tablets and capsules


Manuf./Distrib.: AMRESCO

Trade Names: Bacto®, Maxwell®, NED®, DE®

Succinic anhydride

Chemical Component Cross-Reference


†=pharmaceutical grade
Chemical Component Cross-Reference

†=pharmaceutical grade

Vitamin A Palmitate 500; Vitamin D₂ 850;
Vitamin D₃ 100; Vitamin D₃ 100 HP; Vitamin D₃ 850

See also Sugar, confectioner’s

D-Sucrose. See Sucrose

Sucrose acetate isobutyrate
CAS 126-13-6; 27216-37-1; EINECS/ELINCS 204-771-6

INS444

Synonyms: α-D-Glucopyranoside, O-acetyl-tris-(2-methyl-1-oxopropyl)-β-D-fructofuranosyl, acetate tris (2-methyl propanoate); Saccharose acetate isobutyrate; SAIB; Sucrose acetoisobutyrate; Sucrose, diacetate hexaisobutyrate

Classification: Sucrose derivative

Definition: Mixed ester of sucrose and acetic and isobutyric acids

Empirical: C₄₀H₆₂O₁₉

Formula: (CH₃COO)₂C₁₂H₁₄O₃[OOCCH(CH₃)₂]₆

Properties: Wh. powd. or pale straw-colored liq.; insol. in water; m.w. 846.92; dens. 1.146; dec. on heating to 288 C; flash pt. (COC) 260 C; ref. index 1.4540

Toxicology: LD₅₀ (oral, rat) 25,600 mg/kg, (IP, rat) > 25,600 mg/kg; sl. toxic by ing. and IP routes; TSCA listed

Precaution: Combustible

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating vapors

Uses: Film-former, emulsion stabilizer, clouding agent, modifying extender for film-forming biopolymers

Regulatory: FDA 21CFR §172.833, 175.105; Canada DSL

Manuf./Distrib.: Ashland

Trade Names: Non Pareil® Seeds

Trade Names Containing: Beta Carotene 1%
CWS; Beta-Carotene Dry Powd. 10%
DC/GFP; Canthaxanthin 10% CWS/N; Di-Pac®, Gelcarin® DG 3252
Lutein DC; LycoVit® 10% DC; Optisharp™ (Zeaxanthin) 5% CWS/S-TG; redivivo™ (lycopene) 5% TG/P; redivivo™ (lycopene) 10% WS
Ropufa® '10' n-3 INF Powder; Sugar Spheres NF Series; Sugartab®, Vitamin A Acetate/D₂ 500/50; Vitamin A Acetate/D₃

Sucrose acetoisobutyrate. See Sucrose acetate isobutyrate

Sucrose benzoate
CAS 12738-64-6; EINECS/ELINCS 235-795-5

Synonyms: β-D-Fructofuranosyl-α-D-glucopyranoside benzoate

Classification: Disaccharide ester

Empirical: C₁₉H₂₆O₁₂

Properties: Sol. in aromatics, ketones, esters;
Chemical Component Cross-Reference

†=pharmaceutical grade

Sucrose distearate
CAS 27195-16-0; EINECS/ELINCS 248-317-5
Synonyms: α-D-Glucopyranoside, β-D-fructofuranosyl, diocadecanoate;
Saccharose distearate

Definition: Mixture of sucrose esters of stearic acid; consists mainly of the diester

Empirical: C_{48}H_{90}O_{13}

Properties: M.w. 875.23; HLB 3.0; nonionic

Uses: Dispersant, emulsifier, wetting agent, solubilizer, emollient, conditioner, softener, detergent, excipient, diluent, binder, filler, lubricant for pharmaceuticals

Regulatory: Canada DSL

Manuf./Distrib.: CarboMer†

http://www.carbomer.com

Trade Names: Crodesta F-10; Ryoto Sugar Ester S-570; Ryoto Sugar Ester S-770; Ryoto Sugar Ester S-970

Trade Names Containing: Crodesta F-110

Sucrose esters; Sucrose esters of fatty acids. See Acetylated sucrose estearate

Sucrose cis-13-docosenoate. See Sucrose erucate

Sucrose erucate

Synonyms: Sucrose cis-13-docosenoate

Classification: Sucrose fatty acid ester

Properties: Powd.; HLB 1.0

Uses: Disintegrant in pharmaceutical formulations

Regulatory: FDA 21CFR §172.859

Trade Names: Ryoto Sugar Ester ER-190; Ryoto Sugar Ester ER-290

Sucrose esters; Sucrose esters of fatty acids. See Sucrose fatty acid esters

Sucrose fatty acid esters

CAS 977019-37-6; INS473; E473

Synonyms: Sucrose esters; Sucrose esters of fatty acids; Sugar esters

Definition: Mono-, di-, and triesters of sucrose with fatty acids

Properties: Wh. to sl. grayish powd. (based on sat. fatty substances); ylsh. pasty to waxy substance (based on unsat. fatty acids); sol. in ethanol; sparingly sol. in water; insol. in veg. oils; nonionic

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Emulsion stabilizer, dispersant,
Chemical Component Cross-Reference

solubilizer for pharmaceutical tablets

Regulatory: FDA 21CFR §172.859; ADI 0-30 mg/kg body wt.; Europe listed; UK approved; FAO/WHO 8.446

Manuf./Distrib.: Dai-ichi Kogyo Seiyaku
http://www.dks-web.co.jp; Mitsubishi Chem.
http://www.m-kagaku.co.jp/index_en.htm; Multi-Kem http://www.multikem.com

Trade Names Containing: Ryoto Sugar Ester
POS-135

Sucrose laurate
CAS 25339-99-5; EINECS/ELINCS 246-873-3
Synonyms: α-D-Glucopyranoside, β-D-fructofuranosyl, monododecanoate
Definition: Mixture of sucrose esters of lauric acid; consists mainly of monoester
Empirical: C\textsubscript{24}H\textsubscript{44}O\textsubscript{12}
Properties: HLB 15.0; nonionic
Uses: Emulsifier, solubilizer, stabilizer, antibacterial, wetting agent, dispersant, softener, conditioner in pharmaceuticals; lubricant, disintegrant, binder, filler in tablets

Manuf./Distrib.: CarboMer†
http://www.carbomer.com; Fluka
http://www.sigma-aldrich.com

Trade Names: Ryoto Sugar Ester L-1695; Surfhope® SE Pharma D-1216

Trade Names Containing: Ryoto Sugar Ester
LWA-1570

Sucrose monodistearate. See Sucrose polyol

Sucrose monopalmitate. See Sucrose palmitate

Sucrose monostearate. See Sucrose stearate

Sucrose myristate
CAS 27216-47-3; EINECS/ELINCS 248-340-0
Definition: Monoester of myristic acid and sucrose
Empirical: C\textsubscript{26}H\textsubscript{48}O\textsubscript{12}
Properties: Nonionic
Uses: Emulsifier, solubilizer, stabilizer; tablet lubricant, disintegrant, binder, filler

Trade Names: Ryoto Sugar Ester M-1695

Sucrose octaacetate
CAS 126-14-7; EINECS/ELINCS 204-772-1
FEMA 3038
Synonyms: α-D-Glucopyranoside, 1,3,4,6-tetra-O-acetyl-β-D-fructofuranosyl-1,4-tetraacetate; Octaacetylfructose; D-(+)-Sucrose octaacetate
Empirical: C\textsubscript{28}H\textsubscript{36}O\textsubscript{19}

Properties: Wh. need., pract. odorless, intensely bitter taste; sol. in ether, methanol, chloroform, 1100 parts water, 11 parts alcohol, 22 parts CCl\textsubscript{4}, oxygenated and aromatic solvs.; m.w. 678.60; m.p. 82-85 C; b.p. 260 C (1 mm); dec. above 285 C; ref. index 1.4660
Toxicology: LD\textsubscript{50} (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; sl. toxic by ing. and skin contact; irritating to skin; TSCA listed
Precaution: Combustible

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating vapors

HMIS: Health 1, Flammability 0, Reactivity 0
Storage: Hygroscopic

Uses: Alcohol denaturant in pharmaceuticals; in preps. intended to deter nail biting

Regulatory: FDA 21CFR §172.515, 175.105, 27CFR §21.130; FEMA GRAS; USP/NF compliance; Canada DSL


D-(+)-Sucrose octaacetate. See Sucrose octaacetate

Sucrose oleate
CAS 25496-92-8; EINECS/ELINCS 247-041-2
Definition: Monoester of oleic acid and sucrose
Empirical: C\textsubscript{36}H\textsubscript{54}O\textsubscript{12}
Properties: Nonionic
Uses: Emulsifier, solubilizer, stabilizer; tablet lubricant, disintegrant, binder, filler

Regulatory: FDA 21CFR §172.859
Chemical Component Cross-Reference

† = pharmaceutical grade

Trade Names: Ryoto Sugar Ester O-1570; Ryoto Sugar Ester OWA-1570

Sucrose palmitate
CAS: 26446-38-8; EINECS/ELINCS: 247-706-7
Synonyms: β-D-Fructofuranosyl-α-D-glucopyranoside monohexadecanoate; α-D-Glucopyranosyl, β-D-fructofuranosyl, monohexadecanoate; Palmitic sucrose ester; Saccharose palmitate; Sucrose monopalmitate; Sucrose palmitic acid ester

Definition: Monoester of palmitic acid and sucrose

Empirical: C_{28}H_{52}O_{12}

Properties: M.w. 580.71; nonionic

Uses: Emulsifier, solubilizer, stabilizer; tablet lubricant, disintegrant, binder, filler

Regulatory: FDA 21CFR §172.859; Canada DSL

Trade Names: Ryoto Sugar Ester O-1570;
Ryoto Sugar Ester OWA-1570;
Surfhope® SE Pharma D-1615;
Surfhope® SE Pharma D-1616

Sucrose palmitic acid ester. See Sucrose palmitate

Sucrose polylaurate
Definition: Mixture of esters of lauric acid and sucrose

Properties: Nonionic

Uses: Emulsifier

Trade Names: Ryoto Sugar Ester L-195

Sucrose polylinoleate
CAS: 56449-51-5; EINECS/ELINCS: 260-188-7

Definition: Mixture of esters of linoleic acid and sucrose

Uses: Emulsifier for pharmaceuticals

Manuf./Distrib.: Somerset Cosmetic Co.

http://www.makingcosmetics.com/

Sucrose polyleate
Definition: Mixture of esters of oleic acid and sucrose

Properties: Nonionic

Uses: Emulsifier

Trade Names: Ryoto Sugar Ester O-170

Sucrose polystearate
Synonyms: Saccharose mono/distearate; Sucrose mono/distearate

Definition: Mixture of esters of stearic acid and sucrose

Properties: Nonionic

Uses: Emulsifier, solubilizer, stabilizer, tableting agent, lipophilic matrix in pharmaceuticals; excipient, diluent, lubricant, binder, filler for tablets

Trade Names: Ryoto Sugar Ester S-070;
Ryoto Sugar Ester S-170; Ryoto Sugar Ester S-270

Sucrose stearate
CAS: 25168-73-4; EINECS/ELINCS: 246-705-9

Synonyms: β-D-Fructofuranosyl-α-D-glucopyranoside, monooctadecanoate; α-D-Glucopyranosyl, β-D-fructofuranosyl, monooctadecanoate; Sucrose monostearate

Definition: Monoester of stearic acid and sucrose

Empirical: C_{30}H_{56}O_{12}

Properties: Wh. powd.; odorless; tasteless; nonionic

Uses: Thickener, suspending agent, dispersant, emulsifier, wetting agent, solubilizer for pharmaceuticals; lubricant, disintegrant, binder, filler in tablets

Features: Low-foaming

Regulatory: Canada DSL

Manuf./Distrib.: CarboMer†

http://www.carbomer.com

Trade Names Containing: Crodesta F-110

Sucrose tetraester triacetate
CAS: 52439-69-7; EINECS/ELINCS: 257-922-3

Definition: Mixt. of esters of stearic acid, acetic acid, and sucrose

Uses: Emulsifier, conditioner, softener, detergent for pharmaceuticals; tablet lubricant

Regulatory: Canada DSL

Manuf./Distrib.: Somerset Cosmetic Co.

http://www.makingcosmetics.com/

Sucrose tribehenate
Definition: Triester of behenic acid and sucrose

Empirical: C_{78}H_{148}O_{14}

Properties: Nonionic

Uses: Emulsifier, antibacterial, wetting agent, dispersant for pharmaceuticals; lubricant, disintegrant, binder, filler for tablets;
**Chemical Component Cross-Reference**

solubilizer, stabilizer for fat-sol. vitamins and antibiotics

*Trade Names: Ryoto Sugar Ester B-370*

**Sucrose tristearate**

*CAS 27923-63-3; EINECS/ELINCS 248-731-6*

*Synonyms: β-D-Fructofuranosyl-α-D-glucopyranoside trioctadecanoate*

*Definition: Triester of stearic acid and sucrose*

*Empirical: C₆₆H₁₂₄O₁₄*

*Properties: Nonionic*

*Uses: Emulsifier, solubilizer, stabilizer in pharmaceuticals; lubricant, disintegrant, binder, filler for tablets*

*Regulatory: FDA 21CFR §172.859*

*Manuf./Distrib.: CarboMer [http://www.carbomer.com]*

*Trade Names: Ryoto Sugar Ester S-370; Ryoto Sugar Ester S-370F*

**Sudan III**  See D&C Red No. 17; Solvent red 23

**Sudan gum**.  See Acacia

**Sugar**.  See Sucrose

**Sugar, compressible**

*Synonyms: Sucrose, compressible*

*Definition: Dried at 105 C for 4 h, contains 95-98% sucrose; may also contain starch, maltodextrin, invert sugar, and a lubricant*

*Properties: Pract. wh. cryst. powd., odorless, sweet taste; sucrose portion is very sol. in water; stable in air*

*Uses: Sweetener in pharmaceuticals; diluent for tablets and capsules*

*Regulatory: USP/NF, BP compliance*


**Sulfalone**.  See Sulfolane

**Sulfamethalazole**.  See Sulfamethoxazole

**Sulfamethizole**

*CAS 144-82-1; EINECS/ELINCS 205-641-1*

*Synonyms: 2-(p-Aminobenzenesulfonylazo)-5-methylthiadiazole; 4-Amino-N-(5-methyl-1,3,4-thiadiazol-2-yl) benzenesulfonylamine; 5-Methyl-2-sulfonanilamido-1,3,4-thiadiazole; N¹-(5-Methyl-1,3,4-thiadiazol-2-yl) sulfanilimide; Sulfameththiaziadole; 2-Sulfanilamido-5-methyl-1,3,4-thiadiazole*

*Empirical: C₉H₁₀N₄O₂S₂*

*Properties: Wh. powd.; sol. in 95% ethanol; sol.
**Chemical Component Cross-Reference**

in water @ pH 7.5, insol. @ pH 6.5; insol. in benzene; m.w. 270.35; m.p. 208-212 C; nonvolatile; probably nonflamm.

**Toxicology:** LD50 (oral, rat) 3500 mg/kg, (subcut., rat) > 6560 mg/kg, (IV, rat) 2710 mg/g may be harmful by inh., ing., skin absorpt.; may cause skin eruptions on contact, by inh. or ing.; may cause sensitization by skin contact; irritant; may cause allergic skin reaction; exposure @ elevated levels may lead to shock; may cause nausea, diarrhea, anorexia, headache, depression, hallucinations, convulsions, fever, chills, dermatitis; experimental carcinogen; TSCA listed

**Storage:** Store refrigerated

**Uses:** Antimicrobial; antibacterial; used esp. in renal infections

**Regulatory:** BP, EP compliance

**Manuf./Distrib.:**
- Alfa Chem†
  - [http://www.alfachem1.com](http://www.alfachem1.com)
- Asiamerica
  - Int'l.†; Functional Foods†
  - [http://www.functionalfoods.com](http://www.functionalfoods.com)
  - [http://www.mpbio.com](http://www.mpbio.com)
  - Napp Tech.†
  - [http://www.napptech.com](http://www.napptech.com)
- Pfaltz & Bauer
  - [http://www.pfaltzandbauer.com](http://www.pfaltzandbauer.com)
  - RTD
- Hallstar†
  - [http://www.rtdhallstar.com](http://www.rtdhallstar.com)
- Riedel-deHaën
  - Sigma
  - [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)
- Spectrum Quality Prods.†
  - [http://www.spectrumchemical.com](http://www.spectrumchemical.com)
- Synasia†
  - [http://www.synasia.com](http://www.synasia.com)
  - TCI Am.
  - [http://www.tciamerica.com](http://www.tciamerica.com)

**Sulfamethoxazol. See Sulfamethoxazol**

**Sulfamethoxazol**

CAS 723-46-6

**Synonyms:** 4-Amino-N-(5-methyl-3-isoxazolyl)benzenesulfonamide; 3-(p-Aminophenylsulfonamido)-5-methylisoazole; N’-(5-Methyl-3-isoxazole)sulfanilamide; N’-(5-Methyl-3-isoxazolyl)sulfanilamide; 5-Methyl-3-sulfanilamidoisoxazole; Metoxal; Sulfamethalazol; Sulfamethoxazol; Sulfamethylisoxazol; 3-Sulfanilamido-5-methylisoxazol; Sulphisomezol

**Empirical:** C10H11N3O3S

**Properties:** Ylsh.-wh. powd.; m.w. 253.28; m.p. 166-169 C

**Toxicology:** LD50 (oral, rat) 3670 mg/kg; (IP, rat) 2690 mg/kg; mod. toxic by ing. and IP

†=pharmaceutical grade

routes; irritant; questionable carcinogen; experimental tumorigen; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits very toxic fumes of NOx and SOx

**Uses:** Antibacterial drug

**Regulatory:** BP, EP compliance; Canada DSL

**Manuf./Distrib.:**
- Aldrich
  - [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)
- Alfa Chem†
  - [http://www.alfachem1.com](http://www.alfachem1.com)
- Asiamerica
  - Int'l.†; Functional Foods†
  - [http://www.functionalfoods.com](http://www.functionalfoods.com)
- ICN
  - [http://www.mpbio.com](http://www.mpbio.com)
  - Napp Tech.†
  - [http://www.napptech.com](http://www.napptech.com)
- Pfaltz & Bauer
  - [http://www.pfaltzandbauer.com](http://www.pfaltzandbauer.com)
  - RTD
- Hallstar†
  - [http://www.rtdhallstar.com](http://www.rtdhallstar.com)
- Riedel-deHaën
  - Sigma
  - [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)
- Spectrum Quality Prods.†
  - [http://www.spectrumchemical.com](http://www.spectrumchemical.com)
- Synasia†
  - [http://www.synasia.com](http://www.synasia.com)
  - TCI Am.
  - [http://www.tciamerica.com](http://www.tciamerica.com)

**Sulfamethylisoxazole. See Sulfamethoxazol**

**Sulfamethylthiadiazole. See Sulfamethizole**

**p-Sulfamidoaniline; Sulfamidyl. See Sulfanilamide**

**Sulfanilamide**

CAS 63-74-1; EINECS/ELINCS 200-563-4

**Synonyms:** p-Aminobenzenesulfamide; 4-Aminobenzenesulfonamide; p-Aminobenzenesulfonamide; 4-Aminophenylsulfonamide; p-Aminophenylsulfonamide; p-Anilinesulfonamide; Aniline-p-sulfonic acid; p-Sulfamidoanilin; Sulfamidyl; Sulfanilamide

**Empirical:** C6H8N2O2S

**Properties:** Cryst.; sol. in oxygenated solvs.; sol. 7.5 g/l water; 1 g dissolves in 37 ml alcohol, 5 ml acetone; sol. in glycerol, propylene glycol, HCl; pract. insol. in chloroform, ether, benzene, petrol. ether; m.w. 172.21; m.p. 164-166 C; pH 5.8-6.1 (0.5% aq.)

**Toxicology:** LD50 (oral, rat) 3900 mg/kg, (IP, mouse) 5 mg/kg, (IV, mouse) 587 mg/kg, (subcut., mouse) 2900 mg/kg; harmful solid; poison by IP route; mod. toxic by ing., subcut., IV routes; irritant; sensitizer; linked to aplastic anemia; questionable carcinogen; tumorigen; experimental reproductive effector; mutagenic data; human teratogenic effects; target organ: kidneys; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits very toxic fumes of NOx and SOx
Chemical Component Cross-Reference

decomp., emits very toxic fumes of NOx and SOx

Storage: Photosensitizer

Uses: Excipient, antimicrobial in pharmaceuticals, veterinary medicine; antibacterial drug

Regulatory: Canada DSL

Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Alfa Chem†
                          http://www.alfachem1.com; Asiamerica Int'l.; Fluka http://www.sigma-aldrich.com;
                          Functional Foods†
                          http://www.functionalfoods.com
                          Helm NY† http://www.helmnewyork.com;
                          Integra† http://www.integreachem.com;
                          Mallinckrodt Baker†
                          http://www.mallbaker.com; Napp Tech.†
                          http://www.napptech.com; R.W. Greeff
                          http://www.pechiney-chemicals.com
                          RIA Int'l.† http://www.riausa.com; RTD
                          Hallstar† http://www.rtdhallstar.com; Sigma
                          http://www.sigma-aldrich.com/belgium;
                          Spectrum Quality Prods.
                          http://www.spectrumchemical.com; Tanabe
                          USA http://www.tanabeusa.com
                          Thomas Scientific†
                          http://www.thomassci.com; VWR Int'l.†
                          http://www.vwrsp.com

3-Sulfanilamido-5-methylisoxazole. See Sulfamethoxazole
2-Sulfanilamido-5-methyl-1,3,4-thiadiazole. See Sulfamethizole
m-Sulfanilic acid. See Metanilic acid
Sulfate of ammonia. See Ammonium sulfate

Sulfated castor oil
CAS 8002-33-3; EINECS/ELINCS 232-306-7
Synonyms: Alizarin oil; Castor oil sulfated; Castor oil, sulfonated; Red oil; Sulfonated
           castor oil; Turkey-red oil
Definition: Oil consisting primarily of sodium salt of the sulfated triglyceride of ricinoleic acid
Properties: Reddish visc. liq.; char. odor; sol. in water; dens. 0.95; acid no. 175-180; flash pt.
           (CC) 476 F; anionic
Toxicology: Irritant; TSCA listed
Precaution: Combustible exposed to heat or flame

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of SOx
HMIS: Health 1, Flammability 1, Reactivity 1
Uses: Surfactant in pharmaceuticals
Regulatory: FDA 21CFR §175.105, 176.170, 176.200, 177.1200; Canada DSL

†=pharmaceutical grade

Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Atlas Refinery
                          http://www.atlasrefinery.com; Fluka
                          http://www.sigma-aldrich.com; Phoenix Nat.
                          Prods. http://www.phoenixuk.com; Rhodia
                          HPCII http://www.rhodia-hpcii.com
                          Ruger http://www.rugerchemical.com; Sea-
                          Land http://www.sealandchem.com; Sigma
                          http://www.sigma-aldrich.com/belgium;
                          Spectrum Quality Prods.
                          http://www.spectrumchemical.com; Voigt
                          Welch, Holme & Clark http://www.welch-
                          holme-clark.com

Sulfate of potash. See Potassium sulfate
Sulfanylbis (methylene). See Dimethyl sulfoxide
Sulfiram. See Tetraethylthiuram sulfide
Sulfisomozole. See Sulfamethoxazole
Sulfaoacetatic acid, 1-dodecyl ester, sodium salt; Sulfaoacetatic acid dodecyl ester S-sodium
salt. See Sodium lauryl sulfaoacetate
o-Sulfobenzimidizome; o-Sulfobenzoic acid imide.
See Saccharin
Sulfobenzoic imide calcium salt. See Calcium saccharin
Sulfobutandioic acid 1,4-bis (2-ethylhexyl) ester sodium salt. See Dioctyl sodium sulfosuccinate
PEG-2 sulfosuccinate
Sulfobutandioic acid, 1-dodecyl ester, disodium salt. See Disodium lauryl sulfosuccinate
Sulfobutandioic acid, 4-[2-[2-(dodecylxyloxy) ethoxy] ethoxy] ethyl] ester, disodium salt. See
Disodium laureth sulfo succinate
See Disodium ricinoleamido MEA-sulfosuccinate
See Disodium oleamido MEA-sulfosuccinate
Sulfobutandioic acid, 1-[2-[(12-hydroxy-1ooxo-9-octadecenyl) amino] ethyl] ester, disodium salt. See Disodium ricinoleamido
MEA-sulfosuccinate
Sulfobutandioic acid, 4-[1-methyl-2-[(1-oxo-9octadecenyl) amino] ethyl] ester, disodium salt. See Disodium oleamido
MEA-sulfosuccinate
Sulfobutandioic acid, 1 (or 4)-[2-[2-[(1-oxo-9-octadecenyl) amino] ethoxy] ethyl] ester, disodium salt. See Disodium oleamido
PEG-2 sulfosuccinate
Sulfobutandioic acid, 4-[1-oxo-10-undecenyl) amino] ethyl] ester, disodium salt. See Disodium undeceylanamido MEA-
Chemical Component Cross-Reference

sulfosuccinate

Sulfobutylether β-cyclodextrin
Synonyms: SBE–β-CD
Uses: Excipient, carrier, solubilizer, stabilizer, bioavailability enhancer for parenteral pharmaceuticals; in chiral separation of sm. molecule pharmaceuticals by capillary electrophoresis
Trade Names: Captisol®
Sulfocarbanilide. See N,N' -Diphenylthiourea
Sulfocarboxylic acid. See Phenolsulfonic acid
2-Sulfoethylamine. See Taurine
Sulfolan. See Sulfolane
Sulfolane
CAS 126-33-0; EINECS/ELINCS 204-783-1
Synonyms: Cyclic tetramethylene sulfone; Cyclotetramethylene sulfone; Dapsone; Dihydrobutadiene sulfone; 1,1-Dioxide tetrahydrothiofurane; 1,1-Dioxidotetrahydrothiophene; Diothiolan; 1,1-Dioxothiophene; Sulfolane; Sulfolan; Tetrahydrothiophene dioxide; Tetrahydrothiophene-1,1-dioxide; 2,3,4,5-Tetrahydrothiophene-1,1-dioxide; Tetramethylene sulfone; Thiacyclopentane dioxide; Thiocyclopentane-1,1-dioxide; Thiolane-1,1-dioxide; Thiophane dioxide; Thiophan sulfone
Empirical: C₄H₈O₂S
Formula: CH₂CH₂CH₂CH₂SO₂
Properties: Wh. or creamy wh. cryst. powd., odorless, sl. bitter taste; sol. in alcohol, acetone, dilute min. acids; misc. with acetone, toluene, oxygenated/aromatic solv.s.; sl. misc. with octanes, olefins, naphthenes, aliphatic hydrocarbons; very sl. sol. in water; m.w. 120.16; dens. 1.27 (20 C); b.p. 285 C; flash pt. 177 C; ref. index 1.485; surf. tens. 35.5 dynes/cm; dielec. const. 43.26
Toxicology: REL 5 ppm; LD50 (oral, rat) 1941 mg/kg, (IP, rat) 1600 mg/kg, (IV, mouse) 1080 mg/kg, (skin, rabbit) 4009 mg/kg; LC50 (inh., rat, 24 h) > 956 ppm; mod. toxic by ing., IP, IV routes; mildly toxic by inh., skin contact; eye irritant; mutagenic; target organs: skin, CNS, Gl, lungs, liver; TSCA listed
Environmental: VOC; BOD5 0.0; COD 1.75; ThOD 1.73
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to
decomp., emits toxic fumes of SOx
NFPA: Health 2, Flammability 1, Reactivity 0
Uses: Solvent in pharmaceuticals; medicine (antibacterial)
Regulatory: FDA 21CFR §177.1560; Canada DSL
Sulfomethane. See Methanesulfonic acid
Sulfonamide. See Sulfanilamide
1-(4-Sulfo-1-naphthylazo)-2-naphthol-3,6-disulfonic acid trisodium salt. See Amaranth
1-(4-Sulfo-1-naphthylazo)-2-naphthol-6,8-disulfonic acid, trisodium salt. See Acid red 18
Sulfonated castor oil. See Sulfated castor oil
Sulfonated divinylbenzene/styrene copolymer
CAS 63182-08-1
Synonyms: Sodium vinylbenzenesulfonate, polymer with divinylbenzene; Sulfonated divinylbenzene/styrene copolymer
Uses: Taste masking agent; stabilizer for pharmaceutical preps.
Trade Names: Amberlite® IRP-69
Sulfonated divinylbenzene/styrene copolymer. See Sulfonated divinylbenzene/styrene copolymer
o-Sulfonbenzoic acid imide sodium salt. See Saccharin sodium anhydrous
Sulfonic acids, C14-16-alkane hydroxy and C14-16-alkene, sodium salts. See Sodium C14-16 olefin sulfonate
Sulfonylbismethane. See Dimethyl sulfone
1-p-Sulfophenylazo-2-hydroxynaphthalene-6-sulfonate, disodium salt. See FD&C Yellow No. 6
Sulfosalicylic acid. See 5-Sulfosalicylic acid
5-Sulfosalicylic acid
CAS 97-05-2; EINECS/ELINCS 202-555-6
UN 1759
Synonyms: 3-Carboxy-4-hydroxybenzenesulfonic acid; 2-
5-Sulfosalicylic acid dihydrate

**CAS**: 5965-83-3; EINECS/ELINCS 202-555-6

**Synonyms**: 3-Carboxy-4-hydroxybenzenesulfonic acid, dihydrate; 2-Hydroxy-5-sulfobenzoic acid, dihydrate

**Classification**: Aromatic organic compd.

**Empirical**: C₇H₆O₆S • 2H₂O

**Formula**: HOC₆H₃(COOH)SO₃H • 2H₂O

**Properties**: Wh. cryst. solid; very sol. in water, ethanol; sol. in ether, polar solvs.; m.w. 254.22; m.p. 113 C

**Toxicology**: Irritating to skin and mucous membranes; TSCA listed

**Hazardous Decomp. Prods.**: When heated, it burns and emits highly toxic fumes of SOx

**NUC**: Health 2, Flammability 0, Reactivity 0

**Uses**: Keratolytic in dermatitis and psoriasis

**Regulatory**: BP and EP (for external use)

**Manufacturer/Distributor**: AMRESCO

http://www.amresco-inc.com; Aldrich†

Colloids Ltd† http://www.croda-colloids.co.uk; Fluka http://www.sigma-aldrich.com; Jarchem Ind.

Konishi Chem. Ind.† http://www.konishi-chem.co.jp; Ruger†

Hazardous Decomp. Prods.: When heated, it burns and emits highly toxic fumes of SOx

**NFPA**: Health 2, Flammability 0, Reactivity 0

**Uses**: Keratolytic in dermatitis and psoriasis prod.

**Regulatory**: BP and EP (for external use)
Sulfurated potash

CAS 39365-88-3

Synonyms: Liver of sulfur; Potash sulfurated

Definition: Mixt. of potassium polysulfides and potassium thiosulfate

Formula: K₂Sₓ

Properties: Liver-brown to greenish-yellow, irregular pieces, hydrogen sulfide odor, bitter acrid alkaline taste; soln. in water

Precaution: Decomposes on exposure to air

HMIS: Health 2, Flammability 3, Reactivity 2

Storage: Hygroscopic

Uses: Dermatologic pharmaceuticals


Spectrum Quality Prods.† http://www.spectrumchemical.com; VWR Int’l.† http://www.vwrsp.com

Sulfur dioxide

CAS 7446-09-5; EINECS/ELINCS 231-195-2

UN 1079 (DOT); FEMA 3039; INS220; E220

Synonyms: Bisulfate; Bisulfite; Sulfurous acid anhydride; Sulfurous anhydride; Sulfurous oxide; Sulfur oxide; Sulphur dioxide, liquefied

Classification: Inorganic sulfur compd.

Empirical: O₂S

Formula: O=S=O

Properties: Colorless gas, strong suffocating odor; condenses at -10 C to colorless liq.; sol. 8.5% in water, 25% in alcohol, 32% in methanol; soln. in ether, chloroform, oxygenated solvs.; m.w. 64.06; dens. 1.5 (liq.); vapor pressure 2538 mm Hg (21.1 C); m.p. -72 C; b.p. -10 C (liq.); nonflamm.

Toxicology: ACGIH TLV/TWA 2 ppm; STEL 5 ppm; LLo (inh., human, 5 min) 3000 ppm; poison gas; mildly toxic to humans by inh.; corrosive irritant to eyes, respiratory tract; gas causes skin irritation, liq. may cause burns due to freezing; human systemic effects by inh. (pulmonary changes); causes upper respiratory/bronchi effects; can cause respiratory paralysis; questionable carcinogen; experimental tumorigen, teratogen, reproductive effects; human mutagenic data; TSCA listed

Precaution: Incompat. with bases, chlorates, fluorine, interhalogens, powd. metals, metal oxides, metal acetylides, sodium hydroxide, diethyl zinc; violent reactions, ignition, explosions possible; common air contaminant

Hazardous Decomp. Prods.: Forms an acid sol’n. (sulfurous acid) on contact with moisture; heated to decomp., emits toxic gases
Chemical Component Cross-Reference

Chemical

Sulfur dioxide sol'n.  See Sulfurous acid
Sulfur flower; Sulfur flowers.  See Sulfur

Sulfuric acid

CAS 7664-93-9; EINECS/ELINCS 231-639-5
UN 1830 (DOT); UN 1832 (DOT); INS513; E513
Synonyms:  Battery acid; Dihydrogen sulfate;
Dipping acid; Electrolyte acid; Hydrogen
sulfate; Matting acid; Nordhausen acid; Oil
of vitriol; Sulphuric acid; Vitriol brown oil;
Vitriol, oil of
Classification:  Inorganic acid
Empirical:  H₂O₄S
Formula:  (HO)₂S(=O)₂
Properties:  Colorless to dk. brn. dense oily liq.;
misc. with water and alcohol; m.w. 98.08;
dens. 1.84; vapor pressure 1 mm (145.8 C);
m.p. 10.4 C; b.p. 290 C; dec. 340 C
Toxicology:  ACGIH TLV/TWA 1 mg/m³; STEL 3
ppm; LD₅₀ (oral, rat) 2.14 g/kg; LC₅₀ (inh.,
t=pharmaceutical grade
rat, 2 h) 510 mg/m³; poison by inh.; mod.
toxic by ing.; human poison; strongly
corrosive; strong irritant to tissue, eyes;
can cause severe burns, chronic bronchitis;
inhal. of conc. vapors from hot acid can cause
serious lung damage and
unconsciousness; severe exposure causes
chem. pneumonitis, tooth effects;
experimental teratogen; TSCA listed
Precaution:  Caustic; corrosive; powerful
acidic oxidizer; ignites or explodes on
contact with many materials; reacts with
water to produce heat; reactive with
oxidizing/reducing materials
Hazardous Decomp. Prods.:  Heated to
decom., emits toxic fumes of SOₓ
NFPA: Health 3, Flammability 0, Reactivity 2
Uses:  Acidifier in pharmaceuticals,
parenterals, inhalants, intramuscular
injectables, ophthalmics, orals; astringent
in diarrhea; in mixts. to stimulate appetite
Regulatory:  FDA 21CFR §73.85, 172.560,
172.892, 173.385, 176.170, 176.180, 176.210,
177.2800, 178.1010, 184.1095, GRAS; BATF
27CFR §240.1051; SARA reportable; Canada
DSL; Japan restricted; Europe listed; UK
approved; FDA approved for parenterals,
inhalants, injectables, ophthalmics, orals;
USP/NF, BP, EP compliance
Manuf./Distrib.:  AAE Chemie NV†
http://www.aaechemie.com; AMRESCO†
http://www.amresco-inc.com; Akzo Nobel
http://www.akzonobel.com; Aldrich†
http://www.sigma-aldrich.com; Altivia
http://www.altivia.com
Amyl  http://www.amyl.com; Arch Chemms.
http://www.archchemicals.com; Arkema
http://www.total.com; Asarco
http://www.asarco.com; Ashland†
http://www.ashchem.com
BASF† http://www.basf.com; Bayer†
http://www.bayerus.com; Boliden
Intertrade; Border Chem.; Brenntag AG†
http://www.brenntag.de
Degussa AG/Health & Nutrition; DuPont
http://www.dupont.com; Eldorado
http://www.eldoradochemical.com; Fisher
Scientific
Fluka  http://www.sigma-aldrich.com
GFS† http://www.gfschemicals.com;
General Chem.
http://www.genchemcorp.com; Harcros
http://www.harcoschem.com; Integra†
Sulfuric acid, magnesium salt (1:1) heptahydrate. See Magnesium sulfate heptahydrate.
Sulfuric acid, manganese (2+) salt. See Manganese sulfate (ous).
Sulfuric acid, monododecyl ester, ammonium salt. See Ammonium lauryl sulfate.
Sulfuric acid, monododecyl ester, compd. with 2,2’-iminodithanol (1:1). See DEA-lauryl sulfate.
Sulfuric acid, monododecyl ester, compd. with 2,2’,2”-nitritolri [ethanol] (1:1). See TEA-lauryl sulfate.
Sulfuric acid, monododecyl ester, magnesium salt. See Magnesium lauryl sulfate.
Sulfuric acid monododecyl ester sodium salt. See Sodium lauryl sulfate.
Sulfuric acid, mono (2-ethylhexyl) ester sodium salt. See Sodium 2-ethylhexyl sulfate.
Sulfuric acid, monoocetyl ester, sodium salt. See Sodium octyl sulfate.
Sulfuric acid monosodium salt. See Sodium bisulfate.
Sulfuric acid, monotetradeyl ester, sodium salt; Sulfuric acid, myristyl ester, sodium salt. See Sodium myristyl sulfate.
Sulfuric acid zinc salt (1:1). See Zinc sulfate.
Sulfuric acid zinc salt (1:1) heptahydrate. See Zinc sulfate heptahydrate.
Sulfuric ether. See Ethyl ether.

Sulfurous acid
CAS 7782-99-2; EINECS/ELINCS 231-973-1
UN 1833 (DOT)
Synonyms: Sulfur dioxide sol’n.
Definition: A sol’n. of sulfur dioxide in water
Empirical: H₂O₃S
Formula: H₂SO₃
Properties: Colorless liq.; suffocating sulfur odor (in sol’n.); sol. in water; m.w. 82.08; dens. 1.03; unstable; oxidizes in air to sulfuric acid.
Toxicology: TLDO (oral, human) 500 µg/kg; poison by ing. and inh.; corrosive irritant to skin, eyes, mucous membranes; human systemic effects by ing. (nausea, vomiting, hypermotility, diarrhea, other GI effects); TSCA listed
Precaution: DOT: Corrosive material; reacts violently with water
Hazardous Decomp. Prods.: Heated to decomp., emits highly toxic fumes of SOx.
Storage: Air-sensitive; handle under nitrogen
Uses: Medicine (antiseptic); used in injectables

Sulfuric acid, dodecyl ester, triethanolamine salt. See TEA-lauryl sulfate.
Sulfuric acid, iron (2+) salt (1:1). See Ferrous sulfate anhydrous.
Sulfuric acid, lauryl ester, ammonium salt. See Ammonium lauryl sulfate.
Sulfuric acid magnesium salt (1:1). See Magnesium sulfate anhydrous.
Sunflower (Helianthus annuus) flower extract

Properties: Nutty flavor
Uses: Botanical extract; astringent, diuretic and expectorant

Sunflower (Helianthus annuus) seed oil

Synonyms: Helianthus annuus; Helianthus annuus oil; Sunflower oil; Sunflower seed oil

Definition: Oil expressed from seeds of the sunflower, Helianthus annuus

Properties: Amber liq., pleasant odor, mild taste; sol. in alcohol, ether, chloroform, CS₂; negligible sol. in water; dens. 0.924-0.926; vapor pressure very low; m.p. -18 C; iodine no. 125-140; sapon. no.188-194; ref. index 1.4611

Toxicology: No known toxicity; TSCA listed

Precaution: Combustible

Hazardous Decomp. Prods.: CO₂ from combustion; heated to decom., emits acrid smoke and irritating fumes

HMIS: Health 0, Flammability 1, Reactivity 0

Uses: Diluent, carrier, emulsifier, emollient, tablet binder, nutritional supplement in pharmaceuticals; diuretic; expectorant; pharmaceutical raw material

Regulatory: FDA 21CFR §175.300, 176.200, GRAS; BP, EP compliance (refined)

Manuf./Distrib.: ADM

http://www.admworld.com; Aarhus
Karlishann A/S† http://www.aak.com/
Aldivia http://www.aldivia.com; Alnor Oil http://www.alnoroil.com; Alzo
http://www.alzointernational.com
Anglia Oils† http://www.angliaoils.co.uk;
Charkit http://www.charkit.com
Mosselman NV http://www.mosselman.be;
Protameen http://www.protameen.com;
Sweet almond (Prunus amygdalus dulcis) oil
CAS 8007-69-0
Synonyms: Almond oil; Almond oil, sweet; Prunus dulcis; Sweet almond oil
Definition: Fixed oil obtained from the ripe seed kernel of Prunus amygdalus dulcis, contg. chiefly glyceryl olate
Properties: Colorless or pale yel. oily liq., almost odorless, bland taste; sl. sol. in alcohol; misc. with benzene, chloroform, ether, petrol. ether; insol. in water; dens. 0.910-0.915; iodine no. 93-100; sapon. no. 191-200; ref. index 1.4593-1.4646 (40 C)
Toxicology: LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; TSCA listed
HMIS: Health 1, Flammability 0, Reactivity 0
Storage: Keep cool, well closed; protect from light
Uses: Vehicle, solvent, flavor, emollient, nutritive, demulcent for pharmaceuticals; component of rose water ointment USP; softener for ear wax
Features: Oleaginous
Regulatory: NF, BP, EP compliance; Canada DSL
Chemical Component Cross-Reference

Sweet basil oil. See Basil (Ocimum basilicum) oil
Sweet birch oil. See Wintergreen (Gaultheria procumbens) oil; Birch (Betula alba) oil; Methyl salicylate
Sweet elder. See Elder flowers
Sweet fennel. See Fennel (Foeniculum vulgare)
Sweet fennel oil. See Fennel (Foeniculum vulgare) oil
Sweet flag oil. See Calamus oil
Sweet gum. See Storax (Liquidambar orientalis)
Sweet marjoram oil. See Sweet marjoram (Origanum majorana) oil
Sweet marjoram oil (Origanum majorana) oil
CAS 8015-01-8
FEMA 2663
Synonyms: Origanum majorana; Origanum majorana oil; Sweet marjoram oil
Definition: Volatile oil distilled from leaves of Origanum majorana, contg. 40% terpenes, chiefly terpinene; also d-terpinol
Properties: Yel. or greenish-yel. liq.; sol. in 2 vols 80% alcohol; sol. in chloroform, ether, oxygenated and chlorinated solvs.; insol. in water; dens. 0.888-0.912 (15/15 C); flash pt. (CC) 47 C; ref. index 1.4630-1.4680
Toxicology: TSCA listed
HMIS: Health 2, Flammability 2, Reactivity 0
Storage: Store in cool, dry place in tightly sealed container, protected from heat, light
Uses: Natural flavor for pharmaceuticals
Features: Spicy herbal camphor sweet odor

Sweet orange oil. See Orange (Citrus aurantium dulcis) oil
Sweet orange peel extract. See Orange (Citrus aurantium dulcis) peel extract
Sweet orange peel oil. See Orange (Citrus aurantium dulcis) oil
Sweet oriental gum. See Storax (Liquidambar orientalis)
Sweet spirit of niter. See Ethyl nitrite
Sweetwood bark oil. See Cascarilla oil
SX purple. See Acid red 18
SXS. See Sodium xylenesulfonate
Syndiotactic polypropylene. See Polypropylene
Synthetic beeswax (INCI). See Beeswax, synthetic
Synthetic candelilla; Synthetic candelilla wax (INCI). See Candelilla synthetic
Synthetic capsaicin. See Pelargonyl vanillylamide
Synthetic carotene. See CI 40800
Synthetic indigo blue. See Indigo
Synthetic Japan wax (INCI). See Japan wax, synthetic
Synthetic magnesium lithium silicate. See Sodium magnesium silicate
Synthetic mustard oil. See Allyl isothiocyanate
Synthetic oil of bitter almond. See Ben zaldehyde
Synthetic oil of wintergreen. See Methyl salicylate
Synthetic pearl. See Bismuth oxychloride
Synthetic spermaceri; Synthetic spermaceri wax. See Cetyl esters

Synthetic wax
CAS 8002-74-2; 123237-14-9; EINECS/ELINCS 232-315-6
Synonyms: Fischer-Tropsch wax; Fischer-Tropsch wax, oxidized
Definition: Hydrocarbon wax derived by Fischer-Tropsch or ethylene polymerization processes
Toxicology: TSCA listed
Uses: Binder, emollient, emulsion stabilizer, visc. control agent

Sweet orange oil. See Orange (Citrus aurantium dulcis) oil
Sweet orange peel extract. See Orange (Citrus aurantium dulcis) peel extract
Sweet orange peel oil. See Orange (Citrus aurantium dulcis) oil
Sweet oriental gum. See Storax (Liquidambar orientalis)
Sweet spirit of niter. See Ethyl nitrite
Sweetwood bark oil. See Cascarilla oil
SX purple. See Acid red 18
SXS. See Sodium xylenesulfonate
Syndiotactic polypropylene. See Polypropylene
Synthetic beeswax (INCI). See Beeswax, synthetic
Synthetic candelilla; Synthetic candelilla wax (INCI). See Candelilla synthetic
Synthetic capsaicin. See Pelargonyl vanillylamide
Synthetic carotene. See CI 40800
Synthetic indigo blue. See Indigo
Synthetic Japan wax (INCI). See Japan wax, synthetic
Synthetic magnesium lithium silicate. See Sodium magnesium silicate
Synthetic mustard oil. See Allyl isothiocyanate
Synthetic oil of bitter almond. See Ben zaldehyde
Synthetic oil of wintergreen. See Methyl salicylate
Synthetic pearl. See Bismuth oxychloride
Synthetic spermaceri; Synthetic spermaceri wax. See Cetyl esters

Synthetic wax
CAS 8002-74-2; 123237-14-9; EINECS/ELINCS 232-315-6
Synonyms: Fischer-Tropsch wax; Fischer-Tropsch wax, oxidized
Definition: Hydrocarbon wax derived by Fischer-Tropsch or ethylene polymerization processes
Toxicology: TSCA listed
Uses: Binder, emollient, emulsion stabilizer, visc. control agent
Chemical Component Cross-Reference

Manuf./Distrib.: Aldrich  http://www.sigma-aldrich.com; Ashland†  
http://www.ashchem.com; Baker Petrolite  
http://www.bakerhughes.com/bakerpetrolite;  
CoKEM Assoc.;† Croda Inc†  
http://www.croda.com;  
http://www.crodausa.com  
Degussa AG  http://www.degussa.com;  
http://www.frankbross.com; Honeywell  
Integra†  http://www.integrachem.com;  
Koster Keunen†  
http://www.kosterkeunen.com; MPS†  
http://www.mp-solutionsinc.com; Micro Powders  
http://www.micropowders.com; Mutchler†  
http://www.mutchlerchem.com;  
Penta Mfg.†  http://www.pentamfg.com; Presperse  
http://www.presperse.com;  
Shamrock Tech.†  
http://www.shamrocktechnologies.com;  
Strahl & Pitsch†  
http://www.strahlpitsch.com; Strohmeyer & Arpe†  
http://www.strohmeyer.com;  
Universal Preserv-A-Chem†  
http://www.upichem.com;  
Vivion  http://www.vivioninc.com  
Trade Names: Cosmolloid® 5142;  
Cosmolloid® 6657; Cosmolloid® 11101;  
Cosmolloid® 11123; Cosmolloid® 11155;  
Cosmolloid® PT0602  
See also Paraffin  
Syntopherol acetate. See dl-α-Tocopheryl acetate  
Syringa aldehyde; Syringaldehyde. See p-Tolylacetaldehyde  
Syrup  
CAS 8027-47-2  
Definition: Solution of sucrose in purified water; may contain a preservative  
Properties: Sol'n.; dens. 1.3 min.  
Uses: Sweetener, flavored and/or sweetened vehicle in pharmaceuticals, orals; tablet binder  
Regulatory: FDA approved for orals; USP/NF, BP compliance  
Manuf./Distrib.: Spectrum Quality Prods.†  
http://www.spectrumchemical.com  
Syrups, hydrolyzed starch. See Corn syrup  
Table salt. See Sodium chloride  
Table sugar. See Sucrose  

†=pharmaceutical grade

Tabular alumina. See Alumina  
Tailed pepper. See Cubeb (Piper cubeba) oil  
Talc  
CAS 14807-96-6; EINECS/ELINCS 238-877-9  
INN553(iii); E553b  
Synonyms: CI 77019; Cl 7718; Cosmetic talc; French chalk; Hydrous magnesium calcium silicate; Hydrous magnesium silicate; Industrial talc; Magnesium hydrogen metasilicate; Pigment white 26; Platy talc; Talcum  
Definition: Native, hydrous magnesium silicate sometimes containing small portion of aluminum silicate and containing < 1% cryst. silica  
Empirical: MgO • nSiO₂  
Formula: Mg₃Si₄O₁₀(OH)₂ or 3MgO • 4SiO₂ • HOH  
Properties: Wh., apple green, gray or gray fine powd., pearly or greasy luster, greasy feel; odorless, tasteless; insol. in water, cold acids or in alkalis; dens. 2.7-2.8; bulking value 0.044 gal/lb; oil absorp. 30-55; GE brightness 75-94; ref. index 1.59-1.60; hardness (Mohs) 1.0-1.5  
Toxicology: ACGIH TLV/TWA 2 mg/m³ (respirable dust); TCLo (inh., rat, 1 yr., intermittent) 11 mg/m³; toxic by inhalation; talc with < 1% asbestos is nuisance dust, toxic by inhalation; talc with < 1% asbestos is nuisance dust, > 1% may be human carcinogen; human skin irritant; prolonged/repeated exposure can produce talc pneumoconiosis; talc-based powds. linked to ovarian cancer; experimental tumorigen; common air contaminant; TSCA listed  
HMIS: Health 1, Flammability 0, Reactivity 0  
Uses: Glidant, anticaking agent, tablet and capsule lubricant, colorant, pigment, dusting powd., reinforcing agent, filler for pharmaceuticals, orals, topicals, rectals; lubricant for surgical gloves  
Use Level: 0.003-220.4 mg (oral solids)  
Regulatory: FDA 21CFR §73.1550, 175.300, 175.300, 175.390, 176.170, 177.1210, 177.1350, 177.1460, 178.3297, 182.70, 182.90, GRAS; exempt from certification, permanently listed, approved for orals, rectals, topicals; Canada DSL; Japan restricted (5000 ppm); Europe listed; UK approved; USP/NF, BP, EP compliance  
Manuf./Distrib.: AB R Lundberg  
http://www.norfoods.se/lundberg;  
AMRESCO†  http://www.amresco-inc.com;  
Albion Inorganic Chems.†
Chemical Component Cross-Reference

†=pharmaceutical grade

- Spectrum Quality Prods.
  - http://www.spectrumchemical.com; St. Lawrence
- http://www.stlawrencechem.com; Tamms
- Ind. http://www.tamms.com; Tennants
- Distrib. Ltd†
  - http://www.tennantsdistribution.com; Thew
- Arnott & Co. Ltd†
  - http://www.thewarnott.co.uk
- Thomas Scientific†
  - http://www.thomassci.com; Universal
- Preserv-A-Chem†
  - http://www.upichem.com; VWR Intl'.†
  - http://www.vwrsp.com; Voigt Global
- Distrib.† http://www.vgdllc.com; Wego

Trade Names: Alpine Talc USP BC 127; Altalc
200 USP; Altalc 200V USP; Altalc 300 USP;
Altalc 300V USP; Altalc 325 USP; Altalc 400 USP;
Altalc 400V USP; Altalc 500 USP; Altalc 500V USP
Imperial 400; Puralt USP; Supra® A;
Supra® EF A; Supra® H
Suprafino A; Suprafino H; Supreme® HT;
Ultrafino®; WCD 1745
WCD 2755; Whittaker IMP1823L; Whittaker
IMP1885L; Whittaker IMP1889L; Whittaker
IMP1890L
- Whittaker IMP1891L

Talcum. See Talc
Talin. See Thaumatin

Tallamide DEA
CAS 68155-20-4; EINECS/ELINCS 268-949-5

Synonyms: Amides, tall oil fatty, N,N-bis
(hydroxyethyl); Diethanolamine tall oil acid
amide; Tall oil acid diethanolamide; Tall oil
diethanolamide; Tall oil fatty acid
diethanolamide; Tall oil fatty acid
polydiethanolamide

Definition: Mixture of ethanalamides of fatty
acids derived from tall oil acid

Formula: RCO–N(CH2CH2OH)2, RCO– rep. fatty
acids from tall oil

Properties: Amber clear liq.; anionic/nonionic

Toxicology: TSCA listed

Uses: Surfactant for pharmaceuticals

Regulatory: FDA 21CFR §175.105, 176.210,
177.2800; Canada DSL

Manuf./Distrib.: Somerset Cosmetic Co.
http://www.makingcosmetics.com/

Trade Names Containing: Schercomid TO-2

Talleol. See Tall oil
Tall oil
CAS 8002-26-4; EINECS/ELINCS 232-304-6
Synonyms: Lignin liquor; Liquid rosin; Talleol; Tallol
Definition: Byprod. of wood pulp contg. rosin acids, oleic and linoleic acids, and long chain alcohols
Properties: Dk. brn. liq., acrid odor; dens. 0.95; acid no. 178 min.; flash pt. 182°C
Toxicology: LD50 (unreported, mouse) 7300 mg/kg; mild allergen; may cause wt. loss, blood changes; migrates to food from pkg. materials
Precaution: Combustible when exposed to heat or flame; can react with oxidizing materials
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Fungicide in pharmaceuticals, topicals
Regulatory: FDA 21CFR §175.105, 175.300, 176.200, 176.210, 177.200, 177.2260, 177.2800, 178.3570, 178.3910; Canada DSL
Manuf./Distrib.: Arakawa USA
http://www.arakawa-usa.com; Arizona
http://www.arizonachemical.com; Avatar†
http://www.avatarcorp.com; Bencorp Int'l.; ChemTech Specialties
http://www.chemtechspecialties.com; Chemical
http://www.thechemco.com; Dow
http://www.dow.com; Geo. Pfau's Sons
http://www.pfauoil.com; Georgia-Pacific Resins
http://www.gp.com; chemical; Georgia-Pacific/Actrachem
http://www.gp.com/chemical; Harcros
http://www.internationalpaper.com; L.V. Lomas
http://www.lvlomas.com; Marlin Chems. Ltd
http://www.marlinchemicals.co.uk; MeadWestvaco
http://www.meadwestvaco.com; Nat'l. Purity http://www.nationalpurity.com; Norman, Fox
http://www.norfoxx.com; Nottingham
http://www.spectrumchemical.com; St. Lawrence
Welch, Holme & Clark http://www.welch-holme-clark.com

Tall oil acid diethanolamide; Tall oil diethanolamide; Tall oil fatty acid diethanolamide; Tall oil fatty acid polydiethanolamide. See Tallamide DEA
Tallow. See Tall oil
Tallow acid
CAS 61790-37-2; 67701-06-8; EINECS/ELINCS 263-129-3
Synonyms: Acids, tallow; Fatty acid, C14-18 and C16-18, unsaturated; Fatty acids, tallow; Tallow fatty acid
Definition: Mixture of fatty acids derived from tallow
Formula: RCOOH, R = tallow-
Properties: Wh. to yel. solid; insol. in water; m.p. 38-42°C; acid no. 200-205; iodine no. 50-62
Toxicology: TSCA listed
Uses: Pharmaceutical pastes
Regulatory: FDA 21CFR §175.105, 175.320, 176.200, 176.210, 177.2260, 177.2800, 178.3570, 178.3910; Canada DSL
Manuf./Distrib.: Akzo Nobel
http://www.akzonobel.com; Anar; Ashland
http://www.ashchem.com; ChemTech Specialties
http://www.chemtechspecialties.com; Chemical
http://www.thechemco.com; Dow
http://www.dow.com; Geo. Pfau's Sons
http://www.pfauoil.com; Georgia-Pacific Resins
http://www.gp.com; chemical; Georgia-Pacific/Actrachem
http://www.gp.com/chemical; Harcros
http://www.internationalpaper.com; L.V. Lomas
http://www.lvlomas.com; Marlin Chems. Ltd
http://www.marlinchemicals.co.uk; MeadWestvaco
http://www.meadwestvaco.com; Nat'l. Purity http://www.nationalpurity.com; Norman, Fox
http://www.norfoxx.com; Nottingham
http://www.spectrumchemical.com; St. Lawrence
Welch, Holme & Clark http://www.welch-holme-clark.com

Tallowalkonium chloride
CAS 61789-75-1; EINECS/ELINCS 263-085-5
Synonyms: Dimethyl benzyl tallow ammonium chloride; Tallow dimethyl benzyl ammonium chloride
Classification: Quaternary ammonium salt
Properties: Cationic
Uses: Additive for antibiotics mfg.
Regulatory: Canada DSL
Manuf./Distrib.: Somerset Cosmetic Co.
http://www.makingcosmetics.com/

Tallowamphopolycarboxyglycinate. See Sodium carboxymethyl tallow polypropylamine
Tallow dimethyl benzyl ammonium chloride.
See Tallowalkonium chloride

Talloweth-8
CAS 61791-28-4 (generic)
Synonyms: PEG-8 tallow ether; POE (8) tallow ether
Definition: PEG ether of tallow alcohol
Formula: R(OCH₂CH₂)₈OH, R rep. alkyl groups from tallow, avg. n = 8
Properties: Nonionic
Uses: Emulsifier and rheology control agent in pharmaceuticals
Features: Low-foaming

Talloweth-11
CAS 61791-28-4 (generic)
Synonyms: PEG-11 tallow ether; POE (11) tallow ether
Definition: PEG ether of tallow alcohol
Formula: R(OCH₂CH₂)₁₁OH, R rep. alkyl groups from tallow, avg. n = 11
Properties: Nonionic
Uses: Emulsifier and rheology control agent in pharmaceuticals

Talloweth-25
CAS 61791-28-4 (generic)
Synonyms: PEG-25 tallow ether; POE (25) tallow ether
Definition: PEG ether of tallow alcohol
Formula: R(OCH₂CH₂)₂₅OH, R rep. alkyl groups from tallow, avg. n = 25
Properties: Nonionic
Uses: Emulsifier and rheology control agent in pharmaceuticals

Tallow fatty acid. See Tallow acid

Tallow glyceride
CAS 61789-13-7; EINECS/ELINCS 263-035-2
Synonyms: Glycerides, tallow mono-, Tallow monoglyceride
Definition: Monoglyceride derived from tallow
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, stabilizer, dispersant, opacifier in pharmaceuticals
Regulatory: FDA 21CFR §175.105, 176.210; Canada DSL
Manuf./Distrib.: Somerset Cosmetic Co. http://www.makingcosmetics.com/

Tallow glycerides
CAS 91723-30-7; EINECS/ELINCS 294-535-9
Synonyms: Glycerides, tallow mono-, di- and tri-, Tallow mono, di and tri glycerides
Definition: Mixture of mono, di and triglycerides derived from tallow

†=pharmaceutical grade

Properties: Nonionic
Uses: Emulsifier, stabilizer, dispersant, emollient for pharmaceuticals
Regulatory: FDA 21CFR §175.105, 176.210
Manuf./Distrib.: Somerset Cosmetic Co. http://www.makingcosmetics.com/

Tallow, hardened; Tallow, hydrogenated. See Hydrogenated tallow
Tallow mono, di and tri glycerides. See Tallow glycerides
Tallow monoglyceride. See Tallow glycerides
Tallow, sodium salt. See Sodium tallowate
Tallow trimethyl ammonium chloride. See Tallowtrimonium chloride

Tallowtrimonium chloride
CAS 8030-78-2; 7491-05-2; 68002-61-9; EINECS/ELINCS 232-447-4
Synonyms: Quaternary ammonium compds., tallow alkyl trimethyl, chlorides; Tallow trimethyl ammonium chloride; Trimethyl tallow ammonium chloride
Classification: Quaternary ammonium salt
Formula: [R-N(CH₃)₃]⁺Cl⁻, R rep. alkyl groups derived from tallow
Properties: Cationic
Toxicology: TSCA listed
Uses: Emulsifier in pharmaceuticals
Regulatory: Canada DSL
Trade Names: Noramium® MS 50
Trade Names Containing: Arquad® T-50

Tangantangan oil. See Castor (Ricinus communis) oil

Tangerine (Citrus reticulata) oil
CAS 8016-85-1
FEMA 3041
Synonyms: Citrus reticulata; Citrus reticulata oil; Mandarin petitgrain oil; Tangerine oil; Tangerine oil, coldpressed; Tangerine oil, expressed
Definition: Oil expressed from the peels of Citrus reticulata; contains d-limonene, n-octylaldehyde, n-decylaldehyde, citral, linalool, citronella, cadinene, terpenes, aldehydes, alcohols, and esters
Properties: Red-orange to brn.-orange liq.; orange-like odor; sol. in fixed oils, min. oil; sl. sol. in propylene glycol; insol. in glycerin; sp. gr. 0.844-0.854; ref. index 1.46900-1.496
Toxicology: Skin irritant; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Chemical Component Cross-Reference

Uses: Natural flavor for pharmaceuticals

Regulatory: FDA 21CFR §182.20, GRAS; FEMA GRAS; Europe listed, no restrictions; Canada DSL

Manuf./Distrib.: Astral Extracts
http://www.astralextracts.com; Berje
http://www.berjeinc.com; Chinessence
http://www.chinessence.com; Eramex Aromatics
http://www.eramex.de; F.D. Copeland
http://www.copelandoil.co.uk; Fleurchem
http://www.fleurchem.com; George Uhe
http://www.uhe.com; Givaudan Fragrances
http://www.givaudan.com; Lebermuth
http://www.lebermuth.com; Penta Mfg.
http://www.pentamfg.com; Polarome Int'l.
http://www.polaromecom; Sarcom
http://www.sarcominc.com; Treatt USA

See also Mandarin orange oil

Tangerine oil. See Tangerine (Citrus reticulata) oil; Mandarin orange oil

Tangerine oil, coldpressed; Tangerine oil, expressed. See Tangerine (Citrus reticulata) oil

Tannic acid

CAS 1401-55-4; 72401-53-7; EINECS/ELINCS 215-753-2; 276-638-0

FEMA 3042; INS 181

Synonyms: Gallotannic acid; Gallotannin; Glycerite; Tannin

Definition: Mixt. of organic acids occurring in the bark and fruit of many plants, e.g., oak species, sumac

Empirical: C_{76}H_{52}O_{46}

Properties: Ylsh.-wh. to lt. brn. powd. or flakes; faint char. odor, strongly astringent taste; very sol. in alcohol, acetone; pract. insol. in benzene, chloroform, ether, petrol. ether, carbon disulfide, CCl₄; m.w. 1701.23; m.p. 200 C; dec. 210-215 C; flash pt. (OC) 390 F

Toxicology: LD₅₀ (oral, rat) 2260 mg/kg, (intramuscular, mouse) 350 mg/kg; LD₃₀ (subcut., mouse) 75 mg/kg, (IV, mouse) 10 mg/kg; poison by ing., intramuscular, IV, subcut. routes; mod. toxic by parenteral route; may cause liver damage; experimental carcinogen, tumorigen, reproductive effects; mutagenic data; TSCA listed

Precaution: Combustible exposed to heat or flame; incompat. with salts of heavy metals, alkaloids, gelatin, starch, oxidizers

Hazardous Decomp. Prods.: Heated to

decomp., emits acrid smoke and irritating fumes

NFPA: Health 0, Flammability 1, Reactivity 0

Storage: Keep well closed, protect from light

Uses: Pharmaceutical rectals; eye lotions; antiperspirants; astringent; minor burns treatment

Regulatory: FDA 21CFR §173.310, 184.1097, GRAS; 9CFR §318.7; BATF 27CFR §240.1051; FEMA GRAS; FDA approved for rectals; BP, EP compliance; not permitted in food (EU); Canada DSL


Tannin. See Tannic acid

Tapioca. See Dextrin
Tapioca starch
CAS 9005-25-8; 53112-52-0; 75138-75-9; 977002-81-5
Synonyms: Cassava starch
Definition: Starch obtained from tapioca Manihot utilissima; consists primarily of amylose and amylopectin
Properties: Spherical gran.
Toxicology: LD50 (IP, mouse) 6600 mg/kg; primary irritant; TSCA listed
Uses: Diluent and disintegrant for pharmaceutical tablets; nutrient; demulcent
Regulatory: FDA 21CFR §182.70, GRAS; BP compliance
See also Starch
TAPS. See 3-[Tris-(hydroxymethyl)methylamino]-propanesulfonic acid
Tara gum
CAS 39300-88-4
INS417; E417
Synonyms: Gum tara; Tara seed powd.
Classification: Galactomannan
Toxicology: Tumorigen
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Natural thickener, stabilizer, film-former
Regulatory: ADI 0-12.5 mg/kg (JECFA); Canada DSL; Japan approved
Trade Names: Coyote Brand Tara Gum
Tara seed powd. See Tara gum
Taraxacum extract; Taraxacum officinale; Taraxacum officinale extract. See Dandelion (Taraxacum officinale) extract
Tar oil; Tar oil, wood. See Pine (Pinus palustris) tar oil
†=pharmaceutical grade
Tarragon. See Tarragon (Artemisia dracunculus)
Tarragon absolute. See Tarragon (Artemisia dracunculus) oil
Tarragon (Artemisia dracunculus)
CAS 977052-32-6
FEMA 3043
Synonyms: Artemisia dracunculus; Estragole
Tarragon
Definition: Dried leaves and flowering tops of the bushy perennial plant, Artemisia dracunculus
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §101.22, 182.10, GRAS; FEMA GRAS
Manuf./Distrib.: Treatt USA http://www.rctreatt.com
Tarragon (Artemisia dracunculus) oil
CAS 8016-88-4
FEMA 2412
Synonyms: Artemisia dracunculus; Artemisia dracunculus oil; Esdragol oil; Esdragon oil; Estragol oil; Estragon absolute; Estragon oil; Tarragon absolute; Tarragon herb oil; Tarragon oil
Definition: Oil from steam distillation of leaves, stems, and flowers of Artemisia dracunculus
Properties: Pale yel. to amber liq.; spicy licorice and sweet basil odor; sol. in fixed oils, min. oil; insol. in propylene glycol, glycerin; dens. 0.933; b.p. 204 C; flash pt. 79.4 C; ref. index 1.5120
Toxicology: LD50 (oral, rat) 1900 mg/kg, (skin, rabbit) > 5 ml/kg; mod. toxic by ing.; be harmful by inh., skin absorp.; may cause irritation to eyes, skin, mucous membranes, upper respiratory tract; exposure can cause dermatitis; TSCA listed
Precaution: Combustible liq.; incompat. with strong oxidizing agents
Hazardous Decomp. Prods.: Toxic fumes of CO, CO2; heated to decomp., emits acrid smoke and irritating fumes; emits toxic fumes under fire conditions
Storage: Store in cool, dry place; keep tightly closed; keep away from heat and open flame
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §182.20, GRAS; FEMA GRAS; Canada DSL
Manuf./Distrib.: Berje http://www.berjeinc.com; Buckton Page Ltd http://www.bucktonpage.com; Eramex Aromatics http://www.eramex.de; F.D.
Tartaric acid (INCI) - See L-Tartaric acid

L-Tartaric acid
CAS 87-69-4; EINECS/ELINCS 201-766-0
FEMA 3044; INS 3044; NF 334

Synonyms: Butanedioic acid, 2,3-dihydroxy-; 2,3-Dihydroxsuccinic acid; Dihydroxybutanedioic acid, 2,3-; Dihydroxybutanedioic acid; L-2,3-Dihydroxybutanedioic acid; Dihydroxyxuccinic acid; α,β-Dihydroxyxuccinic acid; 3-Hydroxymalic acid; Malic acid, 3-hydroxy-; Succinic acid, 2,3-dihydroxy-; Tartaric acid (INCI); L-(+)-Tartaric acid; Thearic acid

Classification: Nonaromatic carboxylic acid

Definition: The commercial prod. is the L(+)-enantiomer

Empirical: C4H6O6

Formula: COOH • CHO • CHO • COOH

Properties: Colorless translucent cryst. or wh. cryst. powd., odorless, acid taste; effervescent; sol. in water, alcohol, glycerin; partly sol. in ether; m.w. 150.09; dens. 1.0045 (1%, 15/4 C); m.p. 168-170 C; flash pt. (OC) 210 C; sol. in water, alcohol, glycerin; partly sol. in crst. powd., odorless, acid taste; effervescent;

Toxicology: LD50 (IV, mouse) 485 mg/kg; LDLo (oral, dog) 5 g/kg; mod. toxic by IV route; mildly toxic by ing.; strong sol'ns. are mildly irritating to humans; may cause convulsions, somnolence, hemorrhage; TSCA listed

Precaution: Strong organic acid; reaction with silver produces unstable silver tartrate

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 0, Flammability 1, Reactivity 0

Uses: Acidifier, buffer in pharmaceuticals, parenterals, intravenous, orals, rectals, vaginals, denture powds., effervescent powds., grans., and tablets; ingred. in cooling drinks; saline purgative

Regulatory: FDA 21CFR §73.170, 131.111, 131.136, 131.144, 136.110, 150.141, 150.161, 184.1077, 184.1099, 582.1099, 582.6099, GRAS; FEMA GRAS; USDA 9CFR §318.7, 381.147; BATF 27CFR §240.1051, 240.364, 240.512; Canada DSL; FDA approved for parenterals, intravenous, orals, rectals, vaginals; USP/NF, BP, EP, JP compliance

Chemical Component Cross-Reference


Trade Names Containing: C.Cal-97™ Calcium Ascorbate for DC

L-(+)-Tartaric acid. See L-Tartaric acid
L-Tartaric acid disodium salt. See Sodium tartrate
L-Tartaric acid monopotassium salt. See Potassium acid tartrate

Tartrazine
CAS 1934-21-0; EINECS/ELINCS 217-699-5 INS102; E102
Synonyms: Acid yellow 23 (INCI); Acid yellow 23 trisodium salt; 3-Carboxy-5-hydroxy-1-p-sulfophenyl-4-p-sulfophenylazopyrazole trisodium salt; CI 19140; D&C Yellow No. 5; Tartrazine yellow; Trisodium-3-carboxy-5-hydroxy-1-p-sulfophenyl-4-p-sulfophenylazopyrazole

†=pharmaceutical grade

4,5-Dihydro-5-oxo-1-(4-sulfophenyl)-4-[[4-sulfophenyl] azo]-1H-pyrazole-3-carboxylic acid trisodium azo]-1H-pyrazole-3-carboxylic acid trisodium salt; FD&C Yellow No. 5; Food yellow 4; 1H-Pyrazole-3-carboxylic acid, 4,5-dihydro-5-oxo-1-(4-sulfophenyl)-4-[(4-sulfophenyl) azo]- trisodium salt; Tartrazine yellow; Trisodium-3-carboxy-5-hydroxy-1-p-sulfophenyl-4-p-sulfophenylazopyrazole

Classification: Pyrazole color
Empirical: C16H9N4O9S2
Formula: C16H9N4Na3O9S2 • 3Na

Properties: Bright orange-yel. powd., gran.; greenish-yel. in sol’n.; sol. in water, conc. sulfuric acid; sol. (oz/gal): 28 oz glycerin, 12 oz propylene glycol; m.w. 534.37

Toxicology: LD50 (oral, mouse) 12,750 mg/kg, (IP, rat) 3800 mg/kg; mildly toxic by ing.; allergen; those allergic to aspirin are often allergic to tartrazine; may cause urticaria, anaphylactoid reactions, angioedema, rhinitis, bronchial asthma, contact dermatitis, hyperactivity, thyroid tumors; experimental teratogen, reproductive effects; human mutagenic data; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of NOx, SOx, and Na2O

Storage: Hygroscopic

Uses: Colorant for OTC and prescription pharmaceuticals, orals, topicals, buccals, nasals, vaginals, antiallergic and antiasthmatic medications

Regulatory: Europe listed; banned in Norway, Austria; UK approved; FD&C Yellow No. 5: FDA 21CFR §74.705, 74.1705, 74.2705, 82.705, 176.170; FDA approved for buccals, orals, topicals, vaginals

Chemical Component Cross-Reference

TKB Trading
http://www.wholesalecolors.com

See also FD&C Yellow No. 5

Tartrazine yellow. See FD&C Yellow No. 5

Tartrazine yellow. See Tartrazine

Taurine
CAS 107-35-7; EINECS/ELINCS 203-483-8
FEMA 3813
Synonyms: 2-Aminoethanesulfonic acid; 2-Aminoethylsulfonic acid; Ethanesulfonic acid, 2-amino-2-Sulfoethylamine
Classification: Amino acid
Empirical: C2H7NO3S
Formula: NH2CH2CH2SO3H
Properties: Solid; sol. in water; insol. in alcohol, oxygenated solvs.; m.w. 125.15; m.p. > 300 °C; dec. above 317 °C
Toxicology: LD50 (oral, rat) > 5 g/kg, (IP, mouse) 6630 mg/kg, (IV, dog) > 2 g/kg, (subcut., mouse) 6 g/kg; toxic by ing.; irritant; mutagen; reproductive effector;
TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of SOx and NOx
HMIS: Health 2, Flammability 0, Reactivity 0
Uses: Pharmaceutical parenteral nutritive preps. for low-birth-weight infants and in infant formulas; in treatment of hypercholesterolemia and metabolic disorders
Regulatory: Canada DSL
Manuf./Distrib.: ADA Int'l.
http://www.joinme.net/ada/index.htm; Adept Sol'ns.;† Ajinomoto
http://www.ajinomoto.co.jp;
http://www.ajinomoto.com; Alfa Chem† http://www.alfachem1.com; Asiamerica Int'l.;† Austin† http://www.austinchemical.com;
Boith China† http://www.boith.com;
Charles Bowman† http://www.charlesbowman.com;
Chemisphere Ltd
http://www.chemisphere.co.uk; Dastech Int'l.† http://www.dastech.com
Fluka http://www.sigma-aldrich.com;
Fuerst Day Lawson http://www.fdl.co.uk;
George Uhe† http://www.uhe.com; H&A (Canada) Ind.† http://www.hacanada.com;
Napp Tech.† http://www.napptech.com
Penta Mfg.† http://www.pentamfg.com;
Pharmrite N. Am.† http://pharmrite.com;

†=pharmaceutical grade

Premium Ingreds.
Ruger† http://www.rugerchemical.com;
SAFC Specialties† http://www.safcspecialties.com; Sigma http://www.sigma-aldrich.com/belgium;
Spectrum Quality Prods.† http://www.spectrumchemical.com; Tanabe USA http://www.tanabeusa.com
Westco Fine Ingreds.† http://www.westcofine.com

TBA. See t-Butyl alcohol
TBC. See Tributyl citrate
TBHQ. See t-Butyl hydroquinone
TBP. See 2,2'-Thiobis (4,6-dichlorophenol)
TBZ. See Thiabendazole
TCC. See 3,4,4'-Trichlorocarbanilide
TCE. See 1,1,1-Trichloroethane; Trichloroethylene
1,1,1-TCE. See 1,1,1-Trichloroethane
1,1,2-TCE. See 1,1,2-Trichloroethane
TCP. See Calcium phosphate tribasic
TCTFE. See Trichlorotrifluoroethane
TDS. See Tridecyl stearate
TEA. See Triethanolamine

TEA-alginate
Synonyms: Triethanolamine alginate
Classification: Alginate
Uses: Gellant for dental impression materials

Teaberry oil. See Wintergreen (Gaultheria procumbens) oil; Methyl salicylate

TEA-dodecylbenzenesulfonate
CAS 27323-41-7; 68411-31-4; 29381-93-9;
EINECS/ELINCS 248-406-9
UN 9151 (DOT)
Synonyms: Benzenesulfonic acid, dodecyl-, compd. with 2,2',2''-nitritoltris (ethanol) (1:1); Dodecylbenzenesulfonate, triethanolamine salt;
Dodecylbenzenesulfonic acid, compd. with 2,2',2''-nitritoltris[ethanol] (1:1);
Dodecylbenzenesulfonic acid triethanolamine salt; Triethanolamine alkylbenzene sulfonate; Triethanolamine DBS; Triethanolamine dodecylbenzene sulfonate; Triethanolammonium dodecylbenzene sulfonate
Chemical Component Cross-Reference

†=pharmaceutical grade

VWR Int’l.† http://www.vwrsp.com
Trade Names: STEPANOL® WAT

TEA-oleate
CAS 2717-15-9; EINECS/ELINCS 220-311-7
Synonyms: 9-Octadecenoic acid, compd. with 2,2’,2’’-nitrilotriethanol [1:1]; Triethanolamine monooleate ester; Triethanolamine oleate soap; Trihydroxyethylamine oleate
Classification: Salt of oleic acid
Empirical: C_{24}H_{48}NO_{5}
Formula: C_{18}H_{34}O_{2} • C_{6}H_{15}NO_{3}
Properties: HLB 12.0; anionic
Toxicology: TSCA listed
Precaution: Combustible
Uses: W/o emulsifier, surfactant for pharmaceuticals
Regulatory: FDA 21CFR §176.210, 177.2260; Canada DSL
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk
Trade Names: Nofable BO-90T; Nofable BO-99T

TEA-stearate
CAS 4568-28-9; EINECS/ELINCS 224-945-5
Synonyms: Octadecanoic acid, compd. with 2,2’,2’’-nitrilotriethanol [1:1]; Stearic acid, compd. with 2,2’,2’’-nitrilotriethanol [1:1]; Triethanolamine stearate; Trihydroxyethylamine stearate
Definition: Triethanolamine salt of stearic acid
Empirical: C_{25}H_{51}NO_{5}
Formula: (HOCH_{2}CH_{2})_{3}N • HOOCC_{16}H_{35}
Properties: Cream-colored wax-like solid; faint fatty odor; sol. in methanol, ethanol, min. and veg. oils; disp. in hot water; dens. 0.968; m.p. 42-44 C; pH 8.8-9.2 (5% aq. disp.)
Toxicology: TSCA listed
Precaution: Combustible
Uses: Emulsifier, surfactant, solubilizer for topical pharmaceuticals
Regulatory: FDA 21CFR §176.210, 177.2260; Canada DSL
Manuf./Distrib.: A&E Connock
http://www.connock.co.uk

Tea tree. See Cajeput (Melaleuca leucadendron) oil

Tea tree (Melaleuca alternifolia) oil
CAS 68647-73-4; EINECS/ELINCS 285-377-1
FEMA 3902
Synonyms: Malaleuca alternifolia leaf oil; Malaleuca alternifolia oil; Melaleuca
Chemical Component Cross-Reference

**alternifolia; Tea tree oil**
**Classification:** Essential oil  
**Definition:** Oil distilled from leaves of Melaleuca alternifolia  
**Properties:** Lt. yel.  
**Toxicology:** LD50 (oral, rat) 1900 mg/kg; LDLo (skin, rabbit) 5 g/kg; mod. toxic by ing.; low toxicity by skin contact; TSCA listed  
**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating vapors  
**Uses:** Antimicrobial, mild anti-inflammatory, preservative, antiseptic for pharmaceutical ointments, skin treatment, to treat wounds, bacterial infections, fungal infections, in oral care, salves, balms, veterinary skin care  
**Features:** Penetrates the skin readily; accelerates the healing of skin disorders  
**Regulatory:** FDA approved for orals; Canada DSL

**Manuf./Distrib.:** AMC Chems.; Alzo  
**http://www.alzointernational.com**; Arista Ind.†  
**http://www.aristaindustries.com**; Astral Extracts  
**http://www.astralextracts.com**; Buckton Page Ltd  
**http://www.bucktonpage.com**; Chinessence  
**http://www.chinessence.com**; Citrus and Allied Essences  
**http://www.citrusandallied.com**; Cosmetic Supplies USA  
**http://www.cosmeticsuppliesusa.com**; De Monchy Aromatics  
**http://www.demonchyaromatics.com**; Eramex Aromatics  
**http://www.eramex.de**; Fleurchem  
**http://www.fleurchem.com**; Fuerst Day Lawson  
**http://www.fdl.co.uk**; GR Davis  
**http://www.grdavis.com.au**; George Uhe  
**http://www.uhe.com**; Jeen Int'l.  
**http://www.jeen.com**; Parchem Trading†  
**http://www.parchem.com**; Presperse  
**http://www.presperse.com**; SAFC Specialties  
**http://www.saafcspecialties.com**; Sigma  
**http://www.sigma-aldrich.com/belgium**; Voigt Global Distrib.  
**http://www.vgdllc.com**

**Trade Names:** EmCon™ Tea Tree  
**Trade Names Containing:** Epicutin-TT

**Tea tree oil.** See Tea tree (Melaleuca alternifolia) oil  
**TEC.** See Triethyl citrate  
**Teel oil.** See Sesame (Sesamum indicum) oil  
**TEG.** See Triethylene glycol; PEG-4  

†=pharmaceutical grade

**TEHTM.** See Tri-2-ethylhexyl trimellitate  
**TELA.** See Triethanolamine  

**Tellurium**  
**CAS 13494-80-9; EINECS/ELINCS 236-813-4**  
**Synonyms:** Aurum paradoxum; Metallum problematum  
**Classification:** Nonmetallic element  
**Empirical:** Te  
**Properties:** Silvery-wh. lustrous solid; sol. in sulfuric acid, nitric acid, KOH, KCN sol'n.; insol. in water, benzene, CS2; at.wt. 127.60; dens. 6.24 (30 C); vapor pressure 1 mm (520 C); m.p. 450 C; b.p. 990 C  
**Toxicology:** ACGIH TLV/TWA 0.1 mg(Te)/m3; LD50 (oral, rat) 83 mg/kg; poison by ing. and intratracheal routes; toxic by inh.; causes nausea, vomiting, CNS depression; aerosols may cause respiratory irritation, bronchitis, pneumonia; overexposure may cause garlic odor on breath and sweat, dry mouth, metal taste, somnolence, anorexia, dermatitis; experimental teratogen, reproductive effects; TSCA listed  
**Precaution:** Flamm.; may undergo hazardous reactions with halogens, interhalogens, metals, silver bromate, silver iodate; reacts with nitric acid; attacked by acids and alkalis under oxidative conditions  
**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of Te  
**Uses:** Pharmaceutical orals  
**Regulatory:** FDA approved for orals; Canada DSL

**Manuf./Distrib.:** Aldrich†  
**http://www.sigma-aldrich.com**; All Chemie Ltd  
**http://www.allchemie.thomasregister.com/oic/allchemie/**; Asarco  
**http://www.micronmetals.com**; Atomergic Chemetals  
**http://www.atomergic.com**; Cabot/Cab-O-Sil  
**http://www.cabotcorp.com/cabosil/cabosil.nsf**; Cerac  
**http://www.cerac.com**; Fluka  
**http://www.sigma-aldrich.com/belgium**; Johnson Matthey  
**http://www.matthey.com**; Noah  
**http://www.noahtech.com**; R.T. Vanderbilt  
**http://www.rtvan.vanderbilt.com**; Sigma  
**http://www.sigma-aldrich.com/belgium**; Sumitomo Metal Mining  
**http://www.smm.co.jp/index_E.html**  

**Terebenthine.** See Turpentine
Chemical Component Cross-Reference

†=pharmaceutical grade

Terephthalic acid-ethylene glycol polyester.
See Polyethylene terephthalate
1,4(8)-Terpadiene. See Terpinolene
Terpene polymer resin. See Terpene resin

Terpene resin
CAS 9003-74-1
Synonyms: Polyterpene resin; Terpene polymer resin
Classification: Unsat. hydrocarbon; thermoplastic resin
Definition: Thermoplastic resin obtained by polymerization of turpentine in presence of catalysts
Properties: Sol. in most org. solvs.
Toxicology: LD50 (oral, rat) > 15 g/kg; somnolent effect; general depressed activity; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Antiseptic in pharmaceuticals, orals
Use Level: Limitation 0.07% (of wt. of capsule) 7% (of ascorbic acid and salts)
Regulatory: FDA 21CFR §73.1, 172.280, 172.615, 175.105, 175.125, 175.300, 175.320, 177.1200, 177.2600, 178.3930; FDA approved for orals

See also d-Limonene; dl-Limonene; α-Pinene; β-Pinene

α-Terpinene
CAS 99-86-5; EINECS/ELINCS 202-795-1
FEMA 3558
Synonyms: 1,3-Cyclohexadiene, 1-methyl-4-(1-methylethyl)-1-isopropyl-1,4-cyclohexadiene; 1,4-p-Mentha-1,4-diene; 1-Methyl-1,4-diene-cyclohexadiene; 1-Methyl-4-isopropyl-1,4-cyclohexadiene; 1-Methyl-4-(1-methylethyl)-1,3-cyclohexadiene; Tirpinene
Empirical: C10H16
Properties: Colorless liq.; sol. in org. solvs.; misc. in alcohol, ether; insol. in water; m.w. 136.24; dens. 0.834 (20/4 C); b.p. 181.5 C; flash pt. 115 F; ref. index 1.475-1.480; tenacity 2 hrs. on blotter
Toxicology: LD50 (oral, rat) 1680 mg/kg; mod. toxic by ing.; TSCA listed
Precaution: Flamm.
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Storage: Store in cool, dry place in tightly sealed containers, protected from heat, light

γ-Terpinene
CAS 99-85-4; EINECS/ELINCS 202-794-6
FEMA 3559
Synonyms: 1,4-Cyclohexadiene, 1-methyl-4-(1-methylethyl)-1-isopropyl-1,4-cyclohexadiene; 1,4-p-Mentha-1,4-diene; 1-Methyl-1,4-diene-cyclohexadiene; 1-Methyl-4-isopropyl-1,4-cyclohexadiene; 1-Methyl-4-(1-methylethyl)-1,4-cyclohexadiene
Classification: cyclic terpene
Empirical: C10H16
Properties: Colorless oil or liq.; herbaceous citrus odor; sol. in alcohol, fixed oils; insol. in water; m.w. 136.24; dens. 0.848 (20/4 C); b.p. 183-186 C; flash pt. 50 C; ref. index 1.474 (20 C); tenacity 4 hrs. on blotter
Toxicology: LD50 (oral, rat) 3650 mg/kg; mod. toxic by ing.; primary skin irritant; TSCA listed
Precaution: Flamm.
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Storage: Store in cool, dry place in tightly sealed
Chemical Component Cross-Reference

Uses: Synthetic flavor and fragrance for pharmaceuticals
Features: Citrus flavor
Use Level: 1-5%

Regulatory: FDA 21CFR §172.515; FCC; FEMA GRAS; Australia; Canada DSL; Japan ENCS (no. 3-2244); Philippines PICCS

Manufacturer/Distributor: Augustus Oils Ltd
http://www.augustus-oils.ltd.uk; Eramex Aromatics http://www.aramex.de;
Fleurchem http://www.fleurchem.com;
SAFC Specialties http://www.safcspecialties.com; Sigma http://www.sigma-aldrich.com/belgium
Takasago Int'l. http://www.takasago.com;
Treatt USA http://www.rctrett.com

Terpinene-4-ol; (+)-Terpinen-4-ol. See 4-Carvomenthulen
1-Terpinenol; Terpinen-1-ol; 3-Terpinen-1-ol. See p-Menthen-3-en-1-ol
4-Terpinenol; Terpinen-4-ol. See 4-Carvomenthulen

Terpineol (INCI). See α-Terpineol
4-Terpineol. See 4-Carvomenthulen

α-Terpineol
CAS 98-55-5 (mixt. of α,β,γ); 8000-41-7 (mixed isomers); 10482-56-1; EINECS/ELINCS 202-680-6; 232-268-1 (mixed isomers)
UN NA 1993; FEMA 3045

Synonyms: 3-Cyclohexene-1-methanol, α,α,4-trimethyl-; p-Menth-1-en-8-ol; 1-p-Menth-8-ol; p-Menth-1-en-8-ol; 1-Methyl-4-isopropyl-1-cyclohexen-8-ol; Pine oil synthetic; Terpineol (INCI); α-Terpineol special Pure 3-cyclohexene-1-methanol, α, α, trimethyl; α,α,4-Trimethyl-3-cyclohexene-1-methanol

Definition: Several grades avail.; lower grades are mixed isomer prods.; higher grades are used in perfumes

Empirical: C10H16O
Formula: C10H17OH

Properties: Colorless visc. liq. or solid; lilac-like odor; very sol. in alcohol, ether; sol. in propylene glycol; very sl. sol. in water; insol. in

†=pharmaceutical grade

min. oil; m.w. 154.24; dens. 0.935 (20/20 C); vapor pressure 5 mm Hg (80 C); m.p. 40-41 C; b.p. 214-224 C; flash pt. 89 C; ref. index 1.482; surf. tens. 31.6 dynes/cm; tenacity 24 hrs. on blotter

Toxicology: LD50 (oral, rat) 5170 mg/kg,
(intramuscular, mouse) 2000 mg/kg; mod. toxic by intramuscular route; harmful by ing.; may be harmful by inh., skin absorp.; vapor/mist may cause eye/mucous membrane/upper respiratory tract irritation; skin irritant; can be a sensitizer; TSCA listed

Environmental: VOC; ThOD 1.97

Precaution: Combustible; incompat. with strong oxidizing agents, acid chlorides, acid anhydrides

Hazardous Decomp. Prods.: CO, CO2; combustion: toxic fumes; heated to decomps., emits acrid smoke and irritating fumes

NFPA: Health 0, Flammability 2, Reactivity 0

Storage: Store in cool, dry place away from light, heat, open flame; keep tightly closed

Uses: Synthetic flavor, denaturant, antiseptic, disinfectant, solvent in pharmaceuticals, topicals, preps. for respiratory tract disorders

Regulatory: FDA 21CFR §172.515, 175.105. 178.1010; FEMA GRAS; FDA approved for topicals; BP compliance; Australia; Canada DSL; Japan ENCS (3-2323); Philippines PICCS

Manufacturer/Distributor: ADA Int'l.
Ind. http://www.arakawachem.co.jp/e; Astral Extracts http://www.astralextracts.com
β-Terpineol
CAS 138-87-4; EINECS/ELINCS 205-342-6
FEMA 3564
Synonyms: Cyclohexanol, 1-methyl-4-(1-methylethenyl)-; p-Menth-8-en-1-ol; t-Menth-1-en-8-ol; 1-Methyl-4-(1-methylethenyl) cyclohexanol

Empirical: C10H16

Properties: Colorless visc. liq., lilac odor; sl. sol. in water, glycerin; m.w. 136.24; dens. 0.864 (15.5/15.5 C); b.p. 183-185 C; flash pt. (CC) 37.2 C; ref. index 1.4890; tenacity 4 days on blotter

Toxicology: Mutagenic data; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS

Manuf./Distrib.: AMC Chems.; Aldrich; Alfa Aesar; Asiamerica Int'l.; Fluka; Frutarom (UK) Fine Ingreds.; Mallinckrodt; Millennium; Penta; Spectrum Quality Prods.; VWR Int'l.; http://www.vwrsp.com

Terpineol anhyd.
CAS 8006-39-1; EINECS/ELINCS 202-680-6

Synonyms: p-Menth-1-en-8-ol; Terpineols

Definition: Mixt. of α, β, and γ isomers

Empirical: C10H18O

Properties: Colorless visc. liq., lilac odor; sl. sol. in water, glycerin; m.w. 154.28; dens. 0.930-0.936; b.p. 213-218 C; flash pt. 196 F; ref. index 1.482

Toxicology: LD50 (oral, rat) 4300 mg/kg; mildly toxic by ing.; skin irritant

Precaution: Combustible liq.

Hazardous Decomp. Prods.: Heated to decomp., emits acid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS

Manuf./Distrib.: AMC Chems.; Aldrich; Alfa Aesar; Asiamerica Int'l.; Fluka; Frutarom (UK) Fine Ingreds.; Mallinckrodt; Millennium; Penta; Spectrum Quality Prods.; VWR Int'l.; http://www.vwrsp.com

Terpineols. See Terpineol anhyd.

α-Terpineol special Pure 3-cyclohexene-1-methanol, α, α, trimethyl. See α-Terpineol

Terpinolene
CAS 586-62-9; 68956-56-9; EINECS/ELINCS 209-578-0; 273-309-3
UN 2541 (DOT); FEMA 3046

Synonyms: 4-Isopropylidene-1-methylcyclohexene; 1,4-(8)-p-Menthadiene; p-Menth-1,4(8)-diene; 1-Methyl-4-(1-methylethylidene) cyclohexene; 1,4(8)-Terpadiene

Classification: Nonaromatic hydrocarbon

Empirical: C10H16

Properties: Water-wh. to pale amber liq. or oil; sol. in alcohol, ether, glycol; insol. in water; m.w. 136.24; dens. 0.864 (15.5/15.5 C); b.p. 183-185 C; flash pt. (CC) 37.2 C; ref. index 1.4890; tenacity 4 days on blotter

Toxicology: LD50 (oral, rat) 4390 mg/kg; mildly toxic by ing.; TSCA listed
Chemical Component Cross-Reference

Precaution: Combustible; very dangerous fire hazard exposed to heat or flames; can react with oxidizing materials
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Storage: Store in cool, dry place in tightly sealed containers, protected from heat, light
Uses: Synthetic flavor for pharmaceuticals
Use Level: 1-40%
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Japan approved as flavoring; Canada DSL
Trade Names: Dipentene Extra

Terpinyl acetate
CAS 80-26-2; EINECS/ELINCS 201-265-7
FEMA 3047
Synonyms: Menthen-1-yl-8 acetate; 1-p-Menth-8-en-yl acetate; p-Menth-1-en-8-yl acetate; 1-Methyl-1-(4-methylcyclohex-3-enyl) ethyl ethanoate; α-Terpineol acetate; (±)-α-Terpinyl acetate
Definition: Mixed prod., mainly α-terpinyl acetate
Empirical: C12H20O2
Formula: C10H17OOCCH3
Properties: Colorless liq.; bergamot or lavender-like odor; sol. in fixed oils, min. oil, propylene glycol, 5+ vols. of 70% alcohol; sl. sol. in glycerol; insol. in water; m.w. 196.32; dens. 0.958-0.968 (15 C); f.p. -50 C; b.p. 220 C; flash pt. 212 F; ref. index 1.4640-1.4660 (20 C)
Toxicology: LD50 (oral, rat) 5075 mg/kg, (oral, mouse) 4800 mg/kg; LDLo (oral, rat) 4160 mg/kg; mildly toxic by ing.; TSCA listed
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Japan approved as flavoring; Canada DSL

Terpinyl anthranilate
CAS 14481-52-8
FEMA 3048
Synonyms: Anthranilic acid 1-methyl-1-(4-methyl-3-cyclohexen-1-yl) ethyl ester; p-Menth-1-en-8-yl anthranilate; 1-Methyl-1-(4-methyl-3-cyclohexen-1-yl) ethyl anthranilate; Terpinyl ortho-aminobenzoate; α-Terpinyl anthranilate; α,α,4-Trimethyl-3-cyclohexene-1-methyl 2-aminobenzoate
Classification: floral ester
Empirical: C17H23NO2
Properties: Pale yel. to cl. liq.; sol. in alcohol; insol. in water; m.w. 273.37; sp. gr. 1.058; b.p. 365 C; acid no. 2.0 max.; ref. index 1.4800-1.4860
Uses: Synthetic flavor for pharmaceuticals
Features: Lily orangeblossom fruity odor
Regulatory: FDA 21CFR §172.515; FEMA
α-Terpinyl anthranilate. See Terpinyl anthranilate

Terpinyl butyrate
CAS 2153-28-8; EINECS/ELINCS 218-445-6
FEMA 3049
Synonyms: p-Menth-1-en-8-yl butyrate; 1-Methyl-1-(4-methyl-3-cyclohexen-1-yl) ethyl butanoate; Methyl methycyclohexenyl ethyl butrate; 1-Methyl-1-(4-methyl-3-cyclohexen-1-yl) ethyl butyrate
Classification: floral ester
Empirical: C14H24O2
Properties: Liq.; dens. 0.938; b.p. 244 °C; flash pt. > 230 °F; ref. index 1.4650
Toxicology: May be harmful by inh., ing., skin absorp.; may be irritating to eyes, skin, mucous membranes, upper respiratory tract
Precaution: Incompat. with strong oxidizing agents
Hazardous Decomp. Prods.: CO, CO2; emits toxic fumes under fire conditions
Storage: Store in cool, dry place; keep tightly closed
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Terpinyl cinnamate
CAS 10024-56-3; EINECS/ELINCS 233-023-1
FEMA 3051
Synonyms: p-Menth-1-en-8-yl cinnamate; (Z)-1-Methyl-1-(4-methyl-3-cyclohexen-1-yl) ethyl cinnamate; (S)-3-Phenyl-2-propenoic acid 1-methyl-1-(4-methyl-3-cyclohexen-1-yl) ethyl ester; Terpinyl β-phenylacrylate; Terpinyl 3-phenylpropenoate
Classification: floral ester
Empirical: C19H24O2
Properties: Colorless or pale straw-colored visc. liq.; mild, sweet, floral-balsamic odor; m.w. 284.40; misc. with oils, ethanol; insol. in water; b.p. 242 °C
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Degussa

Terpinyl formate
CAS 2153-26-6; EINECS/ELINCS 218-444-0
FEMA 3052
Synonyms: Formic acid 1-methyl-1-(4-methylcyclohex-3-enyl) ethyl ester; p-Menth-1-en-8-ol formate; p-Menth-1-en-8-yl formate; 1-Methyl-1-(4-methylcyclohex-3-enyl) ethyl methanoate
Classification: floral ester
Empirical: C11H18O2
Properties: M.w. 182.27; dens. 0.981; b.p. 220 °C; ref. index 1.4410
Toxicology: Skin irritant; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Synthetic flavor for pharmaceuticals
Features: Sweet, citrus-like flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Terpinyl isobutyrate
CAS 7774-65-4; EINECS/ELINCS 231-878-5
FEMA 3050
Synonyms: p-Menth-1-en-8-yl isobutyrate; 1-Methyl-1-(4-methylcyclohex-3-enyl) ethyl 2-methylpropanoate; 2-Methylpropanoic acid 1-methyl-1-(4-methyl-3-cyclohexen-1-yl) ethyl ester; Propanoic acid, 2-methyl-, 1-methyl-1-(4-methyl-3-cyclohexen-1-yl) ethyl ester
Classification: floral ester
Empirical: C14H24O2
Properties: Colorless oily liq.; sol. in ethyl alcohol; very sl. sol. in water; m.w. 224.38; sp. gr. 0.940-0.950; b.p. 242 °C
Toxicology: LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating vapors
Uses: Synthetic flavor for pharmaceuticals
Features: Green floral herbal spice fatty bergamot odor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Lluch Essence http://www.lluch-essence.com; SAFC
Terpinyl isopentanoate. See Terpinyl isovalerate

Terpinyl isovalerate
CAS 1142-85-4
FEMA 3054
Synonyms: Isovaleric acid para-menth-1-en-8-yl ester; p-Menth-1-en-8-yl isovalerate; p-Menth-1-en-8-yl 3-methyl butanoate; 1-Methyl-1-(4-methyl-3-cyclohexen-1-yl) ethyl 3-methyl butanoate; Terpinyl isopentanoate; Terpinyl isovalerianate
Classification: floral ester
Empirical: C15H26O2
Properties: Colorless cl. oily liq.; m.w. 238.37; b.p. 248 ºC
Uses: Synthetic flavor for pharmaceuticals
Features: Sweet pine olibanum incense orange odor

Terpinyl propionate
CAS 80-27-3; EINECS/ELINCS 201-266-2
FEMA 3053
Synonyms: p-Mentha-1-en-8-ol propionate; Menthen-1-yl-8 propionate; p-Menth-1-en-8-yl propionate; 1-Methyl-1-(4-methylcyclohex-3-enyl) ethyl propanoate
Classification: floral ester
Empirical: C13H22O2
Properties: Colorless to sl. yel. liq.; green, woody, citrus, sweet floral, lavender-like odor; sol. in glycerin; misc. with alcohol, chloroform, ether, fixed oils; sl. sol. in propylene glycol; insol. in water; m.w. 210.32; dens. 0.944; flash pt. 212 F; ref. index 1.461
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21 CFR §172.515; FEMA GRAS; Canada DSL

Tetraacetyltoluestriol. See Pentaerythritol tetraacetate

Tetraammonium EDTA
Uses: Chelating agent for pharmaceuticals, drug stabilization, heavy metal poisoning treatment
Trade Names: Versene Tetraammonium EDTA
1,4,7,10-Tetraazadecane. See Triethylenetetramine
2,4,11,13-Tetraazatetradecane diimida midamide, N,N´-bis (4-chlorophenyl)-3,12-diimino-, dihydrochloride. See Chlorhexidine dihydrochloride
2´,4´,5´,7´-Tetrabromo-3´,6´-dihydroxyxipiro [isobenzofuran-1(3H),9´-[9H] xanthen]-3-one. See D&C Red No. 21
2´,4´,5´,7´-Tetrabromo-3´,6´-dihydroxyxipiro [isobenzofuran-1(3H),9´-[9H] xanthen]-3-one disodium salt. See D&C Red No. 22; Acid red 87
2,4,5,7-Tetrabromo-3,6-fluorandiol. See D&C Red No. 21
Tetrabromofluorescein. See D&C Red No. 22; D&C Red No. 21; Acid red 87
2´,4´,5´,7´-Tetrabromo-4,5,6,7-tetrachloro-3´,6´-dihydroxyxipiro [isobenzofuran-1(3H),9´-[9H] xanthen]-3-one. See D&C Red No. 27
2´,4´,5´,7´-Tetrabromo-4,5,6,7-tetrachloro-3´,6´-dihydroxyxipiro [isobenzofuran-1(3H),9´-[9H] xanthen]-3-one disodium salt. See CI 45410; D&C Red No. 28
Tetrabromotetra chlorofluorescein. See D&C Red No. 27
Tetrachlorocarbon; Tetrachloromethane. See Carbon tetrachloride
Tetrachloro tetrabromofluorescein. See D&C Red No. 27
15-Tetracosanoic acid, (Z)-. See Nervonic acid
2,6,10,14,18,22-Tetracosahexene, 2,6,10,15,19,23-hexamethyl-, (all E) -. See Squalene
Tetracosanoic acid; 15-Tetracosanoic acid; cis-15-Tetracosanoic acid. See Nervonic acid

1-Tetracosanol
CAS 506-51-4
Synonyms: Lignoceryl alcohol
Classification: Fatty alcohol
Empirical: C_{24}H_{50}O
Formula: CH_3(CH_2)_{22}CH_2OH
Properties: M.w. 354.66; m.p. 75-77 C; b.p. 190 C (0.01 mm Hg)
Uses: Ingred. in dietary supplements
Manuf./Distrib.: Acros Org.
http://www.mpbio.com; Indofine
http://www.indofinechemical.com; Sasol Germany http://www.sasol.com;
http://www.sasololefinssurfactants.com
TCI Am. http://www.tciamerica.com
Trade Names Containing: Lesstanol™ Natural Policosanol 60
cis-15-Tetracosenoic acid. See Nervonic acid
Tetradecanal; 1-Tetradecanal. See Myristaldehyde
1-Tetradecanaminium, N,N,N-trimethyl-, hydrogen sulfate, sodium salt. See Sodium myristyl sulfate
1-Tetradecanol, propanoate. See Myristyl propionate
Tetradecene. See Tetradecene-1
Tetradecene-1
CAS 1120-36-1; EINECS/ELINCS 272-493-2
Synonyms: C14 linear alpha olefin;
Tetradecene; 1-Tetradecene; α-Tetradecylene
Empirical: C_{14}H_{28}
Formula: CH_3(CH_2)_{11}CH:CH_2
Properties: Colorless liq., mild hydrocarbon odor; sl. sol. in alcohol, ether; insol. in water; m.w. 196.38; dens. 0.775; m.p. -13 C; pour pt. -18 C; b.p. 251 C; flash pt. (Seta) 226 F; ref. index 1.4360
Toxicology: Irritating to eyes and skin; low acute inhalation toxicity; low acute ingestion toxicity but ingestion may cause vomiting, aspiration of vomitus
Precaution: Combustible; avoid contact with air or oxygen; explosion danger from peroxide formation
Storage: Store under nitrogen blanket
Uses: Solvent in medicines, flavors
Regulatory: Canada DSL
Albemarle http://www.albemarle.com;
Aldrich http://www.sigma-aldrich.com; BP Chemicals http://www.bp.com;
ChevronPhillips http://www.cpchem.com
Fluka http://www.sigma-aldrich.com; Shell http://www.shellchemicals.com;
http://www.shell-lubricants.com; Sigma http://www.sigma-aldrich.com/belgium;

†=pharmaceutical grade

Octylidodecyl myristate
Tetradecanoic acid, tetradecyl ester. See Myristyl myristate
1-Tetradecanol; N-Tetradecanol-1. See Myristyl alcohol
1-Tetradecanol, 2-decyl-. See 2-Decyl-1-tetradecanol
1-Tetradecanol, hydrogen sulfate, sodium salt. See Sodium myristyl sulfate
1-Tetradecanol, propaneate. See Myristyl propionate
Tetradecene. See Tetradecene-1
Tetradecene-1
n-Tetradecenoic acid. See Myristic acid
Tetradecyl alcohol; N-Tetradecyl alcohol. See Myristyl alcohol
Tetradecyl aldehyde; 1-Tetradecyl aldehyde. See Myristaldehyde
Tetradecyl dimethyl amine oxide. See
Chemical Component Cross-Reference

Myristamine oxide
Tetradecyl dimethyl benzyl ammonium chloride. See Myristalkonium chloride

Tetradecyleicosanol
CAS 119691-49-5
Synonyms: 1-Eicosanol, 2-tetradecyl-; Myristyl eicosanol; 2-Tetradecyl-1-eicosanol
Classification: Aliphatic alcohol
Empirical: C34H70O
Properties: Lt. colored soft wax; sol. in min. oil, isopropyl myristate, oleyl alcohol, castor oil; m.p. 33-40 C
Uses: Emollient, visc. control agent for pharmaceuticals, topicals
Regulatory: Canada DSL
Manuf./Distrib.: Somerset Cosmetic Co.
http://www.makingcosmetics.com/
Trade Names: Jarcol™ I-34T

2-Tetradecyl-1-eicosanol. See Tetradecyleicosanol

Tetradecyleicosyl stearate
Synonyms: Myristyleicosyl stearate; Octadecanoic acid, 2-tetradecyl-1-eicosanyl ester
Classification: Ester
Definition: Ester of myristyl eicosanol and stearic acid
Empirical: C52H104O2
Formula: CH3(CH2)16COOCH2CH(CH2)17CH3CH3(CH2)12CH2
Uses: Stabilizer, base, lubricant, opacifier, emollient for pharmaceuticals
Manuf./Distrib.: Somerset Cosmetic Co.
http://www.makingcosmetics.com/

α-Tetradecylene. See Tetradecene-1
Tetradecyl 2-hydroxypropanoate; Tetradecyl lactate. See Myristyl lactate
Tetradecyl octadecanoate. See Myristyl stearate

2-Tetradecyloctadecanol
CAS 32582-32-4; EINECS/ELINCS 251-110-2
Synonyms: Myristyloctadecanol; 2-Tetradecyl-1-octadecanol
Classification: Aliphatic alcohol
Empirical: C32H66O
Properties: M.w. 466.88; m.p. 38-39 C; b.p. 308-310 C; hyd. no. 120
Uses: Emollient, visc. control agent in pharmaceuticals
Manuf./Distrib.: Jarchem Ind.

†=pharmaceutical grade

http://www.jarchem.com
Trade Names: ISOFOL® 32; Jarcol™ I-32
Trade Names Containing: Jarcol™ I-34T

2-Tetradecyl-1-octadecanol. See 2-Tetradecyloctadecanol
2-[2-[2-(Tetradecyloxy) ethoxy] ethoxy] ethyl laurate. See Myrlyth-3 laurate
Tetradecyl propionate. See Myristyl propionate
Tetradecyl sodium sulfate. See Sodium myristyl sulfate
Tetradecyl stearate. See Myristyl stearate
Tetradecyl sulfate, sodium salt. See Sodium myristyl sulfate
Tetradecyl tetradecanoate. See Myristyl myristate
Tetradecyltrimethylammonium bromide; Tetradonium bromide. See Myrtrimonium bromide
Tetraethylaluminoo-o-carboxyphenyl xanthenyl chloride. See Basic violet 10; D&C Red No. 19
Tetraethylene glycol. See PEG-4
Tetraethylrhodamine. See Basic violet 10; D&C Red No. 19
Tetraethyliuram monosulfide. See Tetraethyliuram sulfide
Tetraethyliuram sulfide
CAS 95-05-6
Synonyms: Bis-(diethylthiocarbamyl) sulfide; Sulfirm; Tetraethyliuram monosulfide
Empirical: C10H20N2S3
Formula: [(C2H5)2NCS]2S
Properties: Dark brn. powd.; sl. odor; m.w. 264.48; dens. 1.12; m.p. 30-32 C; b.p. 225-240 C (3 mm)
Toxicology: Toxic by ing. and inh.
Uses: Pharmaceutical ointments
Manuf./Distrib.: Chemos GmbH

Tetrafluoro dichloroethane; 1,1,2,2-Tetrafluoro-1,2-dichloroethane. See 1,2-Dichlorotetrafluoroethane
Tetrafluorodichloromethane. See Dichlorotetrafluoromethane
Tetrafluoroethane
CAS 811-97-2; EINECS/ELINCS 212-377-0
UN 1078
Synonyms: HFC 134a; Norflurane; R 134a; 1,1,1,2-Tetrafluoroethane
Classification: Nonaromatic halogenated
Chemical Component Cross-Reference

hydrocarbon

**Empirical:** C₂H₂F₄

**Formula:** CF₃CH₂F

**Properties:** Colorless liquefied gas; sol. in ether; insol. in water; m.w. 102.03; dens. 3.18 (70 F); b.p. -26.5 C; nonflamm.; noncorrosive

**Toxicology:** TLV/TWA none established: simple asphyxiant; avoid contact and inhalation; target organ: heart; TSCA listed

**Environmental:** Replacement for CFC but characterized as global warming gas by the Kyoto Conference on Climate Change

**Precaution:** Dec. at high temp. to toxic substances

**Storage:** Store away from heat

**Uses:** Aerosol propellant for asthma and nasal inhalers, topical and oral sprays

**Features:** Zero ODP

**Regulatory:** Canada DSL

**Manuf./Distrib.:** Aeropres

http://www.aeropres.com; Aldrich

http://www.sigma-aldrich.com; Aventis Pharmaceuticals†

http://www.aventispharma-us.com; BOC Ltd†

http://www.boc.com.au; DuPont†

http://www.dupont.com

Messer†

http://www.messergroup.com;

Uniqema†

http://www.uniqema.com

**Trade Names:** Dymel® 134a/P; Solkane® 134a pharma

1,1,1,2-Tetrafluoroethane. See Tetrafluoroethane

**Tetraglyceril monoisostearate. See Polyglyceryl-4 isostearate**

**Tetraglyceril monoooleate. See Polyglyceryl-4 oleate**

**Tetraglycol. See PEG-4**

4,5,6,7-Tetrahydro-3,6-dimethylbenzofuran

**CAS:** 494-90-6; EINECS/ELINCS 207-795-5

**FEMA:** 3235

**Synonyms:** Menthofuran

**Empirical:** C₁₀H₁₄O

**Properties:** Bluish liq.; menthol-like odor; sol. in oils; misc. with ethanol; insol. in water; m.w. 150.22; dens. 0.970; b.p. 196 C; flash pt. 168 F; ref. index 1.481-1.486

**Uses:** Flavor for pharmaceuticals

**Regulatory:** FEMA GRAS; Canada DSL

**Manuf./Distrib.:** Augustus Oils Ltd


SAFC Specialties

http://www.safcspecialties.com

†=pharmaceutical grade

**Tetrahydro-dimethyl benzofuran-2-one. See Mentholactone**

**Tetrahydro-1,4-dioxin; Tetrahydro-p-dioxin. See 1,4-Dioxane**

**Tetrahydro-2,5-dioxofuran. See Succinic anhydride**

**Tetrahydrofuran**

CAS 109-99-9; EINECS/ELINCS 203-726-8

UN 2056 (DOT)

**Synonyms:** Butane, 1,4-epoxy-; Butylene oxide; Cyclotetramethylene oxide; Diethylene oxide; 1,4-Epoxybutane; Furanidine; Furan, tetrahydro-; Hydrofuran; Oxacyclopentane; Oxolane; Tetramethylene oxide; THF

**Classification:** Sat. cyclic aliphatic ether

**Empirical:** C₄H₈O

**Formula:** CH₂CH₂CH₂CH₂O

**Properties:** Water-wh. volatile liq.; ethereal odor; very sol. in water; sol. in alcohols, ketones, esters, ethers, hydrocarbons, oxygenated solvs.; m.w. 72.11; dens. 0.888 (20/4 C); vapor pressure 114 mm (15 C); f.p. -65 C; m.p. -108.5 C; b.p. 66 C; flash pt. (OC) -15 C; ref. index 1.4070

**Toxicology:** ACGIH TLV/TWA 200 ppm; STEL 250 ppm; LD₅₀ (oral, rat) 1650 mg/kg, (IP, rat) 2900 mg/kg; LC₅₀ (inh., rat, 3 h) 21,000 ppm; mod. toxic by ing., IP; mildly toxic by inh.; eye/mucous membrane irritant; essentially nonirritating to skin; CNS depressant; narcotic, anesthetic at high concs.; may injure liver and kidneys; 25,000 ppm reported lethal in humans; tumorigen; mutagen; reproductive effects; TSCA listed

**Environmental:** VOC; ThOD 2.44

**Precaution:** Extremely flamm.; flamm. limits in air 2-11.8%; incompat. with strong oxidizing agents (increases fire/explosion risk), bromine (reacts vigorously with gas evolution), caustic alkalis (violent reactions possible)

**Hazardous Decomp. Prods.:** Peroxides may form and accumulate on exposure to air and light, in the absence of inhibitors; heated to decomp., emits acrid smoke and irritating fumes

**NFPA:** Health 2, Flammability 3, Reactivity 1

**Storage:** Store in cool, dry, well-ventilated area, out of direct sunlight

**Uses:** Extraction solvent for pharmaceuticals; steroid hormone prod. for use in birth
### Tetrahydro-2-furanmethanol

**Synonyms:** Tetrahydro-2-furancarbinol; Tetrahydro-2-furanmethanol acetate; Tetrahydro-2-furanmethanol

**Definition:** Ester of tetrahydrofurfuryl alcohol and acetic acid

**Empirical:** C₇H₁₂O₃

**Formula:** C₄H₇OCH₂OOCCH₃

**Properties:**
- Colorless liq.; sol. in water, alcohol, ether, chloroform; m.w. 144.17; sp.gr. 1.058-1.064 (20/0 C); b.p. 193-195 C (753 mm); flash pt. (CC) 77 C; ref. index 1.434-1.440

**Toxicology:**
- Irritating to eyes, skin; defats the skin; ing. may cause stomach pain, vomiting

**Environmental:** Prevent contamination of water sources, sewers

**Precaution:** Combustible; incompat. with strong oxidizing agents

**Storage:** Keep away from heat, sparks, open flame; keep container tightly closed

**Uses:** Synthetic flavor for pharmaceuticals

**Regulatory:**
- FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Manuf./Distrib.:**
- Advanced BioTech
- OXford Chems. Ltd
- SAFC Specialties

**Tetrahydrofurfuryl alcohol**

**Synonyms:** Tetrahydro-2-furancarbinol; Tetrahydro-2-furanmethanol; Tetrahydro-2-furylmethanol; THFA

**Classification:** Cyclic alcohol

**Empirical:** C₅H₁₀O₂

**Formula:** C₄H₇OCH₂OOCCH₃

**Properties:**
- Colorless liq., mild odor; misc. with water, alcohol, ether, acetone, chloroform, benzene, oxygenated solvs.; m.w. 102.14; dens. 1.053 (20/4 C); visc. 6.24 cp (20 C); vapor pressure 0.801 mm Hg; m.p. < -80 C; b.p. 173-177 C; flash pt. (TOC) 84 C; autoignition temp. 282 C; ref. index 1.453 (20 C); surf. tens. 37 dyne/cm; dielec. const. 13.61

**Toxicology:** LD₅₀ (oral, rat) 2500 mg/kg, (IV, rabbit) 725 mg/kg; mod. toxic by ing., IV, IP
Chemical Component Cross-Reference

Tetrahdrofurfuryl methyl N-butyrate. See Tetrahdrofurfuryl butyrate

Tetrahdrofurfuryl propionate
CAS 637-65-0; EINECS/ELINCS 211-297-3
FEMA 3058
Synonyms: Propionic acid tetrahydrofurfuryl ester; Tetrahydro-2-furyl methyl propionate; 2-Tetrahydrofurfuryl methyl propionate

Empirical: C₈H₁₄O₃
Properties: Colorless liq.; sol. in alcohol; sl. sol. in water; m.w. 158.20; dens. 1.040; b.p. 207 C; flash pt. 198 F; ref. index 1.435-1.445
Uses: Synthetic flavor for pharmaceuticals
Features: Fruity, medicinal flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Tetrahdro-2-furylmethanol. See Tetrahdrofurfuryl alcohol

Tetrahdrofurfuryl methyl butanoate; Tetrahydro-2-furyl methyl N-butanoate; (Tetrahydro-2-furyl) methyl butyrate. See Tetrahdrofurfuryl butyrate

Tetrahydro-2-furyl methyl propionate; 2-Tetrahydrofurfuryl methyl propionate. See Tetrahdrofurfuryl propionate

Tetrahydrogeraniol. See 3,7-Dimethyl-1-octanol

Tetrahydro-1,4-isoxazine; Tetrahydro-p-isoxazine. See Morpholine

Tetrahdroalinalool
CAS 78-69-3; EINECS/ELINCS 201-133-9
FEMA 3060
Synonyms: 3,7-Dimethyloctane-3-ol; 3,7-Dimethyl-3-octanol; 3,7-Dimethyloctan-3-ol;
Chemical Component Cross-Reference

†=pharmaceutical grade

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Linacsol; Linalool tetrahydride; 3-Octanol, 3,7-dimethyl-
Classification: Nonaromatic alcohol
Empirical: C₁₀H₂₂O
Formula: C₁₀H₂₁OH
Properties: Colorless to pale yel. liq., floral odor; sol. in alcohol, fixed oils, hydrocarbon solvs.; insol. in water; m.w. 158.29; sp.gr. 0.830-0.840; dens. 0.923; b.p. 71-73 C (6 mm); flash pt. 183 F; ref. index 1.431; tenacity 2 hrs. on blotter
Toxicology: LD₅₀ (oral, rat) > 5 g/kg, (oral, mouse) 4500 mg/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing.; primary skin irritant; irritating to eyes, skin, respiratory system; may be harmful by inh., ing., skin absorp.; TSCA listed
Precaution: Combustible liq.; incompat. with strong oxidizing agents, acid chlorides, acid anhydrides, strong acids, strong bases
Hazardous Decomp. Prods.: CO, CO₂; heated to decomp., emits acrid smoke and irritating fumes; emits toxic fumes under fire conditions
Storage: Store in cool, dry place; keep tightly closed; keep away from heat, open flame; protect from light
Uses: Synthetic flavor for pharmaceuticals
Use Level: 1-20%
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia; Canada DSL; Japan ENCS (no.2-217); Philippines PICCS
2-(Tetrahydro-5-methyl-5-vinyl-2-furyl) propan-2-ol. See Linalool oxide

Tetrahydronaphthalene
CAS 119-64-2; EINECS/ELINCS 204-340-2
Synonyms: Naphthalene-1,2,3,4-tetrahydride; 1,2,3,4-Tetrahydronaphthalene; Tetralin; Tetranap; THN
Empirical: C₁₀H₁₂
Properties: Colorless liq., pungent menthol odor; misc. with most solvs., ethanol, butanol, acetone, ether, benzene; insol. in water; m.w. 132.21; dens. 0.981 (13 C); vapor pressure 1 mm (38 C); m.p. -25 C; b.p. 206 C; flash pt. 160 F; ref. index 1.5410
Toxicology: LD₅₀ (oral, rat) 2860 mg/kg, (dermal, rabbit) 17 g/kg; mod. toxic by ing.; mildly toxic by skin contact; primary irritant to eyes, mucous membranes, respiratory system; severe skin irritant; narcotic in high concs.; may cause cataracts, kidney damage; tumorigen; TSCA listed
Precaution: Combustible exposed to heat or flame; can react with oxidizers; explosive as vapor; explosive limits 0.8% (212 F) to 5% (302 F); may be explosive on prolonged close contact with air
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Solvent in pharmaceuticals
Regulatory: Canada DSL
1,2,3,4-Tetrahydronaphthalene. See Tetrahydronaphthalene
Tetrahydro-1,4-oxazine; Tetrahydro-2H-1,4-oxazine; Tetrahydro-4H-1,4-oxazine; Tetrahydro-p-oxazine. See Morpholine
Tetrahydro-6-propyl-2H-pyran-2-one. See γ-Octalactone
Tetrahydro-pseudo-ionone
CAS 4433-36-7; EINECS/ELINCS 224-634-4
FEMA 3059
Synonyms: Citronellyl acetone; Dihydrogeranyl acetone; 6,10-Dimethyl-9-
Chemical Component Cross-Reference

undecen-2-one; 3,4,5,6-Tetrahydro-pseudo-ionone

Empirical: \( \text{C}_{13}\text{H}_{24}\text{O} \)

Properties: Colorless to pale yel. cl. liq.; sol in alcohol; insol in water; m.w. 196.33; sp. gr. 0.865-0.875; b.p. 234 C

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS

3,4,5,6-Tetrahydro-pseudo-ionone. See Tetrahydro-pseudo-ionone Tetrahydrothiophene dioxide; Tetrahydrothiophene-1,1-dioxide; 2,3,4,5-Tetrahydrothiophene-1,1-dioxide. See Sulfolane 1,2,3,6-Tetrahydro-N-(trichloromethylthio)phthalimide. See Captan 5,6,7,7a-Tetrahydro-3,6-trimethyl-2(4H)-benzofuranone. See Mentholactone Tetrahydro-\( \alpha,\alpha'-\)-5-trimethyl-5-vinylfurfuryl alcohol. See Linalool oxide 2,2',4,4'-Tetrahydroxybenzophenone. See Benzophenone-2 Tetrahydroxybutane. See Erythritol 2,3,4,5-Tetrahydroxy-pentanal. See D (+)-Xylose N,N,N',N'-Tetra-(2-hydroxypropyl)-1,2-diaminoethane. See Tetrahydroxypropyl ethylenediamine

Tetrahydroxypropyl ethylenediamine

CAS 102-60-3; EINECS/ELINCS 203-041-4 Synonyms: Edetol, Ethylenedinitrilotetra-2-propanol; 1,1',1''- (Ethylenedinitriolo) tetra-2-propanol; N,N,N',N'-Tetra-(2-hydroxypropyl)-1,2-diaminoethane; N,N,N',N'-Tetrakis (2-hydroxypropyl) ethylenediamine

Classification: Substituted amine

Empirical: \( \text{C}_{14}\text{H}_{32}\text{N}_{2}\text{O}_4 \)

Formula: \((\text{HOCl}_3\text{H}_6)_2\text{NCH}_2\text{CH}_2\text{N}(\text{C}_3\text{H}_6\text{OH})\)

Properties: Water-wh. visc. liq.; sol in ethanol, toluene, ethylene glycol; misc. with water; m.w. 292.42; dens. 1.013; b.p. 175-181 C (0.8 mm); flash pt. > 230 F; ref. index 1.4812; cationic

Toxicology: LD50 (mammal) 3900 mg/kg; mod. toxic by unspecified route; may be irritating to skin and mucous membranes; may cause skin sensitization; TSCA listed

Precaution: Combustible

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx

Uses: Solvent, preservative, chelating agent, intermediate, emulsifier for pharmaceuticals

Regulatory: FDA 21CFR §177.1680; Canada DSL

Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

Trade Names: Quadrol® Polyol

2',4',5',7'-Tetraiodofluorescein disodium salt. See FD&C Red No. 3; Acid red 51 Tetraiodofluorescein sodium salt. See FD&C Red No. 3; Acid red 51 Tetrairon tris (hexacyanoferrate). See CI 77510

Tetraisopropyl methylenediphosphonate

CAS 1660-95-3

Empirical: \( \text{C}_{13}\text{H}_{30}\text{O}_6\text{P}_2 \)

Properties: M.w. 344.32; b.p. 88-90 C (0.003 mm)

Uses: Pharmaceutical intermediate; reagent


N,N,N',N'-Tetrakis (2-hydroxypropyl) ethylenediamine. See Tetrahydroxypropyl ethylenediamine Tetralin. See Tetrahydronaphthalene

p-(1,1,3,3-Tetramethylbutyl) phenol polymer with ethylene oxide and formaldehyde; 4- (1,1,3,3-Tetramethylbutyl) phenol polymer with formaldehyde and oxirane. See Tyloxapol

32-[4-(1,1,3,3-Tetramethylbutyl)phenoxy]-3,6,9,12,15,18,21,24,27,30-decaoxadotriacontan-1-ol. See Octoxynol-11

38-[4-(1,1,3,3-Tetramethylbutyl)phenoxy]-3,6,9,12,15,18,21,24,27,30,33,36-dodecaoxaoctatriacontan-1-ol. See Octoxynol-13

2-[p-(1,1,3,3-Tetramethylbutyl) phenoxy]ethanol. See Octoxynol-1

2-[2-[p-(1,1,3,3-Tetramethylbutyl) phenoxy]ethoxy] ethoxy] ethanol. See Octoxynol-3

4-(2,5,6,6-Tetramethyl-2-cyclohexene-1-yl)-3-buten-2-one. See α-Irone
Chemical Component Cross-Reference

Tetramethylene blue trihydrate. See Methylene blue trihydrate
Tetramethylene oxide. See Tetrahydrofuran
Tetramethyleneoxirane. See Cyclohexene oxide
Tetramethylene sulfone. See Sulfone
Tetramethylenedithiam disulfide. See Tetramethylthiuram disulfide

Tetramethyl ethylcyclohexene
CAS 977045-69-4
FEMA 3061

Definition: Mixt. of 5-ethyl-2,3,4,5-tetramethyl-2-cyclohexen-1-one and 5-ethyl-3,4,5,6-tetramethyl-2-cyclohexen-1-one
Uses: Synthetic flavor for pharmaceuticals

Tetramethyl pyrazine. See 2,3,5,6-Tetramethylpyrazine

2,3,5,6-Tetramethylpyrazine
CAS 1124-11-4; EINECS/ELINCS 214-391-2
FEMA 3237
Synonyms: Tetramethyl pyrazine
Classification: 6-membered aromatic heterocyclic
Empirical: C8H12N2
Properties: Wh. crystals or powder; nutty, roast burnt odor; sol. in most org. solvs.; m.w. 136.22; vapor dens. 4.7; m.p. 72-78 C; b.p. 84-86 C; flash pt. (CC) > 99 C
Toxicology: LD50 (oral, rat) 1910 mg/kg, (IP, mouse) 800 µg/kg, (IV, mouse) 239 mg/kg; poison by IP and IV routes; mod. toxic by ing.; irritant; TSCA listed
Precaution: Wear protective gloves, splash-proof goggles; incompat. with strong oxidizers, acids
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx, COx
HMIS: Health 1, Flammability 1, Reactivity 0
Storage: Store in cool, dry place in tightly sealed containers, protected from heat, light
Uses: Synthetic flavor for pharmaceuticals
Features: Chocolate flavor
Use Level: Traces
Regulatory: FEMA GRAS; Australia; Canada

Tetramethylthiocarbamoyldisulfide. See Tetramethylthiuram disulfide
Tetramethylthionine chloride trihydrate. See Methylene blue trihydrate
Tetramethylthioperoxydicarbonic diamide; Tetramethylthiuram bisulfide. See Tetramethylthiuram disulfide

Tetramethylthiuram disulfide
CAS 137-26-8; EINECS/ELINCS 205-286-2
UN 2771
Synonyms: Bis ((dimethylamino) carbonothioyl) disulfide; Bis (dimethylthiocarbamoyl) disulfide; Bis (dimethylthiocarbamyl) disulfide; 1,1’-Dithiobis (N,N-dimethylthio) formamide; α,α’-Dithiobis (dimethylthio) formamide; N,N’-(Dithiodicarbonothioyl) bis (N-methylmethanamine); Methyl thiram; Methyl thiuramdisulfide; Tetramethylenethiuram disulfide; Tetramethylthiuram disulfide; Thioperoxydicarbonic diamide, tetramethyl-; Thiram (INCI); Thiurad; Thiuram; TMT; TMTD; TMTDS
Classification: Organic compd.; thioamide
Empirical: C6H12N2S4
Formula: [((CH3)2NCS)2]2
Properties: Wh. cryst. powd.; char. odor; sol. in
Chemical Component Cross-Reference

acetone, alcohol, benzene, ether, chloroform, oxygenated and chlorinated solvs.; sl. sol. in carbon disulfide; insol. in water, dilute alkali, gasoline; m.w. 240.44; dens. 1.29 (20 C); vapor pressure negligible @ R.T.; m.p. 155-156 C; b.p. 129 C (20 mm); flash pt. (CC) 89 C

Hazardous Decomp. Prods.: CO, CO2, SOx, CS2

Precaution: Toxic to fish

Toxicology: May cause allergic reaction on contact; affects human pulmonary system; may cause liver/kidney/brain damage; questionable carcinogen; experimental tumorigen, teratogen, reproductive effects; TSCA listed

Environmental: Toxic to fish; nontoxic to bees

Precaution: Combustible; can form explosive mixts. with air ≥ 89 C

Hazardous Decomp. Prods.: CO, CO2, SOx, CS2

Uses: Antiseptic, antibacterial, antifungal for pharmaceutical topicals, as an aerosol in pharmaceutical grade mixts. with air

Properties: 156 C; b.p. 129 C (20 mm); flash pt. (CC) 89 C vapor pressure negligible @ R.T.; m.p. 155-156 C; b.p. 129 C (20 mm); flash pt. (CC) 89 C


N,N,N´,N´-Tetramethylthiuram disulfide; Tetramethyl thiurane disulfide See Tetramethylthiuram disulfide

2,5,7,8-Tetramethyl-2-(4´,8´,12´-trimethyltridecyl)-6-chromanol. See D-α-Tocopherol

2,5,7,8-Tetramethyl-2-(4´,8´,12´-trimethyltridecyl)-6-chromanol acetate. See d-α-Tocopheryl acetate

2,5,7,8-Tetramethyl-2-(4´,8´,12´-trimethyltridecyl)-6-chromanol acetate. See dl-α-Tocopheryl acetate

2,5,7,8-Tetramethyl-2-(4´,8´,12´-trimethyltridecyl)-6-chromanol acetate. See α-Tocopheryl acetate

†=pharmaceutical grade

triamethyltridecyl)-6-chromanol-3-carboxypyridine. See α-Tocopheryl nicotinate

Tetramine. See Oxytetracycline hydrochloride

Tetranap. See Tetrahydronaphthalene

Tetran hydrochloride. See Oxytetracycline hydrochloride

Tetraoleic acid, tetraester with decaglycerol. See Polyglycerol-10 tetraoleate

2,5,8,11-Tetraoxadodecane. See PEG-3 dimethyl ether

3,6,9,12-Tetraoxatetracosan-1-ol. See Laureth-4

Tetrapropylene. See Dodecene-1

Tetrasodium diphosphate. See Tetrasodium pyrophosphate

Tetrasodium edetate. See Tetrasodium EDTA

Tetrasodium EDTA

CAS 64-02-8; EINECS/ELINCS 200-573-9

Synonyms: Acetic acid, (ethylenedinitrilo) tetra-, tetrasodium salt; Edathamil tetrasodium; Edetate sodium; Edetic acid tetrasodium salt; EDTA Na4; EDTA sodium salt; EDTA tetrasodium salt; N,N´-1,2-Ethenediylbis (N-(carboxymethyl)) glycine tetrasodium salt; Ethylenebis (iminodiacetic acid) tetrasodium salt; N,N´-Ethylendiaminediacetic acid tetrasodium salt; Ethylenediaminetetraacetic acid, sodium salt; Ethylenediaminetetraacetic acid, tetrasodium salt; Sodium ethylenediaminetetraacetate; Tetrasodium edetate; Tetrasodium ethylenediamine tetraacetate; Tetrasodium (ethylenedinitrilo) tetraacetate

Classification: Substituted amine

Definition: Powdered sodium salt that reacts with metals

Empirical: C10H12N2O8 • 4Na

Formula: (NaOOCCH2)2NCH2CH2N(CH2COONa)2

Properties: Wh. amorphous powd.; freely sol. in water; m.w. 380.20; dens. 6.9 lb/gal; m.p. > 300 C

Toxicology: LD50 (IP, mouse) 330 mg/kg; poison by IP route; primary irritant; skin and eye irritant; can deplete the body of calcium if taken internally; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx and Na2O

HMIS: Health 2, Flammability 1, Reactivity 0
Tetrasodium ethylenedinitrilo tetraacetate. See Tetrasodium EDTA

Tetrasodium etidronate
CAS 3794-83-0; EINECS/ELINCS 223-267-7
Synonyms: Ethane-1-hydroxy-1,1-diphosphonic acid, tetrasodium salt; (1-Hydroxyethylidene) bisphosphonic acid, tetrasodium salt; (1-Hydroxyethylidene) diposphonic acid, tetrasodium salt; 1-Hydroxyethylidene-1,1-diphosphonic acid, tetrasodium salt; Na₄HEDP; Phosphonic acid, (1-hydroxyethylidyne) bissodium salt; Tetrasodium 1-hydroxyethane-1,1-diphosphonate; Tetrasodium (1-hydroxyethylidene) bisphosphonate; Tetrasodium 1-hydroxyethylidene-1,1-diphosphonate
Classification: Diphosphonic acid deriv.
Empirical: C₂H₄O₇P₂ • 4Na
Properties: Cl. to yel. liq.; misc. in water; m.w. 293.96; sp. gr. 1.30-1.35; m.p. -5 C; pH 10-12
Toxicology: LD₅₀ (oral, rat) 990 mg/kg; mod. toxic by ing.; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of POₓ and Na₂O
NFPA: Health 3, Flammability 0, Reactivity 0
Uses: Chelating agent, stabilizer for pharmaceuticals, topicals
Regulatory: FDA 21CFR §173.310; Canada DSL
Manuf./Distrib.: Satyajit Chems.
http://www.satyajitchemicals.com

Tetrasodium 1-hydroxyethane-1,1-diphosphonate
Tetrasodium (1-hydroxyethylidene) bisphosphonate;
Tetrasodium 1-hydroxyethylidene-1,1-diphosphonate
See Tetrasodium etidronate

Tetrasodium iminodisuccinate
CAS 144538-83-0
Synonyms: Iminodisuccinate tetrasodium salt; Sodium iminodisuccinate
Empirical: C₈H₇NO₈Na₄
Properties: M.w. 337.1
Uses: Chelating agent for pharmaceuticals, topicals
Regulatory: FDA 21CFR §173.310; Canada DSL
Manuf./Distrib.: Bayer
http://www.bayerus.com
Trade Names: Baypure® CX 100

Tetrasodium pyrophosphate
CAS 7722-88-5, 13472-36-1 (decahydrate); EINECS/ELINCS 231-767-1
INS450(iii)
Chemical Component Cross-Reference

Synonyms: Diphosphoric acid tetrasodium salt; Sodium diphosphate; Sodium pyrophosphate; n-Sodium pyrophosphate; Sodium tetrapyrophosphate; Tetrasodium diphosphate; TSPP
Classification: Inorganic phosphate salt
Empirical: Na4O7P2
Formula: Na4 • (PO3OPO3)
Properties: Wh. cryst. powd., gran.; sol. 8 g/100 g water; insol. in alcohol; m.w. 265.91; dens. 2.534; m.p. 988°C; pH 10.2 (1%)
Toxicology: ACGIH TLV/TWA 5 mg/m3; LD50 (oral, rat) 4000 mg/kg, (IP, rat) 59 mg/kg, (IV, rat) 100 mg/kg; poison by ing., IP, IV, subcut. routes; not a cholinesterase inhibitor; TSCA listed
Precaution: Incompat. with strong acids (may react violently); may attack aluminum, iron, and other reactive metals; hydrolyzes under acidic conditions; slowly hydrolyzes in neutral aq. sol’n.
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of POx, phosphine, and/or Na2O
HMIS: Health 1, Flammability 0, Reactivity 0
Storage: Store in cool, dry, well-ventilated area, out of direct sunlight in dust-tight containers; avoid generating mist or dust
Uses: Buffer, chelating agent in pharmaceuticals, buccals, dentals
Regulatory: FDA 21CFR §133.169, 133.173, 133.179, 173.310, 175.210, 175.300, 181.22, 181.29, 182.6787, 182.6789, GRAS; Japan approved; Europe listed; UK approved; FDA approved for buccals, dentals; Canada DSL
†=pharmaceutical grade
Rhodia/Phosphorus Perf. Derivs.† http://www.rhodia-ppd.com
Spectrum Quality Prods.† http://www.spectrumchemical.com;
Veckridge; Voigt Global Distrib. http://www.vgdlcc.com
Tetrathiuram disulfide. See Tetramethylthiuram disulfide
Tetrazobenzene-β-naphthol. See D&C Red No. 17: Solvent red 23
Tetrole. See Furane
Tetryl formate. See Isobutyl formate
TFE; TFEA. See 2,2,2-Trifluoroethanol
Thalo green No. 1. See Phthalocyanine green
THAM. See Tris (hydroxymethyl) aminomethane
Thaumatin
CAS 53850-34-3
FEMA 3732; INS957; E957
Synonyms: Katemfe; Talin
Classification: Protein
Definition: Purified from African fruit of Thaumatococcus danielli
Properties: Sweet taste, licorice aftertaste; strongly cationic; m.w. ≈ 22,000; relatively stable in sol’n. and on heating
Toxicology: No adverse effects in short-term tests; not allergenic, mutagenic, or teratogenic
Uses: Flavor, flavor enhancer, nonnutritive sweetener in pharmaceuticals
Regulatory: UK, Japan approved; permitted in U.S. as flavor enhancer in chewing gum; FEMA GRAS
Trade Names: Talin®
THBP. See Benzophenone-2
Thearic acid. See L-Tartaric acid
Theaspirane
CAS 36431-72-8; EINECS/ELINCS 253-031-9
FEMA 3774
Synonyms: 1-Oxaspiro-2,6,10,10-tetramethyl(4.5)dec-6-ene; Tetramethyl-1-oxaspiro-6-decene; 2,6,10,10-Tetramethyl-1-oxaspiro [4.5] dec-6-ene
Chemical Component Cross-Reference

Empirical: C_{13}H_{22}O

Properties: Colorless cl. liq.; sol. in alcohol; insol. in water; m.w. 194.32; dens. 0.931; b.p. 68-72 C (3 mm); flash pt. 95 F; ref. index 1.4800-1.4950

Uses: Flavor for pharmaceuticals

Regulatory: FEMA GRAS; Canada DSL

Manuf./Distrib.: Fluka http://www.sigma-aldrich.com; SAFC Specialties http://www.safcspecialties.com

Theine. See Caffeine

1H-Theino (3,4-d) imidazole-4-pentanoic acid, hexahydro-2-oxo-, (3αS-(3α-4-β,6α-α))-.

See α-D-Biotin

Theobroma cacao; Theobroma cacao butter; Theobroma oil. See Cocoa (Theobroma cacao) butter

Thermoplastic polyurethane elastomer. See Polyurethane elastomer, thermoplastic

THF. See Tetrahydrofuran

THFA. See Tetrahydrofururyl alcohol

Thiaben. See Thiabendazole

Thiabendazole

CAS 148-79-8; EINECS/ELINCS 205-725-8

INS233

Synonyms: 1H-Theino (3,4-d) imidazole-4-pentanoic acid, hexahydro-2-oxo-, (3αS-(3α-4-β,6α-α))-.

See α-D-Biotin

Empirical: C_{12}H_{17}ClN_{4}OS

Properties: Cryst.; m.w. 300.84; m.p. 120-122 C (dec.)

LD_{50} (oral, rat) 3010 mg/kg; LD_{50} (IV, mouse) 70 mg/kg; poison by subcut. and IV routes; high oral doses may cause gastric upsets; reproductive effector; experimental teratogen; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of NO_{x}, SO_{x} and Cl^{-}

Uses: Nutrient in medicine

Regulatory: FDA 21CFR §101.9, 107.100, 136.115, 137.165, 137.185, 137.260, 137.305, 137.350, 139.115, 139.117, 139.122, 139.155, 173.185; Canada DSL


†=pharmaceutical grade
Chemical Component Cross-Reference

†=pharmaceutical grade

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Thiamine chloride. See Thiamine

Thiamine chloride hydrochloride; Thiamine dichloride. See Thiamine HCl

Thiamine HCl
CAS 67-03-8; EINECS/ELINCS 200-641-8
FEMA 3322

Synonyms: Aneurine hydrochloride; Thiamine chloride; Thiamine chloride hydrochloride; Thiamine dichloride; Thiamine hydrochloride; Thiamin hydrochloride; Thiaminium chloride hydrochloride; Vitamin B1 hydrochloride

Definition: Chloride-hydrochloride salt of thiamine

Empirical: C12H18Cl2N4OS
Formula: C12H17ClN4OS • HCl
Properties: Small whit. cryst. or cryst. powd., nut- like odor; sol. in water, glycerol; sl. sol. in alcohol; insol. in ether, benzene; m.w. 337.30;

m.p. 248 C (dec.)

Toxicology: LD50 (oral, mouse) 8224 mg/kg, (IP, mouse) 200 mg/kg, (IV, mouse) 89 mg/kg; poison by IV, IP routes; mildly toxic by ing.; TSCA listed

Precaution: The vitamin is destroyed by alkalis and alkaline drugs and by oxidizing and reducing agents

Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of HCl, Cl–, SOx, NOx

HMIS: Health 1, Flammability 1, Reactivity 0

Storage: Hygroscopic

Uses: Nutrient, thiamine source in pharmaceuticals

Regulatory: FDA 21CFR §184.1875, GRAS; BATF 27CFR §240.1051; FEMA GRAS; Japan approved; BP, EP compliance; Canada DSL


Trade Names: Thiamine Hydrochloride USP, FCC

Thiamine hydrochloride. See Thiamine HCl

Thiamine monochloride. See Thiamine

Thiamine mononitrate. See Thiamine nitrate
Chemical Component Cross-Reference

Thiamine nitrate
CAS 532-43-4; EINECS/ELINCS 208-537-4
Synonyms: 3-[(4-Amino-2-methyl-5-pyrimidinyl)methyl]-4-(2-hydroxyethyl)-4-methylthiazolium nitrate; Aneurine mononitrate; Thiamine mononitrate; Thiamin nitrate; Vitamin B1 mononitrate; Vitamin B1 nitrate
Classification: Organic compd.
Definition: Mononitrate salt of thiamine
Empirical: C12H17N5O4S
Formula: C12H17N4OS • NO3
Properties: Wh. cryst. or cryst. powd., sl. char. odor; pract. nonhygroscopic; sol. 2.7 g/100 ml water; sl. sol. in alcohol, chloroform; m.w. 327.36; m.p. 196-200 C (dec.); pH 6.5-7.1 (2% aq.)
Toxicology: LD50 (IV, rabbit) 113 mg/kg, (IP, mouse) 387 mg/kg; poison by IV and IP routes; TSCA listed
Precaution: Powerful oxidizer
Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of NOx and SOx
HMIS: Health 1, Flammability 1, Reactivity 1
Uses: Nutrient, thiamine source for pharmaceuticals, prep. of multivitamin capsules and tablets
Regulatory: FDA 21CFR §184.1878, GRAS; Japan approved; BP, EP compliance; Canada DSL

†=pharmaceutical grade

Trade Names Containing: Rocoat® Thiamine Mononitrate 33% ; Thiamin Mononitrate 98 DC

Thiamin hydrochloride; Thiaminium chloride hydrochloride. See Thiamine HCl
Thiamin nitrate. See Thiamine nitrate
5-Thianonane. See Butyl sulfide
Thia-4-pentanal. See 3-Methylthiopropionaldehyde
Thiapene. See Thiophene
2-Thiopropane. See Dimethyl sulfide
Thiazole, 2-isobutyl-; Thiazole, 2-(2-methylpropyl)-. See 2-Isobutylthiazole
Thiazole, 2,4,5-tridecen-1-yl. See Trithmethyl thiazole
2-(4-Thiazolyl) benzimidazole; 2-(Thiazol-4-yl) benzimidazole. See Thiabendazole

2-Thienyl mercaptan
CAS 7774-74-5
FEMA 3062
Synonyms: 2-Mercaptothiophene; 2-Thienylthiol; 2-Thiophenetiol; Thiphene-2-thiol
Empirical: C4H4S2
Properties: Ylsh. or colorless oily liq.; sl. sol. in water; sol. in alcohol; m.w. 116.21; b.p. 166 C
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

2-Thienylthiol. See 2-Thienyl mercaptan

Thimerosal
CAS 54-64-8; EINECS/ELINCS 200-210-4
UN 2025 (DOT)
Synonyms: ((o-Carboxyphenyl) thio) ethylmercury sodium salt; Ethyl (2-mercaptobenzoato-S) mercury, sodium salt; 2-(Ethylmercuriomercapto) benzoic acid sodium salt; o-(Ethylmercurithio) benzoic acid sodium salt; Ethylmercurithiosalicylic acid sodium salt; Ethyl (sodium o-mercaptobenzoato) mercury; Mercurothiolate; Mercury, ethyl(2-mercaptobenzoato-S)-, sodium salt; Merthiolate; Merthiolate sodium; Sodium
<table>
<thead>
<tr>
<th>Chemical Component Cross-Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>ethylmercuric thiosalicylate; Sodium-o-ethylmercurithio</td>
</tr>
<tr>
<td>thiosalicylate; Sodium ethylmercury thiosalicylate; Sodium</td>
</tr>
<tr>
<td>thio</td>
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<tr>
<td>Properties: Lt. cream-colored cryst. powd., sl. char. odor; freely sol. in water; sol. in alcohol; pract. insol. in ether; insol. in benzene; m.w. 404.81; m.p. 234-237 C (dec.); flash pt. &gt; 250 C; pH 6.7 (1%) Toxicology: DOT: Poisonous material; LD50 (oral, rat) 75 mg/kg, (subcut., rat) 98 mg/kg; LDLo (IV, mouse) 30 mg/kg; poison by ing., subcut., and IV routes; eye irritant; high potential for causing allergic reactions incl. eczematous contact allergy; experimental teratogen, reproductive effects; questionable carcinogen; mutagenic data; TSCA listed Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of Hg, Na₂O, and SOₓ HMIS: Health 3, Flammability 1, Reactivity 0 Storage: Photosensitive Uses: Antimicrobial, preservative, bacteriostat, fungistat in pharmaceuticals, topicalcs, tinctures, wound antiseptics, vaccines, skin test sol'ns., immunoglobulin preps., eye/ear drops, saline soft lens sol'ns., treatment for minor skin injuries; ophthalmic preservative; antibacterial, antifungal in veterinary topicalcs; FDA OTC drug Use Level: 0.002-0.01% (ophthalmics, topicalcs, parenteralcs) Regulatory: FDA approved for parenteralcs, ophthalmics, topicalcs; USP/NF, BP compliance; Canada DSL Manuf./Distrib.: AMRESCO† <a href="http://www.amresco-inc.com">http://www.amresco-inc.com</a>; Accurate Chem. &amp; Scientific† <a href="http://www.accuratechemical.com">http://www.accuratechemical.com</a>; Aldrich† <a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a>; Alfa Chem† <a href="http://www.alfachem1.com">http://www.alfachem1.com</a>; Am. Int'l.† <a href="http://www.aicma.com">http://www.aicma.com</a> Atomergic Chemetals† <a href="http://www.atomergic.com">http://www.atomergic.com</a>; Barrington† <a href="http://www.barringtonchem.com">http://www.barringtonchem.com</a>; Biosynth AG† <a href="http://www.biosynth.com">http://www.biosynth.com</a>; Burlington Bio-Medical; Camida Ltd† <a href="http://www.camida.com">http://www.camida.com</a></td>
</tr>
<tr>
<td>Thimerosal. See Thimerosal Thioallyl ether. See Allyl sulfide Thiobenzyl alcohol. See Benzyl mercaptan 1,1´-Thiobisbutane. See Butyl sulfide 2,2´-Thiobis (4,6-dichlorophenol) CAS 97-18-7; EINECS/ELINCS 202-565-0 UN 2811 Synonyms: Bis (2-hydroxy-3,5-dichlorophenyl) sulfide; Bithionol; Bithionol sulfide; 2,2´-Dihydroxy-3,3´,5,5´-tetrachlorodiphenylsulfide; 2-Hydroxy-3,5-dichlorophenylsulfide; Phenol, 2,2´-thiobis (4,6-dichloro-); TBP Empirical: C₁₂H₆Cl₄O₂S Properties: Wh. or grayish-wh. cryst. powd.; very faint aromatic or phenolic odor; sol. in DMSO, acetone, dil. alkali sol'ns., chloroform, ether; sol. 10-50 mg/ml in 95% ethanol; sol. &lt; 1 mg/ml in water; m.w. 356.07; sp.gr. 1.73; vapor pressure 1.1 x 10⁻⁹ mm Hg (37 C); m.p. 185.5-188 C Toxicology: LD₅₀ (oral, rat) 7 mg/kg, (IP, mouse) 100 mg/kg, (IV, mouse) 18 mg/kg; poison; poison by ing., IP, and IV routes; harmful by inh., skin contact; skin irritant; may cause dermatitis, nausea, dizziness, headache, GI disturbances; questionable carcinogen; experimental tumors; TSCA</td>
</tr>
</tbody>
</table>
Chemical Component Cross-Reference

**Thiodipropionic acid diutea decyl ester**  
*See Dilauryl thiodipropionate*

**Thiodipropionic acid, didodecyl ester**  
*See Dilauryl thiodipropionate*

**Thiodipropionic acid, ditridecyl ester**  
*See Ditridecyl thiodipropionate*

**Thiodipropionic acid, didodecyl ester**  
*See Dilauryl thiodipropionate*

**Thiodipropionic acid, distearoyl ester**  
*See Distearoyl thiodipropionate*

**Thiodipropionic acid, ditridecyl ester**  
*See Ditridecyl thiodipropionate*

**2-Thiolactic acid (INCI)**  
*See 2-Mercaptoethanol*

**Thioglycerin**  
*See Thioglycerin*

**Thioglycerol; 1-Thioglycerol**  
*See Thioglycerin*

**Thioglycolic acid sodium salt**  
*See Sodium thioglycolate*

**Thioglycolic acid, sodium salt**  
*See Sodium thioglycolate*

**Thioglucoside-1,1-dioxide**  
*See Sulfolane*

**Thiodipropionic acid diutadecyl ester**  
*See Dilauryl thiodipropionate*

**Thiodipropionic acid, distearoyl ester**  
*See Distearoyl thiodipropionate*

**Thiodipropionic acid ditridecyl ester**  
*See Ditridecyl thiodipropionate*

**2-Thioethanol; Thioethylene glycol**  
*See 2-Mercaptoethanol*

**Thiofuram; Thiourea; Thiofuraran**  
*See Thiophene*

**Thioglycolate esters**  
*See Thioglycerol; 1-Thioglycerol*

**Thioglycerol, Thiodipropionic acid diutea decyl ester**  
*See Dilauryl thiodipropionate*

**Thiodipropionic acid, didodecyl ester**  
*See Dilauryl thiodipropionate*

**Thiodipropionic acid, ditridecyl ester**  
*See Ditridecyl thiodipropionate*

**Thiodipropionic acid, distearoyl ester**  
*See Distearoyl thiodipropionate*

**Thiodipropionic acid ditridecyl ester**  
*See Ditridecyl thiodipropionate*

**2-Thioethanol; Thioethylene glycol**  
*See 2-Mercaptoethanol*

**Thioglycerin**  
*See Thioglycerin*

**Thioglycerol; 1-Thioglycerol**  
*See Thioglycerin*

**Thioglycerol, Thiodipropionic acid diutea decyl ester**  
*See Dilauryl thiodipropionate*

**Thiodipropionic acid, didodecyl ester**  
*See Dilauryl thiodipropionate*

**Thiodipropionic acid, ditridecyl ester**  
*See Ditridecyl thiodipropionate*

**Thiodipropionic acid, distearoyl ester**  
*See Distearoyl thiodipropionate*

**Thiodipropionic acid ditridecyl ester**  
*See Ditridecyl thiodipropionate*

**2-Thioethanol; Thioethylene glycol**  
*See 2-Mercaptoethanol*

**Thiofuram; Thiourea; Thiofuraran**  
*See Thiophene*

**Thioglycerin**  
*See Thioglycerin*

**Thioglycerol; 1-Thioglycerol**  
*See Thioglycerin*

**Thioglycerol, Thiodipropionic acid diutea decyl ester**  
*See Dilauryl thiodipropionate*

**Thiodipropionic acid, didodecyl ester**  
*See Dilauryl thiodipropionate*

**Thiodipropionic acid, ditridecyl ester**  
*See Ditridecyl thiodipropionate*

**Thiodipropionic acid, distearoyl ester**  
*See Distearoyl thiodipropionate*

**Thiodipropionic acid ditridecyl ester**  
*See Ditridecyl thiodipropionate*

**2-Thioethanol; Thioethylene glycol**  
*See 2-Mercaptoethanol*

**Thiofuram; Thiourea; Thiofuraran**  
*See Thiophene*

**Thioglycerin**  
*See Thioglycerin*

**Thioglycerol; 1-Thioglycerol**  
*See Thioglycerin*

**Thioglycerol, Thiodipropionic acid diutea decyl ester**  
*See Dilauryl thiodipropionate*

**Thiodipropionic acid, didodecyl ester**  
*See Dilauryl thiodipropionate*

**Thiodipropionic acid, ditridecyl ester**  
*See Ditridecyl thiodipropionate*

**Thiodipropionic acid, distearoyl ester**  
*See Distearoyl thiodipropionate*

**Thiodipropionic acid ditridecyl ester**  
*See Ditridecyl thiodipropionate*

**2-Thioethanol; Thioethylene glycol**  
*See 2-Mercaptoethanol*

**Thioglycerin**  
*See Thioglycerin*

**Thioglycerol; 1-Thioglycerol**  
*See Thioglycerin*
Chemical Component Cross-Reference

Thiophen. See Thiophene

Thiophene
CAS 110-02-1; EINECS/ELINCS 203-729-4
UN 2414 (DOT)
Synonyms: Divinylene sulfide; Thiacyclopentadiene; Thiaphene; Thiofuram; Thiofurans; Thiofuransfuran; Thiole; Thiophen; Thiotetrole
Empirical: C₄H₄S
Properties: Colorless clear liq.; sl. aromatic odor similar to benzene; misc. with most org. solvs.; sol. in alcohol, ether; insol. in water; m.w. 84.14; dens. 1.051; vapor pressure 40 mm Hg (12.5 C); m.p. -38 C; b.p. 84 C; flash pt. 21.2 F; ref. index 1.5270; may be heated to 850 C without decomp.
Toxicology: LD₅₀ (oral, rat) 1400 mg/kg, (subcut., rabbit) 830 mg/kg, (IP, mouse) 100 mg/kg; LC₅₀ (inh., mouse, 2 h) 9500 mg/m³; poison by ing. and IP routes; mildly toxic by inh. and subcut. routes; TSCA listed
Precaution: DOT: Flamm. liq.; danger. fire hazard exposed to heat or flame; explosive reaction with N-nitrosoacetanilide; violent or explosive reaction with nitric acid; incompat. with oxidizers
Hazardous Decomp. Prods.: Heated to decomp., emits highly toxic fumes of SOₓ
NFPA: Health 2, Flammability 3, Reactivity 0
Uses: Organic synthesis, pharmaceutical mfg.
Regulatory: Canada DSL


Thiophen-2-thiol; Thiophene-2-thio. See 2-Thienyl mercaptan

2-Thiophenethiol; Thiophene-2-thiol. See 2-Thienyl mercaptan

Thiophenol
CAS 108-98-5; EINECS/ELINCS 203-635-3
UN 2337; FEMA 3616
Synonyms: Benzenethiol; Mercaptobenzene; Phenyl mercaptan; TP
Classification: Aromatic organic compd.
Empirical: C₆H₅S
Formula: C₆H₅SH
Properties: Water-wh. liq., repulsive penetrating garlic-like odor; very sol. in alcohol; sol. in oxygenated and aromatic solvs.; misc. with ether, benzene, CS₂; insol. in water; m.w. 110.04; dens. 1.0728 (25/4 C); m.p. 70 C; b.p. 169.5 C; flash pt. 55 C; ref. index 1.58603
Toxicology: LD₅₀ (oral, rat) 46 mg/kg, (skin, rat) 300 mg/kg; TLV/TWA 0.5 ppm; toxic by inhalation, skin contact, ing.; severe eye irritant; causes burns; exposure may cause headache and dizziness; TSCA listed
Precaution: Combustible; DOT: Flamm. liq. and poison; oxidizes in air to the disulfide; incompat. with acids
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of SOₓ
Uses: Pharmaceutical synthesis
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL


Thiopropane; 2-Thiopropane. See Dimethyl sulfide
β-Thiopseudourea. See Thiourea
Thiosulfuric acid disodium salt. See Sodium thiosulfate anhydrous
Thiophene. See Thiophene

Thiourea
CAS 62-56-6; EINECS/ELINCS 200-543-5
UN 2811 (DOT); UN 2877 (DOT)
Synonyms: Isothiourea; Pseudothiourea; Sulfourea; Thiocarbamide; β-Thiopseudourea; 2-Thiourea
Empirical: CH₄N₂S
Formula: NH₂CSNH₂
Properties: Wh. cryst. solid; bitter taste; sol. in water, alcohol; m.w. 76.12; dens. 1.406; m.p. 180 C
Toxicology: LD₅₀ (oral, rat) 125 mg/kg, (IP, rat) 436 mg/kg; LD₅₀ (subcut., guinea pig) 4000 mg/kg; experimental poison by ing., IP routes; human poison; skin irritant, allergenic; human systemic effects by ing.: hemorrhage, cell count changes; chronic doses cause hepatic tumors; experimental carcinogen, neoplastigen, tumorigen, teratogenic and reproductive effects; human mutagenic data; TSCA listed
Precaution: May react violently with acrolein; incompat. with acrylaldehyde, H₂O₂, HNO₃

†=pharmaceutical grade
**Chemical Component Cross-Reference**

*Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of NOₓ and SOₓ*

*HMIS: Health 3, Flammability 1, Reactivity 1*

*Uses: Pharmaceutical synthesis*

*Regulatory: FDA 21CFR §189.190; prohibited from direct addition or use in human food; SARA reportable; Canada DSL*

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  - [Sigma](http://www.sigma-aldrich.com)
  - [Theroy & Dajac Labs](http://www.monomerpolymer.com)
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  - [Spectrum Quality Prods.†](http://www.spectrumchemical.com)
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  - [Wego Chem. & Min.](http://www.wegochem.com)
  - [Whyte Chems. Ltd](http://www.whytechemicals.co.uk)

**2-Thiourea.** See Thiourea

**Thiram (INCI); Thiarad; Thiuram.** See Tetramethylthiuram disulfide

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**THN.** See Tetrahydrothiophthalene

**Thomas balsam.** See Balsam tolu (Myroxylon balsamum)

**Thr.** See L-Threonine

**D-Threo-1,4-dimercapto-2,3-butanediol.** See Dithiothreitol

**Threonine.** See L-Threonine

**L-Threonine**

CAS 72-19-5; EINECS/ELINCS 200-774-1

**Synonyms:** 2-Amino-3-hydroxybutyric acid; α-Amino-β-hydroxybutyric acid; L-2-Amino-3-hydroxybutyric acid; Thr; Threonine

**Classification:** Essential amino acid

**Empirical:** C₄H₉NO₃

**Formula:** CH₃CHOHCHNH₂COOH

**Properties:** Colorless cryst. or wh. cryst. powd.; sl. sweet taste; very sol. in hot water; sol. in water; insol. in alcohol, chloroform, ether; m.w. 119.12; m.p. 255-257 C (dec.)

**Toxicology:** LD₅₀ (IP, rat) 3098 mg/kg; mod. toxic by IP route; TSCA listed

**Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOₓ**

**Uses:** Nutrition and biochemical research; infusion sol'ns.; dietary supplement, nutrient, flavor in pharmaceuticals

**Regulatory:** FDA 21CFR §172.320 (5.0% max.); Japan approved; Canada DSL

**Manuf./Distrib.:**
- **Ajinomoto†**
  - [http://www.ajinomoto.co.jp](http://www.ajinomoto.co.jp)
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  - [Whyte Chems. Ltd](http://www.whytechemicals.co.uk)

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Thuja oil. See Cedar leaf (Thuja occidentalis) oil.

Thyme. See Thyme (Thymus vulgaris).

Thyme camphor. See Thymol.

Thyme extract; Thyme extract, white. See Thyme (Thymus vulgaris) extract.

Thyme oil. See Thyme oil red.

Thyme oil red
CAS 8007-46-3; EINECS/ELINCS 284-535-7
FEMA 3064, 3065
Synonyms: Red thyme oil; Spanish thyme oil; Thyme oil; Thyme oil red; Thyme oil, white; Thymus vulgaris; Thymus vulgaris oil; White thyme oil
Definition: Oil from Thymus vulgaris and T. zygis, contg. thymol, carvacrol
Properties: Reddish-yel. liq.; insol. in water; sol. in 70% ethanol; sp.gr. 0.915-0.935; flash pt. (CC) 80 C; ref. index 1.495-1.520
Toxicology: LD50 (oral, rat) 4700 mg/kg, (dermal, rabbit) > 5 g/kg; mildly toxic by ing.; severe skin irritant; mutagen; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
HMIS: Health 1, Flammability 2, Reactivity 0
Storage: Keep cool, well closed; protect from light
Uses: Natural flavoring agent
Use Level: < 2%
Regulatory: FDA 21CFR §182.20, GRAS; Australia; Canada DSL; Philippines PICCS
Thymic acid. See Thymol

Thymol
CAS 89-83-8; 3228-03-3 (m-); EINECS/ELINCS 201-944-8
FEMA 3066
Synonyms: 3-p-Cymenol; p-Cymen-3-ol; 3-Hydroxy-p-cymene; 3-Hydroxy-1-methyl-4-isopropylbenzene; Isopropyl cresol; 6-Isopropyl-m-cresol; Isopropyl-m-cresol; Isopropyl metacresol; 2-Isopropyl-5-methylenphenol; 1-Methyl-3-hydroxy-4-isopropylbenzene; 5-Methyl-2-isopropylphenol; 5-Methyl-2-(1-methylethyl)phenol; Phenol, 5-methyl-2-(1-methylethyl)-; Thyme camphor; Thymic acid; m-Thymol

Classification: Aromatic organic compd.; substituted phenol

Empirical: C10H14O
Formula: (CH3)2CHC6H3(CH3)OH

Properties: Colorless translucent cryst.; herbal, medicinal odor; pungent caustic taste; very sol. in alcohol, ether, chloroform, olive oil; sol. in water, alkali, glc. acetic acid, fixed/volatile oils, oxygenated and chlorinated solvs.; m.w. 150.24; dens. 0.972; vapor pressure 1 mm Hg (64 C); m.p. 51 C; b.p. 233 C; flash pt. 216 F; ref. index 1.523; tenacity > 1 wk. on blotter

Toxicology: LD50 (oral, rat) 980 mg/kg, (IV, mouse) 100 mg/kg; LDLo (subcut., rat) 1600 mg/kg; poison by ing., IV, IP; mod. toxic by subcut. route; local irritant; allergen; accumulation of toxic levels causes pulmonary edema; experimental reproductive effector; mutagenic data; TSCA listed

Precaution: Combustible; affected by light; incompat. with acetaldehyde

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

HMIS: Health 2, Flammability 1, Reactivity 0

Storage: Light-sensitive

Uses: Synthetic flavor, fragrance, antimicrobial, preservative, disinfectant, deodorant, antiseptic, local anesthetic, cooling agent in pharmaceuticals, buccals, inhalants, liniments, lip balms, mouthwash, veterinary ointments/shampoos; preservative in insulin preps.; destroys mold, preserves anatomical specimens; topical antifungal agent; OTC drug; anthelmintic drug

Features: Medicinal flavor

Regulatory: FDA 21CFR §172.515, 175.105; 27CFR §21.65, 21.151; FEMA GRAS; FDA approved for buccals, inhalants; USP/NF, BP, EP compliance; Australia; Canada DSL; Japan ENCS (no. 3-521); Philippines PICCS

Manuf./Distrib.: Adrian Amer.

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Health 2, Flammability 1, Reactivity 0

Storage: Light-sensitive

Uses: Synthetic flavor, fragrance, antimicrobial, preservative, disinfectant, deodorant, antiseptic, local anesthetic, cooling agent in pharmaceuticals, buccals, inhalants, liniments, lip balms, mouthwash, veterinary ointments/shampoos; preservative in insulin preps.; destroys mold, preserves anatomical specimens; topical antifungal agent; OTC drug; anthelmintic drug

Features: Medicinal flavor

Regulatory: FDA 21CFR §172.515, 175.105; 27CFR §21.65, 21.151; FEMA GRAS; FDA approved for buccals, inhalants; USP/NF, BP, EP compliance; Australia; Canada DSL; Japan ENCS (no. 3-521); Philippines PICCS

Manuf./Distrib.: Adrian Amer.

http://www.adrianusa.com; Alfa Chem†
Fluka http://www.sigma-aldrich.com; Frutarom Ltd http://www.frutarom.com; George Uhe† http://www.uhe.com; Integra† http://www.integrahem.com
R.W. Greeff† http://www.pechey-chemicals.com; Ruger† http://www.rugerchemical.com; SAFC Specialties
Chemical Component Cross-Reference

http://www.saftcspecialties.com; Sigma
http://www.sigma-aldrich.com/belgium
Spectrum Quality Prods.†
http://www.spectrumchemical.com;
Takasago Int'l. http://www.takasago.com;
Thomas Scientific†
http://www.thomassci.com; Universal
Preserv-A-Chem†
http://www.upichem.com; VWR Int'l.†
http://www.vwrsp.com

m-Thymol. See Thymol
o-Thymol. See Carvacrol
Thymol, 6-chloro-. See Chlorothymol
Thymus capitatus; Thymus capitatus oil. See
Origanum oil
Thymus vulgaris; Thymus vulgaris extract.
See Thyme (Thymus vulgaris) extract
Thymus vulgaris oil. See Thyme oil red
Tiger orange. See D&C Red No. 36; 1-[2-
Chloro-4-nitrophenyl) azo]-2-naphthalenol
Tiglic acid, ethyl ester. See Ethyl tiglate
Tiglic acid isopropyl ester. See Isopropyl
tiglate
Tilia americana; Tilia americana extract. See
Linden (Tilia americana) extract
Tilia cordata; Tilia cordata extract. See
Linden (Tilia cordata) extract
Tilia flowers. See Linden flowers
Tilia vulgaris; Tilia vulgaris extract. See
Linden (Tilia vulgaris) extract

Tin
CAS 7440-31-5; EINECS/ELINCS 231-141-8
Synonyms: Silver matt powder; Stannum; Tin
(α); Tin flake; Tin powder
Classification: Metallic element
Empirical: Sn
Properties: Silver-wh. ductile solid; sol. in acids,
hot KOH sol'n.; insol. in water; at.wt. 118.69;
dens. 7.29 (20 C); m.p. 232 C; b.p. 2260 C
Toxicology: ACGIH TLV/TWA 2 mg(Sn)/m³
(metal, oxide, inorg. compds.), TLV 0.1
mg(Sn)/m³ (org. compds.); STEL 0.2
mg(Sn)/m³ (skin); TDLo (implant, rat) 395
mg/kg; hazard by inh.; questionable
carcinogen; experimental tumorigen
by implant; TSCA listed
Precaution: Combustible as dust exposed to
heat or by spontaneous chem. reaction
with Br₂, BrF₃, Cl₂, CIF₃, Cu(NO₃)₂, K₂O₂, or S
Uses: Ingred. in dental amalgam; formerly as
treatment of tapeworm
Regulatory: Canada DSL
Manuf./Distrib.: Aldrich http://www.sigma-
aldrich.com; Alfa Aesar†
http://www.micronmetals.com; Atomergic
Chemetals http://www.spectrumchemical.com;
Atotech USA http://www.atotechusa.com
Belmont Metals
http://www.belmontmetals.com; Cerac
http://www.cerac.com; Fluka
http://www.sigma-aldrich.com; Integra†
http://www.integrachem.com; Mallinckrodt
Baker† http://www.mallbaker.com
Noah http://www.noahtech.com; Reade
Advanced Materials http://www.reade.com;
Sigma http://www.sigma-aldrich.com/belgium; Spectrum
Quality Prods.†
http://www.spectrumchemical.com;
Thomas Scientific†
http://www.thomassci.com
VWR Int'l.† http://www.vwrsp.com

http://www.sigma-aldrich.com/belgium; Spectrum Quality
Prods.†
http://www.spectrumchemical.com;
Thomas Scientific†
http://www.thomassci.com
VWR Int'l.† http://www.vwrsp.com

Tin (α). See Tin
Tin bifluoride. See Stannous fluoride
Tin chloride. See Stannic chloride
Tin (II) chloride (1:2). See Stannous chloride
anhdyrous
Tin (IV) chloride; Tin (IV) chloride (1:4). See
Stannic chloride
Tin (II) chloride anhydrous. See Stannous
chloride anhydrous
Tin (IV) chloride anhydrous; Tin chloride,
fuming; Tin chloride (ic). See Stannic
chloride
Tin crystals. See Stannous chloride
anhdyrous
Tincture of orange. See Orange tincture
Tin dichloride. See Stannous chloride
anhdyrous
Tin difluoride. See Stannous fluoride
Tin flake. See Tin
Tin fluoride. See Stannous fluoride
Tin perchloride. See Stannic chloride
Tin powder. See Tin
Tin protocloride; Tin salt. See Stannous
chloride anhydrous
Tin sodium oxide. See Sodium stannate
Tin tartrate. See Stannous tartrate
Tin tetrachloride; Tin tetrachloride,
anhydrous. See Stannic chloride
Tioserine. See L-Cysteine

Tioxolone
CAS 4991-65-5; EINECS/ELINCS 225-653-0
Synonyms: 1,3-Benzoxathiol-2-one, 6-
hydroxy-; 6-Hydro-2-oxo-1,3-benzoxathiole;
6-Hydroxy-1,3-benzoxathiol-2-one

Empirical: C₇H₄O₃S

Properties: Lt. yel. to beige powd.; pract. insol. in water. w. 168.17; m.p. 158-160 C

Toxicology: LD₅₀ (oral, rat) 633 mg/kg; LC₅₀ (inh., rat) 3710 mg/m³; harmful; irritant

Precaution: Wear safety glasses and chemical goggles if splashing is possible; avoid strong oxidants and bases

Hazardous Decomp. Prods.: irritating and toxic fumes and gases

Storage: Store in a cool, dry place; keep container closed when not in use

Uses: Antiseborrheic; antiacne; astringent

Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

Trade Names Containing: Tioxolone Water

Soluble 5%

TIPA. See Triisopropanolamine

Tirpilene. See α-Terpipene

TISC. See Triisostearyl citrate

Titania; Titanium acid anhydride; Titania anhydride; Titanium earth; Titanium oxide. See Titanium dioxide

Titanium dioxide

CAS 1317-80-2; 13463-67-7; EINECS/ELINCS 236-675-5

INS171; E171

Synonyms: CI 77891; Pigment white 6; Titania; Titanium acid anhydride; Titanium anhydride; Titanium earth; Titanium oxide; Titanium peroxide; Titanium white

Classification: Inorganic oxide

Definition: Two crystalline forms: anatase and rutile

Empirical: O₂Ti

Formula: TiO₂

Properties: Wh. amorphous powd., odorless, tasteless; sol. in HF, hot conc. H₂SO₄; insol. in water, HCl, HNO₃, dil. H₂SO₄; m.w. 79.90; dens. 3.90 (anatase), 4.23 (rutile); m.p. 1855 C; Anatase: dens. 3.90; bulking value 0.031 gal/lb; oil absorp. 24; Rutile: dens. 4.23

Toxicology: ACGIH TLV/TWA 10 mg/m³ of total dust (when toxic impurities are not present); TCLo (inh., rat) 250 mg/m³; nuisance dust; common air contaminant; human skin irritant; questionable carcinogen; experimental carcinogen, neoplasitgen, tumorigen; TSCA listed

Precaution: Violent or incandescent reaction with metals (e.g., aluminum, calcium,
Chemical Component Cross-Reference


†=pharmaceutical grade

Trade Names Containing: Cloisonné®; Duochrome®; Gemtone®; Kollicoat® IR White; Opacode® Opacode® WB; Opalux®; Opaspray®; Orgasol® 1002 EX D WHITE 10 COS

Titanium oxide; Titanium peroxide; Titanium white. See Titanium dioxide

TLA. See 2-Mercapto propionic acid

TMA. See Trimethylamine

TMPI. See Trimethyl phosphite

TMT; TMTD; TMTDS. See Tetramethylthiuram disulfide

Tocofersolan. See Tocophersolan

Tocopherol

CAS 1406-18-4; EINECS/ELINCS 215-798-8

Synonyms: D-α-Tocopherol; DL-α-Tocopherol; Vitamin E

Empirical: C₂₉H₅₀O₂

Properties: Visc. oil; sol. in oils, fats, acetone, alcohol, chloroform, ether; insol. in water; m.w. 430.79; m.p. 2.5-3.5 C; DL-form: sl. visc. pale alcohol, chloroform, ether; insol. in water; m.w. 430.79; m.p. 2.5-3.5 C; D-form: red liq., odorless; flash pt. > 110 C

Toxicology: TDLo (oral, rat) 7500 mg/kg; experimental reductive and mutagenic effects; TSCA listed

Storage: Gradually darkens on exposure to light

Uses: Antioxidant, nutrient, dietary supplement for pharmaceuticals

Features: &

Regulatory: FDA 21CFR §182.3890, 182.8890, 184.1890, GRAS; EC E306; USP/NF compliance (excipient); Canada DSL

2R,4'R,8'R-α-Tocopherol. See D-α-Tocopherol

all-rac-α-Tocopherol. See DL-α-Tocopherol

D-α-Tocopherol

CAS 59-02-9; EINECS/ELINCS 200-412-2

E306

Synonyms: 2,5,7,8-Tetramethyl-2-(4’,8’,12’-trimethyltridecyl)-6-chromanol; 2R,4'R,8'R-α-Tocopherol; (R,R,R)-α-Tocopherol; 5,7,8-Trimethyltoocol; Vitamin E

Empirical: C29H50O2

Properties: Lt. yel. to red visc. oil, nearly odorless; freely sol. in oils, fats, acetone, alcohol, chloroform, ether; pract. insol. in water; m.w. 430.72; dens. 0.950 (25/4 C); m.p. 2.5-3.5 C; b.p. 200 C; flash pt. (CC) 93 C

Toxicology: TDLo (oral, rat) 7500 mg/kg; experimental reproductive effects; mutagenic data; TSCA listed

Precaution: Incompat. with strong oxidizing agents

Hazardous Decomp. Prods.: CO, CO2; heated to decom., emits acrid smoke and irritating fumes

Storage: Store in cool, dry, well-ventilated area away from moisture, heat, direct sunlight; subject to air oxidation; keep refrigerated; keep tightly closed; store under argon; light-sensitive

Uses: Antioxidant, preservative, nutrient, dietary supplement for pharmaceuticals

Regulatory: FDA 21CFR §182.3890, 182.8890, 184.1890, GRAS; USDA 9CFR §318.7, 381.147; SARA §311/312 nonreportable; Japan approved; Europe, Australia listed; UK
Chemical Component Cross-Reference

†=pharmaceutical grade

Trade Names Containing: Beta Carotene 30% FS; Beta Carotene 1% CWS; Vitamin A and D-3 Blend

See also Tocopherol

(R,R,R)-α-Tocopherol. See D-α-Tocopherol
d,l-α-Tocopherol acetate; (±)-α-Tocopherol acetate. See dl-α-Tocopheryl acetate

α-Tocopherol acid succinate. See Tocopheryl succinate

Tocophersolan

CAS 9002-96-4; 30999-06-5

Synonyms: Butanediacid, mono [3,4-dihydro-2,5,7,8-tetramethyl-2-(4,8,12-trimethyltridecyl)-2H-1-benzopyran-6-yl] ester, polymer with oxirane (1:22); Poly (oxy-1,2-ethanediyl), α-(4-(3,4-dihydro-2,5,7,8-tetramethyl-2-(4,8,12-trimethyltridecyl)-2H-1-benzopyran-6-yl) oxy)-1,4-ioxobutyloxy)-ω-hydroxy-, (2R-(2R(4R,8R)))- Tocofersolan; α-Tocopheryl PEG 1000 succinate; d-α-Tocopheryl PEG 1000 succinate

Classification: Organic compd.

Empirical: C_33H_54O_5 \cdot (C_2H_4O)_n

Formula:

OOC(CH_2)_2COO(CH_2CH_2O)_nH, avg. n = 22

Properties: Misc. with water

Toxicology: LD50 (oral, rat) > 7 g/kg

Uses: Antioxidant, natural vitamin E source for pharmaceuticals

Trade Names: Eastman® Vitamin E TPGS NF

Tocopheryl acetate

CAS 1406-70-8; 7695-91-2; EINECS/ELINCS 231-710-0

Synonyms:  α-α-Tocopheryl acetate; DL-α-Tocopheryl acetate; Vitamin E acetate

Definition: Ester of tocopherol and acetic acid

Empirical: C_{31}H_{52}O_{3}

Uses: Antioxidant, natural vitamin E source for pharmaceuticals, capsules and liqs.

Regulatory: FDA 21 CFR §182.8892, GRAS; BP, EP compliance

Chemical Component Cross-Reference

**Trade Names:** Covitol® 1100; Covitol® 1360; Vitamin E Acetate-USP

**Trade Names Containing:** Vitamin A, C & E

**Liposomes**

2R,4´R,8´R-α-Tocopheryl acetate; α-Tocopheryl acetate. See d-α-Tocopheryl acetate

**d-α-Tocopheryl acetate**

CAS 58-95-7; EINECS/ELINCS 231-710-0

**Synonyms:** 2,5,7,8-Tetramethyl-2-(4´,8´,12´-trimethyltridecyl)-6-chromanol acetate; 2R,4´R,8´R-α-Tocopheryl acetate; α-Tocopheryl acetate; Vitamin E acetate

**Definition:** Obtained from vacuum steam distillation and acetylation of edible vegetable oil prods.

**Empirical:** C\textsubscript{31}H\textsubscript{52}O\textsubscript{3}

**Properties:** Cryst., odorless; sol. in alcohol; misc. with acetone, chloroform, ether, vegetable oil; insol. in water; m.w. 472.75; dens. 0.9533 (21.3/4 C); m.p. -27.5 C; b.p. 184 C (0.01 mm); flash pt. > 230 F; ref. index 1.4950-1.4972

**Toxicology:** TDLo (oral, rat) 182 g/kg; experimental reproductive effector; mutagenic data; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**HMIS:** Health 1, Flammability 1, Reactivity 0

**Storage:** Light-sensitive

**Uses:** Nutrient, vitamin E source, dietary supplement, antioxidant for pharmaceuticals

**Regulatory:** FDA 21CFR §182.8892, GRAS; FDA approved for topicals; Canada DSL


**Trade Names:** Tri-K Vitamin E Acetate; Vitamin E Acetate Dry Powd. 50% DC/GFP; Vitamin E Acetate Dry Powd. SD 50; Vitamin E dl-alpha Tocopheryl Acetate USP

**Trade Names Containing:** Dry Vitamin E 75™ HP; Dry Vitamin E Acetate 50% SD

**See also** Tocopheryl acetate

**dl-α-Tocopheryl acetate**

CAS 133-80-2; 7695-91-2; EINECS/ELINCS 231-710-0

**Synonyms:** 2H-1-Benzopyran-6-ol, 3,4-dihydro-2,5,7,8-tetramethyl-2-(4,8,12-trimethyltridecyl)-, acetate; 6-Chromanol, 2,5,7,8-tetramethyl-2-(4,8,12-trimethyltridecyl)-, acetate; Syntopherol acetate; 2,5,7,8-Tetramethyl-2-(4,8,12-trimethyltridecyl)-6-chromanol acetate; dl-α-Tocopherol acetate; (±)-α-Tocopherol acetate

**Definition:** Ester of tocopherol and nicotinic acid

**Empirical:** C\textsubscript{35}H\textsubscript{53}NO\textsubscript{3}

**Properties:** Lt. yel. waxy solid; m.w. 535.82; m.p. 42-48 C

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**α-Tocopherol nicotinate**

**Synonyms:** 2,5,7,8-Tetramethyl-2-(4,8,12-trimethyltridecyl)-6-chromanol-3-carboxypryidine; 2R,4´R,8´R-α-Tocopheryl nicotinate; Vitamin E nicotinate

**Definition:** Ester of tocopherol and nicotinic acid

**Empirical:** C\textsubscript{35}H\textsubscript{53}NO\textsubscript{3}

**Properties:** Lt. yel. waxy solid; m.w. 535.82; m.p. 42-48 C

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**Tocopheryl acid succinate; α-Tocopheryl acid succinate**

**See also** Tocopheryl succinate

**2R,4´R,8´R-α-Tocopheryl nicotinate**

**See d-α-Tocopheryl nicotinate**

**d-α-Tocopheryl nicotinate**

**Synonyms:** 2,5,7,8-Tetramethyl-2-(4,8,12-trimethyltridecyl)-6-chromanol-3-carboxypryidine; 2R,4´R,8´R-α-Tocopheryl nicotinate; Vitamin E nicotinate

**Definition:** Ester of tocopherol and nicotinic acid

**Empirical:** C\textsubscript{35}H\textsubscript{53}NO\textsubscript{3}

**Properties:** Lt. yel. waxy solid; m.w. 535.82; m.p. 42-48 C
Chemical Component Cross-Reference

**Antioxidant in pharmaceuticals, topicals**

α-Tocopheryl PEG 1000 succinate; d-α-Tocopheryl PEG 1000 succinate. See Tocophersolan

**Tocopheryl succinate**

CAS 4345-03-3 (d-α); 17407-37-3; EINECS/ELINCS 224-403-8

**Synonyms:** α-Tocopherol acid succinate; Tocopheryl succinate; α-Tocopheryl acid succinate; D-α-Tocopheryl succinate; DL-α-Tocopheryl succinate; Vitamin E acid succinate; Vitamin E succinate

**Definition:** Ester of tocopherol and succinic acid

**Empirical:** C33H54O5

**Properties:** Colorless to wh. cryst. powd. or needles, odorless, tasteless; very sol. in chloroform; sol. in acetone, alcohol, ether, vegetable oil; pract. insol. in water; m.w. 530.76; m.p. 76-77°C

**Toxicology:** LD50 (oral, rat) > 7 g/kg; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Antioxidant, nutrient, dietary supplement, Vitamin E source

**Regulatory:** FDA 21 CFR §182.8890, GRAS; Canada DSL

**Manuf./Distrib.:** Boith China†

http://www.boith.com;
http://www.sigma-aldrich.com/belgium

**Trade Names:** Covitol® 1185; Covitol® 1210

**D-α-Tocopheryl succinate; DL-α-Tocopheryl succinate.** See Tocopheryl succinate

**Tolualdehyde.** See Tolyl aldehyde

α-Tolualdehyde. See Phenylacetaldehyde

p-Tolualdehyde. See p-Tolyl aldehyde

**Tolualdehyde glyceryl acetal, mixed o, m, p**

CAS 73987-51-6; 977041-69-2

FEMA 3067

**Synonyms:** 2-(Methylphenyl)-1,3-dioxan-5-ol (mixed isomers); Tolylaldehyde glyceryl acetal

**Empirical:** C11H12O2

**Properties:** M.w. 176.23

**Toxicology:** LD50 (oral, rat) 3400 mg/kg; mod. toxic by ing.; skin irritant

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Synthetic flavor for pharmaceuticals

### Tolualdehyde isomers; Tolualdehydes, mixed o-, m-, p.

**See Tolyl aldehyde**

**Tolu balsam; Tolu balsam gum; Tolu balsam oil; Tolu balsam tincture.** See Balsam tolu (Myroxylon balsamum)

### Toluene

**CAS 108-88-3; EINECS/ELINCS 203-625-9**

UN 1294 (DOT)

**Synonyms:** Methylbenzene; Methylbenzol; Phenylmethane; Toluol

**Classification:** Aromatic hydrocarbon

**Empirical:** C7H8

**Formula:** C6H5CH3

**Properties:** Colorless clear liq., benzene odor; sol. in alcohol, benzene, ether, acetone, chloroform, petrol. ether, ethyl acetate; misc. with most org. solvs.; very sl. sol. in water; m.w. 92.13; dens. 0.866 (20/4°C); vapor pressure 36.7 mm Hg (30°C); m.p. -94.5°C; b.p. 110.7°C; flash pt. (CC) 4.4°C; ref. index 1.4967 (20°C); KB value 105

**Toxicology:** ACGIH TLV/TWA 100 ppm; STEL 150 ppm; LD50 (oral, rat) 7.53 g/kg, (skin, rabbit) 12,124 mg/kg; toxic by ing., inh., IP, and skin absorption; irritant to eyes, skin, respiratory tract; severe dermatitis on direct contact; ing. may cause lung aspiration; overexposure by inh. may cause CNS excitation/depression; high concns. may cause paresthesia, vision disturbances, dizziness, nausea, headache, narcosis, death; experimental teratogen, reproductive effector; mutagenic data; TSCA listed

**Environmental:** VOC; BOD5 2.15; COD 2.52; ThOD 3.13

**Precaution:** Highly flamm.; incompat. with strong oxidizers, nitric acid, sulfuric acid, nitrogen tetroxide, silver perchlorate, sulfur dichloride, etc.; fire and explosion risk; potential violent reactions; common air contaminant

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Regulatory:** FDA 21 CFR §172.515; FEMA GRAS

**NFPA:** Health 2, Flammability 3, Reactivity 0

**Storage:** Store in cool well-ventilated area out of direct sunlight, away from heat/ignition sources, away from corrosives

**Uses:** Solvent in pharmaceuticals

**Regulatory:** FDA 21 CFR §175.105, 175.320, 176.180, 177.1010, 177.1200, 177.1440,
Chemical Component Cross-Reference

177.1580, 177.1650, 177.2460, 178.3010, 27CFR §21.131; SARA reportable; Canada DSL; SARA §313 reportable; CERCLA hazardous substance; Calif. Prop. 65 reportable; HAP

Manuf./Distrib.:  AAE Chemie NV†
  http://www.aaechemie.com;  AMC Chems.;
  Aldrich† http://www.sigma-aldrich.com;  
  Alfa Aesar† http://www.alfa.com;  Amyl  
  http://www.amyl.com;  Arch Chems.  
  http://www.archchemicals.com;  Ashland†  
  http://www.ashchem.com;  BASF AG  
  http://www.basf.de;  BP Chemicals†;  
  http://www.bp.com;  BP Chems. Ltd  
  http://www.bp.com/chemicals/;  
  Baychem;  Brenntag AG†  
  http://www.brenntag.de;  Brenntag  
  Southeast;  Burdick & Jackson  
  http://www.bandj.com;  ChemTech  
  Specialties†  
  http://www.chemtechspecialties.com  
  Chemcentral http://www.chemcentral.com;  
  ChevronPhillips http://www.cpchem.com;  
  Coyne http://www.coynechemical.com;  
  Delta Distributors†;  Dow†  
  http://www.dow.com  
  Equistar http://www.equistarchem.com;  
  ExxonMobil  
  http://www.exxonmobilchemical.com;  
  Fisher Scientific  
  Fluka http://www.sigma-aldrich.com;  GFS†  
  http://www.gfschemicals.com  
  General Chem.  
  http://www.genchemcorp.com;  Harcros  
  http://www.harcroschem.com;  Houghton  
  Hukill http://www.hukill.com;  Huntsman  
  http://www.huntsman.com  
  Integra† http://www.integreichem.com;  
  Koch Ind.  http://www.kochind.com;  
  Lyondell http://www.lyondell.com;  MPSI†  
  http://www.mp-solutionsinc.com  
  Mallinckrodt Baker†  
  http://www.mallbaker.com;  Maruzen  
  Petrochem. http://www.chemiway.co.jp/;  
  Miljac http://www.miljac.com;  Mitsubishi  
  Oil;  Mitsui Chems.  http://www.mitsui-  
  chem.co.jp  
  Nova Ltd http://www.novachem.com;  R.E.  
  Carroll http://www.recarroll.com;  Romil Ltd  
  http://www.ramil.com;  Ruger  

†=pharmaceutical grade

http://www.rugerchemical.com;  Sal Chem.  
http://www.salchem.com  
Sasol Germany http://www.sasol.com;  
http://www.sasololefinsurfactants.com;  
Shell† http://www.shellchemicals.com;  
http://www.shell-lubricants.com;  Sigma  
http://www.sigma-aldrich.com/belgium;  
Spectrum Quality Prods.†  
http://www.spectrumchemicals.com;  Sunoco  
http://www.sunocochem.com  
Thomas Scientific†  
http://www.thomassci.com;  Total  
Petrochemicals Bruxelles  
http://www.totalpetrochemicals.biz;  Triple  
Crown Am.  
http://www.triplecrownamerica.com;  VWR  
Int’l.† http://www.vwrsp.com

Trade Names Containing:  Gantrez® AN-139  
BF;  Punctilious® SDA 2B-3 190 Proof;  
Punctilious® SDA 12A-3 190 Proof;  
Punctilious® SDA 12A-3 Anhydrous

Toluene-carboxaldehyde.  See Tolyl aldehyde
Toluene hexahydrate.  See Methyl cyclohexane
Toluene sulfonic acid (INCI);  4- 
Toluenesulfonic acid;  Toluene-4-sulfonic  
acid.  See p-Toluenesulfonic acid
p-Toluenesulfonic acid  
CAS 104-15-4;  EINECS/ELINCS 203-180-0  
UN 2585

Synonyms:  4-Methylbenzenesulfonic acid;  p-  
Methylbenzenesulfonic acid;  p- 
Methylphenylsulfonic acid;  PTSA;  Toluene  
sulfonic acid (INCI);  4-Toluenesulfonic acid;  
Toluene-4-sulfonic acid;  Toluene-p-sulfonic  
acid;  p-Tolysulfonic acid;  Toscic acid;  p- 
TSA

Classification:  Substituted aromatic acid; sulfonic  
acid
Empirical:  C7H8O3S
Formula:  C6H4(SO3H)(CH3)

Properties:  Colorless leaflets; pungent odor; very  
sol. in water; sol. in alcohol, ether, diethyl  
ether; m.w. 172.21; m.p. 107 C; b.p. 140 C (20  
mm); flash pt. (CC) 184 C; strong acid; anionic

Toxicology:  LD50 (oral, rat) 2480 mg/kg; mod.  
toxic by ing.; strong skin and mucous  
membrane irritant; TSCA listed

Precaution:  DOT: Corrosive material;  
combustible; potentially explosive reaction  
with acetic anhydride + water

Hazardous Decomp. Prods.:  CO, CO2; heated  
to decomp., emits toxic fumes of SOx
Chemical Component Cross-Reference

**NFPA:** Health 3, Flammability 1, Reactivity 1

**Storage:** Hygroscopic

**Uses:** Catalyst, intermediate for pharmaceuticals

**Regulatory:** FDA 21CFR §175.105; Canada DSL


**Trade Names:** Eltesol® TSX/A

**Toluene-p-sulfonic acid.** See p-Toluene sulfonic acid

**p-Toluenesulfonic acid, methyl ester.** See Methyl tosylate

α-Toluenethiol. See Benzyl mercaptan

α-Tolueneol. See Benzyl alcohol

α-Toluic acid. See Phenylacetic acid

α-Toluic acid ethyl ester. See Ethyl phenylacetate

α-Toluic acid, α-hydroxy-. See Mandelic acid

α-Toluic aldehyde. See Phenylacetaldehyde

Toluifera balsamam resin. See Balsam tolu (Myroxylon balsamum)

Toluol. See Toluene

†=pharmaceutical grade

m-Toluol. See m-Cresol

o-Toluol. See o-Cresol

p-Toluol. See p-Cresol

Tolu resin. See Balsam tolu (Myroxylon balsamum)

p-Tolylaldehyde. See p-Tolyl aldehyde

p-Tolylacetaldehyde

CAS 104-09-6; EINECS/ELINCS 203-173-2

FEMA 3071

**Synonyms:** Benzeneacetaldehyde, 4-methyl-; 4-Methylphenylacetaldehyde; p-Methylphenylacetaldehyde; Syringaldehyde; Syringaldehyde

**Classification:** aromatic aldehyde

**Empirical:** C9H10O

**Properties:** Colorless to yel. oil, bitter almond odor, flavor; sol. in most common org. solvs.; insol. in alcohol; m.w. 134.17; dens. 1.010-1.016; b.p. 210 C; flash pt. 70 C; ref. index 1.5300-1.5350

**Uses:** Synthetic flavor and fragrance for pharmaceuticals

**Use Level:** Trace-2%

**Regulatory:** FDA 21CFR §172.515; U.S. approved as direct food additive; FEMA GRAS; Canada DSL


**Tolyl acetate.** See Methylbenzyl acetate, mixed o-, m-, p-

**o-Tolyl acetate.** See o-Cresyl acetate

**p-Tolyl acetate.** See p-Cresyl acetate

**p-Tolyl alcohol.** See p-Cresol

**Tolyl aldehyde**

CAS 1334-78-7; EINECS/ELINCS 215-615-1

FEMA 3068

**Synonyms:** Methyl benzaldehydes, mixed o-, m-, p-; Tolualdehyde; Tolualdehyde isomers; Tolualdehydes, mixed o-, m-, p-; Toluene-carboxaldehyde; Toly aldehydes, mixed o-, m-, p-

**Definition:** Mixt. of o-, m-, and p-tolyl aldehydes

**Empirical:** C8H8O

**Properties:** Colorless liq., bitter almond odor; sol. in alcohol, ether; sl. sol. in water; m.w. 120.14; dens. 1.020; b.p. 199-204 C; ref. index 1.54693 (16.6 C)

**Toxicology:** LD50 (oral, rat) 2250 mg/kg; mod. toxic by ing.; skin irritant; TSCA listed
Chemical Component Cross-Reference

Precaution: Combustible

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: SAFC Specialties
http://www.safcspecialties.com

p-Tolyl aldehyde
CAS 104-87-0; EINECS/ELINCS 203-246-9
FEMA 3068

Synonyms: 4-Methylbenzaldehyde; p-Methylbenzaldehyde; p-Tolualdehyde; p-Tolualdehyde

Empirical: C8H8O

Formula: CH3C6H4CHO

Properties: Colorless to yel. liq., aromatic floral odor; sol. in alcohol, ether; sl. sol. in water; m.w. 120.15; dens. 1.016 (20/4 C); vapor dens. 4.2; m.p. -6 C; b.p. 204 C; flash pt. 85 C; ref. index 1.545 (20 C)

Toxicology: LD50 (oral, rat) 1000 mg/kg; eye and skin irritant; TSCA listed

Precaution: Combustible

HMIS: Health 1, Flammability 2, Reactivity 0

Uses: Synthetic flavor for pharmaceuticals; pharmaceutical intermediate

Regulatory: Canada DSL

Manuf./Distrib.: Advanced Synthesis Tech.
http://www.advancedsynthesis.com;
Aldrich† http://www.sigma-aldrich.com;
BASF http://www.basf.com;
Honeywell Perf. Polymers
http://www.honeywellpppc.com;
http://www.pentamfg.com;
Polarome Int'l. http://www.polarome.com;
R.C. Treatt & Co. Ltd http://www.rcrteatt.com

α-Tolyl aldehyde dimethyl acetal. See

†=pharmaceutical grade

Phenylacetaldehyde dimethyl acetal
Tolylaldehyde glyceryl acetal. See
Tolualdehyde glyceryl acetal, mixed o, m, p
Tolyl aldehydes, mixed o-, m-, p-. See Tolyl aldehyde

4-(p-Tolyl)-2-butanone
CAS 7774-79-0
FEMA 3074

Synonyms: p-Methylbenzylacetone
Classification: aromatic ketone
Empirical: C11H14O

Properties: Colorless oily liq.; sol. in alcohol; very sl. sol. in water; m.w. 162.23

Uses: Synthetic flavor for pharmaceuticals

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com

p-Tolyl dodecanoate; p-Tolyl dodecylate. See
p-Tolyl laurate

p-Tolyl ethanoate. See p-Cresyl acetate

N-(p-Tolyl)-4-hydroxy-1-anthraquinonylamine. See CI 60725; D&C Violet No. 2; Disperse blue 72

α-Tolylactic acid. See Phenylactic acid

o-Tolyl isobutyrate
CAS 36438-54-7
FEMA 3753

Synonyms: o-Cresyl isobutyrate; 2-Methylphenyl-2-methyl propanoic acid 2-methyl phenyl ester; o-Tolyl 2-methylpropanoate

Empirical: C11H14O2

Formula: (CH3)2CHCO2C6H4CH3

Properties: Colorless liq.; sol. in alcohol; insol. in water; m.w. 178.23; dens. 1.004; b.p. 107-108 C (8 mm); flash pt. 203 F

Toxicology: TSCA listed

Uses: Flavor for pharmaceuticals

Features: Berry, medicinal flavor

Regulatory: FEMA GRAS; Canada DSL

Manuf./Distrib.: SAFC Specialties
http://www.safcspecialties.com

p-Tolyl isobutyrate
CAS 103-93-5; EINECS/ELINCS 203-159-6
FEMA 3075

Synonyms: Cresyl-4-isobutyrate; p-Cresyl isobutyrate; Isobutyric acid, p-tolyl ester; p-Methylphenyl-2-methylpropanoate; Paracresyl isobutyrate

Definition: Ester of p-cresol and isobutyric acid

Empirical: C11H14O2
Chemical Component Cross-Reference

†=pharmaceutical grade

**Formula:** \( \text{CH}_3\text{C}_6\text{H}_4\text{OCOCH}(\text{CH}_3)_2 \)

**Properties:** Colorless liq., lily-narcissus odor; sol. in alcohol; insol. in water; m.w. 178.23; dens. 0.993; b.p. 237 °C; flash pt. >100 °C; ref. index 1.485-1.489

**Toxicology:** LD50 (oral, rat) 4 g/kg, (skin, rabbit) 3970 mg/kg; mod. toxic by ing. and skin contact; TSCA listed

**Precaution:** Combustible liq.

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Synthetic flavor for pharmaceuticals

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Manuf./Distrib.:** Augustus Oils Ltd

**p-Tolyl phenyl acetate.** See p-Tolyl phenylacetate

3-p-Tolyl propenal. See p-Methylcinnamaldehyde

2-(p-Tolyl) propionaldehyde

CAS 99-72-9; EINECS/ELINCS 202-782-0

FEMA 3078

**Synonyms:** Methyl hydratropaldehyde; p-Methylhydratropaldehyde; p-Methylhydratropic aldehyde; 2-(p-Methylphenyl) propionaldehyde; 2-(p-Tolyl) propionic aldehyde

**Empirical:** \( \text{C}_10\text{H}_{12}\text{O} \)

**Properties:** M.w. 148.22

**Toxicology:** LD50 (oral, rat) 3500 mg/kg; mod. toxic by ing.; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Synthetic flavor for pharmaceuticals

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL

2-(p-Tolyl) propionic aldehyde. See 2-(p-Tolyl) propionic aldehyde

p-Tolylsulfonic acid. See p-Toluene sulfonic acid

Toney red. See D&C Red No. 17; Solvent red 23

Tonka bean camphor. See Coumarin

Tonkalide. See γ-Hexalactone

Tonquin musk. See Musk (Moschus moschiferus)

Tosic acid. See p-Toluene sulfonic acid

Toxilic acid. See Maleic acid

Toxilic anhydride. See Maleic anhydride

TP. See Thiophenol

TPG. See Tripropylene glycol

TPU. See Polyurethane elastomer, thermoplastic

Tragacanth. See Tragacanth (Astragalus gummifer) gum

**Handbook of Pharmaceutical Additives, Third Edition** 2184
Tragacanth (Astragalus gummifer) gum

**Definition:** Dried gummy exudate from *Astragalus gummifer*

**Properties:** Wh. powd., wh. to pale yel. translucent, horny pieces; odorless; mucilaginous taste; insol. in alcohol; strongly hydrophilic

**Toxicology:** LD50 (oral, rat) 16,400 mg/kg; mildly toxic by ing.; mild allergen causing hay fever, dermatitis, GI distress, asthma; may cause intolerance; skin and eye irritant; linked to liver damage in test animals; TSCA listed

**Precaution:** Combustible when exposed to heat or flame

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**HMIS:** Health 0, Flammability 1, Reactivity 0

**Uses:** Suspending agent, thickener, emulsifier for pharmaceuticals, nasal sol’ns., sublingual tablets, oral suspensions, ointments, medicinal emulsions, dentifrices; excipient and binder for tablets

**Use Level:** 4.8-6.0% (oral liqs.); 0.42-100 mg (tablets)

**Regulatory:** FDA 21CFR §133.133, 133.134, 133.162, 133.178, 133.179, 150.141, 150.161, 184.1351, GRAS; FEMA GRAS; Japan approved; Europe listed; UK approved; FDA approved for orals; USP/NF, BP, EP compliance; Canada DSL

**Manuf./Distrib.:**
- AB R Lundberg
- Adept Sol’ns.; Agrisales Ltd
  - http://www.agriproducts.com; Alfa Chem†
- Alland & Robert†
  - http://www.allandetrobert.fr; Allchem Int'l. Ltd† http://www.allchem.co.uk; Arthur Branwell† http://www.branwell.com;
- Ashland† http://www.ashchem.com;
- Aventis Pharmaceuticals†
  - http://www.aventispharma-us.com
- Bio-Botanica http://www.bio-botanica.com;
- CarboMer† http://www.carbomer.com;
- Charkit† http://www.charkit.com; Chart†

†=pharmaceutical grade

http://www.bio-botanica.com; Colloids Naturels Int'l† http://www.cniworld.com
Frutarom† http://www.frutarom.com;
Gumix Int'l.; Importers Service http://www.iscgums.com; Integra† http://www.integrachem.com; MLG Enterprises Merck KGaA† http://www.merck.de;
Mutchler† http://www.mutchlerchem.com;
P.L. Thomas http://www.plthomas.com;
Pangaea Sciences† http://www.pangaeasciences.com; Penta Mfg.† http://www.pentamfg.com
Quest Int'l. http://www.questintl.com;
Rhodia http://www.rhodia.com; Rugert† http://www.rugerchemical.com; Sigma http://www.sigma-aldrich.com/belgium;
Spice King; TIC Gums http://www.ticgums.com; Thew Arnott & Co. Ltd† http://www.thewarnott.co.uk;

**Trade Names:** Gum Tragacanth Ribbons and Flakes; Powdered Gum Tragacanth BP; Powdered Gum Tragacanth T-150; Powdered Gum Tragacanth T-200; Powdered Gum Tragacanth T-300; Powdered Gum Tragacanth T-400; Powdered Gum Tragacanth T-500; Powdered Gum Tragacanth Type B-1 NF; Powdered Gum Tragacanth BP Type B-12 NF Premium; Powdered Gum Tragacanth Type B-12 NF Premium; Powdered Gum Tragacanth Type C-5 NF; Powdered Gum Tragacanth Type G-1 NF; Powdered Gum Tragacanth Type G-1 NF Premium; Powdered Gum Tragacanth Type G-2 NF Premium; Powdered Gum Tragacanth Type G-2 NF Premium; Powdered Gum Tragacanth Type G-2 S NF Premium; Powdered Gum Tragacanth Type M-3 NF; Powdered Gum Tragacanth Type E-1; Powdered Tragacanth Gum Type L; Powdered Tragacanth Gum Type W; Tragacanth Gum Ribbon No. 1 NF FCC

http://www.chartcorp.com; Colloides
http://www.cniworld.com
http://www.cornelius.co.uk; Degussa AG/Health & Nutrition; EMD Chems.†
http://www.emdchemicals.com; Eggar & Co.†
http://www.eggar.co.uk; Fisher Scientific†
Frutarom†
http://www.frutarom.com;
Gumix Int'l.; Importers Service
http://www.iscgums.com; Integra†
http://www.integrachem.com; MLG Enterprises
Merck KGaA†
http://www.merck.de;
Mutchler†
http://www.mutchlerchem.com;
P.L. Thomas
http://www.plthomas.com;
Pangaea Sciences†
http://www.pangaeasciences.com; Penta Mfg.†
http://www.pentamfg.com
Quest Int'l.
http://www.questintl.com;
Rhodia
http://www.rhodia.com;
Rugert†
http://www.rugerchemical.com;
Sigma
http://www.sigma-aldrich.com/belgium;
Spice King; TIC Gums
http://www.ticgums.com;
Thew Arnott & Co. Ltd†
http://www.thewarnott.co.uk;
Universal Preserv-A-Chem†
http://www.upichem.com;
V.L. Clark
http://www.vlclark.com
Voigt Global Distrib.
http://www.vgdllc.com

**Trade Names:** Gum Tragacanth Ribbons and Flakes; Powdered Gum Tragacanth BP; Powdered Gum Tragacanth T-150; Powdered Gum Tragacanth T-200; Powdered Gum Tragacanth T-300; Powdered Gum Tragacanth T-400; Powdered Gum Tragacanth T-500; Powdered Gum Tragacanth Type B-1 NF; Powdered Gum Tragacanth BP Type B-12 NF Premium; Powdered Gum Tragacanth Type B-12 NF Premium; Powdered Gum Tragacanth Type C-5 NF; Powdered Gum Tragacanth Type G-1 NF; Powdered Gum Tragacanth Type G-1 NF Premium; Powdered Gum Tragacanth Type G-2 NF Premium; Powdered Gum Tragacanth Type G-2 NF Premium; Powdered Gum Tragacanth Type G-2 S NF Premium; Powdered Gum Tragacanth Type M-3 NF; Powdered Gum Tragacanth Type E-1; Powdered Tragacanth Gum Type L; Powdered Tragacanth Gum Type W; Tragacanth Gum Ribbon No. 1 NF FCC
Tragacanth gum. See Tragacanth (Astragalus gummifer) gum

Trehalose
CAS 99-20-7; EINECS/ELINCS 202-739-6
Synonyms: Ergot sugar, α-D-Glucopyranoside, α-D-glucopyranosyl-α-D-glucopyranoside; Mycose; Natural trehalose; α-Trehalose; α,α-Trehalose; D-(+)-Trehalose; Trehalose, dihydrate
Classification: Disaccharide
Empirical: C12H22O11
Properties: Off-wh. to wh. cryst. powd.; m.w. 342.30; sp.gr. 1.54; m.p. 97 C
Uses: Compactible sugar-type filler and taste masking agent in pharmaceutical preps.; 45% that of sucrose
Regulatory: GRAS; Canada DSL

α-Trehalose; α,α-Trehalose; D-(+)-Trehalose; Trehalose, dihydrate. See Trehalose

Tri. See Trichloroethylene

Triacetin
CAS 102-76-1; EINECS/ELINCS 203-051-9
FEMA 2007; INS1518; E1518
Synonyms: Acetic, 1,2,3-propanetriyl ester; Acetin; Enzactin; Glycerine triacetate; Glycerol triacetate; Glyceryl triacetate; 1,2,3-Propanetriyl triacetate; Triacetyl glycerin; Triacetyl glycerol
Definition: Triester of glycerin and acetic acid
Empirical: C9H14O6
Formula: C3H5(OCOCH3)3
Properties: Colorless or pale yel. oily liq., sl. fatty odor, bitter taste; sol. in water, alcohol, ether, other org. solvs.; sl. sol. in CS2; m.w. 218.20; dens. 1.160 (20 C); m.p. -78 C; b.p. 258-260 C; sapon. no. 765-775; flash pt. 258-260 F; index 1.4307 (20 C)
Toxicology: LD50 (oral, rat) 3000 mg/kg, (IV, mouse) 1600 ± 81 mg/kg, (IP, rat) 2100 mg/kg, (subcut., rat) 2800 mg/kg; poison by ing.; mod. toxic by IP, IV, subcut. routes; eye irritant; TSCA listed

†=pharmaceutical grade

Precaution: Combustible exposed to heat, flame, or powerful oxidizers
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
NFPA: Health 1, Flammability 1, Reactivity 0
Uses: Syn. flavor, plasticizer for pharmaceuticals, orals, toothpaste; topical antifungal; OTC drug
Regulatory: FDA 21CFR §175.300, 175.320, 181.22, 181.27, 184.1901, GRAS; FEMA GRAS; FDA approved for orals; USP/NF, BP, EP compliance; Canada DSL

Manuf./Distrib.: A.P. Chem. Ltd
http://www.chemical.com; ABITEC†
http://www.abyteccorp.com; AMRESCO†
http://www.amresco-inc.com; Aastrid Int’l.†
http://www.aastrid.com; Aceto†
http://www.aceto.com
Akzo Nobel http://www.akzonobel.com;
Avatar† http://www.avatarsecondary.com
http://www.bayer.com; Blagden Spec. Chems. Ltd†
http://www.blagdenspecchem.co.uk;
Britannia Natural Prods. http://amcan-ingredients.com/pages/fca.htm; Brown†
http://www.brownchem.com
CTC Orgs.; ChemUSA; Chemical SpA http://www.chemical.com; Croda Inc†
http://www.croda.com;
http://www.crodausa.com; Degussa
AG/Health & Nutrition Eastman† http://www.eastman.com; Eggar & Co. http://www.eggar.co.uk; Fluka
http://www.sigma-aldrich.com; Honeywill & Stein† http://www.honeywill.co.uk;
Industrias Monfe http://www.monfel.com
Integra† http://www.integrachem.com; K3
Mallinckrodt Baker† http://www.mallbaker.com;
MelChem http://www.melchem.com
Parchem Trading† http://www.parchem.com; Penta Mfg.†
http://www.pentamfg.com; R.C. Treatt & Co. Ltd http://www.rctreatt.com; Ruger†
http://www.rugerchemical.com; SAFC Specialties http://www.safcspecialties.com
<table>
<thead>
<tr>
<th>Chemical Component Cross-Reference</th>
<th>triacetylglycerol</th>
<th>triacetin, food grade</th>
<th>eastman® triacetin usp/fcc</th>
<th>triacetin, pharmaceutical grade</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Trade Names:</strong></td>
<td>Captex® 500; Captex® 500P</td>
<td>Eastman® Triacetin USP/FCC</td>
<td>Eastman® Triacetin, Food Grade; Triacetin</td>
<td>Ca3H5O(COOC4H9)3</td>
</tr>
<tr>
<td><strong>Synonyms:</strong></td>
<td>Docusoic acid, 1,2,3-propanetriyl ester; Glycerol tribehenate; Glycerol tribenenate; 1,2,3-Propanetriol tridocosanoate; Tridocosanoin</td>
<td>Butyric acid triester with glycerin</td>
<td>Butyric acid tribehenate; Acetyl tributyl citrate</td>
<td>Butanoic acid 1,2,3-propanetriyl ester; Butyric acid triester with glycerin; Butyric acid tribehenate; Butyric acid tribenenate; 2-Hydroxy-1,2,3-propanetricarboxylate</td>
</tr>
<tr>
<td><strong>Definition:</strong></td>
<td>Triester of butyl alcohol and citric acid</td>
<td>Butyric acid tribehenate; Acetyl tributyl citrate</td>
<td>Butyric acid tribenenate; 2-Hydroxy-1,2,3-propanetricarboxylate</td>
<td>Butyric acid tribenenate; 2-Hydroxy-1,2,3-propanetricarboxylate</td>
</tr>
<tr>
<td><strong>Empirical:</strong></td>
<td>C18H32O7</td>
<td>Butyric acid tribehenate; Acetyl tributyl citrate</td>
<td>Butyric acid tribenenate; 2-Hydroxy-1,2,3-propanetricarboxylate</td>
<td>Butyric acid tribenenate; 2-Hydroxy-1,2,3-propanetricarboxylate</td>
</tr>
<tr>
<td><strong>Formula:</strong></td>
<td></td>
<td>Butyric acid tribenenate; 2-Hydroxy-1,2,3-propanetricarboxylate</td>
<td>Butyric acid tribenenate; 2-Hydroxy-1,2,3-propanetricarboxylate</td>
<td>Butyric acid tribenenate; 2-Hydroxy-1,2,3-propanetricarboxylate</td>
</tr>
<tr>
<td><strong>CAS:</strong></td>
<td>77-94-1</td>
<td>Butyric acid tribenenate; 2-Hydroxy-1,2,3-propanetricarboxylate</td>
<td>Butyric acid tribenenate; 2-Hydroxy-1,2,3-propanetricarboxylate</td>
<td>Butyric acid tribenenate; 2-Hydroxy-1,2,3-propanetricarboxylate</td>
</tr>
<tr>
<td><strong>Precaution:</strong></td>
<td>Combustible</td>
<td>Butyric acid tribenenate; 2-Hydroxy-1,2,3-propanetricarboxylate</td>
<td>Butyric acid tribenenate; 2-Hydroxy-1,2,3-propanetricarboxylate</td>
<td>Butyric acid tribenenate; 2-Hydroxy-1,2,3-propanetricarboxylate</td>
</tr>
<tr>
<td><strong>Uses:</strong></td>
<td>Plasticizer, film-former, solvent for aq. pharmaceutical coatings, controlled sustained-release drugs</td>
<td>Butyric acid tribenenate; 2-Hydroxy-1,2,3-propanetricarboxylate</td>
<td>Butyric acid tribenenate; 2-Hydroxy-1,2,3-propanetricarboxylate</td>
<td>Butyric acid tribenenate; 2-Hydroxy-1,2,3-propanetricarboxylate</td>
</tr>
<tr>
<td><strong>Regulatory:</strong></td>
<td>FDA 21CFR §175.105; USP/NF compliance</td>
<td>Butyric acid tribenenate; 2-Hydroxy-1,2,3-propanetricarboxylate</td>
<td>Butyric acid tribenenate; 2-Hydroxy-1,2,3-propanetricarboxylate</td>
<td>Butyric acid tribenenate; 2-Hydroxy-1,2,3-propanetricarboxylate</td>
</tr>
<tr>
<td><strong>Trade Names:</strong></td>
<td>Citrofol® Bi; TBC, NF</td>
<td>Butyric acid tribenenate; 2-Hydroxy-1,2,3-propanetricarboxylate</td>
<td>Butyric acid tribenenate; 2-Hydroxy-1,2,3-propanetricarboxylate</td>
<td>Butyric acid tribenenate; 2-Hydroxy-1,2,3-propanetricarboxylate</td>
</tr>
<tr>
<td><strong>Tri-n-butyl citrate.</strong></td>
<td>See Tributyl citrate</td>
<td>Butyric acid tribenenate; 2-Hydroxy-1,2,3-propanetricarboxylate</td>
<td>Butyric acid tribenenate; 2-Hydroxy-1,2,3-propanetricarboxylate</td>
<td>Butyric acid tribenenate; 2-Hydroxy-1,2,3-propanetricarboxylate</td>
</tr>
<tr>
<td><strong>Tri-n-butyl citrate acetate.</strong></td>
<td>See Tributyl citrate</td>
<td>Butyric acid tribenenate; 2-Hydroxy-1,2,3-propanetricarboxylate</td>
<td>Butyric acid tribenenate; 2-Hydroxy-1,2,3-propanetricarboxylate</td>
<td>Butyric acid tribenenate; 2-Hydroxy-1,2,3-propanetricarboxylate</td>
</tr>
<tr>
<td><strong>Tri-n-butyl citrate acetate.</strong></td>
<td>See Acetyl tributyl citrate</td>
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<td><strong>Tributyrin.</strong></td>
<td>See Lipase</td>
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<td><strong>Tributyrol.</strong></td>
<td>See Lipase</td>
<td>Butyric acid tribenenate; 2-Hydroxy-1,2,3-propanetricarboxylate</td>
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<td><strong>Tributyryl.</strong></td>
<td>See Lipase</td>
<td>Butyric acid tribenenate; 2-Hydroxy-1,2,3-propanetricarboxylate</td>
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<td><strong>Tributyl alcohol.</strong></td>
<td>See Lipase</td>
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</tbody>
</table>
Chemical Component Cross-Reference

†=pharmaceutical grade

Properties: Colorless oily liq., bitter taste; very sol. in alcohol, chloroform, ether; insol. in water; m.w. 302.36; dens. 1.032 (20/4 C); m.p. -75 C; b.p. 305-310 C (760 mm), 90'C (15 mm); flash pt. 345 F; ref. index 1.4358 (20'C)

Toxicology: LD50 (oral, rat) 13 g/kg, (IV, mouse) 320 mg/kg; poison by IV route; low toxic by ing.; questionable carcinogen; experimental tumorigen; TSCA listed

Precaution: Combustible liq.; can react with oxidizers

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Synthetic flavor for pharmaceuticals, nutritional supplements

Regulatory: FDA 21CFR §172.515, 184.1903, GRAS; FEMA GRAS; Canada DSL


Tributylinase; Tributylin esterase. See Lipase

Tributyroin. See Tributyroin

Tric. See Trichloroethylene

Tricalcium bis (orthophosphate). See Calcium phosphate tribasic

Tricalcium citrate; Tricalcium dicitrate. See Calcium citrate

Tricalcium orthophosphate. See Calcium phosphate tribasic

Tricalcium phosphate. See Hydroxyapatite; Calcium hydroxide phosphate; Calcium phosphate tribasic

Tricaprin

CAS 621-71-6; EINECS/ELINCS 210-702-0

Synonyms: Glycerol tricaprate; Glyceryl tricaprylate; Glycerol tridecanoate; 1,2,3-Propanol tridecanoate; Tridecanoin

Definition: Triester of glycerin and caprylic acid

Empirical: C33H62O6

Formula: [CH3(CH2)8COOCH2]2CHOCO(CH2)8CH3

Properties: Cryst.; m.w. 554.86; dens. 0.954 (20/4 C); m.p. 9-10 C; b.p. 233 C (1 mm); ref. index 1.447

Toxicology: LD50 (oral, rat) 33,300 mg/kg, (IP, rat) 50 mg/kg, (IV, mouse) 3700 mg/kg; poison by IP route; mod. toxic by IV route; mildly toxic by ing.; experimental reproductive effects; tumorigen; mutagen; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Emollient, lubricant, spreading agent, penetrant for pharmaceuticals; carrier, vehicle for vitamins, flavors, medicinals, nutritional prods.

Features: Nonoily

Regulatory: Canada DSL

Manuf./Distrib.: Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

Trade Names: Captex® 8000; Estasan™ GT 8-99 3596 MCT Oil; NEOBEE® 895

Tricarballylic acid-β-acetoxytributyl ester. See Acetyl triethyl citrate

Trichlor; Trichloran; Trichlorethylene. See Trichloroethylene

Trichloroaluminum. See Aluminum chloride anhydrous

Trichloroarsine. See Arsenic trichloride

Handbook of Pharmaceutical Additives, Third Edition 2188
Chemical Component Cross-Reference

\[ \beta, \beta, \gamma - \text{Trichloro-t-butyl alcohol; Trichloro-t-butyl alcohol; t-} \text{Trichlorobutyl alcohol. See Chlorobutanol} \]

3,4,4´-Trichlorocarbanilide

CAS 101-20-2; EINECS/ELINCS 202-924-1

Synonyms: N-(4-Chlorophenyl)-N´-(3,4-dichlorophenyl) urea; 1-(3´,4´-Dichlorophenyl)-3-(4´-chlorophenyl) urea; N-(3,4-Dichlorophenyl)-N´-(4-chlorophenyl) urea; TCC; 3,4,4´-Trichlorodiphenylurea; Triclocarbon (INCI); Urea, N-(4-chlorophenyl)-N´-(3,4-dichlorophenyl)-Classification: Substituted carbanilide

Empirical: C\(_{13}\)H\(_9\)Cl\(_3\)N\(_2\)O

Formula: C\(_{6}\)H\(_3\)Cl\(_2\)NHCONHC\(_6\)H\(_4\)Cl

Properties: Wh. powd.; heat-resistant; m.w. 315.59; m.p. 250 °C

Toxicology: LD\(_{50}\) (oral, rat) > 34,600 mg/kg, (IP, mouse) 2100 mg/kg; mod. toxic by IP route; irritating; cancer suspect agent; mutagen; target organs: nerves, heart, liver, kidneys; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of Cl– and NO\(_x\)

Uses: Preservative, biocide, bacteriostat, antiseptic in pharmaceuticals; topical antimicrobial; disinfectant

Regulatory: Canada DSL

Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Goldlink Industries http://www.goldlinkindustries.com

Trade Names: Nipaguard® TC40; Nipaguard® TCC; Preventol® SB Extra; Preventol® SB Micronized

3,4,4´-Trichlorodiphenylurea. See 3,4,4´-Trichlorocarbanilide

Trichloroethane (INCI). See 1,1,1-Trichloroethane

1,1,1-Trichloroethane

CAS 71-55-6; EINECS/ELINCS 200-756-3

UN 2831 (DOT)

Synonyms: Chloroethene; Chloroform, methyl-: Chlorothene; Ethane, 1,1,1-trichloro-: MCF; Methylchloroform; Methyltrichloromethane; TCE; 1,1,1-TCE; Trichloroethane (INCI); α-Trichloroethane; Trichloromethylmethane

Classification: Halogenated aliphatic hydrocarbon

Empirical: C\(_2\)H\(_3\)Cl\(_3\)

Formula: CH\(_3\)CCl\(_3\)

†=pharmaceutical grade

Properties: Colorless liq.; char. chloroform-like odor; sol. in alcohol, ether, acetone, benzene, chloroform, methanol, CCl\(_4\); pract. insol. in water; m.w. 133.42; dens. 1.3376 (20/4 °C); vapor pressure 100 mm Hg (20 °C); m.p. -32.5 °C; b.p. 74.1 °C; flash pt. none; autoignition temp. 537 °C; ref. index. 1.43838 (20 °C); surf. tens. 25.56 dynes/cm; KB value 124

Toxicology: ACGIH TLV/TWA 350 ppm; STEL 450 ppm; LD\(_{50}\) (oral, rat) 10,300 mg/kg, (IP, rat) 3593 mg/kg; poison by IV; mod. toxic by ing., inh., skin contact; primary irritant to eyes, tissue, skin, respiratory tract; vapor inh. produces CNS effects; overexposure can cause headache, lassitude, poor equilibrium, eye irritation, dermatitis, cardiac arrhythmias; narcotic in high concs. causing unconsciousness, coma; tumorigen; mutagen; reproductive effects; TSCA listed

Environmental: Ozone-depleting; ThOD 0.48

Precaution: Nonflamm., but vapor may burn in presence of oxidizers or ignition source; LEL 7.5%; UEL 12.5%; incompat. with aluminum/magnesium/potassium and alloys, sodium, NaOH, KOH, nitrogen dioxide, oxygen (gas or liq.)

Hazardous Decomp. Prods.: Hydrogen chloride, hydrochloric acid, phosgene; heated to decomp., emits toxic fumes of Cl–

NFPA: Health 2, Flammability 1, Reactivity 0

Storage: Store in cool, dry, well-ventilated, clearly identified area, out of direct sunlight, away from heat/ignition sources

Uses: Solvent in pharmaceuticals

Use Level: 1500 ppm (pharmaceuticals)

Regulatory: FDA 21CFR §175.105, 177.1650; SARA §311/312 acute health/reactivity hazard, §313 reportable; CERCLA hazardous substance; HAP; covered under Montreal Protocol; Canada DSL

Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Alchem Ind.

http://www.allchem.com; Amyl
http://www.amyl.com; Arch Chems.
http://www.archchemicals.com; Arkema
http://www.total.com/
Ashland http://www.ashchem.com; Dow
http://www.dow.com; Fabrichem
http://www.fabricheminc.com; Fluka
http://www.sigma-aldrich.com; Hukill

Handbook of Pharmaceutical Additives, Third Edition 2189
1,1,2-Trichloroethane

CAS 79-00-5; EINECS/ELINCS 201-166-9

Synonyms: Ethane trichloride; 1,1,2-TCE; 1,2,2-Trichloroethane; β-Trichloroethane; Vinyl trichloride

Classification: Halogenated aliphatic hydrocarbon

Empirical: C2H3Cl3

Formula: Cl2CHCH2Cl

Properties: Colorless clear volatile liq.; char. sweet but sl. irritating odor; sol. in ethanol, chloroform, diethyl ether, esters, ketones; misc. with oxygenated and chlorinated solvs.; poorly sol. in water; m.w. 133.41; sp.gr. 1.44 (20 C); m.p. -36.5 C; b.p. 113.8 C; surf. tens. 32.5 dynes/cm (20 C)

Toxicology: ACGIH TLV/TWA 10 ppm (skin); LD50 (oral, rat) 880 mg/kg, (skin, rabbit) 3730 mg/kg; very toxic; poison by ing., IV, subcut. routes; mod. toxic by inh., skin contact, IP routes; eye and severe skin irritant; narcotic; may cause liver/kidney injury; suspected carcinogen; experimental reproductive effects; mutagenic data; TSCA listed

Precaution: Nonflamm., but vapor can be ignited by high-energy source; incompat. with strong oxidizers, strong alkalis, chemically active metals, potassium and alloys, sodium amide; fire and explosion risk

Hazardous Decomp. Prods.: Hydrogen chloride, hydrochloric acid; heated to decomp., emits toxic fumes of Cl⁻

NFPA: Health 2, Flammability 1, Reactivity 0

Storage: Store in clearly identified area accessible to authorized personnel only

Uses: Solvent for pharmaceuticals

Regulatory: FDA 21CFR §175.105; HAP; Canada DSL

Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Sigma http://www.sigma-aldrich.com/belgium

1,2,2-Trichloroethane. See 1,1,2-Trichloroethane

α-Trichloroethane. See 1,1,1-Trichloroethane

β-Trichloroethane. See 1,1,2-Trichloroethane

Trichloroethylene; 1,1,2-Trichloroethylene. See Trichloroethene

Trichloroethylene

CAS 79-01-6; EINECS/ELINCS 201-167-4

UN 1710 (DOT)

Synonyms: Acetylene trichloride; 1-Chloro-2,2-dichloroethylene; 1,1-Dichloro-2-chloroethylene; Ethynyl trichloride; Ethylene trichloride; TCE; Tri; Tric; Trichlor; Trichloran; Trichlorethylene; Trichloroethylene; 1,1,2-Trichloroethylene; 1,1,2-Trichloroethylene

Classification: Aliphatic organic compd.

Empirical: C2HCl3

Formula: CHCl:CCl2

Properties: Colorless, photoreactive liq., chloroform odor; misc. with common org. solvs.; sl. sol. in water; m.w. 131.40; dens. 1.456-1.462; vapor pressure 100 mm Hg (32 C); f.p. -86.8 C; m.p. -73 C; b.p. 86.7 C; flash pt. 89.6 F; autoignition temp. 420 C; ref. index 1.45560 (25 C); surf. tens. 28.8 dynes/cm; KB value 130; dielec. const. 3.42

Toxicology: ACGIH TLV/TWA 50 ppm; STEL 200 ppm; LD50 (oral, rat) 4.92 ml/kg, (IV, mouse) 34 mg/kg; poison by IV, subcut. route; mod. toxic by ing. and IP; mildly toxic by inh.; mildly toxic to humans by ing., inh.; human systemic effects; can cause somnolence, GI changes, jaundice, narcosis, anesthesia; eye, severe skin irritant; chronic exposure causes liver damage; suspected carcinogen; experimental tumorigen, teratogen, reproductive effects; human mutagenic data; TSCA listed

Environmental: VOC; ThOD 0.37

Precaution: Very dangerous fire hazard exposed to heat or flame; LEL 8%; UEL 10.5%; high concs. of vapor in high-temp. air can be made to burn mildly under strong flame; reacts with alkali, epoxides; violent reactions possible; can form HCl gas with
Chemical Component Cross-Reference

1,1,2-Trichloroethylene. See Trichloroethylene

Trichlorofluoromethane
CAS 75-69-4; EINECS/ELINCS 200-892-3

†=pharmaceutical grade

Synonyms: CFC 11; F 11; FC 11; Fluorocarbon 11; Fluorotrichloromethane; Freon 11; Freon HE; Halocarbon 11; Methane, trichlorofluoro-;
Monofluorotrichloromethane; Propellant 11; R 11; Trichloromonofluoromethane

Classification: Halogenated aliphatic hydrocarbon

Empirical: CCl₃F

Formula: Cl₃CF

Properties: Colorless clear volatile liq. or gas; nearly odorless @ < 20% conc., faint sweet odor at high concs.; sol. in alcohol, ether; insol. in water; m.w. 137.4; sp.gr. 1.494 (liq., 17.2 C); f.p. -111 C; b.p. 23.7 C; ref. index 1.379; surf. tens. 18 dynes/cm; dielec. const. 2.303; noncombustible

Toxicology: ACGIH TLV/CL 1000 ppm; LD50 (IP, mouse) 1743 mg/kg; TDLo (inh., human, 30 min) 50,000 ppm; poison by inh.; mod. toxic by IP route; human systemic effects; CNS effects @ > 1% conc.; can cause narcosis and anesthesia in humans; severe exposure can cause nausea, vomiting, irregular heartbeat, cardiac arrest, death; TSCA listed

Precaution: Incompat. with reactive metals, e.g., powd. aluminum, sodium, potassium (can react violently), lithium (can detonate)

Hazardous Decomp. Prods.: Heated to decomp., emits highly toxic fumes of F⁻ and Cl⁻

Storage: Store liq. in cool, dry, well-ventilated area

Uses: Aerosol propellant in pharmaceutical inhalants

Regulatory: FDA 21CFR §710.3; FDA approved for inhalants; USP/NF compliance; SARA §313 reportable; CERCLA hazardous substance; Canada DSL


†=pharmaceutical grade

Synonyms: CFC 11; F 11; FC 11; Fluorocarbon 11; Fluorotrichloromethane; Freon 11; Freon HE; Halocarbon 11; Methane, trichlorofluoro-;
Monofluorotrichloromethane; Propellant 11; R 11; Trichloromonofluoromethane

Classification: Halogenated aliphatic hydrocarbon

Empirical: CCl₃F

Formula: Cl₃CF

Properties: Colorless clear volatile liq. or gas; nearly odorless @ < 20% conc., faint sweet odor at high concs.; sol. in alcohol, ether; insol. in water; m.w. 137.4; sp.gr. 1.494 (liq., 17.2 C); f.p. -111 C; b.p. 23.7 C; ref. index 1.379; surf. tens. 18 dynes/cm; dielec. const. 2.303; noncombustible

Toxicology: ACGIH TLV/CL 1000 ppm; LD50 (IP, mouse) 1743 mg/kg; TDLo (inh., human, 30 min) 50,000 ppm; poison by inh.; mod. toxic by IP route; human systemic effects; CNS effects @ > 1% conc.; can cause narcosis and anesthesia in humans; severe exposure can cause nausea, vomiting, irregular heartbeat, cardiac arrest, death; TSCA listed

Precaution: Incompat. with reactive metals, e.g., powd. aluminum, sodium, potassium (can react violently), lithium (can detonate)

Hazardous Decomp. Prods.: Heated to decomp., emits highly toxic fumes of F⁻ and Cl⁻

Storage: Store liq. in cool, dry, well-ventilated area

Uses: Aerosol propellant in pharmaceutical inhalants

Regulatory: FDA 21CFR §710.3; FDA approved for inhalants; USP/NF compliance; SARA §313 reportable; CERCLA hazardous substance; Canada DSL

Chemical Component Cross-Reference

Trade Names: Genetron® 11

Trichloroform. See Chloroform
4,1’,6’-Trichlorogalactosacrose. See Sucralose

2,4,4’-Trichloro-2’-hydroxydiphenyl ether. See Triclosan

Trichloromethane. See Chloroform
N-Trichloromethylmercapto-4-cyclohexene-1,2-dicarboximide. See Captan

Trichloromethylenemethane. See 1,1,1-Trichloroethane
1,1,1-Trichloro-2-methyl-2-propanol. See Chlorobutanol
1,1,1-Trichloro-2-methyl-2-propanol hemihydrate. See Chlorobutanol hemihydrate

N-Trichloromethylthio-4-cyclohexene-1,2-dicarboximide; N-(Trichloromethylthio)cyclohex-4-ene-1,2-dicarboximide; N-Trichloromethylthiotetrahydrophthalimide. See Captan

Trichloromonomofluoromethane. See Trichlorofluoromethane

Trichlorophene. See Hexachlorophene
Trichlorophenolsilane. See Phenyltrichlorosilane

Trichlorophosphate oxide; Trichlorophosphorous oxide. See Phosphorus oxychloride

Trichlorostibine. See Antimony trichloride

Trichlorotrifluoroethane

CAS 76-13-1; EINECS/ELINCS 200-936-1

Synonyms: CFC 113; Chlorofluorocarbon 113; Ethane, 1,1,2-trichloro-1,2,2-trifluoro; FC 113; Fluorocarbon 113; Freon 113; Halocarbon 113; R 113; Refrigerant 113; TCTFE; 1,1,2-Trichloro-1,2,2-trifluoroethane; TTE

Classification: Halogenated aliphatic hydrocarbon

Empirical: C_{2}Cl_{3}F_3

Formula: CICF_{2}CCl_{2}F

Properties: Colorless volatile gas; nearly odorless to sweet ether-like odor at high concs.; sol. in alcohol, ether, benzene; very sl. sol. in water; m.w. 187.37; dens. 1.42; vapor pressure 362 mm Hg; f.p. -35 C; m.p. 13.2 C; b.p. 47.6 C; ref. index 1.355; surf. tens. 17.75 dynes/cm; dielec. const. 2.41; noncombustible

Toxicology: ACGIH TLV/TWA 1000 ppm; STEL 1250 ppm; LD{sub 50} (oral, rat) 43 g/kg; LCLo (inh., rat, 6 h) 87,000 ppm; mildly toxic by ing. and inh.; primary skin irritant; may cause eye irritation, drying/cracking of skin; high concs. may cause CNS symptoms, dizziness, headache; TSCA listed

Environmental: ThOD 0.09

Precaution: Combustible exposed to heat or flame; incomp. with chemically active metals (calcium, powd. aluminum, zinc, magnesium, beryllium, titanium, samarium, lithium, barium); may react explosively

NFPA: Health 2, Flammability 0, Reactivity 0

Storage: Store in cool, dry, well-ventilated area; avoid handling near 260 C (dec.)

Uses: Aerosol propellant

Regulatory: FDA 21CFR §173.342; SARA §311/312 acute health/chronic health hazard, §313 reportable; Canada DSL

Manuf./Distrib.: Air Prods.

http://www.airproducts.com; Aldrich

http://www.sigma-aldrich.com; Allchem Ind.

http://www.allchem.com; Arkema

http://www.total.com; BCH Brühl

http://www.bch-bruehl.de

Burdick & Jackson http://www.bandj.com;

Fluka http://www.sigma-aldrich.com;

Honeywell Perf. Polymers

http://www.honeywellppc.com;

http://www.honeywell-plastics.com;

Matheson Gas Prods.

http://www.mathesongas.com; Romil Ltd

http://www.romil.com


Trade Names: Genesolv® D

1,1,2-Trichloro-1,2,2-trifluoroethane. See Trichlorotrifluoroethane

Triclocarban (INCI). See 3,4,4´-Trichlorocarbanilide

Triclosan

CAS 3380-34-5; EINECS/ELINCS 222-182-2

Synonyms: 5-Chloro-2-(2,4-dichlorophenoxy)phenol; 2´-Hydroxy-2,4,4´-trichlorophenyl ether; 2,4,4´-Trichloro-2´-hydroxydiphenyl ether

Classification: Substituted organic ether

Empirical: C_{12}H_{7}Cl_{3}O_2

Properties: Off-wh. cryst. powd. or soft agglomerate; sol. in org. solvs.; insol. in water; m.w. 289.54; m.p. 54-57 C

Toxicology: LD{sub 50} (oral, rat) 3700 mg/kg, (subcut., rat) 3900 mg/kg, (IV, rat) 19 mg/kg, (IP, mouse) 84 mg/kg, (skin, rat) 9300 mg/kg; poison by IV and IP routes; mod.
Chemical Component Cross-Reference

†=pharmaceutical grade

Tridecenc-2-al-1; (E)-2-Tridecenc-1-al; trans-2-Tridecencal. See 2-Tridecencal

Trideceth
CAS 24938-91-8 (generic)
Synonyms: Ethoxylated tridecyl alcohol; Isotridecanol ethoxylates
Definition: PEG ether of tridecyl alcohol; commercial prods. contain 3-20 moles EO
Formula: \((\text{C}_2\text{H}_4\text{O})_x\text{C}_{13}\text{H}_{28}\text{O}, x = 3-20\)
Properties: Liq. to paste; HLB 8-16.3 (3-20 moles EO); nonionic; HLB 8.0-16.3
Toxicology: TDLo (oral, rat, 13 wk continuous) 45 g/kg; primary irritant; TSCA listed
Uses: Emulsifier, wetting agent for pharmaceuticals

Trideceth-10
CAS 24938-91-8 (generic); 78330-21-9 (generic)
Synonyms: PEG-10 tridecyl ether; PEG 500 tridecyl ether; POE (10) tridecyl ether
Definition: PEG ether of tridecyl alcohol
Empirical: \(\text{C}_{33}\text{H}_{68}\text{O}_x\)
Formula: \(\text{CH}_3(\text{CH}_2)_{11}\text{CH}_2(\text{OCH}_2\text{CH}_2)_{n}\text{OH}, \text{avg. } n = 10\)
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier, detergent, wetting agent, foaming agent, solubilizer for pharmaceuticals, topicals
Regulatory: FDA 21CFR §175.105, 176.200, 176.210; FDA approved for topicals
Manuf./Distrib.: Sigma http://www.sigma-aldrich.com/belgium
Trade Names: Volpo T10

Trideceth-15
CAS 24938-91-8 (generic); 78330-21-9 (generic)
Synonyms: PEG-15 tridecyl ether; POE (15) tridecyl ether
Definition: PEG ether of tridecyl alcohol
Empirical: \(\text{C}_{43}\text{H}_{87}\text{O}_x\)
Formula: \(\text{CH}_3(\text{CH}_2)_{11}\text{CH}_2(\text{OCH}_2\text{CH}_2)_{n}\text{OH}, \text{avg. } n = 15\)
Properties: Nonionic
Toxicology: TSCA listed
Uses: Emulsifier
Regulatory: FDA 21CFR §175.105, 176.200, 176.210
Manuf./Distrib.: Sigma http://www.sigma-aldrich.com/belgium
Trade Names: Volpo T15

Trideceth-100
CAS 24938-91-8 (generic)
Synonyms: PEG-100 tridecyl ether; POE (100)
**tridecyl ether**  
*Definition:* PEG ether of tridecyl alcohol  
*Empirical:* $C_{213}H_{427}O_{101}$  
*Formula:* $\text{CH}_3(\text{CH}_2)_{11}\text{CH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH}$, avg. $n = 100$  
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Emulsifier, wetting agent for pharmaceuticals  
*Regulatory:* FDA 21CFR §176.200  
*Manuf./Distrib.:* Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)

Trideceth-7 carboxylic acid  
*CAS:* 56388-96-6 (generic); 68412-55-5 (generic)  
*Synonyms:* PEG-7 tridecyl ether carboxylic acid; POE (7) tridecyl ether carboxylic acid  
*Classification:* Organic acid  
*Empirical:* $C_{27}H_{54}O_9$  
*Formula:* $\text{CH}_3(\text{CH}_2)_{11}\text{CH}_2(\text{OCH}_2\text{CH}_2)_n\text{OCH}_2\text{COOH}$, avg. $n = 6$  
*Toxicology:* TSCA listed  
*Uses:* Detergent, wetting agent for medicated soaps  
*Regulatory:* Canada DSL  
*Manuf./Distrib.:* Sigma [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)  
*Trade Names:* Sandopan® DTC-Acid

Tridecyl neopentanoate  
*CAS:* 106436-39-9  
*Synonyms:* Neopentanoic acid, tridecyl ester  
*Definition:* Ester of tridecyl alcohol and neopentanoic acid  
*Empirical:* $C_{18}H_{36}O_2$  
*Formula:* $(\text{CH}_3)_3\text{CCOO}(\text{CH}_2)_{11}\text{CH}_3$  
*Properties:* Colorless liq.; m.w. 466.83; nonionic  
*Toxicology:* LD50 (oral, rat) > 5 g/kg; minimal eye irritation; mild skin irritation  
*Uses:* Binder, emollient, lubricant, gloss aid, spreading agent for pharmaceuticals, topicals; SPF booster for sunscreens  
*Trade Names:* Ceraphyl® 55; Crodamol TDNP

Tridecyl stearate  
*CAS:* 31556-45-3; EINECS/ELINCS 250-696-7  
*Synonyms:* Octadecanoic acid, tridecyl ester; TDS; Tridecanol stearate  
*Definition:* Ester of tridecyl alcohol and stearic acid  
*Empirical:* $C_{31}H_{62}O_2$  
*Formula:* $\text{CH}_3(\text{CH}_2)_{16}\text{COOCH}_2(\text{CH}_2)_{11}\text{CH}_3$  
*Properties:* Colorless liq.; m.w. 466.83; nonionic  
*Toxicology:* LD50 (oral, rat) > 5 g/kg; minimal eye irritation; mild skin irritation  
*Uses:* Emulsifier, buffer, solubilizer for pharmaceuticals, rectals, topicals, vaginals  
*Use Level:* 2.5% max. in non-rinse-off finished cosmetics  
*Regulatory:* FDA 21CFR §173.315, 175.105, 175.300, 175.380, 175.390, 176.170, 176.180, 176.390, 176.400; TSCA listed

*Chemical Component Cross-Reference*  
†=pharmaceutical grade  
*Properties:* Colorless liq.; m.w. 466.83; nonionic  
*Toxicology:* TSCA listed  
*Uses:* Emollient for pharmaceuticals, creams and lotions  
*Regulatory:* Canada DSL  
*Manuf./Distrib.:* St. Lawrence [http://www.stlawrencechem.com](http://www.stlawrencechem.com)

Tridocosanoin. See Tribehenin  
Trien; Trientine. See Triethylenetetramine

Triethanolamine  
*CAS:* 102-71-6; EINECS/ELINCS 203-049-8  
*Synonyms:* 2,2´,2´´-Nitroliotriethanol; 2,2´,2´´-Nitroliotris (ethanol); TEA; TELA; Triethylolamine; Tri (2-hydroxyethyl)amine; Trihydroxytriethylamine; Tris (2-hydroxyethyl) amine; Trolamine  
*Classification:* Aliphatic amino alcohol; alkanolamine  
*Empirical:* $C_6H_{15}NO_3$  
*Formula:* $N(\text{CH}_2\text{CH}_2\text{OH})_3$  
*Properties:* Colorless to pale yel. visc. liq., sl. ammoniaca odor; sol. in water, alcohol, acetone, chloroform; sl. sol. in benzene, ether; m.w. 149.19; dens. 1.126; m.p. 21.2 °C; b.p. 335 °C (dec.); flash pt. 179 °C; ref. index 1.4835; pH 10.5 (0.1N aq.); surf. tens. 45.24 dynes/cm  
*Toxicology:* ACGIH TLV/TWA 5 mg/m³; LD50 (oral, rat) 8 g/kg; mod. toxic by IP; mildly toxic by ing. (irritation of mouth, abdominal pain, vomiting, diarrhea); human skin irritant; eye irritant; skin sensitizer; TSCA listed  
*Environmental:* VOC; BOD5 0.84; COD 1.53; ThOD 1.61  
*Precaution:* Combustible when exposed to heat or flame; LEL 1.2%; incompat. with oxidizers, strong acids; can react vigorously with oxidizing materials; increased risk of fire or explosion  
*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of NOx and CN⁻  
*NFPA:* Health 2, Flammability 1, Reactivity 1  
*Storage:* Very hygroscopic; light-sensitive; store in cool, dry, well-ventilated area away from heat/ignition sources  
*Uses:* Alkalizer, buffer, emulsifier, solubilizer for pharmaceuticals, rectals, topicals, vaginals  
*Use Level:* 2.5% max. in non-rinse-off finished cosmetics  
*Regulatory:* FDA 21CFR §173.315, 175.105, 175.300, 175.380, 175.390, 176.170, 176.180, 176.390, 176.400; TSCA listed

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### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Component</th>
<th>Manufacturer/Supplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triethanolamine alginate</td>
<td>See TEA-alginate</td>
</tr>
<tr>
<td>Triethanolamine alkylbenzene sulfonate</td>
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</tr>
<tr>
<td>Triethanolamine DBS; Triethanolamine dodecylbenzene sulfonate</td>
<td>See TEA-dodecylbenzenesulfonate</td>
</tr>
<tr>
<td>Triethanolamine dodecyl sulfate</td>
<td></td>
</tr>
<tr>
<td>Triethanolamine lauryl sulfate</td>
<td>See TEA-lauryl sulfate</td>
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<tr>
<td>Triethanolamine monooleate ester</td>
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<tr>
<td>Triethanolamine oleate; Triethanolamine oleate soap</td>
<td>See TEA-oleate</td>
</tr>
<tr>
<td>Triethanolamine stearate</td>
<td></td>
</tr>
<tr>
<td>Triethanolammonium dodecylbenzenesulfonate</td>
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<tr>
<td>Triethanolammonium lauryl sulfate</td>
<td>See TEA-lauryl sulfate</td>
</tr>
<tr>
<td>Trieth acylcitrate; Triethyl o-acetyl citrate</td>
<td>See Acetyl triethyl citrate</td>
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<tr>
<td>Triethyl carboxymethyl phosphonate</td>
<td>See Triethyl phosphonoacetate</td>
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<tr>
<td>Triethyl citrate</td>
<td></td>
</tr>
<tr>
<td>CAS 77-93-0; EINECS/ELINCS 201-070-7</td>
<td></td>
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<tr>
<td>FEMA 3083; INS1505</td>
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</tbody>
</table>

### Synonyms
- Ethyl citrate; 2-Hydroxy-1,2,3-propanetricarboxylic acid, triethyl ester; TEC; Triethyl-2-hydroxypropan-1,2,3-tricarboxylate

### Definition
Triester of ethyl alcohol and citric acid

### Empirical
- \( C_{12}H_{20}O_7 \)

### Formula
- \( C_3H_5O(COOC_2H_5)_3 \)

### Properties
- Colorless mobile oily liq., odorless, bitter taste; sol. 65 g/100 cc water; sol. 0.8 g/100 cc oil; sol. in oxygenated solvs.; misc. with alcohol, ether; m.w. 276.32; dens. 1.136 (25 C); vapor pressure 1 mm Hg (107 C); b.p. 294 C; flash pt. (COC) 303 F; ref. index 1.4420

### Toxicology
- LD50 (oral, rat) 5900 mg/kg, (IP, mouse) 1750 mg/kg, (subcut., rat) 6600 mg/kg; LC50 (inh., rat, 6 h) 1300 ppm; mod. toxic by IP route; mildly toxic by ing., inh.; irritating to skin, eyes, respiratory system; risk of serious damage to eyes; may cause skin sensitization; may cause sensitization by inh.; TSCA listed

### Precaution
- Combustible exposed to heat or flame; wear protective clothing; incompat. with strong oxidizers, reducers

### Hazardous Decomp. Prods.
- Heated to decomp., emits acrid smoke and irritating fumes

### Storage
- Store at 40-70 F in tightly sealed original containers with minimum head space;
Chemical Component Cross-Reference

**Trade Names:** Citrofol® AI; TEC, NF

**Triethylene glycol**

CAS **112-27-6**; EINECS/ELINCS **203-953-2**

**Synonyms:** 1,2-Bis (2-hydroxyethoxy) ethane; Di-β-hydroxyethoxyethane; 3,6-Dioxoactone-1,8-diol; 2,2’-[1,2-Ethanediylbis (oxy)] bisethanol; 2,2’-Ethylendioxydiethanol; 2,2’-Ethylendioxyethanol; Ethylene glycol bis (2-hydroxyethyl ether); Ethylene glycol dihydroxydiethyl ether; Glycol bis (hydroxyethyl) ether; TEG; Triglycerol

**Classification:** Aliphatic alcohol; glycol ether

**Uses:** Flavor, plasticizer for pharmaceuticals, orals; deodorant active

**Features:** Sweet plum-like flavor

**Regulatory:** FDA 21CFR §175.300, 175.320, 181.22, 181.27, 184.1911, GRAS; FEMA GRAS; FDA approved for orals; USP/NF, BP, EP compliance; Australia AICS; Canada DSL; Japan MITI


**Empirical:** C₆H₁₄O₄

**Formula:** HOCH₂CH₂OCH₂CH₂OCH₂CH₂OH

**Properties:** Colorless clear liq., odorless; sol. in water, ethanol, toluene, benzene, oxygenated solvs.; sparingly sol. in diethyl ether; immisc. with gasoline; m.w. 150.17; sp.gr. 1.12 (20 C); visc. 49 cP; vapor pressure 1 mm Hg (114 C); f.p. -7.2 C; b.p. 278 C; flash pt. (PMCC) 166 C; autoignition temp. 371 C; ref. index 1.4550; surf. tens. 45.2 dynes/cm

**Exposure:** avoid prolonged exposure to light, heat, cold, air

**Toxicology:** LD₅₀ (oral, rat) 17 g/kg, (IV, rat) 11,700 µg/kg, (IP, mouse) 8141 mg/kg; poison by IV route; mildly toxic by ing.; skin and eye irritant; experimental reproductive effects; TSCA listed

**Environmental:** VOC; BOD₅ 0.03; COD 1.57; ThOD 1.60

**Precaution:** Combustible exposed to heat or flame; LEL 0.9%;UEL 9.2%; reactive with oxidizing materials; explosive as vapor exposed to heat, flame

**Hazardous Decomp. Prods.:** CO, CO₂; heated to decom., emits acrid smoke and irritating fumes

**NFPA:** Health 1, Flammability 1, Reactivity 0

**Storage:** Hygroscopic

**Uses:** Solvent for pharmaceuticals

**Regulatory:** FDA 21CFR §175.105, 175.300, 177.1200, 178.3740, 178.3910, 179.45; Canada DSL

Chemical Component Cross-Reference

Chem. http://www.salchem.com; Shell†
http://www.shellchemicals.com;
http://www.shell-lubricants.com; Spectrum
Quality Prods.;†
http://www.spectrumchemical.com
Universal Preserv-A-Chem†
http://www.upichem.com; VWR Int’l.;†
http://www.vwrsp.com

Triethylene glycol dimethyl ether. See PEG-3
dimethyl ether
Triethylene glycol dodecyl ether. See
Laureth-3
Triethylenetetramine
CAS 112-24-3; EINECS/ELINCS 203-950-6
UN 2259 (DOT)
Synonyms: N,N´-Bis (2-aminoethyl)-1,2-
diaminoethane; N,N´-Bis (2-aminoethyl)-1,2-
ethanediamine; N,N´-Bis (2-aminoethyl)
ethylenediamine; N,N´-Bis (2-aminoethyl)-
1,2-ethylenediamine; 3,6-Diazaoctane-1,8-
diamine; TET; TETA; 1,4,7,10-
Tetraazadecane; Trien; Trientine
Classification: Aliphatic polyamine
Empirical: C6H18N4
Formula: NH2(C2H4NH)2C2H4NH2
Properties: Ylsh. mod. visc. oily liq.; weak
ammoniacal odor; sol. in water, alcohol,
acetone, benzene, ethyl ether; misc. with
oxygenated and aromatic solvs.; sl. sol. in
heptane; immisc. with aliphatic solvs.; m.w.
146.23; dens. 0.9818 (20/20 C); m.p. 12 C;
b.p. 277.5 C; pour pt. < -40 C; flash pt. (CC)
146.23; dens. 0.9818 (20/20 C); m.p. 12 C;
b.p. 277.5 C; pour pt. < -40 C; flash pt. (CC)
275 F; ref. index 1.4971 (20 C); pH 14
Toxicology: LD50 (oral, rat) 2.5 g/kg, (IV,
mouse) 350 mg/kg, (dermal, rabbit) 805
mg/kg; poison by IV route; mod. toxic by
ing. and skin contact; strong irritant to
tissue, mucous membranes; skin burns,
eye damage; causes skin sensitization;
experimental teratogen, reproductive
effector; mutagenic data; TWA: OSHA 3.00
ppm, ACGIH 0.46 ppm; TSCA listed
Precaution: DOT: Corrosive material;
combustible exposed to heat or flame; can
react with oxidizers; ignites on contact with
cellulose nitrate (high surf. area); may
absorb CO2 from air to form carbamate
salts
Hazardous Decomp. Prods.: CO, CO2,
hydrogen cyanide, ammonia, volatile
amines, irritating aldehydes and ketones;
heated to decomp., emits toxic fumes of
NOx

NFPA: Health 3, Flammability 1, Reactivity 0
Storage: Hygroscopic
Uses: Synthesis of pharmaceuticals;
biomaterial in topicals, slow-release and
microencapsulation prods.; treatment of
Wilson’s disease
Regulatory: FDA 21CFR §176.170, 177.2600;
Canada DSL
Manuf./Distrib.: Aldrich† http://www.sigma-
aldrich.com; Alkyl Amines Chems. Ltd
http://www.alkylamines.com; Allchem Ind.
http://www.allchem.com; Ashland
http://www.ashchem.com; Bencorp Int’l.
Brook-Chem http://www.brookchem.com;
Coyne http://www.coynechemical.com;
Dow http://www.dow.com; Filo
http://www.filocalochemical.com; Fluka
http://www.sigma-aldrich.com
Houghton Chem.
http://www.houghtonchemical.com; J.H.
Calo http://www.jhcalo.com; Loos &
Dilworth http://www.loosanddilworth.com;
Rit-Chem http://www.ritchem.com; Sigma
http://www.sigma-aldrich.com/belgium
Sumitomo Seika
http://www.sumitomoseika.co.jp; Tosoh
http://www.tosoh.co.jp

Tri (ethylhexyl) trimellitate. See Tri-2-
ethylhexyl trimellitate
Tri-2-ethylhexyl trimellitate
CAS 3319-31-1; EINECS/ELINCS 222-020-0
Synonyms: 1,2,4-Benzenebicarboxylic acid,
tris (2-ethylhexyl) ester; 2-Ethylhexyl
trimellitate; TEHTM; Tri (ethylhexyl)
trimellitate; Tri (2-ethylhexyl) trimellitate
ester; Trimellitate tris (2-ethylhexyl) ester;
Tris (2-ethylhexyl) benzene-1,2,4-
tricarboxylate; Tris (2-ethylhexyl) ester
1,2,4-benzencarboxylic acid; Tris (2-
ethylhexyl) trimellitate
Classification: Aromatic ester
Empirical: C33H54O6
Formula: C6H3(COOC8H17)3
Properties: Colorless to yel. clear oily liq.; mild
odor; sol. in acetone; sol. 10-50 mg/ml in
DMSO, 95% ethanol; insol. in water; m.w.
546.87; dens. 0.989 kg/l (20 C); f.p. gel @ -35
C; b.p. 415 C; flash pt. (CC) 235 F; ref. index
1.4850
Toxicology: LD50 (oral, mouse) > 60 g/kg; very
low toxicity by ing.; TSCA listed
Precaution: Combustible
Chemical Component Cross-Reference

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating vapors

Storage: Store under freeze conditions; store away from sources of ignition

Uses: Plasticizer in medical devices

Regulatory: Canada DSL


Trade Names: Velsicol 6959

Tri (2-ethylhexyl) trimellitate ester. See Tri-2-ethylhexyl trimellitate

Triethyl-2-hydroxypropan-1,2,3-tricarboxylate. See Triethyl citrate

Triethanolamine. See Triethanolamine

Triethyl phosphonoacetate
CAS 867-13-0; EINECS/ELINCS 212-757-6

Synonyms: Acetic acid, diethylphosphono-, ethyl ester; Carbethoxymethyl diethyl phosphonate; Diethyl ethoxycarbonylmethylphosphonate; Ethyl (diethoxyphosphoryl) acetate; Triethyl carboxymethyl phosphonate; Triethyl phosphono acetate

Classification: Nonaromatic phosphorus compd.

Empirical: C9H17O5P

Properties: M.w. 224.22; dens. 1.130; b.p. 142-145 C (9 mm); ref. index 1.4310

Toxicology: LD50 (oral, rat) > 500 mg/kg; LCLo (inh., mouse, 10 min) 1180 mg/m3; mod. toxic by inh.; irritant; TSCA listed

Hazardous Decomp. Prods.: Toxic fumes of POx

Uses: Pharmaceuticals intermediate

Regulatory: FDA 21CFR §178.2010; Canada DSL


Triethyl phosphonoacetate. See Triethyl phosphonoacetate

Triethyl phosphonoformate
CAS 1474-78-8; EINECS/ELINCS 216-016-8

Classification: Nonaromatic phosphorus compd.

Empirical: C7H15O5P

Properties: M.w. 210.17; dens. 1.110; b.p. 135 C (0.1 mm); ref. index 1.4230

Toxicology: TSCA listed

Uses: Pharmaceutical intermediate


Triflic acid. See Trifluoromethane sulfonic acid

Trifluorochloromethane. See Chlorotrifluoromethane

Trifluoroethanol. See 2,2,2-Trifluoroethanol

2,2,2-Trifluoroethanol
CAS 75-89-8; EINECS/ELINCS 200-913-6

Synonyms: TFE; TFEA; Trifluoroethanol; Trifluoroethyl alcohol

Empirical: C2H3F3O

Formula: CF3CH2OH

Properties: Colorless liq.; alcoholic odor; misc. with water; m.w. 100.04; dens. 1.390 (20 C); m.p. -45 C; b.p. 72-74 C; ref. index < 1.3000

Toxicology: LD50 (oral, rat) 240 mg/kg, (IP, rat) 210 mg/kg, (IV, mouse) 250 mg/kg, (skin, rat) 1680 mg/kg; LC50 (inh., mouse) 2900 mg/m3; poison by ing., IV, IP routes; mod. toxic by inh., skin contact; severe skin and eye irritant; irritating to respiratory system; experimental reproductive effects; TSCA listed

Precaution: Flamm.

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of F–

Uses: Intermediate for pharmaceuticals; used
### Chemical Component Cross-Reference

<table>
<thead>
<tr>
<th>Substance</th>
<th>CAS Number</th>
<th>Synonyms</th>
<th>Uses</th>
<th>Regulatory</th>
<th>Manuf./Distrib.</th>
<th>Trade Names Containing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trifluoroethyl alcohol</td>
<td>75-46-7</td>
<td>Carbon trifluoro; Fluoroform; Freon 23; Halocarbon 23; HCFC 23; HFC 23; Hydrofluorocarbon 23; Methane, trifluoro; Methyl trifluoro; Propellant 23; R 23; Refrigerant 23</td>
<td>None; ref. index 1.331 (20 C)</td>
<td>Corrosive irritant to skin, eyes, mucous membrane; TSCA listed</td>
<td>Contractor, distributor, and end user responsibilities</td>
<td>Aldrich; Fluka; Halocarbon Prods.</td>
</tr>
<tr>
<td>Trifluoromethane sulfonic acid</td>
<td>1493-13-6</td>
<td>Magic acid; Triflic acid; Trifluoromethyl sulfonic acid</td>
<td>Catalytic hydrogenation; solvolytic acylation; Step in the synthesis of polyglyceryl-3 succinate ethyl ester</td>
<td>FDA 21CFR §173.395; Canada DSL</td>
<td>Alliance, distributor, and end user responsibilities</td>
<td>Aldrich; Fluka; Halocarbon Prods.</td>
</tr>
<tr>
<td>Trifluoromethane</td>
<td>75-46-7</td>
<td>Carbon trifluoro; Fluoroform; Freon 23; Halocarbon 23; HCFC 23; HFC 23; Hydrofluorocarbon 23; Methane, trifluoro; Methyl trifluoro; Propellant 23; R 23; Refrigerant 23</td>
<td>None; ref. index 1.331 (20 C)</td>
<td>Corrosive irritant to skin, eyes, mucous membrane; TSCA listed</td>
<td>Contractor, distributor, and end user responsibilities</td>
<td>Aldrich; Fluka; Halocarbon Prods.</td>
</tr>
</tbody>
</table>

### Properties

- **Empirical:** CHF₃
- **Formula:** CHF₃
- **Properties:** Colorless to amber clear liquid; sol. in water, alcohol, dimethylformamide, acetonitrile, dimethyl sulfoxide; m.w. 70.02; sp.gr. 0.8781; dens. 1.152 (lq., -100 C); m.p. -160 C; b.p. -84 C; sol. in water; m.w. 70.02; sp.gr. 0.8781; dens. 1.708 (20/4 C); m.p. 40 C; b.p. 167-180 C; flash pt.

### Toxicology

- **Mild respiratory irritant; avoid inhalation; narcotic in high conc.; target organ: heart; mutagen; TSCA listed**

### Environmental

- **ThOD 0.23**
- **Replacement for CFC but characterized as global warming gas by the Kyoto Conference on Climate Change**

### Hazardous Decomp. Prods.

- **Heated to decompts., emits toxic fumes of F⁻ and SOₓ**

### Storage

- Store away from heat

### Uses

- Low-temp. refrigerant

### Regulatory

- FDA 21CFR §173.395; Canada DSL

### Manuf./Distrib.

- Aldrich; Fluka; Halocarbon Prods.; Romil Ltd; Sigma; Solvay GmbH; Tosoh

### Trade Names Containing

- KLEA 508A

### References

- http://www.sigma-aldrich.com/belgium
- http://www.romil.com
- http://www.halocarbon.com
### 1,3,5-Trihydroxybenzene

**CAS**: 108-73-6; 6099-90-7 (dihydrate); EINECS/ELINCS 203-611-2

**Synonyms**: Benzene-1,3,5-triol; 1,3,5-Benzenetriol; Benzene-s-triol; 3,5-Dihydroxyphenol; 5-Hydroxyresorcinol; 5-Oxyresorcinol; Phloroglucin; Phloroglucine; Phlorogluculin; s-Trihydroxybenzene; 1,3,5-Trihydroxycyclohexatriene

**Classification**: Aromatic organic compd.

**Empirical**: C₆H₆O₃

**Formula**: C₆H₃(OH)₃ • 2HOH (dihydrate)

**Properties**: Wh. to ylsh. cryst., odorless, sweet taste; sol. in alcohol, ether, oxygenated solvs.; sl. sol. in water; m.w. 126.12 (anhyd.), 162.14 (dihydrate); m.p. 218-221°C (anhyd.), sublimes with dec.

**Toxicology**: LD₅₀ (oral, rat) 5200 mg/kg, (IP, rat) 3180 mg/kg, (subcut., rat) 4850 mg/kg; mod. toxic by subcut., IP routes; mildly toxic by ing.; ing. may cause severe GI irritation, kidney/liver damage, circulatory collapse, and death; experimental reproductive effects; mutagenic data; TSCA listed

**Hazardous Decomp. Prods.**: Heated to decomp., emits acrid smoke and irritating fumes

**HMIS**: Health 1, Flammability 0, Reactivity 0

**Storage**: Light-sensitive

**Uses**: Antioxidant for pharmaceuticals

**Regulatory**: Canada DSL


**Trade Names**: Thixcin® R

### Uses

- Binder, lubricant for pharmaceuticals
- Emollient, solvent, visc. control agent for pharmaceuticals, topicals

**Regulatory**: FDA approved for topicals; Canada DSL

**Trade Names**: See Thixcin® R

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### 1,2,6-Trihydroxyhexane

**CAS**: 139-44-6; EINECS/ELINCS 205-364-6

**Synonyms**: Glycerol tri (12-hydroxystearate); Glycerol tris-12-hydroxystearate; 12-Hydroxyoctadecanoic acid, 1,2,3-Propanetriyl ester; 1,2,3-Propanetriol tri (12-hydroxystearate); 1,2,3-Propanetriol tri (12-hydroxyoctadecanoate)

**Definition**: Triester of glycerin and hydroxystearic acid

**Empirical**: C₅₇H₁₁₀O₉

**Properties**: Ylsh. to milky wh. hard brittle wax-like solid; insol. in water; m.w. 939.50; dens. 0.899 (100/25°C); m.p. 86-88°C

**Uses**: Binder, lubricant for pharmaceutical tablets; emollient, solvent, visc. control agent for pharmaceuticals, topicals

**Regulatory**: FDA approved for topicals; Canada DSL

**Trade Names**: Thixcin® R
Chemical Component Cross-Reference
Trihydroxytriethylenamine; 2,2’,2”- Trihydroxytriethylenamine. See Triethanolamine
Triisooctadecyl trimerate. See Triisostearyl trilinoleate
Triiron tetraoxide. See Iron oxide black
Triisooctadecyl 2-hydroxypropane-1,2,3-tricarboxylate. See Triisostearyl citrate

Triisopropanolamine
CAS 122-20-3; EINECS/ELINCS 204-528-4
Synonyms: 1,1’,1’’-Nitrilotri-2-propanol; 1,1’,1’’-Nitrilotris-2-propanol; TIPA; Tri-2-propanolamine; Tris (2-hydroxypropyl) amine
Classification: Aliphatic amine; amino alcohol
Empirical: C9H21NO3
Formula: N(CH2CHOHCH3)3
Properties: Wh. cryst. solid; ammoniacal odor; very sol. in water; sol. in ethanol, oxygenated and aromatic solvs.; m.w. 191.27; dens. 0.9996 (50/20 C); vapor pressure < 0.01 mm Hg (20 C); m.p. 45 C; b.p. 305 C; flash pt. (OC) 160 C
Toxicology: LD50 (oral, rat) 6500 mg/kg; LDLo (skin, rabbit) 10 g/kg; mildly toxic by skin contact; skin and severe eye irritant; TSCA listed
Precaution: Combustible; hydrolyzes slowly in water; minimize exposure to air
Hazardous Decomp. Prods.: Heated to decom., emits toxic fumes of POx
Storage: Moisture-sensitive
Uses: Intermediate for pharmaceuticals

Triisostearin
CAS 26942-95-0; EINECS/ELINCS 248-122-5
Synonyms: Glyceryl triisostearate; 1,2,3-Propanetriyl triisooctadecanoate; 1,2,3-Propenetriol triisooctadecanoate
Definition: Triester of glycerin and isostearic acid
Empirical: C57H110O6
Properties: TSCA listed
Uses: Emollient in dermatological preps.
Trade Names: Saboderm GS

Triisostearin PEG-6 esters
Definition: Mixt. formed from the transesterification of triisostearin and PEG-6
Uses: Emollient, excipient, solvent for pharmaceuticals; amphiphilic agent improving drug delivery
Trade Names: Labrafil® Isostearique

Triisostearyl citrate
CAS 113431-54-2
Synonyms: Citric acid, triisostearyl ester; TISC; Triisooctadecyl 2-hydroxypropane-1,2,3-tricarboxylate
Definition: Triester of isostearyl alcohol and citric acid
Empirical: C60H116O7
Uses: Emollient, gloss aid in pharmaceuticals, topicals; emollient, pigment wetting agent/dispersant in skin care
Trade Names: Schercemol TISC

†=pharmaceutical grade
Classification: Nonaromatic phosphorus compd.
Empirical: C9H21O3P
Formula: [(CH3)2CH]3PO3
Properties: Colorless liq.; char. odor; misc. with most common org. solvs.; insol. in water; m.w. 208.27; dens. 0.914 (20/4 C); b.p. 94-96 C (50 mm); flash pt. (COC) 73.9 C; ref. index 1.4110
Toxicology: LD50 (oral, rat) 167 mg/kg, (IP, mouse) 500 mg/kg, (skin, rabbit) > 2 g/kg; poison by ing.; mod. toxic by IP route; irritant; mutagenic data; TSCA listed
Precaution: Combustible; hydrolyzes slowly in water; minimize exposure to air
Hazardous Decomp. Prods.: Heated to decom., emits toxic fumes of POx
Storage: Moisture-sensitive
Uses: Emollient in dermatological preps.
Trade Names: Saboderm GS
Triisostearoyl trilinoleate

CAS 103213-22-5

Synonyms: Triosoctadecyl trimerate; Triisostearyl trimerate; Trimer acid, octadecyl triester

Definition: Triester of isostearyl alcohol and trilinoleic acid

Empirical: C_{108}H_{204}O_{6}

Uses: Emollient, visc. control agent, gloss aid, moisturizer, visc. builder, binder in pharmaceuticals, topicals

Regulatory: Canada DSL

Trade Names: Schercemol TIST

Triisostearyl trimerate. See Triisostearoyl trilinoleate

Trilactin

CAS 537-32-6; EINECS/ELINCS 208-664-5

Synonyms: Glyceryl trilactate; Lactic acid, 1,2,3-propanetriyl ester; 1,2,3-Propanetriol trilactate

Definition: Triester of glycerin and lactic acid

Empirical: C_{12}H_{20}O_{9}

Formula: CH(CH_{2}OCOCH(OH)CH_{3})_{2}OCOCHOHCH_{3}

Uses: Humectant, emollient in pharmaceutical topicals

Trade Names: Pelemol® GTL

Trilaneth-4 phosphate

Synonyms: PEG-4 lanolin ether triphosphate

Definition: Predominantly the triester of phosphoric acid and ethoxylated lanolin alcohols with avg. ethoxylation level of 4

Uses: Visc. control agent in pharmaceuticals, topicals

Regulatory: FDA approved for topicals

Manuf./Distrib.: Somerset Cosmetic Co. http://www.makingcosmetics.com/

Trade Names Containing: Sedefos 75®

Trilaureth-4 phosphate

CAS 31800-90-5

Definition: Triester of laurieath-4 and phosphoric acid

Empirical: C_{60}H_{123}O_{16}P

Properties: Anionic

Uses: O/w emulsifier in pharmaceuticals, topicals

Regulatory: FDA approved for topicals

Manuf./Distrib.: Somerset Cosmetic Co. http://www.makingcosmetics.com/

Trade Names Containing: Pionier® 5300

Trilaurin

CAS 538-24-9; EINECS/ELINCS 208-687-0

†=pharmaceutical grade

Synonyms: Dodecanic acid, 1,2,3-propanetriyl ester; Glycerol trilaurate; Glyceryl tridodecanoate; Glyceryl trilaurate; Lauric acid triglyceride; 1,2,3-Propanetriol tridodecanoate

Definition: Triester of glycerin and lauric acid

Empirical: C_{39}H_{74}O_{6}

Properties: Wh. solid, sl. bay odor; sol. in ether, chloroform, petrol. ether; m.w. 639.01; m.p. 45-47 C

Toxicology: Mild irritant; TSCA listed

Uses: Emollient, solvent, visc. control agent, consistency agent, foaming agent for pharmaceuticals; tablet lubricant, binder, retarding agent

Regulatory: FDA 21CFR §177.2800


Trade Names: Dynasan® 112

Trilithium citrate. See Lithium citrate

Trimellitate tris (2-ethylhexyl) ester. See Tri-2-ethylhexyl trimellitate

Trimer acid, octadecyl triester. See Triisostearyl trilinoleate

Trimetaphosphate sodium. See Sodium trimetaphosphate

Trimethoxyphosphine. See Trimethyl phosphite

Trimethylacetyl chloride. See Pivaloyl chloride

Trimethylamine

CAS 75-50-3

UN 1083 (DOT); UN 1297 (DOT); FEMA 3241

Synonyms: N,N-Dimethylmethanamine; TMA; Trimethylamine, anhydrous; Trimethylamine, aqueous sol'n.

Empirical: C_{3}H_{9}N

Formula: (CH_{3})_{3}N

Properties: Colorless gas @ R.T.; readily liquefied; fishy oily rancid sweaty odor; saline taste; sol. in water, alcohol, ether, benzene, toluene, xylene, chloroform, chlorinated and aromatic solvs.; misc. with oxygenated solvs.; m.w. 59.11; dens. 0.932; m.p. -117 C; b.p. 2.9 C; flash pt. 38 F; ref. index 1.3443

Toxicology: ACGIH TLV/TWA 10 ppm; STEL 15 ppm; LD50 (IV, mouse) 90 mg/kg; LDLo (subcut., mouse) 1000 mg/kg; LC50 (inh., mammal) 19 g/m³; poison by IV route; mod. toxic by subcut. route; mildly toxic by inh.; corrosive; highly irritating vapor; TSCA
Chemical Component Cross-Reference

| Hazardous Decomp. Prods.: | Heated to decomp., emits toxic fumes of NOx |
| Uses: | Synthetic flavor for pharmaceuticals |
| Regulatory: | FDA 21CFR §173.20; FEMA GRAS; Canada DSL |

Manuf./Distrib.: Advanced BioTech
http://www.adv-bio.com; Air Prods.†
http://www.airproducts.com; Celanese
http://www.celanesechemicals.com;
http://www.chemvip.com; Fluka
http://www.sigma-aldrich.com
http://www.chemvip.com
http://www.celanesechemicals.com
http://www.airproducts.com
Canada DSL

†=pharmaceutical grade

end-1,7,7-Trimethylbicyclo [2.2.1] hept-2-yl acetate. See Bornyl acetate
exo-1,7,7-Trimethylbicyclo [2.2.1] hept-2-yl ethanoate. See Isobornyl acetate
exo-1,7,7-Trimethylbicyclo [2.2.1] hept-2-yl formate; exo-1,7,7-Trimethylbicyclo [2.2.1] hept-2-yl methanoate. See Isobornyl formate

(1R-endo)-1,7,7-Trimethylbicyclo [2.2.1] hept-2-yl 3-methylbutanoate. See Bornyl isovalerate
exo-2-((1,7,7-Trimethylbicyclo [2.2.1] hept-2-yl) oxy) ethanol. See (exo)-2-Camphanyl-β-hydroxyethyl ether
exo-1,7,7-Trimethylbicyclo [2.2.1] hept-2-yl propanoate; exo-1,7,7-Trimethylbicyclo [2.2.1] hept-2-yl propionate. See Isobornyl propionate

Endo-1,7,7-trimethyl bicyclo(2.2.1)hept-2-yl valerate. See Bornyl valerate

Trimethyl carbinol. See t-Butyl alcohol
Trimethylcarbinylamine. See t-Butylamine
Trimethylcyclohexylmethylamine. See See Cetrimonium bromide
3,5,5-Trimethylcyclohexan-1-ol. See 3,5,5-Trimethylhexyl acetate
2,6,6-Trimethyl-1 and 2-cyclohexene-1-carboxaldehyde. See β-Cyclocitral

α,α,4-Trimethyl-3-cyclohexene-1-methanol. See α-Terpineol

α,α,4-Trimethyl-3-cyclohexene-1-methyl 2-aminobenzoate. See Terpinyl anthranilate
1,1,3-Trimethyl-3-cyclohexene-5-one; 3,3,5-Trimethyl-2-cyclohexene-1-one. See Isophorone
4-(2,6,6-Trimethyl cyclohexene-1-yl)-butane-2-one. See Dihydro-β-ionone
4-(2,6,6-Trimethyl-1-cyclohexene-1-yl)-3-buten-2-one. See β-Ionone
4-(2,6,6-Trimethyl-2-cyclohexene-1-yl)-3-buten-2-one. See α-Ionone
1-(2,6,6-Trimethyl-2-cyclohexene-1-yl)-1,6-heptadiene-3-one. See Allyl α-ionone
3,3,5-Trimethylcyclohexene-1,3,5-Trimethyl-2-cyclohexene-1-one. See Isophorone
4-(2,6,6-Trimethyl-1-cyclohexene-1-yl) butan-2-one. See Dihydro-β-ionone
4-(2,6,6-Trimethyl-1-cyclohexene-1-yl)-3-buten-2-one. See β-Ionone
4-(2,6,6-Trimethyl-2-cyclohexene-1-yl)-3-buten-2-one. See α-Ionone
1-(2,6,6-Trimethyl-2-cyclohexenyl) hepta-1,6-

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### Chemical Component Cross-Reference

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<th>Chemical Component Cross-Reference</th>
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<td>dien-3-one. See Allyl α-ionone</td>
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<tr>
<td>4-(2,6,6-Trimethyl-2-cyclohexen-1-yl)-3-methyl-3-buten-2-one. See α-Isomethyldione</td>
</tr>
<tr>
<td>1-(2,6,6-Trimethyl-3-cyclohexen-1-yl) pent-1-en-3-one. See Methyl Δ-ionone</td>
</tr>
<tr>
<td>5-(2,6,6-Trimethyl-1-cyclohexen-1-yl)-4-penten-3-one; 5-(2,6,6-Trimethyl-1-cyclohexenyl)-4-penten-3-one. See Methyl β-ionone</td>
</tr>
<tr>
<td>5-(2,6,6-Trimethyl-2-cyclohexen-1-yl)-4-penten-3-one; 5-(2,6,6-Trimethyl-2-cyclohexenyl)-4-penten-3-one. See Methyl α-ionone</td>
</tr>
<tr>
<td>5-(2,6,6-Trimethyl-3-cyclohexen-1-yl)-4-penten-3-one; 5,2,6,6-Tetramethyl-1-cyclohexen-1-yl-4-penten-3-one. See Methyl Δ-ionone</td>
</tr>
<tr>
<td>1-(2,6,6-Trimethyl-1-cyclohex-1-yl)-1-penten-3-one. See Methyl β-ionone</td>
</tr>
<tr>
<td>1-(2,6,6-Trimethyl-2-cyclohex-1-yl)-1-penten-3-one. See Methyl α-ionone</td>
</tr>
<tr>
<td>1,3,7-Trimethyl-2,6-dioxopurine. See Caffeine</td>
</tr>
<tr>
<td>N,N,N-Trimethyl-1-docosanaminium methosulfate. See Behentrimonium methosulfate</td>
</tr>
<tr>
<td>N,N,N-Trimethyl-1-dodecanaminium chloride. See Laurtrimonium chloride</td>
</tr>
</tbody>
</table>

### Trimethylodecatrienole

**CAS**: 142-50-7 (cis); 7212-44-4 (isomers); EINECS/ELINCS 205-540-2 (cis); 230-597-5 (isomers)

**FEMA**: 2772

**Synonyms**: Nerolidol; Peruviol; 3,7,11-Trimethyl-1,6,10-dodecatrien-3-ol; (3S,6Z)-3,7,11-Trimethyl-1,6,10-dodecatrien-3-ol

**Definition**: Found in essential oils from many flowers; mixed isomer prod.

**Empirical**: C₁₅H₂₆O

**Formula**:

$$(CH₃)₂C:CH(CH₂)₂C(CH₃):CH(CH₂)₂(CH₃) \cdot (OH)CH₂CH₂$$

**Properties**: Colorless to straw-colored liq.; odor similar to rose and apple; sol. in alcohol, most fixed oils; insol. in water, glycerol; m.w. 222.36; dens. 0.88 kg/l (20 C); b.p. 145 C (1.6 kPa); cis-; Liq.; dens. 0.876 (20/4 C); b.p. 70 C (0.1 mm); flash pt. 96 C; ref. index 1.4775; trans-; Liq.; b.p. 78 C (0.15 mm); ref. index 1.4792

**Precaution**: Combustible

**Uses**: Synthetic flavor and fragrance for pharmaceuticals

**Features**: Citrus, apple-like flavor

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**Regulatory**: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

**Manuf./Distrib.**: Axxence Aromatic GmbH

http://www.axxence.com;
http://www.axxence.de; BASF

http://www.basf.com; Fleurchem

http://www.fleurchem.com; Fluka

http://www.sigma-aldrich.com; Givaudan

Fragrances http://www.givaudan.com

Lluch Essence http://www.lluch-essence.com; Penta Mfg.,†


Specialties http://www.safcspecialties.com

**Trimethyl dodecatrienol. See Farnesol**

3,7,11-Trimethyl-1,6,10-dodecatrien-3-ol. See Trimethylodecatrienole

3,7,11-Trimethyl-2,6,10-dodecatrien-1-ol. See Farnesol

(3S,6Z)-3,7,11-Trimethyl-1,6,10-dodecatrien-3-ol. See Trimethylodecatrienole

3,7,11-Trimethyl-2,6,10-dodecatrien-1-ol. See Farnesol

3,7,11-Trimethyl-2,6,10-dodecatrien-1-ol, acetate; 3,7,11-Trimethyldeca-2,6,10-trienyl acetate. See Farnesyl acetate

α,α,5-Trimethyl-5-ethenyltetrahydro-2-furanmethanol. See Linalool oxide

Trimethylglycine; Trimethylglycocoll. See Betaine

**Trimethyl glycol. See Propylene glycol**

N,N,N-Trimethyl-1-hexadecanaminium bromide. See Cetrimonium bromide

N,N,N-Trimethyl-1-hexadecanaminium chloride. See Cetrimonium chloride

**Trimethylhexadecylammonium bromide. See Cetrimonium bromide**

3,5,5-Trimethylhexanoic acid, 3,5,5-trimethylhexyl ester. See Isononyl isononanoate

3,5,5-Trimethyl-1-hexanol, acetate. See 3,5,5-Trimethylhexyl acetate

3,5,5-Trimethylhexyl acetate

**CAS**: 58430-94-7; EINECS/ELINCS 261-245-9

**Synonyms**: Acetic acid, 3,5,5-trimethylhexyl ester; 1-Hexanol, 3,5,5-trimethyl-, acetate; 3,5,5-Trimethylcyclohexanol acetate; 3,5,5-Trimethyl-1-hexanol, acetate; 3,5,5-Trimethylhexyl acetate

**Empirical**: C₁₁H₂₂O₂

**Formula**: (CH₃)₃CC₂HCHCH₂CH₂OCOCH₃

**Properties**: Colorless liq.; fruity odor; m.w. 184.28; b.p. 209 C

**Toxicology**: LD₅₀ (oral, rat) 4250 mg/kg, (skin, rabbit) > 5 g/kg; mildly toxic by ing.; TSCA
Chemical Component Cross-Reference

3,5,5-Trimethylhexyl acetic acid. See 3,5,5-
Trimethylhexyl acetate
3,5,5-Trimethylhexyl 3,5,5-trimethylhexanoate.
See Isononyl isononanoate
N,2,3-Trimethyl-2-isopropylbutamide
CAS 51115-67-4; EINECS/ELINCS 256-974-4
FEMA 3804
Synonyms: N-2,3-Trimethyl-2-
isopropylbutanamide; WS-23
Empirical: C10H21NO
Properties: Wh. powd.; m.w. 171.28; m.p. 62-64
C; flash pt. (TCC) > 212 F
Toxicology: Not a skin irritant; no evidence of
hypersensitivity
Uses: Flavor, coolant in pharmaceuticals,
medicinal preps., oral care prods.
Regulatory: FEMA GRAS; DOT: Chemicals n.o.i.
Manuf./Distrib.: Bioindustria L.I.M.†
http://www.bioindustria.it; MelChem
http://www.melchem.com
Trade Names: WINSENSE WS-23
N-2,3-Trimethyl-2-isopropylbutanamide. See N,
2,3-Trimethyl-2-isopropylbutamide
Trimethylmethane. See Isobutane
Trimethyl methanol. See t-Butyl alcohol
4,11,11-Trimethyl-8-methylene, bicyclo [7.2.0]
undec-4-ene. See β-Caryophyllene
Trimethylmyristlammonium bromide. See
Myrtrimonium bromide
1,3,3-Trimethyl-2-norbornanol. See Fenchyl
alcohol
1,3,3-Trimethyl-2-norbornanone. See d-
Fenchone
1,3,3-Trimethylnorbornan-2-one. See l-
Fenchone
d-1,3,3-Trimethyl-2-norbornanone. See d-
Fenchone
L(-)-1,3,3-Trimethyl-2-norbornanone. See l-
Fenchone
1,3,3-Trimethyl-2-norcamphanone; d-1,3,3-
Trimethyl-2-norcamphanone. See d-

†=pharmaceutical grade

Fenchone
1,7,7-Trimethylnorcamphor. See Camphor
N,N,N-Trimethyl-1-octadecanaminium
chloride; Trimethyl octadecyl ammonium
chloride. See Steartrimonium chloride
Trimethyl (octadecyloxy) silane. See
Stearoxytrimethylsilane
Trimethylolnitromethane. See Tris
(hydroxymethyl) nitromethane
Trimethylolpropane tricaprylate/caprate. See
Trimethylolpropane tricaprylate/tricaprate
Trimethylolpropane tricaprylate/tricaprate
CAS 11138-60-6; 68130-52-9; 68956-08-1;
EINECS/ELINCS 268-595-1
Synonyms: (C6-12) Alkyl carboxylic acid,
trimethylolpropane triester; Decanoic acid,
mixed esters with hexanoic acid, octanoic
acid, and trimethylolpropane; 2-Ethyl-2-
[[oxo-octyl/decyl] oxy] methyl]-1,3-
propanediyl octanoate/decanoate; Fatty
acids, C6-12, triesters with
trimethylolpropane; Trimethylolpropane
tricaprylate/caprate
Classification: Triester
Empirical: C36H68O6
Formula: CH3CH2C(CH2OCRO)3, where RCO–
rep. mixt. of caprylic and capric acids
Uses: Excipient in pharmaceutical topicals
Regulatory: Canada DSL; Australia approved for
external medicines
Trade Names: PureSyn™ 3E20
1,3,3-Trimethyl-2-oxabicyclo [2.2.2] octane. See
Eucalyptol
Trimethyl-3-[(1-oxy-10-undecenyl) amino]
propylammonium methyl sulfate. See
Undecylamidopropyl trimonium
methosulfate
Trimethylpentanediol/adipic acid copolymer
Classification: Polyester polymer
Uses: Topical delivery system which
mitigates skin irritation or stinging
Trade Names: Lexorez® TL-8
1,7,7-Trimethyl-3-(phenylmethylene) bicyclo
[2.2.1] heptan-2-one. See 3-Benzylidene
camphor
Trimethyl phosphate
CAS 121-45-9; EINECS/ELINCS 204-471-5
UN 2329 (DOT)
Synonyms: Methyl phosphite; Phosphoric
acid, trimethyl ester; Phosphorus acid,
trimethyl ester; TMPI;
Trimethoxyphosphine; O,O,O-Trimethyl
phosphite
Classification: Aliphatic organic compd.
Empirical: \( \text{C}_3\text{H}_9\text{O}_3\text{P} \)
Formula: \((\text{CH}_3\text{O})_3\text{P}\)
Properties: Colorless liq.; strong sickly odor; sol. in hexane, benzene, acetone, alcohol, ether, CCl_4, kerosene, oxygenated solvs.; insol. in water; m.w. 124.07; dens. 1.046 (20/4 C); m.p. -75 C; b.p. 111 C; flash pt. 54.4 C; ref. index 1.4080
Toxicology: ACGIH TLV/TWA 2 ppm; LD50 (oral, rat) 1600 mg/kg, (IP, mouse) 4180 mg/kg; LDLo (skin, rabbit) 2200 mg/kg; mod. toxic by ing., skin contact; severe eye and skin irritant; experimental teratogen; mutagen; reproductive effector; target organs: eyes, kidneys; TSCA listed
Precaution: Flamm. liq. exposed to heat, flame, or oxidizers; mod. fire risk; violent explosive reactions on contact with magnesium perchlorate
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of POx
Storage: Air- and moisture-sensitive
Uses: Pharmaceutical intermediate; reagent
Regulatory: Canada DSL
Manuf./Distrib.: Aldrich† http://www.sigma-aldrich.com; Fluka http://www.sigma-aldrich.com; Rhodia/Phosphorus Perf.
O,O,O-Trimethyl phosphite. See Trimethyl phosphite
Trimethylpyrazine. See 2,3,5-Trimethylpyrazine
2,3,5-Trimethylpyrazine
CAS 14667-55-1; EINECS/ELINCS 238-712-0
UN 1993; FEMA 3244
Synonyms: Trimethylpyrazine
Classification: pyrazine
Empirical: \( \text{C}_7\text{H}_{10}\text{N}_2 \)
Properties: Colorless to sl. yel. liq.; sweet roasted peanut odor; sol. in water (< 1%), alcohol, org. solvs.; m.w. 122.17; dens. 0.975; vapor dens. 4.2; b.p. 171-172 C; flash pt. 130 F; ref. index 1.503-1.507
Toxicology: LD50 (oral, rat) 806 mg/kg; harmful liq.; mod. toxic by ing.; skin, eye, respiratory system irritant; risk of serious damage to eyes; TSCA listed
Environmental: Do not contaminate water source, sewers
Precaution: Combustible liq.; incompat. with oxidizers, acids, reducers
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx, COx
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FEMA GRAS; Australia AICS; Canada DSL; Japan MITI
\( \alpha \)-(Trimethylsilyl)-\( \omega \)-methylpoly [oxy (dimethylsilylene)]. See Dimethicone
\( \alpha \)-(Trimethylsilyl)-\( \omega \)-methylpoly[oxy(dimethylsilylene)], mixt. with silicon dioxide. See Simethicone
\( \alpha \)-(Trimethylsilyl) poly (oxy (dimethylsilylene))-\( \omega \)-methyl; \( \alpha \)-(Trimethylsilyl)-\( \omega \)-((trimethylsilyl) oxy). See Dimethylsiloxane
Trimethyl stearyl ammonium chloride. See Steartrimonium chloride
Trimethyl (stearyloxy) silane. See Stearoxytrimethylsilane
Trimethyl tallow ammonium chloride. See Tallowtrimonium chloride
N,N,N-Trimethyl-1-tetradecanaminium bromide; Trimethyltetradecylammonium bromide. See Myrtrimonium bromide
Trimethyl thiazole
CAS 13623-11-5; EINECS/ELINCS 237-107-9
FEMA 3325
Synonyms: Thiazole, 2,4,5-tridecan-1-ol; 2,4,5-Trimethylthiazole
Classification: Thiazole
Chemical Component Cross-Reference

Empirical: C₆H₉NS

Properties: Colorless to cl. amber liq.; sol. m.w. 127.21; dens. 1.013; b.p. 166-167 C (717.5 mm); flash pt. 56 C

Uses: Flavor for pharmaceuticals

Features: Chocolate, nutty, coffee-like, roasted, meaty odor/taste

Regulatory: FEMA GRAS; Canada DSL

Manufacturers/Distributors:
- Advanced BioTech
  http://www.adv-bio.com; Beyo Chem. Co. Ltd
  http://www.beyochem.com; Epochem
  http://www.epochem.com; Frutarom Ltd
  http://www.frutarom.com
- Beyo Chem. Co.
  http://www.beyochem.com
- Epochem
  http://www.epochem.com
- Frutarom Ltd
  http://www.frutarom.com
- SAFC Specialties
  http://www.safcspecialties.com
- Wutong Aroma
  http://www.wu-tong.com

2,4,5-Trimethylthiazole. See Trimethylthiazole

5,7,8-Trimethyltocol. See D-α-Tocopherol

1,1,7-Trimethyl-N-(trimethylsilyl) silanamine. See Hexamethyldisilazane

1,3,7-Trimethylxanthine. See Caffeine

Trimyristin

CAS 555-45-3; EINECS/ELINCS 209-099-7

Synonyms: Glycerol trimyristate; Myristin; 1,2,3-Propanetriol tritetradecanoate

Definition: Triester of glycerin and myristic acid

Empirical: C₄₅H₈₆O₆

Properties: Wh. to ylsh.-gray solid; insol. in water; sol. in alcohol, benzene, chloroform, ether; m.w. 723.14; dens. 0.885 (60/4 C); m.p. 56-57 C; ref. index 1.4429 (60 C)

Toxicology: TSCA listed

Uses: Emollient, solvent, visc. control agent, consistency agent for pharmaceuticals; binder, lubricant, mold release agent, retarding agent for tablets

Regulatory: FDA 21CFR §177.2800

Manufacturers/Distributors:
- Fluka
  http://www.sigma-aldrich.com
- Mosselman NV
  http://http://www.mosselman.be; Sigma
  http://www.sigma-aldrich.com/belgium

Trade Names: Dynasan® 114

1,2,3-Tri (cis-9-octadecenoyl) glycerol. See Triolein

Trioctanoin

CAS 7360-38-5; EINECS/ELINCS 230-896-0

Synonyms: Glycerol trioctanoate; Glyceryl tri (2-ethylhexanoate); Glycerol trioctanoate; Octanoic acid, 1,2,3-propanetriol ester; Octanoic acid, 1,2,3-propanetriyl ester; Octanoic acid triglyceride; 1,2,3-Propanetriol trioctanoate; Trioctanoylglycerol; 1,2,3-Trioctanoylglycerol

Definition: Triester of glycerin and 2-ethylhexanoic acid

Empirical: C₂₇H₅₀O₆

Formula: (CH₂OCOCHCH₂CH₃(CH₂)₃CH₃)₂HCOCOCHCH₂CH₃(CH₂)₃CH₃

Properties: M.w. 470.70

Toxicology: TSCA listed

Uses: Antistat, emollient, solvent, lubricant for pharmaceuticals; carrier for flavors; vehicle for vitamins, medicinals, nutritional prods.

Manufacturers/Distributors:
- A&E Connock
  http://www.connock.co.uk

Trade Names:
- Schercemol GTO

Trioctanoylglycerol; 1,2,3-Trioctanoylglycerol. See Trioctanoin

Trioctyldodecyl citrate

CAS 126121-35-5; 125594-44-7

Synonyms: Citric acid, tris (2-octyldodecyl) ester; 2-Hydroxy-1,2,3-propanetricarboxylic acid, tris (2-octyldodecyl) ester; Propanetricarboxylic acid, 2-hydroxy-, tris (2-octyldodecyl) ester; Tri-2-octyldodecyl citrate

Definition: Triester of octyldodecanol and citric acid

Empirical: C₆₆H₁₂₈O₇

Formula: HOC(CH₂COOR)COOR, where R rep. octyldodecyl radical

Properties: Nonionic

Uses: Emollient, film-former for pharmaceuticals, topicals

Trade Names: Pelemol® TGC

Tri-2-octyldodecyl citrate. See Trioctyldodecyl citrate

Trioctyldodecyl citrate dilinoleate

CAS 220716-32-5

Synonyms: Bis trioctyldodecyl dilinoleate citrate

Uses: Used in pharmaceutical topicals

Trade Names: Pelemol® C-150
Triolein
CAS 122-32-7; 67701-30-8; EINECS/ELINCS 204-534-7; 266-948-4

Synonyms: 2,3-Bis [(9E)-9-octadecenoyloxy] propyl (9E)-9-octadecenoate; Glycerol trioleate; Glycerlyl trioleate; 9-Octadecenoic acid, 1,2,3-propanetriyl ester; 9-Octadecenoic acid (Z)-, 1,2,3-propanetriyl ester; Olein; 1,2,3-Propanetriyl tri-(E)-9-octadecenoate; 1,2,3-Tri (cis-9-octadecenoyl) glycerol; Triolein glyceryl trioleate; Trioleoylglycerol

Classification: Triglyceride

Definition: A naturally occurring glyceride of oleic acid found in fats and oils

Empirical: C57H104O6

Formula: (CH2O)2CHO[CO(CH2)7CH=CH(CH2)7CH3]3

Properties: Colorless to ylsh. oily liq., tasteless, odorless; sol. in chloroform, ether, CCl4, chlorinated solvs.; sl. sol. in alcohol; pract. insol. in water; m.w. 885.43; dens. 0.915 (15/4 C); m.p. -4 to -5 C; b.p. 235-240 C (15 mm); HLB 0.8; sapon. no. 188-195; cloud pt. -10 C; flash pt. 330 C; ref. index 1.4676 (20 C); nonionic

Toxicology: May cause eye/skin/mucous membrane/upper respiratory tract irritation; may be harmful by ing., inh., skin absorp.; TSCA listed

Precaution: Combustible; incompat. with strong oxidizing agents

Hazardous Decomp. Prods.: CO, CO2; emits toxic fumes under fire conditions

Storage: Store @ 2-8 C in cool, dry place; keep tightly closed

Uses: Lubricant, emollient, solubilizer, stabilizer in pharmaceuticals, creams and oils; carbon source in antibiotic culture broths; solubilizer for flavors, vitamin oils

Regulatory: FDA 21CFR §177.2800; Canada DSL

Manuf./Distrib.: A.P. Chems. Ltd
http://www.chemial.com; ABITEC
http://www.abiteccorp.com; Am.
Radiolabeled Chems. http://www.arc-inc.com; Ashland
http://www.ashchem.com; Fluka
http://www.sigma-aldrich.com; Gee Lawson
http://www.mpbio.com; Indofine
http://www.indofinechemical.com; Mosselman NV http://www.mosselman.be;

†=pharmaceutical grade

Sigma http://www.sigma-aldrich.com/belgium
TCI Am. http://www.tciamerica.com;

Trade Names: Agnie GTO-U; Nofable GO-903; Nofable GO-993; Trioleina

Triolein glyceryl trioleate. See Triolein
Triolein hydrolase. See Lipase

Triolein PEG-6 complex. See Triolein PEG-6 esters

Triolein PEG-6 esters CAS 68958-64-5

Synonyms: Triolein PEG-6 complex

Definition: Complex mixture formed from the transesterification of triolein and PEG-6

Properties: Oil

Uses: Emollient, surfactant, excipient for pharmaceuticals

Features: Hydrophilic

Manuf./Distrib.: Somerset Cosmetic Co. http://www.makingcosmetics.com/

Trioleylglycerol. See Triolein

Trioxanone. See Diethylene glycol dimethyl ether

5,8,11-Trioxapentadecane. See Diethylene glycol dibutyl ether

3,6,9-Trioxaundecane. See Diethylene glycol diethyl ether

Trioxylmethylene; Trioxymethylene. See Paraformaldehyde

Tripalmitin CAS 555-44-2; EINECS/ELINCS 209-098-1

Synonyms: Glyceril tripalmitate;
Hexadecanoic acid, 1,2,3-propanetriyl ester;
Palmitin

Definition: Triester of glycerin and palmitic acid

Empirical: C51H98O6

Formula: C3H5(OOCC15H31)3

Properties: Wh. crystalline powd. or needles; sol. in ether, chloroform, benzene; pract. insol. in alcohol; insol. in water; m.w. 807.29; dens. 0.886 (80/4 C); m.p. -8 to -5 C; b.p. 325-340 C (15 mm); HLB 8.0; sapon. no. 188-195; cloud pt. -10 C; flash pt. 330 C; ref. index 1.43807 (80 C); nonionic

Toxicology: LD (IP, mouse) > 500 mg/kg; TSCA listed

Precaution: Combustible

Storage: Refrigerate

Uses: Emollient, solvent, visc. control agent, lubricant, mold release agent, binder, retarding agent for tablets

Regulatory: FDA 21CFR §177.2800
Tripropylene glycol myristyl ether. See PPG-3 myristyl ether
Tris; Trisamine; Tris Buffer. See Tris (hydroxymethyl) aminomethane
Tris (2-ethylhexyl) 2-(acetoxy) propane-1,2,3-tricarboxylate. See Acetyl trioctyl citrate
Tris (2-ethylhexyl) benzenetricarboxylate; Tris (2-ethylhexyl) benzene-1,2,4-tricarboxylate; Tris (2-ethylhexyl) ester 1,2,4-benzenetricarboxylic acid; Tris (2-ethylhexyl) trimellitate. See Tri-2-ethylhexyl trimellitate
Tris (2-hydroxyethyl) amine. See Triethanolamine
Tris (2-hydroxyethyl) ammonium dodecylsulfate. See TEA-lauryl sulfate
N,N,N-Tris (2-hydroxyethyl)-N-octadecyl-1,3-diaminopropane dihydrofluoride. See Olafur
Tris (hydroxymethyl) aminomethane
CAS 77-86-1; 25149-07-9; 108195-86-4; EINECS/ELINCS 201-064-4
Synonyms: 2-Amino-2-(hydroxymethyl)-1,3-propanediol; Aminotrimethylolmethane; Aminotris(hydroxymethyl) methane; THAM; Tris; Trisamine; Tris Buffer; Tris (hydroxymethyl) methanamine; Tris (hydroxymethyl) methylamine; 1,1,1-Tris(hydroxymethyl) methylamine; Trometamol; Tromethamine (INCI)
Classification: Amino alcohol
Empirical: C₄H₁₂N₂O₃
Formula: (CH₂OH)₃CNH₃
Properties: Wh. cryst. gran. or powd., sl. char. odor; sol. 80 g/100 cc water (20 C); sol. in low m.w. aliphatic alcohols; pract. insol. in chloroform, benzene, CCl₄; m.w. 121.14; m.p. 168-171 C; b.p. 219-220 C (10 mm); pH 10-11.5 (5%)
Toxicology: LD₅₀ (oral, rat) 5900 mg/kg; mod. toxic by ingestion and IV routes; irritant to skin and eyes; TSCA listed
Precaution: Combustible; attacks copper, brass, and aluminum
Hazardous Decomp. Prods.: Thermal decomp. prods.: CO, CO₂, NOₓ
HMIS: Health 0, Flammability 1, Reactivity 0
Storage: Hygroscopic; store @ R.T.
Uses: Solubilizer, stabilizer, buffer in
Chemical Component Cross-Reference

pharmaceuticals, injectables, orals, topicals, ophthalmics; pharmaceutical intermediate

Regulatory: FDA approved for injectables, orals, topicals; Canada DSL

Manuf./Distrib.: AMRESCO  
http://www.amresco-inc.com; ANGUS†  
http://www.dow.com/angus/; Aldrich†  
http://www.sigma-aldrich.com; Am. Biorganics; Am. Int'l.†  
http://www.aicma.com  
Barker Ind.  
http://www.barkerind.com; Beyo Chem. Co. Ltd  
http://www.beyochem.com; Chunking  
http://www.chunkingchem.com; EMD Chems.†  
http://www.emdchemicals.com; Fabrichem  
http://www.fabricheminc.com; Fallek  
http://www.iccchem.com/fallchem.htm; Fluka  
http://www.sigma-aldrich.com; GFS†  
http://www.gfschemicals.com; Galbraith Labs†  
http://www.galbraith.com; Hampshire  
http://www.hampshire-chemical.com; Heico  
http://www.rutherfordchemicals.com; Integra†  
http://www.integrachem.com; Mallinckrodt Baker†  
http://www.mallbaker.com; Monomer-Polymer & Dajac Labs  
http://www.monomerpolymer.com; Reliable Biopharmaceutical†  
http://www.reliablebiopharm.com; Research Organs  
http://www.resorg.com; Ruger†  
http://www.rugerchemical.com; Sigma  
http://www.sigma-aldrich.com/belgium; Spectrum Quality Prods.†  
http://www.spectrumchemical.com; Synasia†  
http://www.synasia.com; Voigt Global Distrib.†  
http://www.vgdllc.com; Xinchem†  
http://www.finechemnet.com

Trade Names: Tris Amino® 40%; Tris Amino® Crystals; Tris Amino® Ultra Pure Standard

Tris (hydroxymethyl) methanamine; Tris (hydroxymethyl) methylamine; 1,1,1-Tris (hydroxymethyl) methylamine. See Tris (hydroxymethyl) aminomethane

3-[Tris-(hydroxymethyl)-methylamino]-propanesulfonic acid

CAS 29915-38-6; EINECS/ELINCS 249-954-1

Synonyms: 3-[2-Hydroxy-1,1-bis

†=pharmaceutical grade

(proxymethyl) ethyl] amino]-1-propanesulfonic acid; TAPS; N-(Tris (hydroxymethyl) methyl)-3-aminopropanesulfonic acid; [(Tris-hydroxymethyl)-methyl]-3-aminopropyl sulfonylic acid

Classification: Sulfonic acid

Empirical: C_7H_{17}NO_6S

Properties: Wh. cryst. powd.; sol. in water; m.w. 243.27; m.p. 240 C

Toxicology: TSCA listed

Storage: Store in cool, dry place; keep container closed when not in use

Uses: Biological buffer for cell cultures, biological productions, electrophoresis, diagnostics, tissue studies

Manuf./Distrib.: ABCR  
http://www.abcr.de; Acros Org.  
http://www.acros.com; Aldrich  
http://www.sigma-aldrich.com; Sigma  
http://www.sigma-aldrich.com/belgium

Trade Names: TAPS

N-(Tris (hydroxymethyl) methyl)-3-aminopropanesulfonic acid; [(Tris-hydroxymethyl)-methyl]-3-aminopropyl sulfonylic acid. See 3-[Tris-(hydroxymethyl)-methylamino]-propanesulfonic acid

Tris (hydroxymethyl) nitromethane

CAS 126-11-4; EINECS/ELINCS 204-769-5

Synonyms: (2-Hydroxymethyl)-2-nitro-1,3-propanediol; 2-Nitro-2-(hydroxymethyl)-1,3-propanediol; Nitromethylidynetrimethanol; Trimethylnitromethane

Classification: Aliphatic compd.

Empirical: C_6H_5NO_5

Formula: (CH_2OH)_3CNO_2

Properties: Wh. cryst. or amorphous solid; sol. in alcohol, water; sl. sol. in benzene, other hydrocarbons; m.w. 151.12; m.p. 175 C (tech.), 214 C (pure); b.p. dec.; pH 4.5 (0.1M aq. sol'n.)

Toxicology: LD_{50} (oral, rat) 1900 mg/kg; poison by ing.; mod. toxic by IP route; irritant to skin, eyes, mucous membranes; TSCA listed

Precaution: Mod. fire risk

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NO_x

Uses: Antimicrobial

Regulatory: Canada DSL

Manuf./Distrib.: ANGUS  
http://www.dow.com/angus/; Aldrich  
http://www.sigma-aldrich.com; Am. Int'l.
Chemical Component Cross-Reference

†=pharmaceutical grade

Chemical Component Cross-Reference

http://www.aicma.com; Fabrichem
http://www.fabricheminc.com; Fluka
http://www.sigma-aldrich.com
Goldlink Industries
http://www.goldlinkindustries.com;
Spectrum Quality Prods.
http://www.spectrumchemical.com

Trade Names: Tris Nitro®

Tris (2-hydroxypropanoato) aluminum. See Aluminum lactate

Tris (2-hydroxypropyl) amine. See Triisopropanolamine

Trisiloxane, 1,1,1,5,5,5-hexamethyl-3-phenyl-3-((trimethylsilyl) oxy)-. See Phenyl trimethicone

Trisodium-3-carboxy-5-hydroxy-1-p-sulfophenyl-4-p-sulfophenylazopyrazole.
See FD&C Yellow No. 5; Tartrazine

Trisodium citrate
CAS 68-04-2 (anhyd.); 6132-04-3 (dihydrate); 6858-44-2 (hydrate); EINECS/ELINCS 200-675-3
FEMA 3026; INS331(iii); E331
Synonyms: Citric acid trisodium salt; Sodium citrate (INCI); Sodium citrate anhydrous; Sodium citrate tertiary; Trisodium 2-hydroxypropyl-1,2,3-tricarboxylate
Empirical: C6H5Na3O7 (anhyd.); C6H5Na3O7 • 2H2O (dihydrate)
Formula: HOC(COONa)(CH2COONa)2 (anhyd.), HOC(COONa)(CH2COONa)2 • 2H2O (dihydrate)
Properties: Colorless cryst. or wh. cryst. powd., odorless, pleasant acid taste; hydrous form freely sol. in water, very sol. in boiling water, insol. in alcohol; m.w. 258.07 (anhyd.), 294.10 (dihydrate); loses water of cryst. @ 150 C
Toxicology: LD50 (IP, rat) 1548 mg/kg, (IV, mouse) 170 mg/kg; poison by IV route; mod. toxic by IP route; irritant; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of Na2O
Storage: Store @ R.T.
Uses: Buffer for pharmaceuticals; medicine (diuretic, expectorant, in treating dehydration and acidosis due to diarrhea); anticoagulant for blood
Regulatory: FDA 21CFR §131.111, 131.112, 131.138, 131.146, 131.160, 131.185, 133.112, 133.144, 133.169, 133.173, 133.179, 150.141,

Handbook of Pharmaceutical Additives, Third Edition 2211
Trisodium versenate

**Classification:** Substituted amine

**Empirical:** $\text{C}_{10}\text{H}_{13}\text{N}_{2}\text{O}_{8} \cdot 3\text{Na}$

**Formula:** $(\text{NaOOCCH}_{2})_{3}\text{NCH}_{2}\text{CH}_{2}\text{NCH}_{2}\text{COOH}$

**Properties:** Wh. powd.; sol. in water; m.w. 358.22

**Toxicology:** LD50 (oral, rat) 2150 mg/kg, (IP, mouse) 300 mg/kg; poison by IP route; mod. toxic by ing.; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of NOx and Na2O

**HMIS:** Health 2, Flammability 1, Reactivity 0

**Uses:** Chelating agent in pharmaceuticals, topicals

**Regulatory:** FDA 21CFR §175.105, 176.150; FDA approved for topicals; Canada DSL

**Manuf./Distrib.:** Akzo Nobel

**Trade Names:** Versenol 120

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Trisodium ethylenediaminetetraacetate

**Classification:** Substituted amine

**Empirical:** $\text{C}_{10}\text{H}_{18}\text{N}_{2}\text{O}_{7} \cdot 3\text{Na}$

**Formula:** $(\text{CH}_{2}\text{COONa})_{3}\text{NCH}_{2}\text{CH}_{2}\text{NHOCH}_{2}\text{CH}_{2}$

**Properties:** Lt. yel. liq.; sol. in water forming alkaline sol'n.; m.w. 347.27; dens. 1.285; f.p. < -5 C; b.p. 107 C

**Toxicology:** TSCA listed

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Trisodium HEDTA

**CAS:** 139-89-9; EINECS/ELINCS 205-381-9

**Synonyms:** N-[2-[Bis(carboxymethyl) amino]ethyl]-N-(2-hydroxyethyl) glycine, trisodium salt; N-(Carboxymethyl)-N' -(2-hydroxyethyl)-N,N'-ethylenedi-, trisodium salt; HEDTANa3; HEDTA, trisodium salt; HEEDTANa3; HEEDTA, trisodium salt; Hydroxyethylendiaminetriacetic acid, trisodium salt; Trisodium hydroxyethyl ethylenediaminetriacetate; Trisodium N-hydroxyethyl ethylenediaminetriacetate

**Classification:** Substituted amine

**Empirical:** $\text{C}_{57}\text{H}_{110}\text{O}_{6}$

**Formula:** $[\text{CH}_{3}(\text{CH}_{2})_{18}\text{COOCH}_{2}]_{2}\text{CHOCO}(\text{CH}_{2})_{16}\text{CH}_{3}$

**Properties:** Colorless to wh. crystals or powd., odorless, tasteless; sol. in hot alcohol, benzene, chloroform, carbon disulfide, chlorinated and aromatic solvs.; pract. insol. in cold alcohol, ether, petrol. ether; insol. in water; m.w. 891.45; dens. 0.943 (65 C); m.p.

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**Uses:** Chelating agent for pharmaceuticals, topicals, drug stabilization, heavy metal poisoning treatment

**Regulatory:** FDA 21CFR §175.105, 176.150; FDA approved for topicals; Canada DSL

**Manuf./Distrib.:** Akzo Nobel

**Trade Names:** Protacide™ NA3 EDTA

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Trisodium hydrogen ethylene diaminetetraacetate; Trisodium hydrogen (ethylenedinitril) tetraacetate. See Trisodium EDTA

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Trisodium hydrogen ethylenediaminetriacetate; Trisodium N-hydroxyethyl ethylenediamine triacetate. See Trisodium HEDTA

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Trisodium 2-hydroxypropane-1,2,3-tricarboxylate. See Trisodium citrate

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Trisodium 8-hydroxypyrene-1,3,6-trisulfonate. See CI 59040

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Tris(1-(1-naphthy1azo)-2-hydroxynaphthalene-4´,6,8-trisulfonate. See Acid red 18

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Trisodium versenate. See Trisodium EDTA

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Tris(picolinato)chromium. See Chromium picolate

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Tris (2-propanol) amine. See Triisopropanolamine

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Tristearin

**CAS:** 555-43-1; EINECS/ELINCS 209-097-6

**Synonyms:** Glycerol tristearate; Glyceryl monotristearate; Glycerol tristearate; Octadecanoic acid, 1,2,3-propanetriyl ester; 1,2,3-Propanetriol trioctadecanoate; Stearin

**Definition:** Triester of glycerin and stearic acid

**Empirical:** $\text{C}_{57}\text{H}_{110}\text{O}_{6}$

**Formula:** $[\text{CH}_{3}(\text{CH}_{2})_{18}\text{COOCH}_{2}]_{2}\text{CHOCO}(\text{CH}_{2})_{16}\text{CH}_{3}$

**Properties:** Colorless to wh. crystals or powd., odorless, tasteless; sol. in hot alcohol, benzene, chloroform, carbon disulfide, chlorinated and aromatic solvs.; pract. insol. in cold alcohol, ether, petrol. ether; insol. in water; m.w. 891.45; dens. 0.943 (65 C); m.p.
†=pharmaceutical grade

**Triundecanoin**

CAS 13552-80-2; EINECS/ELINCS 236-935-8  
**Synonyms:** Glycerol triundecanoate; Glyceryl triundecanoate; Undecanoic acid, 1,2,3-propanetriyl ester  
**Definition:** Triester of glycerin and undecanoic acid  
**Empirical:** C_{36}H_{68}O_{6}  
**Formula:** HCO(CH_{2}OCO(CH_{2})_{9}CH_{3})_{2}CO(CH_{2})_{9}CH_{3}  
**Toxicology:** TSCA listed  
**Uses:** Emollient, lubricant, moisturizer, visc. control agent for pharmaceuticals, dermatological emulsions; carrier for flavors and fragrances; emollient, solvent, fixing agent, and extender in nutritional applics.  
**Manuf./Distrib.:** ABITEC†  
[http://www.abiteccorp.com](http://www.abiteccorp.com); Fluka  
[http://www.sigma-aldrich.com](http://www.sigma-aldrich.com); Sigma  
[http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)  
**Trade Names:** Captex® 8227  
**Trade Names Containing:** Precirol ATO 5  
**Trypsin**  
CAS 9002-07-7; EINECS/ELINCS 232-650-8  
**Classification:** Enzyme  
**Properties:** Wh. to ylsh. wh. cryst. or amorphous powd., odorless; readily sol. in Sorenson’s sodium phosphate buffer sol’n.; sparingly sol. in water; pract. insol. in alcohol, glycerin; m.w. ≈ 23,000; pH 3-5.5 (1%)  
**Toxicology:** LD50 (oral, rat) > 5 g/kg, (IV, rat) 36 mg/kg, (IP, rat) > 57 mg/kg; harmful solid; poison by IP and IV routes; irritant; may cause hypersensitivity reactions; mutagen; TSCA listed  
**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes  
**HMIS:** Health 1, Flammability 1, Reactivity 0  
**Storage:** Hygroscopic (amorphous); protect from light; refrigerate; package under argon  
**Uses:** Proteolytic enzyme for pharmaceuticals, orals, inhalants, protein
Trypsin 1:75; Trypsin 1:150

Tryptophan (INCI); DL-Tryptophan. See DL-α-Tryptophan

DL-α-Tryptophan

CAS 54-12-6; EINECS/ELINCS 200-194-9

Synonyms: (±)-2-Amino-3-(3-indolyl)propionic acid; Tryptophan (INCI); DL-Tryptophan

Classification: Amino acid

Empirical: C_{11}H_{12}N_{2}O_{2}

Properties: Wh. cryst. or cryst. powd., odorless; sol. in water, dil. acids, alkalis; sl. sol. in alcohol; m.w. 204.23; m.p. 295 C (dec.); optically inactive

Toxicology: TDLo (oral, rat, 92 wks)

†=pharmaceutical grade

continuous) 844 g/kg; LD50 (IP, mouse) > 1 g/kg; experimental carcinogen; experimental reproductive effects; tumorigen; mutagen; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NOx

Storage: Photosensitive

Uses: Medicine; dietary supplement; nutrient; flavor

Regulatory: FDA 21CFR §172.320 (1.6% max.); Japan approved; Canada DSL


Trade Names Containing: Aminodermin CLR

p-TSA. See p-Toluenesulfonic acid

TSPP. See Tetrasodium pyrophosphate

Tuberose absolute; Tuberose oil. See Tuberose (Polianthes tuberosa) oil

Tuberose (Polianthes tuberosa) oil

CAS 8024-05-3; EINECS/ELINCS 305-108-4; FEMA 3084

Synonyms: Polianthes tuberosa; Polianthes tuberosa oil; Tuberose absolute; Tuberose oil

Definition: Oil from Polianthes tuberosa

Properties: Colorless to very lt. colored oil, intense sweet floral odor; dens. 1.007-1.035 (15 C)

Uses: Natural flavor for pharmaceuticals

Regulatory: FDA 21CFR §182.20, GRAS; FEMA GRAS; Canada DSL

Manuf./Distrib.: Biolandes http://www.biolandes.com; Eramex Aromatics http://www.eramex.de; F.D.
### Chemical Component Cross-Reference

**Turmeric (Curcuma longa)**

**CAS** 458-37-7; 977052-44-0; EINECS/ELINCS 207-280-5

**FEMA** 3085; INS100(ii)

**Synonyms:** 1,7-Bis (4-hydroxy-3-methoxyphenyl)-1,6-heptadiene-3,5-dione; CI 75300; Curcuma longa; Curcuma longa powder; Curcumin; Natural yellow 3; Oleoresin turmeric; Turmeric; Turmeric oleoresin; Turmeric powder; Turmeric yellow

**Definition:** Dried and ground rhizome or bulbous root of Curcuma longa, with curcumin as coloring principal

**Properties:** Yel. powd., char. odor, sharp mustard taste; misc. with water; Curcumin: Orange-yel. cryst. powd.; sol. in ethanol, glacial acetic acid; insol. in water, ether; m.w. 368.39; m.p. 180-183 C

**Toxicology:** Human mutagenic data; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Natural flavor for pharmaceuticals

**Regulatory:** FDA 21CFR §182.20, GRAS; FEMA GRAS


†=pharmaceutical grade

### Turmeric (Curcuma longa) extract

**CAS** 84775-52-0; EINECS/ELINCS 283-882-1

**FEMA** 3086; INS100(ii)

**Synonyms:** Curcuma domestica extract; Curcuma longa; Curcuma longa extract; Turmeric extract

**Definition:** Extract of the rhizomes of Curcuma longa

**Uses:** Natural flavor for pharmaceuticals

**Regulatory:** FDA 21CFR §182.20, GRAS; FEMA GRAS


### Turmeric extract. See Turmeric (Curcuma longa) extract

### Turmeric oleoresin. See Turmeric (Curcuma longa) oleoresin

### Turmeric root oleoresin. See Oleoresin turmeric

### Turmeric yellow. See Turmeric (Curcuma longa) yellow

### Turnbull's blue. See Ferric ferrocyanide

### Turnera diffusa. Turnera diffusa leaves. See Damiana (Turnera diffusa)

### Turpentine

**CAS** 8006-64-2 (steam distilled); 8052-14-0; 9005-90-7; 977022-00-6 (rectified); EINECS/ELINCS 232-350-7; 232-688-5

**UN** 1299 (DOT); 1300 (DOT); FEMA 3088; 3089

**Synonyms:** Gum turpentine; Pine balsam; Pine gum; Purified gum spirits; Spirits of turpentine; Spirit of turpentine; Terebenthine; Turpentine gum; Turpentine oil; Turpentine oil, rectified; Turpentine oil, rectifier; Turpentine, purified; Turpentine, rectified; Turpentine, steam distilled; Wood turpentine

**Classification:** Unsat. alicyclic hydrocarbon

**Definition:** Volatile essential oil obtained by distillation and rectification from turpentine, an
Chemical Component Cross-Reference

oleoresin obtained from *Pinus* spp., contg. pinene and diterpene

Formula: \( \approx C_{10}H_{16} \)

Properties: Colorless sticky visc. balsamic liq.; char. sharp penetrating piney odor; sol. in alcohol, benzene, CS2, CS2, petrol ether, ether, chloroform, glc. acetic acid; insol. in water; m.w. \( \approx 136 \); dens. 0.854-0.868; m.p. -50 to -60 C; b.p. 154-170 C; flash pt. (CC) 32-46 C; autoignition temp. 253 C; ref. index 1.463-1.483 (20 C); KB value 56

Toxicology: ACGIH TLV/TWA 100 ppm; LD50 (oral, rat) 5760 mg/kg, (IV, mouse) 1180 µg/kg; LC50 (inh., mouse, 2 h) 29 g/m³; poison by IV route; mildly toxic by ing., inh.; mod. toxic to humans by ing.; irritating to skin, eyes, respiratory tract; allergen; skin absorp. and inh. can cause CNS depression, headaches, confusion, delirium, convulsions, and death due to respiratory failure; serious kidney irritant; questionable carcinogen; experimental tumorigen; common air contaminant; TSCA listed

Environmental: VOC

Precaution: Highly flamm.; mod. explosive hazard as vapor; lower explosive limit 0.8%; incompat. with oxidizers, halogens, stannic chloride, hexachloromelamine, diatomaceous earth; violent reactions possible; avoid impregnation of combustibles with turpentine

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 1, Flammability 3, Reactivity 0

Storage: Store in cool, dry, well-ventilated area away from heat/ignition sources; protect from light

Uses: Natural flavor, solvent for pharmaceuticals; rubefaciency; diuretic; preps. for respiratory tract disorders

Regulatory: FDA 21CFR §172.510, 175.105; FDA approved for inhalants; FEMA GRAS; BP compliance; Canada DSL


GR Davis http://www.grdavis.com.au; George Uhe http://www.uhe.com; Imperial-

†=pharmaceutical grade


J.H. Hinz http://www.jhzhinz.com

Lluch Essence http://www.lluch-essence.com; Marlin Chems. Ltd http://www.marlinchemicals.co.uk

Mosselman NV http://www.mosselman.be; Mutchler http://www.mutchlerchem.com

PDM http://www.pdmchemicals.com


Vliengenthart BV http://www.vliegenthart.com

Trade Names: Custosense TUR

Turpentine gum; Turpentine oil; Turpentine oil, rectified; Turpentine oil, rectifier; Turpentine, purified; Turpentine, rectified; Turpentine, steam distilled. See Turpentine Turpentine substitutes. See Mineral spirits

Tussilago farfara; Tussilago farfara extract. See Coltsfoot (Tussilago farfara) extract

Tyloxapal

CAS 25301-02-4

Synonyms: \( p\)-Isocetylpolyoxyethylenephenol formaldehyde polymer; Oxyethylated tertiary octylphenol-formaldehyde polymer; Phenol, 4-(1,1,3,3-tetramethylybutyl)-, polymer with formaldehyde and oxirane; p-(1,1,3,3-Tetramethylybutyl) phenol polymer with ethylene oxide and formaldehyde; 4-(1,1,3,3-Tetramethylybutyl) phenol polymer with formaldehyde and oxirane; Tyloxypal

Definition: An oxyethylated-t-octylphenolpolymethylene polymer

Empirical: \( (C_{14}H_{22}O_2 \cdot C_2H_4O \cdot CH_2O)_x \)

Properties: Amber thick liq., sl. aromatic odor; freely sol. in water; sol. in benzene, glc. acetic acid, toluene, CCl₄, chloroform, CS₂; cloud pt. 92-97 C; flash pt. > 230 F; pH 4-7 (5%); nonionic

Toxicology: LD50 (oral, rat) > 5 g/kg, (IP,
L-Tyrosine

CAS: 60-18-4; EINECS/ELINCS 200-460-4

Synonyms: α-Amino-p-hydroxyhydrocinnamic acid; L-α-Amino-β-(4-hydroxyphenyl) propionic acid; (S)-2-Amino-3-(4-hydroxyphenyl) propionic acid; 3-(4-Hydroxyphenyl) alanine; l-β-(p-Hydroxyphenyl) alanine; Tyrosine; l-p-Tyrosine; p-Tyrosine

Classification: Nonessential amino acid

Definition: Avail. commercially as the naturally occurring L(-)-enantiomer

Empirical: C9H11NO3

Properties: Colorless silky need. or wh. cryst. powd.; sl. sol. in alcohol; pract. insol. in water, dil. min. acids, alkaline sol'n.; m.w. 181.21; m.p. 290-295 C; dec. 342-344 C

Toxicology: LD50 (IP, mouse) > 1450 mg/kg; irritant; experimental teratogen, reproductive effects; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

HMIS: Health 2, Flammability 1, Reactivity 1

Uses: Flavor for pharmaceuticals; infusion sol'n.; diagnostic aids; peptide drug raw material; nutrient; dietary supplement

Regulatory: FDA 21CFR §172.320 (limitation 4.3%); FEMA GRAS; Japan approved; BP, EP compliance; Canada DSL

Tyloxapol. See Tyloxapol

Tyrosine. See L-Tyrosine

†=pharmaceutical grade

Manuf./Distrib.: AMINO GmbH†

http://www.aminoactives.com; Aceto†

http://www.aceto.com; Ajinomoto†

http://www.ajinomoto.co.jp;

http://www.ajinomoto.com; Alfa Chem†

http://www.alfachem1.com; Am. Int'l.†

http://www.aicma.com

Amerol  http://www.amerolcorp.com;

Ashland†  http://www.ashchem.com;

Asiamerica Int'l.†; Austin†

http://www.austinchemical.com; Bachem†

http://bachem.com

Biddle Sawyer†

http://www.biddlesawyer.com; Boith China†

http://www.boith.com; Degussa

http://www.degussa.com; Donboo Amino Acid  http://www.donboo.com; Ferro

Pfanstiehl Europe†

Fluka  http://www.sigma-aldrich.com;

Fuerst Day Lawson  http://www.fdl.co.uk;

Functional Foods†

http://www.functionalfoods.com; George

Uhe†  http://www.uhe.com; Kyowa Hakko

Kogyo†  http://www.kyowa.co.jp

Mallinckrodt Baker†

http://www.mallbaker.com; Noveon†

http://www.carbopol.com;

http://www.noveoncoatings.com; Penta

Mfg.†  http://www.pentamfg.com; Premium Ingreds.

http://www.premiumingredients.com; RIA

Int'l.†  http://www.riausa.com

Rochem Int'l.  http://www.rochemintl.com;

Ruger  http://www.rugerchemical.com;

SAFC Specialties†

http://www.saftspecialties.com; Sigma

http://www.sigma-aldrich.com/belgium;

Spectrum Quality Prods.†

http://www.spectrumchemical.com

Synasia†  http://www.synasia.com; VWR

Int'l.†  http://www.vwrsp.com; Varsal

Instruments  http://www.varsal.com; Voigt

Global Distrib.†  http://www.vgdllc.com;

Westco Fine Ingreds.†

http://www.westcofine.com

I-p-Tyrosine; p-Tyrosine. See L-Tyrosine

Ubiquinone. See Coenzyme Q10

Ulmus campestris; Ulmus campestris extract. See Elm (Ulmus campestris) extract

Ultramarine green. See Chromium oxide (ic)

5,9-Undecadien-2-one, 6,10-dimethyl-. See Geranyl acetone
Chemical Component Cross-Reference

2,3-Undecadione
CAS 7493-59-6
FEMA 3090
Synonyms: Acetyl nonanoyl; Acetyl nonyryl; Acetyl pelargonyl
Classification: aliphatic ketone
Empirical: C\textsubscript{11}H\textsubscript{20}O\textsubscript{2}
Properties: Yel. oily liq., strong sweet-cream warm odor; sol. in alcohol; very sl. sol. in water; m.w. 184.28; b.p. 109-111 C (10 mm)
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Penta Mfg.
http://www.pentamfg.com

δ-Undecalactone
CAS 710-04-3; EINECS/ELINCS 211-915-1
FEMA 3294
Synonyms: 6-Hexyl-tetrahydropyran-2-one; 6-Hexyltetrahydro-2H-pyran-2-one; 5-Hydroxyundecanoic acid lactone; Δ-Undecalactone; Undecanoic δ-lactone; Undecanolide-1,5
Classification: Nonaromatic lactone
Empirical: C\textsubscript{11}H\textsubscript{20}O\textsubscript{2}
Properties: M.w. 184.28; dens. 0.969; b.p. 152-155 C (10.5 mm); flash pt. > 230 F; ref. index 1.4590
Toxicology: Primary irritant; irritating to eyes, skin, and respiratory system; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits CO, CO\textsubscript{2}, acrid smoke and irritating fumes
Storage: 12 mos. when stored at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat, air
Uses: Synthetic flavor for pharmaceuticals
Features: Peach-like flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI
Manuf./Distrib.: Acme-Hardesty
Advanced Synthesis Tech.
http://www.advancedsynthesis.com; Aromor Flavors & Fragrances
http://www.aromor.com; Augustus Oils Ltd
http://www.augustus-oils.ltd.uk
Axxence Aromatic GmbH
http://www.axxence.com;
http://www.axxence.de; Citrus and Allied Essences http://www.citrusandallied.com;
De Monchy Aromatics
http://www.demonchyaromatics.com;
Elan http://www.elan-chemical.com; Epochem
http://www.epochem.com
Eramex Aromatics http://www.eramex.de;
Fleurchem http://www.fleurchem.com;
Guizhou Essence
http://www.eschemical.com; J.H. Calo
Chemical Component Cross-Reference

†=pharmaceutical grade

http://www.jhcalo.com; MelChem†
http://www.melchem.com

Trade Names: Aldehyde C 14 Socalled

Undecanal
CAS 112-44-7; EINECS/ELINCS 203-972-6
FEMA 3092
Synonyms: Aldehyde 14; Aldehyde C-11 undecyclic; 1-Decyl aldehyde; Hendecanal; Hendecanaldehyde; n-Undecanal; Undecanaldehyde; Undecyl aldehyde; Undecylic aldehyde; n-Undecylic aldehyde

Empirical: C_{11}H_{22}O
Formula: CH_3(CH_2)_{10}CHO
Properties: Colorless to sl. yel. liq.; sweet, fatty, floral odor; sol. in most common org. solvs., fixed oils, propylene glycol, alcohol; insol. in water; m.w. 170.30; dens. 0.825; m.p. -4 C; b.p. 118-120 C (20 mm); flash pt. 96 C; ref. index 1.430-1.435

Toxicology: LD_{50} (oral, rat) > 5 g/kg, (dermal, rabbit) > 5 g/kg; low toxicity by ing. and inh.; primary skin and tissue irritant; TSCA listed

Precaution: Combustible liq. exposed to heat or flame; tends to polymerize unless tightly sealed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Storage: Store under nitrogen

Uses: Synthetic flavor for pharmaceuticals
Features: Orange-like flavor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL


See also Decanal
n-Undecanal; Undecanaldehyde. See Undecanal
1-Undecanecarboxylic acid. See Lauric acid
5-Undecanecarboxylic acid. See 2-Butyl octanoic acid
1,1’-Undecanedicarboxylic acid ester with ethylene glycol. See Ethylene brassylate
Undecanoic acid, 1,2,3-propanetriyl ester. See Triundecanoin

Undecanoic δ-lactone. See δ-Undecalactone
Undecanoic γ-lactone. See γ-Undecalactone
Undecanol; 1-Undecanol; Undecan-1-ol; n-Undecanol. See Undecyl alcohol

Undecanolide-1,5. See δ-Undecalactone
Undecan-4-olide. See γ-Undecalactone

2-Undecanone
CAS 112-12-9; EINECS/ELINCS 203-937-5
UN 1224; FEMA 3093
Synonyms: 2-Hendecanone; Methyl nonyl ketone; Methyl n-nonyl ketone; Nonyl methyl ketone; Rue ketone
Classification: aliphatic ketone

Empirical: C_{11}H_{22}O
Formula: CH_3(CH_2)_{9}COCH_3
Properties: Colorless to sl. ylsh. oily liq.; rue odor; sweet peachy flavor; sol. in oxygenated and aromatic solvs.; insol. in water; m.w. 170.30; dens. 0.825 (20/4 C); m.p. 11-13 C; b.p. 231-232 C; flash pt. 89 C; ref. index 1.4280-1.4330 (20 C)

Toxicology: LD_{50} (oral, rat) 5 g/kg, (oral, mouse) 3880 mg/kg; mod. toxic by ing.; TSCA listed

Environmental: Do not discharge to lakes, streams, ponds, public waters

Precaution: Combustible exposed to heat or flame; reactive with oxidizers

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Storage: Store at 40-70 F in tightly sealed original containers with minimum head space; avoid prolonged exposure to light, heat and air

Uses: Synthetic flavor for pharmaceuticals
Features: Citrus flavor

Regulatory: FDA 21CFR §172.515; FEMA GRAS; Australia AICS; Canada DSL; Japan MITI

3,6,9,12,15,18,21,24,27,3,33-
Undecaoxapentatriacontane-1,35-diol. See PEG-12

Undecan-10-acid-1. See Undecylenic acid
1-Undecan-10-al. See 10-Undecenal

9-Undecenal
CAS 143-14-6; EINECS/ELINCS 205-586-3
FEMA 3094
Synonyms: Aldehyde C-11 undecylenic; Hendecenal-9-al; 9-Undecen-1-al; Undecenoic aldehyde; Undecylenic aldehyde
Empirical: C_{11}H_{20}O
Formula: CH_{3}CH:CH(CH_{2})_{7}CHO
Properties: Colorless pale yel. oily liq., orange peel-like sweet odor, citrus flavor; sol. in alcohol; insol. in water; m.w. 168.28
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Degussa AG/Health & Nutrition; Firmenich

9-Undecen-1-al. See 9-Undecenal

10-Undecenal
CAS 112-45-8; EINECS/ELINCS 203-973-1
FEMA 3095
Synonyms: Aldehyde C-11 undecylenic; Hendecenal; 1-Undecen-10-al; Undecen-10-al; Undecylenaldehyde; 10-Undecylenaldehyde; Undecylenic aldehyde
Empirical: C_{11}H_{20}O
Formula: CH_{2}:CH(CH_{2})CHO
Properties: Colorless pale yel. liq., fatty rose odor on dilution; sol. in fixed oils, propylene glycol; insol. in water, glycerin; m.w. 168.31; dens. 0.840-0.850; vapor dens. > 1; b.p. 101-103 C; flash pt. 92 C; ref. index 1.441-1.447
Toxicology: LD_{50} (oral, rat) > 5 g/kg, (dermal, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; skin irritant; TSCA listed
Precaution: Combustible; incompat. with strong oxidizers, iron, iron salts
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
NFPA: Health 2, Flammability 2, Reactivity 0
Storage: Refrigerate
Uses: Synthetic flavor for pharmaceuticals
Features: Sweet flavor
Regulatory: SARA §311/312 Fire Hazard; FDA 21CFR §172.515; FEMA GRAS; Canada DSL

Undecen-10-al. See 10-Undecenal
Undecenoic acid; Undec-10-enoic acid; 10-Undecenoic acid; 11-Undecenoic acid. See Undecylenic acid

10-Undecenoic acid, butyl ester. See Butyl 10-undecenoate
10-Undecenoic acid, calcium salt; 10-Undecenoic acid, calcium (2+) salt. See Calcium undecylenate
10-Undecenoic acid, ethyl ester. See Ethyl 10-undecenoate
9-Undecenoic acid, methyl ester. See Methyl 9-undecenoate
10-Undecenoic acid, sodium salt. See Sodium undecylenate
10-Undecenoic acid, zinc salt. See Zinc undecylenate
Undecenoic aldehyde. See 9-Undecenal

Undecenyl acetate
CAS 112-19-6; EINECS/ELINCS 203-944-3
FEMA 3096
Synonyms: Acetate C-11; 10-Hendecenyl acetate; 10-Hendecen-1-yl acetate; 10-Undecenyl acetate; 10-Undecen-1-yl acetate; Undecylenic acetate
Empirical: C_{13}H_{24}O_{2}
### 10-Undecenyl acetate; 10-Undecen-1-yl acetate

**Properties:** Colorless liq. or solid; mild fatty-floral odor; sol. in water, alcohol 60%, fixed oils, oxygenated solvs.; m.w. 172.35; dens. 0.822 (35/4 C); m.p. 19 C; b.p. 248-250 C; flash pt. 93.3 C; ref. index 1.4370-1.4430; nonionic

**Toxicology:** LD50 (oral, rat) 3000 mg/kg, (skin, rabbit) 4760 µl/kg; mod. toxic by ing.; low acute inh. toxicity; primary irritant; severely irritating to eyes; mod. irritating to skin; mutagenic data; TSCA listed

**Precaution:** Combustible; avoid incompat. materials, strong oxidants

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Storage:** Refrigerate; store in a cool, dry place; keep container closed when not in use

**Uses:** Thickener, refatting agent, antimicrobial, antimycotic for foot and skin care preps., pharmaceuticals

**Trade Names:** Olamida UD; Olamida UD 21; Rewocid® DU 185 SE

### Undecyl alcohol

**CAS:** 112-42-5; EINECS/ELINCS 203-970-5

**FEMA:** 3097

**Synonyms:** Alcohol C11; Alcohol C11 undecylic; C11 primary alcohol; Decyl carbinol; Hendecanoic alcohol; 1-Hendecanol; Hendecyl alcohol; n-Hendecylenic alcohol; Undecanol; 1-Undecanol; Undecan-1-ol; n-Undecanol; n-Undecyl alcohol

**Classification:** Aliphatic alcohol

**Empirical:** C11H24O

**Formula:** CH3(CH2)9CH2OH

**Properties:** Colorless liq. or solid; mild fatty-floral odor; sol. in water, alcohol 60%, fixed oils, oxygenated solvs.; m.w. 172.35; dens. 0.822 (35/4 C); m.p. 19 C; b.p. 248-250 C; flash pt. 93.3 C; ref. index 1.4370-1.4430; nonionic

**Toxicology:** LD50 (oral, rat) 3000 mg/kg, (skin, rabbit) 4760 µl/kg; mod. toxic by ing.; low acute inh. toxicity; primary irritant; severely irritating to eyes; mod. irritating to skin; mutagenic data; TSCA listed

**Precaution:** Combustible; avoid incompat. materials, strong oxidants

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Storage:** Refrigerate; store in a cool, dry place; keep container closed when not in use

**Uses:** Synthetic flavor for pharmaceuticals


### Undecylenaldehyde

**Trade Names:** Exxal® 11

n-Undecyl alcohol. See Undecyl alcohol

Undecyl aldehyde; n-Undecyl aldehyde. See Undecanal

Undecylenaldehyde. See 10-Undecenal

### Undecylenamide DEA

**CAS:** 25377-64-4; 60239-68-1; EINECS/ELINCS 246-914-5; 262-114-9

**Synonyms:** N,N-Bis(2-hydroxyethyl) undecenamide; Undecylenoyl diethanolamide

**Definition:** Mixture of ethanolamides of undecylenic acid

**Empirical:** C15H29NO3

**Formula:** CH2=CH(CH2)8CON(CH2CH2OH)2

**Properties:** Nonionic

**Toxicology:** TSCA listed

**Uses:** Thickener, refatting agent, antimicrobial, antimycotic for foot and skin care preps., pharmaceuticals

**Trade Names:** Olima UD; Olima UD 21; Rewocid® DU 185 SE

### Undecylenamidopropyl betaine

**CAS:** 98510-75-9; 133798-12-6; EINECS/ELINCS 308-783-3

**Synonyms:** Bis (undecylenic amidopropyl dimethyl glycinate); (Carboxymethyl) dimethyl [3-[1-oxoundecenyl] amino] ammonium hydroxide; N-(Carboxymethyl)-N,N-dimethyl-3-[1-oxoundecylenyl] amino]-1-propanaminium hydroxide, inner salt

**Classification:** Zwitterion (inner salt), quaternary ammonium compd.

**Empirical:** C19H34N2O3

**Formula:** CH2=CH(CH2)8CONH(CH2)3N+(CH3)2CH2COO–

**Properties:** Amphoteric

**Uses:** Antimicrobial

**Trade Names:** Amphoram® U; Rewoteric® AM B U 185

### Undecylenamidopropyl trimethylammonium methyl sulfate

See Undecylenamidopropyl trimonium methosulfate
Undecylenamidopropyl trimonium methosulfate

CAS 94313-91-4; EINECS/ELINCS 304-990-8

Synonyms: Trimethyl-3-[1-oxo-10-undecenyl] amino] propylammonium methyl sulfate; Undecylenamidopropyl trimethylammonium methyl sulfate

Classification: Quaternary ammonium salt

Empirical: C₁₇H₃₅N₂O • CH₄O₄S

Formula: \[\text{[CH}_2\text{CH(CH}_2\text{)}_8\text{CONH(CH}_2\text{)}_3\text{N(CH}_3\text{)}_3\text{]}^+\text{CH}_3\text{OSO}_3^-\]

Properties: Cationic

Uses: Antimicrobial

Trade Name: Rewocid® UTM 185

10-Undecylenaldehyde. See 10-Undecenal

Undecylenic acid

CAS 112-38-9; EINECS/ELINCS 203-965-8

FEMA 3247

Synonyms: 10-Hendecenoic acid; 10-Hendecenoic acid; Undecan-10-acid-1; Undecanoic acid; Undec-10-enoi acid; 10-Undecenoic acid; 11-Undecenoic acid; 9-Undecynl acid; Undecyl-10-enic acid; 10-Undecylenic acid; n-Undecylenic acid

Classification: Aliphatic acid

Empirical: C₁₁H₂₀O₂

Formula: CH₂=CH(CH₂)₈COOH

Properties: Lt. colored liq. or cryst., fruity-rosy odor; sol. in oxygenated solvs.; misc. with alcohol, chloroform, ether, benzene; insol. in water; m.w. 184.28; dens. 0.910-0.913 (25/25 C); m.p. 22 C; b.p. 275 C; acid no. 300-305; iodine no. 135-139; flash pt. 295 F; ref. index 1.447-1.449

Toxicology: LD₅₀ (oral, rat) 2500 mg/kg, (IP, mouse) 960 mg/kg; highly toxic; mod. toxic by ing. and IP routes; ing. can cause nausea, vomiting, urticaria; severe skin irritant; readily absorbed through skin; TSCA listed

Precaution: Combustible

Hazards: Decomp. Prods.: Heated to decomp., emits acid smoke and irritating fumes

HMIS: Health 1, Flammability 1, Reactivity 0

Uses: Synthetic flavor for pharmaceuticals; antifungal agent in medicine

Features: Sweet flavor

Use Level: 0.2% max. (as acid, in finished cosmetics)

Regulatory: FEMA GRAS; BP, EP compliance; Canada DSL

Regulatory: TSCA listed

Precaution: Combustible

Hazardous Decomp. Prods.: Heated to decomp., emits acid smoke and irritating fumes

HMIS: Health 1, Flammability 1, Reactivity 0

Uses: Synthetic flavor for pharmaceuticals; antifungal agent in medicine

Features: Sweet flavor

Use Level: 0.2% max. (as acid, in finished cosmetics)

Regulatory: FEMA GRAS; BP, EP compliance; Canada DSL

®️=pharmaceutical grade

Manuf./Distrib.: Advanced BioTech
http://www.adv-bio.com; Advanced Synthesis Tech.
http://www.advancedsynthesis.com; Alfa Chem† http://www.alfachem1.com; Arkema
http://www.total.com; Biddle Sawyer†
http://www.biddlesawyer.com
CasChem
http://www.rutherfordchemicals.com/caschem.html; Fluka http://www.sigma-aldrich.com; Functional Foods†
Integra† http://www.integrachem.com
KIC Chem.† http://www.kicchemicals.com;
http://www.kicgroup.com; NetQem†
http://www.netgum.eu; Penta Mfg.†
http://www.pentamfg.com; RTD Hallstar
http://www.rtdhallstar.com; Ruger†
http://www.rugerchemical.com
SAFC Specialties
http://www.safcspecialties.com; Seppic
http://www.seppic.com; Sigma
http://www.sigma-aldrich.com/belgium;
Spectrum Quality Prods.†
http://www.spectrumchemical.com
Universal Preserv-A-Chem†
http://www.upichem.com; Voigt Global
Distrib.† http://www.vgdllc.com

9-Undecylenic acid; Undecyl-10-enic acid; 10-Undecylenic acid; n-Undecylenic acid. See Undecylenic acid

Undecylenic aldehyde. See 9-Undecenyl; 10-Undecenal

Undecylenoyl diethanolamide. See Undecylenamide DEA

Undecylenoyl glycine

Uses: Dandruff treatment ingred.

Trade Names: Lipacide™ UG

Undecylic aldehyde; n-Undecylic aldehyde. See Undecanal

γ-Undecyl lactone. See γ-Undecalactone

2-Undecynoic acid methyl ester. See Methyl 2-undecynoate

Unhydrogenated lard. See Lard

Unsaponifiable shea butter. See Shea butter (Butyrospermum parkii) unsaponifiables

Unslaked lime. See Calcium oxide

Uralenic acid. See Glycyrrhetinic acid

Uranine. See D&C Yellow No. 8; Fluorescein sodium
Chemical Component Cross-Reference

**Urea**

CAS 57-13-6; EINECS/ELINCS 200-315-5

**INS927b; E927b**

**Classification:** Organic compd.

**Definition:** Prod. of protein metabolism excreted from human urine

**Empirical:** CH₄N₂O

**Formula:** NH₂CONH₂

**Properties:** Colorless to wh. cryst. or powd., almost odorless; sl. ammonia odor on standing; sol. in water, boiling alcohol, benzene, oxygenated solvs.; sl. sol. in ether; insol. in chloroform; m.w. 60.06; dens. 1.335; m.p. 132.7 C; b.p. dec.

**Toxicology:** LD₅₀ (oral, rat) 14,300 mg/kg, (IV, rat) 5300 mg/kg, (subcut., rat) 8200 mg/kg; mod. toxic by ing., IV, subcut. routes; human skin irritant; experimental carcinogen, neoplastigen, reproductive effects; human reproductive effects by intraplacental route; human mutagenic data; TSCA listed

**Precaution:** Incompat. with NaNO₂, P₂Cl₅, nitrosyl perchlorate; reacts with sodium or calcium hypochlorite to form explosive nitrogen trichloride; prep. of ¹⁵N urea is hazardous

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of NOₓ

**NFPA:** Health 1, Flammability 0, Reactivity 0

**Storage:** Store @ R.T.

**Uses:** Diuretic, antiseptic in pharmaceuticals, injectables, orals; keratin softener for dry skin prods.; in ammoniated dentifrices

**Regulatory:** FDA 21CFR §175.105, 175.300, 176.180, 176.320, 177.1200, 177.1900, 184.1923, GRAS; BATF 27CFR §240.1051; Canada DSL; FDA approved for injectables, orals; BP, EP compliance

**Manuf./Distrib.:** AMRESCO†


†=pharmaceutical grade

**Urea amidohydrolase.** See Urease

Urea, N-[1,3-bis (hydroxymethyl)-2,5-dioxo-4-imidazolidinyl-N’,-bis (hydroxymethyl)].

See Diazolidinyl urea

Handbook of Pharmaceutical Additives, Third Edition 2223
Urea, N-(4-chlorophenyl)-N’-(3,4-dichlorophenyl)-. See 3,4,4’-Trichlorocarbanilide

Urea dioxide. See Urea peroxide

Urea-(2,5-dioxo-4-imidazolidinone). See Allantoin

Urea hydrogen peroxide; Urea hydroperoxide. See Urea peroxide

Urea peroxide

CAS 124-43-6; EINECS/ELINCS 204-701-4

UN 1511 (DOT)

Synonyms: Carbamide peroxide; Hydrogen peroxide carbamide; Hydrogen peroxide with urea (1:1); Percarbamide; Perhydrolyzed urea; Urea dioxide; Urea hydrogen peroxide; Urea hydroperoxide

Empirical: CH₆N₂O₃

Formula: H₂NCONH₂ • H₂O₂

Properties: Wh. cryst. or cryst. powd.; sol. in water, alcohol, ethylene glycol; m.w. 94.07; m.p. 75-78 C (dec.)

Toxicology: Irritant to skin, eyes, mucous membranes; TSCA listed

Precaution: DOT: Oxidizer; dangerous fire risk in contact with org. materials; solvs. such as ether and acetone extract hydrogen peroxide and may form explosive solns.; dec. by moisture @ 40 C

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating vapors

Storage: Moisture-sensitive; refrigerate

Uses: In determination of urea in urine, blood, and other body fluid

Regulatory: FDA 21CFR §184.1924, GRAS; Japan approved; Canada DSL


5-Ureidohydantoin. See Allantoin

Urogafin acid; Urogranoic acid. See Diatrizoic acid

Urtica dioica; Urtica dioica extract. See Nettle (Urtica dioica) extract

Usnea barbata; Usnea barbata extract. See Lichen (Usnea barbata) extract

UV Absorber-3. See Octocrylene

VAE: VA/ethylene copolymer. See Ethylene/VA copolymer

Val. See L-Valine

Valeral; Valeraldehyde. See n-Valeraldehyde

n-Valeraldehyde

CAS 110-62-3; EINECS/ELINCS 203-784-4

UN 2058 (DOT); FEMA 3098

Synonyms: Aldehyde C-5; Amylaldehyde;

Butyl formal; Pentaldehyde; Pentanal; n-Pentanal; Valeral; Valeraldehyde; Valerianic aldehyde; Valeric acid aldehyde; Valeric aldehyde; Valerylaldehyde

Empirical: C₅H₁₀O

Formula: CH₃(CH₂)₃CHO

Properties: Colorless liq.; sol. in alcohol, ether, propylene glycol, oils; sl. sol. in water; m.w. 86.13; dens. 0.81 (20/4 C); m.p -92 C; b.p. 103.4 C; flash pt. 4 C; ref. index 1.3882

Toxicology: ACGIH TLV/TWA 50 ppm; LD₅₀ (oral, rat) 5660 µl/kg, (IP, mouse) 20 mg/kg; (skin, rabbit) 4857 mg/kg; LCLo (inh., rat, 4 h) 4000 ppm; m.d. toxic by ing.; mildly toxic by inh., skin contact; severe eye and
Valerian (Valeriana officinalis) extract

CAS: 8057-49-6; 8008-88-6; EINECS/ELINCS 232-501-7
FEMA 3099

Synonyms: Valeriana officinalis; Valeriana officinalis extract; Valeriana officinalis root extract; Valerian extract. See Valerian (Valeriana officinalis) extract

Valerianic acid. See n-Valeric acid

Valerianic aldehyde. See n-Valeraldehyde

Valerian root extract. See Valerian (Valeriana officinalis) extract

Valerian (Valeriana officinalis) extract
CAS: 8057-49-6; 8008-88-6; EINECS/ELINCS 232-501-7
FEMA 3099

Synonyms: Valeriana officinalis; Valeriana officinalis extract; Valeriana officinalis root extract; Valerian extract; Valerian root extract

Definition: Extract of rhizomes and roots of Valeriana officinalis

Properties: Powd.

Toxicology: LD50 (oral, mouse) 600 mg/kg, (IV, mouse) 1290 mg/kg, (subcut., mouse) 3590 mg/kg; LC50 (inh., mouse, 2 h) 4100 mg/m³; mildly toxic by inh.; corrosive irritant to skin, eyes, mucous membranes; TSCA listed

Precaution: Combustible liq.; DOT: corrosive material

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 2, Flammability 1, Reactivity 0
Uses: Synthetic flavor for pharmaceuticals; pharmaceutical intermediate and reagent
Valeric acid aldehyde. See n-Valeraldehyde

Valeric acid, 2-amino-3-methyl. See L-Isoleucine

Valeric acid, 2-amino-4-methyl-. See L-Leucine

Valeric acid, methyl ester. See Methyl valerate

Valeric aldehyde. See n-Valeraldehyde

4-Valerolactone. See γ-Valerolactone

γ-Valerolactone

CAS 108-29-2; 57129-69-8; EINECS/ELINCS 203-569-5

FEMA 3103

Synonyms: 4,5-Dihydro-5-methyl-2(3H)-furanone; 4-Hydroxypentanoic acid lactone; 4-Hydroxyvaleric acid lactone; 4-Methylbutyro lactone; 4-Methyl-γ-butyrolactone; γ-Methyl-γ-butyrolactone; γ-Pentalactone; 4-Pentanolide; 4-Valerolactone

Classification: lactone

Empirical: C₅H₈O₂

†=pharmaceutical grade

Properties: Colorless mobile liq., sweet herbaceous odor; misc. with alcohol, fixed oils, water; m.w. 100.13; dens. 1.047-1.054; m.p. -31 C; b.p. 205-206.5 C; flash pt. (COC) 205 F; ref. index 1.433

Toxicology: LD₅₀ (oral, rat) 8800 mg/kg; mod. toxic by ing.; skin irritant; mutagenic data; TSCA listed

Precaution: Combustible liq. exposed to heat or flame; reactive with oxidizers

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Storage: Store in cool, dry place in tightly sealed containers, protected from heat, light

Uses: Synthetic flavor for pharmaceuticals

Use Level: < 1%

Regulatory: FDA 21 CFR §172.515; FEMA GRAS; Canada DSL

Manuf./Distrib.: Alfa Aesar†

http://www.alfa.com; Alfa Chem†

http://www.alfachem1.com; Augustus Oils Ltd http://www.augustus-oils.ltd.uk; BASF

http://www.basf.com; Berje

http://www.berjeinc.com

Celanese

http://www.celanesechemicals.com;

http://www.chemvip.com; Dow†

http://www.dow.com; ExxonMobil

http://www.exxonmobilchemical.com; Fluka

http://www.sigma-aldrich.com; Functional Foods† http://www.functionalfoods.com

Grau Aromatics http://www.grau-aromatics.de; Oxford Chems. Ltd

http://www.oxfordchemicals.com; Penta Mfg.† http://www.pentamfg.com;

Prodasynth http://www.prodasynth.com;

R.C. Treatt & Co. Ltd http://www.rctreatt.com

SAFC Specialties

http://www.safcspecialties.com; Sigma

http://www.sigma-aldrich.com/belgium;

Spectrum Quality Prods.†

http://www.spectrumchemical.com;

Synasia† http://www.synasia.com; Whyte Chems. Ltd

http://www.whytechemicals.co.uk

Xinchem† http://www.whytechemicals.co.uk

Valerone. See Diisobutyl ketone

Valeryl acetyl. See 2,3-Heptanediione

Valerylaldehyde. See n-Valeraldehyde

Validol. See Methyl isovalerate

Valine. See L-Valine

DL-Valine. See DL-α-Valine

DL-α-Valine

CAS 516-06-3; EINECS/ELINCS 208-220-0

FEMA 3444

Synonyms: α-Aminoisovaleric acid; DL-2-Aminoisovaleric acid; (±)-α-Aminoisovaleric acid; DL-Valine

Classification: Amino acid

Empirical: C₅H₁₀NO₂

Formula: (CH₃)₂CHCH(NH₂)COOH

Properties: Wh. solid; odorless; sol. 70 g/l in water; m.w. 117.15; m.p. 298 C (dec.)
Chemical Component Cross-Reference

L-Valine

**CAS 72-18-4; EINECS/ELINCS 200-773-6**

**Synonyms:** α-Aminoisovaleric acid; l-(+)–α-Aminoisovaleric acid; Val; Valine

**Classification:** Essential amino acid

**Definition:** Avail. commercially as the naturally occurring L(+) enantiomer

**Empirical:** C₅H₁₁NO₂

**Properties:** Wh. cryst. solid, char. taste; sol. in water; very sl. sol. in alcohol; insol. in ether; m.w. 117.15; dens. 1.230; m.p. 315°C

**Toxicology:** LD₅₀ (IP, rat) 5390 mg/kg; mutagenic data; TSCA listed

**Hazardous Decomp. Pros.:** Heated to comp., emits toxic fumes of NOₓ

**Uses:** Dietary supplement, nutrient, flavor in pharmaceuticals; culture media; biochemical and nutritional research; infusion sol’ns.; diagnostic aids; peptide drugs raw material

**Regulatory:** FDA 21CFR §172.320 (limitation 7.4%); BP, EP compliance; Japan approved; Canada DSL

**Manuf./Distrib.:** ADA Int'l.†

**http://www.joinme.net/ada/index.htm**

AMINO GmbH†

**http://www.aminoactives.com**

AMRESCO†

**http://www.amresco-inc.com**

Ajinomoto

**http://www.ajinomoto.co.jp**

**http://www.ajinomoto.com**

Aldrich†

**http://www.sigma-aldrich.com/belgium**

Alfa Chem†

**http://www.alfachem1.com**

Am. Biorganics; Asiamerica Int'l.†; Austin†

**http://www.austinchemical.com**

Bachem†

**http://bachem.com**

Boith China†

**http://www.boith.com**

Degussa AG/Health & Nutrition; Fluka

**http://www.sigma-aldrich.com**

Fuerst Day Lawson

**http://www.fdl.co.uk**

Integra†

**http://www.integrachem.com**

Kyowa Hakko Kogyo†

**http://www.kyowa.co.jp**

Mallinckrodt

**http://www.mallbaker.com**

Penta Mfg.†

**http://www.pentamfg.com**

R.W.

†=pharmaceutical grade

Valine aldehyde. See 2-Methylpropanal

Vanilla

**CAS 8024-06-4; 977004-06-0**

**FEMA 3104**

**Synonyms:** Protovanol; Vanilla beans; Vanilla flavor; Vanilla planifolia; Vanilla pods; Vanilla tahitensis

**Definition:** Natural prod. obtained from cured full-grown unripe fruit of Vanilla planifolia or V. tahitensis

**Properties:** Black brown solid paste; sp. gr. 1.019-1.021; ref. index 1.430-1.450

**Precaution:** Wear chemical safety goggles and protective gloves

**Storage:** Store in tightly sealed and preferably full containers in cool, dry and ventilated area; protect from heat/overheating and light sources

**Uses:** Natural flavor for pharmaceuticals

**Features:** Sweet vanilla bean balsam odor

**Regulatory:** FDA 21CFR §135.110, 163.111, 163.112, 163.113, 163.114, 163.117, 163.123, 163.130, 163.135, 163.140, 163.145, 163.150, 163.153, 163.155, 169.175, 169.176, 160.177, 169.178, 169.179, 169.180, 169.3, 182.10, GRAS; FEMA GRAS; Canada DSL; Japan approved

**Manuf./Distrib.:** Adept Sol’ns.†; Alfa Chem†

**http://www.alfachem1.com**

Ashland†

**http://www.ashchem.com**

Asiamerica Int'l.†; Bell Flavors & Fragrances

**http://www.bellff.com**

Biolandes

**http://www.biolandes.com**

Chr. Hansen Inc†

**http://www.chr-hansen.com**

Danisco USA

**http://www.danisco.com**

De
Chemical Component Cross-Reference

Monchy Aromatics
http://www.monchy-aromatics.com
Eramex Aromatics  http://www.eramex.de;
F.D. Copeland
http://www.copelandoil.co.uk; FONA Int'l.†
http://www.fona.com; Fleurchem
http://www.fleurchem.com; Food Ingred.
Tech. Ltd  http://www.fit-ltd.com
Foote & Jenks†; Frutarom Ltd
http://www.frutarom.com; Frutarom
http://www.frutarom.com; George Uhe
http://www.uhe.com; Givaudan Fragrances
http://www.givaudan.com
Hoffmann-LaRoche
http://www.rocheusa.com; Int'l. Flavors &
Fragrances US  http://www.iff.com; Penta
Mfg.† http://www.pentamfg.com; Quest
Int'l. http://www.questintl.com; Robertet
http://www.robertet.com
Spice King; Synthite Ltd
http://www.synthite.co.uk; V. Mane Fils SA
http://www.mane.com; Virginia Dare
Extract†  http://www.virginiadare.com

Vanilla beans; Vanilla flavor.  See Vanilla
Vanillal.  See Ethyl vanillin
Vanillaldehyde.  See Vanillin
Vanilla planifolia; Vanilla pods; Vanilla
tahitensis.  See Vanilla
Vanillic alcohol.  See Vanillyl alcohol
Vanillic aldehyde.  See Vanillin

Vanillin
CAS 121-33-5; EINECS/ELINCS 204-465-2
FEMA 3107
Synonyms: m-Anisaldehyde, 4-hydroxy-;
Benzaldehyde, 4-, hydroxy-3-methoxy-; 4-
Hydroxy-m-anisaldehyde; p-Hydroxy-m-
anisaldehyde; 4-Hydroxy-3-
methoxybenzaldehyde; 3-Methoxy-4-
hydroxybenzaldehyde;
Methylprotocatechualdehyde;
Methylprotocatechuic aldehyde;
Protocatechualdehyde, methyl-;
Vanillaldehyde; Vanillic aldehyde; p-Vanillin
Classification: Substituted aromatic aldehyde
Definition: Methyl ether of protocatechuic aldehyde
Empirical: C_{8}H_{9}O_{3}
Formula: (CH_{3}O)(OH)C_{6}H_{3}CHO
Properties: Wh. cryst. needles; pleasant vanilla odor and taste; sol. in oxygenated and
aromatic solvs.; sol. in 125 parts water, 20
parts glycerol, 2 parts 95% alcohol, chloroform,
ether; m.w. 152.16; dens. 1.056; vapor
pressure 107; m.p. 80-81 C; b.p. 285 C; flash
pt. (TCC) 153 C
Toxicology: LD50 (oral, rat) 1580 mg/kg, (IP,
rat) 1160 mg/kg, (subcut., rat) 1500 mg/kg;
LDLo (iv, dog) 1320 mg/kg; mod. toxic by
ing., IP, subcut., IV routes; experimental
reproductive effects; human mutagenic
data; TSCA listed
Precaution: Combustible; violent reactions
with Br2, HClO4, potassium-t-butoxide, t-
chlorobenzene + NaOH, formic acid +
thallium nitrate; incompatible with strong
oxidizers, reducers
Hazardous Decomp. Prods.: Heated to
decom., emits CO, CO2, acrid smoke and
irritating fumes
HMIS: Health 1, Flammability 0, Reactivity 0
Storage: Moisture- and light-sensitive
Uses: Excipient for pharmaceuticals, orals,
topicals; synthetic flavor for
pharmaceuticals
Features: Aromatic, perfume, vanilla-like flavor
Regulatory: FDA 21CFR §135.110, 163.111,
163.112, 163.113, 163.114, 163.117, 163.123,
163.130, 163.135, 163.140, 163.145, 163.150,
163.153, 163.155, 169.180, 169.181, 169.182,
182.60, 182.90, GRAS; FEMA GRAS;
163.112, 163.113, 163.114, 163.117, 163.123,
163.130, 163.135, 163.140, 163.145, 163.150,
163.153, 163.155, 169.180, 169.181, 169.182,
182.60, 182.90, GRAS; FEMA GRAS;
Australia AICS; Canada DSL; Japan approved
as flavoring; FDA approved for orals, topicals;
USP/NF, BP, EP compliance
Manuf./Distrib.: AAA Int'l.
http://www.aaainternational.com; ADA Int'l.
http://www.joinme.net/ada/index.htm; AMC
Chems.†; AMRESCO†  http://www.amresco-
inc.com; Adept Sol'ns.†
Adrian Amer.  http://www.adrianusa.com;
Advanced BioTech  http://www.adv-
bio.com; Alfa Chem†
http://www.alfachem1.com; Amalgamet†
http://www.amalgamet.com; Ashland†
http://www.ashchem.com
Asiameaha Int'l.†; Astral Extracts
http://www.astralextracts.com; Augustus
Oils Ltd  http://www.augustus-oils.ltd.uk;
Avatar† http://www.avatarcorp.com;
Aventis Pharmaceuticals†
http://www.aventispharma-us.com
Axxence Aromatic GmbH
http://www.axxence.com;
http://www.axxence.de; Brenntag
Southeast†; CPI Chems.
http://www.cpichem.com; Camida Ltd†
http://www.camida.com; Charkit†
http://www.charkit.com
**Chemical Component Cross-Reference**

<table>
<thead>
<tr>
<th>Chemical Component</th>
<th>Manufacturer/Web Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vanillin acetate</td>
<td>CAS 881-68-5; EINECS/ELINCS 212-920-1</td>
</tr>
<tr>
<td></td>
<td>FEMA 3108</td>
</tr>
<tr>
<td></td>
<td>Synonyms: 4-Acetoxy-3-methoxybenzaldehyde; 4-(Acetyl oxy)-3-methoxybenzaldehyde; Acetyl vanillin; 4-Formyl-2-methoxyphenyl acetate; 3-Methoxy-4-acetoxybenzaldehyde; Vanillyl acetate</td>
</tr>
<tr>
<td></td>
<td>Empirical: C_{10}H_{12}O_{4}</td>
</tr>
<tr>
<td></td>
<td>Formula: CH_{3}CO_{2}C_{6}H_{3}(CHO)OCH_{3}</td>
</tr>
<tr>
<td></td>
<td>Properties: Cryst. solid, floral balsamic odor; sol. in alcohol, ether; sl. sol. in water; m.w. 194.19; m.p. 78-79 C</td>
</tr>
<tr>
<td></td>
<td>Uses: Synthetic flavor for pharmaceuticals</td>
</tr>
<tr>
<td></td>
<td>Features: Sweet creamy vanilla powdery heliotropin odor</td>
</tr>
<tr>
<td></td>
<td>Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL</td>
</tr>
<tr>
<td></td>
<td>Manuf./Distrib.: SAFC Specialties <a href="http://www.safcspecialties.com">http://www.safcspecialties.com</a></td>
</tr>
<tr>
<td></td>
<td>Vanillin alcohol. See Vanillyl alcohol</td>
</tr>
<tr>
<td>Vanillin isobutyrate</td>
<td>CAS 20665-85-4; EINECS/ELINCS 243-956-6</td>
</tr>
<tr>
<td></td>
<td>FEMA 3754</td>
</tr>
<tr>
<td></td>
<td>Synonyms: 4-Hydroxy-meta-anisaldehyde isobutyrate; 4-Hydroxy-3-methoxybenzaldehyde 2-methyl propionate; Isobutyl lignate; isobutyric acid ester with vanillin; 2-Methoxy-4-carbaldehyde-phenyl 2-methylpropanoate; Vanillyl isobutyrate</td>
</tr>
<tr>
<td></td>
<td>Empirical: C_{12}H_{14}O_{4}</td>
</tr>
</tbody>
</table>

**Note:** Regularized chemical names are indicated by †; the letter stands for pharmaceutical grade.
Chemical Component Cross-Reference

Vanillin methyl ether. See Veratraldehyde
Vanillyl alcohol. See Vanillin acetate
Vanillylaceton. See Zingerone
Vanillyl alcohol
CAS 498-00-0; EINECS/ELINCS 207-852-4
FEMA 3737
Synonyms: 4-Hydroxy-3-methoxybenzene methanol; 4-Hydroxy-3-methoxybenzyl alcohol; 4-Hydroxy-3-methoxyphenyl methanol; 4-(Hydroxymethyl)-2-methoxyphenol; 3-Methoxy-4-hydroxybenzyl alcohol; Vanillinic acid; Vanillin alcohol

Classification: Aromatic alcohol

Empirical: C8H10O3

Formula: HOClH3(OCH3)CH2OH

Properties: Wh. to tan. powd.; sol. in alcohol; insol. in water; m.w. 154.17; m.p. 112-115°C

Uses: Flavor for pharmaceuticals

Features: Sweet creamy phenolic vanilla tonka odor; sweet, creamy, milky taste with a slight powdery mouthfeel

Regulatory: FEMA GRAS; Canada DSL

Manuf./Distrib.: Advanced Synthesis Tech. (http://www.advancedsynthesis.com); Fluka (http://www.sigma-aldrich.com); Rhodia Organics (http://www.rhodia-ppa.com/ppa/home.jsp); SAFC Specialties (http://www.safcspecialties.com); Sigma (http://www.sigma-aldrich.com/belgium)

Vanillyl isobutyrate. See Vanillin isobutyrate

Varnish linseed oil. See Linseed (Linum usitatissimum) oil

Varnish Makers naphtha; Varnish Makers and Painters naphtha. See VM&P naphtha

Vaseline. See Petrolatum
**Chemical Component Cross-Reference**

**Properties:** Bluish pink; m.w. 393.30

**Toxicology:** Mutagen; TSCA listed

**Uses:** Colorant for pharmaceuticals, orals

**Regulatory:** D&C Red No. 30: FDA 21CFR §74.1330, 74.2330, 82.1330; FDA approved for orals


**See also** CI 73360; D&C Red No. 30

**Vegetable oil, hydrogenated.** See Hydrogenated vegetable oil

**Vegetable oil mist.** See Vegetable oil

**Vegetable protein hydrolysate; Vegetable protein, hydrolyzed.** See Hydrolyzed vegetable protein

**Venetian turpentine.** See Arabinogalactan

**Veratraldehyde**

**CAS** 120-14-9; EINECS/ELINCS 204-373-2

**FEMA** 3109

**Synonyms:** 3,4-Dimethoxybenzaldehyde; 3,4-Dimethoxybenzenecarbonal; Dimethyl ether protocatechualdehyde; Methyl vanillin; 4-o-Methylvanillin; Protocatechualdehyde dimethyl ether; Protocatechuic aldehyde dimethyl ether; Vanillin methyl ether; Veratric aldehyde; Veratryl aldehyde; Vertraldehyde

**Empirical:** C₉H₆O₃

**Formula:** (CH₃O)₂C₆H₃CHO

**Properties:** Need.; vanilla bean odor; freely sol. in alcohol, ether; sol. in oxygenated solvs.; sl. sol. in hot water; m.w. 166.18; m.p. 41-44 C; b.p. 281 C; flash pt. > 230 F

**Toxicology:** LD₅₀ (oral, rat) 2 g/kg; harmful solid; mod. toxic by ing.; skin irritant; TSCA listed

**Precaution:** Sol’ns. oxidize to veratric acid under influence of light

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Synthetic flavor for pharmaceuticals

**Features:** Vanilla-like flavor

**Regulatory:** FDA 21CFR §172.515; FEMA GRAS; Canada DSL

### Chemical Component Cross-Reference

| Aroma | http://www.wu-tong.com; Xinchem†  
http://www.finechemnet.com |

Veratric aldehyde. See Veratraldehyde
Veratrol; Veratrole. See o-Dimethoxybenzene
Veratrole methyl ether. See Methyl eugenol
Veratryl aldehyde. See Veratraldehyde
Verbena oil, Indian. See Lemongrass oil West Indian

**Verbenol**
CAS 473-67-6; EINECS/ELINCS 207-470-8  
FEMA 3594
Synonyms: 4-Hydroxy-2,6,6-trimethyl bicyclo[3.1.1] hept-2-ene; 2-Pinen-4-ol; Pinen-4-ol
Empirical: C\(_{10}\)H\(_{16}\)O
Properties: Fresh, herbaceous, piney, ozone-like odor; insol. in water; m.w. 152.24; dens. 0.9724; m.p. 52°C; ref. index 1.4900-1.4912
Toxicology: TSCA listed
Uses: Synthetic flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL
Manuf./Distrib.: Advanced Synthesis Tech.  
http://www.advancedsynthesis.com; Bedoukian Research  
http://www.bedoukian.com; Penta Mfg.  
http://www.pentamfg.com

(1S)-(−)-Verbenone
CAS 1196-01-6
Synonyms: 4,6,6-trimethylbicyclo[3.1.1]hept-3-en-2-one; L(−)-Verbenone
Empirical: C\(_{10}\)H\(_{14}\)O
Properties: M.w. 150.22; dens. 0.974; b.p. 227-228°C; flash pt. 185 F
Uses: Flavor for pharmaceuticals
Manuf./Distrib.: Advanced Synthesis Tech.  
http://www.advancedsynthesis.com; Aldrich http://www.sigma-aldrich.com

L(−)-Verbenone. See (1S)-(−)-Verbenone
Veridan. See Chromium hydroxide green
Vertenol. See 3-Methyl-2-buten-1-ol
Veratraldehyde. See Veratraldehyde
Vienna white. See Calcium carbonate
Vinegar acid. See Acetic acid, glacial; Acetic acid
Vinegar naphtha. See Ethyl acetate
Vinegar salts. See Calcium acetate
Vinyl acetate/crotonic acid copolymer
CAS 25609-89-6
Synonyms: 2-Butenoic acid, polymer with ethenyl acetate; Crotonic acid, polymer with vinyl acetate; Poly (vinyl acetate-crotonic acid); Poly (vinyl acetate-crotonic acid)
†=pharmaceutical grade

**Vinyl acetate/ethylene copolymer.** See Ethylene/VA copolymer
Vinyl acetate homopolymer; Vinyl acetate polymer; Vinyl acetate resin. See Polyvinyl acetate

Vinyl alcohol polymer. See Polyvinyl alcohol
Vinylbenzene. See Styrene
Vinylbenzene polymer. See Polystyrene
Vinylbenzol. See Styrene

Vinyl bromide
CAS 593-60-2; EINECS/ELINCS 209-800-6  
UN 1085 (DOT)
Synonyms: Bromoethene; Bromoethylene; VBR; Vinyl bromide, inhibited
Classification: Halogenated alkene
Empirical: C\(_{2}\)H\(_{3}\)Br
Formula: CH\(_{2}\)CHBr
Properties: Colorless liq. or compressed gas; pungent odor; misc. with alcohol, ether; insol. in water; m.w. 106.96; dens. 1.51; m.p. -138 C; b.p. 100 C
Toxicology: ACGIH TLV/TWA 5 ppm; LD\(_{50}\) (oral, rat) > 18150 µl/kg; may be harmful by inh., ing., or skin absorption; may cause irritation to eyes, skin, mucous membranes, upper respiratory tract; TSCA listed
Precaution: Incompat. with strong oxidizing agents; capable of creating a dust explosion
Hazardous Decomp. Prods.: Toxic fumes of CO, CO\(_2\); emits toxic fumes under fire conditions
Storage: Hygroscopic; keep tightly closed; protect from moisture; store in cool, dry place
Uses: Excipient for pharmaceuticals
Regulatory: FDA 21CFR §175.350, 176.170; Canada DSL
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com

**Vinyl acetate/ethylene copolymer.** See Ethylene/VA copolymer
Vinyl acetate homopolymer; Vinyl acetate polymer; Vinyl acetate resin. See Polyvinyl acetate

Vinyl alcohol polymer. See Polyvinyl alcohol
Vinylbenzene. See Styrene
Vinylbenzene polymer. See Polystyrene
Vinylbenzol. See Styrene

Vinyl bromide
CAS 593-60-2; EINECS/ELINCS 209-800-6  
UN 1085 (DOT)
Synonyms: Bromoethene; Bromoethylene; VBR; Vinyl bromide, inhibited
Classification: Halogenated alkene
Empirical: C\(_{2}\)H\(_{3}\)Br
Formula: CH\(_{2}\)CHBr
Properties: Colorless liq. or compressed gas; pungent odor; misc. with alcohol, ether; insol. in water; m.w. 106.96; dens. 1.51; m.p. -138 C; b.p. 100 C
Toxicology: ACGIH TLV/TWA 5 ppm; LD\(_{50}\) (oral, rat) > 18150 µl/kg; may be harmful by inh., ing., or skin absorption; may cause irritation to eyes, skin, mucous membranes, upper respiratory tract; TSCA listed
Precaution: Incompat. with strong oxidizing agents; capable of creating a dust explosion
Hazardous Decomp. Prods.: Toxic fumes of CO, CO\(_2\); emits toxic fumes under fire conditions
Storage: Hygroscopic; keep tightly closed; protect from moisture; store in cool, dry place
Uses: Excipient for pharmaceuticals
Regulatory: FDA 21CFR §175.350, 176.170; Canada DSL
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com

### Toxicology
- LD\(_{50}\) (oral, rat) > 18150 µl/kg; may be harmful by inh., ing., or skin absorption; may cause irritation to eyes, skin, mucous membranes, upper respiratory tract; TSCA listed

### Precaution
- Incompat. with strong oxidizing agents; capable of creating a dust explosion
- Toxic fumes of CO, CO\(_2\); emits toxic fumes under fire conditions

### Storage
- Hygroscopic; keep tightly closed; protect from moisture; store in cool, dry place
### Chemical Component Cross-Reference

<table>
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<tr>
<th>Component</th>
<th>Synonyms</th>
<th>CAS</th>
<th>UN 1303</th>
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<th>Toxicology</th>
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<th>Properties</th>
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<tr>
<td>Monochloroethene</td>
<td>Chlorethene; Chlorehylene; Chloroethene; Chloroethylene; Ethylene monochloride; Monochloroethylene; VC; VCM; Vinyl chloride monomer</td>
<td>75-01-4</td>
<td></td>
<td></td>
<td>ACGIH TLV/TWA 5 ppm; LD50 (oral, rat) 500 mg/kg; extremely toxic; mod. toxic by ing.; severe irritant to skin, eyes, mucous membranes; causes skin burns by evaporation and freezing; chronic exposure may cause liver injury; confirmed human carcinogen; human mutagenic data; experimental teragen, reproductive effector; prohibited for use in aerosol sprays; TSCA listed</td>
<td>Very dangerous fire hazard; severe explosion hazard as vapor; explosive limits in air 4-22%; prolonged exposure to air may cause explosive polymerization; vigorous reaction with oxidizers; explosive on contact with NOx</td>
<td>Colorless compressed gas, easily liquefied, ethereal odor; sol. in alcohol, ether; misc. with oxygenated and chlorinated solvs.; very sl. sol. in water; m.w. 62.50; dens. 0.9121 (liq., 20/20 C); vapor pressure 2600 mm; f.p. -159.7 C; b.p. -13.9 C; flash pt. -77 C</td>
</tr>
<tr>
<td>Monochloroethylene</td>
<td></td>
<td>75-35-4</td>
<td></td>
<td></td>
<td>ACGIH TLV/TWA 5 ppm; LD50 (oral, rat) 500 mg/kg; extremely toxic; mod. toxic by ing.; severe irritant to skin, eyes, mucous membranes; causes skin burns by evaporation and freezing; chronic exposure may cause liver injury; confirmed human carcinogen; human mutagenic data; experimental teragen, reproductive effector; prohibited for use in aerosol sprays; TSCA listed</td>
<td>Very dangerous fire hazard; severe explosion hazard as vapor; explosive limits in air 4-22%; prolonged exposure to air may cause explosive polymerization; vigorous reaction with oxidizers; explosive on contact with NOx</td>
<td>Colorless mobile liq., mild sweet odor</td>
</tr>
</tbody>
</table>

### Vinyl chloride homopolymer

- **Synonyms**: Polyvinyl chloride
- **Uses**: See Vinyl chloride
- **Properties**: Colorless mobile liq., mild sweet odor

### Vinyl chloride monomer

- **Synonyms**: See Vinyl chloride
- **Uses**: See Polyvinyl chloride
- **Properties**: Colorless mobile liq., mild sweet odor

### Vinylidene chloride: Vinylidene chloride (II)

- **Synonyms**: VINYLIDENE CHLORIDE, VINYL CHLORIDE, VINYLCHLORIDE
- **Uses**: See Vinylidene chloride monomer
- **Properties**: Colorless mobile liq., mild sweet odor
Chemical Component Cross-Reference

1-Vinyl-2-pyrrolidinone polymer. See PVP
Vinylpyrrolidone/dimethylaminoethyl methacrylate copolymer. See PVP/dimethylaminoethylmethacrylate copolymer
Vinyl pyrrolidone homopolymer. See PVP
1-Vinyl-2-pyrrolidone polymer, compd. with iodine. See PVP-iodine
Vinylpyrrolidone-vinyl acetate copolymer. See Copolyvidone
Vinylpyrrolidone/vinyl acetate copolymer. See PVP/VA copolymer
1-vinyl-2-pyrrolidone and vinyl acetate copolymer (6:4 ratio by mass). See Copolyvidone
m-Vinylstyrene. See m-Divinylbenzene
Vinyl trichloride. See 1,1,2-Trichloroethane
Vinyon. See Polyvinyl chloride
Viola odorata; Viola odorata flowers and leaves. See Violet

Violet
CAS 8024-08-6
FEMA 3110
Synonyms: Viola odorata; Viola odorata flowers and leaves; Violet flowers and leaves; Violet leaf absolute
Definition: Derived from flowers and leaves of Viola odorata
Properties: Dk. green, amber, visc. liq.; sol. in alcohol; paraffin oil; and propylene glycol; insol. in water
Uses: Natural flavor for pharmaceuticals
Features: Pleasant delicate floral odor, sl. bitter taste
Regulatory: FDA 21CFR §182.20, GRAS; FEMA GRAS (violet leaves absolute)

Violet 2. See Acid violet 49
Violet flowers and leaves; Violet leaf absolute. See Violet
Violet leaf alcohol. See 2,6-Nonadien-1-ol
Viosterol. See Ergocalciferol
Vipers bugloss (Echium plantagineum) oil CAS 84988-87-4; EINECS/ELINCS 284-877-7
Uses: Nutritional supplement; anti-irritant for skin care prod.; anti-inflammatory for joints, eczema, PMS, skin exposed to UV

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**Chemical Component Cross-Reference**

- **Vitamin B1**
- **Vitamin B9**
- **Vitamin B3**
- **Vitamin A**
- **Vitamin A palmitate**
- **Vitamin A acetate**
- **Vitamin C**
- **Vitamin B12**
- **Vitamin B7**
- **Vitamin B2**
- **Vitamin E**
- **Vitamin B6**
- **Vitamin B5**
- **Virginian prune bark**
- **Viridine**
- **Viscoleo oil**

**Synonyms:**
- Vitamin M
- Vitamin BX
- Vitamin Bc

**Trade Names:**
- Crossential® SA-14
- Vitamin A alcohol acetate
- Retinyl acetate
- Tocopheryl acetate
- Tocopheryl
- d-α-Tocopheryl
- DL-α-Tocopherol

**Classification:**
- Aromatic ketone

**Definition:**
- Commercial prod. is a mixt. of cis- and trans-isomers with trans-isomer predominating

**Empirical:**
- C₃₁H₄₆O₂

**Formula:**
- CH₃C₁₀H₄O₂C₂₀H₃₉

**Properties:**
- Yel. visc. oil or cryst.; odorless; insol. in water; sparingly sol. in methanol; sol. in ethanol, acetone, benzene, petrol. ether, hexane, dioxane, chloroform, ether, other fat solvs., veg. oils; m.w. 450.68; dens. 0.984; m.p. -20 C; ref. index 1.525

**Uses:**
- Component of enzyme systems associated with blood-clotting mechanism; antihemorrhagic drug; vitamin in pharmaceuticals

**Regulatory:**
- BP, EP compliance; Canada DSL

**Manuf./Distrib.:**
- Aldrich  [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
- Amerol  [http://www.amerolcorp.com](http://www.amerolcorp.com)
- BASF AG†  [http://www.basf.de](http://www.basf.de)
- Chemacon GmbH†  [http://www.chemacon.de](http://www.chemacon.de)
- EMD Chems.†  [http://www.emdchemicals.com](http://www.emdchemicals.com)
- Fluka  [http://www.sigma-aldrich.com](http://www.sigma-aldrich.com)
- Rochem Int'l.  [http://www.rochemintl.com](http://www.rochemintl.com)
- Sigma  [http://www.sigma-aldrich.com/belgium](http://www.sigma-aldrich.com/belgium)
- Spectrum Quality Prods.†  [http://www.spectrumchemical.com](http://www.spectrumchemical.com)
- Voigt Global Distrib.†  [http://www.vgdllc.com](http://www.vgdllc.com)
- Xinchem†  [http://www.finechemnet.com](http://www.finechemnet.com)

**Trade Names:**
- Vitamin K₁ Dry Powd. 1% GFP
- Vitamin K₁ Dry Powd. 5% GFP

**Vitamin K₁**
- CAS 84-80-0; EINECS/ELINCS 201-564-2
- Synonyms: Anthemorrhagic vitamin; 2-Methyl-3-phytyl-1,4-naphthoquinone; 2-Methyl-3-(3,7,11,15-tetramethyl-2-hexadecenyl)-1,4-naphthalenedione; 2-Methyl-3-(3,7,11,15-tetramethyl-hexadec-2-etyl)-(1,4) naphthoquinone; 1,4-Naphthalenedione, 2-methyl-3-(3,7,11,15-tetramethyl-2-hexadecenyl)-
- Phyloquinone; α-Phyloquinone; trans-Phyloquinone; Phyloquinone; Phytodione; Phytomenadione; Phytonadione (INCI); 3-Phytomenadione

**Classification:**
- Aromatic ketone

**Definition:**
- Commercial prod. is a mixt. of cis- and trans-isomers with trans-isomer predominating

**Empirical:**
- C₃₁H₄₆O₂

**Formula:**
- CH₃C₁₀H₄O₂C₂₀H₃₉

**Properties:**
- Yel. visc. oil or cryst.; odorless; insol. in water; sparingly sol. in methanol; sol. in ethanol, acetone, benzene, petrol. ether, hexane, dioxane, chloroform, ether, other fat solvs., veg. oils; m.w. 450.68; dens. 0.984; m.p. -20 C; ref. index 1.525

**Toxicology:**
- LD₅₀ (oral, mouse) 25 g/kg; LD₅₀ (subcut., mouse) 1 g/kg; mod. toxic by subcut. route; mildly toxic by ing.; no adverse human effects with prolonged ingestion; TSCA listed

**Precaution:**
- Unaffected by dil. acids, but destroyed by sol'n's. of alkali hydroxides and by reducing agents

**Hazardous Decomp. Prods.:**
- Heated to decomp., emits acrid smoke and irritating fumes

**Storage:**
- Keep well closed and protected from light

**Uses:**
- Component of enzyme systems associated with blood-clotting mechanism; antihemorrhagic drug; vitamin in pharmaceuticals
Vitamin B1 hydrochloride. See Thiamine HCl
Vitamin B6 hydrochloride. See Pyridoxine HCl
Vitamin B1 mononitrate. See Thiamine nitrate
Vitamin E nicotinate. See d-α-Tocopheryl nicotinate

**Definition:** Complex combination of hydrocarbons obtained by fractional distillation of petroleum; narrow boiling fraction of petroleum with distillation range 119-143 C

**Properties:** Colorless clear liq.; gasoline odor; nonfluorescent; volatile; insol. in water; dens. 0.850-0.870 (15.6/15.6 C); vapor pressure 40 mm Hg (20 C); pour pt. -56 C; b.p. 93-204 C; ref. index 1.3630

**Toxicology:** ACGIH TLV/TWA 300 ppm; LD50 (oral, rat) > 5000 mg/kg, (skin, rabbit) > 3000 mg/kg, (IV, mouse) 40 mg/kg; LC50 (inh., rat, 4 h) 3400 ppm; poison by IV; mildly toxic by inh.; eye, skin, and respiratory irritant; ing. can cause vomiting, diarrhea, drowsiness, pulmonary edema in severe cases; inh. of vapor can cause intoxication, headache; target organs: respiratory system, eyes, skin, CNS, blood, PNS; TSCA listed

**VOC Environmental:** Flamm.: LEL 1%; UEL 6%; dangerous fire hazard exposed to heat, flame, sparks, or oxidizers; explosive as fume exposed to heat or flame

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**NFPA:** Health 1, Flammability 3, Reactivity 0

**Uses:** Solvent for pharmaceuticals

**Regulatory:** FDA 21CFR §172.510; FEMA 21CFR §178.3800; SARA §311/312 acute health/chronic health/fire hazard; Canada DSL


See also Mineral spirits

**Volatile oil of mustard. See Allyl isothiocyanate**

**Vulcan red R. See D&C Red No. 36; 1-[(2-Chloro-4-nitrophenyl) azo]-2-naphthalenol**

Walnut extract; Walnut hull extract. See Walnut (Juglans regia) extract

**Walnut (Juglans regia) extract**

CAS 84012-43-1; EINECS/ELINCS 281-688-1

**FEMA 3111**

**Synonyms:** Juglans regia; Juglans regia extract; Walnut extract; Walnut hull extract

**Definition:** Extract of the husk and shells of the nut of Juglans regia

**Toxicology:** LD50 (IP, mouse) 75 mg/kg; TSCA listed

**Uses:** Natural flavor for pharmaceuticals; functional adjuvant for skin care prods. (helps relieve effects of eczema, in foot care, antiperspirants

**Regulatory:** FDA 21CFR §172.510; FEMA GRAS

**Manuf./Distrib.:** Bio-Botanica  http://www.bio-botanica.com; Grau Aromatics  http://www.grau-aromatics.de

**Trade Names Containing:** Crodamar Nut O

**Walnut (Juglans regia) oil**

CAS 8024-09-7; 84604-00-2
### Chemical Component Cross-Reference

**Synonyms:** Juglans regia; Juglans regia oil; Walnut oil

**Definition:** Oil derived from the nut meats of walnuts, Juglans regia

**Properties:** Pale yel. oily liq.; veg, odor; oil; insol. in water; dens. 0.93 kg/l; vapor dens. > 1.0; iodine no. 145-155; sapon. no. 190; flash pt. >300 F; ref. index 1.4691 (40 C)

**Toxicology:** TSCA listed

**Hazardous Decomp. Prods.:** None

**Storage:** Store away from flame, fire, and excessive heat

**Uses:** Solvent, lubricant for pharmaceuticals, topicals, ointments

**Regulatory:** FDA 21CFR §172.510, 175.300; Canada DSL


**Walnut oil.** See Walnut (Juglans regia) oil

**Washing soda.** See Sodium carbonate

**Waxes, carnauba.** See Carnauba (Copernicia cerifera) wax

**Waxes, microcrystalline.** See Microcrystalline wax

**Waxes, montan fatty acids.** See Montan acid wax

**Waxes, rice bran.** See Rice (Oryza sativa) wax

**Waxes and waxy substances, shellac.** See Shellac wax

**West Indian bay leaf oil.** See Bay (Pimenta acris) oil

**West Indian lemongrass oil.** See Lemongrass oil West Indian

**West Indian lime oil.** See Lime (Citrus aurantifolia) oil

†=pharmaceutical grade

**Wettable powder sulfur.** See Sulfur

**Wheat bran.** See Wheat (Triticum vulgare) bran

**Wheat bran extract; Wheat extract.** See Wheat (Triticum vulgare) bran extract

**Wheat germ.** See Wheat (Triticum vulgare) germ

**Wheat germ glycerides**

CAS 8046-25-1; 68990-07-8

**Synonyms:** Glycerides, wheat germ oil mono-, di- and tri-; Wheat germ oil mono-, di-, and triglycerides

**Definition:** Mixture of mono, di and triglycerides produced by transesterification of wheat germ oil

**Toxicology:** TSCA listed

**Uses:** Emollient, emulsifier, skin lubricant, anti-irritant

**Manuf./Distrib.:** Adept Sol'ns.; Universal Preserv-A-Chem† [http://www.upichem.com

**Trade Names:** Wickenol® 535

**Wheat germ oil.** See Wheat (Triticum vulgare) germ oil

**Wheat germ oil mono-, di-, and triglycerides.** See Wheat germ glycerides

**Wheat gluten.** See Wheat (Triticum vulgare) gluten

**Wheat husk oil.** See Wheat (Triticum vulgare) germ oil

**Wheat protein hydrolysate.** See Hydrolyzed wheat protein

**Wheat starch.** See Wheat (Triticum vulgare) starch; Starch

**Wheat (Triticum vulgare) bran**

**Synonyms:** Triticum vulgare; Triticum vulgare bran; Wheat bran

**Definition:** Broken coat material of grains of wheat, Triticum vulgare

**Uses:** Natural fiber for pharmaceuticals


**Wheat (Triticum vulgare) bran extract**

CAS 84012-44-2; EINECS/ELINCS 281-689-7

**Synonyms:** Triticum aestivum extract; Triticum aestivum germ extract; Triticum vulgare; Triticum vulgare extract; Wheat bran extract; Wheat extract

**Definition:** Extract of the bran of the wheat, Triticum vulgare

**Uses:** Skin conditioner

**Manuf./Distrib.:** Carrubba

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Chemical Component Cross-Reference

http://www.carrubba.com; Grau Aromatics
http://www.grau-aromatics.de
Trade Names Containing: Eashave; Iricalmin

Wheat (Triticum vulgare) germ
Synonyms: Triticum vulgare; Triticum vulgare germ; Wheat germ

Definition: Natural prod. obtained from the embryo of the bran of the wheat separated in milling

Uses: Nutrient, flavor, protein source, dietary fiber, complex carbohydrate source, filler for tablets

Trade Names: Defatted Wheat Germ #3; Defatted Wheat Germ #9

Wheat (Triticum vulgare) germ oil
CAS 8006-95-9; 68917-73-7

Synonyms: Bran absolute; Triticum aestivum germ oil; Triticum vulgare; Triticum vulgare oil; Wheat germ oil; Wheat husk oil

Definition: Oil obtained by expression or extraction of wheat germ

Properties: Lt. yel. oily liq.; bland; fat-sol.; misc. with chloroform, ether, benzene, petrol. ether; sl. sol. in alcohol; insol. in water; dens. 0.93-0.94; acid no. 6-20; iodine no. 120-140; sapon. no. 179-194; hyd. no. 10-48; ref. index 1.469-1.479

Toxicology: Skin and eye irritant; TSCA listed

Hazardous Decomp. Prods.: CO2; heated to decomp., emits acrid smoke and irritating fumes

Uses: Nutritional source, topical moisturizer and lubricant in pharmaceuticals; emollient for skin care prods.; occlusive solvent; source of natural vitamin E

Regulatory: BP, EP compliance (refined and virgin)

Manuf./Distrib.: ABITEC
http://www.abiteccorp.com; Aldivia
http://www.aldivia.com; Alfa Chem
http://www.alfachem1.com; Alzo
http://www.alzointernational.com; Amerol
http://www.amerolcorp.com
Anglia Oils† http://www.angliaoils.co.uk;
Arista Ind.† http://www.aristaindustries.com;
Asiamerica Int'l.†; Avatar† http://www.avatarcorp.com; Charkit
http://www.charkit.com
Cornelius Chem. Co. Ltd
http://www.cornelius.co.uk; Cosmetic Supplies USA
http://www.cosmeticsuppliesusa.com;

†=pharmaceutical grade

Croda Chem. Europe Ltd
http://www.croda.co.uk; Croda Inc
http://www.croda.com;
http://www.crodausa.com; Desert Whale
Jojoba http://www.desertwhale.com
GR Davis http://www.grdavis.com.au/;
http://www.kicgroup.com; Lipo†
http://www.lipochemicals.com
Mosselman NV http://www.mosselman.be;
Provital; Quimidis; RITA†
http://www.ritacorp.com; Ruger
http://www.rugerchemical.com; S. Black
http://www.sblack.com
Spectrum Naturals
http://www.spectrumnaturals.com;
Spectrum Quality Prods.†
http://www.spectrumchemical.com;
Universal Preserv-A-Chem†
http://www.upichem.com; Viobin
http://www.viobinusa.com/viohome.htm;
Vitamins, Inc† http://vitamins-inc.com
Voigt Global Distrib.
http://www.vgdllc.com; Westhove
http://www.westhove.com

Trade Names: EmCon™ W; Wheat Germ Oil CLR

Trade Names Containing: Cephalipin

Wheat (Triticum vulgare) gluten
CAS 8002-80-0; 93384-22-6; EINECS/ELINCS 232-317-7; 297-233-5

Synonyms: Devitalized wheat gluten; Gluten; Gutens, wheat; Triticum vulgare; Triticum vulgare gluten; Vital wheat gluten; Wheat gluten

Definition: Principal protein component of wheat; consists mainly of gliadin and glutenin

Properties: Cream to lt. tan powd.; sol. in alkalis; partly sol. in alcohol, dil. acids

Toxicology: No known toxicity; certain individuals may have gluten sensitivity or intolerance; ingestion may cause hives and angioedema; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Chemical Component Cross-Reference

Uses: Tablet coating agent, film-former for pharmaceuticals, orals, microencapsulation
Regulatory: FDA 21CFR §184.1322, GRAS; FDA approved for orals
Manuf./Distrib.: Alfa Chem†
http://www.alfachem1.com; Ashland†
http://www.ashchem.com; Avebe Am.†
http://www.avebe.com; Degussa AG/Health & Nutrition; Hesco http://www.hesco-inc.com
Sigma http://www.sigma-aldrich.com/belgium
Trade Names Containing: Gluplex® AC

Wheat (Triticum vulgare) starch
CAS 9005-25-8; 977052-26-8; EINECS/ELINCS 232-679-6
Synonyms: Triticum vulgare; Triticum vulgare starch; Wheat starch
Definition: Starch obtained from wheat, Triticum vulgare, contg. amylose and amylopectin
Empirical: \((\text{C}_6\text{H}_{10}\text{O}_5)_n\)
Properties: Lenticular or spherical gran.
Toxicology: May cause allergic reactions such as red eyes or stuffy nose; TSCA listed
HMIS: Health 0, Flammability 1, Reactivity 0
Uses: Pharmaceutical aid; disintegrant, filler, binder in tablets; demulcent and emollient in dusting powds.
Regulatory: FDA 21CFR §175.105, 178.3520, 182.70; BP, EP compliance
Manuf./Distrib.: Aldrich http://www.sigma-aldrich.com; Avebe Am.
Trade Names: Skin Flow C; Wheat Starch TB

Whiskey fusel oil. See Fusel oil refined
White beeswax. See Beeswax, white; Beeswax
White camphor oil. See Camphor (Cinnamomum camphora) oil
White caustic. See Sodium hydroxide
White cedarleaf oil; White cedar oil. See Cedar leaf (Thuja occidentalis) oil
White ceresin wax. See Ceresin
White charcoal. See Magnesium oxide
White copperas. See Zinc sulfate
White crystal. See Sodium chloride

†=pharmaceutical grade

White dextrin. See Dextrin
White flag extract. See Orris root extract
White gelatin. See Gelatin
White mercury precipitated. See Mercury ammonium chloride
White mineral oil; White oil. See Mineral oil
White ozokerite wax. See Ceresin
White petrolatum. See Petrolatum
White powder. See Ceresin
White precipitate. See Mercury ammonium chloride
White sandalwood oil. See Sandalwood (Santalum album) oil
White shellac. See Shellac
White soft paraffin. See Petrolatum
White spirit. See VM&P naphtha
White spirits. See Mineral spirits
White tea tree. See Cajeput (Melaleuca leucadendron) oil
White thyme extract. See Thyme (Thymus vulgaris) extract
White thyme oil. See Thyme oil red
White vitriol. See Zinc sulfate heptahydrate; Zinc sulfate
White wax. See Beeswax, white; Beeswax
Whiting. See Calcium carbonate
Whole wheat flour
Uses: Carrier in pharmaceutical tableting
Wild bergamot. See Horsemint (Monarda punctata) extract
Wild black cherry bark. See Wild cherry (Prunus serotina) bark
Wild chamomile extract. See Matricaria (Chamomilla recutita) extract
Wild cherry; Wild cherry bark. See Wild cherry (Prunus serotina) bark
Wild cherry bark extract. See Wild cherry (Prunus serotina) bark extract
Wild cherry (Prunus serotina) bark
Synonyms: Prunus serotina; Virginian prune bark; Wild black cherry bark; Wild cherry; Wild cherry bark
Definition: Dried bark of the wild cherry, Prunus serotina
Properties: Sl. odor; sweet tart cherry-like astringent aromatic flavor
Uses: Natural flavor for pharmaceuticals, cough syrups
Manuf./Distrib.: Chart http://www.chartcorp.com; Frutarom http://www.frutarom.com; Herbarium;
Whole Herb http://www.wholeherbcompany.com

Handbook of Pharmaceutical Additives, Third Edition 2239
Wild cherry (Prunus serotina) bark extract
CAS 84604-07-9; EINECS/ELINCS 283-284-0
FEMA 2276
Synonyms: Prunus serotina; Prunus serotina bark extract; Prunus serotina extract; Wild cherry bark extract
Definition: Extract derived from bark of wild cherry, Prunus serotina
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §182.20, GRAS; FEMA GRAS
Manuf./Distrib.: Astral Extracts
Carrubba http://www.carrubba.com;

Wild marjoram extract
CAS 8015-01-8
Synonyms: Origanum vulgare; Origanum vulgare extract
Definition: Extract of flowering ends of Origanum vulgare
Uses: Natural flavoring agent
Regulatory: FDA 21CFR §182.20, GRAS
Trade Names: Origanox™ OS-LB; Origanox™ WS; Origanox™ WS-LB
Trade Names Containing: Origanox OS; Origanox™ WS-CR

Wild pennyroyal. See Mentha arvensis oil
Willkinite. See Bentonite
Willinite. See Aluminum silicate
Wine ether. See Ethyl pelargonate
Wine fuel oil. See Fusel oil refined
Wine yeast oil. See Cognac oil, green or white
Winterbloom. See Witch hazel (Hamamelis virginiana) extract

Wintergreen extract. See Wintergreen (Gaultheria procumbens) extract

Wintergreen (Gaultheria procumbens) extract
CAS 90045-28-6; EINECS/ELINCS 289-888-0
FEMA 3112
Synonyms: Checkerberry extract; Gaultheria procumbens; Gaultheria procumbens extract; Wintergreen extract
Definition: Extract derived from Gaultheria procumbens
Properties: Colorless to yel.-redsh. liq.
Storage: 24 mos. shelf life; store in closed container, in a dark, fresh and dry place
Uses: Natural flavor for pharmaceuticals
Features: Curative, spicy, methyl salicylate odor;

†=pharmaceutical grade

Wintergreen (Gaultheria procumbens) oil
CAS 68917-75-9
FEMA 3113
Synonyms: Checkerberry oil; Gaultheria procumbens; Gaultheria procumbens oil; Partridge vine oil China; Sweet birch oil; Teaberry oil; Wintergreen oil; Wintergreen oil, China; Wintergreen oil, Chinese
Definition: Oil derived from Gaultheria procumbens
Properties: Pale yel. to reddish brn. liq.; intensely sweet odor; sol. in paraffin oil, alcohol; sl. sol. in water; insol. in propylene glycol; sp.gr. 1.17618-1.18200; ref. index 1.52900-1.54100 (20 C)
Toxicology: Toxic; strong irritant; ing. of sm. amts. may cause severe poisoning and death; very irritating to mucous membranes and skin; absorbed readily through the skin; TSCA listed
HMIS: Health 1, Flammability 1, Reactivity 0
Uses: Natural flavor for pharmaceuticals, toothpaste and tooth powds.; aromatic; astringent; stimulant; counterirritant
Features: Nondiscoloring in most media
Regulatory: FEMA GRAS; Japan approved; BP, EP compliance; Canada DSL
Manuf./Distrib.: Advanced BioTech
http://www.adv-bio.com; Aldrich
http://www.sigma-aldrich.com; Buckton Page Ltd http://www.bucktonpage.com;
Chinessence http://www.chinessence.com;
Citrus and Allied Essences http://www.citrusandallied.com
F.D. Copeland
http://www.copelandandoil.co.uk; Fleurchem
http://www.fleurchem.com; Fluka
http://www.sigma-aldrich.com; Fuerst Day Lawson http://www.fdl.co.uk; Ruger
http://www.rugerchemical.com
Sarcom http://www.sarcominc.com; Sigma
http://www.sigma-aldrich.com/belgium;
See also Methyl salicylate

Wintergreen oil. See Wintergreen (Gaultheria
Chemical Component Cross-Reference

**procumbens)** oil; Methyl salicylate
Wintergreen oil, China; Wintergreen oil, Chinese. See Wintergreen (Gaultheria procumbens) oil
Witch hazel; Witch hazel extract. See Witch hazel (Hamamelis virginiana) extract
Witch hazel (Hamamelis virginiana) extract
CAS 84696-19-5; 68916-39-2; 330190-90-0
Synonyms: Hamamelis; Hamamelis extract; Hamamelis virginiana; Winterbloom; Witch hazel; Witch hazel extract

**Definition:** Extract containing hamamelitannin obtained from the twigs, bark, and leaves of *Hamamelis virginiana*

**Properties:** Colorless to pale liq.; sol. in ethanol, silicone oil, and isononyl isononanoate; insol. in water, corn oil, olive oil, min. oil, butylene glycol, and propylene glycol

**Toxicology:** TDLo (subcut., rat, 73 wks intermittent) 2920 mg/kg; questionable carcinogen; experimental tumorigen; mutagenic data; mild irritant; TSCA listed

**Precaution:** Combustible; can react with oxidizing materials

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and fumes

**HMIS:** Health 1, Flammability 2, Reactivity 0

**Storage:** Keep tightly sealed in a dry place @ R.T.

**Uses:** Astringent in hemorrhoidal prods.

**Manuf./Distrib.:** Active Organics

http://www.activeorganics.com; Alban Muller
http://www.albanmuller.com; Bio-Botanica
http://www.bio-botanica.com;
Biosil Tech.
http://www.biosiltech.com;
Carrubba
http://www.carrubba.com
Chart
http://www.chartcorp.com;
Cosmetochem Int’l.
http://www.cosmetochem.ch; Frutarom
http://www.frutarom.com; Gattefosse
http://www.gattefossecorp.com; PureWorld Botanicals
http://www.pureworld.com
Ruger†
http://www.rugerchemical.com;
Strahl & Pitsch
http://www.strahlpitsch.com; Thornley
http://www.thornleycompany.com; Voigt
Global Distrib.
http://www.vgdllc.com

Wood alcohol; Wood naphtha. See Methyl alcohol
Wood pulp, bleached. See Cellulose
Wood rosin. See Rosin
Wood spirit. See Methyl alcohol
Wood sugar. See D(+)-Xylose

†=pharmaceutical grade

Wood turpentine. See Turpentine
Wood vinegar. See Pyroligneous acid
Wool alcohol. See Lanolin alcohol
Wool fat; Wool grease. See Lanolin
Wool orange G. See Acid orange 10
Wool violet. See Acid violet 49
Wool wax. See Lanolin
Wool wax alcohol. See Lanolin alcohol
Wormwood; Wormwood acid. See Succinic acid

Wormwood (Artemisia absinthium) oil
CAS 8008-93-3
FEMA 3115; 3116

**Synonyms:** Absinthe oil; Absinthium oil; Armoise oil; Artemisia absinthium; Artemisia absinthium oil; Artemisia oil; Artemisia vulgaris oil; Mugwort oil; Wormwood oil

**Definition:** Volatile oil from leaves and tops of *Artemisia absinthium*, contg. thujyl alcohol and acetate, thujone, phellandrene, cadinene

**Properties:** Almost colorless, yel. amber, to dk. grn. or brn. oily liq.; very strong odor; sol. in ether, 2 vols 80% alcohol; very sl. sol. in water; dens. 0.925-0.955 (15/15 C); flash pt. 132 F; ref. index 1.460-1.4741 (20 C)

**Toxicology:** Liq. may irritate eyes and skin, cause dermatitis; repeated contact may cause allergic dermatological reactions; a narcotic poison in large or repeated doses, causing headache, trembling, and convulsions; ing. of the volatile oil may cause GI symptoms, nervousness, stupor, coma, and death

**Precaution:** Combustible; will ignite if moderately heated

**Hazardous Decomp. Prods.:** Forms CO, CO2 on burning

**Storage:** Store in cool, dry area in tightly closed containers; protect from light

**Uses:** Natural flavor for pharmaceuticals; tonic; stomachic; febrifuge; anthelmintic

**Regulatory:** FDA 21CFR §172.510; FEMA GRAS; BP, EP compliance; Canada DSL

**Manuf./Distrib.:** Astral Extracts

http://www.astroalextracts.com; Berje
http://www.berjeinc.com; Buckton Page Ltd
http://www.bucktonpage.com; Eramex Aromatics
http://www.eramex.de; F.D.
Copeland
http://www.copelandoil.co.uk
Fleurchem
http://www.fleurchem.com
Lebermuth
http://www.lebermuth.com; Liberty Natural Prods.
Chemical Component Cross-Reference

http://www.libertynatural.com; Penta Mfg.
http://www.pentamfg.com; Polarome Int'l.
http://www.polaracom.com

Wormwood oil. See Wormwood (Artemisia absinthium) oil
WS-23. See N2,3-Trimethyl-2-isopropylbutamide

Xanthan. See Xanthan gum

Xanthan gum
CAS 11138-66-2; EINECS/ELINCS 234-394-2
INS415; E415
Synonyms: Corn sugar gum; Xanthan
Classification: Polysaccharide gum
Definition: High m.w. hetero polysaccharide gum produced by a pure-culture fermentation of a carbohydrate with Xanthomonas campestris; contains D-glucose, D-mannose, and D-glucuronic acid and is prepared as the sodium, potassium, or calcium salt
Properties: Wh. to cream-colored powd., sl. organic odor, tasteless; sol. in hot or cold water producing visc. highly-pseudoplastic sol'n.; insol. in oils, most org. solvs.; visc. 600 cps min.; unaffected by high or low pH
Toxicology: No known toxicity; TSCA listed
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
HMIS: Health 1, Flammability 1, Reactivity 0
Storage: Very hygroscopic
Uses: Thickener, suspending agent, stabilizer, emulsifier in pharmaceuticals, orals, rectals, topicals
Regulatory: FDA 21CFR §133.124, 133.133, 133.134, 133.162, 133.178, 133.179, 172.695, 176.170, 177.1350; USDA 9CFR §318.7 (limitation 8%), 381.147; Japan, JCID, Europe, UK approvals; FDA approved for orals, rectals, topicals; Canada DSL; USP/NF, BP, EP compliance
Manuf./Distrib.: A&E Connock†
http://www.connock.co.uk; AAA Int'l.†
http://www.aaiinternational.com; AB R Lundberg
http://www.norfoods.se/lundberg; ADA Int'l.
http://www.joinme.net/ada/index.htm; ADM†
http://www.admworld.com
AEP Colloids http://www.aepcolloids.com;
Adept Sol'n's; Akzo Nobel UK
http://www.akzonobel.uk.com; Alban Muller http://www.albanmuller.com;
Aldrich† http://www.sigma-aldrich.com
†=pharmaceutical grade
Alfa Chem† http://www.alfachem1.com;
Alfred L. Wolff GmbH†
http://www.alwolff.de; Allchem Int'l. Ltd†
http://www.allchem.co.uk; Amerol
http://www.amerolcorp.com; Arthur Branwell† http://www.branwell.com
Ashland† http://www.ashchem.com;
Asiamerica Int'l.; Aventis Pharmaceuticals†
http://www.aventispharma-us.com;
Brenntag Southeast†; CP Kelco†
http://www.cpkelco.com
Camida Ltd† http://www.camida.com;
CarboMer† http://www.carbomer.com
Cerestar USA† http://www.cerestar.com
Charkit† http://www.charkit.com
Chart† http://www.chartcorp.com;
ChemTech Specialties†
http://www.chemtechspecialties.com;
Chemcolloids Ltd
http://www.chemcolloids.com; Colloids Naturels Int'l.† http://www.cniworld.com;
Colonial Ind.
Cornelius Chem. Co. Ltd†
http://www.cornelius.co.uk; Delta Distributors†; Eggar & Co.†
http://www.eggar.co.uk; F. Gutkind & Co. Ltd http://www.fgutkind.com; FMC
Biopolymer†
http://www.fmcbiopolymer.com
Frutarom† http://www.frutarom.com; Fuerst Day Lawson http://www.fdl.co.uk; George Uhe† http://www.uhe.com
Gumix Int'l.†; H&A (Canada) Ind.†
http://www.hacanada.com; Healan Ingreds.
http://www.independentchemical.com;
Integra† http://www.integrachem.com
Jungbunzlauer†
http://www.jungbunzlauer.com; KIC
Chems.† http://www.kicchemicals.com;
http://www.kicgroup.com; Kraft Chem.†
http://www.kraftchemical.com; Lucid Colloids† http://www.lucidgroup.com;
MPS† http://www.mp-solutionsinc.com
P.L. Thomas http://www.plthomas.com;
Pangaea Sciences†
Chemical Component Cross-Reference

Primera Foods†
http://www.primerafoods.com; R.T.

Vanderbilt†
http://www.rtvdandbili.com;

RTD Hallstar†
http://www.rtdhallstar.com;

Rhodia HPCli†
http://www.rhodia-hpcii.com; Rhodia http://www.rhodia.com

Ruger†
http://www.rugerchemical.com;

Sanofi Synthelabo†
http://www.sanofi-aventis.us; Sansho†
http://www.sansho.co.jp; Sarcom
http://www.sarcominc.com; Sigma
http://www.sigma-aldrich.com/belgium

Spectrum Quality Prods.†
http://www.spectrumchemical.com; Spice
King; TIC Gumst†
http://www.ticgums.com;

Thew Arnott & Co. Ltd†
http://www.thewarnott.co.uk; Tiger Chem.
http://www.tigerchem.com

Triple Crown Am.†
http://www.triplecrownamerica.com; Univar
Ltd†
http://www.univar.co.uk; Universal
Preserv-A-Chem†
http://www.upichem.com; V.L. Clark
http://www.vlclark.com; Valmar
http://www.valmarsa.com


Trade Names: GRINDSTED®Xanthan 80;

GRINDSTED®Xanthan EASY; Gumixan K;

Gumixan KF; Keldent®

Keltrol®; Keltrol® 1000; Keltrol® BT;

Keltrol® CG; Keltrol® CG T

Keltrol® CR; Keltrol® F; Keltrol® GM;

Keltrol® RD; Keltrol® SF

Keltrol® T; Keltrol® TF; Merezan® 8;

Merezan® 20; Ticaxan® Regular

TIC Pretested® Pre-Hydrated® Ticaxan®

Xanthan NF Powd.; TIC Pretested®

Ticaxan® Xanthan 200 FCC/USP/NF Powd.;

TIC Pretested® Ticaxan® Xanthan NF
Powd.; Vanzan NF; Vanzan NF-C

Vanzan NF-ED; Vanzan NF-F; Vanzan NF-ST;

Xantural® 11K; Xantural® 75

Xantural® 180

Trade Names Containing: Aquathik

Xanthophyll
CAS 127-40-2; EINECS/ELINCS 204-840-0
INS161b; E161b

Synonyms: β,β'-Carotene-3,3'-dial; Lutein;

Vegetable lutein; Vegetable luteol

Definition: Carotenoid alcohol found in egg yolk,

nettles, algae, and the petals of yellow flowers

Empirical: C40H56O2

Properties: Yel. prisms; sol. in fats and fat solvs.;

†=pharmaceutical grade

sl. sol. in alcohol, ether; insol. in water; m.w.
568.85; m.p. 190-193 C

Storage: Store in dry area under 5 C; keep

vacuum sealed and away from light

Uses: Pigment and antioxidant

Regulatory: BP and EP (by injection)

compliance; FDA 21CFR §73.275, 73.295,
73.315; Europe listed

Manuf./Distrib.: AB R Lundberg

http://www.norfoods.se/lundberg; Amerol
http://www.amerolcorp.com; Fluka
http://www.sigma-aldrich.com; Kingfood

Australia Pty. Ltd

http://www.kingfood.com.au; Sigma

http://www.sigma-aldrich.com/belgium

Trade Names Containing: Lutein DC

Xenene. See Biphenyl

o-Xenol. See o-Phenylphenol

Xenon
CAS 7440-63-3

UN 2036 (DOT); UN 2591 (refrig. liq.; UN DOT)

Synonyms: Xenon, refrigerated liquid

(cryogenic liquids)

Classification: Element; noble gas

Empirical: Xe

Properties: Colorless gas or liq., odorless,
tasteless; sol. in water; at.no. 54; at.wt. 131.30;
dens. 5.8971 (gas), 1.987 (liq., @ b.p.);
liquefaction temp. -106.9 C; b.p. -108 C (1
mm); nonflamm.; inert gas

Toxicology: Simple asphyxiant; common air
contaminant; TSCA listed

Precaution: Reacts with fluorine and very
powerful fluorinating agents

Uses: Anesthetic (inhalation); Xe133 as
diagnostic aid (radioactive imaging agent)

Regulatory: FDA approved for inhalants; Canada

DSL

Manuf./Distrib.: Air Prods.

http://www.airproducts.com

Xenon, refrigerated liquid (cryogenic liquids).
See Xenon

Xylene
CAS 1330-20-7; EINECS/ELINCS 215-535-7

UN 1307 (DOT)

Synonyms: C8 aromatics; Dimethylbenzene;

Dimethylbenzene, m-, o-, and p-

Dimethylbenzene (mixed isomers); Methyl
toluene; Mixed xylenes; Xylene, mixed;

Xylenes, mixed isomers; Xylo1

Classification: Aromatic hydrocarbon

Definition: Commercial mixture of 3 isomers: o-,
Chemical Component Cross-Reference

m-, and p-xylene (1,3-dimethylbenzene, 1,2-dimethylbenzene, 1,4-dimethylbenzene)  
Empirical: C₈H₁₀
Formula: C₈H₄(CH₃)₂

Properties: Colorless clear liq., char. sweet odor; sol. in abs. alcohol, ethanol, diethyl ether, many org. liqs.; pract. insol. in water; m.w. 106.16; dens. 0.86; vapor pressure 6.72 mm Hg (21 C); b.p. 137-144 C; flash pt. (CC) 29 C; ref. index 1.4970; KB value 98

Toxicology: ACGIH TLV/TWA 100 ppm; STEL 150 ppm; LD₅₀ (oral, rat) 4300 mg/kg, (IP, rat) 2459 mg/kg; mod. toxic by IP and subcut. routes; mildly toxic by ing., inh.; irritant to eyes (severe), skin, respiratory tract; human systemic effects; may be narcotic in high concs. causing CNS depression, dizziness, nausea, unconsciousness; repeated skin contact causes defatting, dermatitis; possible liver damage; experimental teratogen, reproductive effects; mutagenic data; TSCA listed

Environmental: VOC; ThOD 2.41

Precaution: Highly flamm.; moderate fire risk; incompat. with strong oxidizing agents, nitric acid, dichlorohydantoin; increased fire and explosion risk

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 2, Flammability 3, Reactivity 0

Storage: Store in cool well-ventilated area out of direct sunlight, away from heat/ignition sources

Uses: Solvent in pharmaceuticals

Regulatory: FDA 21 CFR §175.105, 176.180, 177.1010, 177.1650; SARA §313 reportable; CERCLA hazardous substance; HAP; Canada DSL

Manuf./Distrib.: AAE Chemie NV†  

 tweaks: Phenolic Cross-References  

†=pharmaceutical grade

http://www.crowleychemical.com; Delta Distributors†  

Trade Names Containing: BIO-PSA® 7-4101  
Silicone Adhesive; BIO-PSA® 7-4102  
Silicone Adhesive; BIO-PSA® 7-4202  
Silicone Adhesive

Xylene, mixed; Xylenes, mixed isomers. See Xylene

Xylenesulfonic acid, sodium salt. See Sodium xylenesulfonate

1,2,5-Xylenol. See 2,5-Xylenol  

2,5-Xylenol  
CAS 95-87-4; EINECS/ELINCS 202-461-5  
FEMA 3595

Synonyms: 2,5-Dimethylphenol; 3,6-Dimethylphenol; 2,5-DMP; 6-Methyl-m-xylene; 1,2,5-Xylenol; p-Xylenol

Empirical: C₈H₁₀O

Properties: Cryst.; m.w. 122.17; dens. 0.971; m.p. 72-76 C; b.p. 212 C

Toxicology: LD₅₀ (oral, rat) 444 mg/kg; toxic;
Chemical Component Cross-Reference

poison by ing.; mod. toxic by unspecified route; corrosive; readily absorbed through skin; questionable carcinogen; experimental tumorigen; TSCA listed

Uses: Flavor for medicines

Regulatory: FEMA GRAS; Canada DSL

Manuf./Distrib.: Advanced Synthesis Tech.

http://www.advancedsynthesis.com; Biddle Sawyer† http://www.biddlesawyer.com;

Fluka http://www.sigma-aldrich.com; Penta Mfg.† http://www.pentamfg.com; Richman† http://www.richmanchemical.com

SAFC Specialties http://www.safcspecialties.com

2,6-Xylenol

CAS 576-26-1; EINECS/ELINCS 209-400-1

FEMA 3249

Synonyms: 2,6-Dimethylphenol; 2,6-DMP

Classification: Aromatic phenol

Empirical: C$_6$H$_{10}$O

Properties: Needles; sol. in hot water and alcohol; m.w. 122.17; m.p. 45-48 C; b.p. 203 C; flash pt. 173 F

Toxicology: LD$_{50}$ (oral, rat) 296 mg/kg, (IP, mouse) 150 mg/kg, (IV, mouse) 80 mg/kg, (skin, rabbit) 1000 mg/kg; toxic; poison by ing., IV, IP routes; mod. toxic by skin contact; corrosive; readily absorbed through skin; eye irritant; questionable carcinogen; experimental tumorigen; TSCA listed

Precaution: Flamm.

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Storage: Store under nitrogen

Uses: Flavor for medicines

Regulatory: FDA 21CFR §177.2460; FEMA GRAS; Canada DSL

Manuf./Distrib.: Advanced Synthesis Tech.

http://www.advancedsynthesis.com; Fluka

http://www.sigma-aldrich.com; SAFC Specialties


p-Xylenol. See 2,5-Xylenol

Xyldine ponceau; Xyldine red. See Acid red 26

Xylit; Xylite; Xylite (sugar). See Xylitol

Xylitol

CAS 87-99-0; EINECS/ELINCS 201-788-0

†=pharmaceutical grade

INS967; E967

Synonyms: 1,2,3,4,5-Pentahydroxypentane; Xylit; Xylite; Xylite (sugar); D-Xylitol; Xyliton

Classification: Pentahydric alcohol

Empirical: C$_8$H$_{12}$O$_5$

Properties: Wh. cryst. or cryst. powd., sweet taste with cooling sensation; sol. in water; sl. sol. in alcohol; m.w. 152.17; m.p. 92-96 C

Toxicology: LD$_{50}$ (oral, mouse) 12,500 mg/kg, (IV, rat) 10,800 mg/kg, (IP, mouse) 22,100 mg/kg; mod. toxic by IV route; very low toxicity by ing.; lg. doses may cause an osmotic diarrhea; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

HMIS: Health 1, Flammability 0, Reactivity 0

Storage: Hygroscopic

Uses: Nutritive sweetener, sugar substitute for pharmaceuticals, liqs., tablets, coatings, lozenges; plaque formation inhibitor in dental care prods.

Features: Cariostatic


Manuf./Distrib.: AAA Int'l.

http://www.aaainternational.com; AB R Lundberg

http://www.norfoods.se/lundberg; ADA Int'l.

http://www.joinme.net/ada/index.htm; AMRESCO† http://www.amresco-inc.com;

Aceto† http://www.aceto.com

Adept Sol'ns.†; Aldrich† http://www.sigma-aldrich.com; Alfa Chem

http://www.alfachem1.com; Am. Int'l.† http://www.aicma.com; Amerol

http://www.amerolcorp.com

Ashland† http://www.ashchem.com;

Asiamea Int'l.†; Atomergic Chemetals† http://www.atomergic.com; Camida Ltd† http://www.camida.com; CarboMer† http://www.carbomer.com

Cerestar Int'l.† http://www.cerestar.nl; Danisco Cultor† http://ingredients.danisco.com; Danisco Sweeteners† http://www.daniscosweeteners.com; Eisai† http://www.eisai.co.jp; F.R. Benson http://www.frbenson.co.uk

Ferro Pfanstiehl Europe†; Ferro Pfanstiehl Labs† http://www.pfanstiehleurope.com; Fluka

http://www.sigma-aldrich.com; Forum Bioscience† http://www.forum.co.uk;

Fuerst Day Lawson http://www.fdl.co.uk

Handbook of Pharmaceutical Additives, Third Edition 2245
### Chemical Component Cross-Reference

#### Functional Foods

#### Trade Names
- C*Xylidex 16055; Xylisorb® 90; Xylisorb® 300; Xylisorb® PF Xylitol CFP; Xylitol CG

#### Trade Names Containing
- Xylitab® 100; Xylitab® 200

### D-Xylopyranose; (D)-Xylose; Xylose, D-.

#### D(-)-Xylose
CAS **58-86-6**; EINECS/ELINCS **200-400-7**

FEMA **3606**

**Synonyms:** 2,3,4,5-Tetrahydroxy-pentanal; Wood sugar; D-Xylopyranose; (D)-Xylose; Xylose, D-

**Classification:** Complex polysaccharide

**Definition:** Pentose sugar

**Empirical:** C₅H₁₀O₅

**Properties:** Wh. cryst. powd.; sol. in water, alcohol; m.w. 150.13; dens. 1.525 (20°C); m.p. 156-158°C

**Toxicology:** LD₅₀ (oral, mouse) 23 g/kg, (IV, mouse) 11,300 mg/kg; sl. toxic by ing. and IV routes; TSCA listed

**Precaution:** Combustible

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating vapors

**Storage:** Hygroscopic; keep under argon

**Uses:** Diagnostic aid; pharmaceuticals intermediate; sweetener

**Regulatory:** BP, EP compliance; FEMA GRAS; Canada DSL


1-(2,4-Xylylazo)-2-naphthol-3,6-disulfonic acid, disodium salt; 1-(2,4-Xylylazo)-2-naphthol-
Chemical Component Cross-Reference

3,6-disulfonic acid, disodium salt. See Acid red 26

((2,6-Xylylcarbamoyl) methyl) imino) diacetic acid. See Lidofenin

Yarrow. See Yarrow (Achillea millefolium)

Yarrow (Achillea millefolium)
CAS 977000-16-0
FEMA 3117
Synonyms: Achillea; Achillea millefolium; Milfoil; Yarrow; Yarrow herb
Definition: Achillea millefolium
Uses: Natural flavor for pharmaceuticals
Regulatory: FDA 21CFR §172.510; finished beverage must be thujone-free; FEMA GRAS; BP, EP compliance

Yarrow herb. See Yarrow (Achillea millefolium)

Yeast
CAS 68876-77-7; 977030-39-9
Synonyms: Barm; Faex
Definition: Class of microorganism (hemiascomycetes) with unicellular growth form, lack of photosynthetic ability; several types are: bakers' yeast, bakers' compressed yeast, active dry yeast, brewers' yeast
Properties: Ylsh-wh. viscid liq. or soft mass, flakes, or granules, consisting of cells and spores of Saccharomyces cerevisiae
Toxicology: No known toxicity
Uses: Dietary source of folic acid for pharmaceuticals
Trade Names Containing: Preregen®

Yeast extract
CAS 8013-01-2; EINECS/ELINCS 232-387-9
Synonyms: Extract of yeast; Faex
Definition: Preparation of the water-sol. fraction of autolyzed yeast
Properties: Ylsh. wh. liq. or pressed form
Toxicology: LD50 (IP, rat) 4500 mg/kg, (IP, mouse) > 8 g/kg; low toxicity by ing., skin contact, and IP routes; may cause eye/skin/mucous membrane/upper respiratory tract irritation; may be harmful by inh., ing., skin absorp.; TSCA listed
Precaution: Incompat. with strong oxidizing agents
Hazardous Decomp. Prods.: CO, CO2; heated to decomp., emits acrid smoke and irritating fumes; emits toxic fumes under fire conditions
Storage: Store in cool, dry place; keep tightly closed
Uses: Fermentation of sugars; B vitamin source, flavoring agent in brewing, baking, food supplements; activator for cell metabolism
Trade Names Containing: Preregen®

Yeast ferment extract. See Saccharomyces cerevisiae extract

Yeast polysaccharides
Definition: Polysaccharides derived from cell walls of yeast
Uses: Biological additive, skin protectant
Trade Names Containing: Uniglucan G-51
Yeast protein hydrolysate.  See Hydrolyzed yeast protein
Yellow beeswax.  See Beeswax, yellow; Beeswax
Yellow dextrin.  See Dextrin
Yellow ferric oxide.  See Ferric oxide
Yellow mercuric oxide; Yellow oxide of mercury.  See Mercury oxide (ic), yellow
Yellow pine rosin.  See Rosin
Yellow precipitate.  See Mercury oxide (ic), yellow
Yellow prussiate of soda.  See Sodium ferrocyanide
Yellow resin.  See Rosin
Yellow sandalwood oil.  See Sandalwood (Santalum album) oil
Yellow vaseline.  See Petroleum
Yellow wax.  See Beeswax, yellow; Beeswax
Yerba santa (Eriodictyon californicum) extract
CAS 85085-31-0; 68990-14-7; 977092-73-1; EINECS/ELINCS 285-361-4
FEMA 3118
Synonyms:  Eriodictyon californicum; Eriodictyon californicum extract; Yerba santa extract
Definition:  Extract of leaves of Eriodictyon californicum
Uses:  Natural flavor for pharmaceuticals
Regulatory:  FDA 21CFR §172.510; FEMA GRAS
Manuf./Distrib.:  AMC Chems.; Astral Extracts http://www.astraextracts.com; Buckton Page Ltd http://www.bucktonpage.com;
Citrus and Allied Essences http://www.citrusandallied.com; Danisco Seillans http://www.danisco.com
De Monchy Aromatics http://www.demonchyaromatics.com;
Eramex Aromatics http://www.eramex.de; F.D. Copeland http://www.copelandoil.co.uk;
Fleurchem http://www.fleurchem.com; Fuerst Day Lawson http://www.fdll.co.uk;
George Uhe http://www.uhe.com; Good Scents http://www.thegoodscentscompany.com;
Janousek Industriale Srl http://www.janousek.com
Penta Mfg.† http://www.pentamfg.com; SAFC Specialties http://www.safcspecialties.com
Yerba santa extract.  See Yerba santa (Eriodictyon californicum) extract
Ylang ylang absolute.  See Ylang ylang (Cananga odorata) oil
Ylang ylang (Cananga odorata) oil
CAS 8006-81-3; 68606-83-7; EINECS/ELINCS 281-092-1
FEMA 2232; 3119
Synonyms:  Cananga; Cananga odorata; Cananga odorata oil; Cananga oil; Ylang ylang absolute; Ylang ylang oil
Definition:  Oil from steam distillation of flowers of the ylang ylang, Cananga odorata
Properties:  Lt. yel. oily liq.; sl. woody floral odor; burning taste; insol. in water; dens. 0.930-0.950 (20/20 C); flash pt. (TCC) 75 C; ref. index 1.495-1.503 (20 C)
Toxicology:  LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and
Chemical Component Cross-Reference

Manuf./Distrib.: Charles Bowman
http://www.charlesbowman.com; Chart
http://www.chartcorp.com; Frutarom
http://www.frutarom.com

Yucca extract. See Yucca glauca extract

Yucca glauca extract
Synonyms: Yucca extract
Definition: Extract of the root of the yucca, Yucca glauca
Uses: Moisturizer, anti-inflammatory for topical abrasion and burn treatments; ingred. in herbal tinctures, tablets, or capsules for easing arthritis pain and maintaining health of digestive system

Manuf./Distrib.: Bell Flavors & Fragrances
http://www.bellff.com; Frutarom
http://www.frutarom.com; Garuda Int’l.†
http://www.garuda.int.com
Trade Names: NAB Yucca Glauca Extract

Yucca powder. See Yucca

Zea mays. See Corn (Zea mays) bran; Corn (Zea mays) oil unsaponifiables; Corn (Zea mays) oil; Corn (Zea mays) starch
Zea mays oil. See Corn (Zea mays) oil
Zea mays starch. See Corn (Zea mays) starch
Zea mays unsaponifiables. See Corn (Zea mays) oil unsaponifiables

Zeaxanthin
CAS 144-68-3
Synonyms: Anchovyxanthin; all trans-β-carotene-3,3’-diol; β,β-Carotene-3,3’-diol; (3R,3’R)-Dihydroxy-β-carotene; Zeaxanthol
Classification: Carotenoid alcohol
Definition: Pigment of yellow corn Zea mays and in spinach, collard greens, egg yolk, etc.; occurs together and is isomeric with xanthophyll
Empirical: C_{40}H_{56}O_{2}
Properties: Yel. rhombic plates, steel-blue metallic luster; sol. in CS2, benzene, chloroform, CCl4, pyridine, ethyl acetate; sl. sol. in petrol. ether, methanol; pract. insol. in water; m.w. 568.88; m.p. 207-215 C
Uses: Dietary supplement for film-coated, chewable effervescent tablets and hard-shell capsules

Trade Names Containing: Optisharp™ (Zeaxanthin) 5% CWS/S-TG

Zeaxanthol. See Zeaxanthin

Zein
CAS 9010-66-6; EINECS/ELINCS 232-722-9
Synonyms: Zein powder
Definition: Alcohol-sol. protein obtained from corn, Zea mays; component of corn gluten
Properties: Wh. to yel. powd., odorless; sol. in aq. alcohols, glycols, glycol ethers, furfuryl alcohol, tetrahydrofurfuryl alcohol, aq. alkaline solns. with pH ≥ 11.5, oxygenated solvs.; insol. in water, acetone, all anhyd. alcohols except methanol; m.w. ≈ 38,000; dens. 1.226
Toxicology: No known toxicity
Precaution: Combustible
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Coating agent, binder for pharmaceutical tablets, orals; substitute for shellac
Regulatory: FDA 21CFR §175.105, 184.1984, GRAS; Japan approved; FDA approved for orals; USP/NF compliance

Manuf./Distrib.: Adept Sol’ns.;† Aldrich
http://www.sigma-aldrich.com; Alfa Chem†
http://www.alfa chem1.com; Camida Ltd†
http://www.camida.com; Degussa AG/Health & Nutrition
Freeman Ind. http://www.freemanllc.com; Mantrose-Haeuser†
http://www.mbzgroup.com; Primera Foods†
http://www.primerafoods.com; Sigma
http://www.sigma-aldrich.com/belgium;
Spectrum Quality Prods.;†
http://www.spectrumchemical.com
Vivion http://www.vivioninc.com

Zein powder. See Zein

Zeolite; Zeolites. See Sodium silicoaluminate
Zibet; Zibeth; Zibetum. See Civet

Zinc
CAS 7440-66-6; EINECS/ELINCS 231-175-3
UN 1435 (DOT); UN 1436 (DOT)
Synonyms: CI 77945; Granular zinc; Pigment black 16; Pigment metal 6; Zinc ashes; Zinc dust; Zinc powder
Classification: Metallic element
Empirical: Zn
Properties: Shining wh. ductile metal, bluish-gray luster; sol. in acids, alkalis; insol. in water; at.wt. 65.38; dens. 7.14; vapor pressure 1 mm (487 C); m.p. 419 C; b.p. 907 C; strongly electropositive
Toxicology: Human systemic effects by inh. (cough, dyspnea, sweating); human skin

†=pharmaceutical grade
Zinc acetate

CAS 557-34-6 (anhyd.); 5970-45-6 (dihydrate);
EINECS/ELINCS 209-170-2
UN 9153 (DOT; UN anhyd.) E650

Synonyms: Acetic acid, zinc salt;
Dicarbomethoxy zinc; Zinc diacetate

Classification: Aliphatic organic compd.
Definition: Zinc salt of acetic acid; avail. as the dihydrate

Empirical: C₄H₆O₄Zn; C₄H₆O₄Zn • 2H₂O
Formula: Zn(C₂H₃O₂)₂ • 2H₂O
Properties: Wh. cryst. lustrous plates, faint acetoic odor, astringent taste; sl. efflorescent;
sol. in water, boiling alcohol; sl. sol. in alcohol;
m.w. 183.47 (anhyd.), 219.50 (dihydrate);
dens. 1.735; loses 2H₂O @ 100 C; m.p. 200 C (dec.)
Zinc ashes. See Zinc
Zinc bis (2-pyridylthio)-N-oxide. See Zinc pyrithione
Zinc butter. See Zinc chloride
Zinc carbonate
CAS 3486-35-9; EINECS/ELINCS 222-477-6
UN 9157 (NA)
Synonyms: Carbonic acid, zinc salt (1:1); Cl 77950; Natural smithsonite; Zinc carbonate (1:1); Zinc monocarbonate
Classification: Inorganic zinc salt
Definition: Occurs in nature as the minerals smithsonite, zincspar
Empirical: CO3 • Zn
Formula: ZnCO3
Properties: Wh. cryst. powd.; sol. in dil. acids, alkalis, ammonium salt solns.; insol. in water; m.w. 125.38; dens. 4.42-4.45
Toxicology: Evolves CO2 @ 300 C
Precaution: Evolves CO2 @ 300 C
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of CO and Zn
Uses: Opacifier in pharmaceuticals, ointments, dusting powds.; topical antiseptics; astringent; veterinary antiseptic, astringent, topical protectant, to prevent Zn deficiency diseases
Regulatory: FDA 21CFR §175.300, 176.170, 177.1460, 177.2600, 178.3297, 582.80; Canada DSL
Manuf./Distrib.: AMRESCO†
http://www.amresco-inc.com; Allchem Ind.
http://www.centurymultech.com
†=pharmaceutical grade
Integra† http://www.integrachem.com; Lohmann http://www.lohmann-chemikalien.de; Mallinckrodt Baker†
http://www.mallbaker.com; Min. R&D http://www.mrdc.com; Mutchler†
http://www.mutchlerchem.com
Spectrum Quality Prods.†
http://www.spectrumchemical.com; VWR Int'l.† http://www.vwrsp.com
Zinc carbonate (1:1). See Zinc carbonate
Zinc chloride
CAS 7646-85-7; EINECS/ELINCS 231-592-0
UN 1840 (DOT); 2331 (DOT)
Synonyms: Butter of zinc; Zinc butter; Zinc chloride anhydrous; Zinc chloride fume; Zinc chloride, solution; Zinc dichloride; Zinc muriate, solution
Classification: Inorganic zinc compd.
Empirical: Cl2Zn
Formula: ZnCl2
Properties: Wh. cubic cryst., odorless; very sol. in water, alcohol, glycerol, ether; sol. in acetone; m.w. 136.27; dens. 2.91; vapor pressure 1 mm Hg (428 C); m.p. 732 C; pH 4.0 (10% aq.); noncombustible
Toxicology: ACGIH TLV/TWA 1 mg/m3 (fume); STEL 2 mg/m3 (fume); LD50 (oral, rat) 350 mg/kg; poison by ing., IV, subcut., IP routes; corrosive irritant to skin, eyes, mucous membranes; causes burns; ing. may cause vomiting, abdominal pain; human systemic effects by inh. (pulmonary changes); can cause dermatitis, boils, conjunctivitis, Gl upset on exposure to fumes or dusts; questionable carcinogen; experimental tumorigen, teratogen, reproductive effects; human mutagenic data
Precaution: DOT: Corrosive material; incompat. with cyanides, sulfides, potassium; mixts. with powd. zinc are flamm.
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of Cl– and ZnO
HMIS: Health 2, Flammability 0, Reactivity 2
Storage: Store in cool, dry, well-ventilated area, out of direct sunlight; hygroscopic; deliq.; use dust-tight containers; avoid generating dust
Uses: Colorant for pharmaceuticals, parenterals, mouthwashes, dentifrices, deodorant, disinfectants; antiseptic; astringent; disinfectant preservative for medical specimens and embalming
Regulatory: FDA 21CFR §182.70, 182.8985,
Chemical Component Cross-Reference

582.80, GRAS; SARA reportable; FDA approved for parenterals; BP, EP compliance; Canada DSL

Manufacturers/Distributors: AMRESCO†
http://www.amresco-inc.com; Aldrich†
http://www.sigma-aldrich.com; Alfa Aesar
http://www.alfa.com; Allan
http://www.allanchem.com; Am. Int'l.†
http://www.aicma.com
EMD Chems.†
http://www.emdchemicals.com; Filo
http://www.filochemical.com; Fluka
http://www.sigma-aldrich.com; GFS†
http://www.integram.com; Kraft Chem.
http://www.kraftchemical.com; Madison Ind.† http://www.oldbridgechem.com/
Mallinckrodt Baker†
http://www.mallbaker.com; Miljac
http://www.miljac.com; Min. R&D
http://www.nagaichemical.com/; Penta
Mfg.† http://www.pentamfg.com
RIA Int'l.† http://www.riausa.com; Ruger†
Spectrum Quality Prods.† http://www.spectrumchemical.com; Tetra
http://www.tetrachemicals.com; Thomas Scientifict† http://www.thomassci.com
VWR Int'l.† http://www.vwrsp.com; Voigt Global Distrib.† http://www.vgdllc.com;
Wm. Blythe Ltd† http://www.wm-blythe.co.uk; Zaclon http://www.zacon.com

Zinc chloride anhydrous; Zinc chloride fume; Zinc chloride, solution. See Zinc chloride

Zinc citrate
CAS 546-46-3; EINECS/ELINCS 208-901-2; 286-

†=pharmaceutical grade

541-5

Synonyms: Citric acid, zinc salt; Citric acid, zinc salt (2:3); 2-Hydroxy-1,2,3-propanetricarboxylic acid, zinc salt; 1,2,3-Propanetricarboxylic acid, 2-hydroxy-, zinc salt (2:3); Trizinc dicitrate

Definition: Zinc salt of citric acid

Empirical: C_{12}H_{16}O_{14} • 3Zn

Formula: [HOC(CH_{2}COO–)_{2}COO–]_{2} 3Zn^{+}

Properties: Wh. to yel powd.; sl. sol. in water (100 g/l); insol. in chloroform, ethanol, ether; m.w. 290.18; m.p. 334 C

Toxicology: LD_{50} (oral, rat) > 5,000 mg/kg; experimental reproductive effects; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Dietary supplement in pharmaceuticals; ingred. to treat common cold and various hygienic prods.


Zinc diaceta... See Zinc acetate
Zinc dichloride. See Zinc chloride
Zinc dilactate. See Zinc lactate
Zinc dilaurate. See Zinc laurate
Zinc distearate. See Zinc stearate
Zinc diundec-10-enoate. See Zinc undecylenate
Zinc dust. See Zinc

Zinc gluconate
CAS 4468-02-4 (anhyd.); EINECS/ELINCS 224-736-9

Definition: Zinc salt of gluconic acid
### Zinc Gluconate

**Empirical:** C$_{12}$H$_{22}$O$_{4}$Zn

**Properties:** Wh. gran. or cryst. powd.; sol. in water; very sl. sol. in alcohol; m.w. 295.71; pH 5.5-7.5 (1%)

**Toxicology:** LD$_{50}$ (oral, mouse) 1290 mg/kg, (IV, mouse) 23,700 µg/kg; experimental reproductive effects; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of ZnO

**Uses:** Nutrient, dietary supplement, mineral source for pharmaceuticals, vitamin tablets; act. ingred. in lozenges

**Regulatory:** FDA 21CFR §182.8988, GRAS; Japan approved with limitations; Canada DSL

**Manuf./Distrib.:** AAA Int'l.†
- [http://www.aaainternational.com](http://www.aaainternational.com)
- ACTA Pharmacal†
- Aceto† [http://www.aceto.com](http://www.aceto.com)
- Adept Sol'n's†
- Akzo Nobel
- Alfa Chem† [http://www.alfachem1.com](http://www.alfachem1.com)
- Amerol [http://www.amerolcorp.com](http://www.amerolcorp.com)
- Ashland† [http://www.ashchem.com](http://www.ashchem.com)
- Atomergic Chemetals
- Barrington† [http://www.barringtonchem.com](http://www.barringtonchem.com)
- Dastech Int'l.† [http://www.dastech.com](http://www.dastech.com)
- Fortitech† [http://www.fortitech.com](http://www.fortitech.com)
- Gallard-Schlesinger Ind.† [http://www.gallard-schlesinger.com](http://www.gallard-schlesinger.com)
- Interchem† [http://www.interchem.com](http://www.interchem.com)
- Synasia† [http://www.synasia.com](http://www.synasia.com)
- Tessenderlo Chemie [http://www.tessenderlo.com](http://www.tessenderlo.com)

**Trade Names:** Gluconal® ZN-G; Gluconal® ZN-P

### Zinc Glycinate

**CAS:** 7214-08-6

**Classification:** Glycine salt

**Empirical:** C$_{4}$H$_{8}$N$_{2}$O$_{4}$Zn

**Properties:** M.w. 213.51

**Uses:** Zinc source, dietary supplement, antioxidant for pharmaceuticals; therapeutic active for oral care; adjusting agent in antiperspirants

**Manuf./Distrib.:** Am. Int'l.†
- [http://www.aicma.com](http://www.aicma.com)
- Asiamerica Int'l.†
- Chattem† [http://www.chattemchemicals.com](http://www.chattemchemicals.com)
- Fortitech† [http://www.fortitech.com](http://www.fortitech.com)
- Gallard-Schlesinger Ind.† [http://www.gallard-schlesinger.com](http://www.gallard-schlesinger.com)
- Interchem† [http://www.interchem.com](http://www.interchem.com)
- Synasia† [http://www.synasia.com](http://www.synasia.com)
- Tessenderlo Chemie [http://www.tessenderlo.com](http://www.tessenderlo.com)

**Trade Names:** [Zinc Gluconate](#)
Chemical Component Cross-Reference

Empirical: C_{24}H_{46}O_{2}Zn
Formula: Zn(C_{12}H_{23}O_{2})_{2}
Properties: Wh. powd.; pract. insol. in water and alcohol; m.w. 463.99; m.p. 128 C
Toxicology: [TSCA listed]
Precaution: [Combustible]
Uses: Lubricant and compactant in pharmaceutical prods.
Regulatory: FDA 21CFR §175.105, 176.170, 176.200, 176.210, 177.1200, 177.2600, 178.3910; Canada DSL
Manuf./Distrib.: [Bärlocher GmbH]
http://www.baerlocher.com; NOF Am.
Trade Names: Kemilub LZ

Zinc methionine sulfate
CAS 56329-42-1
Synonyms: Zinc monomethionine
Empirical: C_{56}H_{102}N_{6}O_{2}Zn_{2}H_{2}SO_{4}
Properties: Solid; m.w. 311.65
Precaution: Wear splash goggles and dust respirator
Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of SOx
HMIS: Health 2, Flammability 1, Reactivity 0
Uses: Source of dietary zinc, dietary supplement, nutrient for pharmaceuticals, vitamin tablets
Regulatory: FDA 21CFR §172.399
Manuf./Distrib.: [Sciencelab]
http://www.sciencelab.com

Zinc monocarbonate. See Zinc carbonate
Zinc monomethionine. See Zinc methionine sulfate
Zinc monoxide. See Zinc oxide
Zinc muriate, solution. See Zinc chloride
Zinc octadecanoate. See Zinc stearate
Zincoid. See Zinc oxide

Zinc oxide
CAS 1314-13-2; EINECS/ELINCS 215-222-5
Synonyms: Chinese white; Cl 77947; Flowers of zinc; Permanent white; Philosopher’s wool; Pigment white 4; Zincite; Zinc monoxide; Zincoid; Zinc white
Classification: Inorganic oxide
Empirical: OZn
Formula: ZnO
Properties: Wh. to gray amorphous powd. or crystals, odorless, bitter taste; sol. in dil. acetic or min. acids, alkalis, ammonia; insol. in water, alcohol; m.w. 81.38; dens. 5.67; bulking value 0.021 gal/lb; oil absorp. 13; m.p. 1975 C; ref. index 2.0041-2.0203; pH 6.95 (Amer. process), 7.37 (French process)

†=pharmaceutical grade

Toxicology: ACGIH TLV/TWA 5 mg/m³ (fume), STEL 10 mg/m³ (fume); 10 mg/m³ (total dust); nuisance particulate; LD50 (oral, mouse) 7950 mg/kg; (IP, rat) 240 mg/kg; mod. toxic by ing. (humans); poison by IP route; skin/eye irritant; harmful dust; inh. of fumes may cause metal fume fever with chills, fever, tightness in chest, cough, leukocytes; experimental teratogen; mutagenic data; TSCA listed
Precaution: Powd. reacts violently with chlorinated rubber @ 215 C; violent reaction with Mg, linseed oil
Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of ZnO
HMIS: Health 1, Flammability 0, Reactivity 0
Uses: Colorant for external pharmaceuticals, eye use, parenterals, rectals; dental cements; creamy wh. ointment used medicinally as an astringent, antiseptic, and protectant in skin treatments, hemorrhoidal prods.; sunscreen agent; nutrient; dietary supplement
Regulatory: FDA 21CFR §73.1991, 73.2991, 175.300, 176.170, 177.1460, 177.1680, 177.2260, 178.3297, 182.8991, 582.80, GRAS; FDA approved for parenterals, rectals, exempt from certification, permanently listed; BP, EP compliance
Manuf./Distrib.: [AAE Chemie NV†]
http://www.aaechemie.com; Aastrid Int'l.†
http://www.aastrid.com; Aceto
http://www.aceto.com; Aldrich†
http://www.sigma-aldrich.com; Alfa Aesar†
http://www.sigma-aldrich.com; Alfa Aesar†
http://www.asarco.com; Ashland†
http://www.ashchem.com
http://www.barringtonchem.com
Bayer http://www.bayerus.com; C.P. Hall http://www.cphall.com; Chemacon GmbH†
http://www.chemacon.de; Chemcor;
Chemical http://www.thechemco.com
China Nat'l. Chem. Construction http://www.cnccc-shenzhen.com; D.N.
Lukens http://www.dnlukens.com; Dastech
Int'l.† http://www.dastech.com; EMD

2254
<table>
<thead>
<tr>
<th>Chemical Component Cross-Reference</th>
<th>†=pharmaceutical grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elementis Spec. [<a href="http://www.elementis-specialties.com">http://www.elementis-specialties.com</a>]; Fluka [<a href="http://www.sigma-aldrich.com">http://www.sigma-aldrich.com</a>]; Fortitech† [<a href="http://www.fortitech.com">http://www.fortitech.com</a>]; Functional Foods† [<a href="http://www.functionalfoods.com">http://www.functionalfoods.com</a>]; Gallard-Schlesinger Ind.† [<a href="http://www.gallard-schlesinger.com">http://www.gallard-schlesinger.com</a>]</td>
<td>Trade Names: Florence Green Seal-8; Zinc Oxide USP-2; Zinc Oxide USP-1; Zinc Oxide USP-511; Zinc Oxide 66; Zinc Oxide 6601; Zinc Oxide 6605; Zinc Oxide CR-4; Zinc Oxide CR-4 USP; Zinc Oxide Grade AZO 66USP; Zoco 112 USP</td>
</tr>
<tr>
<td>Trade Names Containing: Zinc Oxide NDM</td>
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<tr>
<td>Zinc phenolsulfonate</td>
<td>CAS 127-82-2; EINECS/ELINCS 204-867-8</td>
</tr>
<tr>
<td>UN 9160 (DOT)</td>
<td>Synonyms: Benzenesulfonic acid, 4-hydroxy-, zinc salt (2:1); 4-Hydroxybenzenesulfonic acid zinc salt (2:1); p-Hydroxybenzenesulfonic acid zinc salt; 1-Phenol-4-sulfonic acid zinc salt; Phenozin; Zinc p-hydroxybenzenesulfonate; Zinc-1,4-phenolsulfonate; Zinc p-phenolsulfonate; Zinc sulfcocarbolate; Zinc sulfophenate</td>
</tr>
<tr>
<td>Classification: Substituted phenol</td>
<td>Definition: Avail. commercially as the octahydrate</td>
</tr>
<tr>
<td>Empirical: C_{12}H_{10}O_{8}S_{2}Zn</td>
<td>Formula: Zn(SO₃C₆H₄OH)₂ • 8H₂O</td>
</tr>
<tr>
<td>Properties: Colorless transparent cryst. or gran. powd., odorless, metallic taste; effloresces in air; turns pink on exposure to air and light; sol. in water, alcohol; loses water of cryst. @ 120 C; m.w. 411.73 (anhyd.), 655.83 (octahydrate)</td>
<td>Toxicology: LD₅₀ (oral, rat) 1800 mg/kg, (IP, rat) 225 mg/kg; toxic by ing.; primary irritant; TSCA listed</td>
</tr>
<tr>
<td>HMIS: Health 1, Flammability 1, Reactivity 0</td>
<td>Storage: Light-sensitive</td>
</tr>
<tr>
<td>Uses: Antiseptic, astringent in pharmaceuticals</td>
<td>Regulatory: Canada DSL</td>
</tr>
</tbody>
</table>
Zinc pyrithione

CAS 13463-41-7; EINECS/ELINCS 236-671-3

Synonyms: Bis [1-hydroxy-2(1H)-pyridinethionato-O,S]-(T-4) zinc; Bis (2-pyridylthio) zinc, 1,1´-dioxide; 2-Pyridinethiol-1-oxide, zinc salt; Pyrithione zinc; Zinc bis (2-pyridylthio)-N-oxide; Zinc 2-pyridinethiol-1-oxide; Zinc 2-pyridinethiol-N-oxide; Zinc pyridinethione

Classification: Aromatic salt

Empirical: C_{10}H_{8}N_{2}O_{2}S_{2}Zn

Properties: Wh. powd.; sol. in DMSO, DMF; chloroform; m.w. 317.68

Toxicology: LD50 (oral, rat) 260 mg/kg, (IP, mouse) 26,800 µg/kg, (subcut., mouse) 730 mg/kg, (skin, rat) > 2 g/kg; LDLo (IV, dog) 25 mg/kg; poison by ing., skin contact, IP, IV routes; mod. toxic by subcut. route; irritating to skin; extremely irritating to eyes; experimental teratogen, reproductive effects; TSCA listed

Precaution: Incompat. with oxidizers

Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of NOx, SOx, and ZnO

Storage: Do not store with strong oxidizing agents

Uses: Antimicrobial in pharmaceuticals, topicals; preservative for surgical scrubs, acne preps., topical antibacterial prods.

Regulatory: FDA approved for topicals; Canada DSL


†=pharmaceutical grade

Zinc stearate

CAS 557-05-1; EINECS/ELINCS 209-151-9

Synonyms: Dibasic zinc stearate;
Octadecanoic acid, zinc salt; Stearic acid, zinc salt; Zinc distearate; Zinc octadecanoate; Zinc soap

Classification: Sat. aliphatic carboxylic acid salt

Definition: Zinc salt of stearic acid

Empirical: C_{36}H_{70}O_{4}Zn

Formula: Zn(C_{18}H_{35}O_{2})_{2}

Properties: Wh. powd., faint char. odor; sol. in acids, aromatic solvs.; insol. in water, alcohol, ether, oxygenated solvs.; dec. by dil. acids; m.w. 632.33; dens. 1.095; m.p. 130 C

Toxicology: ACGIH TLV/TWA 10 mg/m³ (total dust when toxic impurities not present); LDLo (intratracheal, rat) 250 mg/kg; poison by intratracheal route; nuisance dust; no known toxicity to skin; inh. of powd. may cause pulmonary fibrosis and produce death in infants from pneumonitis, with lesions resembling those caused by talc but more severe; TSCA listed

Precaution: Combustible dust; incompat. with acids and alkalis (may react vigorously)

Hazardous Decomp. Prods.: CO, CO₂, ZnO, stearic acid

NFPA: Health 0, Flammability 1, Reactivity 0

Storage: Store in cool, dry area away from ignition sources; mechanical exhaust required

Uses: Lubricant, filler for pharmaceutical tablets/capsules, orals, powds., ointments; protectant in diaper rash and prickly heat prods.; dietary supplement; nutrient

Regulatory: FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1460, 177.1900, 177.2410, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1460, 177.1900, 177.2410, 178.8994, GRAS; FDA approved for orals; USP/NF, BP, EP compliance; Canada DSL

Chemical Component Cross-Reference

Zinc sulfate
CAS 7733-02-0 (anhyd.); EINECS/ELINCS 231-793-3

UN NA 9161 (DOT)

Synonyms: Sulfuric acid zinc salt (1:1); White copperas; White vitriol; Zinc vitriol

Classification: Inorganic zinc salt

Definition: Reaction prod. of sulfuric acid with zinc; avail. commercially as the monohydrate; avail. as the heptahydrate, mainly for laboratory purposes

Empirical: O₄SZn

Formula: ZnSO₄

Properties: Colorless rhombic cryst. or cryst. powd., odorless; sol. in water, glycerin; almost insol. in alcohol; m.w. 161.43 (anhyd.); dens. 3.74 (15 C); m.p. dec. @ 740 C; loses water of cryst. above 235 C; pH 4.5 (sat. sol'n.)

Toxicology: LD₅₀ (oral, rat) 2949 mg/kg, (IP, mouse) 17,750 µg/kg; LDLo (subcut., mouse) 1500 µg/kg, (IV, dog) 66 mg/kg; poison by ing., ip, subcut., IV; human systemic effects (acute pulmonary edema, GI effects, hypermotility, diarrhea); eye irritant; allergen; irritating to skin and mucous membranes; questionable carcinogen; experimental tumorigen, teratogen, reproductive effects; human mutagenic data; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of SOₓ and ZnO

HMIS: Health 2, Flammability 0, Reactivity 0

Storage: Hygroscopic; efflorescent in dry air

Uses: Dietary supplement, nutrient, zinc source in pharmaceuticals, orals; ophthalmic astringent; eye lotions; styptics; gargle sprays; skin tonic; medicinally as an emetic

Regulatory: FDA 21CFR §182.90, 182.8997,
Zinc sulfate heptahydrate

CAS: 7446-20-0; EINECS/ELINCS: 231-793-3

Synonyms: Sulfuric acid zinc salt (1:1) heptahydrate; White vitriol; Zinc sulfate (1:1) heptahydrate; Zinc vitriol

Empirical: O₄SZn • 7H₂O

Formula: ZnSO₄ • 7H₂O

Properties: Colorless cryst. or cryst. powd., odorless, astringent taste; insol. in alcohol, glycerin; m.w. 287.54; dens. 1.97; m.p. 100 C; dec. > 500 C; loses water @ 280 C; pH 4.5

Toxicology: LD50 (oral, rat) 2150 mg/kg; (IP, mouse) 260 mg/kg; LDLo (IV, rat) 49 mg/kg, (subcut., dog) 78 mg/kg; poison by subcut., IV, IP routes; mod. toxic by ing.; human poison by unspecified route; experimental reproductive effects

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of SOx and ZnO

HMIS: Health 2, Flammability 0, Reactivity 0

Storage: Keep well closed

Uses: Dietary supplement, nutrient in pharmaceuticals; component of chem. treatments to prevent foot rot infections in animals

Regulatory: BP, EP compliance; FDA 21 CFR §182.90, 182.8997, 582.80, GRAS; Canada DSL


Zinc sulfate (1:1) heptahydrate. See Zinc sulfate heptahydrate

Zinc sulfate monohydrate

CAS: 7446-19-7

Synonyms: Dried zinc sulfate

Empirical: O₄SZn • H₂O

Formula: ZnSO₄ • H₂O
Chemical Component Cross-Reference

Properties: Wh. powd. or gran.; sol. in water; pract. insol. in alcohol; m.w. 179.46; loses water above 238 C
Uses: Ingred. in pharmaceuticals
Regulatory: Canada DSL

Zinc sulfocarbolate; Zinc sulfophenate. See Zinc phenolsulfonate
Zinc undecenoate. See Zinc undecyleneate

Zinc undecylenate
CAS 557-08-4; EINECS/ELINCS 209-155-0
Synonyms: 10-Undecenoic acid, zinc salt; Zinc diundec-10-enoate; Zinc undecenoate
Definition: Salt of undecylenic acid
Empirical: C22H38O4Zn
Formula: [CH=CH(CH2)8COO]2–Zn++
Properties: Wh. powd.; insol. in water, alcohol; m.w. 431.92; m.p. 115-121 C
Precaution: Combustible
HMIS: Health 1, Flammability 0, Reactivity 0
Uses: Antimicrobial, opacifier in pharmaceuticals; topical antifungal agent; fungistat for athlete’s foot medicines
Regulatory: BP, EP compliance; Canada DSL
Integra† http://www.integrachem.com; Penta Mfg.† http://www.pentamfg.com; Ruger† http://www.rugerchemical.com; Sigma http://www.sigma-aldrich.com/belgium
Spectrum Quality Prods.† http://www.spectrumchemical.com; Universal Preserv-A-Chem†

†=pharmaceutical grade


Zinc vitriol. See Zinc sulfate heptahydrate; Zinc sulfate
Zinc white. See Zinc oxide

Zingerone
CAS 122-48-5; EINECS/ELINCS 204-548-3
FEMA 3124
Synonyms: 2-Butanone, 4-(4-hydroxy-3-methoxyphenyl)-; Gingerone, 4-(4-Hydroxy-3-methoxyphenyl)-2-butane; (4-Hydroxy-3-methoxyphenyl) ethyl methyl ketone; 3-Methoxy-4-hydroxy benzylacetone; Vanillylacetone; Zingerone; Zingiberone
Classification: aromatic alcohol
Empirical: C11H14O3
Formula: HOC6H3(OCH3)CH2CH2COCH3
Properties: Cryst.; sol. in ether, dil. alkalis; sparingly sol. in water, petrol. ether; m.w. 194.22; dens. 1.138-1.139; m.p. 40-41 C; b.p. 187-188 C (14 mm); ref. index 1.5440-1.5450
Toxicology: LD50 (oral, rat) 2580 mg/kg, (skin, rabbit) > 5 g/kg; mod. toxic by ing.; skin irritant; TSCA listed
Precaution: Flamm.
Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes
Uses: Synthetic flavor for pharmaceuticals
Features: Sweet vanilla-like flavor
Regulatory: FDA 21CFR §172.515; FEMA GRAS; Canada DSL

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Zingiber officinalis. See Ginger (Zingiber officinale) oil
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Functional/Application Index

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  Skin Flow C
absorbent, oil: pharmaceuticals
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  Acetyltirosine
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   Acetic anhydride
acidifier, aspirin
   Acetic anhydride
acidifier, buccals
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acidifier, denture powders
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acidifier, effervescent granules
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acidifier, effervescent powders
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acidifier, effervescent tablets
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acidifier, flavoring extracts
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acidifier, gastric
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acid scavenger
   Pyridine
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acid source, pantothenic: solid dosages
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acid source, pantothenic: tablets
   Calcium Pantothenate USP, FCC
acidulant, digestive aids
   Lactic acid
acidulant, effervescent tablets
   Citric Acid Anhyd. Fine Gran. 700 USP FCC
acidulant, injectables
   Lactic acid
acidulant, mild: orals
   Gluconolactone
acidulant, mild: pharmaceuticals
   Gluconolactone
acidulant, mild: topicals
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acidulant, orals
   Lactic acid
acidulant, parenterals

- Lactic acid

acidulant, pharmaceutical liquids/solids

- Citric Acid Anhyd. Fine Gran. 700 USP FCC

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- Lactic acid; Purac® HS 50; Purac® HS 88; Purac® PF 90

acidulant, topicals

- Lactic acid

acidulant, vaginals

- Lactic acid

acne control agent

- Sepicontrol A5

acne treatment

- Capryloyl collagen amino acids; Sebomine SB12; Zinc acetate

activator, cell metabolism

- Yeast extract

activator, medical rubber

- Zoco 112 USP

activator, pharmaceutical rubber

- Zoco 112 USP

addition polymer, pharmaceuticals

- Lumulse® PEG 1450; Lumulse® PEG 1450 NF

additive, functional: parenteral solutions

- Standard KCl

additive, functional: tablets

- Standard KCl

adhesion barrier, absorbable: surgical procedures

- Cellulose, oxidized, regenerated

adhesion barrier, absorbable: wound dressings

- Cellulose, oxidized, regenerated

adhesion inhibitor, medical

- Papain

adhesion preventive, medicine

- Papain

adhesion promoter, creams/lotions

- Liponyl 10 BN 6058; Liponyl 10 BN 6069

adhesion promoter, enteric coatings

- Certified® Pharmaceutical Glaze

adhesion promoter, pharmaceuticals

- Liponyl 10 BN 6058; Liponyl 10 BN 6069

adhesion promoter, skin: pharmaceuticals

- Lipomic 601 BN

adhesion promoter, water-soluble bioadhesives

- Plasdone® K-12; Plasdone® K-17

adhesive

- Spray Dried Hydrolysed Fish Gelatin

adhesive, adhesive gels

- Kollidon® 12PF; Kollidon® 17PF; Kollidon® 25; Kollidon® 30; Kollidon® 90F

adhesive agent, hard capsules

- Sammi Gelatine

adhesive agent, pharmaceutical coatings

- Sammi Gelatine

adhesive agent, pharmaceuticals

- Sammi Gelatine; Spray Dried Fish Gelatin

adhesive agent, soft capsules

- Sammi Gelatine

adhesive agent, tablets

- Sammi Gelatine

adhesive, dentures

- Gantrez® AN-119; Gantrez® AN-139; Gantrez® AN-139 BF; Gantrez® AN-149; Gantrez® AN-169

- Karaya (Sterculia urens) gum; MANUCOL® LKK; Methyl vinyl ether/maleic acid copolymer

adhesive, film-forming: pharmaceuticals

- Plasdone® S-630

adhesive, medical

- 1,3-Butanediol dimethacrylate

adhesive, medical plaster

- Heyplast NC 90 Z

adhesive, medical tablets

- Gohsenol GH-17; Gohsenol GL-05

adhesive, ostomy products

- Aqualon® Cellulose Gum; Gantrez® AN-119; Gantrez® AN-139; Gantrez® AN-139 BF; Gantrez® AN-149

- Gantrez® AN-169; Genu® Pectins; Genu® Pectin USP/100; Genu® Pectin USP/200; Genu® Pectin USP-L/200

adhesive, OTC products

- Ganex® V-216; Ganex® V-220

adhesive, pharmaceutical emulsions

- Genu® Pectins; Genu® Pectin USP/100; Genu® Pectin USP/200; Genu® Pectin USP-L/200

adhesive, pharmaceutical suspensions

- Genu® Pectins; Genu® Pectin USP/100; Genu® Pectin USP/200; Genu® Pectin USP-L/200

adhesive, pressure-sensitive: transdermal drug delivery systems

- BIO-PSA® 7-4101 Silicone Adhesive; BIO-PSA® 7-4102 Silicone Adhesive; BIO-PSA® 7-4201 Silicone Adhesive; BIO-PSA® 7-4202 Silicone Adhesive

adhesive substitute

- Edible Beef Gelatin

adhesive, sugar coatings

- Kollidon® VA 64; Kollidon® VA 64 Fine
adhesive, surgical dressings
  - Dextrin
adhesive, tablets
  - Acacia; Granular Gum Arabic Type A-1 NF Premium; Granular Gum Arabic Type A-2 NF Premium; Powdered Gum Arabic Type B-100 NF Premium; Powdered Gum Arabic Type B-200 NF Premium; Spray Dried Gum Arabic Type A-180 NF Premium; Spray Dried Gum Arabic Type A-230 NF Extra
adhesive, tissue
  - Bucrylate
adhesive, tissue: medical applications
  - Bucrylate
adhesive, transdermals
  - Kollidon® 12PF; Kollidon® 17PF; Kollidon® 25; Kollidon® 30; Kollidon® 90F
adhesive, wound care dressings
  - Genu® Pectins; Genu® Pectin USP/100; Genu® Pectin USP/200; Genu® Pectin USP-L/200
adjunct, gastroscopic exams
  - Dow Corning® Medical Antifoam AF Emulsion
adjuvant, buccals
  - Clove (Eugenia caryophyllus) oil
adjuvant, fluid: parenteral solutions
  - Rehydragel® LV
adjuvant, functional: eczema
  - Walnut (Juglans regia) extract
adjuvant, functional: eczema treatment
  - Crodarom Nut O; Walnut (Juglans regia) extract
adjuvant, functional: foot care
  - Crodarom Nut O; Walnut (Juglans regia) extract
adjuvant, impression pastes
  - Eugenol
adjuvant, orals
  - Clove (Eugenia caryophyllus) oil; Eugenol; Sodium acetate trihydrate
adjuvant, parenterals
  - Sodium acetate trihydrate
adjuvant, periodontal dressings
  - Eugenol
adjuvant, pharmaceuticals
  - Carvone; Clove (Eugenia caryophyllus) oil; Diacetyl; Dill (Anethum graveolens) seed oil; Ethyl formate; Eugenol; Fenchyl alcohol; Magnesium chloride hexahydrate; Malt extract; Sodium acetate trihydrate
adjuvant protein, nutritional supplements
  - Byco A; Byco C; Byco O; Hydrolyzed gelatin
adjuvant, synthetic flavors
  - Lumisorb™ PSMO-20 FGK
adjuvant, tablets
  - Dioctyl sodium sulfosuccinate; DSS Granular; DSS Tablet Grade
adjuvant, zinc oxide cement
  - Eugenol
adsorbent
  - Sodium magnesium silicate
adsorbent, antibiotics
  - Diaion® HP20
adsorbent, antidiarrheal products
  - Attapulgite; Bismuth subcarbonate; Bismuth subnitrate; Bismuth subsalicylate; Charcoal, activated; Kaolin; Pharmasorb® Regular; Polycarbophil
adsorbent, biological materials: human vaccines
  - Rehydragel® HPA
adsorbent, biological materials: veterinary vaccines
  - Rehydragel® HPA
adsorbent, buccals
  - Starch
adsorbent, diarrhea treatment tablets
  - Pharmasorb® Regular
adsorbent, direct compression: tablets
  - Fujicalin
adsorbent, encapsulated pharmaceuticals
  - Pectin
adsorbent, endotoxins
  - Kollidon® CL; Kollidon® CL-F; Kollidon® CL/M; Kollidon® CL-SF
adsorbent, oil
  - Cab-O-Sil® EH-5; Cab-O-Sil® H-5; Cab-O-Sil® LM-150; Cab-O-Sil® M-5; Cab-O-Sil® MS-55; Silica
adsorbent, oil: pharmaceuticals
  - Syloid® 244FP
adsorbent, ointments
  - Silica, fumed
adsorbent, orals
  - Aluminum hydroxide; Attapulgite; Starch
adsorbent, parenterals
  - Starch
adsorbent, parenteral solutions
  - Rehydragel® LV
adsorbent, pharmaceutical aerosols
  - Silica, fumed
adsorbent, pharmaceutical creams
Silica, fumed

adsorbent, pharmaceutical powders
Silica, fumed

adsorbent, pharmaceuticals
Aerosil® 90; Aerosil® 150; Aerosil® 380; Aerosil® R974; Aerosil® R8200
Aluminum hydroxide; Attapulgite; Cab-O-Sil® H-5; Charcoal, activated; Pectin
Pharmasorb® Colloidal Pharmaceutical Grade; Rehydragel® CG; Silica dimethyl silylate; Silica, fumed; Silica, hydrated
Siliporite®; Sipernat® 160PQ; Sipernat® 310; Sipernat® 320; Sipernat® 820A

adsorbent, pharmaceutical suspensions
Silica, fumed

adsorbent, polyphenols
Kollidon® CL; Kollidon® CL-F; Kollidon® CL/M; Kollidon® CL-SF

adsorbent, precompression: water-soluble ingredients
Microcrystalline cellulose

adsorbent, rectals
Starch

adsorbent, selective: specialty polymer pharmaceuticals
Selexsorb® CDO-200

adsorbent, skin protectants
Silica, hydrated

adsorbent, small proteins
Diaion® HP20

adsorbent, synthetic: antibiotic purification
Diaion HP10; Sepabeads® SP 206, SP 207

adsorbent, synthetic: bioactive substances
Diaion® HP21; Diaion® HP30; Diaion® HP40; Diaion® HP50

adsorbent, synthetic: enzymes
Diaion® HP21; Diaion® HP30; Diaion® HP40; Diaion® HP50

adsorbent, synthetic: fatty acids
Diaion® HP21; Diaion® HP30; Diaion® HP40; Diaion® HP50

adsorbent, synthetic: vitamin purification
Diaion HP10; Sepabeads® SP 206, SP 207

adsorbent, synthetic: vitamins
Diaion® HP21; Diaion® HP30; Diaion® HP40; Diaion® HP50

adsorbent, tablets
Silica, fumed; Starch

adsorbent, topicals
Pectin; Starch

adsorbent, vaginals
Starch

adsorbent, veterinary antidiarrheal products
Bismuth subsalicylate

adsorbent, water
Kollidon® CL; Kollidon® CL-F; Kollidon® CL/M; Kollidon® CL-SF

adsorption aid, nutritional products
Imwitor® 928

adsorption aid, pharmaceuticals
Imwitor® 928; Witafrol® 7420

aerating agent
Lactic acid esters of mono- and diglycerides of fatty acids

aerating agent, pharmaceutical aerosols
Nitrous oxide

aeration enhancer, pharmaceuticals
Avapol™ EMD

agar substitute
Gelrite®

air displacement agent, inhalants
Carbon dioxide

air displacement agent, pharmaceuticals
Nitrogen

alcohol denaturant, pharmaceuticals
Denatonium benzoate; Methyl isobutyl ketone; Sucrose octaacetate

algicide, antibiotics
Daistat CM 50P; Daistat CM 80; Daistat CMB 90 F; Daistat LM 80; Daistat LMB 90 F; Daistat SM 80; Daistat SMB 90 F

alimentary canal treatment
Bismuth subgallate

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Magnesium hydroxide

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Calcium carbonate

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Calcium carbonate

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Sodium acetate anhydrous; Sodium hydroxide

alkalizer, foot preparations
Sodium borate; Sodium borate decahydrate; Sodium carbonate

alkalizer, inhalants
Sodium hydroxide

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alkalizer, injectables
- Sodium bicarbonate; Sodium carbonate; Sodium hydroxide

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- Potassium hydroxide
- Sodium carbonate; Sodium hydroxide

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- Diethanolamine

alkalizer, ophthalmics
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- Potassium hydroxide; Sodium acetate anhydrous; Sodium bicarbonate; Sodium carbonate; Sodium hydroxide

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- Sodium borate; Sodium borate decahydrate

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- Potassium hydroxide; Sodium acetate anhydrous; Sodium hydroxide; Triethanolamine

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- Potassium citrate; Sodium succinate

alkalizer, urine
- Citric acid monohydrate

alkalizer, vaginal douches
- Sodium carbonate

alkalizer, vaginals
- Sodium hydroxide; Triethanolamine

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- Semisynthesis
- Bis (trimethylsilyl) urea

alkylating agent, penicillin semisynthesis
- Bis (trimethylsilyl) urea

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- Vinyl bromide

alternative, sustained-releases
- Protacid™; Protanal®

amino acid source, IV applications
- Lysine acetate

ammonia source
- Ammonium carbonate

amphiphilic agent, drug delivery
- Almond oil PEG-6 esters; Corn oil PEG-6 esters; Hydrogenated palm/palm kernel oil PEG-6 esters; Labrafﬁl® Isostearique; Labrafﬁl® M 2125 CS
- Olive oil PEG-6 esters; Peanut oil PEG-6 esters; Triisostearin PEG-6 esters

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- Propylene glycol caprylate/caprate

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- Polyplasdone® INF-10

analeptic, pharmaceuticals
- Caffeine

analgesic
- Antipyrine; Asafetida (Ferula asafoetida) gum; BL-9EX; Cloisonné®; Cosmica®
- Custosense LAV; Custosense PM; Duocrome®; Ethyl ether; Gemtone®
- Gentisic acid; Morpholine; Piperazine; Trichloroethylene

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- Aloe barbadensis gel

analgesic, burn treatment
- Orange (Citrus aurantium dulcis) peel wax; Orange Wax

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- Methyl salicylate

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- Antipyrine; Gentisic acid; Salicylamide

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   Aloe Vera Whole Leaf Powder Organic Freeze Dried; Aloe Vera Whole Leaf Powder Organic; Atlas® G-4829 Pharma; Eastman® Propionic Anhydride, Kosher; Ethyl ether
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   Nipa Benzocaine; Phenol
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anticaking agent, dentifrices
- EZA®

anticaking agent, film enhancement
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- Tea tree (Melaleuca alternifolia) oil

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antimicrobial, surgical scrubs
  Chlorhexidine digluconate; Nipacide® PX
  BP/USP; Nipacide® PX-R
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  Chlorhexidine digluconate
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  Benzethonium chloride; Thimerosal
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  Basic violet 3
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  Benzyl alcohol
antimicrobial, topical: bar soaps
  Nipaguard® TCC
antimicrobial, topical creams/lotions
  p-Chloro-m-cresol
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  Nipaguard® TCC
antimicrobial, topical OTC products
  Nipacide® PX
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  Basic violet 3; Benzalkonium chloride; Benzethonium chloride; Benzoic acid; Bioban® BP Pharma; Bioban® BP Pharma 30; 2-Bromo-2-nitropropane-1,3-diol; Butylparaben; Captan; Chloroacetamide; Chlorobutanol; Chloroxylenol; Diazolidinyl urea; Dimethyl oxazolidine; DMDM hydantoin; Ethylparaben; Formaldehyde; Hexetidine; Imidazolidinyl urea; Lactic acid; Methylchloroisothiazolinone; Methylisothiazolinone; Methylparaben; Mytab®; Nipaguard® TC40; Nonoxynol iodine; Oxychlorosene; Phenyethanol alcohol; Phenol; Phenosept PG; Potassium sorbate; Propionic acid; Propylparaben; Quaternium-15; Sodium benzoate; Stearalkonium chloride; Thimerosal; 3,4,4´-Trichlorocarbanilide; Zinc pyrithione
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  pharmaceuticals
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    Resorcinol
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antimicrobial, veterinary ointments/shampoos
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antimicrobial, veterinary products
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    8-Hydroxyquinoline sulfate
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    Bisabolol
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    Amerol® 8 Liquid; Amerol® A Liquid; Aminopropyl ascorbyl phosphate; Apple (Pyrus malus) extract; Ascorbyl dipalmitate; Citric acid monohydrate; Coenzyme Q10; 10% DC; Coenzyme Q10; Covitol® 1100; Covitol® 1185; Covitol® 1210; Covitol® F-350M; Covitol® 10% DC; Coenzyme Q10; Covitol® 1100; Covitol® 1185; Covitol® 1210; Covitol® F-350M; Covitol® 10% DC; Coenzyme Q10; Covitol® 1100; Covitol® 1185; Covitol® 1210; Covitol® F-350M; Covitol® 10% DC; Coenzyme Q10; Covitol® 1100; Covitol® 1185; Covitol® 1210; Covitol® F-350M; Covitol®
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  L-Ascorbic acid; BHT; Potassium metabisulfite; Sodium metabisulfite; Sodium sulfite
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  Potassium metabisulfite; Sodium thiosulfate anhydrous; Stannous chloride anhydrous
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  Phosphatidylcholine
antioxidant, liquids
  DL-α-Tocopherol
antioxidant, medicated creams
  Multiwax® W-445
antioxidant, medicated unguesnts
  Multiwax® W-445
antioxidant, medicinal syrups
  Sucrose
antioxidant, medicine
  Hypophosphorous acid
antioxidant, micronutrient
  Lycopene
antioxidant, mild: pharmaceuticals
  Orange (Citrus aurantium dulcis) peel wax
antioxidant, monovitamin tablets
  Coated Ascorbic Acid, Type EC
antioxidant, multivitamin tablets
  Ascorbic Acid Fine Gran. USP, FCC; Coated Ascorbic Acid, Type EC
antioxidant, natural: dermatologials
  Rosemary (Rosmarinus officinalis) extract
antioxidant, nebulizer solutions
  Potassium bisulfite
antioxidant, ophthalmics
  L-Ascorbic acid; Sodium bisulfite; Sodium metabisulfite; Sodium thiosulfate anhydrous
antioxidant, orals
  L-Ascorbic acid; BHA; BHT; Calcium ascorbate; Calcium citrate
  Cysteine hydrochloride anhydrous; Ethyl maltol; Propionic acid; Sodium bisulfite; Sodium metabisulfite
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antioxidant, peritoneal dialysis solutions
Potassium bisulfite

antioxidant, pharmaceutical creams/ lotions
Ascorbyl palmitate

antioxidant, pharmaceutical direct compression tablets
Teavigo™ TG

antioxidant, pharmaceutical dry preparations
Coated Ascorbic Acid, Type EC

antioxidant, pharmaceuticals
Ascorbic Acid Fine Gran. USP, FCC; L-Ascorbic acid; BHA; BHT; t-Butyl hydroquinone
Calcium ascorbate; Calcium Ascorbate USP; Calcium citrate; Cetyl gallate; Coated Ascorbic Acid, Type EC
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Covitol® 1360; Cyclodextrin; β-Cyclodextrin
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Guaiac (Guaiacum officinale) extract;
Hydroxypropyl-α-cyclodextrin;
Hydroxypropyl-β-cyclodextrin;
Hydroxypropyl-γ-cyclodextrin;
Hydropophosphorous acid
Lauryl/stearyl thiodipropionate; Lysidone®;
Lysine PCA; Methyl-α-cyclodextrin; Methyl-β-cyclodextrin
Methyl-γ-cyclodextrin; Methyl gallate;
Multiwax® 180-W; Multiwax® ML-445;
Multiwax® W-445
Nipanox® BHT; Origanox OS; Origanox™
WS; Oryzanol; Oxynex® 2004
PG USP; Phosphatidylcholine; Potassium bisulfite; Potassium metabisulfite;
Propionic acid
Propyl gallate; Sodium ascorbate; Sodium Ascorbate USP, FCC; Sodium bisulfite;
Sodium formaldehyde sulfoxylate
Sodium hypophosphite; Sodium metabisulfite; Sodium sulfite; Sodium thiosulfate anhydrous; Stannous chloride anhydrous
Sucrose; Sulfur dioxide; Tocopherol; dl-

alpha--Tocopherol USP/EP/FCC; D-α-Tocopherol
DL-α-Tocopherol; Tocophersolan;
Tocopheryl acetate; d-α-Tocopheryl acetate; dl-α-Tocopheryl acetate
d-α-Tocopheryl nicotinate; 1,3,5-
Trihydroxybenzene; Tri-K Vitamin E Acetate; Turpinal® SL; Vitamin E Acetate-USP
Vitinc® dl-alpha Tocopheryl Acetate USP XXII; Zinc glycinat

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Ianol CP

antioxidant, rectals
BHA; BHT; Potassium metabisulfite; Sucrose

antioxidant, rubber: pharmaceuticals
Ianol CP

antioxidant, skin preparations
Etidronic acid

antioxidant, solid dosages
Vitamin E Acetate Dry Powd. 50% DC; Vitamin E Acetate Dry Powd. SD 50

antioxidant, spray-dried flavors
TIC Pretested® Arabic FT-1 Powder

antioxidant, supplements
Calcium citrate

antioxidant, sympathomimetic medications
Sodium metabisulfite; Sodium sulfite

antioxidant, sympathomimetic pharmaceuticals
Sodium metabisulfite; Sodium sulfite

antioxidant, tablets
Calcium citrate

antioxidant, topicals
BHA; BHT; Disisopropyl cresol;
Nordihydroguaiaretic acid; Propionic acid
Propyl gallate; Sodium bisulfite; Sodium formaldehyde sulfoxylate; Sodium sulfite;
Sucrose
d-α-Tocopheryl acetate; d-α-Tocopheryl nicotinate

antioxidant, vitamins
Amerol® 4 Liquid; Amerol® 4A Liquid;
Amerol® 4B Liquid; Hydroquinone monomethyl ether

antiphlogistic agent
α-Bisabolol; Cremogen® Camomile Forte 728790

antiphlogistic agent, acne treatment
Herbasol Complex GU-61

antiphlogistic agent, emulsions
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  Hydagen® B
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antiphlogistic agent, wound ointments
  Bisabolol
antipruritic
  BL-9EX
antipruritic, topical
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  Lemon (Citrus medica limonum) juice
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  Selenium sulfide
antiseborrheic agent, seborrheic blepharitis
  Selenium sulfide
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  Capryloyl collagen amino acids; Lipacide™ C8CO
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  Aluminum acetate; Aluminum chloride anhydrous; Ammonium alum; Asafetida (Ferula asafoetida) gum; Bay (Pimienta acris) oil
  Boric acid; Boron; Cairox® Potassium Permanganate USP Grade; Calcium iodate; L-Camphor
  Capsicum frutescens extract; Carvacrol; p-Chloro-m-cresol; Chloroxylenol;
  Cocotrimonium chloride
  Crodamor Rosemary Oil forte; Damiana (Turnera diffusa); Diazolidinyl urea;
  Dimercury dichloride; Domiphen bromide
  Eucalyptol; Gum benzoin; Hexyl alcohol; 8-Hydroxyquinoline; Magnesium acetate
  Menthalactone; Mercury oxide (ic), red; Mercury oxide (ic), yellow; Myrtrimonium bromide; ß-Naphthol
  Nipacide® MX; Oyster shell powder; PCA ethyl cocoyal arginate; Phenoxyisopropanol;
  Phenylmercuric nitrate, basic
  Polyquat 50; Potassium bisulfite;
  Potassium iodide; Potassium persulfate;
  Propyl alcohol
  Pyrocatechol; Salicylic acid; Silver nitrate;
  Sodium benzoate; Sodium bisulfite
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  Zinc chloride
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  Actiphyte® of Patchouli
antiseptic, aerosol wound treatment
  Tetramethyliurium disulfide
antiseptic, aminoglycoside medications
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antiseptic, aminoglycoside pharmaceuticals
  Sodium sulfite
antiseptic, athlete's foot preparations
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  Didecyldimonium chloride
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antiseptic, balms
  Tea tree (Melaleuca alternifolia) oil
antiseptic, bed-sores
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antiseptic, biological fluids/solutions
  Chlorobutanol
antiseptic, botanical
  Patchouli (Pogostemon cablin) extract
antiseptic, buccals
  Methyl salicylate; Thymol
antiseptic, creams
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antiseptic, cuts
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antiseptic, dusting powders
  Bismuth subgallate
antiseptic enhancer
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antiseptic, external
  Alcohol
antiseptic, external: veterinary medicine
  L-Camphor
antiseptic, eye lotions
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antiseptic, fungal infections
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antiseptic, topical anti-infective preparations
Cetearyl alcohol; Crodacol 1618; Isopropyl alcohol; Sodium iodide
antiseptic, topical antiplaque dental products
Chlorhexidine digluconate
antiseptic, topicals
Bardac® 2240; Bardac® 2270; Bardac® 2270E; Basic violet 3; Benzethonium chloride
Benoic acid; Bismuth; Cetethyldimonium bromide; Cetrimonium bromide; Chlorhexidine digluconate
Chlorobutanol; D&C Red No. 6; D&C Red No. 7; Dichlorobenzyl alcohol; Didecyldimonium chloride
Gum benzoin; Hexamidine diisethionate; 4-Hexylresorcinol; Hydrogen peroxide; Iodine Methyl salicylate; Oxychlorosene; Phenethyl alcohol; Phenosept PG; Phenylmercuric borate; Potassium iodate; PVP-Iodine 30/06; PVP-Iodine 30/06 M10; Resorcinol; Sodium sulfite
α-Terpineol; Tetramethylthiuram disulfide; Zinc carbonate
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Ethyl ether
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Mandelic acid; Nalidixic acid
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Sodium iodide
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Thymol
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Methylene blue trihydrate; 2,2′-Thiobis (4,6-dichlorophenol); Zinc acetate; Zinc carbonate
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Tea tree (Melaleuca alternifolia) oil
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Hydrogen peroxide
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antisettling agent, calamine lotion
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PEG-20M; PEG-23M; PEG-45M; PEG-90M
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Polyethylene glycol; Polyox® WSR 205; Polyox® WSR 301; Polyox® WSR 303; Polyox® WSR 308; Polyox® WSR 1105; Polyox® WSR Coagulant; Polyox® WSR N-10; Polyox® WSR N-12K; Polyox® WSR N-60K; Polyox® WSR N-80; Polyox® WSR N-750
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Silica, fumed; Wacker HDK® N20
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Daistat CM 50P; Daistat CM 80; Daistat CMB 90 F; Daistat LM 80; Daistat LMB 90 F; Daistat SM 80; Daistat SMB 90 F
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antistat, dermatologicals
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- MERPOL® HCS; T-Maz® 85 Special; T-Maz® 85K

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- Carbowax® PEG 1450; Carbowax® PEG 3350; Nikkol Sarcosinate LN; Nikkol Sarcosinate MN; Sodium myristoyl sarcosinate

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- Abil® B 8863; Arlatone® T; Ceresine C; Ceresine K; Hyaluronic acid
- Liposorb S-20K; Liposorb TS-20A; Myristamide MEA; Paxyl CM 1000; Paxyl CS 20
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- Thyme (Thymus vulgaris)

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- Potassium citrate

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Surelease®
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  - Powdered; Kaydol®; Polyvinyl alcohol (partially hydrolyzed)
  - Starch sodium octenyl succinate; Synthetic wax;
    Tylopur® C 300 P2; Tylopur® C 1000
    P2; Tylopur® C 6000 G1
    Tylopur® C 10000 P2; Tylose® H 100000 P2

PHA: Vazo® 56 WSP; Vazo® 56 WSW;
Vazo® 68 WSP

binder, acne lotions
  - Hectorite BC 840

binder, adhesive plasters
  - Beeswax

binder, agglomeration processes
  - Polyalditol X110; Polyalditol X120

binder, animal health care
  - Avicel® PH-101; Avicel® PH-102; Avicel®
    PH-103; Avicel® PH-105

binder, antibiotics
  - Plasdone® C-15; Plasdone® C-30

binder, antiseptics
  - Plasdone® C-15; Plasdone® C-30; Spray
    Dried Gum Arabic NF/FCC CS-R

binder, aqueous pharmaceuticals
  - Natrosol® Plus 330 CS

binder, auxiliary dry: tablets
  - Lubritab®

binder, biological applications
  - HCA-411; HLA-198; Hydrolyzed whey protein

binder, buccals
  - Starch

binder, bulk laxatives
  - Walocel® C 30 A; Walocel® C 100 A;
    Walocel® C 1000 A; Walocel® C 2000 A;
    Walocel® C 10000 A

binder, capsules
  - Arboce® A 300; Calcium phosphate dibasic;
    Compritol® 888 ATO;
    C*PharmMannidex DC (200 grade) 16702;
    Dritex S
  - Glyceryl behenate; Hydrogenated cottonseed oil;
    Hydrogenated palm oil;
    Kollidon® 12PF; Kollidon® 17PF
    Kollidon® 25; Kollidon® 30; Kollidon® 90F;
    Maltodextrin; Maltrin® M510
    Maltrin® QD M500; Maltrin® QD M600;
    Microcrystalline cellulose; PEG-8M; Starch;
    pregelatinized

binder, cleansers
  - Maltrin® QD M550

binder, coatings: medical applications
  - Ethylene/VA copolymer

binder, coatings: surgical applications
  - Ethylene/VA copolymer

binder, compressed tablets
  - PEG-180; Powdered Guar Gum Type A;
    Powdered Guar Gum Type AA; Powdered
    Guar Gum Type B; Powdered Guar Gum
    Type BB
binder, controlled-release preparations
Tylose® H 20 P2 PHA

binder, controlled-releases
Methocel® E4M Premium; Methocel® K4M Premium; Methocel® K15M Premium; Methocel® K100LV Premium; Methocel® K100M Premium

binder, controlled-release tablet coatings
PVM/MA copolymer, butyl ester

binder, controlled-release tablets
Ethocel™ Standard 4 Premium; Ethocel™ Standard 7 Premium; Ethocel™ Standard 14 Premium; Ethocel™ Standard 20 Premium; Ethocel™ Standard 45 Premium; Ethocel™ Standard 100 Premium; Polycarbophil

binder, controlled-release tablets: pharmaceuticals
Noveon® AA-1

binder, creams/lotions
Isostearic acid; Methocel® K4M Premium; PVP/dimethylaminoethylmethacrylate copolymer

binder, dental products
Gelatin; Magnesium aluminum silicate

binder, denture adhesives
Aqualon® 7H3XF

binder, denture retaining agents
Luviform® FA 119; Luviform® FA 139

binder, direct compression
Byco A; Byco C; Byco O; C*PharmDry 01984; C*PharmGel 12012; C*PharmMannidex DC (200 grade) 16702; Hydrolyzed gelatin; Lycatab® C; Microcel® 101; Starch 1500®; Starch 1500® G; Starch 1500® LM; Tabulose® 101

binder, direct compression: capsules
Anhydrous Emcompress®; Anhydrous Emcompress®; Emcompress®; Emcompress®; Ludipress®; Pharmatose® DCL 14; Pharmatose® DCL 22

binder, direct compression: chewable lozenges
Ludipress® LCE

binder, direct compression: chewable tablets
Candex®; Candex® Plus; Emdex®; Ludipress® LCE; Pharmatose® DCL 22; Sugartab®

binder, direct compression: effervescent tablets
Ludipress® LCE

binder, direct compression: nonchewable tablets
Emdex®

binder, direct compression: pharmaceuticals
Copolyvidone; Lycatab® Mineral; Prosolv SMCC™ 50

binder, direct compression: sachets
Pharmatose® DCL 14

binder, direct compression: solid dosages
Avicel® PH-112; Avicel® PH-113; Avicel® PH-200; Avicel® PH-301; Avicel® PH-302

binder, direct compression: tablets
Anhydrous Emcompress®; Anhydrous Emcompress®; Arboce® A 300; Avicel® PH-101; Avicel® PH-102; Avicel® PH-103; Avicel® PH-105; Avicel® PH-112; Avicel® PH-113; Avicel® PH-200; Avicel® PH-301; Avicel® PH-302; Candex®; Candex® Plus; Emcompress®; Emdex®; Ethocel™ Standard 4 Premium; Ethocel™ Standard 7 Premium; Ethocel™ Standard 14 Premium; Ethocel™ Standard 20 Premium; Ethocel™ Standard 45 Premium; Ethocel™ Standard 100 Premium; Glucidex® IT6; Glucidex® IT8; Glucidex® IT12; Glucidex® IT19; Glucidex® IT21; Glucidex® IT29; Glucidex® IT33; Glucidex® IT38; Glucidex® IT47; Kollidon® VA 64; Kollidon® VA 64 Fine; Lactopress®; Anhydrous; Lactopress® Spray-Dried Ludipress®; Maltrin® M150; Maltrin® M510; Maltrin® QD M440; Maltrin® QD M500; Maltrin® QD M550; Maltrin® QD M580; Maltrin® QD M600; Mannogem™ Mannitol Granular; Mannogem™ Mannitol Granulor; Mannogem™ Mannitol Granular 2080; Mannogem™ Mannitol Granular 3215; Pharmatose® DCL 14; Pharmatose® DCL 22; Plasdone® S-630; Prosolv SMCC™ 90; Prosolv SMCC™ HD90; Puracal® DC; Pure-Dent® B810; Sancel-101; Sancel-102; Sancel-105; Sancel-C; Sancel-W; Solka-Floc® 100; Sorbagem™ 834; Sorbogem™ 1162; Sorbogem™ 2016; Spress® B820; Sugartab®; Vivapur® 12; Vivapur® 14

binder, direct compression: vitamins
Sugartab®

binder, direct compression: water-soluble tablets
Sugartab®

binder/disintegrant, tablets
Silica
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**binder, dry compression: tablets**
Ethocel™ Standard 4 Premium; Ethocel™ Standard 7 Premium; Ethocel™ Standard 14 Premium; Ethocel™ Standard 20 Premium; Ethocel™ Standard 45 Premium; Ethocel™ Standard 100 Premium

**binder, dry granulation**
Arbocel® M 80; Arbocel® P 290; Avicel® PH-101; Avicel® PH-102; Avicel® PH-103; Avicel® PH-105; C*PharmDry 01984; C*PharmMannidex DC (200 grade) 16702; Hydrolyzed gelatin; Maltrin® M100; Maltrin® M150; Microcel® 102; Pure-Dent® B700; Pure-Dent® B810; Tabulose® 102

**binder, dry granulation: tablets**
Plasdone® S-630; Spress® B820

**binder, dry mixes**
Maltrin® M510

**binder, dry: pressure-sensitive tableting**
Ceolus® KG-802

**binder, dry: pressure-sensitive tableting: antibiotics**
Ceolus® KG-802

**binder, dry: pressure-sensitive tableting: enzymes**
Ceolus® KG-802

**binder, dry: pressure-sensitive tableting: film-coated granules**
Ceolus® KG-802

**binder, dry vitamin preparations**
Aqualon® N-7; Aqualon® N-10; Aqualon® N-14; Aqualon® N-22; Aqualon® N-50; Aqualon® N-100; Ethocel™ Standard 4 Premium; Ethocel™ Standard 7 Premium; Ethocel™ Standard 14 Premium; Ethocel™ Standard 20 Premium; Ethocel™ Standard 45 Premium; Ethocel™ Standard 100 Premium

**binder, ear drops**
Cekol® 700

**binder, emulsion: pharmaceuticals**
Sofracerine 165; Sofracerine 185

**binder, encapsulation**
Avicel® PH-101; Avicel® PH-102; Avicel® PH-103; Avicel® PH-105

**binder, encapsulation: hard gelatin capsules**
Avicel® PH-112; Avicel® PH-113; Avicel® PH-200; Avicel® PH-301; Avicel® PH-302

**binder, eye drops**
Cekol® 700

**binder, film coating: tablets**
PVP/VA S-630

**binder, fluid bed processes**
Polyalditol X110; Polyalditol X120

**binder, food**
Maltrin® QD M550; Maltrin® QD M580

**binder, foot powders**
Purity® 21C

**binder, granulation**
PVP/VA E-535; PVP/VA E-635; PVP/VA E-735; PVP/VA I-335; PVP/VA I-535; PVP/VA I-735

**binder, granulation: controlled-release coatings**

**binder, granulation: controlled-release hydrophilic matrix systems**

**binder, granulation: sustained-release orals**
Vivapharm® 50

**binder, granules**
Kollidon® 12PF; Kollidon® 17PF; Kollidon® 25; Kollidon® 30; Kollidon® 90F

**binder, hard gelatin encapsulation**
Capsulec 51-SB; Capsulec 51-UB; Capsulec 56-SB; Capsulec 56-UB; Capsulec 60-SB; Capsulec 60-UB; Capsulec 62-SB; Capsulec 62-UB

**binder, herbal pharmaceuticals**
Vivapur® 12; Vivapur® 14
binder, hypoallergenic products
  Dioctyl malate
binder, IM injectables
  Gelatin
binder, inhalants
  Gelatin
binder, IV
  Gelatin
binder, liquid dosages
  Benecel® M; Benecel® ME1; Benecel® ME2; Benecel® MP3; Benecel® MP6
  Benecel® MP8; Benecel® MP9
binder, liquid products
  Maltrin® QD M550
binder, lozenges
  Beeswax
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  Hydroxypropyl methylcellulose phthalate
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  Cellulose acetate trimellitate
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  Hydroxypropyl methylcellulose phthalate
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  Maltrin® QD M600
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  Magnesium aluminum silicate
binder, medicinal skin creams
  Hectorite BC 840
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  Byco M
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  Hydrolyzed vegetable protein
binder, moisture-sensitive APIs
  Lactopress® Anhydrous
binder, moisture-sensitive pharmaceuticals
  Pharmcel® 112
binder, moisture-sensitive products
  Starch 1500® LM
binder, mouth preparations
  Beeswax
binder, nose drops
  Cekol® 700
binder, nutritional preparations
  HCA-411; HLA-198; Hydrolyzed casein;
  Hydrolyzed milk protein; Hydrolyzed whey
binder, ophthalmics
  Hydroxyethylcellulose; Hydroxypropyl methycellulose
binder, orals
  Alginic acid; Beeswax; Beeswax, white;
  Beeswax, yellow; Byco M
  Carrageenan (Chondrus crispus); Gelatin;
  Hydroxyethylcellulose;
  Hydroxypropylcellulose; Hydroxypropyl methycellulose
  Magnesium aluminum silicate; Polyvinyl acetate; Propylene glycol alginate; Spray
  Dried Fish Gelatin; Starch
  Tristearin; Zein
binder, OTC chewable formulations
  Parteck™ SI 150; Parteck™ SI 400 LRS;
  Parteck™ SI 400 PH; Parteck™ SI 500
binder, OTC effervescents
  Parteck™ SI 150; Parteck™ SI 400 LRS;
  Parteck™ SI 400 PH; Parteck™ SI 500
binder, OTC lozenges
  Parteck™ SI 150; Parteck™ SI 400 LRS;
  Parteck™ SI 400 PH; Parteck™ SI 500
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  Granular Gum Ghatti #1; Powdered Gum Ghatti #1
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binder, pellets
  Microcel® 101; Tabulose® 101
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  Maltrin® QD M580
binder, pharmaceutical aqueous film coatings
  Maltrin® M100; Maltrin® M180
binder, pharmaceutical body powders
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<td>Veegum®; Veegum® HV</td>
<td>Aluminum Hydroxide</td>
<td>Aluminum Hydroxide</td>
<td>Kollicoat® IR</td>
<td>Kollicoat® IR</td>
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<td>Avicel® PH-112; Avicel® PH-113; Avicel® PH-200; Avicel® PH-301; Avicel® PH-302</td>
<td>Capsulec 51-SB; Capsulec 51-UB; Capsulec 56-SB; Capsulec 56-UB; Capsulec 60-SB Capsulec 60-UB; Capsulec 62-SB; Capsulec 62-UB</td>
<td>Benecel® M; Benecel® ME1; Benecel® ME2; Benecel® MP3; Benecel® MP6 Benecel® MP8; Benecel® MP9; Ethocel™ Standard 4 Premium; Ethocel™ Standard 7 Premium; Ethocel™ Standard 14 Premium Ethocel™ Standard 20 Premium; Ethocel™ Standard 45 Premium; Ethocel™ Standard 100 Premium</td>
<td>Byco O; Gum Arabic CSP Spray Dried; JustFiber® JF BF Granular; JustFiber® BF200; JustFiber® JF BVF65 JustFiber® WWF40; JustFiber® JF WWF 200; Pationic® 919</td>
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**Sucrose distearate; Ticaxan® Regular; TIC Pretested® Pre-Hydrated® Gum Arabic FT NF/USP Powd.; TIC Pretested® Ticalose® CMC 15 Fine Powd.; Tridecylnepentanoate Triisostearyl trilinoleate; Tylose® MH Grades; Tylose® MHB; Vee Gee Pharmaceutical Gelatins; Volclay® NF-BC Yelkin® F; Yelkin® G**

**binder, pharmaceutical spray-drying**

Byco O; Maltrin® M100; Maltrin® M150

**binder, pharmaceutical suspensions**

Ticaxan® Regular; TIC Pretested® Gum Guar TICOLV FCC Powd.

**binder, pigments**

Isocetyl alcohol; Veegum®; Veegum® HV

**binder, proteins: orals**

Aluminum hydroxide

**binder, proteins: pharmaceuticals**

Aluminum hydroxide

**binder, rapidly dispersible/soluble granules**

Kollicoat® IR

**binder, rapidly dispersible/soluble tablets**

Kollicoat® IR

**binder, rectals**

Magnesium aluminum silicate; Starch

**binder, roller compaction**

Avicel® PH-112; Avicel® PH-113; Avicel® PH-200; Avicel® PH-301; Avicel® PH-302

**binder, sachets**

Mannogem™ Mannitol Granular; Sorbogem™ 834; Sorbogem™ 2016

**binder, salts**

Hectorite BC 840

**binder, slugging**

Avicel® PH-112; Avicel® PH-113; Avicel® PH-200; Avicel® PH-301; Avicel® PH-302

**binder, soft encapsulation**

Capsulec 51-SB; Capsulec 51-UB; Capsulec 56-SB; Capsulec 56-UB; Capsulec 60-SB Capsulec 60-UB; Capsulec 62-SB; Capsulec 62-UB

**binder, solid dosages**

Benecel® M; Benecel® ME1; Benecel® ME2; Benecel® MP3; Benecel® MP6 Benecel® MP8; Benecel® MP9

**binder, solid oral dosages**

Starch 1500®; Starch 1500® G; Starch

**1500® LM**

binder, solid/semisolid pharmaceuticals

Precirol ATO 5

**binder, spherization: pharmaceuticals**

Avicel® PH-101; Avicel® PH-102; Avicel® PH-103; Avicel® PH-105

**binder, spray drying**

Byco A; Byco C; Hydrolyzed gelatin

**binder, steroid hormones**

Plasdone® C-15; Plasdone® C-30

**binder, sugar-coated tablets**

Lutrol® E 1500; Lutrol® E 3350; Lutrol® E 4000; Lutrol® E 6000; PEG-125

**binder, suppositories**

Beeswax; Dritex S; Gelatin; Hydrogenated cottonseed oil; Hydrogenated palm oil Hydrogenated vegetable oil; Octyldecyloctyl stearoyl stearate

**binder, suspensions**

Mannogem™ Mannitol Powd.

**binder, sustained-release**

Precirol ATO 5

**binder, sustained-release tablet coatings**

PVM/MA copolymer, butyl ester

**binder, sustained-release tablets**

Benecel® M; Benecel® ME1; Benecel® ME2; Benecel® MP3; Benecel® MP6 Benecel® MP8; Benecel® MP9; Ethocel™ Standard 4 Premium; Ethocel™ Standard 7 Premium; Ethocel™ Standard 14 Premium Ethocel™ Standard 20 Premium; Ethocel™ Standard 45 Premium; Ethocel™ Standard 100 Premium

**binder, syrups**

Cekol® 30000

**binder, tablet coatings**

Cekol® 30; Methocel® A15LV Premium; Methocel® E6 Premium; Methocel® E15LV Premium

**binder, tableting**

Byco O; Gum Arabic CSP Spray Dried; JustFiber® JF BF Granular; JustFiber® BF200; JustFiber® JF BVF65 JustFiber® WWF40; JustFiber® JF WWF 200; Pationic® 919

**binder, tablets**

Acacia; Algin; Alginic acid; Aqualon® Cellulose Gum; Aqualon® N-7 Aqualon® N-10; Aqualon® N-14; Aqualon® N-22; Aqualon® N-50; Aqualon® N-100 Bentonite BC 342; Bentonite BC 364; Bentonite BC 670; Bentonite BC 770; Bentonite BC 870 Bentonite BC 4444; Bentonite BC 4446;
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| Bentonite BC 4448; Byco A; Byco C | Calcium phosphate dibasic; Carbowax® Sentry® PEG 300; Carbowax® Sentry® PEG 400; Carbowax® Sentry® PEG 540 Blend; Carbowax® Sentry® PEG 600; Carbowax® Sentry® PEG 900; Carbowax® Sentry® PEG 1000; Carbowax® Sentry® PEG 1450; Carbowax® Sentry® PEG 3350; Carbowax® Sentry® PEG 4600; Carbowax® Sentry® PEG 8000; Carboxymethylcellulose sodium; Cellulose; Compri tol® 888 ATO; Corn starch, pregelatinized; Cros povidone; Dextrin; Dritex S; Dynacerin® CP; Dynasan® 112; Dynasan® 114; Dynasan® 116; Dynasan® 118; Edible Beef Gelatin; Edicol® Emcocel® 50M; Emcocel® 90M; Emcocel® HD90; Emcocel® LM50; Emcocel® LP200 Emcocel® SP15; Emcocel® XLM90; Ethylcellulose; Food starch, modified; Gelatin; Glucose, liquid; Glyceril behenate; Glyceril di/tripalmitostearate; Granular Gum Arabic Type A-1 NF Premium; Granular Gum Arabic Type A-2 NF Premium; Granular Gum Ghatti #1; Guar (Cyanopsis tetragonoloba) gum; Gum Arabic G-150 Powdered; Gum Arabic NF/FCC Clean Amber Sorts; Gum ghatti; Gum Guar Type M Powdered; Gum Guar Type MM Powdered (HV); Gum Guar Type MM Powdered; Hectoric BC 840; Hydrogenated cottonseed oil Hydrogenated palm oil; Hydrogenated vegetable oil; Hydrolyzed gelatin; Hydroxypropyl methylcellulose; KELCOSOL® KELTOSE®; Klucel® EF Pharm; Klucel® EXF Pharm; Klucel® ‘F’ Grades; Klucel® GF Klucel® HF; Klucel® HXF; Klucel® JF; Klucel® LF Pharm; Klucel® MF Kollidon® 12PF; Kollidon® 17PF; Kollidon® 25; Kollidon® 30; Kollidon® 90F Lecithin; Lumulse® PEG 3350; Macrogol 200; Macrogol 400; Macrogol 1000 Macrogol 1500; Macrogol 4000; Macrogol 6000 Flake; Macrogol 6000 Powd.; Macrogol 20000 Magnabrite® F; Magnesium aluminium silicate; Maltodextrin; Methocel® A4C; Methy lcellulose Microcel® 101; Microcel® 102; Microcel® 103; Microcel® 122; Microcel® 200 Microcel® 250; Microcel® 500; Microcrystalline cellulose; MingQiong Brand; National® 78-1551 PEG-20; PEG-32; PEG-40; PEG-75; PEG-90 PEG-100; PEG-150; PEG-200; Plasdone® K-25; Plasdone® K-29/32 Plasdone® K-90; Plasdone® K-90D; Polyoxy® WSR 301; Polyoxy® WSR 303; Polyoxy® WSR 1105 Polyoxy® WSR Coagulant; Polyoxy® WSR N-10; Polyoxy® WSR N-60K; Polyoxy® WSR N-80; Polyoxy® WSR N-750 Polylasdone® XL; Polylasdone® XL-10; Powdered Gum Arabic Type B-100 NF Premium; Powdered Gum Arabic Type B-200 NF Premium; Powdered Gum Ghatti #1 Protacit™, Protanal®, Purity® 21; PVP; PVP/VA copolymer Ryoto Sugar Ester B-370; Ryoto Sugar Ester ER-190; Ryoto Sugar Ester ER-290; Ryoto Sugar Ester L-595; Ryoto Sugar Ester L-1695 Ryoto Sugar Ester LWA-1570; Ryoto Sugar Ester M-1695; Ryoto Sugar Ester O-1570; Ryoto Sugar Ester OWA-1570; Ryoto Sugar Ester P-170 Ryoto Sugar Ester P-1570; Ryoto Sugar Ester P-1570S; Ryoto Sugar Ester P-1670; Ryoto Sugar Ester S-170; Ryoto Sugar Ester S-270 Ryoto Sugar Ester S-370; Ryoto Sugar Ester S-370F; Ryoto Sugar Ester S-570; Ryoto Sugar Ester S-770; Ryoto Sugar Ester S-970 Ryoto Sugar Ester S-1170; Ryoto Sugar Ester S-1570; Ryoto Sugar Ester S-1670; Silica; Spray Dried Gum Arabic NF/FCC CSR Spray Dried Gum Arabic Type A-180 NF Premium; Spray Dried Gum Arabic Type A-230 NF Extra; Stamere® CK-S NF FCC; Stamere® N-325 NF FCC; Stamere® N-350 NF FCC Stamere® N-350 S NF FCC; Stamere® NI NF FCC; Starch; Starch, pregelatinized; Sucrose dilaurate; Sucrose laurate; Sucrose myristate; Sucrose oleate; Sucrose palmitate; Sucrose polystearate; Sucrose stearate; Sucrose tribehenate; Sucrose tristearate; Sunflower (Helianthus)

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Handbook of Pharmaceutical Additives, Third Edition 2302
annuus) seed oil; Syrup
Tabulose® 101; Tabulose® 102; Tabulose® 103; Tabulose® 122; Tabulose® 200
Tabulose® 250; Tabulose® 500; TIC Pretested® Bright Gum Arabic NF/USP Powd.; TIC Pretested® Gum Arabic FT Powd.; Tragacanth (Astragalus gummifer) gum
Trihydroxystearin; Trilaurin; Trimyristin; Tripalmitin; Tristearin
Tylopur® C 6000 G1; Tylopur® C 10000 P2; Tylose® H 20 P2 PHA; Tylose® H 4000 G4 PHA; Vee Gee Pharmaceutical Gelatins
Wheat (Triticum vulgare) starch; Zein; Zinc Stearate 914-G; Zinc Stearate 916-G; Zinc Stearate 921-G
binder, tablets: orals
Algin; Ethylcellulose
binder, tablets: slugging operations
Premium Powdered Gum Arabic
binder, tablets: vitamin/minerals
Ethylcellulose
binder, tablets: wet granulations
Sta-Rx® NF
binder, taste masking
Ethocel™ Standard 14 Premium
binder, thickeners
Alginic acid
binder, throat preparations
Beeswax
binder, timed-release preparations
Tylose® H 4000 G4 PHA
binder, topicals
Beeswax; Beeswax, white; Beeswax, yellow; Byco M; Carrageenan (Chondrus crispus)
Diocyl malate; Gelatin;
Hydroxyethylcellulose; Hydroxypropyl methylcellulose; Isopropyl palmitate
Isopropyl stearate; Magnesium aluminum silicate; Octylododecyl stearoyl stearate;
PEG-2 stearate; Polyacrylic acid
Polydecene; Pure-Dent® B812;
PVP/dimethiconylacrylate/poly carbamyl/polyglycol ester;
PVP/dimethylaminoethylmethacrylate copolymer; PVP/dimethylaminoethyl methacrylate/poly carbamyl poly glycol ester
Schercemol TIST; Spray Dried Fish Gelatin; Starch; Tridecyl neopentanoate;
Triisodecyl trilinoleate
binder, troches
Beeswax
binder, uncoated tablets
Lutrol® E 1500; Lutrol® E 3350; Lutrol® E 4000; Lutrol® E 6000; PEG-125
binder, vaginals
Beeswax; Beeswax, white; Gelatin;
Magnesium aluminum silicate; Starch
binder, vitamins
Plasdone® C-15; Plasdone® C-30; TIC Pretested® Ticalose® CMC 15 Fine Powd.
binder, water
Genugel® X-902-02; Genuvisco®; Keldent®;
Powdered Tragacanth Gum Type E-1;
Powdered Tragacanth Gum Type L
Powdered Tragacanth Gum Type W;
Tragacanth Gum Ribbon No. 1 NF FCC
binder, water: bulk laxatives
Karaya Gum FCC; Powdered Gum Karaya
Superfine #1 FCC; Powdered Gum Karaya
Superfine XXXX FCC
binder, water: creams/lotions
Locust bean (Ceratonia siliqua) gum
binder, water: denture adhesives
Karaya Gum FCC; Powdered Gum Karaya
Superfine #1 FCC; Powdered Gum Karaya
Superfine XXXX FCC
binder, water: ophthalmic creams
Pionier® 1730
binder, water: ophthalmic ointments
Pionier® 1730
binder, water: ostomy adhesives
Genu® Pectins; Genu® Pectin USP/100;
Genu® Pectin USP/200; Genu® Pectin USP-L/200
binder, water: pharmaceutical creams/lotions
Locust bean (Ceratonia siliqua) gum;
Locust Bean Gum Type A-100; Locust Bean Gum Type A-250; Locust Bean Gum Type A-270
binder, water: pharmaceutical emulsions
Genu® Pectins; Genu® Pectin USP/100;
Genu® Pectin USP/200; Genu® Pectin USP-L/200
binder, water: pharmaceuticals
Genu® USP/100; Genu® USP/200; Genu® USP-L/200; Genu® VV-11PF; Genu® VV-41PF
Genu® VV-71PF; Genu® Carrageenan;
Jaguar® 308NB; Karaya Gum FCC; Locust bean (Ceratonia siliqua) gum
Locust Bean Gum Type A-100; Locust Bean Gum Type A-250; Locust Bean Gum Type A-270; Powdered Guar Gum Type A;
Powdered Guar Gum Type AA
Powdered Guar Gum Type B; Powdered Guar Gum Type C
binder, water: water
Functional/Application Index

Guar Gum Type BB; Powdered Gum Karaya Superfine #1 FCC; Powdered Gum Karaya Superfine XXXX FCC

binder, water: pharmaceutical suspensions
Genu® Pectins; Genu® Pectin USP/100; Genu® Pectin USP/200; Genu® Pectin USP-L/200

binder, water: tablet excipients
Locust Bean Gum Type A-100; Locust Bean Gum Type A-250; Locust Bean Gum Type A-270

binder, water: wound care dressings
Genu® Pectins; Genu® Pectin USP/100; Genu® Pectin USP/200; Genu® Pectin USP-L/200

binder, wet/dry granulation
Byco O

binder, wet granulation
Arbocel® M 80; Arbocel® P 290; Avicel® PH-112; Avicel® PH-113; Avicel® PH-200
Avicel® PH-301; Avicel® PH-302; Byco A; Byco C; Cargill Pharm 05521
C*PharmDry 01984; C*PharmGel 03302; C*PharmGel 03406; C*PharmGel 03415; C*PharmGel 12012
C*PharmMannindex DC (200 grade) 16702; Hydrolyzed gelatin; Lycatab® C; Microcel® 101; Polyalcohol X110
Polyalcohol X120; Sancel-101; Sancel-102; Sancel-105; Sancel-C
Sancel-W; Starch 1500®; Starch 1500® G; Starch 1500® LM; Surelease® Tabulose® 101

binder, wet granulation: capsules
Copolyvidone

binder, wet granulation: chewable tablets
Candex® Plus; Emedex®

binder, wet granulation: delayed-release API porous matrix tablets
Controlled/Sustained Release Coat S12.5; Controlled/Sustained Release Coat S100

binder, wet granulation: granules
Copolyvidone; Kollidon® VA 64; Kollidon® VA 64 Fine

binder, wet granulation: hard gelatin capsules
Kollidon® VA 64; Kollidon® VA 64 Fine

binder, wet granulation: oral solid dosages
Plasdone® K-12; Plasdone® K-17

binder, wet granulation: pharmaceuticals
Avicel® PH-101; Avicel® PH-102; Avicel® PH-103; Avicel® PH-105; Maltrin® M100
Plasdone® S-630; Prosolv SMCC™ 50

binder, wet granulation: pharmaceutical sustained-release coatings
Kollicoat® Protect

binder, wet granulation: tablets
Candex® Plus; Copolyvidone; Emedex®; Kollidon® VA 64; Kollidon® VA 64 Fine
Maltrin® M040; Mannogem™ Getec
Mannitol Pyrogen Free; Mannogem™
Mannitol Powd.; Pure-Dent® B880; Pure-Dent® B890
Solka-Floc® 100; Sorbogem™ 712;
Sorbogem™ Fines; Spress® B825

binding agent, medicinal agents-to-insoluble polymeric matrixes
Duolite® AP143/1083

bioadhesive
Calcium/sodium PVM/MA copolymer;
Gantrez® AN-119; Gantrez® MS-955;
Gantrez® S-95; Gantrez® S-97
Methylated trimethylated silica; N-Methyl-2-pyrrolidone; Pharmasolve™; Plasdone® C-15; Plasdone® C-30
PVM/MA copolymer

bioadhesive, buccals
Noveon® AA-1

bioadhesive, liquid orals
SeaSpen® PF

bioadhesive, nasal products
Noveon® AA-1

bioadhesive, ophthalmic bioadhesive gels
Noveon® AA-1

bioadhesive, pharmaceuticals
Genu® USP/100; Genu® USP/200; Genu® USP-L/200; Polycarbophil

bioavailability enhancer
Crossential® GMO; Crysemb; Gelucire 44/14; Pharmagum™ M

bioavailability enhancer, APIs
Pharmagum™ S

bio-availability enhancer, capsules
Acconon C-44, EP; Acconon CC-6, EP;
Acconon MC-8, EP/NF; Acconon® MC-8EP

bioavailability enhancer, capsules
Capryol® PGMC; Kleptose® DC; Kollidon® 12PF; Kollidon® 17PF; Kollidon® 25
Kollidon® 30; Kollidon® 90F; Labrasol®;
Lauroglycol® 90; Plurole® Oleique CC 497

bioavailability enhancer, chewable multivitamin tablets
Descote® Riboflavin 331/3%

bioavailability enhancer, controlled-releases
Akolip LM
bioavailability enhancer, creams/lotions  
Labrafac® Hydrophile
bioavailability enhancer, dry dosages  
Descote® Riboflavin 33\1/3\%
bioavailability enhancer, emulsions  
Labrafil® M 1944 CS
bioavailability enhancer, fat-soluble vitamins  
PEG-125
bioavailability enhancer, granules  
Kollidon® 12PF; Kollidon® 17PF; Kollidon® 25; Kollidon® 30; Kollidon® 90F
bioavailability enhancer, hard gelatin capsules  
Akoline HH; Akoline LL; Akoline MCM; Akoline R; Akolip LM
bioavailability enhancer, hard shell capsules  
Labrafil® M 1944 CS; Labrafil® M 2125 CS; Labrafil® M 2130 CS
bioavailability enhancer, injectables  
Labrafil® M 1944 CS
bioavailability enhancer, insoluble-slightly soluble pharmaceuticals  
Lutrol® E 1500; Lutrol® E 3350; Lutrol® E 4000; Lutrol® E 6000
bioavailability enhancer, liquids  
Capryol® PGMC; Lauroglycol® 90; Plurol® Oleique CC 497
bioavailability enhancer, medicated chewing gums  
Pharmagum™ S
bioavailability enhancer, medicinals  
Captex® 200
bioavailability enhancer, microemulsions  
Capmul® GMO-50, EP/NF; Plurol® Isostearique
bioavailability enhancer, nasal products  
Labrafac® Hydrophile; Labrafil® M 1944 CS; Labrafil® M 2125 CS
bioavailability enhancer, nutraceutical actives  
Pharmagum™ S
bioavailability enhancer, nutritional applications  
Capmul® MCM-L; Capmul® MCM-L8; Capmul® PG-8; Captex® 100
bioavailability enhancer, nutritional supplements  
Captex® 200P
bioavailability enhancer, ointments  
Caprylic/capric triglyceride PEG-4 esters
bioavailability enhancer, oral dosages  
Lutrol® F 68
bioavailability enhancer, oral liquids  
Labrasol®

bioavailability enhancer, orals  
Captex® 200; Labrafac® Hydrophile; Labrafil® M 1944 CS; Labrafil® M 2125 CS; Labrafil® M 2130 CS
bio-availability enhancer, oral suspensions  
Acconon CC-6, EP; Acconon MC-8, EP/NF; Acconon® MC-8EP
bioavailability enhancer, oral suspensions  
Kleptose® DC; Kleptose® HPB
bioavailability enhancer, parenterals  
Captisol®; Kleptose® HPB; Sulfobutylether β-cyclodextrin
bioavailability enhancer, pellets  
Kollidon® 12PF; Kollidon® 17PF; Kollidon® 25; Kollidon® 30; Kollidon® 90F
bioavailability enhancer, pharmaceutical creams  
Labrafil® M 2125 CS
bioavailability enhancer, pharmaceutical creams/lotions  
Labrafil® M 2125 CS
bioavailability enhancer, pharmaceutical emulsions  
Labrafil® M 2125 CS
bioavailability enhancer, pharmaceutical granules  
Akolip LM
bioavailability enhancer, pharmaceutical microemulsions  
Captex® 200P
bioavailability enhancer, pharmaceuticals  
Akolip LM; Capmul® MCM-L; Capmul® MCM-L8; Capmul® PG-8; Captex® 100 Captex® 200; Corn oil PEG-8 esters; Cycloexdrin; β-Cycloexdrin; Hydroxypropyl-α-cycloexdrin Hydroxypropyl-β-cycloexdrin; Hydroxypropyl-γ-cycloexdrin; Imwitor® 742; Kollidon® CL; Kollidon® CL-F Kollidon® CL/M; Kollidon® CL-SF; Labrafac® Hydro WL 1219; Labrafil® M 2125 CS; Methyl-α-cycloexdrin Methyl-β-cycloexdrin; Methyl-γ-cycloexdrin; PEG-8 caprylic/capric glycerides; PEG-32 glyceryl stearate; Puracal® PP
bioavailability enhancer, pharmaceutical solutions  
Kleptose® DC; Kleptose® HPB
bioavailability enhancer, pharmaceutical
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<td>biocide, hospital sanitization</td>
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<tr>
<td>Alkaquat® DMB-451-50; Alkaquat® DMB-451-80</td>
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<tr>
<td>biocide, pharmaceuticals</td>
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<tr>
<td>p-t-Amylphenol; Benzalkonium saccharinate; Bio-Gentle® Formulation; Chlorophene; Coco-betaine</td>
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<tr>
<td>Dantogard® Plus Liq.; Methylchloroisothiazolinone; Mytrtrimonium bromide; Napicide® BCP; Napicide® OPP Napicide® PC; Napicide® PTAP; Pentonium 24-95USP; o-Phenylphenol; Polyquat 188 3,4,4-Trichlorocarbanilide; Unicide U-13</td>
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<tr>
<td>biocide, therapeutic shampoos</td>
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<td>Coco-betaine</td>
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<td>biocide, topicals</td>
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<tr>
<td>Dimethyl oxazolidine; Methylchloroisothiazolinone</td>
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<td>biocide, veterinary products</td>
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<td>Bio-Gentle® Formulation</td>
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<tr>
<td>Unicide U-13</td>
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<tr>
<td>biocompatible polymer, microcapsules</td>
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<tr>
<td>Poly (DL-lactic acid)</td>
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<tr>
<td>biocompatible polymer, microspheres</td>
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<td>Poly (DL-lactic acid)</td>
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<td>biocompatible polymer, sustained-release coatings</td>
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<td>Poly (DL-lactic acid)</td>
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<td>bioenhancer, pharmaceuticals</td>
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<tr>
<td>Eastman® Vitamin E TPGS NF</td>
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biological additive
- N-Acetyl-L-methionine; Capryloyl glycine;
  Chitin; Folic acid; Hydrolyzed actin
- Lysine carboxymethyl cysteinate; Melanin;
  Yeast polysaccharides

biological additive, nutritional solutions
- Acetyltyrosine

biological defense modifier, therapeutic applications
- β-Glucan

biomaterial, implants
- Silicone

biomaterial, microencapsulation
- Epoxy resin; Triethylenetetramine

biomaterial, prosthetic devices
- Silicone

biomaterial, slow-releases
- Epoxy resin; Triethylenetetramine

biomaterial, topicals
- Epoxy resin; Triethylenetetramine

biomembrane, artificial
- Sodium p-styrenesulfonate; Spinomar NaSS

biotin source, capsules
- Bitrit-1™ (1% Biotin Trituration)

biotin source, multivitamin tablets
- Bitrit-1™ (1% Biotin Trituration)

biotin source, pharmaceutical powders
- Bitrit-1™ (1% Biotin Trituration)

biotin source, pharmaceuticals
- Bitrit-1™ (1% Biotin Trituration)

bitterant
- Quassia

bitterant, alcoholic infusions
- Gentian (Gentiana lutea)

bitterant, aversive
- Denatonium saccharide

bitterant, aversive: toxic substance ingestion deterrent
- Denatonium benzoate

bitterant, aversive: toxic substances
- Denatonium benzoate

bitterant, bitter mixtures
- Gentian (Gentiana lutea)

bitterant, homeopathic medicines
- Gentian (Gentiana lutea)

bitterant, homeopathic medicines: digestive disorders
- Gentian (Gentiana lutea)

bitterant, pharmaceuticals
- Gentian (Gentiana lutea)

bitterant, tonics
- Gentian (Gentiana lutea)
Magnasweet® 165
Magnasweet® 180; Magnasweet® 185

bitterness inhibitor, minerals
Talin®

bitterness inhibitor, pediatric liquids
Magnasweet® 100; Magnasweet® 110; Magnasweet® 115; Magnasweet® 118; Magnasweet® 120 Magnasweet® 125; Magnasweet® 135; Magnasweet® 136; Magnasweet® 150; Magnasweet® 165 Magnasweet® 180; Magnasweet® 185

bitterness inhibitor, vitamins
Talin®

bitterness reducing agent, chewable tablets
Natural Prosweet® Liq. #604; Natural Prosweet® Powd. #875

bitterness reducing agent, cough drops
Natural Prosweet® Liq. #604; Natural Prosweet® Powd. #875

bitterness reducing agent, elixirs
Natural Prosweet® Liq. #604; Natural Prosweet® Powd. #875

bitterness reducing agent, pharmaceuticals
Natural Prosweet® Powd. #875

bitterness reducing agent, lozenges
Natural Prosweet® Liq. #604; Natural Prosweet® Powd. #875

bitterness reducing agent, mouth sprays
Natural Prosweet® Liq. #604; Natural Prosweet® Powd. #875

bitterness reducing agent, pharmaceuticals
Natural Prosweet® Liq. #604

bitterness reducing agent, syrups
Natural Prosweet® Liq. #604; Natural Prosweet® Powd. #875

bleaching agent, hydrogen peroxide: antiseptics
Cosmetic Grade Hydrogen Peroxide 35%; Cosmetic Grade Hydrogen Peroxide 50%; Cosmetic Grade Hydrogen Peroxide 70%

bleaching agent, hydrogen peroxide: pharmaceuticals
Cosmetic Grade Hydrogen Peroxide 35%; Cosmetic Grade Hydrogen Peroxide 50%; Cosmetic Grade Hydrogen Peroxide 70%
bodying agent, absorption enhancement
  Caprol® 3GS
bodying agent, acne creams/lotions
  Crodamol SS
bodying agent, antibiotic ointments
  Crodamol SS
bodying agent, burn creams
  Crodamol SS
bodying agent, clinical nutrition
  Capmul® GMS-50; Caprol® 3GS; Dritex S; Hydrokote® 112; Hydrokote® AP5; Hydrokote® M
bodying agent, coatings
  Capmul® GMS-50; Caprol® 3GS; Dritex S; Hydrokote® 112; Hydrokote® AP5; Hydrokote® M
bodying agent, creams
  Eumulgin® B2
bodying agent, creams/lotions
  Dimethiconol panthenol; Lexemul® EGMS; Potassium alginate
bodying agent, creams: pharmaceuticals
  Cosmowax J
bodying agent, delivery/absorption enhancement
  Capmul® GMS-50; Polyglyceryl-6 distearate; Polyglyceryl-3 stearate
bodying agent, delivery enhancement
  Caprol® 3GS
bodying agent, dental impression compounds
  Potassium alginate
bodying agent, dermatological emulsions
  Capmul® GMS-50
bodying agent, dermatologicals
  Caprol® 3GS; Dritex S; Hydrokote® 112; Hydrokote® AP5; Hydrokote® M; Polyglyceryl-6 distearate; Polyglyceryl-3 stearate
bodying agent, direct compression: tablets
  Maltrin® M150
bodying agent, dry granulation
  Maltrin® M150
bodying agent, emulsions
  Lexemul® 515
bodying agent, encapsulation
  Hydrokote® 112; Hydrokote® AP5; Hydrokote® M
bodying agent, infant formulas
  Capmul® GMS-50; Caprol® 3GS
bodying agent, lotions
  PEG-2 distearate
bodying agent, nutritional/sports supplements
  Capmul® GMS-50
bodying agent, nutritional supplements
  Caprol® 3GS; Dritex S; Hydrokote® 112; Hydrokote® AP5; Hydrokote® M
bodying agent, ointments
  Eumulgin® B1; Eumulgin® B2; STEPAN® GMS Pure
bodying agent, pharmaceutical creams
  Eumulgin® B1
bodying agent, pharmaceutical creams/lotions
  Biosil Basics DL-30; Dimethiconol panthenol
bodying agent, pharmaceutical liquids
  Hystar® 8070; Sorbitol
bodying agent, pharmaceuticals
  ADM Clintose® CR 10; ADM Clintose® CR 15; ADM Clintose® CR 18; Biosil Basics DL-30; Capmul® GMS-50; Caprol® 3GS; Carbowax® Sentry® PEG 300; CC-902I; Ceteareth-12; 42/43 Corn Syrup; Cosmowax K; Dimethiconol panthenol; Ethosperse® G-26; Ethosperse® LA-4; Ethosperse® LA-12; Genu® Pectins; Genu® Pectin USP/100; Genu® Pectin USP/200; Genu® Pectin USP-L/200; Glyceryl hydroxystearate; Hydrogenated cottonseed oil; Hydrogenated palm oil; Hydrogenated soybean oil; Hydrokote® 112; Hydrokote® AP5; Hydrokote® M; Meadowfoam (Limnanthes alba) seed oil; PEG-2 distearate; Polydextrose; PPG-2-ceteareth-9; Pricerine™ 9099; Sta-Lite® 370; Sta-Lite® III; Sta-Lite® III F; STEPAN® GDS 386F; W.G.S. Synaceti 116
bodying agent, pharmaceuticals: aqueous film coatings
  Maltrin® M180
bodying agent, pharmaceuticals: cleansers
  Maltrin® M150
bodying agent, pharmaceuticals: creams/lotions
  Maltrin® M150
bodying agent, pharmaceuticals: liquid products
  Maltrin® M150
bodying agent, pharmaceuticals: medical nutritionals
  Maltrin® M150; Maltrin® M180
bodying agent, pharmaceuticals: spray drying
  Maltrin® M150
Functional/Application Index

bod
ing agent, pharmaceutical w/o systems
Fancor® Lanwax
bod
ing agent, soft gelatin capsules
Dritex S; Hydrokote® 112; Hydrokote® AP5; Hydrokote® M
bod
ing agent, sports supplements
Caprol® 3GS; Dritex S; Hydrokote® 112; Hydrokote® AP5; Hydrokote® M
bod
ing agent, suppositories
Capmul® GMS-50; Caprol® 3GS; Dritex S; Hydrokote® 112; Hydrokote® AP5; Hydrokote® M
bod
ing agent, sustained-releases
Dritex S; Hydrokote® 112; Hydrokote® AP5; Hydrokote® M
bod
ing agent, tablets
Capmul® GMS-50; Potassium alginate
bod
ing agent, topical creams/lotions
STEPAN® GMS Pure
bod
ing agent, topicals
Crodamol CP; Crodamol SS; Lexemul® 515; Lexemul® EGMS
body water reducer, medicine
Aminomethyl propanediol
botanical
Arnica montana extract; Coltsfoot (Tussilago farfara) extract; Crataegus monogina extract; Elm (Ulmus campestris) extract; Horse chestnut (Aesculus hippocastanum) extract; Lady's thistle (Silybum marianum) extract; Nettle (Urtica dioica) extract
botanical extract
Cranberry (vaccinium macrocarpon) fruit extract; Sunflower (Helianthus annuus) flower extract
botanical extract, creams/lotions
Mimosa tenuiflora leaf extract
botanical extract, dentifrices
Orris root extract
botanical extract, lotions/creams
Mimosa tenuiflora leaf extract
botanical extract, skin treatment salves
Mimosa tenuiflora leaf extract
botanical, pharmaceuticals
Corn gluten amino acids
brightener, pharmaceuticals
Compritol HD5 ATO
buffer
Acetic acid, glacial; Aluminum lactate; Ammonium bicarbonate; Ammonium lactate; L-Ascorbic acid; Calcium gluconate; Isopropanolamine;

Potassium citrate
buffer, alkaline
Aminomethyl propanediol
buffer, alkaline: orals
Magnesium oxide
buffer, alkaline: pharmaceuticals
Idromag® ERB; Magnesium Carbonate 309-S Light; Magnesium Carbonate 320-S Heavy; Magnesium Carbonate 321; Magnesium Hydroxide 370-S7 Light; Magnesium Hydroxide 370-S9 Medium; Magnesium Hydroxide 370-S12 Heavy; Magnesium Hydroxide 370-S Xtra Light; Magnesium oxide; Magnesium Oxide 310-FCC Heavy; Magnesium Oxide 310-S Heavy; Magnesium Oxide 310-SGR Heavy; Magnesium Oxide 310-SH Heavy; Magnesium Oxide 311-S Light
buffer, alkaline: powder dosages
Idromag® ERM
buffer, alkaline: tablets
Idromag® ERM
buffer, aminophylline products
Ethylendiamine
buffer, antibiotics
Sodium Bicarbonate USP No. 1 Powd.
buffer, antihistamines
Ethylendiamine
buffer, biochemical applications
Aminomethyl propanol; Tris Amino® Crystals
buffer, biological: blotting techniques
CAPS; HEPPS; MOPS; MOPS-Na; TAPS
buffer, biological: cell cultures
CAPS; 3-(Cyclohexylamino)-propanesulfonic acid; HEPPS; 3-[4-(Hydroxyethyl)-1-piperazinyl]-propanesulfonic acid; MOPS MOPS-Na; 3-(N-Morpholino)-propane sulfonic acid; Sodium 3-morpholino propane sulfonate; TAPS; 3-[Tris-(hydroxymethyl)-methylamino]-propanesulfonic acid
buffer, biological: chromatography
CAPS; HEPPS; MOPS; MOPS-Na; TAPS
buffer, biological: diagnostics
CAPS; 3-(Cyclohexylamino)-propanesulfonic acid; HEPPS; 3-[4-(Hydroxyethyl)-1-piperazinyl]-propanesulfonic acid; MOPS MOPS-Na; 3-(N-Morpholino)-propane sulfonic acid; Sodium 3-morpholino propane sulfonate; TAPS; 3-[Tris-
(hydroxymethyl)-methylamino]propanesulfonic acid
buffer, biological: electrophoresis
   CAPS; 3-(Cyclohexylamino)-propanesulfonic acid; HEPPS; 3-[4-
   (Hydroxyethyl)-1-piperazinyl]-propanesulfonic acid; MOPS
   MOPS-Na; 3-(N-Morpholino)-propane sulfonic acid; Sodium 3-morpholino
   propane sulfonate; TAPS; 3-[Tris-(hydroxymethyl)-methylamino]-
   propanesulfonic acid
buffer, biological productions
   CAPS; 3-(Cyclohexylamino)-propanesulfonic acid; HEPPS; 3-[4-
   (Hydroxyethyl)-1-piperazinyl]-propanesulfonic acid; MOPS
   MOPS-Na; 3-(N-Morpholino)-propane sulfonic acid; Sodium 3-morpholino
   propane sulfonate; TAPS; Tris Amino® Ultra Pure Standard
   3-[Tris-(hydroxymethyl)-methylamino]-propanesulfonic acid
buffer, biological: tissue studies
   CAPS; 3-(Cyclohexylamino)-propanesulfonic acid; HEPPS; 3-[4-
   (Hydroxyethyl)-1-piperazinyl]-propanesulfonic acid; MOPS
   MOPS-Na; 3-(N-Morpholino)-propane sulfonic acid; Sodium 3-morpholino
   propane sulfonate; TAPS; Tris Amino® Ultra Pure Standard
   3-[Tris-(hydroxymethyl)-methylamino]-propanesulfonic acid
buffer, blood plasma
   Tris Amino® Ultra Pure Standard
buffer, buccals
   Citric acid; Sodium phosphate; Sodium phosphate dibasic anhydrous;
   Tetrasodium pyrophosphate
buffer, contact lens
   Tris Amino® Ultra Pure Standard
buffer, creams
   Ethylenediamine
buffer, dental products
   Sodium hydroxide; Tetrasodium pyrophosphate
buffer, denture powders
   L-Tartaric acid
buffer, diagnostics
   Aminomethyl propanol; Tris Amino® Conc.;
   Tris Amino® Crystals; Tris Amino® Ultra Pure Standard
buffer, digestive aids
   Lactic acid
buffer, effervescent granules
   L-Tartaric acid
buffer, effervescent powders
   L-Tartaric acid
buffer, effervescent tablets
   Citric acid; L-Tartaric acid
buffer, enzymes
   Tris Amino® Ultra Pure Standard
buffer, enzyme testing
   Tris Amino® Conc.
buffer, extended-release tablets
   Potassium citrate
buffer, eye drops
   Boric acid
buffer, eye washes
   Sodium acetate anhydrous; Sodium hydroxide
buffer, flavoring extracts
   Citric acid
buffer, gastric preparations
   Calcium hydroxide
buffer, hard gel capsules
   Edible Kosher Beef Gelatin
buffer, IM injectables
   Glycine; Phosphoric acid; Potassium phosphate dibasic
buffer, inhalants
   Citric acid; Hydrochloric acid; Sodium citrate; Sodium hydroxide
buffer, injectables
   Acetic acid, glacial; Calcium hydroxide; Citric acid; Ethylenediamine; Hydrochloric acid
   Lactic acid; Potassium phosphate; Sodium citrate; Sodium hydroxide; Tris Amino®
   Ultra Pure Standard
   Tris (hydroxymethyl) aminomethane
buffer, IV
   Ethylenediamine; Hydrochloric acid; Potassium phosphate; Sodium trimetaphosphate; L-Tartaric acid
buffer, IV injectables
   Glycine
buffer, medicinal salves
   Calcium hydroxide
buffer, microencapsulation preparations
   Adipic acid
buffer, mouthwashes
   Succinic acid
buffer, Mycolog cream
   Ethylenediamine
buffer, nasal products  
  Citric acid
buffer, ophthalmics  
  Acetic acid; Acetic acid, glacial; Boric acid;  
  Citric acid; Citric acid monohydrate;  
  Hydrochloric acid; Potassium phosphate;  
  Sodium acetate anhydrous; Sodium citrate;  
  Sodium hydroxide  
  Sodium phosphate; Sodium phosphate  
  dibasic anhydrous; Tris Amino® Ultra Pure  
  Standard; Tris (hydroxymethyl)  
  aminomethane
buffer, oral care  
  Potassium citrate
buffer, orals  
  Acetic acid, glacial; Ammonia; Benzoic  
  acid; Calcium citrate; Calcium hydroxide;  
  Calcium pyrophosphate; Citric acid; Citric  
  acid monohydrate; Ethylenediamine; Glycine;  
  Hydrochloric acid; Lactic acid; Magnesium  
  carbonate; Phosphoric acid; Potassium  
  carbonate; Potassium citrate; Potassium  
  metaphosphate; Potassium phosphate;  
  Sodium lactate; Sodium phosphate; Succinic acid  
  L-Tartaric acid; Tris Amino® Ultra Pure  
  Standard; Tris (hydroxymethyl)  
  aminomethane
buffer, otics  
  Acetic acid; Boric acid; Citric acid;  
  Hydrochloric acid; Potassium phosphate
buffer, parenterals  
  Benzoic acid; Hydrochloric acid; Lactic  
  acid; Phosphoric acid; Potassium  
  phosphate; Sodium acetate anhydrous; Sodium  
  citrate; Sodium hydroxide; Sodium lactate; Sodium  
  phosphate; Sodium phosphate dibasic anhydrous;  
  Succinic acid; L-Tartaric acid
buffer, pharmaceuticals  
  Acetic acid; Acetic acid, glacial; Albumin;  
  Aminomethyl propanol; Ammonia;  
  Ammonium acetate; Ammonium carbonate;  
  Ammonium phosphate; Ammonium  
  phosphate, dibasic; Arlac S; Basic Magnesium  
  Carbonate USP Light; Benzoic acid; Bismuth  
  citrate; Boric acid; Calcium citrate;  
  Calcium hydroxide; Calcium phosphate  
  monobasic anhydrous; Calcium  
  pyrophosphate; Citric acid; Citric acid  
  monohydrate; Ethylenediamine; Glycine;  
  Hydrochloric acid; Lactic acid; Magnesium  
  carbonate; Phosphoric acid; Potassium  
  carbonate; Potassium citrate; Potassium  
  metaphosphate; Potassium phosphate;  
  Sodium lactate; Sodium phosphate;  
  Sodium phosphate dibasic anhydrous; Sodium  
  trimetaphosphate; Succinic acid; L-Tartaric  
  acid; Tetrasodium pyrophosphate;  
  Triethanolamine; Tris Amino® Conc.;  
  Tris Amino® Crystals; Tris Amino® Ultra  
  Pure Standard; Tris (hydroxymethyl)  
  aminomethane; Trisodium citrate
buffer, rectals  
  Benzoic acid; Ethylenediamine; Glycine;  
  Sodium citrate; Sodium hydroxide;  
  L-Tartaric acid; Triethanolamine
buffer, SC injectables  
  Glycine
buffer, slow-releases  
  Adipic acid
buffer, soft gel capsules  
  Edible Kosher Beef Gelatin
buffer, supplements  
  Calcium citrate; Sodium citrate
buffer, tablets  
  Calcium citrate; Sodium citrate
buffer, topicals  
  Ethylenediamine
buffer, topicals  
  Benzoic acid; Boric acid; Citric acid; Citric  
  acid monohydrate; Ethylenediamine;  
  Hydrochloric acid; Lactic acid; Phosphoric  
  acid; Potassium carbonate; Sodium acetate  
  anhydrous; Sodium citrate; Sodium hydroxide;  
  Sodium phosphate; Triethanolamine; Tris  
  Amino® Ultra Pure Standard; Tris (hydroxymethyl)  
  aminomethane
buffer, topical steroids  
  Ethylenediamine
buffer, vaginals  
  Lactic acid; Phosphoric acid; Sodium  
  citrate; Sodium hydroxide; Sodium  
  phosphate
Functional/Application Index

Sodium phosphate dibasic anhydrous; L-Tartaric acid; Triethanolamine
bulking agent
PEG-4; PEG-6; PEG-8; PEG-9; PEG-12
PEG-14; PEG-16; PEG-20; PEG-32; PEG-40
PEG-60; PEG-75; PEG-100; PEG-150; PEG-200
bulking agent, antacids
Sturcal™ L
bulking agent, aqueous film coatings:
pharmaceuticals
Maltrin® M100; Maltrin® M180
bulking agent, capsules
C*Sorbidx P 16616; C*Sorbidx P 16656;
C*Sorbidx P 16601; C*Sorbidx P 16603;
C*Sorbidx S 16601
C*Sorbidx S 16603; Maltrin® QD M600;
Sheffield Brand Anhydrous Lactose NF;
Sheffield Brand Lactose Monohydrate NF
bulking agent, direct compression: tablets
Maltrin® M150; Maltrin® QD M600
bulking agent, dry granulation
Maltrin® M100; Maltrin® M150
bulking agent, freeze-drying
Creatinine; D-Mannitol
bulking agent, gastric upset preparations
Jerusalem artichoke flour
bulking agent, health food capsules
Jerusalem artichoke flour
bulking agent, health food tablets
Jerusalem artichoke flour
bulking agent, injectables
Creatinine
bulking agent, laxatives
KELTOSE®
bulking agent, medical nutritional preparations
Maltrin® M150; Maltrin® M180; Maltrin® QD M600
bulking agent, medicated confectionery
C*PharmSweet 01533
bulking agent, modified-release products
Ludipress® LCE
bulking agent, ophthalmics
Creatinine
bulking agent, otics
Creatinine
bulking agent, pharmaceutical cleansers
Maltrin® M100; Maltrin® M150
bulking agent, pharmaceutical creams/lotions
Maltrin® M100; Maltrin® M150
bulking agent, pharmaceutical emulsions
Powdered Agar Agar Bacteriological Grade;
Powdered Agar Agar Type K-60; Powdered Agar Agar Type K-80; Powdered Agar Agar Type K-150
bulking agent, pharmaceutical laxatives
Calcium polycarbophil
bulking agent, pharmaceutical liquids
Maltrin® M100; Maltrin® M150
bulking agent, pharmaceutical oral solutions
C*PharmSweet 01533
bulking agent, pharmaceutical powders
Aeroperl® 300 Pharma; C*Sorbidx P 16616; C*Sorbidx P 16656; C*Sorbidx P 16601; C*Sorbidx P 16603
C*Sorbidx S 16601; C*Sorbidx S 16603;
Sheffield Brand Anhydrous Lactose NF;
Sheffield Brand Lactose Monohydrate NF
bulking agent, pharmaceuticals
Corn syrup solids; Creatinine; Lactitol monohydrate; Lipoxol® 200; Lipoxol® 1550
Lipoxol® 3000; Maltodextrin; Maltose;
Maltrin® M700; Maltrin® QD M600
Polydextrose; Rice syrup solids; Sta-Lite® 370; Sta-Lite® II; Sta-Lite® III F
bulking agent, pharmaceutical syrups
C*PharmSweet 01533
bulking agent, powders
Aerosil® 200
bulking agent, slow-release capsules
Powdered Agar Agar Bacteriological Grade;
Powdered Agar Agar Type K-60; Powdered Agar Agar Type K-80; Powdered Agar Agar Type K-100; Powdered Agar Agar Type K-150
bulking agent, spray-dry pharmaceuticals
Maltrin® M100; Maltrin® M150
bulking agent, sugar-free pharmaceutical solutions
C*Sorbidx C 16121; C*Sorbidx C 16122;
C*Sorbidx NC 16205
bulking agent, sugar-free pharmaceutical syrups
C*Sorbidx C 16121; C*Sorbidx C 16122;
C*Sorbidx NC 16205
bulking agent, suppositories
Powdered Agar Agar Bacteriological Grade;
Powdered Agar Agar Type K-60; Powdered Agar Agar Type K-80; Powdered Agar Agar Type K-100; Powdered Agar Agar Type K-150
bulking agent, surgical lubricants
Powdered Agar Agar Bacteriological Grade;
Powdered Agar Agar Type K-60; Powdered Agar Agar Type K-80
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<td>bulking agent, tablets</td>
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<td>Agar; C<em>Sorbidx P 16616; C</em>Sorbidx P 16656; C<em>Sorbidx P 16601; C</em>Sorbidx P 16603; C<em>Sorbidx S 16601; C</em>Sorbidx S 16603; Sheffield Brand Anhydrous Lactose NF; Sheffield Brand Lactose Monohydrate NF; Sturcal™ L</td>
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<td>bulking agent, topicals</td>
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<td>Creatinine</td>
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<td>bulking agent, wet granulation:</td>
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<td>pharmaceuticals</td>
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<td>Maltrin® M100</td>
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<td>burning relief aid</td>
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<td>Actiphyte® of Pennyroyal</td>
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<td>burns treatment, superficial</td>
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<td>Kukui (Aleurites moluccana) nut oil</td>
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<td>Piperazine</td>
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<td>burn treatment, minor</td>
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<td>Tannic acid</td>
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<td>calcium carbonate source, pharmaceuticals</td>
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<td>Oyster shell powder</td>
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<td>calcium fiber, dermatologicals</td>
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<td>Protacid™; Protanal®</td>
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<td>calcium fiber, wound healing</td>
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<td>Protacid™; Protanal®</td>
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<td>calcium/phosphorus source</td>
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<td>Albrite® Dicalcium Phosphate</td>
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<td>Puracal® DC; Sturcal™ H</td>
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<td>calcium source, antacids</td>
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<tr>
<td>HuberCal 150 Elite; HuberCal 250 Elite; HuberCal 500 Elite; HuberCal 850 Elite; HuberCal CCG 4000 USP; HuberCal CCG 4100 USP; HuberCal USP; ViCALity™ Extra Heavy PCC; ViCALity™ Heavy PCC</td>
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<td>calcium source, bone loss treatment tablets</td>
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<td>Barcroft™ CS90</td>
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<td>calcium source, calcium deficiency treatment</td>
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<td>Calcium gluconate; Calcium lactogluconate</td>
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<td>calcium source, calcium supplements</td>
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<td>Calcium Source</td>
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<td>Calcium lactate</td>
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<td>Calcium lactogluconate; Calcium phytate</td>
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<td>D-Gluonic acid; Gluconolactone</td>
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<td>carbohydrate, digestible: topicals</td>
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<td>Angelica (Angelica archangelica) extract; Anise (Pimpinella anisum); Anise (Pimpinella anisum) oil; Aromatic elixir; Balm mint (Melissa officinalis); L-Camphor; Caraway (Carum carvi) oil; Cardamom (Elettaria cardamomum); Cardamom (Elettaria cardamomum) oil; Cinnamon (Cinnamomum cassia) oil; Clove; Clove (Eugenia caryophyllus) extract; Coriander (Coriandrum sativum) oil; Dill (Anethum graveolens) seed oil; Hyssop (Hyssopus officinalis) extract; Juniperus communis oil; Lavender oil; Lemongrass oil East Indian; Lemongrass oil West Indian; Mace (Myristica fragrans) oil; Nutmeg (Myristica fragrans) oil; Orange (Citrus aurantium dulcis) oil; Peppermint (Mentha piperita) leaves; Peppermint (Mentha piperita) oil; Rosemary (Rosmarinus officinalis) oil; Spearmint (Mentha spicata); Spearmint (Mentha viridis) oil; Star anise (Illicium verum) oil; Thyme (Thymus vulgaris)</td>
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<tr>
<td>Asafetida (Ferula asafoetida) gum</td>
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<td>carbohydrate, aromatic</td>
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<td>Caraway (Carum carvi) oil; Clove (Eugenia caryophyllus) oil</td>
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<td>L-Camphor</td>
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<td>Cassia gum</td>
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Maldex G 180; Maltrin® M510; Nylon 6
Nylon 12; Polyglyceryl-10 tetraoleate;
Polyvinyl alcohol (partially hydrolyzed);
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Gelucire 39/01; Gelucire 43/01; Sodium
magnesium silicate
carrier, actives: spray-drying
C®PharmDry 01984
carrier, actives: sprays
Dow Corning® Q7-9180 Silicone Fluid; Dow
Corning® Silmogen Carrier
carrier, aerosols
Captex® 355; Captex® 1000; Tricaprin
carrier, antibiotics
Lexol® PG-800; NEOBEE® 1053; NEOBEE®
M-5; Propylene glycol dioctanoate
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Carbowax® E300 NF; Carbowax® E400 NF;
Carbowax® E600 NF; Carbowax® E1000
NF; Carbowax® E1450 NF
Carbowax® E3350 NF; Carbowax® E8000
NF
carrier, anti-toxins
Rehydragel® CG
carrier, APIs
JustFiber® JF BF Granular; JustFiber®
BF200; JustFiber® JF BVF65; JustFiber®
WWF40; JustFiber® JF WWF 200
Non-Pareil Seeds; Sebase; Syloid® 244FP
carrier, aroma: pharmaceuticals
Acetyl methyl carbinol
carrier, B12: special dietary use
Methacrylic acid-divinylbenzene copolymer
carrier, bacteriostatic: aerosols
Capmul® MCM
carrier, bacteriostatic: clinical nutrition
Capmul® MCM
carrier, bacteriostatic: coatings
Capmul® MCM
carrier, bacteriostatic: delivery/absorption
enhancement
Capmul® MCM
carrier, bacteriostatic: dermatologicals
Capmul® MCM
carrier, bacteriostatic: microemulsions
Capmul® MCM
carrier, bacteriostatic: pharmaceuticals
Capmul® MCM
carrier, bacteriostatic: suppositories
Capmul® MCM
carrier, buccals
Starch
carrier, capsule filling
Dynacerin® CP
carrier, capsules
Edible Beef Gelatin; Estasan™ GT 8-40
3578; Estasan™ GT 8-60 3575; Estasan™
GT 8-60 3580; Estasan™ GT 8-65 3577
Estasan™ GT 8-65 3581; Estasan™ GT 8-70
3579; Glyceryl caprylate; Hydrogenated
cottonseed oil; Hydrogenated palm oil
Imwitor® 308; Labrafac® CC; Lauroglycol®
FCC; Maltrin® M510; Maltrin® QD M600
Miglyol® 812
carrier, chewable tablets
Nu-Tab™ 4001; Nu-Tab™ 4003
carrier, cleansers
Maltrin® QD M550
carrier, clinical nutrition
Captex® 355 EP/NF; Captex® 355; Captex®
1000; Pureco® 76; Tricaprin
carrier, coatings
Captex® 355; Captex® 1000; Jojoba (Buxus
chinensis) oil; Tricaprin
carrier, colors
Captex® 1000; NEOBEE® 895; NEOBEE®
M-5; Pureco® HOS; Pureco® HSC-1
Tricaprin
carrier, colors: nutritional preparations
Captex® 100
carrier, colors: pharmaceuticals
Captex® 100
carrier, cough syrups
Pluracol® E400 NF; Pluracol® E600 NF;
Pluracol® E1450 NF
carrier, creams/lotions
Miglyol® 810; Miglyol® 8810; Penreco Snow
carrier, delivery/absorption enhancement
Capmul® MCM®8; Captex® 355; Captex®
1000; Pureco® 76; Tricaprin
carrier, dental adhesives
Penreco Regent; Penreco Snow; Penreco
Ultima; Perfecta®; Protopen® White 1S
carrier, dental products
Dynacerin® CP
carrier, dental waxes
Multiwax® W-445
carrier, dermatological emulsions
Acconon W230
carrier, dermatologicals
Capmul® MCM®8; Captex® 355; Captex®
1000; Epikuron™ 130; Propylene glycol
dioctanoate
Shea butter (Butyrospermum parkii);
Tricaprin
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carrier, diagnostic substances
    Cholesterol HP

carrier, dietetics
    Phosphatidylcholine

carrier, direct compression
    Spress® B820

carrier, direct compression: capsules
    Ludipress®

carrier, direct compression: chewable lozenges
    Ludipress® LCE

carrier, direct compression: chewable tablets
    Ludipress® LCE; Sugartab®

carrier, direct compression: effervescent tablets
    Ludipress® LCE

carrier, direct compression: tablets
    Ludipress®; Maltrin® M510; Maltrin® QD M550; Maltrin® QD M600; Sugartab®

carrier, direct compression: vitamins
    Sugartab®

carrier, direct compression: water-soluble tablets
    Sugartab®

carrier, dissolved/suspended pharmaceuticals: soft gelatin capsules
    Lutrol® E 300; Lutrol® E 400; Lutrol® E 600

carrier, dry granulation: pharmaceuticals
    Maltrin® M100

carrier, dry granulation: tablets
    Spress® B820

carrier, dry mixes
    Maltrin® M510

carrier, dry powder inhalation pharmaceuticals
    Pharmatose® 325 M; Respitose™

carrier, dyes: capsules
    Carbowax® PEG 400; Carbowax® PEG 600

carrier, dyes: dentifrices
    Carbowax® PEG 3350

carrier, dyes: dermatologicals
    Stearamide DEA

 carrier, dyes: pharmaceutical creams/lotions
    Carbowax® PEG 400; Carbowax® PEG 600

carrier, electrolyte: dialysis solutions
    Galaflo SL

carrier, electrolyte: parenteral solutions
    Galaflo SL

carrier, electrolyte: pharmaceuticals
    Galaflo SL

carrier, emulsions
    Agar

carrier, encapsulation
    Phosphatidylcholine

carrier, encapsulation: flavor oils
    TIC Pretested® Gum Arabic FT-1 Powd.; TIC Pretested® Gum Arabic FT Powd.

carrier, enteric capsules
    Edible Beef Gelatin

carrier, enzyme: biopharmaceutical substances
    Diaion® HPA25

carrier, enzyme immobilization: chiral pharmaceuticals
    Eupergit® C; Eupergit® C M; Eupergit® C250 L; N,N´-Methylenebis(methacrylamide)/glycidyl methacrylate/allyl glycidyl ether/methacrylamide copolymer

carrier, enzyme immobilization: semisynthetic antibiotics
    Eupergit® C; Eupergit® C M; Eupergit® C250 L; N,N´-Methylenebis(methacrylamide)/glycidyl methacrylate/allyl glycidyl ether/methacrylamide copolymer

carrier, enzymes
    Oxidized cellulose

carrier, enzymes: bio-pharmaceutical substance treatment
    Diaion® HPA75

carrier, essential oils
    Captex® 355; Captex® 800; Captex® 8000; Mazol® PGO-104 K; NEOBEE® 895; NEOBEE® M-5

carrier, external pharmaceuticals
    Miglyol® 812

carrier, film coated tablets
    Citrofol® All

carrier, flavor oils
    Isocetyl alcohol

carrier, flavors
    Caprylic/capric/oleic triglyceride; Captex® 355; Captex® 800; Captex® 810D; Captex® 1000; Captex® 8000; Captex® 8227; Ceraphyl® ICA; Estasan™ GT 8-40 3578; Estasan™ GT 8-60 3575; Estasan™ GT 8-60 3580; Estasan™ GT 8-65 3577; Estasan™ GT 8-65 3581; Estasan™ GT 8-70 3579; Estol 1526; Glucidex® IT6; Glucidex® IT8; Glucidex® IT12; Glucidex® IT19; Glucidex® IT21; Glucidex® IT29; Glucidex® IT33; Glucidex® IT38; Glucidex® IT47; Lexol® GT-865; Lexol® PG-800; Mazol® PGO-104 K; NEOBEE® 895; NEOBEE® 1053; NEOBEE® M-5
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<td>TIC Pretested® Gum Arabic White 3871 Powd.</td>
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<td>carrier, fragrance oils</td>
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<td>carrier, fragrances</td>
<td>Caprylic/capric/oleic triglyceride; Captex® 355; Captex® 810D; Captex® 1000; Captex® 8227 Ceraphyl® ICA; Estasan™ GT 8-40 3578; Estasan™ GT 8-60 3575; Estasan™ GT 8-60 3580; Estasan™ GT 8-65 3577 Estasan™ GT 8-65 3581; Estasan™ GT 8-70 3579; Glucidex® IT6; Glucidex® IT8; Glucidex® IT12; Glucidex® IT19; Glucidex® IT21; Glucidex® IT29; Glucidex® IT33; Glucidex® IT38 Glucidex® IT47; Lexol® PG-800; Propylene glycol dioctanoate; Propylene glycol dipelargonate; Tricaprin Triundecanoin</td>
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<td>Caprylic/capric/stearic triglyceride; Captex® 1000; Tricaprin</td>
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<td>HallBrite® BHB; HallBrite® OS</td>
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Ointment Base No. 4; Ointment Base No. 6
carrier, medicaments
  Oleyl alcohol
carrier, medicated cleansers
  Acconon W230
carrier, medicated creams
  Multiwax® W-445
carrier, medicated ointments
  Perfecta®
carrier, medicated unguments
  Multiwax® W-445
carrier, medications
  Multiwax® 180-W; Multiwax® ML-445;
  Multiwax® W-445
carrier, medicinals
  Captex® 200; Estol 1526; Lexol® PG-800;
  NEOBEE® M-5; Propylene glycol
dicaprylate/dicaprate
  Propylene glycol dioctanoate; Tricaprylin
carrier, medicines
  Cholesterol HP
carrier, microemulsions
  Capmul® MCMC8; Pureco® 76
carrier, nasal preparations
  Crossential® O94
carrier, neutral: pharmaceuticals
  Softisan® 645
carrier, neutral: topicals
  Isofol® 20 P
carrier, noncrystalline pharmaceuticals
  Vivapur® 105
carrier, nutritional preparations
  Capmul® PG-8; Caprylic/capric/lauric
triglyceride; Caprylic/capric/linoleic
triglyceride; Tricaprylin
carrier, nutritional products
  Caprylic/capric/lauric triglyceride;
  Caprylic/capric/linoleic triglyceride;
  Imwitor® 928; Imwitor® 988; NEOBEE® M-5
  Tricaprylin
carrier, nutritional /sports supplements
  Captex® 1000
carrier, nutritional supplements
  Captex® 200P; Epikuron™ 130; Tricaprin
carrier, oil-soluble actives
  Cetiol® LC; Eutanol® G; Eutanol® G16
carrier, oil-soluble antibiotics
  Aldo® MCT; Aldo® MCT KFG
carrier, oil-soluble pharmaceuticals
  Aldo® MCT; Aldo® MCT KFG
carrier, oily: gelatin capsules
  Peceol®
carrier, oily: pharmaceutical liquids
  Peceol®
carrier, oily: pharmaceutical microemulsions
  Peceol®
carrier, ointments
  Drakeo® 7; Dynacerin® 660; Epikuron™
  130; Miglyol® 810; Miglyol® 840
  Mira-Sperse® 626; Penreco Regent;
  Penreco Snow; Penreco Ultima; Protopet®
  Alba
  Protopet® White 1S; Protopet® White 2L;
  Protopet® White 3C; Protopet® Yellow 2A;
  Ultapeg 300 USP
  Ultapeg 400 USP; Ultapeg 600 USP;
  Ultapeg 1000 USP; Ultapeg 1500 F USP;
  Ultapeg 1500 USP
  Ultapeg 4000 F USP; Ultapeg 6000 F USP;
  Ultapeg 8000 F USP
carrier, opthalmic ointments
  Penreco Regent; Penreco Snow; Penreco
  Ultima
carrier, orals
  Agar; Captex® 200; Captex® 355; Captex®
  1000; Cocoa (Theobroma cacao) butter
  Imwitor® 742; Imwitor® 988; Labrafac® CC;
  Miglyol® 812; Miglyol® 840
  Silica; Starch
carrier, OTC products
  Pluracol® E400 NF; Pluracol® E600 NF;
  Pluracol® E1450 NF
carrier, parenterals
  Captisol®; Dynasan® 114; Dynasan® 116;
  Dynasan® 118; Labrafac® CC
  Miglyol® 840; Starch; Sulfobutylether β-
  cyclodextrin
carrier, petroleum gauzes
  Penreco Ultima
carrier, petroleum jellies
  Penreco Regent
carrier, pharmaceutical aqueous film coatings
  Maltrin® M100
carrier, pharmaceutical cleansers
  Maltrin® M100
carrier, pharmaceutical coatings
  Glyceryl caprate
carrier, pharmaceutical creams
  Dynacerin® CP; Ultapeg 300 USP; Ultapeg
  400 USP; Ultapeg 600 USP; Ultapeg 1000
  USP
  Ultapeg 1500 F USP; Ultapeg 1500 USP;
  Ultapeg 4000 F USP; Ultapeg 6000 F USP;
  Ultapeg 8000 F USP
carrier, pharmaceutical creams/lotions
  Maltrin® M100; Miglyol® 840; Mira-Sperse®
**Functional/Application Index**

| 626; Penreco Regent; Penreco Ultima Protol®; Shea butter (Butyrospermum parkii) | PEG-7 glyceryl oleate; Penreco Amber; Penreco Blond Penreco Cream; Penreco Lily; Penreco Regent; Penreco Royal; Penreco Snow Penreco Super; Penreco Ultima; Perfecta; Pharma-Carb®; Phosphatidylcholine Phytol™ SOY; Pionier® 1761; Pionier® 3476; Pionier® 5353; Pionier® 5370 Pionier® 5464; Pionier® 5741; Pionier® 7646; Pionier® 8693; Pionier® 17004 Pionier® 17146; Polyisobutene; Propylene glycol dicaprate; Propylene glycol dioctanoate; Protachem™ CTG Rice syrup solids; Rudol®; SiLCRON® G-100; SiLCRON® G-100T; SiLCRON® G-600 SiLCRON® G-601; SiLCRON® G-602; SiLCRON® G-640; SiLCRON® G-650; SiLCRON® G-910 Silica; Silica, amorphous; Silica, hydrated; Simchin® Natural; Simchin® Refined Standard Super-Cel; Sugar spheres; Sunflower (Helianthus annuus) seed oil; Sylsysia 320; Sylsysia 430 Sylsysia 530; Sylsysia 550; Sylsysia 740; Tetraglyme; Vivapur® 105 Witafrol® 7420 |
| carrier, pharmaceutical emulsions Shea butter (Butyrospermum parkii) | carrier, pharmaceutical suspensions Captopex® 200P |
| carrier, pharmaceutical liquids Carbowax® E300 NF; Carbowax® E400 NF; Carbowax® E600 NF; Carbowax® E1000 NF; Carbowax® E1450 NF Carbowax® E3350 NF; Carbowax® E8000 NF; Isosweet 5500; Maltrin® M100 | carrier, pharmaceutical solids Maldex 180; Merigel 100; Meritena 100 |
| | carrier, pharmaceutical suspensions Captopex® 200P |
| | carrier, pigments Multiwax® 180-W; Multiwax® ML-445; Multiwax® W-445 |
| | carrier, potassium: pharmaceuticals Potassium D-gluconate |
| | carrier, potassium: tablets Potassium D-gluconate |
| | carrier, potassium: vitamin tablets Potassium D-gluconate |
| | carrier, powder dosages Meritose 100; Meritose 200; Meritose 220; Meritose 300 |
| | carrier, powder mixes Epikuron™ 130 |
| | carrier, rectals Cocoa (Theobroma cacao) butter; Imwitor® 742; Imwitor® 988; Labrafac® CC; Miglyol® 840 Silica; Starch |
| | carrier, skin protectants Silica, hydrated |
| | carrier, slow-release capsules Agar |

**Handbook of Pharmaceutical Additives, Third Edition**
Functional/Application Index

**carrier, sodium: dialysis solutions**
- Galaflow SL

**carrier, sodium: pharmaceuticals**
- Galaflow SL

**carrier, soft gelatin capsules**
- Capmul® PG-12; Captex® 200; Captex® 200P; Captex® 355; Gelucire 33/01
- Glyceryl caprate; Maisine® 35-1; Pureco® 76; Softisan® 378

**carrier, soluble colorants**
- Estol 1526; Propylene glycol dicaprylate/dicaprate

**carrier, solvents: flavors**
- Caprylic/capric triglyceride; Crodamol GTCC

**carrier, solvents: fragrances**
- Caprylic/capric triglyceride; Crodamol GTCC

**carrier, sports supplements**
- Captex® 355

**carrier, spray-dried flavors**
- TIC Pretested® Arabic FT-1 Powder; TIC Pretested® Gum Arabic FT-1 Powd.; TIC Pretested® Gum Arabic FT Powd.

**carrier, spray-dried pharmaceuticals**
- Maltrin® M100

**carrier, suppositories**
- Agar; Capmul® MCMC8; Captex® 200; Captex® 200P; Dritex S
- Edible Beef Gelatin; Epikuron™ 130
- Glyceryl caprate; Hydrogenated cottonseed oil; Hydrogenated palm oil
- Miglyol® 810; Miglyol® 812; Miglyol® 840; Propylene glycol dioctanoate; Protopen® White 1S
- Protopen® Yellow 2A; Shea butter (Butyrospermum parkii); Ultrapeg 1000 USP; Ultrapeg 1500 F USP; Ultrapeg 1500 USP; Ultrapeg 4000 F USP; Ultrapeg 6000 F USP; Ultrapeg 8000 F USP

**carrier, surgical lubricants**
- Agar

**carrier, suspensions**
- Captex® 355; Captex® 1000

**carrier, sustained dosages**
- Sugar Spheres NF Series

**carrier, tableted dosages**
- Meritose 100; Meritose 200; Meritose 220; Meritose 300

**carrier, tablets**
- Epikuron™ 130; Hydrogenated cottonseed oil; Hydrogenated palm oil; Nu-Tab™ 4001; Nu-Tab™ 4003
- Nu-Tab®; Starch; Whole wheat flour

**carrier, time-release dosages**
- Sugar Spheres release dosages

**carrier, tonics**
- Epikuron™ 130

**carrier, topical creams/lotions**
- Dynacerin® 660

**carrier, topical medicaments**
- Powdered Agar Agar Bacteriological Grade; Powdered Agar Agar Type K-60; Powdered Agar Agar Type K-80; Powdered Agar Agar Type K-100; Powdered Agar Agar Type K-150

**carrier, topical ointments**
- Miglyol® 8810

**carrier, topicals**
- Agar Agar NF MK-80-B Powdered; Agar Agar S-100 Powdered; Agar Agar NF S-150-B Powdered; Agar Agar S-100; Calcium bentonite
- Cocoa (Theobroma cacao) butter; Dow Corning® Q7-9180 Silicone Fluid; Edible Beef Gelatin; Imwitor® 742; Imwitor® 988 Labrafac® CC; Lexol® IPP; Miglyol® 8108; Octylidocanol; Oleyl erucate
- Simchim® Natural; Simchim® Refined; Starch

**carrier, topicals: lipid solution substances**
- Cetiol® V

**carrier, toxic pharmaceuticals**
- Gelucire 33/01; Gelucire 39/01; Gelucire 43/01

**carrier, transdermal pharmaceuticals**
- Crossential® O94

**carrier, vaginal creams**
- Octylidocanol

**carrier, vaginals**
- Silica; Starch

**carrier/vehicle, direct compression: antacid tablets**
- Cal-Carb® 4450 PG; Cal-Carb® 4457; Cal-Carb® 4462

**carrier/vehicle, direct compression: calcium supplements**
- Cal-Carb® 4450 PG; Cal-Carb® 4457; Cal-Carb® 4462

**carrier/vehicle, direct compression: tablets**
- Cal-Carb® 4450 PG; Cal-Carb® 4457; Cal-Carb® 4462

**carrier, veterinary products**
- Pionier® 1761; Pionier® 3476; Pionier® 5353; Pionier® 5370; Pionier® 5464; Pionier® 5741; Pionier® 7646; Pionier® 8693; Pionier® 17004; Pionier® 17146
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chapped skin treatment
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- Chap stick, ointments
- Bentone Gel® EUG V
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- Edetic acid
chelating agent, antihistamines
- Edetic acid
chelating agent, buccals
- Tetrasodium pyrophosphate
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<td>clouding agent, pharmaceuticals</td>
<td>Caprol® MPGO; Coconut (Cocos nucifera) oil</td>
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<tr>
<td>clouding agent, topicals</td>
<td>Coconut (Cocos nucifera) oil</td>
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<td>CNS stimulant, pharmaceuticals</td>
<td>Caffeine</td>
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<td>CO2 scavenger, blood plasma</td>
<td>Tris Amino® Ultra Pure Standard</td>
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<td>coadjuvant</td>
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<td>coadjuvant, cellulitis external treatment</td>
<td>Escin/β-Sitosterol Phytosome®</td>
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<td>coadjuvant, dentifrices for swollen gums</td>
<td>Escin/β-Sitosterol Phytosome®</td>
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<tr>
<td>coadjuvant, oral cavity products</td>
<td>Escin/β-Sitosterol Phytosome®</td>
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<td>coagulant, antibiotics</td>
<td>Barquat® CT-29; Carsoquat® CT-29; Carsoquat® CT-429; Cit tronium chloride</td>
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<td>coagulant, pharmaceuticals</td>
<td>Albumen; Carsoquat® CT-29; Carsoquat® CT-429; PEG-9M; Sol-U-Tein EA</td>
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<td>coating agent</td>
<td>Byco O; Carboxymethylcellulose sodium; C*Xylidex 16055; Hydroxypropyl methylcellulose phthalate; Jojoba (Buxus chinensis) oil</td>
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<td>Methocel® F Series; Methocel® J Series; Methocel® K Series; Witocan® 42/44</td>
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<td>coating agent, adhesive plasters</td>
<td>Beeswax</td>
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<td>coating agent, aqueous film: immediate-release dosages</td>
<td>Lycoat™ RS 720; Lycoat™ RS 780</td>
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<td>coating agent, aqueous film: solid oral dosages</td>
<td>Lycoat™ RS 720; Lycoat™ RS 780</td>
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<td>coating agent, clear film: tablets</td>
<td>LustreClear™</td>
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<tr>
<td>coating agent, clear: tablet polishing</td>
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<td>coating agent, clear: tablet sealing</td>
<td>Opaglos®</td>
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<td>coating agent, controlled-release permeable films</td>
<td>Ethyl acrylate/methyl methacrylate copolymer</td>
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<td>Klucl® EF Pharm</td>
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<td>coating agent, direct compression</td>
<td>Byco A; Byco C</td>
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<td>coating agent, dry granulation</td>
<td>Byco A; Byco C</td>
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<td>Simethicone</td>
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<td>coating agent, enteric: capsules</td>
<td>Klucl® EF Pharm</td>
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<td>coating agent, enteric-coated tablets</td>
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<td>coating agent, enteric drug releases</td>
<td>Polyvinyl acetate phthalate</td>
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<td>coating agent, enteric film: pharmaceuticals</td>
<td>Cellulose acetate trimellitate</td>
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<td>coating agent, enteric: gastric fluid resistant</td>
<td>Aqueous Enteric Coat L30D; Aqueous Enteric Coat L100D</td>
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Acryl-Eze™ MP
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Acryl-Eze™; Acryl-Eze™ MP;
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Controlled/Sustained Release Coat S100
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Acryl-Eze™ MP
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Controlled/Sustained Release Coat S12.5;
Controlled/Sustained Release Coat S100
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Controlled/Sustained Release Coat S12.5;
Controlled/Sustained Release Coat S100
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Controlled/Sustained Release Coat S12.5;
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Shellac
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Shellac
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Gantrez® MS-955; Gantrez® S-95;
Gantrez® S-97
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Eudragit® RL 30 D; Eudragit® RS 30 D
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Opaglos® 2
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Opaglos® 2
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Opadry® fx™
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Kollicoat® IR; Kollicoat® IR White
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Kollicoat® IR; Kollicoat® IR White
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  Dow Corning® 360 Medical Fluid (20 cst);
  Dow Corning® 360 Medical Fluid (100 cst);
  Dow Corning® 360 Medical Fluid (350 cst);
  Dow Corning® 360 Medical Fluid (1000 cst);
  Dow Corning® 360 Medical Fluid (12,500 cst)

coating agent, injectables
  Carboxymethylcellulose sodium

c coating agent, instant: aqueous film-coated preparations
  Procoat AFC; Procoat FCS; Procoat UFC;
  Procoat WT

c coating agent, instant: ayurvedic products
  Procoat AFC; Procoat AWT; Procoat ECC;
  Procoat ECH; Procoat ECM
  Procoat FCS; Procoat MB; Procoat SFC;
  Procoat SR; Procoat UFC
  Procoat WT

c coating agent, instant: calcium carbonate
  Procoat AFC; Procoat AWT; Procoat ECC;
  Procoat ECH; Procoat ECM
  Procoat FCS; Procoat MB; Procoat SFC;
  Procoat SR; Procoat UFC
  Procoat WT

c coating agent, instant: certrizine
  Procoat AFC; Procoat AWT; Procoat ECC;
  Procoat ECH; Procoat ECM
  Procoat FCS; Procoat MB; Procoat SFC;
  Procoat SR; Procoat UFC
  Procoat WT

c coating agent, instant: ethambutol
  Procoat AFC; Procoat AWT; Procoat ECC;
  Procoat ECH; Procoat ECM
  Procoat FCS; Procoat MB; Procoat SFC;
  Procoat SR; Procoat UFC
  Procoat WT

c coating agent, instant: famotidine
  Procoat AFC; Procoat AWT; Procoat ECC;
  Procoat ECH; Procoat ECM
  Procoat FCS; Procoat MB; Procoat SFC;
  Procoat SR; Procoat UFC
  Procoat WT

c coating agent, instant: hydroalcoholic film-coated preparations
  Procoat AFC; Procoat FCS; Procoat UFC;
  Procoat WT

c coating agent, instant: Ibuprofen
  Procoat AFC; Procoat AWT; Procoat ECC;
  Procoat ECH; Procoat ECM
  Procoat FCS; Procoat MB; Procoat SFC;
  Procoat SR; Procoat UFC
  Procoat WT
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- Aquacoat® ECD
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- Beeswax; Carboxymethylcellulose sodium
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- PEG-6; Titanium dioxide
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- Aquacoat® ECD; Sureteric™
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- Gelatin
coating agent, pharmaceutical powders
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- Walocel® HM 50 PA; Walocel® HM 100 PA; Walocel® HM 1500 PA; Walocel® HM 100000 PA
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- Simethicone
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- PEG-2 stearate; PEG-2 stearate SE
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- Ethylcellulose
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- Simethicone
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- Carboxymethylcellulose sodium
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- Chroma-Seal™
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- Sureteric™
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- C*PharmDry 01984; C*PharmSweet 01533; Hydroxypropyl methylcellulose phthalate
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- Sureteric™
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- Aquacoat® ECD
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- Glyceryl di/tristearate
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coeumulsifier, glycerin suppositories
Etocas 35 HV
coeumulsifier, hard shell capsules
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Labrafil® M 1944 CS
coeumulsifier, lipophilic materials
Imwitor® 308
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Phosal® 50 PG
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coeumulsifier, microemulsion topicals
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coeumulsifier, o/w creams/lotions
Tegin® 4100
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Dow Corning® Emulsifier 10; Imwitor® 312; Tego® SMO 80 V; Tego® SMO V; Tego® SMS
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coeumulsifier, o/w systems
Crill 1 NF; Crill 4 NF
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coeumulsifier, pharmaceutical creams/lotions
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Lipocol SC
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Labrafac PC
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<td>Dehymsuls® SMO</td>
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<td>Glyceryl distearate SE; Glyceryl laurate SE; Glyceryl oleate; Glyceryl oleate SE; Glyceryl ricinoleate SE</td>
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<td>Labrafil® M 1944 CS; Lauroyl lysine; Peceol Isostearique; PEG-20 corn glycerides; PEG-4 dioleate</td>
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<td>coemulsifier, soft gel capsules</td>
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<td>cohesive agent, pharmaceuticals</td>
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<td>Plasdone® K-25; Plasdone® K-29/32; Plasdone® K-90; Plasdone® K-90D</td>
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<td>coemulsifier, transdermals</td>
<td>Calcium phytate</td>
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<td>Labrafil® M 1944 CS; Labrafil® M 2130 CS</td>
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<td>Acid red 18; Calendula officinalis extract; Purtalc USP</td>
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<td>colorant, absorbable meniscal tacks</td>
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colorant, absorbable sutures
  D&C Violet No. 2

colorant, anti-allergic/anti-asthmatic pharmaceuticals
  Tartrazine

colorant, anti-allergic medications
  FD&C Yellow No. 5

colorant, anti-allergic pharmaceuticals
  FD&C Yellow No. 5

colorant, anti-asthmatic medications
  FD&C Yellow No. 5

colorant, anti-asthmatic pharmaceuticals
  FD&C Yellow No. 5

colorant, aqueous solutions
  Canthaxanthine

colorant, bluish-red: pharmaceutical granulates
  Canthaxanthin 10% RVI

colorant, bluish-red: pharmaceutical powders
  Canthaxanthin 10% RVI

colorant, buccals
  Acid blue 9; Acid blue 74; FD&C Blue No. 1; FD&C Blue No. 2; FD&C Yellow No. 5
  Magnesium stearate; Tartrazine

colorant, capsules
  FD&C Red No. 3; redivivo™ (lycopene) 5%
  TG/P; Sicovit®

colorant, catgut sutures
  Iron ammonium citrate; Pyrogallol

colorant, chewable tablets
  ViCALity™ Albaglos™ PCC

colorant, coatings
  Sicovit®

colorant, contact lenses
  Chromium oxide (ic); CI vat orange 1; D&C Green No. 6; D&C Red No. 17; Indanthrene blue
  Iron oxides; Phthalocyanine green; Titanium dioxide; Vat brown 1

colorant, cough syrups
  Caramel

colorant, creams
  ViCALity™ Extra Light PCC; ViCALity™ Light PCC; ViCALity™ Medium PCC

colorant, dental products
  D&C Yellow No. 10

colorant, dentifrices
  Cl 75810; D&C Orange No. 5; D&C Red No. 33; D&C Red No. 36; Lavender oil
  Zinc chloride

colorant, dietary supplements
  Lucarotin® 20 CWD/R

colorant, disinfectants
  Zinc chloride

colorant, effervescent tablets
  Lucarotin® 20 CWD/R

colorant, film enhancement
  Altalc 400 USP

colorant, gelatin capsules
  Canthaxanthine

colorant, haptics
  D&C Green No. 6

colorant, implants
  Calcium carbonate; D&C Yellow No. 10

colorant, inhalants
  FD&C Yellow No. 6

colorant, liquid orals
  FD&C Yellow No. 5

colorant, nasal products
  FD&C Yellow No. 6; Tartrazine

colorant, natural: pharmaceuticals
  Norbixin

colorant, nutritional preparations
  redivivo™ (lycopene) 10% FS

colorant, nylon 6/6: nonabsorbable surgical sutures
  CI 61570

colorant, nylon 6/6: nonabsorbable sutures: general surgery
  Logwood (Haematoxylyn campechianum) extract

colorant, nylon 6/6: nonabsorbable sutures: ophthalmic surgery
  Logwood (Haematoxylyn campechianum) extract

colorant, nylon 6: nonabsorbable surgical sutures
  CI 61570

colorant, nylon 6: nonabsorbable sutures: general surgery
  Logwood (Haematoxylyn campechianum) extract

colorant, nylon 6: nonabsorbable sutures: ophthalmic surgery
  Logwood (Haematoxylyn campechianum) extract

colorant, nylon: nonabsorbable surgical sutures
  D&C Green No. 5

colorant, nylon: surgical sutures
  Acid blue 74; FD&C Blue No. 2

colorant, nylon: sutures
  CI 73015

colorant, oil
  Canthaxanthine

colorant, ointments
  Carmine solution; Zinc Oxide CR-4; Zoco 112 USP
Functional/Application Index

colorant, ophthalmics
  Aluminum; Annatto (Bixa orellana) extract; Bismuth oxychloride; Bronze powder; Carotene
  Chromium hydroxide green; Chromium oxide (ic); CI 61565; CI 69825; Copper powder
  FD&C Blue No. 1; FD&C Blue No. 1 Aluminum Lake; FD&C Red No. 40; FD&C Yellow No. 6; FD&C Yellow No. 5; FD&C Yellow No. 5 aluminum lake
  Ferric ammonium ferrocyanide; Ferric ferrocyanide; Guanine; Mica; Solvent green 3
  Titanium dioxide; Zinc oxide

colorant, optics
  FD&C Red No. 40 aluminum Lake

colorant, oral capsules
  Acid blue 74; Acid red 87; D&C Red No. 22; FD&C Blue No. 2

colorant, optics
  Acid blue 9; Acid red 51; Alumina; Calcium carbonate; Canthaxanthine
  Caramel; Carmine (Coccus cacti); 1-[(2-Chloro-4-nitrophenyl) azo]-2-naphthalenol; CI 16035; CI 19140
  CI 40850; CI 73015; CI 77492; CI 77499; D&C Red No. 30
  D&C Red No. 30 aluminum lake; D&C Red No. 36; D&C Yellow No. 10; Fast green FCF; FD&C Blue No. 1
  FD&C Blue No. 1 Aluminum Lake; FD&C Green No. 3; FD&C Red No. 3; FD&C Red No. 40; FD&C Red No. 40 aluminum Lake
  FD&C Yellow No. 5; FD&C Yellow No. 6; Ferric oxide; Ferrous oxide; Iron oxides
  Magnesium carbonate; Magnesium stearate; Magnesium trisilicate; Talc;
  Titanium dioxide
  Vat red 1

colorant, oral tablets
  Acid blue 74; Acid red 87; D&C Red No. 22; FD&C Blue No. 2

colorant, orange-red-red: nutritional preparations
  redivivo™ (lycopene) 10% WS

colorant, OTC products
  FD&C Yellow No. 5

colorant, otics
  Calcium carbonate

colorant, parenterals
  Magnesium stearate; Zinc chloride; Zinc oxide

colorant, pastes
  ViCALity™ Extra Light PCC; ViCALity™ Light PCC; ViCALity™ Medium PCC

colorant, peach to red: sugar-coated tablets
  Canthaxanthine

colorant, pharmaceuticals
  Chromium-cobalt-aluminum oxide

colorant, PET: sutures
  CI 61565; Solvent green 3

colorant, pharmaceutical creams/lotions
  Zoco 112 USP

colorant, pharmaceutical dentifrices
  Chlorophyllin-copper complex

colorant, pharmaceutical dusting powders
  Carmine solution

colorant, pharmaceuticals
  Acid blue 74; Acid orange 10; Acid red 26; Acid red 87; Acid red 95
  Acid violet 49; Acid yellow 3; Alkanet (Alkanna tinctoria) extract; Alpine Talc USP
  BC 127; Altalc 325 USP
  Altalc 400 USP; Amaranth; Annatto (Bixa orellana); Annatto (Bixa orellana) extract; Barley (Hordeum distichon) extract
  Beet powder; Beta Carotene 30% FS; Beta Carotene 1% CWS; Beta-Carotene Dry Powd. 10% CWD; Betanine
  Calcium carbonate; Caramel; Carmine (Coccus cacti); Carmine solution; Carminic acid
  CaroCare® Nat. β-Carotene 30% S; Caroten; 1-[(2-Chloro-4-nitrophenyl) azo]-2-naphthalenol; Chlorophyll; CI 12085
  CI 15850; CI 15985; CI 17200; CI 40800; CI 45410
  CI 47005; CI 73360; CI 75130; D&C Blue No. 6; D&C Green No. 5
  D&C Red No. 6; D&C Red No. 7; D&C Red No. 9; D&C Red No. 21; D&C Red No. 22
  D&C Red No. 27; D&C Red No. 28; D&C Red No. 30; D&C Red No. 30 aluminum lake; D&C Red No. 33
  D&C Red No. 36; D&C Yellow No. 10; Dipotassium glycyrrhizate; Fast green FCF; FD&C Blue No. 1
  FD&C Blue No. 1 Aluminum Lake; FD&C Blue No. 2; FD&C Blue No. 2 Aluminum Lake; FD&C Green No. 3; FD&C Red No. 40
  FD&C Red No. 40 aluminum Lake; FD&C Yellow No. 5 aluminum lake; FD&C Yellow No. 6; Glucose; Grape skin extract
  Iron oxide black; Iron (III) oxide hydrated;
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<td>Canthaxanthin 10% RVI</td>
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<td>colorant, purple-red: pharmaceutical powders</td>
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<td>FD&amp;C Red No. 3; Molasses (Saccharum officinarum); redivivo™ (lycopene) 5% TG/P; Sicovit®;</td>
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<td>Bronze powder; Cadmium; Caramel; 1-[(2-Chloro-4-nitrophenyl) azo]-2-naphthalenol; Chromium</td>
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<td>CI 19140; CI 26100; CI 47000; CI 59040; CI 60725</td>
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<td>Fluorescein sodium; Guanine; lavender oil;</td>
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**cooling agent, pharmaceutical lotions**

Lipo CD™-Menthol

**cooling agent, pharmaceuticals**

N-Ethyl-p-menthane-3-carboxamide; Lipo CD™-Menthol; Menthol; Menthy lactate; l-Menthy lactate; Thymol; N,2,3-Trimethyl-2-isopropylbutamide

**cooling agent, sinunitis preparations**

Menthol

**cooling agent, sugarless gum**

Xylisorb® 90; Xylisorb® 300; Xylisorb® 700; Xylisorb® PF

**cooling agent, topicals**

Isopropyl alcohol; Menthol; Octyldodecyl erucate

**cooling agent, veterinary medicated shampoos/ointments**

Menthol

**core sealing, targeted enteric drug releases**

Opaseal®

**corneal damage treatment**

Disodium guanylate

**corrosion inhibitor, dental waxes**

Multiwax® W-445

**corrosion inhibitor, dentrifices**

Sarkosyl® O

**corrosion inhibitor, medicated creams**

Multiwax® W-445

**corrosion inhibitor, medicated unguents**

Multiwax® W-445

**corrosion inhibitor, pharmaceuticals**

Lumisorb™ SMO; Multiwax® 180-W; Multiwax® ML-445; Multiwax® W-445; Natralube™ 120; Sarkosyl® O

**corrosive, tattoo removal**

Nitric acid

**corrosive, wart removal**

Nitric acid

**cosolvent, aerosols**

Chemonic® OE-2; Myritol® PC

**cosolvent, capsules**

Castor (Ricinus communis) oil

**cosolvent, colors**

NEOBEE® M-5

**cosolvent, creams**

Cetearyl alcohol

**cosolvent, creams/lotions**

Ceraphyl® 140; Chemonic® OE-2; Decyl olate; Laneth-5; Laneth-10

**cosolvent, emulsions**

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  - Mazu® DF 204
- **defoamer, antibiotics**
  - Disfoam CA-115
- **defoamer, aqueous systems**
  - Dow Corning® Medical Antifoam AF Emulsion; Foamkill® 810F; Foamkill® 830F
- **defoamer, balms**
  - Sag 710; Sag 720; Sag 730
- **defoamer, citric acid: fermentation**
  - Mazu® DF 204
- **defoamer, cough syrups**
  - Pluracol® E400 NF; Pluracol® E600 NF; Pluracol® E1450 NF
- **defoamer, creams/lotions**
  - Deodorized kerosene; PD-23; PD-25; PD-28; PEG-8 laurate
- **defoamer, drug extraction**
  - Foamkill® 8G
- **defoamer, drug separation**
  - Foamkill® 8G
- **defoamer, enzyme: fermentation**
  - Mazu® DF 204
- **defoamer, fermentation**
  - Foamkill® 8G; Methyl stearate
- **defoamer, lotions**
  - Sag 710; Sag 720; Sag 730
- **defoamer, medical applications**
  - Macol® 85
- **defoamer, nonaqueous systems**
  - Foamkill® 8G
- **defoamer, ointments**
  - Sag 710; Sag 720; Sag 730
- **defoamer, orals**
  - Arlacel® 186K; Propylene glycol alginate; Silicone emulsion; Sorbitan stearate
- **defoamer, OTC products**
  - Pluracol® E400 NF; Pluracol® E600 NF; Pluracol® E1450 NF
- **defoamer, pharmaceutical creams**
  - Meroxapol 105; Meroxapol 251; Meroxapol 252; Meroxapol 254; Meroxapol 258
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  - Methyl oleate
- **defoamer, pharmaceuticals**
  - Aluminum Stearate 22; Antarox® 17-R-2; Antarox® 25-R-2; Antarox® 31-R-1; Avapol™ 60
  - Avapol™ 60K; Avapol™ 65; Avapol™ 80; Avapol™ 80K; Avester™ SMS sobitan ester
  - Biospumex 275K; Ceteth-20; EO/PO block polymer or copolymer; Foam Blast® 102K; Foam Blast® 150K
  - Foamkill® 8G; Foamkill® 618; Foamkill® 810F; Foamkill® 830; Foamkill® 830F
  - Foamkill® 836A; Industrene® 5016 NF; Jarcol™ I-12; Jarcol™ I-18T; Jeffex® PPG-
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desalting aid, antibiotics
Diaion® HP20
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Diaion® HP20
desensitizer, teeth
Strontium acetate
desiccant, direct compression: tablets
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detergent, foaming: pharmaceuticals
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Adinol CT95
detergent, gum-sensitive toothpastes
Adinol CT95
detergent, IV injectables
Diethanolamine
detergent, massage creams
Coconut (Cocos nucifera) oil
detergent, medicated cosmetics
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Sandopan® DTC-Acid
detergent, medicated ointments
Rhodapon® LSB; STEPANOL® WA Extra;
STEPANOL® WA Extra PCK; STEPANOL®
WA Paste
detergent, medicated soaps
Trideceth-7 carboxylic acid
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detergent, surgical scrubs

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STEPANOL® ME Dry

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Coco-betaine

detergent, toothpaste

Magnesium laurel sulfate

detergent, topicals

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Schercomid CDO-Extra; Schercomid HT-60;

Schercomid SCE; Schercomid SCO-Extra

Sodium lauryl sarcosinate; Sodium lauryl sulfoacetate; Synperonic® PE/L44; TEGO®-Betaln L-7; Trideceth-10

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L-Arginine
detoxicant, antiphlogistic pastes: local injections
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Plasdone® K-29/32; Plasdone® K-90; Plasdone® K-90D
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diagnostic aid, ophthalmology
Fluorescein
diagnostic aid, pharmaceuticals
D-Galactose
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Acacia; Pectin
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Defatted Wheat Germ #3; Defatted Wheat Germ #9
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dietary supplement, calcium deficiency treatmentCalcium glubionate
dietary supplement, chewable tablets
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dietary supplement, creams
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SS-99™ Sodium Ascorbate for DC

dietary supplement, direct compression: tablets
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Covitol® 700 WD

dietary supplement, dry powder mixes
Covitol® 700 WD

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Optisharp™ (Zeaxanthin) 5% CWS/S-TG; Zeaxanthin

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Retinyl palmitate

Retinyl palmitate

dietary supplement, hard capsules
LycoVit® Dispersion 10%; LycoVit® 10% DC

LycoVit® Dispersion 10%; LycoVit® 10% DC

dietary supplement, hard gelatin capsules
Vitamin A Acetate/D2 500/50; Vitamin A Acetate/D3; Vitamin A Palmitate 500; Vitamin D3 100; Vitamin D3 100 HP

Vitamin A Acetate/D2 500/50; Vitamin A Acetate/D3; Vitamin A Palmitate 500; Vitamin D3 100; Vitamin D3 100 HP

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Kelp

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Calcium glubionate

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Calcium glubionate

Calcium glubionate

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Glycine

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Ferric pyrophosphate

Ferric pyrophosphate

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C-97® Ascorbic Acid for DC; C-97®SF Ascorbic Acid for DC; C.Cal-97™ Calcium Ascorbate for DC; ReadyPress® C; TC-90™ Ascorbic Acid for DC

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SS-99™ Sodium Ascorbate for DC

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Glycine

dietary supplement, injectables
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Calcium glubionate
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Lactose Monohydrate NF; Starch, pregelatinized; Sucrose
Sugar, compressible; Sugar, confectioner’s; Sugar spheres; Wheat Starch TB
diluent, chewable tablets
Nu-Tab™ 4001; Nu-Tab™ 4003
diluent, cleansers
Maltrin® QD M550
diluent, clinical nutrition
Captex® 300; Captex® 350; Captex® 355; Captex® 810D; Captex® 1000
Clarity; Pureco® 76; Tricaprin
diluent, coatings
Captex® 300; Captex® 355; Captex® 1000; Clarity; Tricaprin
diluent, colorants: pharmaceutical marking
Aqualon® N-7; Aqualon® N-10; Aqualon® N-14; Aqualon® N-22; Aqualon® N-50
Aqualon® N-100
diluent, color: orals
Isopropyl alcohol
diluent, color: pharmaceuticals
Ammonium alginate; Ethocel™ Standard 4 Premium; Ethocel™ Standard 7 Premium;
Ethocel™ Standard 14 Premium; Ethocel™ Standard 20 Premium;
Ethocel™ Standard 45 Premium; Ethocel™ Standard 100 Premium; Isopropyl alcohol
diluent, colors
NEOBEE® M-5
diluent, color: topicals
Isopropyl alcohol
diluent, creams/lotions
Altalc 200 USP; Altalc 300 USP; Deodorized kerosene; PD-23; PD-25
PD-28; Petroleum distillates
diluent, delivery/absorption enhancement
Captex® 300; Captex® 350; Captex® 355; Captex® 810D; Captex® 1000
Clarity; Pureco® 76; Tricaprin
diluent, dermatologicals
Captex® 300; Captex® 350; Captex® 355; Captex® 810D; Captex® 1000
Clarity
diluent, direct compression
Cargill Pharm 05521; C*PharmDry 01984; C*PharmGel 03302; C*PharmGel 03406; C*PharmGel 03415
C*PharmGel 12012; C*PharmMannidex DC (200 grade) 16702; C*Xylidex 16055;
Lactochem®
diluent, direct compression: capsules
Anhydrous Emcompress®; Pharmatose®
DCL 14
diluent, direct compression: chewable tablets
Candex®; Candex® Plus; Emdex®; Sugartab®
diluent, direct compression: sachets
Pharmatose® DCL 14
diluent, direct compression: tablets
Anhydrous Emcompress®; Candex®; Candex® Plus; Emdex®; Maltrin® M150
Maltrin® M510; Maltrin® QD M440; Maltrin® QD M500; Maltrin® QD M550; Maltrin® QD M580
Maltrin® QD M600; Pharmace® 102; Pharmatose® DCL 11; Pharmatose® DCL 14; Pharmatose® DCL 15
Pure-Dent® B810; Solka-Floc® 100; Sugartab®
diluent, direct compression: vitamins
Sugartab®
diluent, direct compression: water-soluble tablets
Sugartab®
diluent, dry granulation
Pure-Dent® B810
diluent, dry mixes
Maltrin® M510
diluent, essential oils
NEOBEE® 1053; NEOBEE® M-5; NEOBEE® M-20
diluent, film enhancement
Altalc 400 USP
diluent, flavors
Estol 1526; NEOBEE® M-5; Propylene glycol dicaprylate/dicaprate
diluent, fluid bed processes
Polyalditol X110; Polyalditol X120
diluent, fragrance oils
Estol 1526; Propylene glycol dicaprylate/dicaprate
diluent, gelatin capsules
Captex® 1000; Tricaprin
diluent, infant formulas
Captex® 300; Captex® 350; Captex® 355; Captex® 1000
diluent, injectables
NEOBEE® 1053; NEOBEE® M-20
diluent, inks: pharmaceutical marking
  Aqualon® N-7; Aqualon® N-10; Aqualon® N-14; Aqualon® N-22; Aqualon® N-50
  Aqualon® N-100

diluent, liquid products
  Maltrin® QD M550

diluent, low-dose preparations
  Parteck™ SI 150; Parteck™ SI 400 LRS; Parteck™ SI 400 PH; Parteck™ SI 500

diluent, medical nutritional preparations
  Maltrin® M150; Maltrin® M180; Maltrin® QD M550; Maltrin® QD M580; Maltrin® QD M600

diluent, medicated foot powders
  Altaic 200 USP

diluent, medicinals
  Estol 1526; NEOBEE® M-5; Propylene glycol dicaprylate/dicaprate

diluent, microemulsions
  Pureco® 76

diluent, nutritional fluids
  NEOBEE® M-5

diluent, nutritional preparations
  Captex® 350; Captex® 810D

diluent, nutritional/sports supplements
  Captex® 350; Clarity

diluent, nutritional supplements
  Tricaprin

diluent, nutrition/sports supplements
  Captex® 1000

diluent, ointments
  Isotridecyl laurate; Saboderm AB; Saboderm AMD; Saboderm CC; Saboderm CG
  Saboderm CSN; Saboderm CSO; Saboderm DBA; Saboderm DO; Saboderm DOA
  Saboderm DOE; Saboderm EDL; Saboderm EO; Saboderm G 20; Saboderm GS
  Saboderm HE; Saboderm IBS; Saboderm IS; Saboderm ISN; Saboderm ITL
  Saboderm MLC; Saboderm MM; Saboderm ODM; Saboderm OO; Saboderm OP
  Saboderm OS; Saboderm PDC; Saboderm PGDD; Saboderm SHO; Saboderm TCC
  Sabowax AO; Sabowax BWS; Sabowax CP; Sabowax CR; Sabowax EGDS
  Sabowax EGMS; Sabowax GF; Sabowax GMS; Sabowax HCO; Sabowax HRP
  Sabowax HRP/T

diluent, orals
  Calcium sulfate; Captex® 300; Captex® 355; Captex® 1000; Crodamol GTCC
  Glucose, liquid; Starch

diluent, parenterals
  Crodamol GTCC; Starch

diluent, pharmaceutical powders
  Maltrin® M180; Maltrin® QD M580

diluent, pharmaceutical body powders
  Pure-Dent® B812; Pure-Dent® B815; Pure-Dent® B816

diluent, pharmaceutical cleansers
  Maltrin® M150

diluent, pharmaceutical creams/lotions
  Maltrin® M150

diluent, pharmaceutical liquids
  Maltrin® M150

diluent, pharmaceutical powders
  C*Mannindex 16700; C*PharmDry 01984; C*PharmGel 03302; C*PharmGel 03406
  C*PharmGel 03415; C*PharmGel 12012; C*PharmMannindex DC (200 grade) 16702; C*Sorbidex P 16616; C*Sorbidex P 16656
  C*Sorbidex P 16601; C*Sorbidex P 16603; C*Sorbidex S 16601; C*Sorbidex S 16603; Meritenia 100
  Meritenia 141; Sheffield Brand Anhydrous Lactose NF; Sheffield Brand Lactose Monohydrate NF; Sta-Rx® NF

diluent, pharmaceuticals
  Altaic 400 USP; Amaranth; Calcium Sulfate Anhydrous NF 164; Calcium Sulfate BC 164; Calcium Sulfate BC 166
  Captex® 300; Captex® 350; Captex® 355; Captex® 810D; Clarity
  Clay BC 347; Clay BC 638; Clay BC 825; Clay BC 2457; Clay BC 2747
  Clay BC 2749; Glucose, liquid; Hydrogenated soybean oil; Maltrin® M510; Maltrin® QD M440
  Maltrin® QD M550; Maltrin® QD M600; Nitrogen; Pharma-Carb®; Pharmatose® 50 M
  Pharmatose® 80 M; Pharmatose® 90 M; Pharmatose® 100 M; Pharmatose® 110 M; Pharmatose® 125 M
  Pure-Dent® B810; SD alcohol 40; SD alcohol 40-B; Solka-Floc® 200; Solka-Floc® 2030
  Solka-Floc® SF20P; Solka-Floc® SF Special Granular; Solka-Floc® SF20 NF; Solka-Floc® SF40 NF; Solka-Floc® SF900 NF
  Sucrose distearate; Sunflower (Helianthus annuus) seed oil

diluent, rectals
  Starch
### Diluent, Soft Gelatin Capsules
- Captex® 300; Captex® 355; Clarity; Pureco® 76
### Diluent, Soluble Colorants
- Estol 1526; Propylene glycol dicaprylate/dicaprate
### Diluent, Sports Supplements
- Captex® 355
### Diluent, Spray-Dry Pharmaceuticals
- Maltrin® M150
### Diluent, Suspensions
- Captex® 300; Captex® 355; Captex® 1000
### Diluent, Tablet Coatings
- Altalc 400 USP
### Diluent, Tablets
- Altalc 500 USP; Arlex™ 83; Calcium carbonate; Calcium hydroxide phosphate; Calcium phosphate dibasic; Calcium phosphate dibasic dihydrate; Calcium phosphate tribasic; Calcium sulfate; Calcium sulfate dihydrate; Cellulose
- C*Mannidex 16700; Corn starch, pregelatinized; C*PharmDex 02011; C*Sorbidex P 16616; C*Sorbidex P 16656; C*Sorbidex P 16601; C*Sorbidex S 16601; C*Sorbidex S 16603; Dextrates
- Dextrin; Emcocel® LM50; Emcocel® LP200; Emcocel® SP15; Emcocel® XLM90
- Extra White Maize Starch; Food starch, modified; Fructose; Glucose; Kaolin
- Lactose; Lactose monohydrate; Maize Starch B; Maltisorb® P 200; Maltisorb® P 90; Maltodextrin; D-Mannitol; Microcrystalline cellulose; Nu-Tab™ 4001; Nu-Tab™ 4003; Nu-Tab®; Pearitol® 25 C; Pearitol® 50 C; Potato Starch B; Sheffield Brand
- Anhydrous Lactose NF; Sheffield Brand Lactose Monohydrate NF; Sorbitol; Starch; Starch, pregelatinized; StarRx® NF
- Sucrose; Sucrose stearate; Sugar, compressible; Sugar, confectioner's; Sugar spheres
- Tapioca starch; Terra Alba; Wheat Starch TB; Xylisorb® 90; Xylisorb® 300; Xylisorb® 700; Xylisorb® PF
### Diluent, Talcum Powders
- Meritena 100; Meritena 141
### Diluent, Topicals
- Crodamol GTCC; Pure-Dent® B812; Starch
### Diluent, Vaginals
- Starch
### Diluent, Vitamins
- Estol 1526; NEOBEE® M-5; Propylene glycol dicaprylate/dicaprate
### Diluent, Wet Granulation
- Cargill Pharm 05521; C*PharmDry 01984; C*PharmGel 03302; C*PharmGel 03406; C*PharmGel 03415; C*PharmGel 12012; C*PharmMannidex DC (200 grade) 16702; C*Xyliindex 16055; Polyalditol X110; Polyalditol X120
### Diluent, Wet Granulation: Chewable Tablets
- Candex® Plus; Emdex®
### Diluent, Wet Granulation: Nonchewable Tablets
- Emdex®
### Diluent, Wet Granulation: Pharmaceuticals
- Pharmacel® 101; Pharmatose® 200 M; Pharmatose® 350 M; Pharmatose® 450 M
### Diluent, Wet Granulation: Tables
- Candex® Plus; Emdex®; Maltrin® M040; Pure-Dent® B880; Pure-Dent® B890; Solka-Floc® 100; Spress® B825
### Direct Compression Agent, Capsule Filling
- StarLac™
### Direct Compression Agent, Coating Cores
- StarLac™
### Direct Compression Agent, Homeopathic Products
- StarLac™
### Direct Compression Agent, Low-Dosage Preparations
- StarLac™
### Direct Compression Agent, Pharmaceuticals
- Pearlitol®
### Direct Compression Ingredient, Capsules
- Destab™ Calcium Carbonate 90
### Direct Compression Ingredient, Dry Dosages
- Destab™ Calcium Carbonate 95
### Direct Compression Ingredient, Tablets
- Destab™ Calcium Carbonate 90; Destab™ Calcium Carbonate 95
### Disinfectant
- Benzyl alcohol; Chlorophene; Didecyldimonomium chloride; Dioctyl dimonium chloride; Glutaral Myrtrimonium bromide; Pentonium 4Br40; Pentonium 24 BP; Phenylmercuric nitrate, basic; 3,4,4'-Trichlorocarbanilide
### Disinfectant, Antidandruff Rinses
- Alkaquat® DMB-451-50; Alkaquat® DMB-451-80
### Disinfectant, Antiseptic Shampoos
- Cetethyldimonium bromide

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disinfectant, antiseptic toothpastes
  Cetylpyridinium bromide

disinfectant, buccals
  Methyl salicylate; Thymol

disinfectant, dentifrices
  CAE; Methyl salicylate; PCA ethyl cocoyl arginate

disinfectant, germicidal cleansers
  Cetylpyridinium bromide

disinfectant, hospital disinfection
  Alkaquat® DMB-451-50; Alkaquat® DMB-451-80

disinfectant, hospital sanitization
  Alkaquat® DMB-451-50; Alkaquat® DMB-451-80

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  Thymol

disinfectant, injectables
  Benzalkonium chloride; Benzethonium chloride

disinfectant, liniments
  Thymol

disinfectant, lip balms
  Thymol

disinfectant, liquids
  Hyamine® 3500 80% NF

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  Cetylpyridinium chloride; Lauralkonium chloride; PVP-iodine

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disinfectant, medical supplies
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  Benzalkonium chloride; Benzethonium chloride

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  Methyl salicylate

disinfectant, otics
  Benzalkonium chloride; Benzethonium chloride

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  Benzalkonium chloride; Benzalkonium saccharinate; Benzethonium chloride; Bio-Surf I-20; Hyamine® 3500 50%
  Hyamine® 3500 80% NF; Lauralkonium chloride; Lebon 50; Lebon LAG-40; Methyl salicylate
  Pentasept M; Sanisol C; Thymol

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  Hyamine® 3500 80% NF

disinfectant, protective: medical
  Boric acid

disinfectant, surgical
  Hyamine® 1622 50%

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  Cetylpyridinium bromide

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  Benzethonium chloride

disinfectant, tinctures
  Benzethonium chloride

disinfectant, topicalcs
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  Hyamine® 1622 50%

disinfectant, veterinary instruments
  Cetylpyridinium bromide

disinfectant, veterinary medicine
  Methylene blue trihydrate

disinfectant, veterinary ointments/shampoos
  Thymol

disinfectant, veterinary products
  Benzethonium chloride

disinfectant, veterinary products: skin infections
  Cetylpyridinium bromide

disinfectant, veterinary products: wound treatment
  Cetylpyridinium bromide

disinfectant, veterinary: skin infections
  Cetylpyridinium bromide

disinfectant, veterinary: wound treatment
  Cetylpyridinium bromide

disintegrant
  Cargill Pharm 05521; C*PharmGel 03302; C*PharmGel 03406; C*PharmGel DC 93000; National® 78-1551

disintegrant, animal health care
  Avicel® PH-101; Avicel® PH-102; Avicel® PH-103; Avicel® PH-105

disintegrant, aqueous granulation
  Vivastar® M 1500; Vivastar® P 1000; Vivastar® P 3500; Vivastar® P 5000

disintegrant, buccals
  Sodium starch glycolate; Starch

disintegrant, capsule filling
  StarCap® 1500; StarLac™

disintegrant, capsules
  Ac-Di-Sol®; Arbocel® A 300; Croscarmellose sodium; Dritex S; Explocel®; Explosol® SSG-1; Explosol® SSG-2; Extra
Functional/Application Index

White Maize Starch; Hydrogenated cottonseed oil; Hydrogenated palm oil
Kiccolate® ND-2HS; Kiccolate® ND-200;
Lycatab® C; Lycatab® PGS; Maize Starch B
Microcrystalline cellulose; Potato Starch B;
Solutab®; Starch, pregelatinized; Tablo®
Wheat Starch TB

disintegrant, direct compression
StarLac™
disintegrant, compressed tablets
Powdered Guar Gum Type A; Powdered Guar Gum Type AA; Powdered Guar Gum Type B; Powdered Guar Gum Type BB
disintegrant, direct compression
Microcel® 101; Starch 1500®; Starch 1500® G; Starch 1500® LM; Tabulose® 101
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Ludipress®; Pharmace® XL; Primojel®
disintegrant, direct compression: chewables
Advantose™ 100
disintegrant, direct compression: chewable tablets
Mannogem™ EZ
disintegrant, direct compression: diabetic products
Emcosoy®
disintegrant, direct compression: low-calorie products
Emcosoy®
disintegrant, direct compression: pharmaceutical granules
Pharmace® XL
disintegrant, direct compression: solid dosages
Avicel® PH-112; Avicel® PH-113; Avicel® PH-200; Avicel® PH-301; Avicel® PH-302 Pharmace® XL
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Advantose™ 100; Arbocel® A 300; Avicel® PH-101; Avicel® PH-102; Avicel® PH-103 Avicel® PH-105; Avicel® PH-112; Avicel® PH-113; Avicel® PH-200; Avicel® PH-301 Avicel® PH-302; Emcosoy®; Explotab®, Explotab® CLV; Explotab® Low pH Ludipress®; Maltrin® M150; Mannogem™ EZ; Pharmace® XL; Primellose® Pure-Dent® B700; Sancel-101; Sancel-102; Sancel-105; Sancel-C Sancel-W; Satialgine™ H8; Solka-Floc® 100; Spress® B820
disintegrant, direct-compression: tablets
Sodium starch glycolate
disintegrant, direct compression: water-sensitive tablets
Mannogem™ EZ
disintegrant, dry blends
Exploce®; Explosol® SSG-1; Explosol® SSG-2; Solutab®; Tablo®
disintegrant, dry granulation
Avicel® PH-101; Avicel® PH-102; Avicel® PH-103; Avicel® PH-105; Explotab® Explosol® SSG-1; Explosol® SSG-2; Maltrin® M100; Maltrin® M150; Microcel® 102 Pure-Dent® B700; Pure-Dent® B810; Solutab®; Tablo®; Tabulose® 102
disintegrant, dry granulation: tablets
Exploce®; Explosol® CLV; Explosol® Low pH; Satialgine™ H8; Spress® B820
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Purity® 21C
disintegrant, granules
Kollidion® CL
disintegrant, hard gelatin capsules
Kollidion® CL; Lycatab® C
disintegrant, homeopathic products
StarLac™
disintegrant, low-dosage products
StarLac™
disintegrant, medical nutritionals
Maltrin® M150
disintegrant, moisture-sensitive products
Starch 1500® LM
disintegrant, ointments
Magnabrite® F; Walocel® C 30 A; Walocel® C 100 A; Walocel® C 1000 A; Walocel® C 2000 A Walocel® C 10000 A
disintegrant, orals
Sodium starch glycolate; Starch
disintegrant, parenterals
Starch
disintegrant, pellets
Exploce®; Explosol® SSG-1; Explosol® SSG-2; Microcel® 101; Solutab® Tablo®; Tabulose® 101
disintegrant, pharmaceutical aqueous film coatings
Maltrin® M100
disintegrant, pharmaceutical cleansers
Maltrin® M100; Maltrin® M150
disintegrant, pharmaceutical creams
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<td><strong>disintegrant, pharmaceuticals</strong></td>
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<td>Amaranth; ArboceI® A 300; KELTOSE®; Polargel® HV; Powdered 10 NF Powdered 7.5 NF; Powdered NF; Pure-Dent® B810; Purity® 21; Purity® 21C Solka-Floc® 200; Solka-Floc® 2030; Solka-Floc® SF20P; Solka-Floc® SF Special Granular; Solka-Floc® SF20 NF Solka-Floc® SF40 NF; Solka-Floc® SF900 NF; Sucrose erucate; Vivasol®; Vivastar® M 1500 Vivastar® P; Vivastar® P 1000; Vivastar® P 3500; Vivastar® P 5000</td>
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<td><strong>disintegrant, sponfization: pharmaceuticals</strong></td>
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<td><strong>disintegrant, spray-dry pharmaceuticals</strong></td>
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<td>Dritex S; Hydrogenated cottonseed oil; Hydrogenated palm oil; Kollidon® CL</td>
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<td><strong>disintegrant, tablets</strong></td>
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<td>Ac-Di-Sol®; Agar; Alginic acid; Amberlite® IRP-88; Amberlite® IRP-88 Cab-O-Sil® EH-5; Cab-O-Sil® H-5; Cab-O-Sil® LM-150; Cab-O-Sil® M-5; Cab-O-Sil® MS-55 Calcium carboxymethyl cellulose; Cellulose; Corn starch, pregelatinized; Corn starch gl (Zea mays) starch; Croscarmellose sodium Crospongion; Dritex S; DSS Granular; Edible Beef Gelatin; Edicol® Emcocel® 50M; Emcocel® 90M; Emcocel® HD90; Emcocel® LM50; Emcocel® LP200 Emcocel® SP15; Emcocel® XLM90; Explor®; Explosol® SSG-1; Explosol® SSG-2 Extra White Maize Starch; Food starch, modified; Fujicalin; Hydrogenated cottonseed oil; Hydrogenated palm oil KELACID®; Kiccolate® ND-2HS; Kiccolate® ND-200; Kollidon® CL; Kollidon® CL-F Kollidon® CL/M; Kollidon® CL-SF; Lycatab® C; Lycatab® PGS; Magnabrite® F Magnesium aluminum silicate; Maize Starch B; Methacrylic acid-divinylbenzene copolymer; Microcel® 101; Microcel® 102 Microcel® 103; Microcel® 122; Microcel® 200; Microcel® 250; Microcel® 500 Microcrystalline cellulose; Neusilin FH2; Neusilin S1; Neusilin UFL2; Neusilin US2 Polacrilin potassium; Polyplasdone® XL; Polyplasdone® XL-10; Potato Starch B; Powdered Agar Agar Bacteriological Grade Powdered Agar Agar Type K-60; Powdered Agar Agar Type K-80; Powdered Agar Agar Type K-100; Powdered Agar Agar Type K-150; 2-Propenoic acid, 2-methyl-, potassium salt, polymer with diethenylbenzene Protac™; Protanal®, Purity® 21; Ryoto Sugar Ester B-370; Ryoto Sugar Ester ER-190 Ryoto Sugar Ester ER-290; Ryoto Sugar Ester L-595; Ryoto Sugar Ester L-1695; Ryoto Sugar Ester LWA-1570; Ryoto Sugar Ester M-1695 Ryoto Sugar Ester O-1570; Ryoto Sugar Ester OWA-1570; Ryoto Sugar Ester P-170; Ryoto Sugar Ester P-1570; Ryoto Sugar Ester P-1570S Ryoto Sugar Ester P-1670; Ryoto Sugar Ester S-170; Ryoto Sugar Ester S-270; Ryoto Sugar Ester S-370; Ryoto Sugar Ester S-370F Ryoto Sugar Ester S-570; Ryoto Sugar Ester S-770; Ryoto Sugar Ester S-970; Ryoto Sugar Ester S-1170; Ryoto Sugar Ester S-1570 Ryoto Sugar Ester S-1670; Silica; Sodium starch glycolate; Solubat®; Soybean (Glycine soja) flour Starch; Starch, pregelatinized; Sta-Rx® NF; Sucrose dilate; Sucrose laurate</td>
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Polacrilin potassium
disintegrant, tablets: solid orals
Corn (Zea mays) starch
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Starch
disintegrant, vaginals
Starch
disintegrant, wet granulation
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Explosol® SSG-1; Explosol® SSG-2; Maltrin® M100; Microcel® 101; Solutab®
Starch 1500®; Starch 1500® G; Starch 1500® LM; Tablo®; Tabulose® 101
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Pharmacel® XL
disintegrant, wet granulation: pharmaceutical granules
Pharmacel® XL
disintegrant, wet granulation: solid dosages
Pharmacel® XL
disintegrant, wet granulation: tablets
Explostat®; Explostat® CLV; Explostat® Low pH; Maltrin® M040; Pharmaceul® XL
Primellose®; Primojel®; Pure-Dent® B880; Pure-Dent® B890; Satialigne™ H8
Solkap-Floc® 100; Spress® B825
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Sodium starch glycolate
disintegration control agent, sustained-release capsules
Lac-Coat 40E-2
disintegration control agent, tablets
Lac-Coat 40E-2
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Gantrez® AN-139 BF; Imwitor® 742; Kaydol®; Lan-Aqua-Sol 75:50; Lan-Aqua-Sol 75:100
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PEG-24 laurate; PEG-40 laurate; PEG-100 laurate; PEG-2 oleate; PEG-16 oleate
PEG-24 stearate; Polypax SMS; S-49-H; SS-10MV; Schercomid SLS
Sucrose laurate; Tagat® L2; Tagat® O2; Tagat® S; Tagat® S2
Texapon® ZHC Powder; Triisostearyl citrate
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dispersant, aqueous systems
PPG-5-ceteth-20; Procetyl AWS
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Capmul® MCM
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Capmul® MCM
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Capmul® MCM
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Capmul® MCM
dispersant, bacteriostatic: microemulsions
Capmul® MCM
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Capmul® MCM
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Capmul® MCM
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OHlan®
dispersant, pigment: aerosols
Crill 6
dispersant, pigment: creams/lotions
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Diocetyldecyl fluoroheptyl citrate;
Stearyl stearate; STEPAN® PEG 200 DO
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|                         | Sorbithom TL-1; Span® 85V; Span® 85V Pharma; Synperonic® PE/F68; Synperonic® PE/F87
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|                         | Tween® 81
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- Octyldecyl stearyl stearate; Polyglyceryl-10 decaoleate; Polyglyceryl-6 dioleate
- Polyglyceryl-3 stearate; STEPAN® PEG 200 DL; STEPAN® PEG 400 DL; STEPAN® PEG 400 DO; STEPAN® PEG 400 DS
- STEPAN® PEG 400 ML; STEPAN® PEG 400 MO; STEPAN® PEG 400 MS; STEPAN® PEG 600 DL; STEPAN® PEG 600 DO
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- Cekol® 10000
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- Docusate Sodium USP; Methocel® A15LV Premium; Methocel® E6 Premium; Methocel® E15LV Premium
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- Tween® 60; Tween® 80V; Volpo 3; Volpo 5; Volpo 10
- Volpo 20; Volpo N5; Volpo N20
- dispersant, vitamins
- Docusate Sodium USP; Glycosperse® O-20 KFG; PEG-40 castor oil; Plasdone® C-15; Plasdone® C-30
- dispersant, veterinary products
- Lauramidopropyl PEG-dimonium chloride phosphate; Lauroampho PEG-glycinate phosphate
- dispersant, vitamin oils
- Tween® 81
- dispersant, dry blends
- Explosol®; Explosol® SSG-1; Explosol® SSG-2; Microcel® 3E-150; Solutab® Tablo®; Tabulose® 3E-150
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PPG-5-ceteth-20; Procetyl AWS
emollient, aqueous compositions
Lanexol AWS
emollient, aqueous products
Glucam® E-10; Glucam® E-20; Glucam® P-10; Glucam® P-20
emollient, aqueous systems
Laneto 100-Flaked; PPG-5-ceteth-20; Procetyl AWS
emollient, aqueous topicals
Solan
emollient, balms
EmCon™ SAF
emollient, bandages
Lebon 15
emollient, burn creams
Crodamol CAP; Crodamol PMP; Crodamol PTC; Crodamol PTIS; Crodamol SS
Crodamol W; Pentacyrthrityl tetracaprylate/tetracaprate
emollient, burn treatment
Anhydrous Lanolin USP Cosmetic; Anhydrous Lanolin USP Superfine; Anhydrous Lanolin USP Ultrafine; Kelisema Shea Butter; Vilvanolin® CAB
emollient, capsules
Caprylic/capric/disuccinic triglyceride; Castor (Ricinus communis) oil; Dritex S; Hydrogenated cottonseed oil; Hydrogenated palm oil; Tribehenin
emollient, cationic systems: topicals
Lexemul® AR
emollient, chapped skin treatment
Kukui Nut Oil
emollient, chapped skin treatment
Potato (Solanum tuberosum) starch; Super Corona Lanolin
emollient, cleansing scrubs
Crovol A-70
emollient, clear analgesics
Promyristyl PM-3
emollient, clear preparations
Ricinoleamidopropyl ethylidimonium ethosulfate
emollient, clinical nutrition
Capmul® GDL; Capmul® GMO; Capmul® GMS-50; Caprol® 3GO; Caprol® 10G40 Caprol® 10G100; Captex® 300; Captex® 350; Captex® 355; Captex® 810D Captex® 1000; Hydrokote® 112; Hydrokote® AP5; Hydrokote® M; Pureco® 76
emollient, coatings
Capmul® GDL; Capmul® GMO; Capmul® GMS-50; Caprol® 3GO; Caprol® 10G40 Captex® 300; Captex® 355; Captex® 1000; Hydrokote® 112; Hydrokote® AP5 Hydrokote® M; Tricaprin
emollient, compaction: pharmaceuticals
Sterotex® NF
emollient, cream bases
DREWMULSEL® 200K
emollient, creams
Aloe barbadensis gel; Bis-diglyceryl polyacryliflamate-2; Caprylic/capric/disuccinic triglyceride; Cetearyl alcohol; Cetiol® LC Eumulgin® B2; Lexate® PX; PPG-2 myristyl ether propionate; Schercemol OPG; Sebase Softisan® 100; Triolein
emollient, creams/lotions
Acetylated lanolin alcohol; Beeswax, synthetic; Biosil Basics Fluoro Guerbet 3.5%; Captex® 200; Ceraphyl® ICA Cetyl dimethicone copolyol; Cetyl myristate; Cetyl octanoate; Decyl oleate; Diisopropyl sebacate Diocyldecylyl fluorohexyl citrate; D.P.P.G.; Eutanol® G; Fluilan; Glyceril isostearate Hydrolyzed collagen; Isostearic acid; Koster Keunen Beeswax; Koster Keunen Beeswax 100; L-45 Series Laneth-5; Laneth-10; Laneth-15; Laneth-40; Lanolin oil Luvitol® EHO; Maleated soybean oil; Myristyl propionate; Nacol® 14-98; Nacol® 16-98 Nacol® 18-98; Nacol® 20-95; Nacol® 22-98; NEOBEE® M-20; Orange Wax Orange Wax, Deodorized; PEG-75 lanolin; Penreco Snow; Polyglyceryl-3 diisostearate; Propylene glycol dicaprylate/dicaprate RITA IPM; RITA IPP; Ritaceti; Ritachol® SS; Safflower (Carthamus tinctorius) oil Schercemol ICS; Schercemol MP; Stearoyl dimethicone; Stearyl stearate; STEPAN® PEG 200 DL STEPAN® PEG 200 DO; STEPAN® PEG 400 DL; STEPAN® PEG 400 DO; STEPAN® PEG 400 DS; STEPAN® PEG 400 ML STEPAN® PEG 400 MS; STEPAN® PEG 600 DL; STEPAN® PEG 600 DO; STEPAN® PEG 600 DS; STEPAN® PEG 600 ML
emollient, coatings
Capmul® GDL; Capmul® GMO; Capmul® GMS-50; Caprol® 3GO; Caprol® 10G40 Captex® 300; Captex® 355; Captex® 1000; Hydrokote® 112; Hydrokote® AP5 Hydrokote® M; Tricaprin
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  Glucam® E-10; Glucam® E-20; Glucam® P-10; Glucam® P-20
emollient, hydroalcoholic skin products
  Ceraphyl® 41
emollient, hydroalcoholic systems
  Crovol A-70; Crovol M-70; Laneto 100-Flaked
emollient, hydrocortisone creams
  Terra-Pure™ FD Non-Preserved Reg. FDR; Terra-Spray™ Spray Dried Aloe Vera Powd. 100X Decolorized; Terra-Spray™ Spray Dried Aloe Vera Powder 100X Regular
emollient, hydrophilic ointments
  Egg oil
emollient, hypoallergenic products
  Ceraphyl® 45; Dioctyl malate; Estalan DOM; Linoleamidopropyl PG-dimonium chloride phosphate; Vilvanolin® CAB
emollient, IM injectables
  Castor (Ricinus communis) oil; Glycerin
emollient, infant formulas
  Capmul® GMO; Capmul® GMS-50; Capmul® GMS-50K; Caprol® 3G0; Caprol® 10G40; Caprol® 10G100; Captex® 300; Captex® 350; Captex® 355; Captex® 1000
emollient, inhalants
  Sorbitan trioleate
emollient, injectables
  Dioctyl adipate; Polyisobutene
emollient, injection suspensions
  Olive (Olea europaea) oil
emollient, IV emulsions
  Super Refined® Cottonseed NF; Super Refined® Olive NF; Super Refined® Safflower USP; Super Refined® Sesame NF
emollient, laxatives
  Dioctyl calcium sulfosuccinate; Dioctyl sodium sulfosuccinate; Stamere® CK-S NF FCC; Stamere® N-325 NF FCC; Stamere® N-350 NF FCC; Stamere® N-350 S NF FCC; Stamere® NI NF FCC
emollient, liniments
  Nacol® 14-98; Nacol® 16-98; Nacol® 18-98; Nacol® 20-95; Nacol® 22-98; Olive (Olea europaea) oil; Sesame (Sesamum indicum) oil; Super Refined® Cottonseed NF; Super Refined® Olive NF; Super Refined® Safflower USP; Super Refined® Sesame NF
emollient, lip balms
  Dicocoyl pentaerythritol distearyl citrate; Glyceryl triacetyl ricinoleate; HallBrite® BHB; HallBrite® OS; HallStar™ MM
emollient, lip care
  Colonial LAO
emollient, liposomal technology
  Lecithin
emollient, liquid emulsions
  Capryl/capric/disuccinic triglyceride; Cetiol® LC
emollient, liquid products
  Lutrol® E 300; Lutrol® E 400
emollient, lotions
  PEG-2 distearate
emollient, massage creams
  Coconut (Cocos nucifera) oil
emollient, medicated ointments
  PEG-8 lauryl ether stearate; PEG-10 lauryl ether stearate; PEG-15 lauryl ether stearate
emollient, medicated preparations
  Batyl isostearate; Batyl stearate; Mineral Jelly No. 10; Mineral Jelly No. 14; Nikkol GM-18IS; Nikkol GM-18S
emollient, medicated talcs
  Terra-Pure™ FD Non-Preserved Reg. FDR; Terra-Spray™ Spray Dried Aloe Vera Powd. 100X Decolorized; Terra-Spray™ Spray Dried Aloe Vera Powder 100X Regular
emollient, medicinal soaps
  Elastin; Linseed (Linum usitatissimum) oil
emollient, microemulsions
  Capmul® GDL; Capmul® GMO; Capmul® GMO-50, EP/NF; Caprol® 3G0; Caprol® 10G40; Caprol® 10G100; Cretex® 800; Pureco® 76
emollient, minor skin diseases
  Kukui Nut Oil
emollient, mouthwashes
  Isononyl isononanoate
emollient, nasal products
Miglyol® 818; Miglyol® 829
emollient, nonaqueous ointments
Capryllic/capric/stearic triglyceride
emollient, nonocclusive creams/lotions
Lexol® EHP
emollient, nutraceuticals
Argan (Argania spinosa) kernel oil
emollient, nutritional preparations
Capryllic/capric/lauric triglyceride;
Caprylic/capric/linoleic triglyceride;
Caprylic/capric/oleic triglyceride; Captex® 100; Captex® 350
Captex® 810D; Hydrolyzed casein;
Triundecanoin
emollient, nutritional/sports supplements
Capmul® GMS; Capmul® GMS-50; Caprol® 3GO; Caprol® 10G40; Caprol® 10G100
Captex® 350
emollient, nutritional supplements
Hydrokote® 112; Hydrokote® AP5;
Hydrokote® M; Sterotex® NF;
Tricaprin
emollient, ophthalmics
Koster Keunen Synthetic Spermaceti;
Laneto 50; Laneto 100
Laneto 100-Flaked; Laneto AWS; Lanidrol;
Lanolin oil; Lard
Lipolan 31; Lipolan 31-20; Lipolan 98;
Lipolan R; Lipolan Distilled
Lumulüse® GMS-A; Luvitol® EHO;
Nacol® 14-98; Nacol® 16-98; Nacol® 18-98
Nacol® 20-95; Nacol® 22-98;
NEOBEE® M-20; Olive (Olea europaea) oil;
PREG-3 lauryl ether stearate
PEG-5 lauryl ether stearate; PEG-8 lauryl ether stearate;
PREG-10 lauryl ether stearate;
PREG-15 lauryl ether stearate; Penreco Regent
Penreco Snow; Penreco Ultima; Pharmalan
Ph Eur; Philcohol 1600; Philcohol 1618
Philcohol 1800; Protopet® Alba;
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Protopet® Yellow 2A; Ritacetyl®;
Ritahydrox; Ritalan® AWS; Ritasol
Ritawax Super; Sesame (Sesamum indicum) oil;
Shea butter (Butyrospermum parkii) extract;
Softigen® 701; Softisan® 100
Softisan® 649; Stearyl citrate; STEPAN®
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STEPAN® PEG 200 DO
STEPAN® PEG 400 DL; STEPAN® PEG 400 DO;
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WECOBEE® M; WECOBEE® S
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Ricinoleamidopropyl ethyldimonium ethosulfate
emollient, ophthalmic ointments
Penreco Regent; Penreco Snow; Penreco Ultima
emollient, ophthalmics
Cetyl alcohol; Glycerin; Lanolin; Medilan™
Ultra; Petrolatum
Polyethylene; Super Corona Lanolin;
Superfine Lanolin
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emollient, orals
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Captopril 1000; Cetearyl alcohol; Cetyl alcohol; Cetyl esters; Cocoa (Theobroma cacao) butter
Coconut (Cocos nucifera) oil; Crodamol GTCC; Crodamol GTCC-PN; Crodesta F-10; Etocas 35 NF
Glycerin; Hydrogenated castor oil; Hydrolyzed collagen; Lecithin; Miglyol® 810
Miglyol® 818; Miglyol® 829; PEG-20 steareate; Petrolatum; Polyethylene
Safflower (Carthamus tinctorius) oil; Sesame (Sesamum indicum) oil; Softigen® 767; Sorbitan trioleate; Stearyl alcohol
Superfine Lanolin; Super Refined® Cottonseed NF; Super Refined® Olive NF; Super Refined® Safflower USP; Super Refined® Sesame NF
Syncrowax HRC

emollient, oral suspensions
Caprylic/capric/disuccinic triglyceride; Miglyol® 829

emollient, OTC products
Red petrolatum; Terra-Pure™ FD Non-Preserved Reg. FDR; Terra-Pure™ Non-Preserved Aloe Vera Powd.; Terra-Spray™ Spray Dried Aloe Vera Powd. 100X
Decolorized; Terra-Spray™ Spray Dried Aloe Vera Powder 100X Regular

emollient, otics
Cetearyl alcohol; Cetyl alcohol; Petrolatum

emollient, o/w emulsions
Sebase; Vigilan™

emollient, parenterals
Crodamol GTCC; Crodamol GTCC-PN; Etocas 35 NF; Glycerin; Incrocas 40
Miglyol® 810; Miglyol® 818; Sesame (Sesamum indicum) oil; Super Refined® Cottonseed NF; Super Refined® Olive NF; Super Refined® Safflower USP; Super Refined® Sesame NF
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Cetiol® V
emollient, petroleum gauzes
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emollient, petroleum jelly
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emollient, pharmaceutical cream
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| Gloria®; Glucam® P-20 Distearete; β-Glucan; Glycereth-7 benzoate; Glycereth-5 lactate | Lanolin USP Pharmaceutical Grade; Lanolin wax; Lapyrium chloride; Lard glycerides; Lauramide MEA |
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| Glycerin dioleate; Glycerin hydroxystearate; Glycerin laurate; Glycerin linoleate; Glycerin myristate | Lipolan 98; Lipolan R; Lipolan Distilled; Liponate ICS; Lipovol P |
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| Glycerol lactate | Luvitol® EHO; Macadamia ternifolia nut oil; Mapeg® 200 DO; Mapeg® 200 ML; Mapeg® 400 DO |
| Glycerol palmitate; Glycerol palmitate/stearate; Glycerol stearate citrate; Glycerol stearate SE; Glycerol triheptanoate | Mazawax® 163R Flake; Mazol® 159; Mazol® GMS-D; Meadowfoam (Limnanthes alba) seed oil; Medilan™ |
| Glycol dilaurate; Glycol distearate; Glycol hydroxystearate; Glycol stearate; Hartolan | Methyl cocoate; Methyl gluceth-20 distearate; Methyl glucose sesquistearteate; Methyl stearate; Miglyol® 810 |
| Hydrogenated butylen/ethylene/styrene copolymer | Miglyol® 818; Miglyol® 829; Miglyol® 840; Miglyol® 8810; Mineral Jelly No. 10 |
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| Hydrogenated soy glycerides; Hydrogenated tallow; Hydrogenated tallow glyceride | Octylidodecyl stearoyl stearate; Octyl palmitate; Octyl pelargonate; Oleth-2; Oleth-5 |
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<td>Emollient, Steroidal Products</td>
<td>Super Corona Lanolin; Superfine Lanolin</td>
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emollient, stick products
  Isocarb® 12; Isocarb® 16; Lanette® 14;
  Lanette® 22 Flakes; Nacol® 14-98
  Nacol® 16-98; Nacol® 18-98; Nacol® 20-95;
  Nacol® 22-98; Softisan® 100
  Wickeno® 160
emollient, superficial burns
  Kukui Nut Oil
emollient, suppositories
  Agar; Capmul® GMO-50, EP/NF; Capmul®
  GMS-50; Capmul® GMS-50K; Caprol® 3GO
  Caprol® 10G40; Caprol® 10G100; Captex®
  800; DREWMULSE® 200K; Dritex S
  Fancol™ Karite Extract; Fonoline® White;
  Fonoline® Yellow; Hydrokote® 424
  Hydrokote® 424; Hydrokote® 424
  Hydrokote® 424; Hydrokote® 424
  Hydrokote® M; Lanolin; Mineral Jelly No. 10
  Mineral Jelly No. 14; Octyldecyl stearoyl
  stearate; Petrolatum; Polyglyceryl-10
deacolate; Polyglyceryl-6 dioleate
  Propylene glycol dioctanoate; Protopet®
  White 1S; Protopet® Yellow 2A; Shea butter
  (Butyrospermum parkii); Shea butter
  (Butyrospermum parkii) extract
  STEPAN® PEG 200 DL; STEPAN® PEG 200
  DO; STEPAN® PEG 400 DL; STEPAN® PEG
  400 DO; STEPAN® PEG 400 DS
  STEPAN® PEG 400 ML; STEPAN® PEG 400
  MO; STEPAN® PEG 400 MS; STEPAN® PEG
  600 DL; STEPAN® PEG 600 DO
  STEPAN® PEG 600 DS; STEPAN® PEG 600
  ML; STEPAN® PEG 6000 DS; STEPAN® PEG
  6000 MS; STEPAN® PGMS Pure
  Sterotex® NF; Super Corona Lanolin;
  WEFOOBEE® FS; WEFOOBEE® M;
  WEFOOBEE® S
emollient, surface-active: dermatologicals
  Argobase EST
emollient, surgical lubricants
  Agar
emollient, suspensions
  Captex® 300; Captex® 355; Captex® 1000
emollient, sustained-releases
  Beeswax, synthetic; Hydrokote® 112;
  Hydrokote® AP5; Hydrokote® M; Koster
  Keuen Beeswax
  Koster Keuen Beeswax 100
emollient, tablets
  Capmul® GMS-50; Dritex S; Hydrogenated
  cottonseed oil; Hydrogenated palm oil;
  Sterotex® NF
  Tribehenin
emollient, tablet system coatings
  Capmul® GMS-50K
emollient, therapeutic ointments
  Vilvanolin® CAB
emollient, therapeutic products
  Finsolv® BOHS-111; Octyl hydroxystearate
  benzoate
emollient, topical analgesics
  Terra-Pure™ FD Non-Preserved Reg. FDR;
  Terra-Spray™ Spray Dried Aloe Vera
  Powd. 100X Decolorized; Terra-Spray™
  Spray Dried Aloe Vera Powder 100X
  Regular
emollient, topical anesthetics
  Terra-Pure™ FD Non-Preserved Reg. FDR;
  Terra-Spray™ Spray Dried Aloe Vera
  Powd. 100X Decolorized; Terra-Spray™
  Spray Dried Aloe Vera Powder 100X
  Regular
emollient, topical creams
  Behenethonium chloride
emollient, topicals
  Isopropyl myristate
emollient, topical medicinals
  Aloe barbadensis; Arlatone® G Pharma;
  Avocado (Persea gratissima) oil; Behenyl
  behenate; Butyl stearate
  C12-15 alkyl lactate; Candelilla (Euphorbia
  cerifera) wax; Caprylic/capric diglyceryl
  succinate; Caprylic/capric/diisucciniec
  triglyceride; Caprylic/capric triglyceride
  Captex® 300EP; Captex® 355 EP/NF;
  Castor (Ricinus communis) oil; Ceralan®;
  Ceraphyl® 28
  Ceraphyl® 31; Ceraphyl® 41; Ceraphyl® 45;
  Ceraphyl® 50; Ceraphyl® 140
  Ceraphyl® 140-A; Ceraphyl® 230;
  Ceraphyl® 368; Ceraphyl® 375; Ceraphyl®
  494
  Ceraphyl® 791; Ceraphyl® 847; Ceraphyl®
  ICA; Ceteareth-15; Ceteareth-30
  Cetearyl alcohol; Cetearyl octanoate;
  Cetearyl palmitate; Cetrimonium chloride;
  Cetyl acetate
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<tr>
<td>Cetyl octanoate; Cetyl palmitate</td>
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<td>Cetyl ricinoleate; Cetyl stearate; Cocoa (Theobroma cacao) butter; Coconut (Cocos nucifera) oil; Colonial LAO</td>
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<td>Crodamol CP; Crodamol GTCC; Crodamol GTCC-PN; Crodamol PMP; Crodamol PTC</td>
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<td>Diocetyl malate; Dow Corning® Q7-9120</td>
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<td>Silicone Fluid; Dow Corning® Silky Wax 10; Estasan™ GT 8-60 3575; Estasan™ GT 8-60 3580</td>
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<td>Fluilan; Fluilan AWS; Forlan 200; Forlan 300; Glucate® DO</td>
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<td>Glycereth-5 lactate; Glycerin; Glycerox 767; Glycerox L15; Glycerol palmitate</td>
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<td>Glycerol stearate SE; Hydrogenated castor oil; Hydrolyzed collagen; Hydroxylated lanolin; Incrocas 30</td>
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<td>Incrocas 40; Isobutyl stearate; Isocetyl behenate; Isocetyl isostearate; Isocetyl octanoate</td>
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<td>Isocetyl stearate; Isocetyl stearoyl stearate; Isodecyl oleate; Isononyl isononanoate; Isopropyl myristate</td>
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<td>Isopropyl palmitate; Isopropyl stearate; Isostearyl behenate; Isostearyl neopentanoate; Laneth-15</td>
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<td>Laneth-10 acetate; Lanexol AWS; Lanogel® 21; Lanogel® 41; Lanogene®</td>
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<td>Lanolin; Lanolin oil; Lanolin USP Cosmetic Grade; Lanolin USP Extra Deodorized; Lanolin USP Pharmaceutical Grade</td>
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<td>Lanosterol; Laurimarin oxide; Laureth-4; Laureth-23; Laureth-2 acetate</td>
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<td>Lauryl behenate; Lauryl dimonium hydroxypropyl hydrolyzed collagen; Lauryl lactate; Lecithin; Lexemul® 515</td>
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<td>Linoleamide DEA; Lipolan; Lipolan 31; Liponate MM; Maleated soybean oil</td>
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<td>Modulan®; Myreth-3 laurate; Myristyl myristate; Myristyl propionate; Myristyl stearate</td>
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<td>Octyl isononanoate; Octyl palmitate; Octyl stearate; OHLan®; Oleamide MIPA</td>
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<td>Oleth-3; Oleyl alcohol; Oleyl erucate; Oleyl lactate; Oleyl oleate</td>
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<td>Pecosil® DCU; Pecosil® WDS-100; PEG-150 distearate; PEG-24 hydrogenated lanolin; PEG-75 lanolin</td>
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<td>Pentaerythritol tetraoleate; Petrolatum; Pharmalan Ph Eur; Pharmalan USP; Polyacrylic acid</td>
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<td>PPG-12-PEG-50 lanolin; PPG-15 stearyl ether; Procetyl AWS; Promulgen® D; Promulgen® G</td>
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<td>Promyrl NF; Protegin®; Protegin® W; Protegin® WX; Protegin® X</td>
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<td>Ritalan®; Safflower (Carthamus tinctorius) oil; Schercemol GTO; Schercemol ICS; Schercemol IDO</td>
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<td>Schercomid SLS; Sesame (Sesamum indicum) oil; Softigen® 701; Softigen® 767; Solan E50</td>
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<td>Solan ELD; Solulan® 16; Solulan® 75; Solulan® 98; Solulan® L-575</td>
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emollient, wound treatment
Medilan™; Medilan™ Ultra
emollient, pharmaceuticals
Sweet almond (Prunus amygdalus dulcis) oil
emulsifier
Agar Agar NF MK-80-B Powdered; Agar Agar NF S-100 Powdered; Agar Agar NF S-150-B Powdered; Agar Agar S-100; Albumen
2-Aminobutanol; Arachidyl glucoside; Ascorbyl palmitate; Butyl oleate; Cab-O-Sil® EH-5
Cab-O-Sil® H-5; Cab-O-Sil® LM-150; Cab-O-Sil® M-5; Cab-O-Sil® MS-55; Cachalot® AR-20
Cachalot® M-43; Ceteareth-2; Ceteareth-4; Ceteareth-18; Ceteth
Cetyl phosphate; Chloro-2-hydroxypropyl trimonium chloride; C10-12 pareth-3; C12-13 pareth-4; Cremophor® A 25
Crodafos CP-50; Crodafos CS20A; Dehydol® LS 3 DEO N; DeTHOX SA-80; Dicapryl/dicaprylyl dimonium chloride
Diethanolamine; Emalex 709; Ethoxylated mono- and diglycerides; Hydrolyzed milk protein; Isopropyl oleate
Je sorb O-20-K; Lactic acid esters of mono- and diglycerides of fatty acids; Lanolin acid; Laureth-4; Lipocol HCO-40
Lipocol HCO-60; Lipocol O-3; Mannide monooleate; Methocel® A15-LV; Nacol® 16-95
Naturechem® GMH; Oleth; PEG-20M; PEG-5 cocamine; PEG-8 cocoate
PEG-10 glyceryl isostearate; PEG-25 glyceryl isostearate; PEG-40 glyceryl isostearate; PEG-50 glyceryl isostearate; PEG-60 glyceryl isostearate
PEG-15 glyceryl laurate; PEG-2 oleate; PEG-6 sorbitan laurate; Phenoxyol® PW; Polyglyceryl-8 oleate
Polyglyceryl-3 polyricinoleate; Polypax SMS; Polyvinyl alcohol; Potassium oleate; Rita GMS-55G
Rita GMS-90; S-39-H; S-49-H; Sabopal EL 25; Sabopal EL 30
Sabopal EL 40; Sabosorb MLE; Sabosorb MOE; Sabosorb MPE; Sabosorb MSE/4 Sabosorb SQ; Sabosorb TOE; Sabosorb TS; Sabosorb TSE; Schercomid OMI
Starch sodium octenyl succinate; Steareth-80; STEPAN® SAB-2; Sucrose laurate; Sucrose myristate
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Sucrose olate; Sucrose palmitate; Sucrose polyaurate; Sucrose polyoleate; Synperonic® NP8
Synperonic® NP15; Synperonic® NP20; Synperonic® NP35; Synperonic® NP40; Synperonic® NP50
Synperonic® OP7.5; Synperonic® OP10; Synperonic® OP20; Synperonic® OP40; Synperonic® OP40/70
T-Maz® 20; T-Maz® 28; T-Maz® 80; T-Maz® 85; Trideceth-15
Tylopur® C 1000 P2; Tylose® H 100000 P2
PHA; Uniquart CPC; Vanzan NF; Vanzan NF-C
Vanzan NF-ED; Vanzan NF-F; Vanzan NF-ST; Wheat germ glycerides
emulsifier, absorption enhancement
Caprol® 3GS
emulsifier, acidic products
Sedefos 75®
emulsifier, acne creams/lotions
Crodamol CAP
emulsifier, acne preparations
Avanel® S 150 CG; Avanel® S 150 CG N; Lipolan; Lipolan 31-20; Lipolan 98
Lipolan R; Lipolan Distilled; Polawax® NF; Super Corona Lanolin; Superfine Lanolin
emulsifier, adhesive plasters
Beeswax	emulsifier, aerosols
Caprol® 10G100; Chemonic® OE-2; Crovol M-70; Epikuron™ 100	emulsifier, aliphatic hydrocarbon solvents
Schercomid TO-2	emulsifier, aliphatic hydrocarbons: o/w emulsions
Schercomid SL-Extra	emulsifier, analgesic rubs
Polawax® NF	emulsifier, anhydrous creams
Sedefos 75®	emulsifier, anhydrous systems
Ricinoleamidopropyl ethylidimonium ethosulfate; Syncrowax ERLC	emulsifier, antacids
Keltrol® T; Keltrol® TF	emulsifier, antibiotic creams/lotions
Polawax® NF	emulsifier, antibiotic gels
Laureth-7; Sepigel™ 305	emulsifier, antibiotic ointments
Crodamol CAP	emulsifier, antibiotics
Daistat CM 50P; Daistat CM 80; Daistat CMB
90 F; Daistat LM 80; Daistat LMB 90 F
Daistat SM 80; Daistat SMB 90 F
emulsifier, antidandruff rinses
Alkaquat® DMB-451-50; Alkaquat® DMB-451-80
emulsifier, antidandruff shampoos
Dihydrogenated tallow phthalic acid amide
emulsifier, anti-lice conditioners
Sepigel™ 305	emulsifier, aqueous alcoholic systems
PPG-5-cethet-20; Procetyl AWS	emulsifier, aqueous pharmaceuticals
Eumulgin® HRE 40 PH	emulsifier, aqueous systems
PPG-5-cethet-20; Procetyl AWS	emulsifier, aqueous topicals
Solan
emulsifier, aromatic hydrocarbon solvents
Schercomid TO-2	emulsifier, aromatic hydrocarbons: o/w emulsions
Schercomid SL-Extra	emulsifier, aromatic oils: o/w emulsions
Schercomid SL-Extra
emulsifier, auxiliary: absorption bases
OHlan®	emulsifier, auxiliary: creams
Lexate® PX	emulsifier, auxiliary: creams/lotions
Tegamine® 18	emulsifier, auxiliary: dermatologicals
Vilvanolin® C	emulsifier, auxiliary: ointments
Laneto AWS; Ritalan® AWS; Vilvanolin® C	emulsifier, auxiliary o/w: creams/lotions
Fancol™ VB	emulsifier, auxiliary o/w: ointments
Fancol™ VB	emulsifier, auxiliary o/w: pharmaceuticals
Fancol™ VB	emulsifier, auxiliary o/w: pharmaceutical topical emulsions
Lipo DGS	emulsifier, auxiliary o/w: pharmaceutical topical emulsions
Cerasynt® SD	emulsifier, auxiliary o/w: pharmaceutical topical emulsions
Volpo S2	emulsifier, auxiliary: o/w systems
Emulsyt® 1055; Glucate® DO	emulsifier, auxiliary: pharmaceutical creams/lotions
Vilvanolin® C
emulsifier, auxiliary: pharmaceuticals
  Glyceryl stearate SE; Hydroxylated milk glycerides; Ritachol®
emulsifier, auxiliary: pharmaceutical topical w/o emulsions
  Volpo S2
emulsifier, auxiliary: suppositories
  Propylene glycol distearate
emulsifier, auxiliary: topicals
  Cerasynt® GMS; Cerasynt® M; Cerasynt® PA; Glyceryl stearate SE; Methyl glucose dioleate
  OHlan®
emulsifier, auxiliary: veterinary products
  Laneto AWS
emulsifier, auxiliary: w/o pharmaceuticals
  Lipo DGS
emulsifier, bacteriostatic: aerosols
  Capmul® MCM
emulsifier, bacteriostatic: clinical nutrition
  Capmul® MCM
emulsifier, bacteriostatic: coating
  Capmul® MCM
emulsifier, bacteriostatic: delivery/absorption enhancement
  Capmul® MCM
emulsifier, bacteriostatic: dermatologicals
  Capmul® MCM
emulsifier, bacteriostatic: microemulsions
  Capmul® MCM
emulsifier, bacteriostatic: pharmaceuticals
  Capmul® MCM
emulsifier, bacteriostatic: suppositories
  Capmul® MCM
emulsifier, biological applications
  HCA-411; HLA-198; Hydrolyzed whey protein
emulsifier, biomedical research
  Dicetyl phosphate
emulsifier, buccals
  Guar (Cyanopsis tetragonoloba) gum; Methylcellulose; Polysorbate 80; Stearic acid
emulsifier, bulk laxatives
  Karaya Gum FCC; Powdered Gum Karaya Superfine #1 FCC; Powdered Gum Karaya Superfine XXXX FCC
emulsifier, burn creams
  Crodamol CAP
emulsifier, calamine lotion
  Bentonite; PEG-2M
emulsifier, capsules
  Cremophor® RH 40; Dritex S; Hydrogenated cottonseed oil; Hydrogenated palm oil;
  Kirnol® Range
  Lamegin® Range; Lamesorb® Range; Monomuls® Range
emulsifier, cationic systems: topicals
  Lexemul® AR
emulsifier, chapped skin treatment
  Super Corona Lanolin
eumulsifier, cleansing scrubs
  Crovol A-70
emulsifier, clear products
  Ricinoleamidopropyl ethyldimonium ethosulfate
emulsifier, clear topical gels
  Carbopol® 941
emulsifier, clinical nutrition
  Capmul® GDL; Capmul® GMO; Capmul® GMS-50; Caprol® 3GO; Caprol® 3GS
  Caprol® 10G10O
emulsifier, coatings
  Capmul® GDL; Capmul® GMO; Capmul® GMS-50; Caprol® 3GO; Caprol® 3GS
emulsifier, constipation treatment
  Docusate Sodium USP
emulsifier, controlled-release tablets
  Carbopol® 940; Carbopol® 971P; Carbopol® 974P
emulsifier, cosmetics
  HCA-411; HLA-198
emulsifier, cream bases
  DREWUMULS® 200K
emulsifier, creams
  Eumulgin® B2; Sebase
emulsifier, creams/lotions
  Acetylated lanolin alcohol; Ammonium laureth sulfate; Cera-E; Ceteth-10; Ceteth-12
  Ceteth-15; Ceteth-24; Cetyl dimethicone copolyol; Chemonic® OE-2; Choleth-24
  Crillet 3; Crillet 4; Crillet 6; DREWPOL® 10-10-O; Emalex HC-40
  Emalex HC-50; Emalex HC-60; Guar (Cyanopsis tetragonoloba) gum; Isostearic acid; Keltrol® T
  Keltrol® TF; Koster Keunen Beeswax; Koster Keunen Beeswax 100; Labrafac® Hydrophile; Laneth-5
  Laneth-10; Laneth-15; Laneth-40; Lanolin oil; Lexemul® EGMS
  Lipowax P-31; Locust bean (Ceratonia siliqua) gum; Macol® CSA-20; Oleamide MIPA; PEG-30 glyceryl stearate
  PEG-75 lanolin; PEG-8 laurate; PEG-20 sorbitan isostearate; PEG-40 stearate; PEG-100 stearate
Phospholipon® 80; Phospholipon® 90 H; Polyglyceryl-3 diisostearate; Polyglyceryl-10 octaoleate; Polyglyceryl-3 oleate
Potassium alginate; S-Maz® 60K; Sodium C12-15 alkyl sulfate; Sodium C12-18 alkyl sulfate; STEPAN® PEG 200 DL
STEPAN® PEG 200 DO; STEPAN® PEG 400 DL; STEPAN® PEG 400 DO; STEPAN® PEG 400 DS; STEPAN® PEG 400 ML
STEPAN® PEG 400 MS; STEPAN® PEG 600 DL; STEPAN® PEG 600 DO; STEPAN® PEG 600 DS; STEPAN® PEG 600 MS
STEPAN® PEG 6000 DS; STEPAN® PEG 6000 MS; STEPAN® PGMS Pure
ebulizer, cyclosporine parenterals
Cremophor® EL
ebulizer, delivery/absorption enhancement
Acconon CC-6; Capmul® GDL; Capmul® GMO; Capmul® GMS-50; Capmul® MCMC8
Caprol® 3GO; Caprol® 10G100;
Polyglyceryl-10 decaoleate; Polyglyceryl-6 dioleate; Polyglyceryl-6 distearate
Polyglyceryl-3 stearate
ebulizer, delivery enhancement
Caprol® 3GS
ebulizer, dental impression compounds
Potassium alginate
ebulizer, dental products
Gelatin; Magnesium aluminum silicate;
PEG-40 stearate; Sodium lauryl sulfate
ebulizer, dental releases
KELVIS®
ebulizer, dental whiteners
PG USP
ebulizer, dentifrices
Emal 0; Emal 10G; Emal 10PT; Lauroyl sarcosine; Nikkol Sarcosinate LN
Nikkol Sarcosinate MN; Pannol SLS Pure;
Sarkosyl® O; Sodium lauryl sulfocacetate;
Sodium methyl cocoyl taurate
Sodium myristoyl sarcosinate; Tragacanth (Astragalus gummifer) gum
ebulizer, denture adhesives
Karaya Gum FCC; Powdered Gum Karaya
Superfine #1 FCC; Powdered Gum Karaya
Superfine XXXX FCC
ebulizer, dermatological emulsions
Acconon W230; Capmul® GMS-50
ebulizer, dermatologicals
Acconon CC-6; Capmul® GDL; Capmul® GMO; Capmul® MCMC8; Caprol® 3GO
Caprol® 3GS; Caprol® 10G100; 1,2-Dicaproyl-sn-glycero(3)
phosphatidylcholine; 1,2-Dilauroyl-sn-glycero(3) phosphatidylcholine; 1,2-Dimyristoyl-sn-glycero(3) phosphatidylcholine
1,2-Dipalmitoyl-sn-glycero(3) phosphatidylcholine; 1,2-Distearoyl-sn-glycero(3) phosphatidylcholine; Epikuron™
130; Lauramide DEA; Myristamide DEA
Palm kernelamide DEA; PEG-10-PPG-10 glyceryl stearate; Phospholipon® 80;
Phospholipon® 85G; Phospholipon® 90 G
Phospholipon® 90 NG; Polyglyceryl-10 decaoleate; Polyglyceryl-6 dioleate;
Polyglyceryl-6 distearate; Polyglyceryl-3 stearate
Sodium 1,2-dimyristoyl-sn-glycero (3) phosphatidylcholine; Sodium 1,2-dipalmitoyl-sn-glycero (3) phosphatidylcholine;
Sodium 1,2-distearoyl-sn-glycero (3) phosphatidylcholine; Solulan® 16;
Solulan® 75
Solulan® L-575; Stearamide DEA
ebulizer, dermatological vehicles
PPG-2 lanolin alcohol ether
ebulizer, dermopharmaceuticals
Coco glucoside; Montanov® 068
ebulizer, diaper rash preparations
Superfine Lanolin
ebulizer, dietary supplements
Lecigran™ 5750; Lecigran™ 6750;
Lecigran™ A; Lecigran™ C; Lecigran™ F
Lecigran™ M; Lecigran™ Super A;
Lecigran™ T
ebulizer, direct compression: tablets
Lecigran™ Super A
ebulizer, dressing creams
Superfine Lanolin
ebulizer, drug delivery systems
Plurol® Oleique CC 497
ebulizer, ear wax removal
Docusate Sodium USP
ebulizer, edible oils
T-Maz® 80K
ebulizer, elixirs
Keltrol® T
ebulizer, emulsion
Agar
ebulizer, emulsions
Agar; Cerabeil White Selection; PEG-50 hydrogenated tallowamide; PEG-75 lanolin
ebulizer, encapsulated pharmaceuticals
Pectin
ebulizer, essential oils
Cremophor® EL; Cremophor® RH 40;
Eumulgin® RO 35 PH; PEG-35 castor oil;
Functional/Application Index

Rhodasurf® ON-877
T-Maz® 80K
emulsifier, fat-soluble vitamins
Cremophor® EL; Cremophor® RH 40;
Eumulgin® RO 35 PH
emulsifier, fixed oils
Softigen® 767
emulsifier, flavor concentrates
Poloxamer 105; Poloxamer 123; Poloxamer 181
emulsifier, flavors
Polyisorbate 61; Tween® 20; Tween® 81
emulsifier, fluid/gelled transparent emulsions
Chemonic® OE-2
emulsifier, foot preparations
Sodium borate; Sodium borate decahydrate
emulsifier, fragrances
T-Maz® 80K
emulsifier, germicidal hand soaps
Lanogel® 21; Lanogel® 41
emulsifier, germicidal liquid soaps
Palm kernelamide DEA
emulsifier, germicidal scrubs
Adinol CT95
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Tragacanth Gum Ribbon No. 1 NF FCC

emulsifier, pharmaceutical creams/lotions
Aminomethyl propanediol; Amphiso®; Amphiso® K; Caprylic/capric triglyceride
PEG-4 esters; Cerasynt® 945
Ceteareth-7; Cethet-5; Cethet-10;
Cosmowax; Cremophor® RH 40
Cromul EM 0685; Dur-Em® 117; Guar (Cyanopsis tetragonoloba) gum; Kosteran-L/1; Kosteran-O/1 VL
Kosteran-O/3 VH; Kosteran-P/1 G;
Kosteran-S/1 G; Kosteran-S/3; Koster
Keunen Emulsifying Wax
Kotilen-L/1; Kotilen-S/1; Lipo 142; Locust bean (Ceratonia siliqua) gum; Macol® LA-23
Monosteol®; Myristyl myristate; Polawax® NF; Polywax EW; STEPAN® GMS 63F
STEPAN® GMS 63F; Volpo CS25

emulsifier, pharmaceutical delivery systems
Capmul® GMS-50K

emulsifier, pharmaceutical dermatological emulsions
Acconon CA-5; Acconon E

emulsifier, pharmaceutical emulsions
Aminoxid WS 35; Dicocoyl pentadecatriyl
distearyl citrate; Gum Tragacanth Ribbons and Flakes; Incroquat B65C; Lan-Aqua-Sol 75:50
Lan-Aqua-Sol 75:100; Monosteol®; Oleth-25; Powdered Agar Agar Bacteriological Grade; Powdered Agar Agar Type K-60
Powdered Agar Agar Type K-80; Powdered Agar Agar Type K-100; Powdered Agar
Agar Type K-150; Powdered Gum Tragacanth BP; Powdered Gum Tragacanth T-150
Powdered Gum Tragacanth T-200;
Powdered Gum Tragacanth T-300;
Powdered Gum Tragacanth T-400;
Powdered Gum Tragacanth T-500;
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Powdered Gum Tragacanth Type B-12 NF Premium; Powdered Gum Tragacanth Type C-5 NF; Powdered Gum Tragacanth Type G-1 NF Premium; Powdered Gum Tragacanth Type G-2 NF Premium; Powdered Gum Tragacanth Type G-2S NF Premium
Powdered Gum Tragacanth Type M-3 NF Premium; Tylopur® C 300 P2; Tylopur® C 1000 P2; Tylose® H 4000 G4 PHA; Tylose® H 30000 P2 PHA

emulsifier, pharmaceutical gels
Cremophor® RH 40; Ritoleth 2; Ritoleth 5;
Ritoleth 10; Ritoleth 20
Tylose® H 4000 G4 PHA

emulsifier, pharmaceutical internal preparations
Sorbithom TL-1

emulsifier, pharmaceutical jellies
Gum Tragacanth Ribbons and Flakes;
Powdered Gum Tragacanth BP; Powdered Gum Tragacanth Type B-1 NF Premium; Powdered Gum Tragacanth Type B-12 NF Premium; Powdered Gum Tragacanth Type C-5 NF
Powdered Gum Tragacanth Type G-1 NF Premium; Powdered Gum Tragacanth Type G-2 NF Premium; Powdered Gum Tragacanth Type G-2S NF Premium; Powdered Gum Tragacanth Type M-3 NF Premium; Powdered Tragacanth Gum Type E-1
Powdered Tragacanth Gum Type L;
Powdered Tragacanth Gum Type W;
Tragacanth Gum Ribbon No. 1 NF FCC

emulsifier, pharmaceutical liposomes
Sodium 1,2-dimyristoyl-sn-glycero (3) phosphatidylcholine; Sodium 1,2-dipalmitoyl-sn-glycero (3) phosphatidylcholine; Sodium 1,2-distearoyl-sn-glycero (3) phosphatidylcholine

emulsifier, pharmaceutical liquid o/w emulsions
Eumulgin® SMS 20

emulsifier, pharmaceutical lotions
Ticaxan® Regular

emulsifier, pharmaceutical microemulsions
Glyceryl caprate

emulsifier, pharmaceutical mixed micelles
Sodium 1,2-dimyristoyl-sn-glycero (3) phosphatidylcholine; Sodium 1,2-dipalmitoyl-sn-glycero (3) phosphatidylcholine; Sodium 1,2-distearoyl-sn-glycero (3) phosphatidylcholine
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emulsifier, pharmaceutical oil-based
creams/lotions
Lumisorb™ SMO NF
emulsifier, pharmaceutical oral suspensions
Tragain (Astragalus gummifer) gum
emulsifier, pharmaceutical o/w creams
Cut® KD; Imwitor® 960 Flakes
emulsifier, pharmaceutical o/w emulsions
Agneque FOH 5OC-10; Agneque FOH 5OC-5;
Cremophor® A 6; Emulgade® 1000 NI;
Emulgade® SE
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emulsifier, pharmaceutical pastes
Polywax EW
emulsifier, pharmaceutical powders
Kirnol® Range; Lamegin® Range;
Lamesorb® Range; Monomuls® Range
emulsifier, pharmaceuticals
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Ablunol S-60; Ablunol S-80
Ablunol S-85; Acacia; Acconon CC-6;
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Acetylated mono- and diglycerides of fatty
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Adekaestol S-60
Albagel Premium USP 4444; Alcolec® Z-3;
Aldo® MCT; Aldo® MLD KFG; Aldo® MO
KFG
Aldo® MS-20 KFG; Aldo® MS KFG; Aldo®
PGHMS; Aldosperse® O-20 KFG; Alginic
acid
Alkamuls® EL-620; Alkamuls® EL-719;
Alkamuls® PSML-20; Ammonium alginate;
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AMMONYX® 4B; AMMONYX® 485;
AMMONYX® 4002; AMMONYX® CETAC;
AMMONYX® CETAC-30
AMMONYX® GA-90; Anhydrous Lanolin
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Anhydrous Lanolin P.80; Anhydrous
Lanolin P95
Anhydrous Lanolin P95 RA; Anhydrous
Lanolin Superfine; Animal GMS; Animal
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Antarox® 25-R-2; Antarox® 31-R-1; Apricot
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Avapol™ 60; Avapol™ 60K
Avapol™ 65; Avapol™ 80; Avapol™ 80K;
Avapol™ EMD; Avester™ SMS sobitan
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Brij® 700; C18-36 acid glycol ester; C18-36
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Calcium stearoyl lactylate; Canionic S;
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Canionic SLS(R)
Canocol S-20; Canocol S-60; Canocol S-80;
Canocol S-85; Canocol T-20
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evaporation inhibitor, rubbing alcohol
Polyethylene glycol; Polyox® WSR 205; Polyox® WSR 301; Polyox® WSR 303; Polyox® WSR 308; Polyox® WSR 1105; Polyox® WSR Coagulant; Polyox® WSR N-10; Polyox® WSR N-12K; Polyox® WSR N-60K; Polyox® WSR N-80; Polyox® WSR N-750
exchange resin, cation: antibiotics
Polymethacrylate
exchange resin, cation: pharmaceutical purification
Polymethacrylate
exchange resin, cation: pharmaceuticals
Polymethacrylate
exchange resin, weakly acidic cation:
antibiotics
Diaion® WK10
exchange resin, weakly acidic cation:
pharmaceuticals
Diaion® WK10
exchange resin, weakly basic anion:
pharmaceuticals
Amberlite® IRA-67
excipient
Byco O; Carboxymethylcellulose sodium; Glucose; Hydroxypropyl methylcellulose phthalate; Labrafac PC
Maldex G 180; Pharmaburst; Polymgyceryl-3 diostearate; Polymgyceryl-6 distostearate; Polyslalondone® XL; Polyslalondone® XL-10; SS-10MV
excipient, aerosols
Altalc 200 USP; Altalc 300 USP; Labrafal® Isostearique
excipient, antacids
Formaxx™ CaCO₃ 70
excipient, antibiotic purification
Tulsion® CXO-17; Tulsion® CXO-18
excipient, antibiotics
Edetic acid
excipient, antibiotic suspensions
SeaSpen® PF; Viscarin® GP-109NF; Viscarin® GP-209NF
excipient, antifatulents
Dow Corning® Q7-9120 Silicone Fluid
excipient, antihistamines
Edetic acid
excipient, APIs
Pharmagum™ S
excipient, bone-loss treatment tablets
Barcroft™ CS90
excipient, calcium supplements
Calci-Press™ MD
excipient, capsule filling
C*PharmGel DC 93000; Purity® 5; Purity® 825; Purity® 826; Purity® FC
excipient, capsules
Calcium phosphate dibasic dihydrate; Compritol 888; Compritol® 888 ATO; Crodocol C-95 EP; Dextrates
Glyceryl behenate; Labrafac® CC; Labrasol®; Lactochem®; Lycatab® C; Lycatab® PGS; Maltisorb® 75/75; Sheffield Brand Anhydrdous Lactose NF; Sheffield Brand Lactose Monohydrate NF; Sucrose Tribehenin
excipient, chemically unstable APIs
Pearlitol® 25 C; Pearlitol® 50 C
excipient, chewable tablets
Barcroft™ CS90; Calci-Press™ MD; Maltisorb® 75/75; Nu-Tab™ 4001; Nu-Tab™ 4003
excipient, chewable vitamins
Advantose™ FS 95
excipient, chromatographic separation
Tulsion® CXO-17
excipient, coatings
CA-320S
excipient, compression: tablets
Purity® 826
Functional/Application Index

excipient, controlled drug delivery systems
  Purasorb®

excipient, controlled oral drug delivery
  Polyox® WSR 303; Polyox® WSR 1105; Polyox® WSR Coagulant; Polyox® WSR N-10; Polyox® WSR N-60K
  Polyox® WSR N-80; Polyox® WSR N-750

excipient, controlled-release permeable film coatings
  Eudragit® NE 30 D

excipient, controlled-releases
  Akolip LM; Eudragit® E 12.5; Eudragit® E 100; Eudragit® L 12.5; Eudragit® L 30 D-55
  Eudragit® L 100; Eudragit® L 100-55; Eudragit® RL 12.5; Eudragit® RL 100;
  Eudragit® RL PO
  Eudragit® RS 12.5; Eudragit® RS 100;
  Eudragit® RS PO; Eudragit® S 12.5;
  Eudragit® S 100
  Xantural® 11K; Xantural® 75; Xantural® 180

excipient, controlled-release tablets
  Ethocel™ Standard 4 Premium; Ethocel™ Standard 7 Premium; Ethocel™ Standard 14 Premium; Ethocel™ Standard 20 Premium; Ethocel™ Standard 45 Premium
  Ethocel™ Standard 100 Premium

excipient, cough/cold liquids
  SeaSpen® PF; Viscarin® GP-109NF;
  Viscarin® GP-209NF

excipient, cough syrups
  Pluracol® E400 NF; Pluracol® E600 NF;
  Pluracol® E1450 NF

excipient, creams
  Labrafil® Isostearique

excipient, creams/lotions
  Altalc 200 USP; Altalc 300 USP; L.A.S.;
  Propylene glycol caprylate/caprate;
  Propylene glycol stearate

excipient, delivery systems
  Gelcarin® GP-911NF

excipient, dental products
  Carboxymethylcellulose sodium;
  Polyethylene; Sorbitol

excipient, dentifrices
  Sorbitol

excipient, dermal dosages
  Geleol®; Monosteol®

excipient, dialysis
  Polyvinyl chloride

excipient, direct compression
  Byco A; Byco C; C*PharmGel DC 93000; Di-Pac®; Starch 1500®
  Starch 1500® G; Starch 1500® LM

excipient, direct compression: capsules
  Anhydrous Emcompress®; Emcompress®;
  Ludipress®; Pharmacel® XL

excipient, direct compression: chemically unstable APIs
  Pearlitol® 100SD; Pearlitol® 200SD;
  Pearlitol® 300DC; Pearlitol® 400DC;
  Pearlitol® 500DC

excipient, direct compression: chewable lozenges
  Ludipress® LCE

excipient, direct compression: chewables
  Advantose™ 100

excipient, direct compression: chewable tablets
  Ludipress® LCE; Mannogem™ EZ;
  Neosorb® 100T; Neosorb® P 20/60;
  Neosorb® P 30/60
  Neosorb® P W; Pearlitol® 100SD; Pearlitol® 200SD; Pearlitol® 300DC; Pearlitol® 400DC
  Pearlitol® 500DC

excipient, direct compression: effervescent tablets
  Ludipress® LCE; Pearlitol® 100SD;
  Pearlitol® 200SD; Pearlitol® 300DC;
  Pearlitol® 400DC;
  Pearlitol® 500DC

excipient, direct compression: granules
  Kollidon® SR

excipient, direct compression: moisture sensitive APIs
  Pearlitol® 100SD; Pearlitol® 200SD;
  Pearlitol® 300DC; Pearlitol® 400DC;
  Pearlitol® 500DC

excipient, direct compression: pharmaceutical granules
  Pharmacel® XL

excipient, direct compression: pharmaceutical gum
  Pharmagum™ M

excipient, direct compression: solid dosages
  Pharmacel® XL

excipient, direct compression: suckable tablets
  Neosorb® 100T; Neosorb® P 20/60;
  Neosorb® P 30/60; Neosorb® P W

excipient, direct compression: tablets
  Advantose™ 100; Advantose™ FS 95;
  Anhydrous Emcompress®; A-TAB®;
  Compressol® S Co-Processed Polyol
  DI-TAB; Emcompress®; Fujicalin;
  Glucidex® IT6; Glucidex® IT8
  Glucidex® IT12; Glucidex® IT19; Glucidex® IT21; Glucidex® IT29; Glucidex® IT33
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Glucidex® IT38; Glucidex® IT47;
Lactopress® Anhydrous; Lactopress®
Spray-Dried; Ludipress®
Mannogem™ EZ; Mannogem™ Mannitol
Granular; Mannogem™ Mannitol Granular
2080; Mannogem™ Mannitol Granular 3215;
Parteck™ M
Parteck™ M 300; Pharmacel® XL;
Pharmatose® DCL 21; Polyalditol X110;
Polyalditol X120
Primojel®; Sorbogem™ 834; Sorbogem™
1162; Sorbogem™ 2016; Spress® B820
TRI-TAB; Vivapur® 12; Vivapur® 14;
Vivapur® 102; Vivapur® 200

excipient, direct compression: water-
sensitive API-containing tablets
Mannogem™ EZ

excipient, directly compressible tablets
Finlac™ DC

excipient, drug delivery: controlled-release
formulations
Crossential® GMO

excipient, drug delivery systems: dietary
products
Estol 3660

excipient, drug delivery systems: nutrition
products
Estol 3660

excipient, drug delivery systems: poorly
water-soluble pharmaceuticals
Estol 3660

excipient, drug delivery systems: veterinary
products
Estol 3660

excipient, drug-loaded microparticles
Cellulose acetate butyrate; Eastman® CAB

excipient, dry granulation
Byco A; Byco C; Spress® B820

excipient, dry skin treatment
Purasorb®

excipient, ear drops
Edetic acid

excipient, elixirs
Sorbitol

excipient, emulsions
Labrafil® M 1944 CS

excipient, encapsulation
Gelcarin® GP-911NF

excipient, enteric coatings
CA-320S; Eastacryl 30D; Eudragit® L 12.5;
Eudragit® L 30 D-55; Eudragit® L 100
Eudragit® L 100-55; Eudragit® S 12.5;
Eudragit® S 100

excipient, enteric coatings: controlled-
releases
Kollicoat® MAE 30 DP; Kollicoat® MAE
100P

excipient, enteric coatings: solid oral
dosages
Kollicoat® MAE 30 DP; Kollicoat® MAE
100P

excipient, extrusion
Kollidon® SR

excipient, eye drops
Edetic acid

excipient, fast-disintegrating aqueous
products
Eudragit® E PO

excipient, fine pellet coatings
Metolose® SM-4

excipient, flash-release forms:
pharmaceuticals
Pearlitol® 25 C; Pearlitol® 50 C

excipient, gels
Propylene glycol caprylate/caprate

excipient, hard gelatin capsules
Akolip LM; Gelucire 33/01; Gelucire 39/01;
Gelucire 43/01; Lycatab® C
Maisine® 35-1; PEG-32 glyceryl stearate

excipient, hard shell capsules
Labrafil® M 1944 CS; Labrafil® M 2125 CS;
Labrafil® M 2130 CS

excipient, herbal pharmaceuticals
Vivapur® 12; Vivapur® 14

excipient, high-density API processing
Vivapur® 302

excipient, high speed pharmaceutical
tableting
Vivapur® 302

excipient, IM injectables
PVP; Sorbitol

excipient, immediate-release coatings
Eudragit® FS 30 D

excipient, implantable medical devices
Purasorb®

excipient, implants
Crospridone

excipient, injectables
L-Aspartic acid; Carboxymethylcellulose
sodium; Cerette V; 2-Ethylhexyl tallowate;
Isodecyl stearate
Isostriol IC; Isotridecyl stearate; Labrafil® M
1944 CS; Mannogem™ Getec Mannitol
Pyrogen Free; M 2 Etiil Esil Oleato
M 2 Etiil Esil Oleato; M Kemfluid 25; M
Kemfluid 217; M Kemfluid 250 3/R; M
Kemfluid 100/AIST
M Kemfluid 2 Et. ES./Tallow; M Kemfluid
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| M Kemfluid Isooiti Stearato; Monestriol B; Monestriol C; Monestriol IC; Monestriol IS-C | Lycasin®; Lycasin® HBC
| Polyisobutylene; Polypropylene; Thomil 14; Thomil IS; Thomil IS-F; Tilol B; Tilol IS | excipient, microparticles: controlled-releases
| Medronate disodium; Parteck™ SI 400 LEX | Eastman® CA
| excipient, liquid herbal extracts | excipient, mineral supplements
| Labrasol® | Barcroft™ CS90
| excipient, liquid orals | excipient, moisture-sensitive APIs
| Labrasol® | Lactopress® Anhydrous; Pearlitol® 25 C; Pearlitol® 50 C
| excipient, liquids | excipient, moisture-sensitive products
| Lutrol® E 300; Lutrol® E 400; Lutrol® E 600; Maisine® 35-1 | Starch 1500® LM
| excipient, local anesthetics | excipient, mouth preparations
| Edetic acid | Carboxymethylcellulose sodium
| excipient, low-density products | excipient, mucosal bioadhesives
| Gelucire 33/01; Gelucire 39/01; Gelucire 43/01 | Polyox® WSR 303; Polyox® WSR 1105;
| excipient, low-dose pharmaceuticals | Polyox® WSR Coagulant; Polyox® WSR N-10; Polyox® WSR N-60K
| Gelucire 33/01; Gelucire 39/01; Gelucire 43/01 | Polyox® WSR N-80; Polyox® WSR N-750
| excipient, low-dose toxic pharmaceuticals | excipient, multivitamin chewable tablets
| Gelucire 33/01; Gelucire 39/01; Gelucire 43/01 | PVP
| excipient, lozenge candying | excipient, multivitamin supplements
| Maltisorb® P 200; Maltisorb® P 90; Xylisorb® 90; Xylisorb® 300; Xylisorb® 700 | Barcroft™ CS90
| excipient, lozenges | excipient, oral products
| Carboxymethylcellulose sodium; Eudragit® L 12.5; Eudragit® L 30 D-55; Eudragit® L 100 | Crossential® O94; Labrafil® Isostearique;
| excipient, lubricious coatings | Labrafil® M 1944 CS; Labrafil® M 2125 CS
| Polyox® WSR 303; Polyox® WSR 1105; Polyox® WSR Coagulant; Polyox® WSR N-10; Polyox® WSR N-60K | excipient, noncrystalline pharmaceuticals
| excipient, multiwax coated tablets | Vivapur® 105
| excipient, nasal products | excipient, nose drops
| Crossential® O94; Labrafil® Isostearique; Labrafil® M 1944 CS; Labrafil® M 2125 CS | Edetic acid
| excipient, nutraceutical actives | excipient, nutraceutical actives
| Pharmagum™ S | Pharmagum™ S
| excipient, nutraceutical supplements | excipient, nutraceutical supplements
| Advantose™ FS 95; Calci-Press™ MD | Barcroft™ CS90
| excipient, nutritional supplements | excipient, nutraceutical supplements
| Barcroft™ CS90 | Barcroft™ CS90
| excipient, ophthalmics | excipient, ophthalmics
| CMC Daicel; Pharmalan Ph Eur; Silica, fumed; Sodium caprylate; Synpro® Magnesium Stearate NF Veg. | Crosopovidone; Edetic acid; Glycerol stearate; Petrolatum; Plasdone® K-25
| excipient, ointments | Plasdone® K-29/32; Plasdone® K-90;
| CMC Daicel; Pharmalan Ph Eur; Silica, fumed; Sodium caprylate; Synpro® Magnesium Stearate NF Veg. | Plasdone® K-90D; Polyethylene
| excipient, oral capsules | excipient, oral capsules
| Crodacol C-95 NF; Crodacol S95 NF | Crodacol C-95 NF; Crodacol S95 NF
| excipient, oral laxatives | excipient, oral laxatives
| Noveon® CA-1 | Noveon® CA-1
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<td>Alcohol; Algin; Calcium phosphate dibasic dihydrate; Calcium sulfate; Calcium sulfate dihydrate</td>
<td>Maltisorb® P 200; Maltisorb® P 90</td>
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<td>Carboxymethylcellulose sodium; Coconut (Cocos nucifera) oil; Crospovidone; Diacetylated monoglycerides; Feculose Geleol®; Glyceryl oleate; Glyceryl stearate; Hydroxypropyl methylcellulose phthalate; Labrafac® CC</td>
<td>Neosorb® 20/20 B; Neosorb® 70/70 B; Neosorb® 70/70 SB; Neosorb® 70/90 B; Neosorb® 70/90 SB</td>
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<td>Labrafil® M 1944 CS; Labrafil® M 2125 CS; Labrafil® M 2130 CS; Methyl alcohol; Monosteo® Petrolatum; Plasdone® K-90; Polyethylene; PVP; Rapeseed (Brassica campestris) oil</td>
<td>Neosorb® HDS; Xylisorb® 90; Xylisorb® 300; Xylisorb® 700; Xylisorb® PF</td>
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<th>Excipient, Pharmaceutical Effervescent Tablets</th>
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<td>Parteck™ SI 150; Parteck™ SI 400 LRS; Parteck™ SI 400 PH; Parteck™ SI 500</td>
<td>Maltisorb® 75/75</td>
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<th>Excipient, Pharmaceutical Gels</th>
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<th>Excipient, Pharmaceutical Granules</th>
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<td>Keltrol® BT; Pluracol® E400 NF; Pluracol® E600 NF; Pluracol® E1450 NF</td>
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<td>Edetic acid; Glyceryl stearate; Petrolatum</td>
<td>Pcecol®; Plasdone® K-25; Plasdone® K-90; Plasdone® K-90D</td>
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<th>Excipient, Pharmaceutical Microemulsions</th>
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<td>Captisol®; Diacetylated monoglycerides; Labrafac® CC; Polyvinyl chloride; Purasorb®</td>
<td>Pcecol®</td>
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<th>Excipient, Pellets</th>
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<td>Kollidon® SR</td>
<td>Ethocel™ Standard 4 Premium; Ethocel™ Standard 7 Premium; Ethocel™ Standard 14 Premium; Ethocel™ Standard 20 Premium; Ethocel™ Standard 45 Premium Ethocel™ Standard 100 Premium</td>
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<th>Excipient, Pharmaceutical Powders</th>
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<td>Maltisorb® 75/75; Sheffield Brand Anhydrous Lactose NF; Sheffield Brand Lactose Monohydrate NF; Silica, fumed; Sorbogen™ 712 Sorbogen™ 2016; Sorbogen™ Fines;</td>
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<th>Excipient, Peritoneal Dialysis</th>
<th>Sorbogem™ 11K; Sorbogem™ 75; Sorbogem™ 180</th>
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Wacker HDK® H2O
excipient, pharmaceutical protective coatings
Eudragit® E PO
excipient, pharmaceutical reconstitutable powders
Xantural® 11K; Xantural® 75; Xantural® 180
excipient, pharmaceuticals
A-625; Akolip LM; Ammonio methacrylate copolymer; Apricot kernel oil PEG-6 esters; Aqualon® 7L2P
Aqualon® 12M8P; Aqualon® 12M31P; Aqualon® Cellulose Gum; L-Aspartic acid; Blanose® 7L2P
Blanose® 12M8P; Blanose® 12M31P; CA-320S; CA-398-10NF; CA-398-30NF
CAB-171-15 Pharm Grade; Calcium phosphate dibasic dihydrate; Calcium sulfate dihydrate; C-A-P Enteric Coating Polymer; Carboxymethylcellulose sodium Cellulose acetate propionate; Cellulose acetate trimellitate; Cetyl palmitate; Coconut (Cocos nucifera) oil; Compritol HD5 ATO
Corn oil PEG-8 esters; Corn starch/acylamide/sodium acrylate copolymer; Corn (Zea mays) starch; Crospovidone; Diacetylated monoglycerides
Eastman® Vitamin E TPGS NF; Edetic acid; Estol 3659; Estol 3684; Ethocel™ Standard 4 Premium
Ethocel™ Standard 7 Premium; Ethocel™ Standard 14 Premium; Ethocel™ Standard 20 Premium; Ethocel™ Standard 45 Premium; Ethocel™ Standard 100 Premium
Foremost® NF Lactose 310; Foremost® NF Lactose 312; Foremost® NF Lactose 313; Foremost® NF Lactose 315; Foremost NF Lactose 316 Fast Flo®
Gelcarin® GP-379NF; Gelcarin® GP-812NF; Gelcarin® GP-911NF; Glucidex® IT6; Glucidex® IT8
Glucidex® IT12; Glucidex® IT19; Glucidex® IT21; Glucidex® IT29; Glucidex® IT33
Glucidex® IT38; Glucidex® IT47; Glucose; Glycerol isostearate; Glycerol oleate; Glycerol palmitate/stearate; Glycerol stearate; Glycol stearate; Great Lakes 0-Bloom Gelatin™; Hydroabietyl alcohol; Hydrolyzed gelatin; Hystar® 8070; Isoglucose; Kleptose®; Klucel® ’F’ Grades
Kollidon® CL; Kollidon® CL-F; Kollidon® CL/M; Kollidon® CL-SF; Labrafil® M 1944 CS
Labrafil® M 2125 CS; Lycatab® DSH; Magna-Gran™ DC; Magnesium aluminometasilicate; Meritena 141
Meritol 121; Meritol 130; Methacrylic acid/ethyl acrylate copolymer; Methyl alcohol; Methyl linolate; Metolose® SM-4; Neusilin FH2; Neusilin S1; Neusilin UFL2; Neusilin US2
Noveon® AA-1; Peach (Prunus persica) kernel oil; Pecole Isostearique; PEG-20 behenate; PEG-8 caprylic/capric glycerides; PEG-32 glyceryl laurate; PEG-32 glyceryl palmitostearate; Petrolatum; Plasdone® K-25; Plasdone® K-29/32
Plasdone® K-90; Plasdone® K-90D; Plurol® Sterique WL 1009; Polyethylene; Polyisobutene
Polyox® WSR 301; Polyox® WSR 303; Polyox® WSR 1105; Polyox® WSR Coagulant; Polyox® WSR N-10
Polyox® WSR N-60K; Polyox® WSR N-80; Polyox® WSR N-750; Polypropylene; Polystyrene; Polyvinyl chloride; Propylene glycol caprylate/caprate; Propylene glycol laurate; Propylene glycol stearate; PVP; PVP K-15; PVP K-15 Sol’n.; PVP K-30; PVP K-60 Sol’n.; PVP K-90
PVP K-90 Sol’n.; PVP K-120; Satiagel™ U Series; Satialgaine™ U Series; SeaSpen® PF Silica, colloidal; Silica, fumed; Silica, hydrophobic; Sorbitol; Sorbogem™
Sucrose distearate; Sulfanilamide; Synpro® Calcium Stearate NF Vegetable; Synpro® Magnesium Stearate NF Veg.; Synpro® Zinc Stearate USP Veg.
TIC Pretested® Bright Gum Arabic NF/USP Powd.; TIC Pretested® Pre-Hydrated® Gum Arabic FT NF/USP Powd.; Triisostearin PEG-6 esters; Trilein PEG-6 esters; Triton® X-100
Tulsion® T-335; Tulsion® T-339; Unipectine™ UHM Series; Vanillin; Vinyl acetate/crotonic acid copolymer; Viscaran® GP-109NF; Viscaran® GP-209NF; Vivapur® 105; Xantural® 11K; Xantural® 75; Xantural® 180
excipient, pharmaceutical solid orals
Eudragit® FS 30 D
excipient, pharmaceutical solids
Maldex 180; Merigel 100; Meritena 100
excipient, pharmaceutical solids/semisolids
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<td>RC-591; Gelcarin® GP-379NF; SeaSpen® PF</td>
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<thead>
<tr>
<th>Excipient, pharmaceutical syrups</th>
<th>Excipient, sustained-release matrix tablets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erythritol; Maltisorb® 75/75</td>
<td>Kollidon® SR</td>
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<thead>
<tr>
<th>Excipient, pharmaceutical syrups/suspensions</th>
<th>Excipient, sustained-release matrix tablets</th>
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<tbody>
<tr>
<td>Meritol 160</td>
<td>Kollidon® SR</td>
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<thead>
<tr>
<th>Excipient, pill masses</th>
<th>Excipient, sustained-release matrix tablets</th>
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<tbody>
<tr>
<td>Diatomaceous earth</td>
<td>Kollidon® SR</td>
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<thead>
<tr>
<th>Excipient, pills</th>
<th>Excipient, sustained-release matrix tablets</th>
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<tbody>
<tr>
<td>Starch glycerin</td>
<td>Kollidon® SR</td>
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<tr>
<th>Excipient, poorly-soluble APIs: hard gelatin</th>
<th>Excipient, sustained-release matrix tablets</th>
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<tbody>
<tr>
<td>capsules</td>
<td>Kollidon® SR</td>
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<tr>
<th>Excipient, powder dosages</th>
<th>Excipient, sustained-release matrix tablets</th>
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<tbody>
<tr>
<td>Meritose 100; Meritose 200; Meritose 220;</td>
<td>Kollidon® SR</td>
</tr>
<tr>
<td>Meritose 300</td>
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<thead>
<tr>
<th>Excipient, protective matrix: APIs</th>
<th>Excipient, sustained-release matrix tablets</th>
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<tbody>
<tr>
<td>Polyallditol X110; Polyallditol X120</td>
<td>Kollidon® SR</td>
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<thead>
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<th>Excipient, protective matrix: enzymes</th>
<th>Excipient, sustained-release matrix tablets</th>
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<tbody>
<tr>
<td>Polyallditol X110; Polyallditol X120</td>
<td>Kollidon® SR</td>
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<tr>
<th>Excipient, protective matrix: proteins</th>
<th>Excipient, sustained-release matrix tablets</th>
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<tr>
<td>Polyallditol X110; Polyallditol X120</td>
<td>Kollidon® SR</td>
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<thead>
<tr>
<th>Excipient, rapidly disintegrating coatings</th>
<th>Excipient, sustained-release matrix tablets</th>
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<tbody>
<tr>
<td>Eudragit® E 12.5; Eudragit® E 100;</td>
<td>Kollidon® SR</td>
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<tr>
<td>Eudragit® RL 30 D</td>
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<tr>
<th>Excipient, reconstitutable pharmaceutical suspensions</th>
<th>Excipient, sustained-release matrix tablets</th>
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<tbody>
<tr>
<td>SeaSpen® PF</td>
<td>Kollidon® SR</td>
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<thead>
<tr>
<th>Excipient, rectals</th>
<th>Excipient, sustained-release matrix tablets</th>
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<tbody>
<tr>
<td>Edetic acid; Glyceryl stearate; Labrafac® CC;</td>
<td>Kollidon® SR</td>
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<tr>
<td>Propylene glycol stearate; Sorbitol</td>
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<thead>
<tr>
<th>Excipient, roller compaction</th>
<th>Excipient, sustained-release matrix tablets</th>
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<tbody>
<tr>
<td>Kollidon® SR</td>
<td>Kollidon® SR</td>
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<table>
<thead>
<tr>
<th>Excipient, sachet fillings</th>
<th>Excipient, sustained-release matrix tablets</th>
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<tbody>
<tr>
<td>Lactochem®</td>
<td>Kollidon® SR</td>
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<thead>
<tr>
<th>Excipient, sachets</th>
<th>Excipient, sustained-release matrix tablets</th>
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<tbody>
<tr>
<td>Maltisorb® 75/75; Mannogem™ Mannitol Granular;</td>
<td>Kollidon® SR</td>
</tr>
<tr>
<td>Sorbogem™ 834; Sorbogem™ 2016 2016</td>
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<thead>
<tr>
<th>Excipient, saliva substitutes</th>
<th>Excipient, sustained-release matrix tablets</th>
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<tbody>
<tr>
<td>Carboxymethylcellulose sodium</td>
<td>Kollidon® SR</td>
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<thead>
<tr>
<th>Excipient, sealing coats</th>
<th>Excipient, sustained-release matrix tablets</th>
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<tbody>
<tr>
<td>Eudragit® L 12.5; Eudragit® L 30 D-55;</td>
<td>Kollidon® SR</td>
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<tr>
<td>Eudragit® L 100</td>
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<thead>
<tr>
<th>Excipient, self-microemulsifying drug delivery systems</th>
<th>Excipient, sustained-release matrix tablets</th>
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<tbody>
<tr>
<td>Lauroglycol® FCC</td>
<td>Kollidon® SR</td>
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<thead>
<tr>
<th>Excipient, semisolid products: hard gelatin</th>
<th>Excipient, sustained-release matrix tablets</th>
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<tbody>
<tr>
<td></td>
<td>Kollidon® SR</td>
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<thead>
<tr>
<th>Capsules</th>
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<tbody>
<tr>
<td>Gelucire 44/14</td>
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<thead>
<tr>
<th>Excipient, semisolids</th>
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<tbody>
<tr>
<td>Lutrol® E 300; Lutrol® E 400; Lutrol® E 600</td>
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<thead>
<tr>
<th>Excipient, soft gelatin capsules</th>
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<tbody>
<tr>
<td>Akolip LM; Gelucire 33/01; Maisine® 35-1</td>
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<thead>
<tr>
<th>Excipient, soft gel capsules</th>
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<tbody>
<tr>
<td>Labrafil® M 1944 CS; Labrafil® M 2125 CS</td>
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<thead>
<tr>
<th>Excipient, solid dosages</th>
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<tbody>
<tr>
<td>Hydroxypropyl methylcellulose phthalate; Lactochem®</td>
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<thead>
<tr>
<th>Excipient, solid oral dosages</th>
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<tbody>
<tr>
<td>Starch 1500®; Starch 1500® G; Starch 1500® LM</td>
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<thead>
<tr>
<th>Excipient, solid oral medicinals</th>
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<tbody>
<tr>
<td>Corn (Zea mays) starch</td>
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<tr>
<th>Excipient, solutions</th>
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<tbody>
<tr>
<td>Sorbitol</td>
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<thead>
<tr>
<th>Excipient, spheronization: tablets</th>
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<tbody>
<tr>
<td>Vivapur® 101</td>
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<thead>
<tr>
<th>Excipient, spray-drying</th>
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<tbody>
<tr>
<td>Byco A; Byco C</td>
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<table>
<thead>
<tr>
<th>Excipient, sprays</th>
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<tbody>
<tr>
<td>Labrafil® M 1944 CS</td>
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<thead>
<tr>
<th>Excipient, suppositories</th>
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<tbody>
<tr>
<td>Petrolatum; Suppocire® A; Suppocire® AI;</td>
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<tr>
<td>Suppocire® AIL; Suppocire® AML;</td>
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<tr>
<td>Suppocire® AM; Suppocire® AML;</td>
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<tr>
<td>Suppocire® AS2; Suppocire® AS2X;</td>
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<tr>
<td>Suppocire® B</td>
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<tr>
<td>Suppocire® BM; Suppocire® BML;</td>
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<tr>
<td>Suppocire® BS2; Suppocire® BS2X;</td>
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<tr>
<td>Suppocire® C</td>
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<tr>
<td>Suppocire® CM; Suppocire® CS2X;</td>
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<tr>
<td>Suppocire® D; Suppocire® DM; Suppocire® NA</td>
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<td>Suppocire® NA 10; Suppocire® NA 15;</td>
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<td>Suppocire® NA 35; Suppocire® NA 50;</td>
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<td>Suppocire® NAI 10</td>
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<td>Suppocire® NAI 50; Suppocire® NAL;</td>
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<td>Suppocire® NAS 40; Suppocire® NAS 50;</td>
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<td>Suppocire® NAX</td>
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<tr>
<td>Suppocire® NB; Suppocire® NBL;</td>
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<td>Suppocire® NBX; Suppocire® NC;</td>
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<td>Suppocire® NCX</td>
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<td>Suppocire® ND</td>
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<thead>
<tr>
<th>Excipient, suspensions</th>
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<tbody>
<tr>
<td>Mannogem™ Mannitol Powd.; Sorbitol</td>
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<thead>
<tr>
<th>Excipient, sustained-release matrix tablets</th>
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<tbody>
<tr>
<td>Kollidon® SR</td>
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<thead>
<tr>
<th>Excipient, sustained-releases</th>
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<tbody>
<tr>
<td>Eudragit® FS 30 D; Eudragit® RL 30 D;</td>
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<tr>
<td>Eudragit® RS 30 D; Non Pareil® Seeds;</td>
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<tr>
<td>Precirol ATO 5</td>
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</table>
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**Excipient, sustained-release tablets**
- Ethocel™ Standard 4 Premium; Ethocel™ Standard 7 Premium; Ethocel™ Standard 14 Premium; Ethocel™ Standard 20 Premium; Ethocel™ Standard 45 Premium
- Ethocel™ Standard 100 Premium; Glyceryl di/tristearate

**Excipient, syrups**
- Sorbitol

**Excipient, fast-dissolving preparations**
- Cellulose acetate phthalate
- Cellulose compression tablets
- Purity® 5; Purity® 825; Purity® FC

**Excipient, tableted dosages**
- Meritose 100; Meritose 200; Meritose 220; Meritose 300

**Excipient, tablet coatings**
- Di-Pac®; JustFiber® JF BF Granular; JustFiber® BF200; JustFiber® JF BVF65; JustFiber® WWF40
- JustFiber® JF WWF 200; Vivapur® 302

**Excipient, tablets**
- Acacia; Agar; Akolip LM; Benecel®
- Hydroxypropyl Methylcellulose; Byco A
- Byco C; Calcium phosphate dibasic dihydrate; Calcium sulfate; Calstar™
- Carboxymethylcellulose sodium
- Compritol 888; Compritol® 888 ATO;
- Crodacol C-95 EP; Dextrates; Eastacryl 30D
- Emcocel® 50M; Emcocel® SP15; Glyceryl behenate; Gum Arabic G-150 Powdered; Gum Arabic NF/FCC Clean Amber Sorts
- Hydroxypropyl methylcellulose; Karaya (Serculia urens) gum; Locust bean (Ceratonia siliqua) gum; Locust Bean Gum
- Speckless Type D-200; Lycatab® C
- Lycatab® PGS; Maltisorb® 75/75; Nu-Tab™ 4001; Nu-Tab™ 4003; Nu-Tab®
- Powdered Agar Agar Bacteriological Grade;
- Powdered Agar Agar Type K-60; Powdered Agar Agar Type K-80; Powdered Agar Agar Type K-100; Powdered Agar Agar Type K-150
- Powdered Locust Bean Gum Type D-200; Sheffield Brand Anhydrous Lactose NF;
- Sheffield Brand Lactose Monohydrate NF;
- Silica, fumed; Spray Dried Gum Arabic NF/FCC CS-R
- Sucrose; Sucrose polystearate; TIC

**Excipient, taste/masking**
- Pretested® Bright Gum Arabic FCC/NF Powder; TIC Pretested® Gum Arabic FT-1 Powd.; TIC Pretested® Pre-Hydrated® Bright Gum Arabic
- TIC Pretested® Pre-Hydrated® Gum Arabic FT Powd.; Tragacanth (Astragalus gummifer) gum; Tribecerin; Vivapur® 301

**Excipient, taste/odor masking**
- Eudragit® E 12.5; Eudragit® E 100

**Excipient, throat preparations**
- Carboxymethylcellulose sodium

**Excipient, topical condition-resistant coatings**
- Eudragit® L 12.5; Eudragit® L 30 D-55;
- Eudragit® L 100

**Excipient, topicals**
- Carboxymethylcellulose sodium; Cetyl palmitate; Coconut (Cocos nucifera) oil; Crospovidone; Dow
- Corning® Dimethiconol Blend 20
- Dow Corning® Q7-9120 Silicone Fluid; Dow
- Corning® Q7-9180 Silicone Fluid; Dow
- Corning® Silky Wax 10; Dow Corning®
- Silmogen Carrier; Dow Corning® ST Wax 30
- Dow Corning® ST Elastomer 10; Dow
- Corning® Emulsifier 10; Edetic acid;
- Glyceryl stearate; Labrafac® CC
- Labrafil® M 1944 CS; Petrolatum;
- Pharmalan Ph Eur; Pharmalan USP;
- Plasdone® K-25
- Plasdone® K-29/32; Plasdone® K-90;
- Plasdone® K-90D; Polyethylene; Polyvinyl chloride
- PVP; Sodium pyrrolidone carboxylate;
- Trimethylolpropane tricaprylate/tricaprate;
- Vanillin

**Excipient, topicals/transdermals**
- Apifil®; Gelot 64®; Isostearate Isostearyl; M.O.D.; Octyldodecyl myristate
- PEG-8 beeswax; Plurol® Diisostearique;
- Tefose® 63; Tefose® 1500; Tefose® 2000

**Excipient, transdermal drug delivery**
- Polyox® WSR 303; Polyox® WSR 1105;
- Polyox® WSR Coagulant; Polyox® WSR N-10; Polyox® WSR N-60K
- Polyox® WSR N-80; Polyox® WSR N-750
Functional/Application Index

excipient, transdermals
-Crossential® O94

excipient, troches
-Carboxymethylcellulose sodium

excipient, vaginal
-Carboxymethylcellulose sodium; Polyethylene; Propylene glycol stearate

excipient, veterinary products
-Labrafil® Isostearique; Labrafil® M 1944 CS; Labrafil® M 2125 CS; Petrolatum; Sulfanilamide

excipient, veterinary topicals
-Pharmalan USP

excipient, Vitamin B12 recovery
-Tulsion® T-335

excipient, Vitamin B12 stabilization
-Tulsion® T-335

excipient, vitamins
-Silica, hydrophobic

excipient, volatile: pharmaceutical topical spray pump systems
-Hexamethyldisiloxane

excipient, water-sensitive ingredients: tablets
-Vivapur® 103; Vivapur® 112

excipient, wet granulation
-Byco A; Byco C; Kollidon® SR; Starch 1500®; Starch 1500® G; Starch 1500® LM

excipient, wet granulation: capsules
-Pharmacel® XL; Primojel®

excipient, wet granulation: granules
-Pharmacel® XL

excipient, wet granulation: solid dosages
-Pharmacel® XL

excipient, wet granulation: sustained-releases
-Eudragit® NE 40 D

excipient, wet granulation: tablets
-Lactochem®; Mannogem™ Geuc Mannitol Pyrogen Free; Mannogem™ Mannitol Powd.; Pharmaceul® XL; Sorbegom™ 712 Sorbegom™ Fines; Spress® B825; TRI-CAL WG; Vivapur® 101

excipient, wound dressings
-Polyox® WSR 303; Polyox® WSR 1105; Polyox® WSR Coagulant; Polyox® WSR N-10; Polyox® WSR N-60K; Polyox® WSR N-80; Polyox® WSR N-750

exfoliant
-Galacid Heat-Stable 90; Galacid Excel 50; Galacid Excel 80; Galacid Excel 88; Galacid Feed 80 - XT; Galacid Food 80; Galacid Food 80 Improved; Galacid Food 88; Galacid Food 88 Improved; Galacid Heat-Stable 80; Galacid Heat-Stable 88

expander, blood plasma
-Plasdone® C-15; Plasdone® C-30; PVP

expectorant
-Ammonium bicarbonate; Asafetida (Ferula asafoetida) gum; Benzoin; Cajeput (Melaleuca leucadendron) oil; Cubeb (Piper cubeba) oil; Damiana (Turnera diffusa); Ethyl ether; Eucalyptol; Guaiacol; Gum benzoin; Hydriodic acid; Iodine; Orange (Citrus aurantium dulcis) oil; Sodium iodide; Storax (Liquidambar orientalis); Sunflower (Helianthus annuus) flower extract; Sunflower (Helianthus annuus) seed oil; Thyme (Thymus vulgaris)

expectorant, cough medicines
-Licorice (Glycyrrhiza glabra) extract

expectorant, mild
-Anise (Pimpinella anisum); L-Camphor

expectorant, mild: cough preparations
-Anise (Pimpinella anisum) oil; Star anise (Illicium verum) oil

expectorant, pharmaceuticals
-Ammonium carbonate; Ammonium iodide; Trisodium citrate

extender
-Kaydol®; Tylopur® C 10000 P2

extender, APIs
-JustFiber® JF BF Granular; JustFiber® BF200; JustFiber® JF BVF65; JustFiber® WWF40; JustFiber® JF WWF 200

extender, clinical nutrition
-Captex® 350; Captex® 810D

extender, delivery/absorption enhancement
-Captex® 350; Captex® 810D

extender, dental cements
-Aluminum silicate

extender, dermatological emulsions
-Captex® 8227

extender, dermatologicals
-Captex® 350; Captex® 810D

extender, dry granulation
-Maltrin® M100

extender, flavor oils: pharmaceuticals
-Isocetyl alcohol

extender, flavors
-Ceraphyl® ICA

extender, fragrances
-Ceraphyl® ICA; Lexol® IPP

extender, infant formulas
-Captex® 350

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extender, modifying: cellulose esters
  SAIB-SG
extender, modifying: film-forming biopolymers
  Sucrose acetate isobutyrate
extender, modifying: film-forming polymers
  SAIB-SG
extender, nutritional products
  Caprylic/capric/lauric triglyceride;
  Caprylic/capric/linoleic triglyceride;
  Caprylic/capric/oleic triglyceride; Captex® 100; Captex® 350
  Captex® 810D; Triundecanoin
extender, nutritional supplements
  Captex® 350
extender, orals
  Carrageenan (Chondrus crispus)
extender, pharmaceutical cleanse rs
  Maltrin® M100
extender, pharmaceutical creams/lotions
  Maltrin® M100
extender, pharmaceutical liquids
  Maltrin® M100
extender, pharmaceuticals
  Britol® 6NF; Britol® 7NF; Britol® 9NF;
  Britol® 20USP; Britol® 50USP
  Calcium Sulfate Anhydrous NF 164;
  Calcium Sulfate BC 164; Calcium Sulfate BC 166;
  Calcium sulfate dihydrate;
  Caprylic/capric/lauric triglyceride;
  Caprylic/capric/linoleic triglyceride;
  Caprylic/capric/oleic triglyceride; Captex® 100; Captex® 355EP; Captex® 500P
  Captex® 8227; Carrageenan (Chondrus crispus);
  Hectorite; Hydrobrite® 200PO; Hydrobrite® 300PO
  Hydrobrite® 380PO; Hydrobrite® 550PO;
  Jarcol™ I-16; Pluracol® E300; Pluracol® E400
  Pluracol® E600; Pluracol® E4000;
  Pluracol® E6000; Propylene glycol dicaprate; Rennet
  Soybean (Glycine soja) protein
extender, pharmaceuticals: aqueous film coatings
  Maltrin® M100
extender, pharmaceuticals: spray-drying
  Maltrin® M100
extender, pharmaceuticals: wet granulation
  Maltrin® M100
extender, pigment: pharmaceuticals
  Pyrax® ABB; Pyrax® B
extender, sports supplements
  Captex® 350
extender, topicals
  Carrageenan (Chondrus crispus)
extension agent
  Cachalot® AR-20; Cachalot® M-43
extension agent, antibiotics
  Nissan Cation AR-4
extension agent, microbial protein
  Guanidine hydrochloride
extension agent, pharmaceuticals
  Ethyl Proxitol; Methyl isobutyl ketone
extension agent, sports supplements
  Captex® 350
extension agent, tears
  Riboflavin
extension agent, topicals
  Carrageenan (Chondrus crispus)
extraction agent
  Cachalot® AR-20; Cachalot® M-43
extraction agent, antibiotics
  Nissan Cation AR-4
extraction agent, microbial protein
  Guanidine hydrochloride
extraction agent, pharmaceuticals
  Ethyl Proxitol; Methyl isobutyl ketone
extension agent, inflammation treatment
  Meadowsweet (Spiraea ulmaria) extract
eye protectant, light
  Riboflavin
fat component, capsules
  Softisan® 133; Softisan® 134; Softisan® 138; Softisan® 142; Softisan® 154
fat component, medical nutrition
  Miglyol® 812 N
fat component, ointments
  Softisan® 133; Softisan® 134; Softisan® 138; Softisan® 142; Softisan® 154
fat component, pharmaceutical creams
  Softisan® 133; Softisan® 134; Softisan® 138; Softisan® 142; Softisan® 154
fat component, pharmaceutical stick products
  Softisan® 133; Softisan® 134; Softisan® 138; Softisan® 142; Softisan® 154
fat, lauric: pharmaceuticals
  Paramount B; Paramount C; Paramount H;
  Paramount X; Paramount XX
fat, ointments
  Hydrogenated palm kernel oil
fat replacer
  Walocel® HM 100000 PA
fat source, adult nutrition
  Estasan™ GT 8-60 3575; Estasan™ GT 8-70 3579
fat source, dietetic products
  Estasan™ GT 8-40 3578; Estasan™ GT 8-60 3575; Estasan™ GT 8-60 3580; Estasan™ GT 8-65 3577; Estasan™ GT 8-65 3581
  Estasan™ GT 8-70 3579; Estasan™ GT 8-99 3596; Estasan™ GT 10-99 3599
fat source, enteral feeding formulas
  Estasan™ GT 8-40 3578; Estasan™ GT 8-60 3575; Estasan™ GT 8-60 3580; Estasan™ GT 8-65 3577; Estasan™ GT 8-65 3581
  Estasan™ GT 8-70 3579; Estasan™ GT 8-99 3596; Estasan™ GT 10-99 3599
fat source, infant formulas
  Estasan™ GT 8-60 3575; Estasan™ GT 8-60 3577; Estasan™ GT 8-70 3579
fat source, nutritional products
NEOBEE® 895
fat source, parenteral feeding formulas
Estasan™ GT 8-40 3578; Estasan™ GT 8-60 3575; Estasan™ GT 8-60 3580; Estasan™ GT 8-65 3577; Estasan™ GT 8-65 3581
Estasan™ GT 8-70 3579; Estasan™ GT 8-99 3596; Estasan™ GT 10-99 3599
fatting agent
Gelucire 33/01
fatting agent, acne treatment
Shea Butter; SheAloe™
fatting agent, burn treatment
Kelisema Shea Butter
fatting agent, dermatitis treatment
Kelisema Shea Butter
fatting agent, dermatologicals
Shea butter (Butyrospermum parkii)
fatting agent, dermatosis treatment
Kelisema Shea Butter
fatting agent, dr- skin products
Kelisema Shea Butter
fatting agent, eczema treatment products
Kelisema Shea Butter
fatting agent, first aid creams
Shea Butter; SheAloe™
fatting agent, gingivitis treatment products
Kelisema Shea Butter
fatting agent, hard gelatin capsules
Gelucire 39/01; Gelucire 43/01
fatting agent, hydrocortisone creams
SheAloe™
fatting agent, lip balms
Shea Butter; SheAloe™
fatting agent, low-density products
Gelucire 39/01; Gelucire 43/01
fatting agent, low-dose pharmaceuticals
Gelucire 39/01; Gelucire 43/01
fatting agent, low-dose toxic pharmaceuticals
Gelucire 39/01; Gelucire 43/01
fatting agent, ointments
SheAloe™
fatting agent, oral ointments
Shea Butter
fatting agent, OTC creams/lotions
Shea Butter
fatting agent, OTC products
Shea Butter
fatting agent, pharmaceutical creams/lotions
Shea butter (Butyrospermum parkii); SheAloe™
fatting agent, pharmaceutical emulsions
Shea butter (Butyrospermum parkii)
fatting agent, pharmaceuticals
2-Hexyldecyl stearate
fatting agent, rubs/liniments
Shea Butter; SheAloe™
fatting agent, skin products
Myritol® 312
fatting agent, solar erythema treatment products
Kelisema Shea Butter
fatting agent, suppositories
Shea butter (Butyrospermum parkii)
fatting agent, topical analgesics
Shea Butter; SheAloe™
fatting agent, topical anesthetics
Shea Butter; SheAloe™
fatting agent, topical ointments
Shea Butter
fatting agent, w/o-o/w emulsions
Myritol® 312
fatting agent, o/w ointments
Cutina® KD
fatting agent, pharmaceutical o/w creams
Cutina® KD
febrifuge
Wormwood (Artemisia absinthium) oil
feel enhancer, balms
Skin Flow C
feel enhancer, lip balms
HallStar™ MM
feel enhancer, ointments
Skin Flow C
feel enhancer, topicals
STEPAN® IPM-NF
fermentation aid, penicillin V
Niacet Sodium Phenoxy Acetate; Sodium phenoxy acetate
fermentation feedstock, pharmaceuticals
Clearsweet® Unrefined 95% Dextrose Corn Syrup
fiber, dietary
Chitosan; Pectin
fiber, dietary: high-fiber products
Corn (Zea mays) bran
fiber, dietary: pharmaceuticals
Apple pectin; Corn (Zea mays) bran
fiber, dietary: tablets
Wheat (Triticum vulgare) germ
fiber, natural: pharmaceuticals
Wheat (Triticum vulgare) bran
fiber, sutures
Collagen
filler, adhesive plasters
Beeswax
Functional/Application Index

filler, aerosols
  Altalc 200 USP; Altalc 300 USP; Suprafino A; Ultrafino®

filler, animal health products
  Avicel® PH-101; Avicel® PH-102; Avicel® PH-103; Avicel® PH-105

filler, buccal
  Methylcellulose; Starch

filler, capsules
  Arboce® A 300; Calcium phosphate dibasic dihydrate; Dritex S; Hydrogenated cottonseed oil; Hydrogenated palm oil
  Hydrogenated soybean oil; Lactose; Lycatab® C; Lycatab® PGS;
  Microcrystalline cellulose
  Miglyol® 812; Mineral oil; Sheffield Brand
  Anhydrous Lactose NF; Sheffield Brand
  Lactose Monohydrate NF; Starch 1500®
  Starch 1500® G; Starch 1500® LM; Zinc stearate

filler, cleansers: pharmaceuticals
  Instant Pure-Cote™ B793

filler, compatible sugar-type: pharmaceuticals
  Trehalose

filler, controlled-release capsules
  Polawax® NF

filler, creams/lotions
  Altalc 200 USP; Altalc 200V; Altalc 300 USP; Altalc 300V; Altalc 400V
  Altalc 500V; Imperial 400; Lipomic 601;
  Liponyl 20LL; Mineral oil
  Supra® A; Supra® EF A; Supra® H;
  Suprafino A; Suprafino H
  Talc BC 1745; Talc BC 2755; Talc BC
  IMP1823L; Talc BC IMP1885L; Talc BC
  IMP1889L
  Talc BC IMP1890L; Talc BC IMP1891L

filler, dental applications
  Diatomaceous earth, amorphous

filler, direct compression
  Lycatab® Mineral

filler, direct compression: capsules
  Anhydrous Emcompress®; Anhydrous Emcompress®; Compactrol®;
  Emcompress®; Ludipress®
  Pharmatose® DCL 14; Pharmatose® DCL 22

filler, direct compression: chewable lozenges
  Ludipress® LCE

filler, direct compression: chewable tablets
  Ludipress® LCE; Pharmatose® DCL 22

filler, direct compression: effervescent tablets
  Ludipress® LCE

filler, direct compression: sachets
  Pharmatose® DCL 14

filler, direct compression: solid dosages
  Avicel® PH-112; Avicel® PH-113; Avicel® PH-200; Avicel® PH-301; Avicel® PH-302

filler, direct compression: tablets
  Anhydrous Emcompress®; Anhydrous Emcompress®; Arbocel® A 300; Avicel® PH-101; Avicel® PH-102
  Avicel® PH-103; Avicel® PH-105; Avicel® PH-112; Avicel® PH-113; Avicel® PH-200
  Avicel® PH-301; Avicel® PH-302;
  Compactrol®; Emcompress®; Ludipress®
  Maltrin® M150; Pharmatose® DCL 14;
  Pharmatose® DCL 22; Puracal® DC;
  Sancel-101
  Sancel-102; Sancel-105; Sancel-C; Sancel-W; Solka-Floc® 100

filler, dry granulation: pharmaceuticals
  Avicel® PH-101; Avicel® PH-102; Avicel® PH-103; Avicel® PH-105; Maltrin® M100
  Maltrin® M150

filler, dry vitamin products
  Aqualon® N-7; Aqualon® N-10; Aqualon® N-14; Aqualon® N-22; Aqualon® N-50
  Aqualon® N-100; Ethocel™ Standard 4 Premium; Ethocel™ Standard 7 Premium; Ethocel™ Standard 14 Premium; Ethocel™ Standard 20 Premium
  Ethocel™ Standard 45 Premium; Ethocel™ Standard 100 Premium

filler, encapsulation: hard gelatin capsules
  Avicel® PH-112; Avicel® PH-113; Avicel® PH-200; Avicel® PH-301; Avicel® PH-302

filler, encapsulation: pharmaceuticals
  Avicel® PH-101; Avicel® PH-102; Avicel® PH-103; Avicel® PH-105

filler, film enhancement
  Altalc 400 USP

filler, foot powders
  Purity® 21C

filler, fragrances
  Ultrafino®

filler, functional: pharmaceuticals
  Socal® P2 Ph.Eur.; Socal® P2VPh

filler, gastric preparations
  Calcium hydroxide; Calcium Hydroxide 3002; Calcium Hydroxide BC 802

filler, gelatin capsules
  Caprylic/capric/stearic triglyceride

filler, hard gelatin capsules
  Imwitor® 742; Ludipress®; Lycatab® C;
  Softisan® 378
Functional/Application Index

**filler, injectables**
- Calcium hydroxide; Methylcellulose

**filler, lozenges**
- Beeswax

**filler, medicated foot powders**
- Altalc 200 USP; Altalc 200V; Altalc 300V; Altalc 400V; Altalc 500V
- Imperial 400; Supra® H; Suprafino H; Talc BC 1745; Talc BC 2755
- Talc BC IMP1823L; Talc BC IMP1885L; Talc BC IMP1889L; Talc BC IMP1890L; Talc BC IMP1891L

**filler, medicinal salves**
- Calcium hydroxide; Calcium Hydroxide 3002; Calcium Hydroxide BC 802

**filler, mouth preparations**
- Beeswax

**filler, mouth products**
- Beeswax

**filler, ointments**
- Altalc 200V; Altalc 300V; Altalc 400V; Altalc 500V; Beeswax
- Imperial 400; Mineral oil; Supra® H; Suprafino H; Talc BC 2755; Talc BC IMP1823L; Talc BC IMP1885L; Talc BC IMP1889L; Talc BC IMP1890L; Talc BC IMP1891L; Wacker HDK® V15; Zinc Oxide Grade AZO 66USP; Zinc stearate

**filler, ophthalmic ointments/suspensions**
- Mineral oil

**filler, ophthalmics**
- Cetyl alcohol; Lanolin; Methylcellulose; Petrolatum; Titanium dioxide

**filler, orals**
- Aluminum hydroxide; Beeswax; Calcium hydroxide; Calcium phosphate dibasic dihydrate; Calcium silicate; Calcium sulfate dihydrate; Cetyl alcohol; Cocoa (Theobroma cacao) butter; Methylcellulose; Petrolatum; Starch; Talc; Titanium dioxide; Vegetable oil; Zinc stearate

**filler, otics**
- Cetyl alcohol; Petrolatum

**filler, parenterals**
- Starch

**filler, pharmaceutical aqueous film coatings**
- Maltrin® M100

**filler, pharmaceutical cleansers**
- Maltrin® M100; Maltrin® M150

**filler, pharmaceutical creams**
- Wacker HDK® V15

**filler, pharmaceutical creams/lotions**
- Maltrin® M040; Maltrin® M100; Maltrin® M150; Water Lock® C200

**filler, pharmaceutical liquids**
- Maltrin® M100; Maltrin® M150

**filler, pharmaceutical powders**
- Sheffield Brand Anhydrous Lactose NF; Sheffield Brand Lactose Monohydrate NF; Sta-Rx® NF; Zinc stearate

**filler, pharmaceutical rubber goods**
- Sillitin Z 86 Puriss

**filler, pharmaceuticals**
- Aerosil® 380; Altalc 200 USP; Altalc 300 USP; Altalc 400 USP; Aluminum hydroxide Arboce® A 300; Beeswax; Calcium hydroxide; Calcium Hydroxide 3002; Calcium Hydroxide BC 802; Calcium phosphate dibasic dihydrate; Calcium silicate; Calcium sulfate dihydrate; Celite® 503; Celite® 512; Celite® 545; Celite® 577; Cetyl alcohol; Clay BC 347; Clay BC 638; Clay BC 825; Clay BC 2457; Clay BC 2747; Clay BC 2749; Cocoa (Theobroma cacao) butter; Corn (Zea mays) starch; Distarch phosphate; Lanolin; Lipomic 601; Lipomic 601 BN; Liponyl 20LL; Methylcellulose; Micro-Cel® C; Mineral oil; Peerless® No. 1; Peerless® No. 2; Peerless® No. 3; Petrolatum; Powdered 10 NF; Powdered 7.5 NF; Powdered NF; Purity® 21; Purity® 21C; SB-30; Silica, hydrated; Snow White® F&P; Socal®; Standard Super-Cel; Sucrose distearate; Supra® A; Supra® EF A; Suprafino A; Talc; Talc BC 1745; Talc BC 2755; Terra Alba F&P; Titanium dioxide; Tullanox® HM-250; Ultrafino®; Vegetable oil; Wacker HDK® V15; Winnofil®; Zinc Oxide; Grade AZO 66USP

**filler, pharmaceutical spray-drying**
- Maltrin® M100; Maltrin® M150

**filler, pharmaceutical suspensions**
- Wacker HDK® V15

**filler, pigments**
- Ultrafino®

**filler, protective creams**
- Titanium dioxide
Functional/Application Index

filler, rectals
  Cetyl alcohol; Cocoa (Theobroma cacao) butter; Starch; Talc

filler, reinforcing: dental
  Cab-O-Sil® TS-530

filler, skin protectants
  Silica, hydrated

filler, soft gelatin capsules
  Imwitor® 742; Labrafac® CC; Phosal® 35 SB; Softisan® 378

filler, skin protectants
  Silica, hydrated

filler, soft gelatin capsules
  Imwitor® 742; Labrafac® CC; Phosal® 35 SB; Softisan® 378

filler, solid oral medicinals
  Corn (Zea mays) starch

filler, spheronization: pharmaceuticals
  Avicel® PH-101; Avicel® PH-102; Avicel® PH-103; Avicel® PH-105

filler stabilizer, pharmaceuticals
  Methyl hydroxyethylcellulose

filler, suppositories
  Beeswax; Dritex S; Hydrogenated cottonseed oil; Hydrogenated palm oil; Hydrogenated soybean oil; Lanolin; Mineral oil; Petrolatum; Vegetable oil

filler, tablet coatings
  Altalc 400 USP

filler, tablets
  Altalc 200V; Altalc 300V; Altalc 400V; Altalc 500V; Calcium phosphate dibasic dihydrate; Dritex S; Glucose; Hydrogenated cottonseed oil; Hydrogenated palm oil; Hydrogenated soybean oil; Imperial 400; Lactose; Lycatab® C; Lycatab® PGS; Microcrystalline cellulose; Mineral oil; Purity® 21; Ryoto Sugar Ester B-370; Ryoto Sugar Ester ER-190; Ryoto Sugar Ester ER-290; Ryoto Sugar Ester L-595; Ryoto Sugar Ester L-1695; Ryoto Sugar Ester LWA-1570; Ryoto Sugar Ester M-1695; Ryoto Sugar Ester O-1570; Ryoto Sugar Ester OWA-1570; Ryoto Sugar Ester P-170; Ryoto Sugar Ester P-1570; Ryoto Sugar Ester P-1570S; Ryoto Sugar Ester P-1670; Ryoto Sugar Ester S-170; Ryoto Sugar Ester S-270; Ryoto Sugar Ester S-370; Ryoto Sugar Ester S-370F; Ryoto Sugar Ester S-570; Ryoto Sugar Ester S-770; Ryoto Sugar Ester S-970; Ryoto Sugar Ester S-1170; Ryoto Sugar Ester S-1570; Ryoto Sugar Ester S-1670; Sheffield Brand Anhydrous Lactose NF; Sheffield Brand Lactose Monohydrate NF; Solka-Floc® 200; Solka-Floc® 2030; Solka-Floc® SF20P; Solka-Floc® SF Special Granular; Solka-Floc® SF20 NF; Solka-Floc® SF40 NF; Solka-Floc® SF900 NF; Starch; Sta-Rx® NF; Sucrose dilaurate; Sucrose laurate; Sucrose myristate; Sucrose olate; Sucrose palmitate; Sucrose polyacrate; Sucrose stearate; Sucrose tribhenenate; Sucrose tristearate; Supra® H; Suprafino H; Talc BC 1745; Talc BC 2755; Talc BC IMP1823L; Talc BC IMP1885L; Talc BC IMP1889L; Talc BC IMP1890L; Talc BC IMP1891L; Titanium dioxide; Wheat (Triticum vulgare) germ; Wheat (Triticum vulgare) starch; Zinc stearate

filler, throat preparations
  Beeswax

filler, topical
  Beeswax; Cetyl alcohol; Cocoa (Theobroma cacao) butter; Lanolin; Methylcellulose; Petrolatum; Starch; Talc; Titanium dioxide; Vegetable oil

filler, troches
  Beeswax

filler, vaginals
  Beeswax; Methylcellulose; Starch

filler, veterinary products
  Petrolatum

filler, wax matrix
  Polawax® NF

filler, wet granulation
  Avicel® PH-101; Avicel® PH-102; Avicel® PH-103; Avicel® PH-105; Maltrin® M100; Microcel® 3E-150; Pharmatose® 150 M; Pharmatose® 200 M; Pharmatose® 350 M; Pharmatose® 450 M; Tabulose® 3E-150

filler, wet granulation: tablets
  Solka-Floc® 100

filling, dental impression compounds
  Gutta percha

film-coating material, enteric: granules
  C-A-P Enteric Coating Polymer

film-coating material, enteric: tablets
  C-A-P Enteric Coating Polymer

film enhancer, aerosols
  Altalc 200 USP; Altalc 300 USP

film enhancer, creams/lotions
  Altalc 200 USP; Altalc 300 USP
Functional/Application Index

**film enhancer, medicated foot powders**
Altalc 200 USP

**film-former**
Acrylates copolymer; Acrylates/vinyl isodecanoate crosspolymer; Byco O; Diglycol/CHDM/isophthalates/SIP copolymer; Dioctyl adipate Ethylene/VA copolymer; Hydrolyzed protein; Klucel® ‘F’ Grades; PVP/eicosene copolymer; PVP/Si-10 Sericin; Spray Dried Hydrolysed Fish Gelatin; Tara gum

**film-former, adhesives**
Instant Pure-Cote™ B793

**film-former, aerosol bandages: antibiotics**
PVP/VA E-335; PVP/VA E-535; PVP/VA E-635; PVP/VA E-735; PVP/VA I-335; PVP/VA I-535; PVP/VA I-735; PVP/VA S-630

**film-former, anesthetic spray bandages**
PVP/VA E-335; PVP/VA E-535; PVP/VA E-635; PVP/VA E-735; PVP/VA I-335; PVP/VA I-535; PVP/VA I-735

**film-former, antibiotics**
Plasdone® C-15; Plasdone® C-30

**film-former, antibiotic sprays**
PVP/VA copolymer

**film-former, antiseptic/anesthetic spray bandages**
PVP/VA copolymer

**film-former, antiseptics**
Plasdone® C-15; Plasdone® C-30

**film-former, antiseptic spray bandages**
PVP/VA E-335; PVP/VA E-535; PVP/VA E-635; PVP/VA E-735; PVP/VA I-335; PVP/VA I-535; PVP/VA I-735

**film-former, aqueous film coatings**
Instant Pure-Cote™ B793; Pure-Cote™ B790

**film-former, aqueous pharmaceuticals**
Natrosol® Plus 330 CS; Protacid™; Protanal®

**film-former, arthritis relief formulas**
Vee Gee Beef Hide Hydrolysate Gelatin; Vee Gee Bone Hydrolysate Gelatin; Vee Gee Fish Hydrolysate Gelatin; Vee Gee Porkskin Hydrolysate Gelatin

**film-former, barriers**
Instant Pure-Cote™ B793

**film-former, binding**
Instant Pure-Cote™ B793

**film-former, biological applications**
HCA-411; HLA-198; Hydrolyzed whey protein

**film-former, burn treatment**
Anhydrous Lanolin USP Cosmetic; Anhydrous Lanolin USP Superfine; Anhydrous Lanolin USP Ultrafine

**film-former, cleansers**
Maltrin® M150

**film-former, clouds: pharmaceuticals**
Hi-Cap™ 100

**film-former, coated pills**
Acacia

**film former, coatings: pills**
Walocel® HM 3 PA 2910; Walocel® HM 400 PA; Walocel® HM 4000 PA; Walocel® HM 15000 PA

**film former, coatings: pills/tablet**
Walocel® HM 15 PA

**film former, coatings: tablets**
Walocel® HM 3 PA 2910; Walocel® HM 400 PA; Walocel® HM 4000 PA; Walocel® HM 15000 PA

**film-former, controlled-releases**
Ethocel™ Standard 4 Premium; Klucel® EF Pharm; Methocel® E4M Premium; Methocel® K4M Premium; Methocel® K15M Premium; Methocel® K100LV Premium; Methocel® K100M Premium

**film-former, controlled-release tablets**
Ethocel™ Standard 7 Premium; Ethocel™ Standard 14 Premium; Ethocel™ Standard 20 Premium; Ethocel™ Standard 45 Premium; Ethocel™ Standard 100 Premium

**film-former, creams**
Nitrocellulose

**film-former, creams/lotions**
Acetylated lanolin; Maltrin® M150; Methocel® K4M Premium; PVP/dimethylaminoethylmethacrylate copolymer

**film-former, dental products**
Polyethylene

**film-former, denture adhesive films**
Klucel® G CS; Klucel® J CS

**film-former, denture adhesives**
KELTONE® HV

**film-former, direct compression**
Byco A; Byco C

**film-former, direct compression: tablets**
Maltrin® M150

**film-former, dry granulation**
Byco A; Byco C; Maltrin® M150

**film-former, ear drops**
Cekol® 700; Tylose® H 300 G4 PHA
Functional/Application Index

film-former, emulsions
  Cerabeil White Selection
film-former, encapsulation
  Klucel® EF Pharm
film-former, enteric
  Carbomer; Hydroxypropyl methylcellulose phthalate
film-former, enteric coatings: solid dosages
  Methacrylic acid/ethyl acrylate copolymer
film-former, enteric drug releases
  Polyvinyl alcohol
film-former, enteric: orals
  Cellulose acetate phthalate; Hydroxypropyl methylcellulose phthalate
film-former, enteric: solid dosages
  Hydroxypropyl methylcellulose phthalate
film-former, enteric: tablets/capsules
  Cellulose acetate phthalate
film-former, eye drops
  Cekol® 700; Tylose® H 300 G4 PHA
film-former, film-forming biopolymers
  Sucrose acetate isobutyrate
film-former, flavoring agents:
  pharmaceuticals
  Hi-Cap™ 100
film-former, gelatin capsule imprinting
  Polyacrylamide
film-former, hard capsules
  Sammi Gelatine
film-former, hard gelatin capsules
  Sureteric™
film-former, hydrophobic: topicals
  Pecosil® OS-100B
film-former, liquid antacids
  MANUCOL® LB
film-former, liquid dosages
  Benecel® M; Benecel® ME1; Benecel® ME2; Benecel® MP3; Benecel® MP6
  Benecel® MP8; Benecel® MP9
film-former, liquid products
  Maltrin® M150
film-former, lotions
  TIC Pretested® Colloid 488T Powd.; TIC Pretested® Colloid 602 Powd.
film-former, low-irritancy creams/lotions
  Acrylates/C10-30 alkyl acrylate crosspolymer
film-former, medical applications
  HCA-411; HLA-198; Hydrolyzed whey protein

film-former, medical nutritionals
  Maltrin® M150; Maltrin® M180
film-former, medical plastics
  Kollidon® 12PF; Kollidon® 17PF; Kollidon® 25; Kollidon® 30; Kollidon® 90F
film-former, medical preparations
  Glyceryl alginate
film-former, medicated products
  Ceraphyl® 50
film-former, medicinal aerosols
  Plasdone® K-25; Plasdone® K-29/32; Plasdone® K-90; Plasdone® K-90D
film-former, microencapsulation
  Algin; Byco M; Calcium alginate; Vee Gee Beef Hide Hydrolysate Gelatin; Vee Gee Bone Hydrolysate Gelatin; Vee Gee Fish Hydrolysate Gelatin; Vee Gee Porkskin Hydrolysate Gelatin; Wheat (Triticum vulgare) gluten
film-former, microencapsulations
  Silicone emulsion
film-former, nasal/eyes/ear drops
  Tylose® H 4000 G4 PHA
film-former, nose drops
  Cekol® 700; Tylose® H 300 G4 PHA
film-former, nutritional applications
  HCA-411; HLA-198; Hydrolyzed whey protein
film-former, nutritional products
  Hydrolyzed casein; Hydrolyzed milk protein; Vee Gee Beef Hide Hydrolysate Gelatin; Vee Gee Bone Hydrolysate Gelatin; Vee Gee Fish Hydrolysate Gelatin; Vee Gee Porkskin Hydrolysate Gelatin
film-former, ointment bases
  Cekol® 30000
film former, ointments
  Walocel® C 30 A; Walocel® C 100 A; Walocel® C 1000 A; Walocel® C 2000 A; Walocel® C 10000 A
film-former, ointments
  Anhydrous Lanolin USP Cosmetic; Anhydrous Lanolin USP Superfine; Anhydrous Lanolin USP Ultrafine; Ritacetyl®; Tylose® H 300 G4 PHA
  Tylose® H 4000 G4 PHA
film-former, ophthalmics
  Hydroxypropyl methylcellulose; Polyethylene
film-former, ophthalmic solutions
  Kollidon® 12PF; Kollidon® 17PF; Kollidon® 25; Kollidon® 30; Kollidon® 90F
film-former, orals
  Byco M; Candelilla (Euphorbia cerifera)
Functional/Application Index

wax: Hydroxypropylcellulose; Hydroxypropyl methylcellulose; Polyethylene
Polyvinyl acetate; Propylene glycol
alginate; Spray Dried Fish Gelatin; Wheat (Triticum vulgare) gluten
film-former, parenterals
Plasdone® C-15; Plasdone® C-30
film-former, pharmaceutical aqueous coatings
Tributyl citrate
film-former, pharmaceutical aqueous film coatings
Maltrin® M040
film-former, pharmaceutical coatings
Tylose® H 20 P2 PHA; Tylose® H 300 G4 PHA
film-former, pharmaceutical controlled-release tablet coatings
PVM/MA copolymer, butyl ester
film-former, pharmaceutical controlled sustained-releases
Tributyl citrate
film former, pharmaceutical creams
Walocel® C 30 A; Walocel® C 100 A; Walocel® C 1000 A; Walocel® C 2000 A; Walocel® C 10000 A
film-former, pharmaceutical creams/lotions
HTL HYP Hyaluronic Acid 85%
film-former, pharmaceutical dressings
Gutta percha
film-former, pharmaceutical emulsions
Tylose® H 4000 G4 PHA
film former, pharmaceutical gels
Walocel® C 30 A; Walocel® C 100 A; Walocel® C 1000 A; Walocel® C 2000 A; Walocel® C 10000 A
film-former, pharmaceutical gels
Tylose® H 300 G4 PHA; Tylose® H 4000 G4 PHA
film-former, pharmaceutical granulation
Ethocel™ Standard 4 Premium; Ethocel™ Standard 7 Premium; Ethocel™ Standard 14 Premium; Ethocel™ Standard 20 Premium; Ethocel™ Standard 45 Premium Ethocel™ Standard 100 Premium
film-former, pharmaceutical granules
Sureteric™
film-former, pharmaceutical microencapsulation
Ethocel™ Standard 4 Premium; Ethocel™ Standard 7 Premium; Ethocel™ Standard 14 Premium; Ethocel™ Standard 20 Premium; Ethocel™ Standard 45 Premium Ethocel™ Standard 100 Premium; Wheat

(Triticum vulgare) gluten
film former, pharmaceuticals
ADM Clintose® CR 10; ADM Clintose® CR 15; ADM Clintose® CR 18
film-former, pharmaceuticals
A-C® 6; A-C® 8; A-C® 9; A-C® 400; A-C® 540
A-C® 617; A-C® 617A; Acrylamide/sodium acrylate copolymer; Acrylic acid/acrylonitrile copolymer; Albumen Aloe Vera Oil; Ammonium alginate; Benecel® Methylcellulose; Benecel® MP; Candelilla (Euphorbia cerifera) wax Carboxymethyl hydroxyethyl cellulose; Carboxymethylcellulose; Cekol® 30; Cekol® 150; Cekol® 300 Cekol® 500 T; Cekol® 700; Cekol® 2000; Cekol® 2000; Cekol® 4000 Cekol® 10000; Cekol® 30000; Cerabeil White DAB; Cerabeil White Selection; Cerabeil Yellow Selection Cetyl hydroxyethyl cellulose; Cholesterol; Crystal® O; Crystal® Crown; Dimethicone propylethylene diamine behenate Dimethicone/sodium PG-propyldimethicone thiosulfate copolymer; Diocetyl succinate; Ethocel™ Standard 4 Premium; Ethocel™ Standard 7 Premium; Ethocel™ Standard 14 Premium
Ethocel™ Standard 20 Premium; Ethocel™ Standard 45 Premium; Ethocel™ Standard 100 Premium; Ethylene/acrylic acid copolymer; Fancol™ CH Gellan gum; Glyceryl alginate; Glyceryl rosinate; Hydrolyzed casein; Hydrolyzed gelatin Hydrolyzed milk protein; Hydrolyzed vegetable protein; Hydrolyzed whey protein; Hydroxylated lanolin; Hydroxypropylcellulose Hydroxypropyl methylcellulose: Instant Pure-Cote™ B793; KELTONE® HV; KELTONE® LVNP; Kucl© EF Pharm Lanolin wax; Maltrin® M050; MANUCOL® DM; MANUCOL® DMF; MANUCOL® LB MANUGEL® DMB; Methocel® 310 Series; Methocel® A4C Premium EP; Methocel® A4M Premium EP; Methocel® E15LV Methocel® E50LV Premium; Methocel® J5MS; Natralube™ 107; Nitrocellulose; Phenyl trimethicone Polidronium chloride; Polyacrylic acid; Polyethylene; Polyquaternium-1; Polyvinyl acetate

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<td>film-former, spray bandages: antiseptic PVP/VA E-335; PVP/VA E-535; PVP/VA E-635; PVP/VA I-335 PVP/VA I-535; PVP/VA I-735; PVP/VA S-630</td>
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<td>TIC Pretested® Gum Guar TICOLV FCC Powd.; Tylose® H 4000 G4 PHA</td>
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film-former, tablet cores
Kollidon® 12PF; Kollidon® 17PF; Kollidon® 25; Kollidon® 30; Kollidon® 90F

film-former, tablets
Byco A; Byco C; Flojel® 60; Flojel® 65; Flojel® G
Polyvinyl acetate phthalate; Sammi Gelatine; Silicone emulsion; Sureteric™; TIC Pretested® Bright Gum Arabic FCC/NF Powder
TIC Pretested® Gum Arabic White 3871 Powd.; Vee Gee Beef Hide Hydrolysate Gelatin; Vee Gee Fish Hydrolysate Gelatin; Vee Gee Porkskin Hydrolysate Gelatin

film-former, taste masking
Ethocel™ Standard 4 Premium; Ethocel™ Standard 7 Premium; Ethocel™ Standard 14 Premium; Ethocel™ Standard 20 Premium; Ethocel™ Standard 45 Premium Ethocel™ Standard 100 Premium

film-former, texture modification
Instant Pure-Cote™ B793

film former, therapeutic transdermals
Kollicoat® IR

film-former, therapeutic transdermals
Kollicoat® EMM 30 D

film-former, topical gels
Acrylates/C10-30 alkyl acrylate crosspolymer

film former, topicals
Dow Corning® Silmogen Carrier

film former, topicals
Acrylates/C10-30 alkyl acrylate crosspolymer; Byco M; Candelilla (Euphorbia cerifera) wax; Ceraphyl® 50; Diglycol/CHDM/isophthalates/SIP copolymer
Dimethicone propylethlenediamine behenate; Glyceryl polyacrylate; Hydroxylated lanolin; Hydroxypropyl methylcellulose; Pecogel® GC-310 Pecogel® H-12; Pecogel® H-115; Pecogel® H-1220; Pecogel® S-1120; Plastoid® Polyacrylic acid; Polyethylene; PVP/dimethiconylacrylate/polycarbamyl/polyglycol ester; PVP/dimethylaminoethylmethacrylate copolymer; PVP/dimethylaminoethyl methacrylate/polycarbamyl polyglycol ester PVP/polycarbamyl polyglycol ester; Spray Dried Fish Gelatin; Super Refined® Crodamol SCO; Triocytldodecyl citrate

film-former, topical sprays
Copolyvidone; Kollidon® VA 64; Kollidon® VA 64 Fine

film-former, transdermals
Kollidon® VA 64; Kollidon® VA 64 Fine

film-former, transmucosals
Kollidon® VA 64

film-former, transmucosal systems
Kollidon® VA 64 Fine

film-former, vaginals
Polyethylene

film-former, vitamins
Plasdone® C-15; Plasdone® C-30; TIC Pretested® Ticalose® CMC 15 Fine Powd.

film-former, vitamins: pharmaceuticals
Hi-Cap™ 100

film-former, vitamin suspensions
TIC Pretested® Colloid 488T Powd.; TIC Pretested® Colloid 602 Powd.

film-former, water-repellent: ointments
Acylan

film-former, water-repellent: pharmaceuticals
Acylan

film-former, water-resistant films
Acetylated lanolin

film-former, water-resistant: ointments
Ritasol

film-former, water-soluble: capsules
Ethylene/MA copolymer

film-former, water-solution capsules
Ethylene/MA copolymer

film-former, wet granulation
Byco A; Byco C; Maltrin® M050

film former, wet granulation: delayed release
API porous matrix tablets
Controlled/Sustained Release Coat S12.5; Controlled/Sustained Release Coat S100

film-former, w/o products
Fancol™ CH

film-former, wound-dressing sprays
Plastoid®

film-former, wound healing films
KELGIN® XL; KELTONE® LVNP

film-forming protein source, high m.w.
Spray Dried Hydrolysed Fish Gelatin

film, tablets: erythromycin
Albumen

film, water repellent: barrier creams/sprays
Dow Corning® 360 Medical Fluid (20 cst); Dow Corning® 360 Medical Fluid (100 cst); Dow Corning® 360 Medical Fluid (350 cst); Dow Corning® 360 Medical Fluid (1000 cst); Dow Corning® 360 Medical Fluid (12,500 cst)
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<td>Benzyl alcohol</td>
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<td>Citric acid</td>
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<td>Flavored agent, natural: buccals</td>
<td>Bergamot (Citrus aurantium bergamia) oil; Carrot (Daucus carota) extract; Pennyroyal (Mentha pulegium) extract; Thyme oil red; Wild marjoram extract</td>
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<td>Flavored agent, natural: carminative</td>
<td>Anise (Pimpinella anisum) oil; Clove (Eugenia caryophyllus) oil; Peppermint (Mentha piperita) oil; Spearmint (Mentha viridis) oil; Star anise (Illicium verum) oil</td>
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<td>Flavored agent, natural: eye lotions</td>
<td>Peppermint (Mentha piperita) oil</td>
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<td>Flavored agent, natural: inhalants</td>
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<tr>
<td>Flavored agent, natural: mouthwashes</td>
<td>Cinnamon (Cinnamomum cassia) oil</td>
</tr>
<tr>
<td>Flavored agent, natural: oral hygiene products</td>
<td>Rose oil</td>
</tr>
<tr>
<td>Flavored agent, natural: OTC products</td>
<td>Oleoresin capsicum</td>
</tr>
<tr>
<td></td>
<td>Aloe extract</td>
</tr>
<tr>
<td>Flavored agent, natural: pharmaceuticals</td>
<td>Aconitic acid; Alfalfa (Medicago sativa); Alfalfa (Medicago sativa) extract; Allspice (Pimenta officinalis); Aloe barbadensis extract</td>
</tr>
<tr>
<td></td>
<td>Aloe extract</td>
</tr>
<tr>
<td></td>
<td>Althea officinalis extract; Ambrette (Hibiscus abelmoschus) seed oil; Angelica (Angelica archangelica) root oil; Angelica (Angelica archangelica) seed oil</td>
</tr>
<tr>
<td></td>
<td>Angostura (Galipea officinalis) extract; p-Anisaldehyde; Anise (Pimpinella anisum); Anise (Pimpinella anisum) oil; Asafetida (Ferula asafoetida) gum</td>
</tr>
<tr>
<td></td>
<td>Asafetida (Ferula asafoetida) oil; Asafetida (Ferula foetida) extract; Balm mint (Melissa officinalis); Balm mint (Melissa officinalis) extract; Balm mint (Melissa officinalis) oil</td>
</tr>
<tr>
<td></td>
<td>Balsam Canada (Abies balsamea); Balsam Peru (Myroxylon pereirae); Balsam tolu (Myroxylon balsamum); Basil (Ocimum basilicum); Basil (Ocimum basilicum) oil</td>
</tr>
<tr>
<td></td>
<td>Bay (Pimenta acris) oil; Birch (Betula alba) oil; Bitter almond (Prunus amygdalus amara) oil; Bitter orange (Citrus aurantium amara) oil; Blackberry (Rubus fruticosus)</td>
</tr>
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Functional/Application Index

Blackberry (Rubus villosus) extract; Black caraway (Nigella sativa); Black pepper (Piper nigrum) oil; Blackthorn berries (Prunus spinosa); Bois de rose (Aniba rosaedora) oil

Cinnamon (Cinnamomum cassia) oil

Cinnamon (Cinnamomum cassia) extract

Elder flowers

Crete

Calamus oil

Chestnut (Castanea sativa) extract

Citrus extract

Clove; Clove; Clove

Clary (Salvia sclarea) extract

Cinnamomum cassia)

Cinnamomum cassia) oil

Cinnamomum zeylanicum) extract; Cinnamon (Cinnamomum zeylanicum) leaf oil; Citronella (Cymbopogon nardus) oil

Citrus extract; Civet; Clary (Salvia sclarea) oil; Clove; Clove (Eugenia caryophyllus) extract

Clove (Eugenia caryophyllus) leaf oil; Clove (Eugenia caryophyllus) oil; Clover (Trifolium pratense) extract; Cognac oil, green or white; Cold Pressed Grapefruit Oil

Coriander (Coriandrum sativum) oil; Corn (Zea mays) silk; Costus (Saussurea lappa) oil; Cubeb (Piper cubeba) oil; Cumin (Cuminum cyminum) oil

Custosense Ginger; Custosense Rosemary; Custosense Sage; Custosense Sandalwood; Custosense Thyme

Custosense Ylang-Ylang; Damiana (Turnera diffusa); Dandelion (Taraxacum officinale) extract; Davana (Artemisia pallens) oil; Dill (Anethum graveolens)

Dill (Anethum graveolens) seed oil; Dill (Anethum graveolens) weed oil; Dittany of Crete; Dog rose (Rosa canina) hips extract; Elder flowers

Eucalyptus globulus oil; Fennel (Foeniculum vulgare); Fennel (Foeniculum vulgare) oil; Fenugreek (Trigonella foenum-graecum); Fenugreek (Trigonella foenum-graecum) extract

Galanga; Garlic (Allium sativum) oil; Gentian (Gentiana lutea) extract; Geranium maculatum oil; Ginger (Zingiber officinale) oil

Grapefruit (Citrus grandis) oil; Guaiac (Guaiacum officinale) extract; Gum benzoin; Hickory bark extract; Hops (Humulus lupulus) extract

Hops (Humulus lupulus) oil; Horehound (Marrubium vulgare) extract; Horsemint (Monarda punctata) extract; Hyssop (Hyssopus officinalis) extract; Juniperus communis extract

Juniperus communis oil; Kelp; Kola (Cola acuminata) extract; Labdanum (Cistus labdaniferus); Laurel (Laurus nobilis) berries

Lavandin (Lavandula hybrida) oil; Lavender oil; Lemon (Citrus medica limonum) extract; Lemon (Citrus medica limonum) juice; Lemon (Citrus medica limonum) oil

Lemongrass oil East Indian; Lemongrass oil West Indian; Licorice (Glycyrrhiza glabra); Licorice (Glycyrrhiza glabra) extract; Lime (Citrus aurantifolia) oil

Linaloe (Bersera delpechiana) wood oil; Linden flowers; Linden (Tilia americana) extract; Linden (Tilia cordata) extract; Linden (Tilia vulgaris) extract

Lovage (Levisticum officinale) oil; Mace (Myristica fragrans); Mace (Myristica fragrans) oil; Mandarin orange oil; Musk (Moschus moschiferus)

Myrrh (Commiphora myrrha) oil; Nutmeg (Myristica fragrans) oil; Oak bark extract; Oleoresin basil; Oleoresin black pepper

Oleoresin capsicum; Oleoresin ginger; Oleoresin marjoram; Oleoresin paprika; Oleoresin parsley leaf

Oleoresin parsley seed; Oleoresin turmeric

Olibanum (Boswellia carterii) oil; Onion (Allium cepa) oil; Orange (Citrus aurantium dulcis) extract

Orange (Citrus aurantium dulcis) flower oil; Orange (Citrus aurantium dulcis) oil; Orange (Citrus aurantium dulcis) peel extract; Orange oil, distilled; Orange tincture

Oregano; Origanum oil; Orris root extract;
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<th>Functional/Application Index</th>
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<tr>
<td>Quillaja (Quillaja saponaria)</td>
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<tr>
<td>needle oil; Millefolium)</td>
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<tr>
<td>Pogostemon cablin) oil; Peach (Prunus persica) kernel oil; Pennyroyal (Mentha pulegium) oil</td>
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<td>Needle oil; Pine (Pinus sylvestris) needle oil; Pine (Pinus sylvestris) needle oil; Poppyseed (Papaver somniferum); Quassia</td>
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<tr>
<td>Quillaja (Quillaja saponaria); Quince (Pyrus</td>
</tr>
<tr>
<td>cydonia) seed; Rose geranium</td>
</tr>
</tbody>
</table>
| (Pelargonium graveolens) oil; Rosemary | N-Ethyl-p-menthane-3-carboxamide; Frescolat MGA; Frescolat® ML; N,2,3-
| (Rosmarinus officinalis) oil; Rose oil | Trimethyl-2-isopropylbutamidine |
| Rose (Rosa centifolia) water; Rue | flavoring agent, oral syrups |
| Rue (Ruta graveolens) oil; Saffron (Crocus | MSG |
| sativus); Sage (Salvia lavandulafolia) oil | flavoring agent, otics |
| Sage (Salvia officinalis); Sage (Salvia | Acetic acid; Citric acid |
| officinalis) oil; Sambucus nigra oil; | flavoring agent, parenterals |
| Sandalwood (Santalum album) oil; | Benzoic acid; Lactic acid; Sodium acetate trihydrate; Sodium chloride; Sodium lactate; Sodium propionate; Sodium succinate |
| Sarsaparilla (Smilax aristolochiacefolia) | flavoring agent, pharmaceuticals |
| extract | Acacia; Acetic acid; Acetone; Acetophenone; 3-Acetyl-2,5-dimethylfuran |
| Sassafras (Sassafras officinale) extract; | Acetyl methyl carbinol; Acetyl propionate; Acetyl mesityl oxide; Acetyl methylcarbinol; Acetyl 3-methylbutyrate |
| Senna (Cassia obovata) extract; | Acetyl phenylethylcarbinol; Acetyl propionate; Acetyl mesityl oxide; Acetyl methylcarbinol; Acetyl 3-methylbutyrate |
| Serpentaria (Aristolochia clematitis) | Acetylmethylcarbinol; 2-Acetylpyrazine; 2-Acetylpyridine; 3-Acetylpyridine; ADM Clintose® Dextrose C |
| extract; Sodium Hyaluronate Bio; | ADM Clintose® Dextrose F; ADM Clintose® Dextrose Greens; ADM Clintose® Dextrose VF; Allyl caproate; Amyl acetate |
| Spearmint (Mentha spicata); Spearmint | Amyl 2-furoate; Amyl heptanoate; Amyl hexanoate; Anethole Extra USP 21/22, FCC; p-Anisic acid |
| (Mentha viridis) oil; Spruce oil; | p-Anisyl alcohol; Arabinogalactan; Arlac S; Barley (Hordeum distichon) extract; Benzoic acid |
| Star anise (Illicium verum) oil; Illicium | Benzyl alcohol; N-Benzylamine; Benzyl butyrate; Biphenyl; Brominated vegetable oil |
| verum); Summer savory (Satureia | n-Butylamine; Butylene glycol; |
### Functional/Application Index

- Butylparaben; Butyrophenone; Caffeine
- Camphor; Capric acid; Caprylic acid; Carboxymethylcellulose; Cardamom (Elettaria cardamomum)
- Casein; Cinnamyl alcohol; Citral; Citric acid; Citronellol 96 FCC
- Citronellol AJ FCC; β-Citronellol; Clintose® A; 42/43 Corn Syrup; Corn syrup solids
- Coumarin; m-Cresol; α-Cresol; p-Cresol; β-Cyclohextrin
- Decanal; 3-Decanone; Denatonium benzoate; Diacetyl; Dicyclohexyl disulfide
- Dihydroabietyl behenate; d-Dihydrocarvone; Dihydro-β-ionone; 3,4-Dihydroxybenzaldehyde; Diisobutyl ketone o-Dimethoxybenzene; 2,6-Dimethoxyphenol; 2,4-Dimethylbenzaldehyde;
- Diphenyl oxide; Dipotassium glycyrrhizate
- Disodium guanylate; Diphenyl oxide; Disodium inosinate; Ethyl acetate; α-N-Ethyl-p-menthan-3-carboxamide; Ethyl palmitate
- p-Ethylphenol; Ferric chloride; Gluconolactone; Glucose; L-Glutamine
- Glyceryl tribenzoate; Glyceryl tripalmitate; 3,4-Hexanediol; 3-Hexanol; 3-Hexanone Histidine hydrochloride monohydrate; Honey; Hydrogenated lecithin; Hydrolyzed vegetable protein; α-Hydroxyacetophenone
- p-Hydroxybenzaldehyde; N-Hydroxysuccinic acid; Insta*Thick® Gum Arabic; DL-Isoleucine; o-Isovalerylphenol p-Isovalerylphenol; Isopropyl tiglate; Isosafrole; Lactic acid; L-Leucine di-Limonene; L-Lysine hydrochloride; Magnesium chloride hexahydrate; Malt extract; Mentha arvensis oil
- Mentholactone; 2-Mercaptobenzonitrile; DL-Methionine; L-Methionine; 2-Methoxy-3(5)-methylpyrazine
- 2-Methylbutyl acetate; 3-Methyl-2-cyclohexen-1-one; Methyl dihydrojasmonate; Methyl 2-furoate; α-Methylnaphthalene
- 3-Methylpentanoic acid; 2-Methyl-2-pentenoic acid; trans-2-Methyl-2-pentenoic acid; MSG; Myrtenol
- 2-Nonanol; Oleic imidazolium methosulfate; Peppermint Oil DMO; Peppermint spirit; Phenethyl alcohol
- DL-Phenylalanine; L-Phenylalanine; 1-Phenyl-1,2-propanedione; Phenyl salicylate; Potassium chloride
- L-Proline; Propylene carbonate; Propylene glycol dibenzoate; Pyrazine; Pyroligneous acid
- Pyrrole; Quinine hydrochloride; Quinine sulfate; Resorcinol; Rice (Oryza sativa) wax
- Sarsaparilla; Sodium acetate trihydrate; Sodium chloride; Sodium lactate; Sodium phosphate dibasic anhydrous
- Sodium propionate; Sodium succinate; Sucrose; Sweet almond (Prunus amygdalus dulcis) oil; Syrup
- α-Terpineol; 4,5,6,7-Tetrahydro-3,6-dimethylbenzofuran; Thaumatine; Theaspirane; L-Threonine
- Thyme (Thymus vulgaris) extract; TIC Pretested® Bright Gum Arabic Pre-Hydrated®; TIC Pretested® Gum Arabic #1 Powder; TIC Pretested® Gum Arabic 6/60 FCC Granular; TIC Pretested® Gum Arabic BEV-101 GR Powd.
- TIC Pretested® Gum Arabic BEV-202 Powder; TIC Pretested® Gum Arabic FT Pre-Hydrated®; TIC Pretested® Gum Arabic Spray Dry FCC Powd.; TIC Pretested® Gum Arabic TP Powder; TIC Pretested® Nutriloid® Arabic Spray Dry Powd.
- TIC Pretested® Pre-Hydrated® Gum Arabic Spray Dry FCC Powd.; TIC Pretested® Gum TICorganic™ Arabic Spray Dry Powd.; o-Tolyl isobutyrate; Tricaprylin; Triethyl citrate
- N,2,3-Trimethyl-2-isopropylbutamide; Trimethyl thiazole; L-Tyrosine; L-Valine; Vanillin isobutyrate
- Vanillyl alcohol; (1S)-(−)-Verbenone; 2,5-Xylenol; 2,6-Xylenol

flavoring agent, rectals
- Benzoic acid; Butylparaben

flavoring agent, synthetic
- Eastman® Triacetin, Food Grade; p-Menth-1-en-9-yl acetate; Pyridine

flavoring agent, synthetic: aromatic preparations
- Bornyl acetate

flavoring agent, synthetic: aromatic products
- Bornyl acetate

flavoring agent, synthetic: bronchitis formulations
- Menthol

flavoring agent, synthetic: bronchitis products
- Menthol

flavoring agent, synthetic: buccals
- Menthol; Methyl salicylate; Thymol
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| Flavoring Agent, Synthetic: Cough Drops | Aldehyde C 18 Socalled; Allyl anthranilate; Allyl butyrate; Allyl cinnamate; Allyl cyclohexaneacetate; Allyl cyclohexanebutyrate; Allyl cyclohexanecaproylate; Allyl cyclohexanevalerate; Allyl diisulfide; Allyl 2-ethylbutyrate; Allyl heptanoate; Allyl α-ionone; Allyl isothiocyanate; Allyl isovalerate; Allyl mercaptan; Allyl nonanoate; Allyl octanoate; Allyl phenoxyacetate; Allyl phenylacetate; Allyl propionate; Allyl sorbate; Allyl sulfide; Allyl tiglate; Allyl 10-undecenoate; Ambrettolide; Ammonium isovalerate; Ammonium sulfide; n-Amyl alcohol; Amyl butyrate; α-Amylcinnamaldehyde; α-Amylcinnamaldehyde dimethyl acetal; α-Amylcinnamyl acetate; α-Amylcinnamyl alcohol; α-Amylcinnamyl formate; α-Amylcinnamyl isovalerate; Amyl formate; Amyl octanoate; Amyl salicylate; Anethole Anisole; p-Anisyl acetate; Anisyl butyrate; Anisyl formate; Anisyl phenylacetate; Anisyl propionate; Avapoll™ 60; Avapoll™ 80; Benzaldehyde; Benzaldehyde dimethyl acetal; Benzaldehyde glyceryl acetal; Benzaldehyde propylene glycol acetel; Benzoin; Benzophenone; Benzyl acetate; Benzyl acetoacetate; Benzyl benzoate; Benzyl butyl ether; Benzyl cinnamate; Benzyl 2,3-dimethylcrotonate; Benzyl dipropyl ketone; Benzyl disulfide; Benzyl ether; Benzyl ethyl ether; Benzyl formate; Benzyldiene acetone; Benzyl isobutyrate; Benzyl isovalerate; Benzyl mercapta; Benzyl methoxethyl acetel; Benzyl phenylacetate; Benzyl propionate; Benzylsalicylate; DL-Borneol; Bornyl formate; Bornyl isovalerate; Bornyl valerate; Butan-3-one-2-yl butyrate; Butter acids; Butter esters; n-Butyl acetate; Butyl acetoacetate; Butyl alcohol; Butyl anthranilate; Butyl butyrate; Butyl butyryl lactate; α-Butylcinnamaldehyde; Butyl cinnamate; Butyl 2-decenoate; Butyl ethyl malonate; Butyl formate; Butyl

- **Menthol**
- **Caramel**
- **Anethole; Methyl salicylate**
- **Anethole**
- **Propyl alcohol**
- **Eugenol**
- **Menthol; Thymol**
- **Menthol**
- **l-Carvone**
- **Anethole; Cinnamal; Propyl alcohol; Thymol**
- **Tributylin**
- **Custosense Menthol**
- **p-Propyl anisole**
- **Acetyl tributyl citrate; Anethole; Benzoin; Caramel; Cinnamal**
- **Ethyl maltol; Ethyl vanillin; Eugenol; Heliotropine; Isopropyl alcohol**
- **Maltol; Menthol; Methyl salicylate; Triacetin**
- **Eugenol**
- **Acetal; Acetaldehyde; Acetaldehyde phenethyl propyl acetal; Acetanisole; Acetisoeugenol**
- **2′-Acetonaphthone; Acetophenone; Acetylacetone; Acetyl butyryl; Aldehyde C 14 Socalled**

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heptanoate; Butyl hexanoate; Butyl isobutyrate
n-Butyl isovalerate; Butyl lactate; Butyl laurate; Butyl levulinate; Butyl phenylacetate
n-Butyl propionate; Butyl stearate; Butyl sulfide; Butyl 10-undecenoate; Butyl valerate
n-Butyraldehyde; n-Butyric acid; Camphene; Camphene P&F, FCC; Caproic acid
Caprylic alcohol; Caramel; Carvacrol; Carvacryl ethyl ether; Cardene
4-Carvomenthenol; Carvone; d-Carvone; l-Carvone; Carvyl acetate
Carvyl propionate; β-Caryophyllene; 1,4-Cineole; Cinnamal; Cinnamaldehyde
ethylene glycol acetal
Cinnamic acid; Cinnamyl acetate; Cinnamyl anthranilate; Cinnamyl butyrate; Cinnamyl cinnamate
Cinnamyl formate; Cinnamyl isobutyrate; Cinnamyl isovalerate; Cinnamyl phenylacetate; Cinnamyl propionate
Citral diethyl acetal; Citral dimethyl acetal; Citronellal; Citronelloxyacetalddehyde; Citronellyl acetate
Citronellyl butyrate; Citronellyl formate; Citronellyl isobutyrate; Citronellyl phenylacetate; Citronellyl propionate
Citronellyl valerate; o-Cresyl acetate; p-Cresyl acetate; Cuminaldehyde; Cuminic alcohol
Custosense MS; Cyclamen aldehyde; Cyclohexanecarboxylic acid; Cyclohexyl acetate; Cyclohexyl anthranilate
Cyclohexyl butyrate; Cyclohexyl cinnamate; Cyclohexylethyl acetate; Cyclohexyl formate; Cyclohexyl isovalerate
Cyclohexyl propionate; p-Cymene; Δ-Decalactone; γ-Decalactone; Decanal dimethyl acetal
cis-4-Decen-1-al; 3-Decen-2-one; Decyl acetate; Decyl alcohol; Decyl butyrate
Decyl propionate; 4,4-Dibutyl-γ-butyrolactone; Diethylacetic acid; Diethyl DL-malate; Diethyl maleate
Diethyl malonate; Diethyl sebacate; Diethyl succinate; Diethyl tartrate; 2,5-Diethyltetrahydrofuran
Dihydrocarveol; Dihydrocarvyl acetate; Dihydrocumarin; m-Dimethoxybenzene; p-Dimethoxybenzene

2,4-Dimethylacetophenone; Dimethyl anthranilate; Dimethylbenzyl carbinol; Dimethylbenzyl carbinyl acetate; α,α-Dimethylbenzyl isobutyrate
2,6-Dimethyl-5-heptenal; 2,6-Dimethyl octanal; Dimethyloctanol P&F; 3,7-Dimethyl-1-octanol; α,α-Dimethylenphenyl butyrate
α,α-Dimethylenphenyl formate; 2,3-Dimethylpyrazine; 2,5-Dimethylpyrazine; 2,6-Dimethylpyrazine; Dimethyl succinate
Dimethyl sulfide; Dipentene Extra; 1,3-Diphenyl-2-propanone; δ-Dodecalactone; γ-Dodecalactone
2-Dodecenal; Eastman® Butyraldehyde, Dry; Estragole; p-Ethoxybenzaldehyde; Ethylacetoacetate
Ethyl-2-acetyl-3-phenylpropionate; Ethyl acetonate, mixed esters; Ethyl acrylate; Ethyl-p-anisate; Ethyl anthranilate
p-Ethylbenzaldehyde; Ethyl benzoeate; Ethyl benzoyleacetate; α-Ethylbenzyl butyrate; 2-Ethylbutyl acetate
2-Ethylbutyraldehyde; Ethyl butyrate; Ethyl caproate; Ethyl cinnamate; Ethyl crotonate
Ethyl cyclohexanepropionate; Ethyl decanoate; 2-Ethyl-3,5(6)-dimethylpyrazine; Ethylene brassylate; Ethyl formate
2-Ethylfuran; Ethyl-2-furanpropionate; 4-Ethylguaiaicol; Ethyl heptanoate; 2-Ethyl-2-heptenal
2-Ethylhexanol; Ethyl isobutyrate; Ethyl isovalerate; Ethyl lactate; Ethyl laurate
Ethyl levulinate; Ethyl malto; Ethyl-2-methylbutyrate; Ethyl methylphenylglycidate; Ethyl 3-(methylthio) propionate
Ethyl myristate; Ethyl nitrite; Ethyl-2-nonynoate; Ethyl octanoate; Ethyl pelargonate
Ethyl phenylacetate; Ethyl-4-phenylbutyrate; Ethyl phenylglycidate; Ethyl-3-phenylpropionate; Ethyl propionate
Ethyl pyruvate; Ethyl salicylate; Ethyl sorbate; Ethyl stearate; Ethyl tiglate
Ethyl undecanoate; Ethyl 10-undecenoate; Ethyl valerate; Ethyl vanillin; Eucalyptol Eugenol; Eugenyl acetate; Eugenyl benzoate; Eugenyl formate; Exxal® 11
Farnesol; d-Fenchone; l-Fenchone; Fenchyl alcohol; Formic acid
Furfural; Furfuryl acetate; Furfuryl alcohol; Furfuryl butyrate; (2-Furyl)-2-propanone
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<th>Functional/Application Index</th>
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<tr>
<td>Fusel oil refined; Geraniol; Geranyl acetate; Geranyl acetoacetate; Geranyl acetone</td>
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<tr>
<td>Geranyl benzoate; Geranyl butyrate; Geranyl formate; Geranyl hexanoate; Geranyl isobutyrate</td>
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<td>Geranyl isovalerate; Geranyl phenylacetate; Geranyl propionate; α-D-Glucose</td>
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<td>pentaacetate; Guaiacol</td>
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<td>Guaiacyl acetate; Guaiacyl phenylacetate; Heliotropine; γ-Heptalactone; Heptanal</td>
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<td>Heptanal dimethyl acetal; Heptanal glyceryl acetal (mixed 1,2 and 1,3 acetals); 2,3-Heptanediene; Heptanoic acid; 3-Heptanol</td>
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<td>3-Heptanone; 4-Heptanone; cis-4-Hepten-1-ol; Heptyl acetate; Heptyl alcohol</td>
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<td>Hydroxycitronellal; Hydroxycitronellal diethyl acetal; Hydroxycitronellal dimethyl acetal; Hydroxycitronellol; 4-Hydroxy-2,5-dimethyl-3(2H) furanone</td>
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<td>5-Hydroxy-4-octanone; 4-(p-Hydroxyphenyl)-2-butanone; Indole; α-Ionone; β-Ionone</td>
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<td>α-Irone; Isoamyl acetate; Isoamyl acetoacetate; Isoamyl alcohol; Isoamyl benzoate</td>
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<td>Isoamyl butyrate; Isoamyl cinnamate; Isoamyl formate; Isoamyl 4-(2-furan) butyrate; Isoamyl 3-(2-furan) propionate</td>
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  myristoyl sarcosinate; STEPANOL® ME
  Dry; STEPANOL® WA-100 NF/USP;
  Zoharpon SLS

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  Crodasinic LS35

foam builder, dermatological liquid cleansers
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foam builder, dermatologicaLS
  PEG-10-PPG-10 glyceryl stearate

foam builder, dermopharmaceuticals
  Capryl/capryl glucoside; Decyl glucoside

foam builder, first aid creams
  Palmitoyl collagen amino acids

foam builder, germicidal scrubs
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foam builder, gum-sensitive toothpastes
  Adinol CT95

foam builder, hard capsules
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foam builder, medicated ointments
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foam builder, medicated treatments
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  sulfosuccinate

foam builder, medicinal soaps
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foam builder, pharmaceutical coatings
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- Polawax® A31

foam builder, rectals
- Cetyl alcohol

foam builder, soft capsules
- Sammi Gelatine

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- Methocel® K4M Premium

foam builder/stabilizer, dentifrices
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- Polysynth HBU 185

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- Sodium lauroyl sarcosinate

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- PEG-3 cocamide MEA

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- Sodium lauroyl sarcosinate

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- Trideceth-10

foam builder, veterinary products
- Lauramidopropyl PEG-dimonomium chloride phosphate; Lauroampho PEG-glycinate phosphate

foam control agent, medical applications
- Dow Corning® 7-9245; Dow Corning® Medical Antifoam C Emulsion

foam control agent, nonaqueous systems
- Foam Blast® 5; Foam Blast® 7; Foam Blast® 10

foam control agent, pharmaceuticals
- Dow Corning® 7-9245; Dow Corning® Antifoam 1520-US; Dow Corning® Medical Antifoam C Emulsion; Foam Blast® 5; Foam Blast® 7
- Foam Blast® 10; Sentry® Simethicone GS

foamer, dentifrices
- Sulfochem® SLP-95; Texapon® K-12 Needles

foamer, tablets
- Texapon® K-12 Needles

foaming agent
- Isostearamide DEA

foaming agent, antibacterial hand soaps
- DeCONC HS-30
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- **foaming agent, antidandruff shampoos**
  - Disodium undecylenamido MEA-sulfosuccinate; Laureth

- **foaming agent, antiseptic creams**
  - Colonial ALES-1; Colonial ALES-2

- **foaming agent, contraceptive foams**
  - Colonial ALES-1; Colonial ALES-2

- **foaming agent, dental products**
  - Sodium N-oleoyl sarcosinate

- **foaming agent, dentifrices**
  - Emal 0; Emal 10G; Emal 10PT; Emal 20C; Emal 20CM; Emal 20T; Emal 270; Emal E-27C; Lapyrium chloride
  - Lauramidopropyl PEG-dimonium chloride phosphate; Lauroampho PEG-glycinate phosphate; Magnesium lauryl sulfate; Myristamine oxide; PEG-50 hydrogenated tallowamide
  - PEG-80 sorbitan laurate; Protachem™ ES-2; Sodium cocoyl isethionate; Sodium laureth sulfate; Sodium lauryl sulfocacetate
  - Sodium methyl cocoyl taurate; Sodium myristyl sulfate; Sodium N-oleoyl sarcosinate; Sodium trideceth sulfate; STEPANOL® WA Extra PCK
  - TEA-dodecylbenzenesulfonate; TEA-lauryl sulfate; Trideceth-10; Trilaurin

- **foaming agent, dermatologicals**
  - PEG-10-PPG-10 glyceryl stearate

- **foaming agent, dermopharmaceuticals**
  - Caprylyl/capryl glucoside; Decyl glucoside

- **foaming agent, diaper rash preventives**
  - Colonial ALES-1; Colonial ALES-2

- **foaming agent, eczema**
  - Amisoft CS-22

- **foaming agent, first aid creams**
  - Palmitoyl collagen amino acids

- **foaming agent, medicated conditioners**
  - Chembetaine® CGF

- **foaming agent, medicated ointments**
  - STEPANOL® WAC-P; STEPANOL® WA Extra PCK

- **foaming agent, medicated shampoos**
  - Chembetaine® CGF

- **foaming agent, medicated soaps/shampoos**
  - Sodium laureth-5 carboxylate

- **foaming agent, medicated treatments**
  - Disodium undecylenamido MEA-sulfosuccinate

- **foaming agent, medicinal soaps**
  - Potassium cocoate

- **foaming agent, mouthwash gargles**
  - Hydrogen peroxide

- **foaming agent, ophthalmics**
  - Cocamidopropyl PG-dimonium chloride phosphate

- **foaming agent, pharmaceuticals**
  - Ammonium lauryl sulfate; Canionic LAA; Canionic LTA; Canionic SLES(2); Canionic SLES(3)
  - Coco-betaine; DEA-lauryl sulfate; Disodium cocoamphodiacetate; Disodium lauryl sulfosuccinate; Disodium PEG-4 cocamido MIPA sulfosuccinate
  - Disodium undecylenamido MEA-sulfosuccinate; Emal 0; Emal 10G; Emal 10PT; Emal 20C

- **foaming agent, surgical scrubs**
  - Empigen® OB; Lauramine oxide

- **foaming agent, therapeutic shampoos**
  - Coco-betaine

- **foaming agent, topicals**
  - PEG-50 hydrogenated tallowamide; Sodium cocoyl isethionate; Sodium laureth sulfate; Sodium lauryl sulfocacetate; TEA-lauryl sulfate
  - Trideceth-10

- **foaming agent, veterinary products**
  - Lauramidopropyl PEG-dimonium chloride phosphate; Lauroampho PEG-glycinate phosphate

- **foam stabilizer**
  - Allyloxypolyethylene glycol methyl ether

- **foam stabilizer, alcoholic products**
  - Lanexol AWS

- **foam stabilizer, antacids**
  - Keltrol® T; Keltrol® TF

- **foam stabilizer, aqueous products**
  - Lanexol AWS

- **foam stabilizer, aqueous topicals**
  - Solan

- **foam stabilizer, creams/lotions**
  - PEG-75 lanolin

- **foam stabilizer, elixirs**
  - Keltrol® T

- **foam stabilizer, emulsions**
  - PEG-75 lanolin

- **foam stabilizer, germicidal hand soaps**
  - Lanogel® 21; Lanogel® 41

- **foam stabilizer, lotions/creams**
  - Keltrol® T; Keltrol® TF

- **foam stabilizer, medicated syrups**
  - Keltrol® T; Keltrol® TF
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foam stabilizer ointments
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foam stabilizer, oral mineral oil emulsions
Keltrol® T

foam stabilizer pharmaceutical emulsions
Aminoxid WS 35

foam stabilizer pharmaceuticals
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foam stabilizer, pharmaceuticals
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AMMONYX® MCO; AMPHOSOL® CG;
Gantrez® AN-139
Gantrez® AN-149; Gantrez® AN-169;
Keltrol® T; Keltrol® TF; Methyl hydroxyethylcellulose
Nikkol BPS-5; Nikkol BPS-10; Nikkol BPS-20;
Nikkol BPS-30; NINOL® 30-LL
NINOL® 40-CO; NINOL® 70-SL; NINOL® 96-SL;
NINOL® CMP; NINOL® GR
NINOL® L-9; NINOL® LMP; Palmitamine oxide;
PEG-27 lanolin; PEG-40 lanolin
PEG-70 lanolin; PEG-75 lanolin; PEG-5 phytosterol;
PEG-10 phytosterol; PEG-15 phytosterol
PEG-20 phytosterol; PEG-25 phytosterol;
PEG-30 phytosterol; Rhodgeil® Clear 80;
Solan 50 Tylose® MH Grades; Tylose® MHB

foam stabilizer, topicals
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TEGO®-Betain L-7

folic acid source, pharmaceuticals
Yeast

foot rot infection treatment ingredient,
 veterinary products
Zinc sulfate heptahydrate

formulation aid, capsules
Compritol® 888 ATO

formulation aid, oils
Propylene glycol alginate

formulation aid, pharmaceuticals
Propylene glycol alginate

formulation aid, tablets
Compritol® 888 ATO

fortifier, nutritional preparations
redivivo™ (lycopene) 10% FS

fortifier, pharmaceutical soft gelatin capsules
redivivo™ (lycopene) 10% FS

fragrance
2-Ethylhexyl salicylate; alpha-Pinene P&F;

beta-Pinene P&F; Super-Cepionate®

fragrance, aqueous alcoholic systems
Procetyl AWS

fragrance, aqueous systems
Procetyl AWS

fragrance, bronchitis products
Menthol

fragrance, buccals
Menthol; Methyl salicylate; Spearmint (Mentha viridis) oil; Thymol

fragrance, chest rubs
Menthol

fragrance, cough drops
Menthol

fragrance, dental products
Menthol

fragrance, dentifrices
Methyl salicylate

fragrance, inhalants
Menthol; Thymol

fragrance, liniments
Menthol; Thymol

fragrance, lip balms
Thymol

fragrance, localized pain products
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fragrance, natural: orals
Spearmint (Mentha viridis) oil

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Methyl anthranilate

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Menthol; Methyl salicylate
Spearmint (Mentha viridis) oil

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Amylcinnamaldehyde; Amyl salicylate;
Anethole
Anethole Extra USP 21/22, FCC; p-
Anisaldehyde; p-Anisic acid; p-Anisyl alcohol;
Benzophenone
Benzyacetone; Benzyl cinnamate;
Butyrophenone; (exo)-2-Camphanyl-β-
hydroxyethyl ether; Camphene P&F, FCC
Captex® CA; l-Carvone; Cinnamyl alcohol;
Citral; Citronellol 96 FCC
Citronellol AJ FCC; β-Citronellol; Coumarin;

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  L-Glutamic acid
gellant
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  TEGO® Carbomer 140
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  SeaSpen® PF; Viscarin® GP-109NF; Viscarin® GP-209NF
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gellant, clear water gels
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gellant, controlled drug releases
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gellant, gargles
  Lutrol® F 127
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  Keltrol® CR
gellant, hydrophilic anhydrous ointments
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  - Glycerin; D-Mannitol; Polyethylene

- **humeectant, oral ampoules**
  - Neosorb® 20/20 B; Neosorb® 70/70 B; Neosorb® 70/70 SB; Neosorb® 70/90 B; Neosorb® 70/90 SB; Neosorb® HDS

- **humeectant, oral hygiene products**
  - Hystar® TPF

- **humeectant, orals**
  - Aluminum hydroxide; Fructose; Glycerin; Liponic 70-NC; Liponic 76-NC; D-Mannitol; PEG-20 stearate; Polyethylene; Propylene glycol; Sodium lactate

- **humeectant, OTC products**
  - Aloe Vera Whole Leaf Gel

- **humeectant, otics**
  - Propylene glycol

- **humeectant, parenterals**
  - Glycerin; D-Mannitol; Propylene glycol; Sodium lactate

- **humeectant, pharmaceutical cleansing**
  - Instant Pure-Cote™ B793; Maltrin® M150

- **humeectant, pharmaceutical creams**
  - Aloe Vera Whole Leaf Gel; Cremophor® A 6; Ultrapeg 300 USP; Ultrapeg 400 USP; Ultrapeg 600 USP; Ultrapeg 1000 USP; Ultrapeg 1500 F USP; Ultrapeg 1500 USP; Ultrapeg 4000 F USP; Ultrapeg 6000 F USP; Ultrapeg 8000 F USP

- **humeectant, pharmaceutical creams/lotions**
  - Carbowax® PEG 400; Carbowax® PEG 600; C*Maltidex L 16303; C*Maltidex M 16311; Colonial LAO; HTL HYP Hyaluronic Acid 85%; HTL MYP Hyaluronic Acid 93%; Maltrin® M040; Maltrin® M150; Myristyl myristate

- **humeectant, pharmaceutical emulsions**
  - Water Lock® C200

- **humeectant, pharmaceutical emulsions**
  - C*Sorbidex C 16121; C*Sorbidex C 16122;
### Handbook of Pharmaceutical Additives, Third Edition

**Humectant, Pharmaceutical Gels**
- Aloe Vera Whole Leaf Gel

**Humectant, Pharmaceutical Liquids**
- Maltrin® M150

**Humectant, Pharmaceutical O/W Emulsions**
- Cremophor® A 6

**Humectant, Pharmaceutical Pastes**
- Neosorb® 20/20 B; Neosorb® 70/70 B; Neosorb® 70/70 SB; Neosorb® 70/90 B; Neosorb® 70/90 SB; Neosorb® HDS

**Humectant, Pharmaceutical Pastilles**
- Neosorb® 20/20 B; Neosorb® 70/70 B; Neosorb® 70/70 SB; Neosorb® 70/90 B; Neosorb® 70/90 SB; Neosorb® HDS

**Humectant, Pharmaceuticals**
- Acido laluronico Sale Sodico; Aluminum hydroxide; Amalty®; Aminogluten MG; Ammonium alginate; Arlac S; Arlex™ 83; Barley (Hordeum distichon) extract; Biowax 754; Caprol® 10G40; Carbowax® PEG 300; Carbowax® Sentry® PEG 300; Carbowax® Sentry® PEG 400; Carbowax® Sentry® PEG 540 Blend; Carbowax® Sentry® PEG 600; Carbowax® Sentry® PEG 900; Carbowax® Sentry® PEG 1000; Carbowax® Sentry® PEG 1450; Carbowax® Sentry® PEG 3350; Carbowax® Sentry® PEG 4600; Carbowax® Sentry® PEG 8000; CP Glycerine; CP Glycerine Kosher; Cremophor® A 6; Croderol GA7000; Dimethicone copolyol phosphate; Dimethicone propylethoxylatediethanol; behenate; Dow Glycerine 96% USP; Dow Glycerine 99.5% USP/EP; Ethosperse® G-26 Ethosperse® LA-4; Ethosperse® LA-12; Ethosperse® SL-20; Ethyl linolate; Fancol™ HL; Fancol™ LA; Fancol™ LAO; Fancol™ VB; Fatty; Fructose; GPG™ 3565; GPG™ 7030; Glicerina USP; Glicerina USP V; Glycereth-26 Glycereth-5 lactate; Glycerin; Hexylene glycol; Hyaluronic acid; Hyamine® 3500 80% NF; Hydrogenated lanolin; Hystar® 8070; Inositol; Isopentylidiol; Kemstrene® 96.0% USP; Kemstrene® 99.7% USP; Lanolin wax; Lauryl methyl gluceth-10; hydroxypropyldimonium chloride; Linoleato Etile; Linol Linoleato Etile; Lipo Polyglycol 8000; Lipo Polyglycol 20000; Lipoxol® 3000; Lumulse® PEG 300; Lumulse® PEG 400; Lumulse® PEG 3350; Malt extract; D-Mannitol; Moon™ Glycerine USP K; Moon™ Kosher Glycerine USP NK; Natralube™ 120; Non-Diastatic Malt Syrup #40600; Optim™ Glycerine 99.7; Panthenyl triacetate; Patlac® LA USP; PEG-16; PEG-60; PEG-90; PEG-45M; PEG-60 lanolin; PEG-85 lanolin; PG USP; Pionier® Glycerine 86.5%; Pionier® Glycerine 99.5%; Polydextrose; Polyethylene; Polyglyceryl-6 dioleate; Polyglyceryl-10 dioleate; Polypax PGMS; Polyoquat 188; Potassium dimethicone copolyol phosphate; Potassium lactate; PPG-20 methyl glucose ether distearate; Pricerine™ 9081; Pricerine™ 9083; Pricerine™ 9088; Pricerine™ 9091; Pricerine™ 9099; Propylene glycol; Propylene Glycol USP, FCC; Propylene glycol dioctanoyl; Protachem™ CTG; Proteinivit; Purac® PH 88; Purasal® P/HQ 60; Purasal® S/HQ 60; Purasal® S/PF 60; Quaternium-22; Rice syrup solids; Sodium hyaluronate; Sodium lactate; Solan 50; Sorbitol-20; Sorbitol; Sorbitol Sol’n. High Mannitol; Sorbo® 70% Sorbitol Sol’n. USP/FCC; Sorbogem™; Star™ Glycerine USP, FCC; Star™ K Glycerine USP, FCC; Star™ V Glycerine USP, FCC; Superol™; Superol™ K (kosher); Superol™ V (vegetable); T-1855; humectant, pharmaceuticals: medical nutritionals; Maltrin® M150; humectant, pharmaceuticals: spray-drying; Maltrin® M150; humectant, pharmaceutical suspensions; Neosorb® 20/20 B; Neosorb® 70/70 B; Neosorb® 70/70 SB; Neosorb® 70/90 B; Neosorb® 70/90 SB; Neosorb® HDS; humectant, pharmaceutical syrups; ADM Invert Blend 90% Invert/76.7% Solids; Neosorb® 20/20 B; Neosorb® 70/70 B; Neosorb® 70/70 SB; Neosorb® 70/90 B
**Functional/Application Index**

- Neosorb® 70/90 SB; Neosorb® HDS
  - humectant, pharmaceutical vehicles
    - Agnique GLY96; Emery® 916; Emery® 917

- Neosorb® 70/90 SB
  - humectant, powders
    - Hyamine® 3500 80% NF

- Neosorb® HDS
  - humectant, rectals
    - Glycerin; Sorbitol
  - humectant, solutions
    - Sorbitol

- Neosorb® HDS
  - humectant, sports supplements
    - Caprol® 10G40

- Neosorb® HDS
  - humectant, sugar-free pharmaceuticals
    - Sorbitol Sol’n. Noncrystallizing

- Neosorb® 70/90 SB
  - humectant, suppositories
    - Caprol® 10G40; Polyglyceryl-6 dioleate; Propylene glycol dioctanoate

- Neosorb® 70/90 SB
  - humectant, suspensions
    - Sorbitol

- Neosorb® 70/90 SB
  - humectant, syrups
    - Sorbitol

- Neosorb® 70/90 SB
  - humectant, tablets
    - Neosorb®

- Neosorb® 70/90 SB
  - humectant, topical analgesics
    - Aloe Vera Whole Leaf Gel

- Neosorb® 70/90 SB
  - humectant, topical anesthetics
    - Aloe Vera Whole Leaf Gel

- Neosorb® 70/90 SB
  - humectant, topicals
    - Acetamide MEA; Colonial LAO;
      - Dimethicone copolyol phosphate;
      - Dimethicone propylethynediamine behenate; Glucam® E-10
      - Glucam® E-20; Glucquat® 125; Glycerin-767
      - Hexylene glycol; Hydrolyzed wheat protein/dimethicone copolyol phosphate copolymer; Lauryl methyl gluceth-10
      - Hydroxypropylidimonium chloride; Methyl glucose dioleate; Myristyl myristate
      - Neosorb® 20/20 B; Neosorb® 70/70 B;
      - Neosorb® 70/70 SB; Neosorb® 70/90 B;
      - Neosorb® 70/90 SB
      - Neosorb® HDS; PEG-4; Pelemol® G7A;
      - Pelemol® G45L; Polyethylene
      - Potassium dimethicone copolyol phosphate; PPG-5-ceteth-20; Procetyl AWS;
      - Propylene glycol; Schercomid AME-70
      - Schercomid AME-100; Trilactin

- Neosorb® 70/90 SB
  - humectant, vaginals
    - Polyethylene; Propylene glycol

- Neosorb® 70/90 SB
  - humectant, vitamin supplements
    - Amalty®

- Neosorb® 70/90 SB
  - hydrating agent, health products
    - Lasilium® C

- Neosorb® 70/90 SB
  - hydration agent, cutaneous: health products
    - Algismus C

- Neosorb® 70/90 SB
  - hydrgel, controlled drug delivery
    - Polyvinyl alcohol

- Neosorb® 70/90 SB
  - hydrgel, polymeric: topicals
    - Pecogel® GC-310; Pecogel® GC-1110;
      - Pecogel® H-12; Pecogel® H-115; Pecogel® H-1220
      - Pecogel® S-1120

- Neosorb® 70/90 SB
  - hydrogen halide scavenger, pharmaceuticals
    - Cyclohexene oxide

- Neosorb® 70/90 SB
  - hydrolysis inhibitor
    - Ethocel™ Standard 14 Premium

- Neosorb® 70/90 SB
  - hydrophilic prepolymer, foambale:
    - biocompatible coatings
      - Polyurethane prepolymer

- Neosorb® 70/90 SB
  - hydrophilic prepolymer, foambale: drug delivery vehicles
    - Polyurethane prepolymer

- Neosorb® 70/90 SB
  - hydrophobing agent
    - C18 acid triglyceride; Hydrogenated tallow;
      - Softenol® 3118

- Neosorb® 70/90 SB
  - hydrophobing agent, powders
    - Special Fat 168T

- Neosorb® 70/90 SB
  - hydrotrope
    - Sodium cumenesulfonate

- Neosorb® 70/90 SB
  - hydrotrope, aqueous systems
    - Nikkol HCO-80; Nikkol HCO-100

- Neosorb® 70/90 SB
  - hydrotrope, dermopharmaceuticals
    - Caprylyl/capryl glucoside

- Neosorb® 70/90 SB
  - hydrotrope, ophthalmics
    - Cocamidopropyl PG-dimonium chloride phosphate

- Neosorb® 70/90 SB
  - hydrotrope, pharmaceuticals
    - Batyl alcohol; Cetyl glyceryl ether; Chimyl alcohol; Nikkol CO-3; Nikkol HCO-5
    - Nikkol HCO-10; Nikkol HCO-20; Nikkol HCO-30; Nikkol HCO-40; Nikkol HCO-50
    - Nikkol HCO-60; Nikkol Batyl Alcohol 100, EX; Nikkol Chimyl Alcohol 100; PEG-3
    - castor oil; PEG-5 hydrogenated castor oil
      - PEG-7 hydrogenated castor oil; PEG-10
    - hydrogenated castor oil; PEG-20
    - hydrogenated castor oil; PEG-30
    - hydrogenated castor oil; PEG-50
    - hydrogenated castor oil
      - PEG-80 hydrogenated castor oil; PEG-100
    - hydrogenated castor oil

- Neosorb® 70/90 SB
  - hypercholesterolemia treatment
    - Taurine
Functional/Application Index

hypertension treatment
Piperazine

hypnotic, internal
Alcohol

hypnotic, medical applications
t-Amyl alcohol

hypocalcemia treatment, veterinary medicine
Calcium borogluconate

hypoglycaemia treatment
D-(+)-Glucose monohydrate

hypotensive, medicine
Potassium thiocyanate

I131, artificially synthesized: diagnostic
treatment
Iodate

I131, artificially synthesized: medical
treatment
Iodate

I131, artificially synthesized: radiation
treatment
Iodate

imaging agent, skeletal images
Medronic acid

immune response booster, nutritive
β-Glucan

incorporation promoter, liposoluble APIs
Glicopol G; Milipol G7; Milipol G-7; M Kemfluid 219-D; Monestrol DM
Monestrol GCT; Monestrol GE; Monestrol GP; Monestrol GP-35; Monestrol GP-35-3%
Monestrol GP-35-AE; Monestrol GP-40;
Monestrol GP-40-CF; Monestrol GP-40-DC;
Monestrol GP-45
Monestrol GP-45-DC; Monestrol GP-60;
MSOPB; MSOPB/G; Thomil G
Triol GCT-R; Triol GP-O; Triacetina;
Trioleina

infective skin treatment
Lactic acid

initiator
Benox® A-70 USP

ink, edible: pharmaceuticals
Opacode®; Opacode® WB

insect organism venom treatment
Aluminum sulfate

intermediate
C8-10 alcohols; C20-24 alcohols;
Hydrogenated menhaden acid; Isobutyl oleate; Nervonic acid
PEG-8 oleate; Pyridine

intermediate, alkaloids
BLO®

intermediate, ampicillin
Acetamide

intermediate, analgesics
BLO®

intermediate, anesthetics
BLO®

intermediate, anthelmintics
Aminoethylpiperazine

intermediate, antienzyme agents: tooth decay
preventive
Cocoyl sarcosine

intermediate, antihistamines
p-Anisaldehyde; Benzophenone; BP; Maleic acid; Velsicure® BTF

intermediate, anti-inflammatories
Benzy1 acetoacetate

intermediate, anti-malarial medicine
Quinidine

intermediate, barbiturates
Malonic acid

intermediate, beta-blocker Bisoprolol
3-Isopropylaminopropane-1,2-diol

intermediate, cephaclor
Acetamide

intermediate, chiral
Galacid Excel 50; Galacid Excel 80; Galacid Excel 88; Galacid Feed 80 - XT; Galacid Food 80
Galacid Food 80 Improved; Galacid Food 88; Galacid Food 88 Improved; Galacid Heat-Stable 80; Galacid Heat-Stable 88
Galacid Heat-Stable 90; Galacid Injectable 90; Galacid Pharma 90; Galacid Powder 25

intermediate, defoamers: pharmaceuticals
PPG-9; PPG-26

intermediate, dehydrator: pharmaceuticals
Dimethoxypropane

intermediate, ethambutol: tuberculosis
treatment
2-Aminobutanol

intermediate, flavors
1,2-Methylenedioxybenzene

intermediate, fragrances
1,2-Methylenedioxybenzene

intermediate, glycerol derivatives
CP Glycerine; CP Glycerine Kosher;
Moon™ Kosher Glycerine USP NK; Star™ K Glycerine USP, FCC; Star™ V Glycerine USP, FCC

intermediate, health care products
Methyl tosylate

intermediate, hypnotics
Velsicure® BTF

intermediate, keratin exfoliates:
calluses/corns
Phenoxyacetic acid
Functional/Application Index

intermediate, local anesthetics
- Picolinic acid

intermediate, lubricants: pharmaceuticals
- PPG-9; PPG-26

intermediate, medicine
- Quinaldine

intermediate, metal salts: nutritional supplements
- Picolinic acid

intermediate, organic: pharmaceuticals
- α-Picoline

intermediate, peptide drugs
- L-Methionine

intermediate, pharmaceuticals
- Acetophenone; Acetylacetone; Acetyl chloride; AEPD®; Allyl mercaptan
- p-Aminobenzoic acid
- Aminoethylpiperazine; Aminoethylpropanediol; Aminomethylpropanediol;
  Ammonium lactate
- s-Amyl alcohol; m-Anisidine; o-Anisidine;
  p-Anisidine; Anisole
- p-Anisyl alcohol; Anthranilic acid; Arsenic trichloride; Benzaldehyde; Benzoin
- N-Benzylamine; Bis (aminopropyl) piperazine; Butyl acetoacetate; n-
  Butylamine; t-Butylamine
- Butyl lactate; Butyrocolactone;
- Chloroacetophenone; m-Chloroaniline; o-
  Chloroaniline
- p-Chloroaniline; Chloroform; 2-
  Chloropyridine; Cumar; Cuminaldehyde
- Dialllyl maleate; 2,6-Diaminopyridine; 2,3-
  Dibromo-1-propanol; 1,3-Dichloro-5,5-
  dimethyl hydantoin; Diethylacetic acid
- Diethylaminoethanol; Diethyl cyanomethyphosphonate; Diethyl toluene diamine; Dimethylolpropionic acid; Diphenyl chlorophosphate
- N,N′-Diphenyl-p-phenylenediamine;
  Dodecene-1; Dytek® A; Eastman® HQMME;
  Eastman® MAA
- Epiol M-0; Epiol OH; Ethylacetoacetate; p-
  Ethylbenzaldehyde; Ethyl benzoylacetate
- Ethylene carbonate; Ethyl formate; Ethyl-p-
  toluenesulfonate; p-Fluorophenol; Furan
- Gluconolactone; Glycolid;
- Hexamethylenimine; Dytek® HMI;
- Hydrogenated coconut acid
- Hydrogenated lanolin; Hydrogenated
  menhaden oil; Hydrogenated soybean oil;
- Industrene® 206; Ionol CP
- Isatin; p-Isobutylnbenzaldehyde;
- Isopropylamine; 3-Isopropylaminopropane-
- 1,2-diol; Lauric acid
- Levulinic acid; Maleic acid; 2-
  Mercaptoethanol; p-Methoxyphenylacetic
  acid; Methyl acetoacetate
- 4′-Methyl acetoephone; Methyl
  anthranilate; 4-Methylpentanoic acid; 3-
  Methylpyridine-1-oxide; Methyl tosylate
- α-Monomethylhydantoin; NB; NEPD™;
  Neustrene® 060; Niacinamide
- Nicotinonitrile; Nitric acid; 2-Nitro-1-
  butanol; 2-Nitro-2-ethyl-1,3-propanediol; 5-
  Nitroisophthalic acid
- 2-Nitro-2-methyl-1-propanol; 1-
  Nitropropane; 2-Nitropropane; Nonanoic
  acid; Phenoxyisopropanol
- Phenyl dichlorophosphate; Phenyl glycidyl ether; N-Phenyl-p-phenylenediamine;
  Philacid 1200; Phthalimide
- Picolinic acid; Piperidine; Pluracol® E1000;
  Potassium thiocyanate; Purasolv® BL
- Pyrogallol; 2-Pyrrolidone; Quadrol® Polyol;
  Sodium bromide; Sodium thiocyanate
- Spezial C 18 ISO C; Squalene; Suberic acid;
  Tetrahydrofuran; Tetrahydroxypropyl
  ethylenediamine
- Tetraisopropyl methylendiphosphonate;
  Thioglycerin; p-Toly aldehyde; Triethyl
  phosphonoacetate; Triethyl phosphonoformate
- 2,2,2-Trifluoroethanol; Triisopropyl
  phosphite; Trimethyl phosphite;
  Tripropylene glycol; Tris (hydroxymethyl)
  aminomethane
- n-Valeric acid; Velsicure® BTF; D(+)-Xylose

intermediate, pharmaceuticals: ethambutol synthesis
- AB®

intermediate, reactive: pharmaceuticals
- Methyl butynol; Methyl pentynol

intermediate, specialty chemicals:
- pharmaceuticals
  Decene-1

intermediate, surfactants: pharmaceuticals
- Decene-1

intermediate, synthetic pharmaceuticals
- Acetonitrile

intermediate, vitamin A
- Citral

intermediate, vitamin B
- Acetonitrile

intermediate, vitamins
- Ethylacetoacetate; Methyl acetoacetate

intestinal disorder treatment
- Kaolin
Functional/Application Index

intestinal gas treatment
  Cardamom (Elettaria cardamomum)
intestinal problem treatment
  Bismuth
iodine dietary supplement
  Calcium iodate; Calcium iodide
iodine source, animal nutrition
  Calcium iodate
iodine source, dietary: pharmaceuticals
  Potassium iodine
iodine source, herbal products
  Kelp
iodine source, pharmaceuticals
  Kelp
ion exchange resin, pharmaceuticals
  Dowex™ 1 x 2; Dowex™ 1 x 4; Dowex™ 1 x 8; Dowex™ 2 x 2; Dowex™ 22
  Dowex™ 50W x 2; Dowex™ 50W x 4; Dowex™ 50W x 8; Dowex™ 66; Dowex™ 88
  Dowex Mac 3; Dowex™ Marathon A;
  Dowex™ Marathon C; Dowex™ Marathon MR-3; Dowex™ Optipore SD-2
  Dowex™ Retardion 11A8
ion exchange resin, vitamins
  Dowex™ 1 x 2; Dowex™ 1 x 4; Dowex™ 1 x 8; Dowex™ 2 x 2; Dowex™ 22
  Dowex™ 50W x 2; Dowex™ 50W x 4; Dowex™ 50W x 8; Dowex™ 66; Dowex™ 88
  Dowex Mac 3; Dowex™ Marathon A;
  Dowex™ Marathon C; Dowex™ Marathon MR-3; Dowex™ Optipore SD-2
  Dowex™ Retardion 11A8
ion exchange resin, weakly basic:
  pharmaceutical purification
  Diethylaminoethyl cellulose
IR absorbent, topicals
  Boron nitride
iron source, infant formulas
  Ferric pyrophosphate
iron source, iron supplements
  Ferric pyrophosphate; Ferrous sulfate anhydrous
iron source, pharmaceuticals
  Ferrous fumarate; Ferrous sulfate anhydrous
iron supplement, children’s chewable multivitamins
  Ferronyl®
iron supplement, elixirs
  Ferronyl®
iron supplement, multivitamins
  Ferronyl®
iron supplement, pharmaceuticals
  Ferronyl®
Magnesium Oxide 310-SGR Heavy
Magnesium Oxide 310-SH Heavy;
Magnesium Oxide 311-S Light; Magnesium sulfate anhydrous
laxative, veterinary products
Psyllum
leveling agent, antidandruff shampoos
Bentone® EW
leveling agent, creams/lotions
PEG-8 laurate
leveling agent, ointments
MERPOL® HCS
leveling agent, percutaneous injectables
Dimethicone copolyol
leveling agent, pharmaceuticals
Antarox® 17-R-2; Antarox® 25-R-2;
Antarox® 31-R-1; Dimethicone copolyol;
PEG-4 laurate
PEG-8 laurate; PEG-12 laurate; PEG-4 stearate; PEG-8 stearate; PEG-12 stearate
Polyalkyleneoxide modified polydimethylsiloxane; Silwet® L-77;
Silwet® L-720 AP; Silwet® L-7500; Silwet® L-7602
Volpo C2; Volpo C20; Volpo L3
leveling agent, topicals
PEG-8 stearate
liniment
Cajeput (Melaleuca leucadendron) oil
lipid-peroxidation inhibitor
VC-PMG
lipid phase, microemulsions
Labrafil® M 2125 CS
lipolytic agent, health products
Algismium C
lipophilic agent, sustained-releases
Tribehenin
lipophilic matrix
Compritol HD5 ATO
lipophilic matrix, pharmaceuticals
Sucrose polystearate
lipoprotein, foaming: antidandruff shampoos
Sodium/TEA-undecenoyl collagen amino acids
liposome, APIs: dermatologicals
Natifide® II
liposome component, pharmaceuticals
Cholesterol HP
liquefier, pharmaceuticals
SD alcohol 40; SD alcohol 40-B
liver disease treatment
L-Arginine
lubricant
Acacia; Aluminum orthophosphate;
Butylene glycol dicaprylate/dicaprate;
Cachalot® AR-20; Cachalot® M-43
Ceteareth-4; Cocoa (Theobroma cacao) butter; Crodocol C-95 EP; 1-Decene, homopolymer, hydrogenated; DeTHOX SA-80
Drakeol® 32; Jeesorb O-20-K; Jojoba (Buxus chinensis) oil; Kaydol®; Lactamide MEA
Laureth-4; Lutrajel® RC; Naturechem® GMHS; Oleyl olate; Oxidized cellulose
Polypax SMS; Tricaprylin
lubricant,
Lutrol® F micro 127; Lutrol® F micro 68
lubricant, absorption enhancement
Caprol® ET
lubricant, acne creams/lotions
Crodamol PMP; Crodamol PTC; Crodamol PTIS; Crodamol SS; Pentaerythrityl tetracaprylate/tetraprate
lubricant, acne preparations
Foamox DML
lubricant, aerosols
Altalc 200 USP; Altalc 300 USP; Caprol® 10G100; Captex® 300; Captex® 355
Captex® 1000; Tricaprin
lubricant, alcoholic compositions
Lanexol AWS
lubricant, anhydrous systems
Syncrowax ERLC
lubricant, antibiotic ointments
Crodamol PMP; Crodamol PTC; Crodamol PTIS; Crodamol SS; Pentaerythrityl tetracaprylate/tetraprate
lubricant, aqueous compositions
Lanexol AWS
lubricant, autoclavable: enema tips
Glyceryl polymethacrylate
lubricant, autoclavable: medical applications
Glyceryl polymethacrylate
lubricant, autoclavable: prelubricating catheters
Glyceryl polymethacrylate
lubricant, autoclavable: surgical
Glyceryl polymethacrylate
lubricant, autoclavable: surgical applications
Glyceryl polymethacrylate
lubricant, autoclavable: thermometers
Glyceryl polymethacrylate
lubricant, balms
EmCon™ SAF
lubricant base, pharmaceuticals
EO/PO block polymer or copolymer
lubricant, burn creams
    Crodamol PMP; Crodamol PTC; Crodamol PTIS; Crodamol SS; Pentaerythritol tetracaprylate/tetracaprate

lubricant, capsules
    Calcium stearate; Carbowax® PEG 400;
    Carbowax® PEG 600; Castor (Ricinus communis) oil; Compritol 888
    Compritol® 888 ATO; Dritex S; Glyceril behenate; Hydrogenated cottonseed oil;
    Hydrogenated palm oil
    Magnesium stearate; Microcrystalline cellulose; Mineral oil; PEG-6; PEG-8
    PEG-12; PEG-20; PEG-75; PEG-150;
    Polyethylene glycol
    Sodium stearyl fumarate; Stearic acid; Talc; Tribehenin; Zinc stearate

lubricant, capsules: orals
    Polyethylene glycol

lubricant, catheters
    Lubrajel® CG; Lubrajel® DV; Lubrajel® MS;
    Lubrajel® Oil; Lubrajel® RC
    Lubrajel® TW; Lubrajel® WA

lubricant, clinical nutrition
    Capmul® GMS-50; Caprol® 10G10O;
    Caprol® ET; Captex® 300; Captex® 355
    EP/NF
    Captex® 355; Captex® 1000; Clarity; Dritex S; Hydrokote® 112
    Hydrokote® AP5; Hydrokote® M; Pureco® 76; Sterotex® K; Tricaprin

lubricant, coatings
    Capmul® GMS-50; Caprol® ET; Captex® 300; Captex® 355; Captex® 1000
    Clarity; Dritex S; Hydrokote® 112;
    Hydrokote® AP5; Hydrokote® M
    Tricaprin

lubricant, compressed tablets
    PEG-180

lubricant, compression: pharmaceuticals
    Sterotex® NF

lubricant, contact lens fluid
    Polyethylene glycol

lubricant, controlled-releases
    Lubritab®; Methocel® E4M Premium;
    Methocel® K4M Premium; Methocel® K15M Premium; Methocel® K100LV
    Premium
    Methocel® K100M Premium; Polyethylene glycol

lubricant, cough syrups
    Pluracol® E400 NF; Pluracol® E600 NF;
    Pluracol® E1450 NF

lubricant, creams
    PPG-2 myristyl ether propionate; Sebase; Triolein

lubricant, creams/lotions
    Altalc 200 USP; Altalc 300 USP; Arachidyl alcohol; Ceraphyl® 140; Decyl oleate
    Dritex S; Eutanol® G; Glyceril isostearate;
    L-45 Series; Lanolin oil
    Liponyl 10 BN 6058; Liponyl 10 BN 6069;
    Methocel® K4M Premium; Mineral oil; PEG-8 laurate
    PEG-40 stearate; Propylene glycol stearate

lubricant, delivery/absorption enhancement
    Capmul® GMS-50; Caprol® 10G10O;
    Captex® 300; Captex® 355; Captex® 1000
    Clarity; Polylglyceryl-10 decaoleate; Pureco® 76; Tricaprin

lubricant, delivery enhancement
    Caprol® ET

lubricant, demulcent: opthalmics
    Plasdone® K-29/32

lubricant, demulcent: pharmaceuticals
    Plasdone® K-29/32

lubricant, demulcent: topicals
    Plasdone® K-29/32

lubricant, dental adhesives
    Perfecta®; Protopet® White 1S; Super White Protopet®

lubricant, dental products
    Crodasinic LS35; Lipoxol® 3350 MED; PEG-40 stearate; Sodium N-oleoyl sarcosinate

lubricant, dental waxes
    Multiwax® W-445

lubricant, dentifrices
    Carbowax® PEG 1450; Carbowax® PEG 3350; Hydrogenated starch hydrolysate;
    Hystar® CG; Laurolyl sarcosine
    Liponic 70-NC; Liponic 76-NC; Sarkosyl® O

lubricant, dermatological emulsions
    Capmul® GMS-50; Captex® 8227;
    Triundecanoin

lubricant, dermatologicals
    Caprol® 10G100; Caprol® ET; Captex® 300;
    Captex® 355; Captex® 800
    Captex® 1000; Cetina; Clarity; Dritex S;
    Hydrokote® 112
    Hydrokote® AP5; Hydrokote® M;
    Polyglyceryl-10 decaoleate; Propylene glycol diocotanoate; Shea butter
    (Butyrosperum parkii)
    Solulan® 16; Solulan® 75; Solulan® L-575;
    Stearamide DEA; Sterotex® K
    Sterotex® NF; Tricaprin
lubricant, direct compression
- Lubritab®; Starch 1500®; Starch 1500® G; Starch 1500® LM

lubricant, direct compression: tablets
- Spress® B820

lubricant, drug delivery systems
- Capmul® GMS-50K

lubricant, dry granulation
- Pure-Dent® B700

lubricant, dry granulation: tablets
- Spress® B820

lubricant, encapsulation
- Hydrokote® 112; Hydrokote® AP5; Hydrokote® M; Sterotex® NF

lubricant, enema tips
- Lubrajel® CG; Lubrajel® DV; Lubrajel® MS; Lubrajel® Oil; Lubrajel® RC; Lubrajel® TW; Lubrajel® WA

lubricant, examination gloves
- Corn (Zea mays) starch; Pure-Dent® B851; Pure-Dent® B852

lubricant, external: pharmaceuticals
- EmCon™ W; Miglyol® 812

lubricant, flavors
- Polysorbate 61

lubricant, gelatin capsules
- Captex® 1000; Clarity; Drakeol® 5; Drakeol® 7; Hydrogenated coconut oil; Tricaprin

lubricant, gel capsules
- Aldo® MCT KFG

lubricant, hypodermic needles
- Dow Corning® 360 Medical Fluid (20 cst); Dow Corning® 360 Medical Fluid (100 cst); Dow Corning® 360 Medical Fluid (350 cst); Dow Corning® 360 Medical Fluid (1000 cst); Dow Corning® 360 Medical Fluid (12,500 cst)

lubricant, IM injectables
- Castor (Ricinus communis) oil

lubricant, infant formulas
- Capmul® GMS-50; Capmul® GMS-50K; Caprol® 10G10O; Caprol® ET; Captex® 300; Captex® 355; Captex® 1000

lubricant, injection suspensions
- Olive (Olea europaea) oil

lubricant, internal: laxatives
- Kaydol®

lubricant, IV emulsions
- Super Refined® Olive NF; Super Refined® Sesame NF; Super Refined® Soybean USP

lubricant, laxatives
- Dioctyl calcium sulfosuccinate; Dioctyl sodium sulfosuccinate; Drakeol® 9; KELTOSE®; Stamere® CK-S NF FCC; Stamere® N-325 NF FCC; Stamere® N-350 NF FCC; Stamere® N-350 S NF FCC; Stamere® NI NF FCC

lubricant, liniments
- Arachidyl alcohol; Olive (Olea europaea) oil; Sesame (Sesamum indicum) oil; Super Refined® Olive NF; Super Refined® Sesame NF; Super Refined® Soybean USP

lubricant, lip balms
- Glyceryl triacetyl ricinoleate; Naturechem® CR; Naturechem® GTR

lubricant, liquid products
- Lutrol® E 300; Lutrol® E 400

lubricant, medical
- Lubrajel® CG; Lubrajel® DV; Lubrajel® MS; Lubrajel® Oil; Lubrajel® TW; Lubrajel® WA

lubricant, medical devices
- Silbione™ Oils 70047 V50

lubricant, medical plastic devices/instruments
- Dow Corning® 360 Medical Fluid (20 cst); Dow Corning® 360 Medical Fluid (100 cst); Dow Corning® 360 Medical Fluid (350 cst); Dow Corning® 360 Medical Fluid (1000 cst); Dow Corning® 360 Medical Fluid (12,500 cst)

lubricant, medical rubber devices/instruments
- Dow Corning® 360 Medical Fluid (20 cst); Dow Corning® 360 Medical Fluid (100 cst); Dow Corning® 360 Medical Fluid (350 cst); Dow Corning® 360 Medical Fluid (1000 cst); Dow Corning® 360 Medical Fluid (12,500 cst)

lubricant, medicated creams
- Multiwax® W-445

lubricant, medicated foot powders
- Altalc 200 USP

lubricant, medicated ointments
- Mineral Jelly No. 17; Perfecta®; Super White Protopet®

lubricant, medicated products
- Ceraphyl® 50

lubricant, medicated unguents
- Multiwax® W-445

lubricant, medicinalcs
- Superla® No. 5; Superla® No. 7; Superla® No. 9; Superla® No. 10; Superla® No. 13; Superla® No. 18; Superla® No. 21;
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| Lubricant, Mg-stearate incompatible APIs | Sabowax EGDS; Sabowax EGMS; Sabowax GF; Sabowax GMS; Sabowax HCO; Sabowax HRP; Sabowax HRP/T; Sesame (Sesamum indicum) oil; Super Refined® Olive NF; Super Refined® Sesame NF; Super Refined® Soybean USP; Synpro® Calcium Stearate NF; Synpro® Magnesium Stearate NF; Ultrapeg 300 USP; Ultrapeg 400 USP; Ultrapeg 600 USP; Ultrapeg 1000 USP; Ultrapeg 1500 F USP; Ultrapeg 1500 USP; Ultrapeg 4000 F USP; Ultrapeg 6000 F USP; Ultrapeg 8000 F USP; Walnut (Juglans regia) oil; Zinc stearate |
| Lubricant, nonsurgical applications | Lubricant, ophthalmic ointments/suspensions |
| Lubricant, nutrition | Mineral oil |
| Lubricant, nutritional products | Lubricant, ophthalmics |
| Lubricant, nutritional/sports supplements | Lipoxol® 3350 MED; PEG-6; PEG-40 stearate; Polyethylene glycol; Polyvinyl alcohol |
| Lubricant, nutrition/sports supplements | Lubricant, oral caplets |
| Lubricant, oil-based pharmaceuticals | Lipoxol® 3350 MED |
| Lubricant, oils | Lubricant, oral hygiene products |
| Lubricant, ointments | Hystar® TPF |
| Lubricant, otics | Lubricant, oral solid dosages |
| Lubricant, parenterals | Castor (Ricinus communis) oil; Starch 1500®; Starch 1500® G; Starch 1500® LM |
| Lubricant, parenterals | Lubricant, oral tablets |
| Lubricant, OTC products | Lipoxol® 3350 MED |
| Lubricant, o/w emulsions | Lubricant, otics |
| Lubricant, parenterals | PEG-40 stearate |
| Lubricant, parenterals | Lubricant, o/w emulsions |
| Lubricant, parenterals | Sebase |

| Lubricant, ophthalmics | Sebase |
| Lubricant, parenterals | Lubricant, parenterals |

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| Superla® No. 31; Superla® No. 35; | Superla® No. 38; Superla® No. 50 |
| Lubricant, oils | Ultrapeg 300 USP; Ultrapeg 400 USP; Ultrapeg 600 USP; Ultrapeg 1000 USP; Ultrapeg 1500 F USP; Ultrapeg 1500 USP; Ultrapeg 4000 F USP; Ultrapeg 6000 F USP; Ultrapeg 8000 F USP; Walnut (Juglans regia) oil; Zinc stearate |
| Lubricant, nutrition | Lubricant, ophthalmics |
| Lubricant, nutritional products | Lubricant, ophthalmics |
| Lubricant, nutritional/sports supplements | Lubricant, ophthalmics |
| Lubricant, nutrition/sports supplements | Lubricant, ophthalmics |
| Lubricant, oil-based pharmaceuticals | Lubricant, ophthalmics |
| Lubricant, oils | Lubricant, ophthalmics |
| Lubricant, ointments | Lubricant, ophthalmics |
| Lubricant, otics | Lubricant, ophthalmics |
| Lubricant, parenterals | Lubricant, ophthalmics |

| Superla® 10G10O; Captex® 800; Pureco® 76 | Lubricant, ophthalmics |
| Lubricant, moisture-sensitive products | Lubricant, ophthalmics |
| Lubricant, microemulsions | Lubricant, ophthalmics |
| Lubricant, nutrition | Lubricant, ophthalmics |
| Lubricant, nutritional/sports supplements | Lubricant, ophthalmics |
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| Lubricant, oil-based pharmaceuticals | Lubricant, ophthalmics |
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| Lubricant, ointments | Lubricant, ophthalmics |
| Lubricant, otics | Lubricant, ophthalmics |
| Lubricant, parenterals | Lubricant, ophthalmics |

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Hystrene® 9512; Hystrene® 9718 NF; Imwitor® 191
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Isocetyl myristate; Isopropyl lanolate; Isopropyl laurate; Isopropyl palmitate; Isopropyl stearate
Isostearyl isostearate; Isostearyl lactate; Jaguar® 308NB; Jarcol™ I-18T; Jarcol™ I-20
Kaydol®; Kemilub EA; Kemilub EB; Kemilub EM-F; Kemilub ES-F
Kemilub EZ-F; Kemilub LZ; Kemistab EC-F; Lanaeltex CO; Laneto 100-Flaked
Lanolin Pharmaceutical; Lanolin USP; Lanolin wax; Lauric acid; Lauroyl sarcosine
Lipo 142; Lipocol P-15; Liponyl 10 BN 6058; Liponyl 10 BN 6069; Liposorb S-20K
Liposorb TS-20A; Lipowax ES; Lipowax ES-C; Lipoxol® 300 MED; Lipoxol® 400 MED
Lipoxol® 4000 MED; Lipoxol® 6000 MED; Macadamia ternifolia nut oil; Macol® 52; Macrogol 200
Macrogol 400; Macrogol 1000; Macrogol 1500; Macrogol 4000; Macrogol 6000 Flake
Macrogol 6000 Powd.; Macrogol 20000; Mazol® GMS-K; Meadowfoam (Limnanthes alba) seed oil; Meroxapol 172
Meroxapol 174; Meroxapol 311; Methocel® 310 Series; Methocel® A4C Premium EP; Methocel® A4M Premium EP
Methocel® E15LV; Methocel® E50LV Premium; Methocel® J5MS; Methyl cocoate; Methyl gluceth-20 disterate
Microcrystalline wax; Miglyol® 810; Miglyol® 812; Miglyol® 840; Miglyol® 8810
Mineral Jelly No. 17; Mineral oil; Multiwax® 180-W; Multiwax® ML-445; Multiwax® W-445
Myristyl lactate; Natralube™ 107; Natralube™ 120; Octydodecanol; Octydodecyl stearyl stearate
Oleth-5; Oleyl erucate; Oleyl olate; Olive (Olea europaea) oil; Palmitic acid
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PEG-4 tallate; Penreco Amber; Penreco Blond; Penreco Cream; Penreco Lily
Penreco Royal; Penreco Super; Pentaerythrityl tetracaprylate/tetracaprate; Pentaerythrityl tetraisostearate; Perfecta® Phoenotaine C-35; Phytol™ O; Pinnacle™ 170 USP White Petrolatum; Pinnacle™ 170A USP Amber Petrolatum; Pinnacle™ 190 USP White Petrolatum
Pinnacle™ 190A USP Amber Petrolatum; Pinnacle™ 225 USP White Petrolatum; Pinnacle™ 225A USP Amber Petrolatum
Pinnacle™ LC 170 Petrolatum, USP; Pinnacle™ LC 190 Petrolatum, USP; Pinnacle™ LC 225 Petrolatum, USP; Pinnacle™ WF 170 Petrolatum, USP; Pinnacle™ WF 190 Petrolatum, USP; Pinnacle™ WF 225 Petrolatum, USP
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Pionier® 7646; Pionier® 8693; Pionier® 17004; Pionier® 17146; Pluracol® E1000
Pluracol® E2000; Pluracol® E4500; Pluracol® E8000; Polyalkyleneoxide modified polydimethylsiloxane; Polyglyceryl-10 decaoleate
Polyglyceryl-10 dioleate; Polyglyceryl-10 hexaoleate; Polyglyceryl-10 tetraoleate
Polyox® WSR 205; Polypax IPM
Polypax IPP; Polypax PD 6000; Polypax PGMS; Polypax SMO; Polypax SMO (Tech)
Polysorbate 61; Powdered Guar Gum Type A; Powdered Guar Gum Type AA; Powdered Guar Gum Type B
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Propylene glycol oleate; Propylene glycol
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**Dow Corning® 360 Medical Fluid (100 cst); Dow Corning® 360 Medical Fluid (350 cst); Dow Corning® 360 Medical Fluid (1000 cst); Dow Corning® 360 Medical Fluid (12,500 cst)**

- **lubricant, rubbing alcohol**
  - PEG-2M; PEG-5M; PEG-7M; PEG-9M; PEG-14M
  - PEG-20M; PEG-23M; PEG-45M; PEG-90M; PEG-115M
  - Polyethylene glycol; Polyox® WSR 205; Polyox® WSR 301; Polyox® WSR 303; Polyox® WSR 308; Polyox® WSR 1105; Polyox® WSR Coagulant; Polyox® WSR N-10; Polyox® WSR N-12K; Polyox® WSR N-60K; Polyox® WSR N-80; Polyox® WSR N-750

- **lubricant, skin**
  - Wheat germ glycerides

- **lubricant, soaps**
  - Sesame (Sesamum indicum) oil

- **lubricant/softener, ointments**
  - Stearic acid

- **lubricant/softener, suppositories**
  - Stearic acid

- **lubricant, soft gelatin capsules**
  - Captex® 300; Captex® 300EP; Captex® 355 EP/NF; Captex® 355; Dritex S
  - Estasan™ GT 8-40 3578; Estasan™ GT 8-60 3575; Estasan™ GT 8-60 3580; Estasan™ GT 8-65 3577; Estasan™ GT 8-65 3581
  - Estasan™ GT 8-70 3579; Hydrokote® 112; Hydrokote® AP5; Hydrokote® M; Labrafac® CC

- **lubricant, solid dosages**
  - Cithrol GMS 0400

- **lubricant, solid/semisolid pharmaceuticals**
  - Precirol ATO 5

- **lubricant, sports supplements**
  - Caprol® ET; Captex® 355; Dritex S; Hydrokote® 112; Hydrokote® AP5; Hydrokote® M

- **lubricant, stick products**
  - Arachidyl alcohol

- **lubricant, suppositories**
  - Capmul® GMS-50; Capmul® GMS-50K; Caprol® 10G10O; Caprol® ET; Captex® 800
  - Cocoa (Theobroma cacao) butter; Dritex S; Emersol® 6332; Hydrogenated coconut oil; Hydrogenated cottonseed oil; Hydrogenated palm oil; Hydrogenated vegetable oil; Hydrokote® 112; Hydrokote®
Functional/Application Index

AP5; Hydrokote® M
Miglyol® 812; Mineral Jelly No. 17; Mineral oil; Octyldodecyl stearoyl stearate;
Polyglyceryl-10 decaoleate
Polysorbate 61; Propylene glycol
dioctanoate; Protopet® White 1S;
Protopet® Yellow 2A; Shea butter (Butyrosperrnum parkii)
Sterotex® HM NF; Sterotex® K; Sterotex® NF; Ultrapeg 1000 USP; Ultrapeg 1500 F USP
Ultrapeg 1500 USP; Ultrapeg 4000 F USP;
Ultrapeg 6000 F USP; Ultrapeg 8000 F USP

lubricant, surgical
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Lubrajel® Oil; Lubrajel® TW
Lubrajel® WA; Oxidized cellulose

lubricant, surgical gloves
Altalc 325 USP; Corn (Zea mays) starch;
Pure-Dent® B851; Talc

lubricant, surgical scrubs
Sodium lauroyl sarcosinate

lubricant, suspensions
Captex® 300; Captex® 355; Captex® 1000

lubricant, sustained-releases
Dritex S; Hydrokote® 112; Hydrokote® AP5;
Hydrokote® M; Precirol ATO 5
Sterotex® K, NF; Sterotex® K

lubricant, tablet coatings
Altalc 200V; Altalc 300V; Altalc 400 USP;
Altalc 400V; Altalc 500V
Capmul® GMS-50K; Hydrogenated castor oil; Imperial 400; Methocel® A15LV
Premium; Methocel® E6 Premium
Methocel® E15LV Premium; Supra® H;
Suprafino H; Talc BC 1745; Talc BC 2755
Talc BC IMP1823L; Talc BC IMP1885L; Talc
BC IMP1889L; Talc BC IMP1890L; Talc BC
IMP1891L

lubricant, tableting
Pationic® 919

lubricant, tablets
Akokine™ NF; Alpine Talc USP BC 127; Altalc 325 USP; Altalc 400 USP; Calcium stearate
Capmul® GMS-50; Carbowax® Sentry®
PEG 300; Carbowax® Sentry® PEG 400;
Carbowax® Sentry® PEG 540 Blend;
Carbowax® Sentry® PEG 600
Carbowax® Sentry® PEG 900; Carbowax® Sentry® PEG 1000; Carbowax® Sentry®
PEG 1450; Carbowax® Sentry® PEG 3350;
Carbowax® Sentry® PEG 4600
Carbowax® Sentry® PEG 8000; Compritol 888; Compritol® 888 ATO; Crillet 3 NF;

Crillet 4 HP
Crillet 4 NF; Crillet 4 Super; Cutina® HR
Powd.; Dritex S; Dynasan® 110
Dynasan® 112; Dynasan® 114; Dynasan®
116; Dynasan® 118; Glycerol behenate
Glycerol di/tri/palmitostearate;
Hydrogenated cottonseed oil;
Hydrogenated palm oil; Hydrogenated vegetable oil; Imwitor® 491
Imwitor® 742; Imwitor® 900; Imwitor® 900
K; Imwitor® 900 P; Imwitor® 928
Lipex 109; Lubritab®; Lumulse® PEG 3350;
Lutrol® F 68; Magnesium stearate
Magnesium Stearate 905-G; Magnesium Stearate 2311-G; Microcrystalline cellulose;
Mineral oil; PEG-6
PEG-8; PEG-12; PEG-20; PEG-32; PEG-40
PEG-75; PEG-100; PEG-150; PEG-200;
Polyethylene glycol
Potassium benzoate; Pruv™; Pertalc USP;
Ryoto Sugar Ester B-370; Ryoto Sugar
Ester ER-190
Ryoto Sugar Ester ER-290; Ryoto Sugar
Ester L-595; Ryoto Sugar Ester L-1695;
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Ester M-1695
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Ryoto Sugar Ester S-570; Ryoto Sugar
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Ryoto Sugar Ester S-1170; Ryoto Sugar
Ester S-1570
Ryoto Sugar Ester S-1670; Sodium
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Food Grade/E211/EP Grade; Sodium stearyl
fumarate; Softisan® 154
Steearic acid; Sterotex® HM NF; Sterotex® K, NF; Sterotex® K; Sterotex® NF
Sucrose dilaurate; Sucrose laurate;
Sucrose myristate; Sucrose olate; Sucrose
palmitate
Sucrose polystearate; Sucrose stearate;
Sucrose tetrastearate triacetate; Sucrose
tribehenate; Sucrose tristearate
Surfhope® SE D-1803; Surfhope® SE
Pharma D-1803F; Synpro® Calcium
Stearate NF; Synpro® Calcium Stearate NF
Vegetable; Synpro® Magnesium Stearate
**Handbook of Pharmaceutical Additives, Third Edition**

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<table>
<thead>
<tr>
<th>Lubricant, Topical Creams</th>
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<tbody>
<tr>
<td>Crodocol C-95 EP; Lumulse® GMS K</td>
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<th>Lubricant, Topical Ointments</th>
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<td>EmCon™ W</td>
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<tr>
<th>Lubricant, Topicals</th>
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<tr>
<td>Arachidyl alcohol; Castor (Ricinus communis) oil; Ceraphyl® 28; Ceraphyl® 31; Ceraphyl® 50</td>
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<tr>
<td>Ceraphyl® 140; Ceraphyl® 494; Ceraphyl® 791; Ceraphyl® 847; Ceteth-20</td>
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<tr>
<td>Cetyl lactate; Cithrol GMS 0400; Crill 3; Crodamol CP; Crodamol PMP</td>
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<td>Crodamol PTC; Crodamol PTIS; Crodamol SS; Dow Corning® Q7-9120 Silicone Fluid; Etocas 35 NF</td>
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<td>Glucate® DO; lmwitor® 988; Incrocas 30; Incrocas 40; Isocetyl laurate</td>
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<tr>
<td>Isocetyl stearate; Isocetyl stearoyl stearate; Isopropyl myristate; Isopropyl palmitate; Isopropyl stearate</td>
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<tr>
<td>Lanexol AWS; Lanolin oil; Laureth-4; Lauryl lactate; Lipoxol® 3350 MED</td>
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<tr>
<td>Methyl glucose dioleate; Microcrystalline wax; Miglyol® 810; Modulan®; Myristyl myristate</td>
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<tr>
<td>Novol; Octyldecanol; Octyldecyl erucate; Octyldecyl stearoyl stearate; Octyl isononanoate</td>
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<td>Octyl stearate; Oleamide DEA; Oleamide MIPA; Oleth-3; Oleyl alcohol</td>
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<tr>
<td>Oleyl erucate; Oleyl oleate; PEG-6; PEG-4 dilaurate; PEG-2 stearate</td>
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<tr>
<td>PEG-8 stearate; PEG-40 stearate; Pelemol® G7B; Pelemol® IBS; Pentaerythrityl tetracaprylate/tetracaprate</td>
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<tr>
<td>Pentaerythrityl tetraisostearate; Polyethylene glycol; PPG-26 oleate; PPG-15 stearyl ether; Ritalan®</td>
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| Schercemol IDO; Schercemol OHS; Schercemol OLO; Schercemid OMI; Schercemid SO-A |
| Sesame (Sesamum indicum) oil; Sodium lauroyl sarcosinate; Solulan® 16; Solulan® 75; Solulan® 98 |
| Solulan® L-575; Sorbitan sesquioleate; Span® 20; Span® 60; Span® 85V; Squalane; Squalene; Super Refined® Olive NF; Super Refined® Sesame NF |
| Super Refined® Soybean USP; Syncrowax ERLC; Syncrowax HGLC; Talc; Tridecyl neopentanoate |
| Volpo 3; Volpo 5; Volpo 10; Volpo 20; Walnut (Juglans regia) oil |

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<tr>
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<tr>
<td>Lubrajel® RC</td>
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<tr>
<td>Gloria®; Kaydol®; Laneto 50; PEG-35 castor oil; Pionier® 1761</td>
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<td>Pionier® 3476; Pionier® 5353; Pionier® 5370; Pionier® 5464; Pionier® 5741</td>
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<td>Pionier® 7646; Pionier® 8693; Pionier® 17004; Pionier® 17146</td>
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<tr>
<td>Polysorbate 61; TIC Pretested® Ticalose® CMC 15 Fine Powd.</td>
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<td>Lutrol® F micro 127; Lutrol® F micro 68</td>
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<td>melting point modifier, sustained-releases</td>
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<td>melting point modifier, topical creams</td>
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<td>membrane, liquid separations: medical applications</td>
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<td>membrane, liquid separations: nanofiltration pharmaceutical manufacturing</td>
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<td>membrane protectant, mucous: nutritional products</td>
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pharmaceuticals
Imwitor® 928; Imwitor® 988
membrane protectant, mucous: rectals
Imwitor® 988
membrane protectant, mucous: topicals
Imwitor® 988
membrane protectant, nutritional products
Imwitor® 928; Imwitor® 988
membrane protectant, orals
Imwitor® 988
membrane protectant, rectals
Imwitor® 988
membrane protectant, skin: pharmaceuticals
Imwitor® 928; Imwitor® 988
membrane protectant, topicals
Imwitor® 988
membrane transport, pharmaceuticals
Ammonio methacrylate copolymer
menopausal syndrome treatment
Oryzanol
mercury poisoning treatment
Sodium formaldehyde sulfoxylate
metabolic disorder treatment
Taurine
methylylating agent, health care products
Methyl tosylate
methylylating agent, pharmaceuticals
Methyl tosylate
methyl donor, dental applications
Betaine
methyl donor, pharmaceuticals
Betaine
microbicide, aerosols
PVP-iodine
microbicide, antiseptics
PVP-iodine
microbicide, gels
PVP-iodine
microbicide, ointments
PVP-iodine
microbicide, OTC products
PVP-iodine
microbicide, pharmaceuticals
Igepal® CO-630 Special; PVP-Iodine 30/06; PVP-Iodine 30/06 M10
microbicide, soaps
PVP-iodine
microbicide, solutions
PVP-iodine
micronuernutrient
Sodium ferric EDTA
micronuernutrient, biosynthesis
Copper chloride (ic); Magnesium sulfate heptahydrate
micronuernutrient, capsules
redivivo™ (lycopene) 5% TG/P
micronuernutrient, tablets
redivivo™ (lycopene) 5% TG/P
microparticle, inert: cancer therapy
PolyBead® Microspheres
microparticle, inert: cell biology
PolyBead® Microspheres
microparticle, inert: diagnostic testing
PolyBead® Microspheres
microparticle, inert: flow cytometry
PolyBead® Microspheres
microparticle, inert: immunochemistry
PolyBead® Microspheres
microparticle, inert: organic syntheses
PolyBead® Microspheres
microporous polymer, adsorbent: pharmaceutical controlled-releases
Allyl methacrylates crosspolymer
mildness agent, pharmaceuticals
Methyl glucose sesquistearate
mineral oil substitute, pharmaceuticals
Aldo® MCT
mineral source
Blue algae (Haslea ostrearia) extract
mineral source, dietary supplements
Gluconal® CAA; Gluconal® CA M B; Gluconal® CU; Gluconal® FE Pharma; Gluconal® K; Gluconal® MG; Gluconal® MN; Gluconal® ZN-P; Gluconal® ZN
mineral source, injectables
Calcium gluceptate; Sodium gluconate
mineral source, orals
Gluconal® ZN; Sodium gluconate
mineral source, oral treatments
Gluconal® ZN-P
mineral source, pharmaceuticals
Calcium borogluconate; Calcium gluceptate; Calcium gluconate; Cobalt gluconate; Copper gluconate (ic)
Ferrous gluconate; Ferrous gluconate dihydrate; Gluconal® CAA; Gluconal® CA M B; Gluconal® CU; Gluconal® FE Pharma; Gluconal® K; Gluconal® MG; Gluconal® MN; Gluconal® ZN-P
Gluconal® ZN; Magnesium gluconate; Manganese gluconate; Potassium D-
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<tr>
<td><strong>gluconate; Sodium gluconate</strong></td>
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<td><strong>Zinc gluconate</strong></td>
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<td><strong>mineral source, supplements</strong></td>
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<td><strong>Calcium gluconate</strong></td>
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<td><strong>mineral source, tablets</strong></td>
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<td><strong>Potassium D-gluconate</strong></td>
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<td><strong>Gluconal® CU</strong></td>
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<td><strong>Calcium gluconate; Ferrous gluconate; Ferrous gluconate dihydrate; Magnesium gluconate; Manganese gluconate; Potassium D-gluconate; Zinc gluconate</strong></td>
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<td><strong>mineral supplement</strong></td>
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<td><strong>Choline bitartrate; Choline chloride; TRICAL WG; TRITAB</strong></td>
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<td><strong>mineral supplement, dialysis solutions</strong></td>
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<td><strong>Galaflow SL</strong></td>
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<td><strong>Calcium phosphate dibasic</strong></td>
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<td><strong>Calcium phosphate dibasic; Calcium phosphate monobasic anhydrous; Ferrous sulfate monohydrate; Galaflow SL; Galanium</strong></td>
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<td><strong>Magnesium oxide</strong></td>
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<tr>
<td><strong>Kaydol®; Kollicoat® MAE 30 DP; Kollicoat® MAE 100P</strong></td>
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<tr>
<td><strong>moisture barrier, ascorbic acid/salts powders</strong></td>
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<td><strong>β-Pinene</strong></td>
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<td><strong>moisture barrier, dental adhesives</strong></td>
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<td><strong>Perfecta®; Prototet® White 1S</strong></td>
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<td><strong>Sepifilm™ LP</strong></td>
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<td><strong>moisture barrier, medicated ointments</strong></td>
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<td><strong>Perfecta®</strong></td>
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<td><strong>moisture barrier, moisture sensitive APIs</strong></td>
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<td><strong>Prototet® Alba; Prototet® White 1S; Prototet® White 2L; Prototet® White 3C; Prototet® Yellow 2A</strong></td>
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<td><strong>Ritacetyl®</strong></td>
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<tr>
<td><strong>moisture barrier, oral dosage coatings</strong></td>
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<tr>
<td><strong>Opadry® AMB</strong></td>
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**moisture barrier, OTC products**

- Ganex® V-216; Ganex® V-220

**moisture barrier, pharmaceuticals**

- Avagel™ 520; Avagel™ 525; Avagel™ 560; Cetyl hydroxyethyl cellulose; Perfecta® Pionier® 2070 P; Pionier® 2071 N; Pionier® 2071 P; Pionier® 2076 N; Pionier® 2076 P; Pionier® 2079 P; Pionier® 4281; Pionier® 6301 N; Pionier® 6301 P; Pionier® 7028 P; Pionier® 7860; Pionier® 1155

**moisture barrier, soft gelatin capsules**

- β-Pinene; Struktol® TR 065

**moisture barrier, solid dosage coatings**

- Opadry® AMB

**moisture barrier, suppositories**

- Prototet® White 1S; Prototet® Yellow 2A

**moisture barrier, sustained-release capsules**

- Lac-Coat 40E-2

**moisture barrier, tablet polishing**

- Opadry® AMB

**moisture barrier, tablets**

- Lac-Coat 40E-2

**moisture barrier, tablet sealing**

- Opadry® AMB

**moisture barrier, topicals**

- Isostearyl behenate; Pelemol® ISB; Pelemol® ML

**moisture control agent, food supplements**

- Sorbitol Special™ Polyl Sol'n.

**moisture control agent, ointments**

- Ticaxan® Regular

**moisture control agent, oral hygiene products**

- Hystar® TPF

**moisture control agent, pharmaceutical creams/lotions**

- Lipoxol® 300 MED; Lipoxol® 400 MED; Lipoxol® 600 MED; Lipoxol® 1000 MED; Lipoxol® 1550 MED; Lipoxol® 4000 MED; Lipoxol® 6000 MED

**moisture control agent, pharmaceutical lotions**

- Ticaxan® Regular

**moisture control agent, pharmaceutical supplements**

- Sorbitol Special™ Polyl Sol'n.

**moisture control agent, pharmaceutical suspensions**

- Ticaxan® Regular
moisture control agent, soft gelatin capsules
Sorbitol Special™ Polyol Sol’n.
moisture control agent, topicals
Unitrienol T-27
moisture enhancer
Polycarbophil
moisture protection agent
Kollicoat® Protect
moisture resistance aid, pharmaceuticals
AP™ 25; AP™ 35; AP™ 45; Pinnacle™ 170
USP White Petrolatum; Pinnacle™ 170A
USP Amber Petrolatum
Pinnacle™ 190 USP White Petrolatum;
Pinnacle™ 190A USP Amber Petrolatum;
Pinnacle™ 225 USP White Petrolatum;
Pinnacle™ 225A USP Amber Petrolatum;
Pinnacle™ LC 170 Petrolatum, USP
Pinnacle™ LC 190 Petrolatum, USP;
Pinnacle™ LC 225 Petrolatum, USP;
Pinnacle™ WF 170 Petrolatum, USP;
Pinnacle™ WF 190 Petrolatum, USP;
Pinnacle™ WF 225 Petrolatum, USP
moisture retention aid, creams/lotions
Cetyl octanoate; Tegosoft® C1; Tegosoft®
CO; Tegosoft® CT; Tegosoft® DO
Tegosoft® Liquid; Tegosoft® M; Tegosoft®
OP; Tegosoft® OS; Tegosoft® S
Tegosoft® SH
moisture retention aid, lip balms
Ultrapure ES Liquid
moisture retention aid, pharmaceuticals
AP™ 25; AP™ 35; AP™ 45; 42/43 Corn
Syrup; Pinnacle™ 170 USP White
Petrolatum
Pinnacle™ 170A USP Amber Petrolatum;
Pinnacle™ 190 USP White Petrolatum;
Pinnacle™ 190A USP Amber Petrolatum;
Pinnacle™ 225 USP White Petrolatum;
Pinnacle™ 225A USP Amber Petrolatum;
Pinnacle™ LC 170 Petrolatum, USP;
Pinnacle™ LC 190 Petrolatum, USP;
Pinnacle™ LC 225 Petrolatum, USP;
Pinnacle™ WF 170 Petrolatum, USP;
Pinnacle™ WF 190 Petrolatum, USP;
Pinnacle™ WF 225 Petrolatum, USP
TIC Pretested® Ticalose® CMC 15 Fine
Powd.;
Ultrapure L; Ultrapure Liquid; Ultrapure SC
moisture retention aid, topical creams/lotions
Hest CO
moisture retention aid, topicals
Cetyl octanoate; Tegosoft® C1; Tegosoft®
CO; Tegosoft® CT; Tegosoft® DO
Tegosoft® Liquid; Tegosoft® M; Tegosoft®
OP; Tegosoft® OS; Tegosoft® P
moisture scavenger, pharmaceuticals
Tegosoft® S; Tegosoft® SH; Ultrapure ES
Liquid
moisture retention aid, vitamins
TIC Pretested® Ticalose® CMC 15 Fine
Powd.
moisture scavenger, pharmaceuticals
Hydrolyzed wheat protein; Lexol® GT-865;
Lexol® PG-865; Milk lipids; DL-Panthenol
Polycarbophil; Retinyl palmitate; Steareth-
80
moisturizer, absorption bases
Vilvanolin® CAB
moisturizer, acne preparations
Aloe barbadensis gel; Aloe-Moist™; Aloe
Vera Gel Decolorized 1X; Aloe Vera Gel
Decolorized 10X; Aloe Vera Gel
Decolorized 40X;
Aloe Vera Gel Regular 1X; Aloe Vera Gel
Regular 10X; Aloe Vera Gel Regular 40X;
Aloe Vera Gel Thickened; Aloe Vera Whole
Leaf Gel
Lipolan; Lipolan 31; Lipolan 31-20; Lipolan
98; Lipolan R
Lipolan Distilled; Superfine Lanolin; Terra-
Pure™ Certified Freeze Dried Aloe Vera
Powder 200X; Terra-Pure™ Non-Preserved
Freeze Dried Aloe Vera Powder
Decolorized, 200X; Terra-Pure™ Non-
Preserved Freeze Dried Aloe Vera Powder
Reg., 200X
moisturizer, aerosols
Captex® 300; Captex® 355; Captex® 1000;
Tricaprin
moisturizer, anti-age serums
Lysidone®
moisturizer, antidandruff shampoos
Terra-Pure™ Non-Preserved Spray Dried
Aloe Vera Powder Reg., 200X
moisturizer, bedsore products
Aloe Vera Gel Decolorized 1X; Aloe Vera
Gel Decolorized 10X; Aloe Vera Gel
Decolorized 40X; Aloe Vera Whole Leaf
Gel
moisturizer, burn treatment
Anhydrous Lanolin USP Cosmetic;
Anhydrous Lanolin USP Superfine;
Anhydrous Lanolin USP Ultrafine;
Vilvanolin® CAB; Yucca glauca extract
moisturizer, capsules
Aloe Gold Seal-Natural

moisturizer, cellulitis external treatment
Escin/β-Sitosterol Phytosome®

moisturizer, clinical nutrition
Captex® 300; Captex® 350; Captex® 355; Captex® 810D; Captex® 1000; Clarity; Dritex S; Hydrokote® 112; Hydrokote® AP5; Hydrokote® M; Tricaprin

moisturizer, coatings
Captex® 300; Captex® 355; Captex® 1000; Clarity; Dritex S; Hydrokote® 112; Hydrokote® AP5; Hydrokote® M; Tricaprin

moisturizer, compaction: pharmaceuticals
Sterotex® NF

moisturizer, creams
Aloe barbadensis gel; Sebase

creams/lotions
Ceraphyl® GA-D; Dritex S; Fancol™ VB; Lanolin oil; Maleated soybean oil; Orange Wax, Deodorized; Phospholipon® 80; Phospholipon® 90 H; Polyglyceryl-3 methyl glucose distearate; TEGO® Care 450

moisturizer, dandruff treatment
Lubrasil® DS

moisturizer, delivery/absorption enhancement
Acconon CC-6; Captex® 300; Captex® 350; Captex® 355; Captex® 810D; Captex® 1000; Clarity; Dritex S; Hydrokote® 112; Hydrokote® AP5; Hydrokote® M; Tricaprin

moisturizer, dentifrices
Sodium PCA

moisturizer, dentifrices for swollen gums
Escin/β-Sitosterol Phytosome®

moisturizer, dermatological emulsions
Captex® 8227; Triundecanoin

moisturizer, dermatologicals
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moisturizer, emulsions
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moisturizer, first aid gels
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moisturizer, first aid products
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moisturizer, health care products
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moisturizer, hemorrhoidal products
Superfine Lanolin

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moisturizer, o/w emulsions
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- moisturizer, pharmaceutical coatings
- Hydrogenated coconut oil
- moisturizer, pharmaceutical creams
  - Aloe Vera Whole Leaf Gel;
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- moisturizer, pharmaceutical creams/lotions
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  - Lubrajel® WA; Lubrajel® MS
  - Lubrajel® Oil
- moisturizer, pre-lubricating catheters
  - Glyceryl polymethacrylate
- moisturizer, protective creams/lotions
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  - Anhydrous Lanolin USP Superfine;
  - Anhydrous Lanolin USP Ultrafine
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<td>mouthfeel enhancer, medical nutritionals</td>
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<td><strong>Sheffield Brand Anhydrous Lactose NF</strong></td>
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<td>multifunctional ingredient, health foods</td>
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<td><strong>Sheffield Brand Anhydrous Lactose NF</strong></td>
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Hydrochloric acid
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Niacinamide ascorbate
nitrate antidote, veterinary medicine
Methylene blue trihydrate
nucleating agent, medicine
Silver

nutraceutical
Lycopene

nutrient
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Cholecalciferol; Choline bitartrate; Choline chloride
Chondroitin sulfate; Copper iodide (ous);
Cyanocobalamin; Cysteine hydrochloride anhydrous; Cysteine hydrochloride monohydrate
L-Glutamic acid hydrochloride; L-Glutamine; DL-Isoleucine; L-Leucine;
Linoleic acid
Linolenic acid; Olive (Olea europaea) oil; D-Panthenol; DL-Phenylalanine; Shark liver oil
Sodium chloride; Tapioca starch;
Tocopheryl succinate; DL-α-Tryptophan; L-Tyrosine
Zinc oxide; Zinc Oxide CR-4; Zinc stearate

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nutrient, antibiotics
Potassium phosphate; Potassium phosphate dibasic

nutrient, capsule fillers
Defatted Wheat Germ #3; Defatted Wheat Germ #9

nutrient, capsules
Freeze Dried Pork Liver Powder Undefatted; Soluble Pork Liver Powder; Spray Dried Beef Liver Powder; Spray Dried Pork Liver Powder

nutrient, chewable tablets
Covitol® 700

nutrient, creams
L-Histidine

nutrient, dietary supplements
Octacosanol

nutrient, dietetic products
Estasan™ GT 8-60 3575; Estasan™ GT 8-65 3577; Estasan™ GT 8-70 3579; Sheffield Brand Anhydrous Lactose NF; Sheffield Brand Lactose Monohydrate NF

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nutrient, dry products
Thiamine Hydrochloride USP, FCC

nutrient, effervescent tablets
Covitol® 700 WD; Dry Vitamin D3 Type 100 CWS

nutrient, enteral feeding formulas
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nutrient, essential: multivitamins
Niacinamide USP, FCC

nutrient, essential: pharmaceutical liquids
Niacinamide USP, FCC

nutrient, essential: pharmaceutical solids
Niacinamide USP, FCC

nutrient, fermentation
Methyl stearate

nutrient, gelatin capsules
Pureco® HSC-1; Retinyl palmitate

nutrient, gel capsules
Lecithin

nutrient, geriatric foods
Sheffield Brand Anhydrous Lactose NF; Sheffield Brand Lactose Monohydrate NF

nutrient, hard-shell gelatin capsules
Dry Vitamin D3 Type 100 CWS

nutrient, health food
Octacosanol; Sheffield Brand Anhydrous Lactose NF; Sheffield Brand Lactose Monohydrate NF

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Glycine

nutrient, infant formulas
Ferric pyrophosphate

nutrient, infant nutrition
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| Powder | |
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nutrient replacement, parenterals
  Potassium chloride
nutrient replacement, pharmaceuticals
  Potassium chloride
nutrient, SC injectables
  Glycine
nutrient source, gelatin capsules
  Pureco® HOS
nutrient source, IV emulsions
  Super Refined® Soybean USP
nutrient source, liniments
  Super Refined® Soybean USP
nutrient source, lipids
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  Calcium phosphate dibasic
nutrient source, ointments
  Super Refined® Soybean USP
nutrient source, orals
  Calcium phosphate tribasic; Super Refined® Soybean USP
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  Super Refined® Soybean USP
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  Pureco® HOS
nutrient source, topicals
  Super Refined® Soybean USP
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  Potassium chloride
nutrient substitute, orals
  Potassium chloride
nutrient substitute, parenterals
  Potassium chloride
nutrient substitute, pharmaceuticals
  Potassium chloride
nutrient supplement
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  Krystar® 300; Lesstanol™ Natural
  Octacosanol GF; L-Lysine; Magnesium lactate; NEOBEE® 1053
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  Mycelium Extract REMEXT; Tributylin;
  Vipers bugloss (Echium plantagineum) oil
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nutrient supplement, parenteral nutrition
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  Puramex® MN; Soluble Liver Powd.;
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  Menhaden oil
nutrient supplement, tonics
  Epikuron™ 100 G
nutrient supplement, veterinary products
  Soluble Liver Powd.
nutrient supplement, Vitamin B ampules
  Shiitake (Lentinula edodes) Mycelium Biomass, Certified Organic
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  Spray Dried Beef Liver Powder; Spray Dried Pork Liver Powder; Thiamine Mononitrate USP, FCC; Wheat (Triticum vulgare) germ
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nutrient, toxins
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nutrient, two-piece capsules  
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nutrient, vaccines  
  Hy Case SF
nutrient, veterinary orals  
  Ergocalciferol
nutrient, veterinary parenterals  
  Ergocalciferol
nutrient, vitamin-reinforcement: infant formulas  
  Retinyl acetate
nutrient, vitamins  
  Pyridoxine HCl
nutrient, vitamin tablets  
  Ferrous gluconate; Ferrous gluconate dihydrate; Potassium D-gluconate; Zinc gluconate; Zinc methionine sulfate
nutritive polymer  
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  Maltrin® M510; Maltrin® QD M500; Maltrin® QD M600
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  Maltrin® M150; Maltrin® M180; Maltrin® QD M550; Maltrin® QD M580; Maltrin® QD M600
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Hydroxypropyl-β-cyclodextrin;
Hydroxypropyl-γ-cyclodextrin; Methyl-α-cyclodextrin; Methyl-β-cyclodextrin; Methyl-γ-cyclodextrin;

odor masking agent, pills
- Aqueous Enteric Coat L30D; Aqueous Enteric Coat L100D

odor masking agent, tablets
- Aqueous Enteric Coat L30D; Aqueous Enteric Coat L100D; Descote® Copper Gluconate 20%; Descote® Ferrous Fumarate 60% MR; Descote® Ferrous Sulfate 60%
- Kollicoat® IR

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- Vegetable Protein Extract

odor neutralizer, human waste
- Vegetable Protein Extract

odor neutralizer, menstruation
- Vegetable Protein Extract

odor neutralizer, ostomy products
- Vegetable Protein Extract

odor neutralizer, perspiration
- Vegetable Protein Extract

odor neutralizer, vomit
- Vegetable Protein Extract

oil additive, pharmaceuticals
- Lumisorb™ SMO

oil, base: pharmaceuticals
- Pionier® 2070 P; Pionier® 2071 N; Pionier® 2071 P; Pionier® 2076 N; Pionier® 2076 P
- Pionier® 2079 P; Pionier® 4281; Pionier® 6301 N; Pionier® 6301 P; Pionier® 7028 P
- Pionier® 7860; Pionier® 1155

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- Pyridoxine

oil, edible: pharmaceuticals
- Rice (Oryza sativa) bran oil

oiliness reducer, creams/lotions
- Cetiol® LC

oiliness reducer, solid sticks
- Cetiol® LC

oil, natural: pharmaceuticals
- Mango (Mangifera indica) seed oil

oil, pharmaceuticals
- Pionier® 0030 SYN FG

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- Emalex HC-5; Emalex HC-7; Emalex HC-10

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- Emalex GWS-305; Emalex TPS-203; Emalex TPS-204; Emalex TPS-205; Emalex TPS-303; Emalex TPS-310; PEG-5 glyceryl tristearate

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- Dibutyl adipate

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- Cetiol® B; Cetiol® SN

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- Gelucire 33/01; Gelucire 39/01; Gelucire 43/01

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- Poppyseed oil

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- Polawax® NF

opacifier, aerosols
- Altalc 200 USP; Altalc 300 USP

opacifier, analgesic rubs
- Polawax® NF

opacifier, anhydrous systems
- Syncrowax ERLC

opacifier, antibiotic creams/lotions
- Polawax® NF

opacifier, calamine lotion
- ZCA USP-1; ZCA USP-2; Zinc Oxide USP-511

opacifier, cationic systems: topicals
- Lexemul® AR

opacifier, chewable tablets
- ViCALity™ Albaglos™ PCC

opacifier, coal tar ointments
- ZCA USP-1; ZCA USP-2

opacifier, cream bases
- DREWMULSE® 200K

opacifier, creams
- ViCALity™ Extra Light PCC; ViCALity™ Light PCC; ViCALity™ Medium PCC

opacifier, creams/lotions
- Altalc 200 USP; Altalc 300 USP; Beeswax, synthetic; Glyceryl laurate; Koster Keunen
Beeswax
Koster Keulen Beeswax 100; Lexemul® EGMS; Lipi DGS; Mazol® GMS-K; STEPAN® PEG 200 DL
STEPAN® PEG 200 DO; STEPAN® PEG 400 DL; STEPAN® PEG 400 DO; STEPAN® PEG 400 DS; STEPAN® PEG 400 ML; STEPAN® PEG 600 DL; STEPAN® PEG 600 DO; STEPAN® PEG 600 DS; STEPAN® PEG 600 ML; STEPAN® PEG 6000 DS; STEPAN® PEG 6000 MS; STEPAN® PGMS Pure

Koster Keunen Beeswax 100

Lipo DGS
Mazol® GMS-K

STEPAN® PEG 200 DL
STEPAN® PEG 200 DO
STEPAN® PEG 400 DL
STEPAN® PEG 400 DO
STEPAN® PEG 400 DS
STEPAN® PEG 400 ML
STEPAN® PEG 600 DL
STEPAN® PEG 600 DO
STEPAN® PEG 600 DS
STEPAN® PEG 600 ML
STEPAN® PEG 6000 DS
STEPAN® PEG 6000 MS

Zinc carbonate

opacifier, ophthalmics
Cetyl alcohol; Titanium dioxide

opacifier, oral
Aluminum silicate; Calcium carbonate;
Cetyl alcohol; Magnesium aluminum silicate; PEG-20 stearate

Syncrowax HRC; Titanium dioxide

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Calcium carbonate; Cetyl alcohol

opacifier, O/W emulsions
Tegin® G

opacifier, O/W pharmaceuticals

Lipo DGS

opacifier, pastes
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opacifier, pharmaceutical creams
Crodacol 1618

opacifier, Pharmaceutical creams/lotions
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Clay BC 2457; Clay BC 2747;
Clay BC 2749; Cromul EM 0685;
Glyceryl laurate; Myristyl myristate;
Polywax EW

opacifier, pharmaceutical O/W emulsions
Mazol® 165C

opacifier, pharmaceutical pastes
Polywax EW

opacifier, Pharmaceuticals
Aluminum silicate; Aluminum stearate;
Behenic acid; C18-36 acid glycol ester;
C18-36 acid triglyceride

Calcium carbonate; Cecavon® ZN 70;
Cecavon® ZN 72; Cecavon® ZN 735;
Ceresine C
Ceresine K; Cerewax 2T; Cerewax 4T;
Cerewax 105; Cerewax A75;
Cerewax AS15; Cerewax FT/B; Cerewax L;
Cerewax LKT; Cerewax M85/C
Cerewax N°1; Cerewax N°2; Cerewax N°3;
Cerewax S90; Cerewax T300
Cerozo 1247; Cerozo 3549T; Cerozo 4347;
Cerozo 20447; Cerozo 26151
Cerozo 26457; Cerozo 26555; Cerozo 30447;
Cerozo 31049; Cerozo A
Cerozo AF; Cerozo AN; Cerozo C806;
Cerozo D306; Cerozo E626
Cerozo F110; Cerozo F308; Cerozo T37;
Cerozo T319; Cerozo V164
Cetyl alcohol; Clay BC 347; Clay BC 638;
Clay BC 825; Clay BC 2457
Clay BC 2747; Clay BC 2749; Cosmowax K;
DREWMULSE® 200K; DREWMULSE® GMO Kosher
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**opacifier, protective creams**

- **Titanium dioxide**

**opacifier, rectals**

- **Cetyl alcohol; Magnesium aluminum silicate**

**opacifier, salves**

- **Beeswax, synthetic; Koster Keunen Beeswax; Koster Keunen Beeswax 100**

**opacifier, suppositories**

- **DREWMULSE® 200K; Propylene glycol distearate; STEPAN® PEG 200 DO; STEPAN® PEG 400 DL; STEPAN® PEG 400 DO; STEPAN® PEG 400 ML; STEPAN® PEG 400 MO; STEPAN® PEG 400 MS; STEPAN® PEG 600 DL; STEPAN® PEG 600 DO; STEPAN® PEG 600 DS; STEPAN® PEG 600 ML; STEPAN® PEG 6000 DO; STEPAN® PEG 6000 MS; STEPAN® PEGMS Pure**

**opacifier, sustained-releases**

- **Beeswax, synthetic; Koster Keunen Beeswax; Koster Keunen Beeswax 100**

**opacifier, tablets**

- **Titanium dioxide**

**opacifier, topical creams**

- **Crodacol C-95 EP; Lumulse® GMS K; Lumulse® GMS-A**

**opacifier, topical creams/lotions**

- **Hest CO; STEPAN® GMS Pure**

**opacifier, topicals**

- **Cerasynt® PA; Cetyl alcohol; Lexemul® 515; Lexemul® AS; Lexemul® EGMS**

**opacifier, vaginals**

- **Magnesium aluminum silicate**

**opacifier, veterinary products**

- **Geleo®**

**opacifier, viscous gels**

- **ViCALity™ Extra Light PCC; ViCALity™ Light PCC; ViCALity™ Medium PCC**

**opacifier, wet granulation**

- **Maltrin® M050**
opacifier, w/o pharmaceuticals
   Lipo DGS
opacifier, zinc-eugenol dental cements
   ZCA USP-1; ZCA USP-2
opacifier, zinc gelation
   ZCA USP-1; ZCA USP-2; Zinc Oxide USP-511
opacifier, zinc oxide ointments
   ZCA USP-1; ZCA USP-2; Zinc Oxide USP-511
opacifier, zinc oxide pastes
   ZCA USP-1; ZCA USP-2; Zinc Oxide USP-511
oral care agent
   Allantoin; Ammonium silicofluoride; Boric acid; Calcium Carbonate 2927 Extra Heavy; Calcium Carbonate 2928 Ultra Heavy; Calcium fluoride; Calcium phosphate monobasic anhydrous; Calcium saccharin; Chlorothymol; Hydroxyapatite; 6-Methylcoumarin; PVM/MA copolymer
oral care agent, caries prophylaxis
   Cetylamine hydrofluoride
oral care agent, dental products
   Stannous pyrophosphate
oral care agent, mouthwashes
   Cetylamine hydrofluoride
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   D(-)-Glucose monohydrate
osmotic agent, injectable solutions
   D(-)-Glucose monohydrate
osmotic pressure regulator, dental applications
   Betaine
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osteoporosis treatment
   Sodium fluorophosphate
oxidizers, pharmaceuticals
   Peracetic acid
oxidizing agent
   Benox® A-70 USP
oxidizing agent, hydrogen peroxide:
   pharmaceuticals
   Cosmetic Grade Hydrogen Peroxide 35%; Cosmetic Grade Hydrogen Peroxide 50%; Cosmetic Grade Hydrogen Peroxide 70%
oxidizing agent, metals: pharmaceuticals
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oxidizing agent, pharmaceuticals
   Cairox® Potassium Permanganate USP Grade; Magnesium peroxide; Peracetic acid; Periodic acid; Potassium permanganate; Potassium persulfate; Sodium m-periodate; Sodium peroxide; Urea peroxide
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pantothenic acid source, multivitamins
   Calcium D-pantothenate
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   Calcium D-pantothenate
parasitic acid source, solid dosages
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parasite poisoning urine test
   Sodium hydrosulfite
parasitic, parasitic skin diseases
   Storax (Liquidambar orientalis)
particle size control agent, ostomy seals
   Premium Powdered Gum Karaya No. 1; Premium Powdered Gum Karaya No. 1 Special; Premium Powdered Gum Karaya No. 2; Premium Powdered Gum Karaya No. 2 HV; Premium Powdered Gum Karaya No. 3
pearlescent, creams/lotions
   Glyceryl isostearate; Lexemul® EGMS
pearlescent, dermatologicals
   Stearamide DEA
pearlescent, emulsions: stearic acid
   Solulan® 98
pearlescent, lip balms
   HallStar™ MM
pearlescent, pharmaceutical creams/lotions
   Polywax EW
pearlescent, pharmaceutical pastes
   Polywax EW
pearlescent, pharmaceuticals
   Glycol distearate; Glycol stearate; Kemester® EGDS; Kessco EGMS; MYS-1EXV
Mycristamid MEA; PEG-2 stearate; PEG-30
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<td>Zinc Oxide 66; Zinc Oxide 6601; Zinc Oxide 6605</td>
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<td>protectant, rectal</td>
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<tr>
<td>Bismuth subgallate</td>
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<td>Zinc Oxide CR-4</td>
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<td>protectant, skin</td>
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<td>Agnique AAM 12CM; Bismuth oxychloride; Calamine; Dimethicone; Extrapone Avocado Special α-Glucan oligosaccharide; Glycyrrhetinic Acid Phytosome®; Jojoba (Buxus chinensis) oil; Sensiline®; Witepsol® H19 Yeast polysaccharides</td>
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<td>protectant, skin: antibiotic ointments</td>
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<td>Lanolin</td>
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<td>protectant, skin: creams/lotions</td>
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<tr>
<td>Mimosa tenuiflora bark extract; Sentry® Dimethicone NF</td>
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Cocoa (Theobroma cacao) butter; Lanolin; Propylene glycol

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Ultrapure ES Liquid

protectant, skin/mucosa membrane: pharmaceuticals
Witafrol® 7420

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protectant, skin: orals
Petrolatum

protectant, skin: OTC products
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protectant, skin: otics
Petrolatum

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Shea butter (Butyrospermum parkii)

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Shea butter (Butyrospermum parkii)

protectant, skin: pharmaceuticals
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Zinc oxide

protectant, skin treatment salves
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protectant, stomach mucosa
Aluminum silicate

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Calamine

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Storax (Liquidambar orientalis)

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Fancol™ CH

protectant, zinc oxide ointments
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Zinc Oxide 66; Zinc Oxide 6601; Zinc Oxide 6605

protective agent
Kaydol®

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Softisan® 701

protective barrier
Pecosil® OS-100B

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protective barrier, topicals
Dimethicone propylethelynediamine behenate

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<td>Bentonite</td>
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<td>Sammi Gelatine</td>
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<td>Protective Colloid, Medicated Jellies</td>
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<td>Bentonite</td>
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<td>Cekol® 700</td>
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<td>Agar; Bentonite; Guar (Cyanopsis tetragonoloba) gum</td>
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<td>Methyl hydroxyethylcellulose; Plasdone® K-90</td>
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Handbook of Pharmaceutical Additives, Third Edition 2500
Arabic Type B-200 NF Premium
PVP K-15; PVP K-15 Sol'n.; PVP K-30; PVP K-60; PVP K-60 Sol'n.
PVP K-90; PVP K-90 Sol'n.; PVP K-120;
Sammi Gelatine; Spray Dried Fish Gelatin
Spray Dried Gum Arabic Type A-180 NF Premium; Spray Dried Gum Arabic Type A-230 NF Extra; Tylose® MH Grades; Tylose® MHB; Vee Gee Pharmaceutical Gelatins

protective colloid, pharmaceutical suspensions
Granular Gum Arabic Type A-1 NF Premium; Granular Gum Arabic Type A-2 NF Premium; Powdered Gum Arabic Type B-100 NF Premium; Powdered Gum Arabic Type B-200 NF Premium; Spray Dried Gum Arabic Type A-180 NF Premium
Spray Dried Gum Arabic Type A-230 NF Extra

protective colloid, slow-release capsules
Agar

protective colloid, soft capsules
Sammi Gelatine

protective colloid, steroid hormones
Plasdone® C-15; Plasdone® C-30

protective colloid, suppositories
Agar

protective colloid, surgical lubricants
Agar

protective colloid, suspending powders
Bentonite

protective colloid, syrups
Cekol® 30000

protective colloid, tablet coatings
Cekol® 30; Klucel® EF Pharm

protective colloid, tablets
Sammi Gelatine

protective colloid, topicals
Bentonite; Hydroxyethylcellulose; Pectin; Plasdone® K-25; Plasdone® K-29/32 Plasdone® K-90; Plasdone® K-90D

protective colloid, vitamins
Plasdone® C-15; Plasdone® C-30

protective gel coating, burn treatment
Pluronic® F68NF; Pluronic® F87NF; Pluronic® F108NF; Pluronic® F127NF; Pluronic® L44NF

protective radical agent, cephalosporin semisynthesis
Bis (trimethylsilyl) urea

protective radical agent, penicillin semisynthesis
Bis (trimethylsilyl) urea

protein binder, pharmaceuticals
Vaccines
Rehydragel® HPA

protein binder, biological materials:
Veterinary vaccines
Rehydragel® HPA

protein binder, parenteral solutions
Rehydragel® LV

protein, edible: pharmaceuticals
Edible Beef Gelatin

protein, medicinal soaps
Gluplex® AC

protein replacer
Walocel® HM 100000 PA

protein source
Pharmatone; Vee Gee Beef Hide Hydrolysate Gelatin; Vee Gee Bone Hydrolysate Gelatin; Vee Gee Fish Hydrolysate Gelatin; Vee Gee Porkskin Hydrolysate Gelatin

protein source, capsule fillers
Defatted Wheat Germ #3; Defatted Wheat Germ #9

protein source, pharmaceuticals
Soybean (Glycine soja) protein; Vee Gee Pharmaceutical Gelatins

protein source, tablet fillers
Defatted Wheat Germ #3; Defatted Wheat Germ #9

protein source, tablets
Wheat (Triticum vulgare) germ

purgative
Casanthranol; Castor (Ricinus communis) oil; Magnesium sulfate heptahydrate

purgative, saline
L-Tartaric acid

purgative, veterinary medicine
Linseed (Linum usitatissimum) oil

purifier, heparin
Myrtrimonium bromide

purifier, pharmaceuticals
Diaion® WK10; Diaion® WK11; Diaion® WK100; Diaion® WT01S; Type CG6/AW 8x30 Type CG6/AW 12x40; Type SG6

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Potassium permanganate; Titanium dioxide

radioactive imaging agent
Xenon

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Ferrous citrate

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<th>rancidity retardant, orals</th>
<th>raw material, pharmaceuticals</th>
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<td>Maleic acid</td>
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<tr>
<td>Maleic acid</td>
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<td>raw material, 1,1-bis(methylthio)-2-nitroethane</td>
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<td>Nitromethane; NM™</td>
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<td>Glycerophosphocholine</td>
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<td>raw material, pharmaceutical lotions</td>
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   PEG 1500
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   Sodium metabisulfite; Sodium sulfite
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   Dithiothreitol
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   Sodium metabisulfite; Sodium sulfite
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   Sodium metabisulfite; Sodium sulfite
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   Sodium sulfite
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   Monomuls® 90 O18
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Tegosoft® DO
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Softigen® 701
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Trifluoromethane
refrigerant, anti-age serums
Lysidone®
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Lysidone®; Lysine PCA
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Algisium C
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Sodium pyrrolidone carboxylate
reinforcing agent
Siloxanes and silicones, dimethyl, reaction prods. with silica
reinforcing agent, dental cements
Aluminum silicate
reinforcing agent, medical rubber
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reinforcing agent, orals
Talc
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Silica, fumed
reinforcing agent, pharmaceutical creams
Silica, fumed
reinforcing agent, pharmaceutical products
Aeroperl® 300 Pharma; Aerosil® 200
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Aeroperl® 300 Pharma; Aerosil® 200
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Silica, fumed
reinforcing agent, pharmaceutical rubber
Zoco 112 USP
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reinforcing agent, pharmaceuticals
Silica, fumed
reinforcing agent, rectals
Talc
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Silica, fumed
reinforcing agent, tooth-filling compounds
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release agent, controlled: pharmaceutical granules
Tylose® H 20 P2 PHA; Tylose® H 4000 G4 PHA

release agent, controlled: pharmaceuticals
Edicol®

release agent, controlled: poorly-soluble APIs in hard gelatin capsules
Gelucire 50/13

release agent, controlled: short half-life pharmaceuticals
Compritol® 888 ATO; Precirol ATO 5

release agent, controlled: sustained-releases
Lutrol® E 1500; Lutrol® E 3350; Lutrol® E 4000; Lutrol® E 6000; PEG-125

release agent, controlled: tablets
Tylose® H 20 P2 PHA; Tylose® H 4000 G4 PHA

release agent, controlled: timed-release
Tylose® H 4000 G4 PHA

release agent, dentifrices
Carbowax® PEG 1450; Carbowax® PEG 3350

release agent, granules
Kollidon® CL; Kollidon® CL-F; Kollidon® CL/M; Kollidon® CL-SF

release agent, internal mold: tablets
Synpro® Calcium Stearate NF Vegetable; Synpro® Zinc Stearate USP Veg.

release agent, mold: hydrophilic ointments
Egg oil

release agent, mold: internal
Synpro® Magnesium Stearate NF Veg.

release agent, mold: orals
Tristearin

release agent, mold: pharmaceuticals
AP™ 25; AP™ 35; AP™ 45; BGL™ 355; BGL™ 855
Fancol™ HL; Fancol™ LA; Hydrogenated lanolin; Hydrogenated menhaden acid; Octyldodecyl stearoyl stearate
Pluracol® E1000; Pluracol® E2000; Pluracol® E4500; Pluracol® E8000; Zinc Stearate 695
Zinc Stearate 695-G; Zinc Stearate D USP

release agent, mold: suppositories
Octyldodecyl stearoyl stearate

release agent, controlled: controlled-releases
Tylose® H 20 P2 PHA

release agent, controlled: pharmaceutical granules
Tylose® H 20 P2 PHA; Tylose® H 4000 G4 PHA

release agent, controlled: pharmaceuticals
Edicol®

release agent, controlled: poorly-soluble APIs in hard gelatin capsules
Gelucire 50/13

release agent, controlled: short half-life pharmaceuticals
Compritol® 888 ATO; Precirol ATO 5

release agent, controlled: sustained-releases
Lutrol® E 1500; Lutrol® E 3350; Lutrol® E 4000; Lutrol® E 6000; PEG-125

release agent, controlled: tablets
Tylose® H 20 P2 PHA; Tylose® H 4000 G4 PHA

release agent, controlled: timed-release
Tylose® H 4000 G4 PHA

release agent, dentifrices
Carbowax® PEG 1450; Carbowax® PEG 3350

release agent, granules
Kollidon® CL; Kollidon® CL-F; Kollidon® CL/M; Kollidon® CL-SF

release agent, internal mold: tablets
Synpro® Calcium Stearate NF Vegetable; Synpro® Zinc Stearate USP Veg.

release agent, mold: hydrophilic ointments
Egg oil

release agent, mold: internal
Synpro® Magnesium Stearate NF Veg.

release agent, mold: orals
Tristearin

release agent, mold: pharmaceuticals
AP™ 25; AP™ 35; AP™ 45; BGL™ 355; BGL™ 855
Fancol™ HL; Fancol™ LA; Hydrogenated lanolin; Hydrogenated menhaden acid; Octyldodecyl stearoyl stearate
Pluracol® E1000; Pluracol® E2000; Pluracol® E4500; Pluracol® E8000; Zinc Stearate 695
Zinc Stearate 695-G; Zinc Stearate D USP

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Octyldodecyl stearoyl stearate

release agent, mold: tablets
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Magnesium Stearate 2311-G; Silcron® G-100; Silcron® G-640; Silcron® G-650; Synpro® Zinc Stearate (Kosher)
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Octyldodecyl stearoyl stearate

release agent, mold: tablets
C18 acid triglyceride; Softenol® 3118
Carbowax® PEG 400; Carbowax® PEG 600

release agent, pharmaceuticals
Alcolec® Granules; Citation™ 70; Citation™ 90; Citation™ 180; Citation™ 210
Citation™ 350; Citation™ 550; Imwitor® 742; Industrene® 5016 NF; Kemilub EM-F
Klearol®; Organolatum™; PEG-8 dilaurate; Pionier® 1761; Pionier® 3476
Pionier® 5353; Pionier® 5370; Pionier® 5464; Pionier® 5741; Pionier® 7646
Pionier® 8693; Pionier® 17004; Pionier® 17146; Puracal® DC

release agent, slow: actives
Disodium pamoate

release agent, sustained: nicotine
Taste Masking Agent - 104

release agent, sustained: solid dosage
Acetylated hydrogenated cottonseed glyceride; Acetylated hydrogenated vegetable glycerides

release agent, tablet molds
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Supra® H; Suprafino H; Talc BC 1745; Talc BC 2755; Talc BC IMP1823L
Talc BC IMP1885L; Talc BC IMP1889L; Talc BC IMP1890L; Talc BC IMP1891L

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AA USP

release agent, tablets
Kollidon® CL; Kollidon® CL-F; Kollidon® CL/M; Kollidon® CL-SF

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C18 acid triglyceride; Softenol® 3118

release agent, veterinary ointments
Citation™ 70; Citation™ 90

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Potassium chloride

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Potassium chloride

sodium reduction aid, pharmaceuticals
Potassium chloride

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Potassium chloride

sodium reduction aid, parenterals
Potassium chloride

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Lipovol SES

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    Delios®; Estol 1526
    GBL; Lexol® PG-800; Lexol® PG-865;
    Propylene glycol dicaprylate/dicaprate;
    Propylene glycol dioctanoate
    Solutol® HS 15
solvent, waxes: ophthalmics
    Polypropylene glycol
solvent, waxes: orals
    Polypropylene glycol
solvent, waxes: topicals
    Polypropylene glycol
soothing agent
    Activera™ 1-1FA (Filtered); Activera™ 104;
    Aloe barbadensis leaf juice; Isopropyl alcohol; Oat (Avena sativa) kernel extract
soothing agent, acne treatment
    Aloe Vera Gel Regular 1X; Aloe Vera Gel Regular 10X; Aloe Vera Gel Regular 40X;
    Alcloxa; Terra-Pure™ Certified Freeze Dried Aloe Vera Powder 200X; Terra-Pure™ Non-Preserved Freeze Dried Aloe Vera Powder Decolorized, 200X
    Terra-Pure™ Non-Preserved Freeze Dried Aloe Vera Powder Reg., 200X; Terra-Pure™ Non-Preserved Spray Dried Aloe Vera Powder Reg., 200X
soothing agent, first aid sprays
    Aloe Vera Gel Regular 1X; Aloe Vera Gel Regular 10X; Aloe Vera Gel Regular 40X;
    Terra-Pure™ Certified Freeze Dried Aloe Vera Powder 200X; Terra-Pure™ Non-Preserved Freeze Dried Aloe Vera Powder Decolorized, 200X
    Terra-Pure™ Non-Preserved Freeze Dried Aloe Vera Powder Reg., 200X; Terra-Pure™ Non-Preserved Spray Dried Aloe Vera Powder Reg., 200X
soothing agent, hemorrhoidal preparations
    Alcloxa
soothing agent, hydrocortisone creams
    Aloe Vera Gel Regular 1X; Aloe Vera Gel Regular 10X; Aloe Vera Gel Regular 40X;
    Terra-Pure™ Certified Freeze Dried Aloe Vera Powder 200X; Terra-Pure™ Non-Preserved Freeze Dried Aloe Vera Powder Decolorized, 200X
    Terra-Pure™ Non-Preserved Freeze Dried Aloe Vera Powder Reg., 200X; Terra-Pure™ Non-Preserved Spray Dried Aloe Vera Powder Reg., 200X
soothing agent, hyperhydrosis treatment
    Alcloxa
soothing agent, medicated talcs
    Terra-Pure™ Certified Freeze Dried Aloe Vera Powder 200X; Terra-Pure™ Non-Preserved Freeze Dried Aloe Vera Powder Decolorized, 200X; Terra-Pure™ Non-Preserved Freeze Dried Aloe Vera Powder Reg., 200X; Terra-Pure™ Non-Preserved Spray Dried Aloe Vera Powder Reg., 200X
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    Alcloxa
soothing agent, oral cavity products
    Escin/β-Sitosterol Phytosome®
soothing agent, oral rinses
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    Aloe Vera Gel Regular 1X; Aloe Vera Gel Regular 10X; Aloe Vera Gel Regular 40X;
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Arachidyl propionate
soothing agent, skin
Activera™ 10X
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Elm (Ulmus campestris) extract
soothing agent, tablets
Aloe Gold Seal-Natural
soothing agent, topical
Isopropyl alcohol
soothing agent, topical analgesics
Aloe Vera Gel Regular 1X; Aloe Vera Gel Regular 10X; Aloe Vera Gel Regular 40X; Terra-Pure™ Certified Freeze Dried Aloe Vera Powder 200X; Terra-Pure™ Non-Preserved Freeze Dried Aloe Vera Powder Decolorized, 200X
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Terra-Pure™ Non-Preserved Freeze Dried Aloe Vera Powder Reg., 200X; Terra-Pure™ Non-Preserved Spray Dried Aloe Vera Powder Reg., 200X
soothing/healing aid, acne preparations
Aloe barbadensis gel
soothing/healing aid, creams
Aloe barbadensis gel
soothing/healing aid, first aid products
Aloe barbadensis gel
soporific, medicine
Methyl pentynol
sorbent, anesthetic apparatus
Soda lime
sorbent, basal metabolic rate determination
Soda lime
sorbent, carbon dioxide: pharmaceuticals
Barium hydroxide lime; Soda lime
sorbent, dentifrices
Diatomaceous earth
sorbent, pharmaceuticals
Diatomaceous earth; Microcrystalline cellulose
sorbent, powders
Cellulose
spermaceti wax substitute, pharmaceuticals
Crodamol MM
spermicide
Laureth-9; Nonoxynol-9; Octoxynol-1; Octoxynol-3; Octoxynol-5 Octoxynol-6; Octoxynol-9; Octoxynol-10; Octoxynol-11; Octoxynol-16 Octoxynol-20; Octoxynol-30; Octoxynol-40; Phenylmercuric acetate; Phenylmercuric nitrate
spermicide, pharmaceuticals
Igepal® CO-630 Special
sponges, surgical
Gelatin
sporicide
Glu taral
sports-related trauma treatment
Chondroitin sulfate; Glucosamine
spreading agent
Butylene glycol dicaprylate/dicaprate; Cetiol® A; Cetyl dimethicone; Eutanol® G16; Isopropyl oleate Tricaprylin; Vigilan™
spreading agent, acne creams/lotions
Crodamol CAP
spreading agent, acne preparations
Super Corona Lanolin
spreading agent, aerosols
Myritol® PC
spreading agent, alcoholic solutions
D.P.P.G.
spreading agent, animal health care
Super Corona Lanolin
spreading agent, antibiotic ointments
Crodamol CAP
spreading agent, antiperspirants
Stearoxy dimethicone
spreading agent, burn creams
Crodamol CAP
spreading agent, chapped skin treatment
Super Corona Lanolin
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Crodamol PMP; PPG-2 myristyl ether
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- Acetylated lanolin alcohol; D.P.P.G.;
  - Estasan™ GT 8-40 3578; Estasan™ GT 8-60 3580; Estasan™ GT 8-65 3581
- Eutanol® G; Magnesium aluminum silicate;
- Myristyl propionate; RITA IPM; RITA IPP
- Ritacetel; Tritoceryl SS; Stearea
- Dimethicone; Steareyl stearate; STEPAN®
  - PEG 200 DL
  - STEPAN® PEG 200 DO; STEPAN® PEG 400 DL; STEPAN® PEG 400 DS; STEPAN® PEG 400 ML
  - STEPAN® PEG 400 MS; STEPAN® PEG 600 DL; STEPAN® PEG 600 DO; STEPAN® PEG 600 DS; STEPAN® PEG 600 ML
  - STEPAN® PEG 6000 DS; STEPAN® PEG 6000 MS; Tegosoft® Liquid; Tegosoft® M; Tegosoft® OS
- Veegum®; Veegum® HV

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  - PPG-2 lanolin alcohol ether

spreading agent, emulsions
  - PPG-2 myristyl ether propionate

spreading agent, hemorrhoidal preparations
  - Super Corona Lanolin

spreading agent, highly pigmented products
  - Ceraphyl® 375

spreading agent, lip balms
  - HallStar™ MM

spreading agent, medicinally prescribed
  - dispersible bath oils
  - Volpo L3 Special; Volpo L4

spreading agent, medical ointments
  - PEG-8 lauryl ether stearate; PEG-10 lauryl ether stearate; PEG-15 lauryl ether stearate

spreading agent, ophthalmics
  - Super Corona Lanolin

spreading agent, orals
  - Crodamol GTCC; Crodamol GTCC-PN

spreading agent, parenterals
  - Crodamol GTCC; Crodamol GTCC-PN

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  - Cutina® MD-A

spreading agent, pharmaceutical creams/lotions
  - Lipo 142

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  - Cutina® MD-A; Dioctyl ether

spreading agent, pharmaceutical o/w emulsions
  - Cetiol® OE

spreading agent, pharmaceuticals
  - Abil®-Wax 2434; Abil®-Wax 2440; Abil®-Wax 9800; Akomed E; Akomed R
  - Arlatone® T; Behenoxy dimethicone;
  - Crodamol TDNP; Dimethiconol; D.P.P.G.
  - Eutanol® G; Hartolan; Hexyl laurate;
  - Hydrogenated polyisobutene; Isocetyl alcohol
  - Lipo 142; Mapeg® 200 DL; Mapeg® 400 MO; Myritol® PC; Octyl palmitate
  - Oleth-2; PEG-6 dilaurate; PEG-20 dilaurate;
  - PEG-32 dilaurate; PEG-75 dilaurate
  - PEG-150 dilaurate; PEG-4 dioleate; PEG-6 dioleate; PEG-12 dioleate; PEG-20 dioleate
  - PEG-32 dioleate; PEG-75 dioleate; PEG-150 dioleate; PEG-4 distearate; PEG-6 distearate
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  - PEG-150 distearate; PEG-4 laurate; PEG-6 laurate; PEG-20 laurate; PEG-32 laurate
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  - PEG-20 oleate; PEG-32 oleate; PEG-75 oleate; PEG-150 oleate; PEG-40 sorbitan peroleate
  - PEG-4 stearate; PEG-6 stearate; PEG-12 stearate; PEG-32 stearate; PEG-75 stearate
  - PEG-150 stearate; Pionier® IPM; Pionier® IPP; PPG-30 cetyl ether; PPG-2 lanolin alcohol ether
  - PPG-5 lanolin alcohol ether; PPG-20 lanolin alcohol ether; PPG-2 myristyl ether
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- emulsions
  - Myritol® 318

spreading agent, pharmaceutical soaps
- Softigen® 701

spreading agent, pharmaceutical w/o emulsions
- Cetiol® OE

spreading agent, pigmented products
- Ceraphyl® 55; Stearyl dimethicone

spreading agent, pigmented sticks
- Lipovol SES

spreading agent, rectals
- Softigen® 701

spreading agent, skin
- Miglyol® 810; Miglyol® 812; Miglyol® 812 N; Miglyol® 818; Miglyol® 840

spreading agent, steroidal products
- Super Corona Lanolin

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- Fancol™ Karite Extract; Shea butter
  (Butyrospernum parkii) extract; STEPAN® PEG 200 DL; STEPAN® PEG 200 DO; STEPAN® PEG 400 DL
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  STEPAN® PEG 6000 MS; Super Corona Lanolin

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- D.P.P.G.; Super Hartolan

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spreading agent, topicals
- Ceraphyl® 791; Crodamol GTCC; Crodamol GTCC-PN; Crodamol SCO; Dow Corning® Dimethiconol Blend 20
  Dow Corning® QT-9120 Silicone Fluid; Estasan™ GT 8-60 3575; Estasan™ GT 8-65 3577; Estasan™ GT 8-70 3579;
  Estol IPM 1509 (BIO-IPM)

- Isocetyl stearyl stearate; Isostearyl neopentanoate; Lanogene®; Lexol® IPP; Myristyl propionate
  Octyl palmitate; Octyl stearate; PEG-150 distearate; PPG-26 oleate; Ritalan®
  Softigen® 701; Super Refined® Crodamol SCO; Tegosoft® Liquid; Tegosoft® M;
  Tegosoft® OS

- Tegosoft® P; Tridecyl neopentanoate; Volpo 3

spreading agent, vaginals
- Softigen® 701

spreading agent, w/o-o/w emulsions
- Myritol® 312

stabilizer
- Agar Agar NF MK-80-B Powdered; Agar Agar NF S-100 Powdered; Agar Agar NF S-150-B Powdered;
  Agar Agar S-100; Alcolec® PS 20 P
  Alcolec® PS 40 P; Alcolec® PS 50 P;
  Aqualon® Cellulose Gum; Ascorbyl palmitate; Blanose® Cellulose Gum
  Butyl octyl salicylate; C18 polycarbamyl polyglycol ester; Disodium cocoamphipropionate; Epiol OH;
  Fanoliv™ Butter
  Fanoliv™ Wax; Gantrez® AN-139 BF; Gelot 64®; Gelucire 33/01; Gelucire 50/13
  Gum Arabic G-150 Powdered; Gum Arabic NF/FCC Clean Amber Sorts; Klucel® 'F' Grades;
  Lactic acid esters of mono- and diglycerides of fatty acids; Lanolin acid
  Magnesium stearate; Maltose; Methocel® A15-LV; Poloxamer 217; Poloxamer 231
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  Sucrose laurate; Sucrose myristate; Sucrose olate; Sucrose palmitate; Tara gum
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| TIC Pretested® Ticalose® CMC 2500 Std. | stabilizer, antihistamines
| Powd.; Tylopur® C 600 G1; Tylopur® C 1000 P2; Tylopur® C 6000 G1; Tylopur® C 10000 P2 | **Edetic acid; Ethylenediamine**
| stabilizer, α-hydroxy acid formulations | stabilizer, antilice conditioners
| Aculyn® 46 | Sepigel™ 305
| stabilizer, absorption bases | stabilizer, antiseptics
| OHlan®; Vilvanolin® CAB | Plasdone® C-15; Plasdone® C-30; Spray Dried Gum Arabic NF/FCC CS-R
| stabilizer, absorption basic creams | stabilizer, APIs
| Softisan® 649 | Simuisol® 58
| stabilizer, acidic pharmaceuticals | stabilizer, aqueous conditioners
| Magnabrite® K | Monomuls® 90 O18
| stabilizer, acne preparations | stabilizer, aqueous pharmaceuticals
| Aculyn® 46; Lipolan; Lipolan 31; Lipolan 31-20; Lipolan 98 Lipolan R; Lipolan Distilled | Natrosol® Plus 330 CS; Protac™; Protanal®
| stabilizer, adhesive pads | stabilizer, auxiliary o/w creams/lotions
| KELVIS® | Fancol™ VB
| stabilizer, aerosols | stabilizer, auxiliary o/w ointments
| Chemonic® OE-2 | Fancol™ VB
| stabilizer, aminophylline products | stabilizer, auxiliary o/w pharmaceuticals
| Ethylenediamine | Fancol™ VB
| stabilizer, analgesics | stabilizer, buccals
| Effer-Soda™ | Guar (Cyanopsis tetragonoloba) gum; Methylcellulose; Thioglycerin
| stabilizer, anhydrous products | stabilizer, bulk laxatives
| Syncrowax ERLC | Karaya Gum FCC; Powdered Gum Karaya Superfine #1 FCC; Powdered Gum Karaya Superfine XXXX FCC
| stabilizer, antacids | stabilizer, burn products
| Effer-Soda™; Walocel® C 1000 A; Walocel® C 10000 A; Walocel® HM 4000 PPA 2208; Walocel® HM 15000 PPA 2208 | Vilvanolin® CAB
| stabilizer, antibiotic gels | stabilizer, calcium gluconate solutions
| Sepigel™ 305 | Gluconal® CADS
| stabilizer, antibiotics | stabilizer, capsules
| N-Benzylamine; Edetic acid; Plasdone® C-15; Plasdone® C-30; Ryoto Sugar Ester B-370 Ryoto Sugar Ester ER-190; Ryoto Sugar Ester ER-290; Ryoto Sugar Ester L-595; Ryoto Sugar Ester L-1695; Ryoto Sugar Ester LWA-1570 Ryoto Sugar Ester M-1695; Ryoto Sugar Ester O-1570; Ryoto Sugar Ester OWA-1570; Ryoto Sugar Ester P-170; Ryoto Sugar Ester P-1570 Ryoto Sugar Ester P-1570S; Ryoto Sugar Ester P-1670; Ryoto Sugar Ester S-170; Ryoto Sugar Ester S-270; Ryoto Sugar Ester S-370 Ryoto Sugar Ester S-370F; Ryoto Sugar Ester S-570; Ryoto Sugar Ester S-770; Ryoto Sugar Ester S-970; Ryoto Sugar Ester S-1170 Ryoto Sugar Ester S-1570; Ryoto Sugar Ester S-1670; Sucrose tribehenate | Compritol 888; Edible Beef Gelatin
| stabilizer, bulk laxatives | stabilizer, coloids
| Kluceol® EF Pharm; Kluceol® E Pharm; Kluceol® EX Pharm; Kluceol® GF | Hydrolyzed casein
| stabilizer, controlled-releases | stabilizer, colors
| Lecigran™ 5750; Lecigran™ 6750; Lecigran™ A; Lecigran™ C; Lecigran™ F Lecigran™ M; Lecigran™ T | Citric acid; Citric acid monohydrate
| stabilizer, color suspensions | stabilizer, colors: oxidizable substances
| Aqualon® N-7; Aqualon® N-10; Aqualon® N-14; Aqualon® N-22; Aqualon® N-50 | Aqualon® N-7; Aqualon® N-10; Aqualon® N-14; Aqualon® N-22; Aqualon® N-50
| stabilizer, controlled-releases | Aqualon® N-100
| stabilizer, controlled-releases | stabilizer, controlled-releases
| Kluceol® EF Pharm; Kluceol® E Pharm; Kluceol® EX Pharm; Kluceol® GF | Kluceol® G Pharm; Kluceol® HF; Kluceol® H Pharm; Kluceol® HXF; Kluceol® HX Pharm Kluceol® JF; Kluceol® J Pharm; Kluceol® LF Pharm; Kluceol® L Pharm; Kluceol® MF Kluceol® M Pharm
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  Miglyol® Gel B

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  Miglyol® Gel T

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  TEGO® Carbomer 140

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  Stearamide DEA

stabilizer, emulsions: elixirs
  Keltrol® T

stabilizer, emulsions: emollients
  Sodium phthalate stearyl amide

stabilizer, emulsions: encapsulation
  Methocel® K3 Premium

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  Sucrose acetate isobutyrate

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  Magnesium aluminum silicate

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  Linoleamide DEA; Schercomid SLE; Sodium phthalate stearyl amide; STEPAN-MILD® RM1

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| Crodacol 1618; Dynacet® 211P; Dynacet® 212P; Dynacet® 285; Syncrowax BB4 |
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| **stabilizer, emulsions: pharmaceutical creams/lotions** |
| Amphisol® |

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| Gumixan K; Gumixan KF; Veegum® HV; Veegum® K |

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| Aerosil® 200; Animal Stearic Acid; Carboxymethyl hydroxyethyl cellulose; Carboxymethyl hydroxypropyl guar; Cerabel BWS |
| Cerabel CA; Cerabel D157; Cerabel L109; Cerabel L118; Cerabel R260 |
| Cerabel S30; Cerabel S40; Cerabel S60; Cerabel SCA; Ceresine C |
| Ceresine K; Cerewax 2T; Cerewax 4T; Cerewax 105; Cerewax A75 |
| Cerewax AS15; Cerewax FT/B; Cerewax L; Cerewax LKT; Cerewax M85/C |
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| Cerozo 26457; Cerozo 26555; Cerozo 30447; Cerozo 31049; Cerozo A |
| Cerozo AF; Cerozo AN; Cerozo C806; Cerozo D306; Cerozo E626 |
| Cerozo F110; Cerozo F308; Cerozo T37; Cerozo T319; Cerozo V164 |
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| Granular Gum Arabic Type A-2 NF Premium; Gum Tragacanth Ribbons and Flakes; Hydroxyethyl cellulose; Hydroxypropylcellulose; Hydroxypropyl methylcellulose |
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<tr>
<td>Stabilizer, O/W Systems</td>
<td>Stabilizer, Pharmaceutical Liquid Emulsions</td>
</tr>
<tr>
<td>Emulsynt® 1055</td>
<td>Cutina® MD</td>
</tr>
<tr>
<td>Stabilizer, Parenterals</td>
<td>Stabilizer, Pharmaceutical Liquids</td>
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<tr>
<td>Captisol®; Crillet 1 HP; Crillet 1 NF; Crillet 4 HP; Crillet 4 NF Crodamol GTCC; Crodamol GTCC-PN; D-Mannitol; Plasdone® C-15; Plasdone® C-30 Sodium bisulfite; Sulphobutylether β-cyclodextrin; Thioglycerin</td>
<td>Plasdone® K-25; Plasdone® K-90; Plasdone® K-90D</td>
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<tr>
<td>Stabilizer, Peptide Actives</td>
<td>Stabilizer, Pharmaceutical Lotions</td>
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<tr>
<td>Crossential® GMO</td>
<td>Ticaxan® Regular</td>
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<tr>
<td>Stabilizer, Pharmaceutical Aerosols</td>
<td>Stabilizer, Pharmaceutical Oil-Based Creams/Lotions</td>
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<tr>
<td>Silica, Fumed</td>
<td>Lumisorb™ SMO NF</td>
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<tr>
<td>Stabilizer, Pharmaceutical Calcium Gluconate Solutions</td>
<td>Stabilizer, Pharmaceutical Ointments</td>
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<td>Calcium Saccharate</td>
<td>Cutina® MD</td>
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<tr>
<td>Stabilizer, Pharmaceutical Coatings</td>
<td>Stabilizer, Pharmaceutical O/W Emulsions</td>
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<tr>
<td>Gum ghatti; Sammi Gelatine</td>
<td>Tylopur® C 600 G1</td>
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<td>Stabilizer, Pharmaceutical Creams</td>
<td>Stabilizer, Pharmaceutical Powders</td>
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<td>Caprylic/capric/stearic triglyceride; Cosmowax J; Cutina® MD; Gum Tragacanth Ribbons and Flakes; Meroxapol 105</td>
<td>Effer-Soda™; Silica, Fumed</td>
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Acacia; Acetylated mono- and diglycerides of fatty acids; Alcolec® Granules; Aldo® PGHMS; Alginic acid
Aloe barbadensis extract; Aloe extract; Aluminum hydroxide; Amberlite® IRP-69;
Amerchol® L-99
Ammonium alginate; Antarox® 17-R-2; Antarox® 25-R-2; Antarox® 31-R-1;
Benecel® Methylcellulose
Benecel® MP; Bentolite® MB-NF; Benzophenone-3; Bis-diglyceryl polyaclyladipate-2; Brominated vegetable oil
Butyl Diglyme; t-Butyl hydroquinone;
Butyrolactone; C18-36 acid glycol ester;
C18-36 acid triglyceride
Calcium alginate; Calcium carboxymethyl cellulose; Calcium carrageenan; Calcium citrate; Candelilla synthetic
Caprylic/capric/stearic triglyceride
Carbomer; Carbomer 910; Carbopol® 940;
Carbopol® 974P
Carboxymethylcellulose; Caroat; Carrageenan (Chondrus crispus); Cassia gum; Ceasit PC
Cekol® 30; Cekol® 150; Cekol® 300; Cekol® 500 T; Cekol® 700
Cekol® 2000; Cekol® 2000S; Cekol® 4000;
Cekol® 10000: Cekol® 30000
Cellogen HP-5HS; Cellogen HP-6HS;
Cellogen HP-6HS.9; Cellogen HP-8A;
Cellogen HP-12HS
Cellogen HP-SB; Ceteareth-25; Ceteareth-33; Cetyl hydroxyethyl cellulose;
Chemonic® OE-10
Chemonic® OE-20; Cithrol GDO N/E; Cithrol GDO S/E; Cithrol GDS N/E; Cithrol GDS S/E
Cithrol GML S/E; Cithrol GMO N/E; Cithrol GMS A/S; Cithrol GMS N/E; Cithrol GMS S/E
Cithrol PGML S/E; Cithrol PGMO S/E; Citric acid esters of mono- and diglycerides of fatty acids; Cosmowax; Cosmowax BP
Cosmowax K; Coyote Brand Konjac A; Coyote Brand Tara Gum; Crillet 4 HP; Crillet 4 NF
Cyclodextrin; β-Cyclodextrin; Diammonium EDTA; Di-C12-15 paren-2 phosphate; Di-C12-15 paren-4 phosphate
Di-C12-15 paren-6 phosphate; Di-C12-15 paren-8 phosphate; Di-C12-15 paren-10 phosphate; Diethylene glycol dibutyl ether;
Ditridecyl thiodipropionate
DREWMULSE® 200K; DREWMULSE® GMO Kosher; Duolite® AP143/1083; Dyunsan® 114; Edetic acid
Esterol 3745; Ethophere® LA-23;
Ethylendiamine; Extra Olein™ 99;
Fancol™ LA
Fancol™ LAO; Furcellar; GPG™ 3565; GPG™ 7030; GRINDSTED® Xanthan EASY
Gantrez® AN-119; Gelcarin® DG 3252;
Gellan gum; Genu® USP/100; Genu® USP/200
Genu® USP-L/200; Genu® VV-11PF; Genu® VV-41PF; Genu® VV-71PF; Genu® Carrageenan
Genugel® X-902-02; Genu® Pectins; Genu® Pectin USP/100; Genu® Pectin USP/200;
Genu® Pectin USP-L/200
Genuvisco®; Glycerol citrate/lactate/linoleate/oleate; Glycerol dioleate; Glycerol dioleate SE; Glycerol distearate
Glyceryl distearate SE; Glyceryl laurate;
Glyceryl laurate SE; Glycerol oleate;
Glyceryl oleate SE
Glyceryl ricinoleate; Glycerol ricinoleate SE; Glycerol stearate citrate; Granular Gum
Arabic Type A-1 NF Premium; Granular Gum Arabic Type A-2 NF Premium
Guar (Cyanopsis tetragonolob) gum; Gum Tragacanth Ribbons and Flakes; Hartolan;
Hectabrite® DP; Hectorite
Hydride®; Hydrogenated lanolin;
Hydrogenated lard glyceride; Hydrogenated lard glycerides; Hydrogenated lecithin
Hydrogenated palm glyceride;
Hydrogenated palm glycerides;
Hydrogenated soy glyceride; Hydrogenated soy glycerides; Hydrogenated tallow glyceride
Hydrogenated tallow glycerides;
Hydroxyethylcellulose; Hydroxylated lanolin; Hydroxypropylcellulose;
Hydroxypropyl-α-cyclodextrin
Hydroxypropyl-β-cyclodextrin
Hydroxypropyl-γ-cyclodextrin; Hystrene® 5016 NF; Imwitor® 191; Imwitor® 900
Isopropyl lanolate; Isopropyl palmitate; Jaguar® 308NB; Karaya Gum FCC; Karaya (Sterculia urens) gum
KELACID®; KELCOLOID® HVF;
KELCOLOID® LVF; KELCOLOID® O;
KELCOLOID® S
KELCONSOL®; KELGIN® F; KELGIN® HV;
KELGIN® LV; KELGIN® MV
KELGIN® QL; KELGIN® XL; KELSET®;
Functional/Application Index

KELTONE® HV; KELTONE® LVNP
Keltrol® 1000; Keltrol® BT; Keltrol® CG;
Keltrol® CG T; Keltrol® F
Keltrol® GM; Keltrol® RD; Keltrol® SF;
KELVIS®; Klucel® EF Pharm
Klucel® EXF Pharm; Klucel® GF; Klucel®
HF; Klucel® HXF; Klucel® JF
Klucel® LF Pharm; Klucel® MF; Kollidon®
CL; Laneth-5; Laneth-10
Laneth-15; Laneth-40; Lanolin acid; Lard
glyceride; Lard glycerides
Lecithin; Linquad BLM 50; Lipolan 31-20;
Lipolan 98; Lipolan R
Lipolan Distilled; Locust bean (Ceratonia
siliqua) gum; Locust Bean Gum Type A-
100; Locust Bean Gum Type A-250; Locust
Bean Gum Type A-270
Lumulse® GML K; Lumulse® GMO K;
Magnabrite® HV; Magnabrite® S;
Magnesium aluminum silicate
Malt extract; D-Mannitol; MANUCOL® DM;
MANUCOL® DMF; MANUCOL® LB
MANUCOL® Ester ER/K; MANUGEL® DMB;
Meroxapol 172; Meroxapol 174; Meroxapol
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Methocel® A15C Premium; Methocel® E15
Food Grade; Methocel® F4M Premium;
Methylethylcellulose; Methyl-α-cyclodextrin
Methyl-β-cyclodextrin; Methyl-γ-
cyldextrin; Miranol® C2M Conc. NP;
Monomuls® 60-35; Monomuls® 90-35
Natrosol® 250 H; Natrosol® 250 HHX
Pharm; Natrosol® 250 HX Pharm; Natrosol®
250 M Pharm; Nikkol DDP-2
Nikkol DDP-4; Nikkol DDP-6; Nikkol DDP-8;
Nikkol DDP-10; Nonoxynol-6
Nonoxynol-9; Nonoxynol-40; Nonoxynol-50;
Nonoxynol-100; Oleic acid
Oleth-2; Oleth-10; Palm glyceride; Palm
glycerides; Paxonate OT
Paxonate OTL; Paxyl CM 1000; Paxyl CS 20;
Pectin; PEG-8 beeswax
PEG-4 dimethyl ether; PEG-20
hydrogenated lanolin; PEG-150 olate;
PEG-80 sorbitan laureate; PEG-20 sorbitan
tallate
PEG-20 sorbitan tritallate; PEG-2 stearate;
PEG-40 stearate; PG USP; Plasdone® K-25
Plasdone® K-29/32; Plasdone® K-90;
Plasdone® K-90D; Pluracol® E300;
Pluracol® E400
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PGMS; Polypax SMO; Polypax SMO (Tech);
Polypax SMS
Potassium caroate; Potassium cetyl
phosphate; Powdered Guar Gum Type A;
Powdered Guar Gum Type AA; Powdered
Guar Gum Type B
Powdered Guar Gum Type BB; Powdered
Gum Arabic Type B-100 NF Premium;
Powdered Gum Arabic Type B-200 NF
Premium; Powdered Gum Karaya Superfine
#1 FCC; Powdered Gum Karaya Superfine
XXXX FCC
Powdered Gum Tragacanth BP; Powdered
Gum Tragacanth Type B-1 NF Premium;
Powdered Gum Tragacanth Type B-12 NF
Premium; Powdered Gum Tragacanth Type
C-5 NF; Powdered Gum Tragacanth Type G-
1 NF Premium
Powdered Gum Tragacanth Type G-2 NF
Premium; Powdered Gum Tragacanth Type
G-2S NF Premium; Powdered Gum
Tragacanth Type M-3 NF Premium; Procoat
MB; Propylene glycol alginate
Propylene glycol laurate; Propylene glycol
laurate SE; Propylene glycol oleate;
Propylene glycol oleate SE; Propylene
glycol palmito/stearate
Propylene glycol ricinoleate; Propylene
glycol ricinoleate SE; Propylene glycol stea
rate SE; PROVIgel® DPC 6; PROVIgel®
DPC 15
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PROVIgel® DPG 5; PROVIgel® DPG 7;
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PROVIgel® EXG 01; PROVIgel® EXG 05;
PROVIgel® EXG 10
PROVIgel® EXG 20; PROVIgel® EXG 40;
PVM/MA copolymer; PVP K-15; PVP K-15
Sol'n.

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- PVP K-120; Rennet; Rhodasurf® ON-870; Rhodigel® Clear 80; Ritabate 20
- Ritabate 40; Ritabate 60; Ritabate 80; Ritawax; Sammi Gelatine
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- Simulsol® CS; Simulsol® P4; Simulsol® P23; Sodium bisulfite; Sodium carrageenan
- Sodium 2-ethylhexyl sulfate; Sodium hypophosphite; Sodium octyl sulfate; Sodium phosphate dibasic heptahydrate
- Sofracerine 185; Sofracerine 165
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- Solka-Floc® SF20 NF; Solka-Floc® SF40 NF; Solka-Floc® SF900 NF; Sorbitan stearate; Sorbitan tristearate
- Sorbitol Sol'n. High Mannitol; Span® 60K; Span® 65; Span® 65K; Spray Dried Fish Gelatin
- Spray Dried Gum Arabic Type A-180 NF Premium; Spray Dried Gum Arabic Type A-230 NF Extra; Steareth-20; Sucrose dilaurate; Sucrose laurate
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- Tabulose® SC-612; Tabulose® SC-613; Tabulose® SC-681; Tallow glyceride; Tallow glycerides
- Tegin® 4100; TEGO® Alkanol 16; TEGO® Alkanol 18; TEGO® Alkanol 1618; Tetradecyleicosyloystearate
- Tetracylglyme; Tetrasodium etidronate; Tetronic® 304; Tetronic® 704; Tetronic® 901
- Tetronic® 904; Tetronic® 908; Tetronic® 1107; Tetronic® 1301; Tetronic® 1304
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- TIC Pretested® Gum Guar 8/22A NF (USP) Powder; TIC Pretested® Locust Bean Gum USP Powder; TIC Pretested® Pre-Hydrated® Ticalose® CMC PH-2500 Powder; TIC Pretested® Pre-Hydrated® Ticaxan®
- Xanthan NF Powd.; TIC Pretested® Ticaxan® Xanthan 200 FCC/USP/NF Powd.
- TIC Pretested® Ticaxan® Xanthan NF Powd.; T-Maz® 20; T-Maz® 28; T-Maz® 60K; T-Maz® 65K
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- T-Maz® 90; Triolein; Tris (hydroxymethyl) aminomethane; Tulsion® T-335; Turpinal® SL
- Vee Gee Pharmaceutical Gelatins; Vilvanolin® CAB; Vilvanolin L-101®
- Viscocel® SC-580F; Viscocel® SC-601; Viscocel® SC-611; Viscocel® SC-612; Viscocel® SC-613; Viscocel® SC-681; Walocel® CRT 70 A
- Xanthan gum

stabilizer, pharmaceutical surfactants
- Natrosol® Plus 330 CS

stabilizer, pharmaceutical suspensions

- Crosspovidone; C*Sorbidx C 16121; C*Sorbidx C 16122; C*Sorbidx NC 16205; Genu® Pectins
- Genu® Pectin (citrus) type USP/100; Genu® Pectin (citrus) type USP/200; Genu® Pectin (citrus) type USP-H; Genu® Pectin (citrus) type USP-L/200; Genu® Pectin USP/200; Genu® Pectin USP-L/200; Granular Gum Arabic Type A-1 NF Premium; Granular Gum Arabic Type A-2 NF Premium; Jungbunzlaufer Xanthan Gum, Food Grade
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- Silica, fumed; Spray Dried Gum Arabic Type A-180 NF Premium; Spray Dried Gum Arabic Type A-230 NF Extra; Ticaxan® Regular; Tylopur® C 300 P2
- Tylopur® C 1000 P2; Tylopur® C 6000 G1; Tylopur® C 10000 P2; Tylose® H 30000 P2 PHA; Tylose® H 100000 P2 PHA
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- Tylopur® CB 30000 G1; Tylopur® CB 30000 P2; Tylose® H 30000 P2 PHA; Tylose® H 100000 P2 PHA
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  Argobase EU
stabilizer, pharmaceutical w/o systems
  Fancor® Lanwax
stabilizer, pigments: pharmaceuticals
  Tylose® MH Grades; Tylose® MHB
stabilizer, prolonged-action preparations
  Carbomer
stabilizer, reactive compounds
  C*Cavitron 82003; C*Cavitron 82004; C*Cavitron 82005
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  Permulgin® D
stabilizer, secondary: emulsions
  PEG-50 hydrogenated tallowamide
stabilizer, secondary o/w emulsion: lip care
  Colonial LAO
stabilizer, secondary o/w emulsion: ointments
  Colonial LAO
stabilizer, secondary o/w emulsion: pharmaceutical creams/lotions
  Colonial LAO
stabilizer, secondary o/w emulsion: topicals
  Colonial LAO
stabilizer, skin disinfectants
  Aculyn® 46
stabilizer, skin preparations
  Etidronic acid
stabilizer, skin products
  Etidronic acid
stabilizer, slow-release capsules
  Agar
stabilizer, slow-release tablets
  Shellac
stabilizer, soft capsules
  Sammi Gelatine
stabilizer, soft gelatin capsule oily products
  Geleol®
stabilizer, solid dosages
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  Benecel® MP8; Benecel® MP9; Citrocol GMS 0400
stabilizer, solid oral dosages
  Shellac
stabilizer, soluble granules
  Satialgine™ H8
stabilizer, soluble tablets
  Satialgine™ H8

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  Tabulose® SC-601; Tabulose® SC-611;
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  Tabulose® SC-613; Tabulose® SC-681;
  Viscocel® SC-580F; Viscocel® SC-601;
  Viscocel® SC-611
  Viscocel® SC-612; Viscocel® SC-613;
  Viscocel® SC-681
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  Methoxy PEG methacrylate; Rohamere® 6850-0
stabilizer, steroid hormones
  Plasdone® C-15; Plasdone® C-30
stabilizer, sugar-free pharmaceuticals
  Sorbitol Sol’n. Noncrystallizing
stabilizer, supplements
  Calcium citrate
stabilizer, suppositories
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  DREW MULSEL® 200K; Edible Beef Gelatin
  KELGIN® MV
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  KELCOSOL®; KELGIN® LV; KELTONE® HV
stabilizer, surgical lubricants
  Agar
stabilizer, suspensions
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  Tabulose® SC-580; Tabulose® SC-601;
  Tabulose® SC-611; Tabulose® SC-612;
  Tabulose® SC-613
  Tabulose® SC-681; Viscocel® SC-580F;
  Viscocel® SC-601; Viscocel® SC-611;
  Viscocel® SC-612
  Viscocel® SC-613; Viscocel® SC-681
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  Crospovidone
stabilizer, suspensions: injectables
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  Kollidon® 30; Kollidon® 90F
stabilizer, suspensions: liquid orals
  Lutrol® F 68
stabilizer, suspensions: ophthalmics
  Crospovidone; Kollidon® 12PF; Kollidon® 17PF;
  Kollidon® 25; Kollidon® 30; Kollidon® 90F
stabilizer, suspensions: parenterals
  Lutrol® F 68
stabilizer, suspensions: percutaneous injectables
Crospovidone

stabilizer, suspensions: pharmaceuticals
Cremophor® S 9; Kollidon® CL; Kollidon® CL/M

stabilizer, suspensions: topicals
Crospovidone; Lutrol® F 68

stabilizer, sustained-releases
Precirol ATO 5

stabilizer, sustained-release tablets
Benecel® M; Benecel® ME1; Benecel® ME2; Benecel® MP3; Benecel® MP6; Benecel® MP8; Benecel® MP9

stabilizer, syrups
Cekol® 30000

stabilizer, tablet binding
Klucel® E Pharm; Klucel® EX Pharm; Klucel® G Pharm; Klucel® H Pharm; Klucel® HX Pharm; Klucel® J Pharm; Klucel® L Pharm; Klucel® M Pharm

stabilizer, tablet coatings
Cekol® 30; Klucel® EF Pharm; Klucel® E Pharm; Klucel® EX Pharm; Klucel® GF; Klucel® G Pharm; Klucel® HF; Klucel® H Pharm; Klucel® HX Pharm; Klucel® JF; Klucel® J Pharm; Klucel® LF Pharm; Klucel® L Pharm; Klucel® MF; Klucel® M Pharm

stabilizer, tablet excipients
Locust Bean Gum Type A-100; Locust Bean Gum Type A-250; Locust Bean Gum Type A-270

stabilizer, tablets
Calcium citrate; Compritol 888; Effer-Soda™; Gum ghatti; Jungbunzlauer Xanthan Gum; Food Grade Magnabrite® F; Polyplasdone® XL; Polyplasdone® XL-10; Potassium alginate; Sammi Gelatine; Silica, fumed

stabilizer, tannin burn ointments
Tylopur® C 600 G1

stabilizer, therapeutic ointments
Vilvanolin® CAB

stabilizer, thermal: suppositories
Cab-O-Sil® EH-5; Cab-O-Sil® H-5; Cab-O-Sil® LM-150; Cab-O-Sil® M-5; Cab-O-Sil® MS-55

stabilizer, thickener
Alginic acid

stabilizer, toothpaste
Locust bean (Ceratonia siliqua) gum

stabilizer, topical cationic systems
Lexemul® AR

stabilizer, topical creams
Ethylene diamine; Lumulse® GMS K

stabilizer, topical creams/lotions
Hest CO

stabilizer, topical emulsions
Hydrine®; Labrafil® M 2130 CS; Super Hartolan

stabilizer, topical emulsions/suspensions/gels
Carbopol® 934; Carbopol® 2984; Carbopol® 5984

stabilizer, topical gels
Acrylates/C10-30 alkyl acrylate crosspolymer; Carbopol® 971P; Carbopol® 974P

stabilizer, topical liquids
Natrosol® 250 HX; Natrosol® 250 M

stabilizer, topical lotions
Carbopol® 971P

stabilizer, topical o/w creams/lotions
Cerasynt® 840

stabilizer, topicals
Acrylates/C10-30 alkyl acrylate crosspolymer; Carbomer; Carbopol® 940; Carbopol® 1342; Carrageenan (Chondrus crispus)

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Isopropyl palmitate; Laneth-15; Laureth-23; Lecithin; Lexemul® 515

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PEG-40 stearate; Plasdone® K-25; Plasdone® K-29/32; Plasdone® K-90; Plasdone® K-90D

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Syncrowax HGLC; Syncrowax HRC; Tegin® 515 VA; Tetrasodium etidronate; Tris (hydroxymethyl) aminomethane
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<td>Tulsion® T-335</td>
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<tr>
<td><strong>stabilizer, topical suspensions</strong> Kollidon® CL-F; Kollidon® CL/M; Kollidon® CL-SF; Lutrol® F 127</td>
<td>Tulsion® T-335</td>
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<td><strong>stabilizer, transdermals</strong> Carbopol® 940; Carbopol® 971P; Carbopol® 974P</td>
<td>Tulsion® T-335</td>
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<td><strong>stabilizer, vaginals</strong> Magnesium aluminum silicate; Methylcellulose; Sorbitan stearate</td>
<td>Tulsion® T-335</td>
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<td><strong>stabilizer, veterinary products</strong> Labrafilm M 2130 CS; Laneto 50; Laneto 100; Laneto AWS; Lipolan Lipolan 31; Ritawax Super</td>
<td>Tulsion® T-335</td>
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<td><strong>stabilizer, viscosity</strong> Calcium/sodium PVM/MA copolymer</td>
<td>Tulsion® T-335</td>
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**Powder**

starting material, pharmaceutical derivatives

Crossential® LN80; Crossential® O94

sterilizer

**Ethylene oxide; Isopropyl alcohol**

sterilizer, dental equipment

**Glutaral**

sterilizer, fiber optic endoscopes

**Glutaral**

sterilizer, medical equipment

Glutaral; Lebon 15

sterilizer, membranes: kidney dialyzer

**Formaldehyde**

sterilizer, mucous membranes

Myrtrimonium bromide

sterilizer, skin

Chlorhexidine digluconate; Myrtrimonium bromide

sterilizer, skin membranes

Myrtrimonium bromide

sterilizer spray, dental equipment

**Glutaral**

sterilizer spray, fiberoptic endoscopes

Glutaral

sterilizer, topical

**Isopropyl alcohol**

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**Tetrahydrofuran**

stiffener, acne creams/lotions

Crodamol SS

stiffener, adhesive plasters

Beeswax

stiffener, antibiotic ointments

Crodamol SS

stiffener, burn creams

Crodamol SS

stiffener, capsules

Compritol® 888 ATO

stiffener, coated tablets

Rosin

stiffener, creams

Cetearyl alcohol

stiffener, creams/lotions

Cetyl myristate

stiffener, glycerol suppositories

Sodium stearate

stiffener, implants

Paraffin

stiffener, lozenges

Beeswax

stiffener, mouth preparations

Beeswax

stiffener, ointments

Beeswax; Hydrogenated castor oil; Paraffin;

**Rosin**

stiffener, ophthalmics

Cetyl alcohol

stiffener, orals

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Syncrowax HRC

stiffener, otics

Cetearyl alcohol; Cetyl alcohol

stiffener, pharmaceuticals

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stiffener, rectals

Cetyl alcohol

stiffener, stick products

Syncrowax ERLC; Syncrowax HGLC

stiffener, suppositories

Beeswax

stiffener, surgical dressings

Dextrin

stiffener, sustained-action tablets

Rosin

stiffener, tablets

Compritol® 888 ATO

stiffener, throat preparations

Beeswax

stiffener, topical creams

Crodacol C-95 EP

stiffener, topicals

Beeswax; Beeswax, white; Beeswax, yellow; Cetearyl alcohol; Cetyl alcohol Cetyl esters; Crodamol CP; Crodamol SS; Paraffin; Sodium stearate Stearyl alcohol; Syncrowax HRC

stiffener, troches

Beeswax

stiffener, vaginals

Beeswax; Beeswax, white; Stearyl alcohol

stimulant

Alcohol; Angelica (Angelica archangelica) extract; Asafetida (Ferula asafoetida) gum; Benzoin; Cajeput (Melaleuca leucadendron) oil L-Camphor; Capsicum frutescens extract; Caraway (Carum carvi) oil; Castor (Ricinus communis) oil; Cinnamon (Cinnamomum cassia) oil Coriander (Coriandrum sativum) oil; Eucalyptus globulus oil; Hyssop (Hyssopus officinalis)
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officinalis) extract; Niacinamide;
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Spearmint (Mentha viridis) oil; Storax
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(Gaultheria procumbens) oil
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  Cubeb (Piper cubeba) oil
stimulant, bladder troubles: chronic
  Cubeb (Piper cubeba) oil
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stimulant, laxatives
  Casanthranol; Cascara (Rhamnus
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  Cubeb (Piper cubeba) oil
stimulant, respiratory
  Sodium succinate
stimulant, skin
  Niacinamide
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  Cardamom (Elettaria cardamomum);
  Nutmeg (Myristica fragrans) oil; Orange
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  Bismuth
stool softener
  Dioctyl sodium sulfo succinate
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stress reliever
  Vipers bugloss (Echium plantagineum) oil
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  Incroquat Behenyl TMS
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  Crodaco l S95 EP
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  Crodaco l S95 EP
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  Zinc sulfate
styptic, pharmaceuticals
  Zinc acetate
substantivity agent, creams/lotions
  Dimethiconol arginine
substantivity agent, dermatological liquid
cleansers
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substantivity agent, ophthalmics
  Cocamidopropyl PG-dimonium chloride
  phosphate
substantivity agent, pharmaceutical
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substantivity agent, pharmaceuticals
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sucrose replacement, oral ampoules
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sucrose replacement, pharmaceutical
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sucrose replacement, pharmaceutical
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sucrose replacement, pharmaceutical
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Xylitol

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Super Corona Lanolin; Superfine Lanolin

superfattening agent, alcoholic compositions
Lanexol AWS

superfattening agent, animal health care
Super Corona Lanolin

superfattening agent, aqueous products
Lanexol AWS

superfattening agent, aqueous topicals
Solan

superfattening agent, capsules
Labrafac® Lipophile

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Crovol A-70

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Myristamide DEA

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Superfine Lanolin

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Superfine Lanolin

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Cetiol® LC

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Cetiol® S; Diocyl cyclohexane

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Labrafac® Lipophile

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Labrafac® Lipophile

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**Supplement, Nutritional Formulations**

- Ropufa® '10' n-6 Oil
- Zinc Oxide CR-4 USP

**Supplement, Pharmaceuticals**

- Ropufa® '10' n-6 Oil; Zinc Oxide CR-4 USP

**Suppressant, Excessive GI Gas**

- Dow Corning® Medical Antifoam AF Emulsion
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<td>Caprylic/capric/dissucinic triglyceride; Carbopel® 934P; Carbopel® 940; Carbopel® 971P</td>
<td>Carbopel® 934; Carbopel® 971P; Carbopel® 974P Miglyol® 829; Tragacanth (Astragalus gummifer) gum</td>
<td>Natrosol® 250 HX; Natrosol® 250 M</td>
</tr>
<tr>
<td>Suspending Agent, Otics</td>
<td>Suspending Agent, Pharmaceutical Aerosols</td>
<td>Suspending Agent, Pharmaceutical Gels</td>
</tr>
<tr>
<td>Hydroxyethylcellulose</td>
<td>Aerosil® R812; Silica, fumed</td>
<td>Natrosol® 250 HX; Natrosol® 250 M</td>
</tr>
<tr>
<td>Suspended Agent, O/W Emulsions</td>
<td>Suspended Agent, Pharmaceutical Coatings</td>
<td>Suspending Agent, Pharmaceutical Gels</td>
</tr>
<tr>
<td>Bentonite; Sodium phthalate stearyl amide</td>
<td>Gum ghatti</td>
<td>Natrosol® 250 HX; Natrosol® 250 M</td>
</tr>
<tr>
<td>Suspended Agent, Parenterals</td>
<td>Crillet 3 NF; Miglyol® 810; Plasdone® C-15; Plasdone® C-30; PVP</td>
<td>Suspending Agent, Pharmaceutical Gels</td>
</tr>
<tr>
<td>Crillet 3 NF; Miglyol® 810; Plasdone® C-15; Plasdone® C-30; PVP</td>
<td>Super Refined® PEG-300 NF; Super Refined® PEG-400 NF; Super Refined® PEG-600 NF</td>
<td>Natrosol® 250 HX; Natrosol® 250 M</td>
</tr>
<tr>
<td>Suspending Agent, Parenterals</td>
<td>Suspending Agent, Pharmaceutical Aerosols</td>
<td>Suspending Agent, Pharmaceutical Gels</td>
</tr>
<tr>
<td>Crillet 3 NF; Miglyol® 810; Plasdone® C-15; Plasdone® C-30; PVP</td>
<td>Aerosil® R812; Silica, fumed</td>
<td>Natrosol® 250 HX; Natrosol® 250 M</td>
</tr>
</tbody>
</table>

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**Powdered Gum Tragacanth Type M-3 NF**
- Premium; Powdered Tragacanth Gum Type E-1
- Powdered Tragacanth Gum Type L;
- Powdered Tragacanth Gum Type W;
- Tragacanth Gum Ribbon No. 1 NF FCC

**Suspending agent, pharmaceutical liquids**
- Carbowax® E300 NF; Carbowax® E400 NF;
- Carbowax® E600 NF; Carbowax® E1000 NF;
- Carbowax® E1450 NF
- Carbowax® E3350 NF; Carbowax® E8000 NF;
- Methocel® A Premium LV EP;
- Methocel® E3 Premium LV EP; Methocel® E4M Premium CR EP
- Methocel® E5 Premium LV EP JP;
- Methocel® E10M Premium CR EP;
- Methocel® E15 Premium LV EP JP;
- Methocel® E50 Premium LV EP JP;
- Methocel® E6 Premium LV EP JP;
- Methocel® E6 Premium LV EP);
- Methocel® F4M Premium EP; Methocel® K100 Premium LV EP;
- Methocel® K100 Premium LV LH EP;
- Methocel® K3 Premium LV EP

**Suspending agent, pharmaceutical lotions**
- Ticaxan® Regular

**Suspending agent, pharmaceutical pastes**
- Magnabrite® F

**Suspending agent, pharmaceutical powders**
- Hectorite BC 840; Silica, fumed

**Suspending agent, pharmaceuticals**
- Acacia; Aerosil® 90; Aerosil® 150; Aerosil® 380; Aerosil® R974
- Aerosil® R8200; Albagel Premium USP 4444; Alginic acid; Aluminum stearate;
- Aqualon® Cellulose Gum
- Attapulgite; Benecel® Hydroxypropyl Methylcellulose; Benecel® Methylcellulose;
- Benecel® MP; Bentolite® MB-NF
- Bentonite; C18-36 acid glycol ester; C18-36 acid triglyceride; Calcium carboxymethyl cellulose; Calcium lactobionate
- Caprol® MPGO; Caprylic/capric/disuccinic triglyceride; Carbomer; Carbomer 910;
- Carbomer 934
- Carbomer 934P; Carbomer 940; Carbomer 941; Carbomer 1342; Carbopol® 934P
- Carbopol® 940; Carbopol® 971P;
- Carbopol® 974P; Carboxymethylcellulose sodium; Carboxymethyl hydroxypropyl guar
- Carboxymethylmethylcellulose;
- Carrageenan (Chondrus crispus);

**Cellulose; Centrolex® P; Cetyl hydroxyethyl cellulose**
- Coyote Brand Tara Gum; Crillet 3 NF;
- Dextrin; 2,2-Dimethyl-1,3-dioxolane-4-methanol; Emulsifying wax NF
- GRINDSTED®Xanthan EASY; Galactasol® 650; Gantrez® AN-119; Gelatin; Gelwhite® L-NF
- Gelwhite® MAS 100(SC); Genu® USP/100;
- Genu® USP/200; Genu® USP-L/200; Genu® VV-11PF
- Genu® VV-41PF; Genu® VV-71PF; Genu® Carrageenan; Genugel® X-902-02; Genu® Pectins
- Genu® Pectin USP/100; Genu® Pectin USP/200; Genu® Pectin USP-L/200;
- Genuvisco®; Glycerl palmitate/stearate
- Granular Gum Arabic Type A-1 NF Premium; Granular Gum Arabic Type A-2 NF Premium; Great Lakes 100-Bloom Type A Gelatin USP/NF; Guar (Cyanopsis tetragonoloba) gum; Gum Tragacanth Ribbons and Flakes
- Hectabrite® AW; Hectabrite® DP;
- Hectalite® 200; Hectalite® 200 S; Hectorite Hydroxyethylcellulose; Hydroxylated lecithin; Hydroxypropylcellulose; Hydroxypropyl methylcellulose; Imwitor® 191
- Imwitor® 900; Karaya (Sterculia urens) gum, KELCOSOL®; KELTONE® HV;
- KELTONE® HVCR; KELTONE® LVCR; KELTONE® LVNP;
- Keltrol®; Keltrol® BT; Keltrol® CR
- Keltrol® GM; Keltrol® SF; Keltrol® T;
- Keltrol® TF; KELVIS®
- Klucel® EF Pharm; Klucel® EXF Pharm;
- Klucel® GF; Klucel® HF; Klucel® HXF
- Klucel® JF; Klucel® LF Pharm; Klucel® MF;
- Kollicoat® IR; Locust bean (Ceratonia siliqua) gum
- Locust Bean Gum Type A-100; Locust Bean Gum Type A-250; Locust Bean Gum Type A-270; Magnabrite® HS; Magnabrite® HV
- Magnabrite® S; Magnesium aluminum silicate; Magnesium Aluminum Silicate BC 100; Magnesium Aluminum Silicate BC 101;
- Magnesium Aluminum Silicate BC 102; Magnesium Aluminum Silicate BC 103;
- MANUCOL® DM; MANUCOL® DMF;
- MANUCOL® LB; MANUGEL® DMB
- Methocel® 310 Series; Methocel® A4C Premium EP; Methocel® A4M Premium EP;
- Methocel® E15LV; Methocel® E50LV
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**Premium**
- Methocel® J5MS; Methylcellulose;
- Microcrystalline cellulose; Miglyol® 810;
- Miglyol® 812
- Miglyol® 829; Miglyol® 840; Miglyol® 8810;
- Natrosol® 250 H; Natrosol® 250 HX Pharm
- Natrosol® 250 HX Pharm; Natrosol® 250 M Pharm; Pectin; PEG-9M; PEG-20 glyceryl stearate
- PEG-20 sorbitan tallate; Polargel® HV;
- Polargel® NF; Polargel® T; Polyacrylic acid
- Polyethylene glycol; Polysorbate 81;
- Polyvinyl alcohol; Powdered Gum Arabic Type B-100 NF Premium; Powdered Gum Arabic Type B-200 NF Premium
- Powdered Gum Ghatti G-1; Powdered Gum Tragacanth BP; Powdered Gum Tragacanth Type B-1 NF Premium; Powdered Gum Tragacanth Type B-12 NF Premium; Powdered Gum Tragacanth Type C-5 NF
- Powdered Gum Tragacanth Type G-1 NF Premium; Powdered Gum Tragacanth Type G-2 NF Premium; Powdered Gum Tragacanth Type G-2S NF Premium; Powdered Gum Tragacanth Type M-3 NF Premium; Propylene glycol alginate
- PVP; PVP K-15; PVP K-15 Sol’n.; PVP K-30; PVP K-60
- PVP K-60 Sol’n.; PVP K-90; PVP K-90 Sol’n.; PVP K-120; Rehydragel® CG
- Scogin™ HV; Scogin™ LV; Scogin™ MV;
- Silica; Silica, colloidal
- Silica dimethyl silylate; Silica, fumed;
- Sodium bentonite; Sodium hectorite;
- Sodium magnesium silicate
- Spray Dried Gum Arabic Type A-180 NF Premium; Spray Dried Gum Arabic Type A-230 NF Extra; STEPAN® TAB-2;
- STEPANOL® WA-100 NF/USP; Sucrose stearate
- Syloid® 244FP; Tabulose® SC-200;
- Tabulose® SC-580; Tabulose® SC-601;
- Tabulose® SC-611
- Tabulose® SC-612; Tabulose® SC-613;
- Tabulose® SC-681; Ticaxan® Regular; TIC Pretested® Colloid 488T Powd.
- TIC Pretested® Colloid 602 Powd.; TIC Pretested® Locust Bean Gum USP Powd.;
- TIC Pretested® Pre-Hydrated® Ticaxan® Xanthan NF Powd.; TIC Pretested® Ticaxan® Xanthan NF Powd.; T-Maz® 20
- T-Maz® 60K; T-Maz® 65K; T-Maz® 80; T-Maz® 80KLM; T-Maz® 81
- T-Maz® 85; T-Maz® 90; Tragacanth

(Astragalus gummifer) gum; Tromethamine magnesium aluminum silicate; Veegum® PRO
- Viscocel® SC-580F; Viscocel® SC-601;
- Viscocel® SC-611; Viscocel® SC-612;
- Viscocel® SC-613
- Viscocel® SC-681; Volclay® NF-BC;
- Xanthan gum

suspending agent, pharmaceutical solids
- Rhodigel® Clear 80
suspending agent, pharmaceutical surfactants
- Natrosol® Plus 330 CS
suspending agent, pharmaceutical suspensions
- Granular Gum Arabic Type A-1 NF Premium; Granular Gum Arabic Type A-2 NF Premium; Powdered Gum Arabic Type B-100 NF Premium; Powdered Gum Arabic Type B-200 NF Premium; Silica, fumed
- Spray Dried Gum Arabic Type A-180 NF Premium; Spray Dried Gum Arabic Type A-230 NF Extra; Ticaxan® Regular; Walocel® C 30 A; Walocel® C 100 A
- Walocel® C 1000 A; Walocel® C 2000 A; Walocel® C 10000 A
suspending agent, pharmaceutical syrups
- Gumixan K; Gumixan KF; Walocel® C 30 A;
- Walocel® C 100 A; Walocel® C 1000 A
- Walocel® C 2000 A; Walocel® C 10000 A
suspending agent, pigments
- Veegum®; Veegum® HV
suspending agent, pigments: pharmaceuticals
- Keltrol® CG; Keltrol® CG T
suspending agent, powders
- Veegum®; Veegum® HV
suspending agent, prolonged-action preparations
- Carbomer
suspending agent, rectals
- Carbomer; Carbomer 934; Magnesium aluminum silicate; Miglyol® 810; Silica
- Xanthan gum
suspending agent, saliva substitutes
- Carboxymethylcellulose sodium
suspending agent, salves
- Hectorite BC 840
suspending agent, secondary o/w
- Lexemul® EGMS
suspending agent, silicones
- Distearyl phthalic acid amide
suspending agent, slow-release capsules
- Powdered Agar Agar Bacteriological Grade;
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Powdered Agar Agar Type K-60; Powdered Agar Agar Type K-80; Powdered Agar Agar Type K-100; Powdered Agar Agar Type K-150
suspending agent, soft gelatin capsules
Plurol® Oleique
suspending agent, solid dosages
Benecel® M; Benecel® ME1; Benecel® ME2; Benecel® MP3; Benecel® MP6
Benecel® MP8; Benecel® MP9
suspending agent, solutions
Tabulose® SC-200; Tabulose® SC-580; Tabulose® SC-601; Tabulose® SC-611; Tabulose® SC-612; Tabulose® SC-613; Tabulose® SC-681; Viscocel® SC-580F; Viscocel® SC-601; Viscocel® SC-611; Viscocel® SC-612; Viscocel® SC-613; Viscocel® SC-681
suspending agent, steroid hormones
Plasdone® C-15; Plasdone® C-30
suspending agent, sublingual tablets
Tragacanth (Astragalus gummifer) gum
suspending agent, suppositories
Gelatin; Miglyol® 812; Powdered Agar Agar Bacteriological Grade; Powdered Agar Agar Type K-60; Powdered Agar Agar Type K-80; Powdered Agar Agar Type K-100; Powdered Agar Agar Type K-150
suspending agent, surgical jellies
KELCOSOL®; KELTONE® HV
suspending agent, surgical lubricants
Powdered Agar Agar Bacteriological Grade; Powdered Agar Agar Type K-60; Powdered Agar Agar Type K-80; Powdered Agar Agar Type K-100; Powdered Agar Agar Type K-150
suspending agent, suspended APIs
Gumixan K; Gumixan KF
suspending agent, suspending powders
Bentonite
suspending agent, suspensions
Tabulose® SC-200; Tabulose® SC-580; Tabulose® SC-601; Tabulose® SC-611; Tabulose® SC-612; Tabulose® SC-613; Tabulose® SC-681; Viscocel® SC-580F; Viscocel® SC-601; Viscocel® SC-611; Viscocel® SC-612; Viscocel® SC-613; Viscocel® SC-681
suspending agent, sustained-release tablets
Benecel® M; Benecel® ME1; Benecel® ME2; Benecel® MP3; Benecel® MP6
Benecel® MP8; Benecel® MP9; Carbopol® 934P; KELTONE® HVCR; KELTONE® LVCR
suspending agent, syrups
Acacia
suspending agent, tablet binding
Klucel® E Pharm; Klucel® EX Pharm; Klucel® G Pharm; Klucel® H Pharm; Klucel® HX Pharm; Klucel® J Pharm; Klucel® L Pharm; Klucel® M Pharm
suspending agent, tablet coatings
Klucel® EF Pharm; Klucel® E Pharm; Klucel® EXF Pharm; Klucel® EX Pharm; Klucel® G Pharm; Klucel® H Pharm; Klucel® HX Pharm; Klucel® J Pharm; Klucel® L Pharm; Klucel® MF; Klucel® M Pharm; Methocel® A15LV Premium; Methocel® E6 Premium; Methocel® E15LV Premium
suspending agent, tablet excipients
Locust Bean Gum Type A-100; Locust Bean Gum Type A-250; Locust Bean Gum Type A-270
suspending agent, tablets
Gum ghatti; Hectorite BC 840; Magnabrite® F; Potassium alginate; Silica, fumed
suspending agent, therapeutic products
Sodium phthalate stearyl amide
suspending agent, thickener
Algicin acid
suspending agent, throat preparations
Carboxymethylcellulose sodium
suspending agent, topical emulsions/suspensions/gels
Carbopol® 934; Carbopol® 2984; Carbopol® 5984
suspending agent, topical gels
Carbopol® 971P; Carbopol® 974P
suspending agent, topical liquids
Natrosol® 250 HX; Natrosol® 250 M
suspending agent, topical lotions
Carbopol® 971P
suspending agent, topicals
Acritamer® 934; Acritamer® 940; Acritamer® 941; Bentonite; Bentonite magma
Caprylic/capric diglyceril succinate; Caprylic/capric/disuccinic triglyceride; Caprylic/capric triglyceride; Carbomer; Carbomer 934; Carbomer 940; Carbomer 941; Carbopol® 934P; Carbopol® 940;
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- Carboxymethylcellulose sodium
- Carrageenan (Chondrus crispus); Crillet 3 NF; Crodesta F-110; Crodesta F-160
- Dextrin
- Gelatin; Hydroxyethylcellulose; Hydroxypropyl methylcellulose; Incroquat Behenyl TMS
- Magnesium aluminum silicate; Methylcellulose; Miglyol® 810; Miglyol® 829
- Crodesta F-110; Crodesta F-160; Gelatin; Hydroxyethylcellulose; Hydroxylated lecithin; Hydroxypropyl methylcellulose; Incroquat Behenyl TMS; Magnesium aluminum silicate; Methylcellulose; Miglyol® 810; Miglyol® 829; Pectin; Polawax® NF; Polyacrylic acid; Polyethylene glycol; Polyvinyl alcohol; PVP
- Super Refined® PEG-300 NF; Super Refined® PEG-400 NF; Super Refined® PEG-600 NF; Syncrowax ERLC; Syncrowax HGLC; Syncrowax HRC; Xanthan gum
- suspending agent, transdermals: Carbopol® 934P; Carbopol® 940; Carbopol® 971P; Carbopol® 974P
- suspending agent, triglycerides: Distearyl phthalic acid amide
- suspending agent, troches: Carbopol® 934P; Carbopol® 940; Carbopol® 971P; Carbopol® 974P
- suspending agent, vaginals: Carboxymethylcellulose sodium; Gelatin; Magnesium aluminum silicate; Methylcellulose; Polyvinyl alcohol; Silica
- suspending agent, veterinary products: Veegum® PRO
- suspending agent, vitamins: Plasdone® C-15; Plasdone® C-30
- suspending agent, vitamin suspensions: TIC Pretested® Colloid 488T Powd.; TIC Pretested® Colloid 602 Powd.
- suspension agent, pharmaceuticals: Cab-O-Sil® H-5
- suspension medium, oil-soluble antibiotics: Aldo® MCT; Aldo® MCT KFG
- suspension medium, oil-soluble pharmaceuticals: Aldo® MCT; Aldo® MCT KFG
- sustained-release aid, pharmaceutical coating granules: Celphere® CP-102; Celphere® CP-203; Celphere® CP-305; Celphere® CP-507; Celphere® CP-708; Celphere® SCP-100
- suture, bioabsorbable: surgical applications: Oxidized cellulose
- sweetener: C*PharmDry 01984; C*PharmMannidex DC (200 grade) 16702; Glucose; Glycerin; Hydrogenated starch hydrolysate; Lactitol; D(+)-Xylose
- sweetener, APAP chewables: Magnasweet® 100; Magnasweet® 110; Magnasweet® 115; Magnasweet® 118; Magnasweet® 120; Magnasweet® 125; Magnasweet® 135; Magnasweet® 136; Magnasweet® 150; Magnasweet® 165; Magnasweet® 180; Magnasweet® 185
- sweetener, APAP syrups: Magnasweet® 100; Magnasweet® 110; Magnasweet® 115; Magnasweet® 118; Magnasweet® 120; Magnasweet® 125; Magnasweet® 135; Magnasweet® 136; Magnasweet® 150; Magnasweet® 165; Magnasweet® 180; Magnasweet® 185
- sweetener, artificial: analgesics: Aspartame
- sweetener, artificial: antibiotics: Aspartame
- sweetener, artificial: anti-inflammatories: Aspartame
- sweetener, artificial: chewable tablets: Aspartame
- sweetener, artificial: OTC products: Aspartame
- sweetener, artificial: sugar-free applications: Aspartame
- sweetener, buccals: Saccharin sodium anhydrous; Saccharin sodium dihydrate; Sucrose
- sweetener, bulk: lozenges: Neosorb® 20/20 B; Neosorb® 70/70 B; Neosorb® 70/70 SB; Neosorb® 70/90 B; Neosorb® 70/90 SB; Neosorb® HDS
- sweetener, bulk: medicated syrups/suspensions: Hi-Sweet® 42; Hi-Sweet® 55
- sweetener, bulk: oral ampoules: Neosorb® 20/20 B; Neosorb® 70/70 B; Neosorb® 70/70 SB; Neosorb® 70/90 B; Neosorb® 70/90 SB; Neosorb® HDS
- sweetener, bulk: pharmaceutical pastilles: Neosorb® 20/20 B; Neosorb® 70/70 B; Neosorb® 70/70 SB; Neosorb® 70/90 B;
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Neosorb® 70/90 SB  
Neosorb® HDS  
sweetener, bulk: pharmaceutical suspensions  
Neosorb® 20/20 B; Neosorb® 70/70 B; Neosorb® 70/70 SB; Neosorb® 70/90 B; Neosorb® 70/90 SB  
Neosorb® HDS  

sweetener, bulk: pharmaceutical syrups  
Neosorb® 20/20 B; Neosorb® 70/70 B; Neosorb® 70/70 SB; Neosorb® 70/90 B; Neosorb® 70/90 SB  
Neosorb® HDS  

sweetener, capsules  
Maltisorb® 75/75  

sweetener, chewable tablets  
Advantose™ FS 95; Magnasweet® 100; Magnasweet® 110; Magnasweet® 115; Magnasweet® 118  
Mannasweet® 120; Magnasweet® 125; Magnasweet® 135; Magnasweet® 136; Magnasweet® 150  
Magnasweet® 165; Magnasweet® 180; Magnasweet® 185; Maltisorb® 75/75  

sweetener, chewable vitamins  
Ammonium saccharin  
sweetener, cold syrups  
Magnasweet® 100; Magnasweet® 110; Magnasweet® 115; Magnasweet® 118; Magnasweet® 120  
Magnasweet® 125; Magnasweet® 135; Magnasweet® 136; Magnasweet® 150; Magnasweet® 165  
Magnasweet® 180; Magnasweet® 185  
sweetener, cough drops  
CNP BRSHM; CNP BRSHMCL; CNP BRSSHM; CNP BRSSHMCL; Magnasweet® 100  
Magnasweet® 110; Magnasweet® 115; Magnasweet® 118; Magnasweet® 120  
Magnasweet® 125; Magnasweet® 135; Magnasweet® 136; Magnasweet® 150; Magnasweet® 165; Magnasweet® 180; Magnasweet® 185  
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Magnasweet® 100; Magnasweet® 110; Magnasweet® 115; Magnasweet® 118; Magnasweet® 120; Magnasweet® 125; Magnasweet® 135; Magnasweet® 136; Magnasweet® 150; Magnasweet® 165; Magnasweet® 180; Magnasweet® 185  
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Caramel; Magnasweet® 100; Magnasweet® 110; Magnasweet® 115; Magnasweet® 118; Magnasweet® 120; Magnasweet® 125; Magnasweet® 135; Magnasweet® 136; Magnasweet® 150; Magnasweet® 165; Magnasweet® 180; Magnasweet® 185  

110; Magnasweet® 115; Magnasweet® 118  
Magnasweet® 120; Magnasweet® 125; Magnasweet® 135; Magnasweet® 136; Magnasweet® 150  
Magnasweet® 165; Magnasweet® 180; Magnasweet® 185  
sweetener, dental products  
Saccharin sodium anhydrous; Saccharin sodium dihydrate  
sweetener, dentifrices  
Liponic 70-NC; Liponic 76-NC; Sorbitol Sol’n. Noncrystallizing  
sweetener, diabetic products  
Amalty®; Lacty® M  
sweetener, dietary supplements  
Krystar® 450  
sweetener, direct compression: chewable tablets  
Mannogem™ EZ; Sugartab®  
sweetener, direct compression: tablets  
Mannogem™ EZ; Sugartab®  
sweetener, direct compression: vitamins  
Sugartab®  
sweetener, direct compression: water-sensitive API tablets  
Mannogem™ EZ  
sweetener, direct compression: water-soluble tablets  
Sugartab®  
sweetener, fermentation: pharmaceuticals  
Clearsweet® 99 Refined Liquid Dextrose  
sweetener, hard tablets  
Neosorb®  
sweetener, IM injectables  
D-Mannitol  
sweetener, injectables  
D-Glucose monohydrate  
sweetener, intrapleural injectables  
D-Mannitol  
sweetener, IP injectables  
D-Mannitol  
sweetener, IV  
D-Mannitol  
sweetener, lozenges  
Amalty®  
sweetener, medicated chewing gum coatings  
C*Maltidex CH 16385  
sweetener, medicated confectionery  
C*Maltidex CH 16385  
sweetener, medicinal compresses  
Amalty®  
sweetener, medicinal syrups  
Sucrose
sweetener, natural: pharmaceuticals  
L-Arabinose

sweetener, noncaloric, nonnutritive: inhalants  
Saccharin

sweetener, noncaloric, nonnutritive: orals  
Saccharin

sweetener, noncaloric, nonnutritive: pharmaceuticals  
Saccharin

sweetener, noncaloric, nonnutritive: topicals  
Saccharin

sweetener, noncariogenic bulk: medicated sugar-free hard candy  
C*PharmIsoMaltidex 16540

sweetener, noncariogenic: capsules  
C*Sorbidx P 16616; C*Sorbidx P 16656;  
C*Sorbidx P 16601; C*Sorbidx P 16603;  
C*Sorbidx S 16601  
C*Sorbidx S 16603

sweetener, noncariogenic: pharmaceutical powders  
C*Sorbidx P 16616; C*Sorbidx P 16656;  
C*Sorbidx P 16601; C*Sorbidx P 16603;  
C*Sorbidx S 16601  
C*Sorbidx S 16603

sweetener, noncariogenic: sugar-free pharmaceutical solutions  
C*Sorbidx C 16121; C*Sorbidx C 16122;  
C*Sorbidx NC 16205

sweetener, noncariogenic: sugar-free pharmaceutical syrups  
C*Sorbidx C 16121; C*Sorbidx C 16122;  
C*Sorbidx NC 16205

sweetener, noncariogenic: tablets  
C*Sorbidx P 16616; C*Sorbidx P 16656;  
C*Sorbidx P 16601; C*Sorbidx P 16603;  
C*Sorbidx S 16601  
C*Sorbidx S 16603

sweetener, nonnutritive: pharmaceuticals  
Thaumatin

sweetener, nonnutritive: inhalants  
Saccharin

sweetener, nonnutritive: orals  
Calcium saccharin; Saccharin

sweetener, nonnutritive: pharmaceuticals  
Acesulfame potassium; Calcium cyclamate;  
Calcium saccharin; Saccharin; Sodium cyclamate

Sucralose; Thaumatin

sweetener, nonnutritive: rectals  
Saccharin

sweetener, nonnutritive: sugar substitutes  
Acesulfame potassium

sweetener, nonnutritive: topicals  
Saccharin

sweetener, nutritive: pharmaceuticals  
Arlex™ 83

sweetener, nutritional supplements  
Krystar® 450

sweetener, nutritive carbohydrate: cough drops  
Corn Syrup 36/43

sweetener, nutritive: dental products  
Sorbitol

sweetener, nutritive: dentifrices  
Sorbitol

sweetener, nutritive: directly compressible tablets  
Finlac™ DC

sweetener, nutritive: elixirs  
Sorbitol

sweetener, nutritive: IM injectables  
Sorbitol

sweetener, nutritive: liquids  
Sorbitol

sweetener, nutritive: lozenges  
Xylitol

sweetener, nutritive: rectals  
Sorbitol

sweetener, nutritive: solutions  
Sorbitol

sweetener, nutritive: suspensions  
Sorbitol

sweetener, nutritive: syrups  
Sorbitol

sweetener, nutritive: tablets  
Xylitol

sweetener, ophthalmics  
D-Mannitol

sweetener, oral nutritional supplements  
C*PharmDry 01984

sweetener, oral nutritional supplements  
C*PharmDry 01984

sweetener, orals  
Caramel; Corn syrup, high fructose;  
Fructose; D-Glucose monohydrate;  
Liponic 70-NC

Sucrose; Saccharin sodium anhydrous; Saccharin sodium dihydrate; Sucrose

Syrup

sweetener, parenterals  
D-Mannitol
Functional/Application Index

sweetener, pediatric liquids
  Magnasweet® 100; Magnasweet® 110; Magnasweet® 115; Magnasweet® 118; Magnasweet® 120; Magnasweet® 125; Magnasweet® 135; Magnasweet® 136; Magnasweet® 150; Magnasweet® 165; Magnasweet® 180; Magnasweet® 185
sweetener, pharmaceutical chewing gum
  Maltisorb® P 200; Maltisorb® P 90; Neosorb® 100T; Neosorb® P 20/60; Neosorb® P 30/60; Neosorb® P W; Pearllitol® 25 C; Pearllitol® 50 C; Xylisorb® 90; Xylisorb® 300; Xylisorb® 700; Xylisorb® PF
sweetener, pharmaceutical coated tablets
  Maltisorb® 75/75
sweetener, pharmaceutical cough syrups
  Magnasweet® 100; Magnasweet® 110; Magnasweet® 115; Magnasweet® 118; Magnasweet® 120; Magnasweet® 125; Magnasweet® 135; Magnasweet® 136; Magnasweet® 150; Magnasweet® 165; Magnasweet® 180; Magnasweet® 185
sweetener, pharmaceutical direct compaction
  Di-Pac®
sweetener, pharmaceutical dry syrups
  Maltisorb® 75/75
sweetener, pharmaceutical effervescent tablets
  Maltisorb® 75/75
sweetener, pharmaceutical liquids
  Isosweet 5500; Krystal® 450
sweetener, pharmaceutical powders
  Maltisorb® 75/75
sweetener, pharmaceuticals
  Aclame™; ADM Clintose® Dextrose C; ADM Clintose® Dextrose F; ADM Clintose® Dextrose Greens; ADM Clintose® Dextrose VF; ADM Clintose® Granular Dextrose; Aitame; Amalty®; Brown rice syrup; Brown rice syrup solids
  Caramel; Clearsweet® 43/43; Clearsweet® 43/43 IX; Clearsweet® 95% Dextrose Corn Syrup; Clintose® A; Corn syrup; 42/43 Corn Syrup; Corn syrup, high fructose; CP Glycerine; CP Glycerine Kosher; C*Sorbindex C; Dextrates; Dextrofin®; Finmalt L; Fructofin® C; Fructofin® CFP; Fructofin® CM; Fructose; Fruisana; D-Galactose
  Glicerina USP; Glicerina USP V; Glucose; D-Glucose monohydrate; Honey; Invert sugar; IsoClear® 42 High Fructose Corn Syrup; IsoClear® 55 High Fructose Corn Syrup; Isoeugenyl ethyl ether; Isoglucose; Isomalt; Lactitol AC; Lactitol MC; Lactitol monohydrate; Lactose; Magnasweet® 100; Magnasweet® 110; Magnasweet® 115; Magnasweet® 118; Magnasweet® 120; Magnasweet® 125; Magnasweet® 135; Magnasweet® 136; Magnasweet® 150; Magnasweet® 165; Magnasweet® 180; Magnasweet® 185; Maltose; D-Mannitol; Meritol 121; Meritol 130; Meritol 160; Moon™ Glycerine USP K; Moon™ Kosher Glycerine USP NK; Non-Diastatic Malt Syrup #40600; NutraSweet®, Rice syrup solids; Saccharin sodium anhydrous; Saccharin sodium dihydrate; Satin Sweet® 55% Maltose Corn Syrup; Satin Sweet® 65% Maltose Corn Syrup; Satin Sweet® 70% Maltose Corn Syrup; Sorbitin®; Sorbitol Sol'n. High Mannitol; Splenda®; Star™ K Glycerine USP, FCC; Star™ V Glycerine USP, FCC; Sucrose; Sugar, compressible; Sugar, confectioner's Sugar spheres; Syrup; Xylitol C; Maldex 180
sweetener, pharmaceutical solids
  Maltisorb® 75/75
sweetener, pharmaceutical sucking tablets
  Maltisorb® 75/75
sweetener, pharmaceutical syrups
  ADM Invert Blend 90% Invert/76.7% Solids
sweetener, pharmaceutical tableting
  Di-Pac®
sweetener, placebo solutions
  Caramel
sweetener, powdered dosages
  Meritose 100; Meritose 200; Meritose 220; Meritose 300
sweetener, sachets
  Maltisorb® 75/75
sweetener, smooth tablets
  Neosorb®
sweetener, sugar-free pharmaceuticals
  Sorbitol Sol'n. Noncrystallizing
sweetener, sugarless gums
  Xylisorb® 90; Xylisorb® 300; Xylisorb® 700; Xylisorb® PF
sweetener, suspensions
- Mannogem™ Mannitol Powd.
sweetener, synthetic nonnutritive: buccals
- Saccharin sodium anhydrous; Saccharin sodium dihydrate
sweetener, synthetic nonnutritive: dental products
- Saccharin sodium anhydrous; Saccharin sodium dihydrate
sweetener, synthetic nonnutritive: inhalants
- Saccharin sodium anhydrous; Saccharin sodium dihydrate
sweetener, synthetic nonnutritive: orals
- Saccharin sodium anhydrous; Saccharin sodium dihydrate
sweetener, synthetic nonnutritive: parenterals
- Saccharin sodium anhydrous; Saccharin sodium dihydrate
sweetener, synthetic nonnutritive: pharmaceuticals
- Saccharin sodium anhydrous; Saccharin sodium dihydrate
sweetener, tableted dosages
- Meritose 100; Meritose 200; Meritose 220; Meritose 300
sweetener, tablets
- ADM Clintose® Dextrose C; ADM Clintose® Dextrose F; ADM Clintose® Dextrose VF; Clintose® A; Maltisorb® 75/75
- Mannogem™; Molasses (Saccharum officinarum)
sweetener, tablets/coatings
- Erythritol
sweetener, vitamin supplements
- Amalty®
sweetener, wet granulation: tablets
- Mannogem™ Getec Mannitol Pyrogen Free; Mannogem™ Mannitol Powd.
sweetening agent, noncariogenic
- C*Xylidex 16055
sweetness enhancer, chewable tablets
- Natural Prosweet® Liq. #604; Natural Prosweet® Powd. #875
sweetness enhancer, cough drops
- Natural Prosweet® Liq. #604; Natural Prosweet® Powd. #875
sweetness enhancer, elixirs
- Natural Prosweet® Liq. #604; Natural Prosweet® Powd. #875
sweetness enhancer, lozenges
- Natural Prosweet® Liq. #604; Natural Prosweet® Powd. #875
sweetness enhancer, mouth sprays
- Natural Prosweet® Liq. #604; Natural Prosweet® Powd. #875
sweetness enhancer, pharmaceuticals
- Natural Prosweet® Liq. #604; Natural Prosweet® Powd. #875
sweetness enhancer, syrups
- Natural Prosweet® Liq. #604; Natural Prosweet® Powd. #875
sweetness potentiator, orals
- Ammonium glycyrrhizinate
sweetness regulator, capsules
- Maltrin® M510; Maltrin® QD M500
sweetness regulator, direct compression: tablets
- Maltrin® M510; Maltrin® QD M500; Pure-Dent® B810; Spress® B820
sweetness regulator, dry granulation
- Pure-Dent® B810
sweetness regulator, dry granulation: tablets
- Spress® B820
sweetness regulator, dry mixes
- Maltrin® M510
sweetness regulator, pharmaceuticals
- Maltrin® M510; Pure-Dent® B810
sweetness regulator, throat lozenges
- Maltrin® M100; Maltrin® M150; Maltrin® M180; Maltrin® M200
syneresis control agent, pharmaceuticals
- Gelwhite® L-NF
synergist
- Copper gluconate (ic)
synergist, antimicrobial: ophthalmic preparations
- Oleoyl sarcosine
synergist, antioxidants
- Citric acid monohydrate
synergist, pharmaceuticals
- Caffeine
synergist, sweetness
- CornSweet® Crystalline Fructose
synthetic flavoring agent, orals
- Isopropyl alcohol
tableting aid
- Compritol HD5 ATO; Coyote Stabilizer
- Cellulose Gel 50; Mono- and diglycerides of fatty acids; Pharmasorb® Regular;
- Pure-Dent® B815
- Viobin Octacosanol
tableting aid, direct compression: chewable tablets
Dry Vitamin E Acetate 50% SD

tableting aid, direct compression: pharmaceutical coated tablets
Dry Vitamin E Acetate 50% SD

tableting aid, direct compression: pharmaceuticals
Octacosanol

Akofine NF; Alphadim® 90SBK; PEG-8 behenate; SiLCRON® G-100; SiLCRON® G-640
SiLCRON® G-650; Sucrose polystearate; Syloid® 244FP

Sucrose polystearate

SiLCRON® G-650

Precirol ATO 5

Precirol ATO 5

tableting aid, sustained-releases
Precirol ATO 5

tableting aid, tablet coatings
Hydrogenated castor oil

tableting aid, tablets
Cutina® HR Powd.

tableting encapsulator, chlorpheniramine maleate: chewable tablets
MicroMask™ Chlorpheniramine Maleate 10%

tableting encapsulator, chlorpheniramine maleate: quick-dissolve dosages
MicroMask™ Chlorpheniramine Maleate 10%

tableting encapsulator, chlorpheniramine maleate: sachets
MicroMask™ Chlorpheniramine Maleate 10%

tableting encapsulator, chlorpheniramine maleate: swallowable tablets
MicroMask™ Chlorpheniramine Maleate 10%

tackifier, adhesives
Cachalot® AR-20; Cachalot® M-43

tackifier, wet: denture adhesives
Aqualon® 7H3SXF

Dow Corning® ST Wax 30

tanning accelerator complex, pharmaceuticals
Unipertan P-24; Unipertan P-242

taste improver, chewable tablets
Sorbitol

taste masking agent
Acetylated hydrogenated cottonseed glyceride; Acetylated hydrogenated vegetable glycerides; Amberlite® IRP-69;

Amberlite® IRP-88; C*Sorbindex C 16121
C*Sorbindex C 16122; C*Sorbindex NC 16205;
Ethocel™ Standard 4 Premium; Ethocel™ Standard 7 Premium; Ethocel™ Standard 14 Premium
Ethocel™ Standard 20 Premium; Ethocel™ Standard 45 Premium; Ethocel™ Standard 100 Premium; Formaxx™ CaCO₃ 70; N-Hydroxysuccinic acid
Kollidion® EMM 30 D; Kollidion® MAE 30 DP; Kollidion® MAE 100P; Kollidion® Protect; Kollidion® SR 30 D
Methacrylic acid copolymer; Sulfonated divinylbenzene/styrene copolymer
taste masking agent, acetaminophen
Kollidion® CL; Kollidion® CL-F; Kollidion® CL/M; Kollidion® CL-SF
taste masking agent, antacids
Magnasweet®
taste masking agent, antibiotics
Magnasweet®
taste masking agent, APAP chewables
Magnasweet® 100; Magnasweet® 110; Magnasweet® 115; Magnasweet® 118; Magnasweet® 120
Magnasweet® 125; Magnasweet® 135; Magnasweet® 136; Magnasweet® 150; Magnasweet® 165
Magnasweet® 180; Magnasweet® 185
taste masking agent, APAP syrups
Magnasweet® 100; Magnasweet® 110; Magnasweet® 115; Magnasweet® 118; Magnasweet® 120
Magnasweet® 125; Magnasweet® 135; Magnasweet® 136; Magnasweet® 150; Magnasweet® 165
Magnasweet® 180; Magnasweet® 185
taste masking agent, APIs
Crysmeb; Pharmaburst
taste masking agent bitter: oral care products
Erythritol
taste masking agent bitter: pharmaceutical syrups
Erythritol
taste-masking agent, capsules
Kleptose® DC
taste masking agent, chewable multivitamin tablets
Descote® Niacinamide 33¹/₃%; Descote® Pyridoxine Hydrochloride 33¹/₃%; Descote® Riboflavin 33¹/₃%; Descote® Thiamine Mononitrate 33¹/₃%
taste masking agent, chewables
Magnasweet®
taste masking agent, chewable tablets
Advantose™ FS 95; Descote® Ascorbic Acid 60%; Magnasweet® 100;
Magnasweet® 110; Magnasweet® 115
Magnasweet® 118; Magnasweet® 120;
Magnasweet® 125; Magnasweet® 135;
Magnasweet® 136
Magnasweet® 150; Magnasweet® 165;
Magnasweet® 180; Magnasweet® 185; Nu-Tab™ 4001
Nu-Tab™ 4003; Taste Masking Rosin - 134
taste masking agent, chewing tablets
Kollidon® 12PF; Kollidon® 17PF; Kollidon® 25; Kollidon® 30; Kollidon® 90F
taste masking agent, coatings: pills
Walocel® HM 3 PA 2910; Walocel® HM 400 PA; Walocel® HM 15000 PA
taste masking agent, coatings: tablets
Walocel® HM 3 PA 2910; Walocel® HM 400 PA; Walocel® HM 15000 PA
taste masking agent, cold syrups
Magnasweet® 100; Magnasweet® 110;
Magnasweet® 115; Magnasweet® 118;
Magnasweet® 120
Magnasweet® 125; Magnasweet® 135;
Magnasweet® 136; Magnasweet® 150;
Magnasweet® 165
Magnasweet® 180; Magnasweet® 185
taste masking agent, cough/cold syrups
Magnasweet®
taste masking agent, cough drops
Magnasweet® 100; Magnasweet® 110;
Magnasweet® 115; Magnasweet® 118;
Magnasweet® 120
Magnasweet® 125; Magnasweet® 135;
Magnasweet® 136; Magnasweet® 150;
Magnasweet® 165
Magnasweet® 180; Magnasweet® 185
taste masking agent, cough lozenges
Magnasweet® 100; Magnasweet® 110;
Magnasweet® 115; Magnasweet® 118;
Magnasweet® 120
Magnasweet® 125; Magnasweet® 135;
Magnasweet® 136; Magnasweet® 150;
Magnasweet® 165
Magnasweet® 180; Magnasweet® 185
taste masking agent, cough syrups
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Magnasweet® 115; Magnasweet® 118;
Magnasweet® 120
Magnasweet® 125; Magnasweet® 135;
Magnasweet® 136; Magnasweet® 150;
Magnasweet® 165
Magnasweet® 180; Magnasweet® 185
taste masking agent, dispersible pharmaceutical suspensions
Taste Masking Rosin - 134
taste masking agent, dispersible tablets
Taste Masking Rosin - 134
taste masking agent, dry dosages
Descote® Copper Gluconate 20%;
Descote® Ferrous Fumarate 60% MR;
Descote® Ferrous Sulfate 60%; Descote® Niacinamide 33¹/₃%; Descote® Pyridoxine Hydrochloride 33¹/₃%;
Descote® Riboflavin 33¹/₃%; Descote® Thiamine Mononitrate 33¹/₃%
taste masking agent, lozenges
Magnasweet®
taste masking agent, medicaments
Gum Arabic G-150 Powdered; Gum Arabic NF/FCC Clean Amber Sorts; Spray Dried Gum Arabic NF/FCC CS-R
taste masking agent, minerals
Talin®
taste masking agent, norfloxacin
Taste Masking Agent - 104
taste masking agent, nutritional powders
Descote® Ascorbic Acid 60%
taste masking agent, nutritional supplements
Descote® Ascorbic Acid 60%
taste masking agent, ofloxacin
Taste Masking Agent - 104
taste masking agent, oral antiseptics
Magnasweet®
taste masking agent, orals
Kollidon® 12PF; Kollidon® 17PF; Kollidon® 25; Kollidon® 30; Kollidon® 90F
taste-masking agent, parenterals
Kleptose® HPB
taste masking agent, pediatric liquids
Magnasweet® 100; Magnasweet® 110;
Magnasweet® 115; Magnasweet® 118;
Magnasweet® 120
Magnasweet® 125; Magnasweet® 135;
Magnasweet® 136; Magnasweet® 150;
Magnasweet® 165
Magnasweet® 180; Magnasweet® 185
taste masking agent, pharmaceutical coating granules
Celphere® CP-102; Celphere® CP-203;
Celphere® CP-305; Celphere® CP-507;
Celphere® CP-708
Celphere® SCP-100
Functional/Application Index

taste masking agent, pharmaceutical cough syrups
Magnasweet® 100; Magnasweet® 110; Magnasweet® 115; Magnasweet® 118; Magnasweet® 120; Magnasweet® 125; Magnasweet® 135; Magnasweet® 136; Magnasweet® 150; Magnasweet® 165; Magnasweet® 180; Magnasweet® 185
taste-masking agent, pharmaceutical dry formulations
Kleptose® HPB
taste-masking agent, pharmaceutical oral suspensions
Kleptose® DC; Kleptose® HPB
taste masking agent, pharmaceuticals
Aqualon® N-7; Aqualon® N-10; Aqualon® N-14; Aqualon® N-22; Aqualon® N-50; Aqualon® N-100; Cyclodextrin; β-Cyclodextrin; Descote® Ascorbic Acid 60%; Disodium pamoate; Duolite® AP143/1083; Eudragit® L 100-55; Hydroxypropyl-α-cyclodextrin; Hydroxypropyl-β-cyclodextrin; Hydroxypropyl-γ-cyclodextrin; Magnasweet® 100; Magnasweet® 110; Magnasweet® 115; Magnasweet® 118; Magnasweet® 120; Magnasweet® 125; Magnasweet® 135; Magnasweet® 136; Magnasweet® 150; Magnasweet® 165; Magnasweet® 180; Magnasweet® 185; Magnasweet®; Methyl-α-cyclodextrin; Methyl-β-cyclodextrin; Methyl-γ-cyclodextrin; Precirol ATO 5; Trehalose; Tulsion® T-335; Tulsion® T-339
taste-masking agent, pharmaceutical solutions
Kleptose® DC; Kleptose® HPB
taste-masking agent, pharmaceutical syrups
Kleptose® DC; Kleptose® HPB
taste masking agent, pills
Aqueous Enteric Coat L30D; Aqueous Enteric Coat L100D

taste masking agent, powders
Magnasweet®
taste-masking agent, sachets
Kleptose® DC
taste masking agent, solid dosages
LustreClear™
taste masking agent, sustained-release hard capsules
Walocel® HM 5 PPA 2910; Walocel® HM 6

PPA 2910; Walocel® HM 15 PPA 2910
taste masking agent, sustained-releases
Tulsion® T-343; Tulsion® T-344
taste masking agent, syrups
Erythritol; Magnasweet®
taste masking agent, tablets
Aqueous Enteric Coat L30D; Aqueous Enteric Coat L100D; Descote® Copper Gluconate 20%; Descote® Ferrous Fumarate 60% MR; Descote® Ferrous Sulfate 60%; Kollicoat® IR; LustreClear™; Nu-Tab™ 4001; Nu-Tab™ 4003; Nu-Tab®
taste-masking agent, tablets
Kleptose® DC
taste masking agent, veterinary products
Freeze Dried Pork Liver Powder Undefatted; Soluble Pork Liver Powder; Spray Dried Beef Liver Powder; Spray Dried Pork Liver Powder
taste masking agent, Vitamin B12 recovery
Tulsion® T-335
taste masking agent, Vitamin B12 stabilization
Tulsion® T-335
taste masking agent, vitamins
Magnasweet®; Talin®
taste/odor masking agent, cough syrups
N-Hydroxysuccinic acid
taste/odor masking agent, effervescent powders
N-Hydroxysuccinic acid
taste/odor masking agent, medicines
N-Hydroxysuccinic acid
taste/odor masking agent, throat lozenges
N-Hydroxysuccinic acid
teat dip, iodophor-based: veterinary products
Solan E50; Solan ELD
tenderizer, pharmaceuticals
Vee Gee Pharmaceutical Gelatins
texturizer
Corn syrup; Distarch phosphate
texturizer, cough drops
Purity® Gum 40
texturizer, dandruff shampoos
Distarch phosphate
texturizer, dental whiteners
PG USP
texturizer, lozenges
Purity® Gum 40
texturizer, medicated ointments
Batyl isostearate; Batyl stearate; Nikkol GM-18IS; Nikkol GM-18S
texturizer, pharmaceuticals
Acetylated mono- and diglycerides of fatty acids
Functional/Application Index

- acids; Ethosperse® G-26; Ethosperse® LA-4; Ethosperse® LA-12; Malt extract
- Non-Diastatic Malt Syrup #40600; PG USP; Polydextrose; Sta-Lite® 370; Sta-Lite® III; Sta-Lite® III F
- texturizer, pharmaceutical skin lotions
  - Nikkol DOP-8N
- texturizer, pharmaceutical tonics
  - Nikkol DOP-8N
- texturizer, semisolids
  - Crodamol MM
- therapeutic active, oral care
  - Zinc glycinate
- therapeutic agent, chronic dyspepsia
  - Papain
- therapeutic agent, potassium level reduction: hyperkalemia treatment
  - Amberlite® IRP-69
- therapeutic supplement, calcium deficiency conditions
  - Calcium lactobionate
- thiamine source, dry products
  - Thiamine Hydrochloride USP, FCC
- thiamine source, multivitamin capsules
  - Thiamine nitrate
- thiamine source, multivitamin tablets
  - Thiamine nitrate
- thiamine source, pharmaceutical liquids
  - Thiamine Hydrochloride USP, FCC
- thiamine source, pharmaceutical solids
  - Thiamine Mononitrate USP, FCC
- thiamine source, polyvitamin drops
  - Thiamine Hydrochloride USP, FCC
- thiamine source, tablets
  - Thiamine Mononitrate USP, FCC
- thickener
  - Alginic acid; Aqualon® Cellulose Gum; Bentone® MA; Blanose® Cellulose Gum; Cab-O-Sil® EH-5
  - Cab-O-Sil® H-5; Cab-O-Sil® LM-150; Cab-O-Sil® M-5; Cab-O-Sil® MS-55; Corn (Zea mays) starch
  - C18 polycarbamyl polyglycol ester; Dow Corning® ST Wax 30; Dow Corning® ST Elastomer 10; Gum Arabic G-150 Powdered; Gum Arabic NF/FCC Clean Amber Sorts
  - Koster Keunen Beeswax AO2535; Locust Bean Gum Speckless Type D-200; Methocel® A15-LV; PEG-10 olate; Powdered Locust Bean Gum Type D-200; Sident® 8; Sident® 9; Sident® 10; Sident® 22S; Smectite
  - Sorbosil AC33; Sorbosil AC35; Sorbosil AC77; Sorbosil TC15; Starch sodium octenyl succinate
  - Stearamidopropyl PG-dimonium chloride phosphate; TIC Pretested® Ticalose® CMC 2500 Std. Powd.; Tylopur® C 10000 P2; Wacker HDK® N20 P
- thickener, α-hydroxy acid formulations
  - Aculyn® 46
- thickener, acid suspensions
  - Veegum® K
- thickener, acne lotions
  - Bentonite BC 342; Bentonite BC 364; Bentonite BC 670; Bentonite BC 770; Bentonite BC 870; Bentonite BC 4444; Bentonite BC 4448; Hectorite BC 840
- thickener, acne preparations
  - Aculyn® 46; Polawax® NF
- thickener, analgesic rubs
  - Polawax® NF
- thickener, anhydrous systems
  - Syncrowax ERLC
- thickener, antacids
  - Keltrol® T; Keltrol® TF
- thickener, antibiotic creams/lotions
  - Polawax® NF
- thickener, antidiarrheal preparations
  - Attapulgite
- thickener, antisectics
  - Spray Dried Gum Arabic NF/FCC CS-R
- thickener, aqueous gels: pharmaceuticals
  - Sepigel™ 305
- thickener, aqueous ointments
  - Monomuls® 90 O18
- thickener, aqueous pharmaceuticals
  - Natrosol® Plus 330 CS
- thickener, aqueous systems
  - Gantrez® AN-119; Gantrez® AN-139; Gantrez® AN-139 BF; Gantrez® AN-149; Gantrez® AN-169
  - Nikkol HCO-80; Nikkol HCO-100
- thickener, associative: pharmaceuticals
  - Cetyl hydroxyethyl cellulose
- thickener, buccals
  - Guar (Cyanopsis tetragonoloba) gum; Methylcellulose
**Functional/Application Index**

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<td>Klucel® G Pharm; Klucel® HF; Klucel® H Pharm; Klucel® HXF; Klucel® HX Pharm</td>
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<td>Klucel® L Pharm; Klucel® MF Klucel® M Pharm; Xantural® 11K; Xantural® 75; Xantural® 180</td>
<td><strong>Thickener, Ear Drops</strong></td>
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<td>Carbopol® 940; Carbopol® 971P; Carbopol® 974P</td>
<td>Cerabol® 700</td>
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<th>Thickener, Cough Syrups</th>
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<th>Thickener, Cough Syrups</th>
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<th>Thickener, Creams/Lotions</th>
<th>Thickener, Emulsions: Pharmaceuticals</th>
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<td>Beeswax, Synthetic; Cera-E; Cetyl myristate; Choleth-24; Emalex HC-40 Emalex HC-50; Emalex HC-60; Glyceryl laurate; Guar (Cyanopsis tetragonoloba) gum; Hydrine® Keltrol®; Keltrol® F; Koster Keunen Beeswax; Koster Keunen Beeswax 100; Lipo DGS</td>
<td>Chimyl Alcohol</td>
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<tr>
<td>Locust bean (Ceratonia siliqua) gum; Polyglyceryl-3 diisostearate; Potassium alginate; Propylene glycol stearate; Stearyl stearate</td>
<td><strong>Thickener, Emulsions: Suppositories</strong></td>
</tr>
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<td>STEPAN® PEG 200 DL; STEPAN® PEG 200 DO; STEPAN® PEG 400 DL; STEPAN® PEG 400 DO; STEPAN® PEG 400 DS STEPAN® PEG 400 ML; STEPAN® PEG 400 MS; STEPAN® PEG 600 DL; STEPAN® PEG 600 DO; STEPAN® PEG 600 DS STEPAN® PEG 600 ML; STEPAN® PEG 6000 DS; STEPAN® PEG 6000 MS</td>
<td>Crodacol C-95 NF; Crodacol S95 NF</td>
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<td>Pectin</td>
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<th>Thickener, Encapsulation</th>
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<td>Klucel® EF Pharm; Klucel® E Pharm; Klucel® EXF Pharm; Klucel® EX Pharm; Klucel® GF</td>
<td>Cerabol® 700</td>
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thickener, parenterals
Lutrol® F 68; D-Mannitol

thickener, pastes
Silcron® G-100; Silcron® G-100T; Silcron® G-650

thickener, pharmaceutical aerosols
Silica, fumed; Wacker HDK® N20

thickener, pharmaceutical aqueous solutions
Antil® 141 Liq.

thickener, pharmaceutical coatings
Sammi Gelatine

thickener, pharmaceutical creams
Gum Tragacanth Ribbons and Flakes;
Hectorite BC 840; Powdered Gum
Tragacanth BP; Powdered Gum
Tragacanth Type B-1 NF Premium;
Powdered Gum Tragacanth Type B-12 NF Premium
Powdered Gum Tragacanth Type C-5 NF;
Powdered Gum Tragacanth Type G-1 NF Premium;
Powdered Gum Tragacanth Type G-2 NF Premium;
Powdered Gum
Tragacanth Type G-2S NF Premium;
Powdered Gum Tragacanth Type M-3 NF Premium
Powdered Tragacanth Gum Type E-1;
Powdered Tragacanth Gum Type L;
Powdered Tragacanth Gum Type W; Silica, fumed;
Tragacanth Gum Ribbon No. 1 NF FCC
Veegum®; Veegum® HV; Veegum® K;
Wacker HDK® N20; Wacker HDK® V15
Walocel® C 30 A; Walocel® C 100 A;
Walocel® C 1000 A; Walocel® C 2000 A;
Walocel® C 10000 A

thickener, pharmaceutical creams/lotions
Aeroperl® 300 Pharma; Aerosil® 200;
Cerasynt® 945; Geleol®; Glycerol laurate
Guar (Cyanopsis tetragonoloba) gum;
Isocetyl stearate; Koster Keunen
Emulsifying Wax; Locust bean (Ceratonia siliqua) gum;
Locust Bean Gum Speckless Type D-200
Locust Bean Gum Type A-100; Locust Bean
Gum Type A-250; Locust Bean Gum Type A-270;
Monosteo®; Myristyl myristate
Polywax EW; STEPAN® 653

thickener, pharmaceutical dry blends
Xantural® 11K; Xantural® 75; Xantural® 180

thickener, pharmaceutical emulsions
Aeroperl® 300 Pharma; Aerosil® 200;
Chimyl alcohol; Genu® Pectin (citrus) type
USP/100; Genu® Pectin (citrus) type
USP/200
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Genu® Pectin (citrus) type USP-H; Genu® Pectin (citrus) type USP-L/200; Gumixan K; Gumixan KF; Gum Tragacanth Ribbons and Flakes
Jungbunzlauer Xanthan Gum, Food Grade; Monosteo®; Nikkol Batyl Alcohol 100, EX; Nikkol Chimyl Alcohol 100; Powdered Gum Tragacanth BP
Powdered Gum Tragacanth T-150; Powdered Gum Tragacanth T-200; Powdered Gum Tragacanth T-300; Powdered Gum Tragacanth T-400; Powdered Gum Tragacanth T-500
Powdered Gum Tragacanth Type B-1 NF Premium; Powdered Gum Tragacanth Type B-12 NF Premium; Powdered Gum Tragacanth Type C-5 NF; Powdered Gum Tragacanth Type G-1 NF Premium; Powdered Gum Tragacanth Type G-2 NF Premium
Powdered Gum Tragacanth Type G-2S NF Premium; Powdered Gum Tragacanth Type M-3 NF Premium; Sepigel™ 305; Spray Dried Gum Arabic NF/FCC CS-R; Tylopur® C 10000 P2; Tylose® H 30000 P2 PHA; Tylose® H 100000 P2 PHA; Veegum®; Veegum® HV; Veegum® K
thickener, pharmaceutical gels
A-C® 7; A-C® 7A; A-C® 617; A-C® 617A; Natrosol® 250 HX
Natrosol® 250 M; Walocel® C 30 A; Walocel® C 100 A; Walocel® C 1000 A; Walocel® C 2000 A; Walocel® C 10000 A
thickener, pharmaceutical jellies
Gum Tragacanth Ribbons and Flakes;
Powdered Gum Tragacanth BP; Powdered Gum Tragacanth Type B-1 NF Premium; Powdered Gum Tragacanth Type B-12 NF Premium; Powdered Gum Tragacanth Type C-5 NF
Powdered Gum Tragacanth Type G-1 NF Premium; Powdered Gum Tragacanth Type G-2 NF Premium; Powdered Gum Tragacanth Type G-2S NF Premium; Powdered Gum Tragacanth Type M-3 NF Premium; Powdered Tragacanth Gum Type E-1
Powdered Tragacanth Gum Type L; Powdered Tragacanth Gum Type W; Tragacanth Gum Ribbon No. 1 NF FCC
thickener, pharmaceutical liquids
Hi-Sil® T-600; Methocel® E50 Premium LV; Methocel® E6 Premium LV EP; Methocel® E6 Premium LV EP JP; Veegum® Veegum® HV; Veegum® K
thickener, pharmaceutical o/w emulsions
Mazor® 165C; Pionier® NP 37 G; Pionier® NP 37 K; Pionier® NP 37 S; Synthalen® M
thickener, pharmaceutical pastes
Polywax EW; Veegum®; Veegum® HV; Veegum® K
thickener, pharmaceutical powders
Hectorite BC 840; Silica, fumed; Wacker HDK® H20; Wacker HDK® N20
thickener, pharmaceutical reconstitutable powders
Xantural® 11K; Xantural® 75; Xantural® 180
thickener, pharmaceuticals
AP™ 25; AP™ 35; AP™ 45; Ablunol S-20; Ablunol S-60; Ablunol S-80; Ablunol S-85; Acacia; Acrylamide/sodium acrylate copolymer; Acrylic acid/acrylonitrogen copolymer; Albagel Premium USP 4444; Aldo® PGHMS; Alginic acid; Aloe barbadensis extract; Aloe extract; Aluminum silicate; Ammonium alginate; Arlapon® F; Arquad® 16-50; Attapulgite
Batyl alcohol; Benecel® Methylcellulose; Benecel® MP; Bentolite® MB-NF; Bentonite BC 342; Bentonite BC 364; Bentonite BC 670; Bentonite BC 770; Bentonite BC 870; Bentonite BC 4444; Bentonite BC 4446; Bentonite BC 4448; C18-36 acid triglyceride; Calcium alginate; Calcium carboxymethyl cellulose; Calcium carrageenan; Candelilla synthetic; Carbomer; Carbomer 910; Carbomer 934; Carbomer 934P; Carbomer 940; Carbomer 941; Carbomer 1342; Carbopol® 934P; Carbopol® 940; Carbopol® 971P; Carbopol® 974P; Carboxymethylcellulose sodium; Carboxymethyl hydroxypropyl guar; Carboxymethylmethylcellulose; Carrageenan (Chondrus crispus); Cekol® 30; Cekol® 150; Cekol® 300; Cekol® 500 T; Cekol® 700; Cekol® 2000; Cekol® 2000S; Cekol® 4000; Cekol® 10000; Cekol® 30000; Cellogen HP-5HS; Cellogen HP-6HS; Cellogen HP-6HS.9; Cellogen HP-8A; Cellogen HP-12HS;
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- **Cellogen HP-SB; Cera-E; Cerabel L132**
- **Cetyl glyceryl ether; Cetyl myristate; Cetyl palmitate; Choleth-24; Cocamide DEA**
- **Cocamide MEA; Coyote Brand Konjac A; Coyote Brand Tara Gum; Cremophor® S 9; Cristal G**
- **Cristal S; Dehyton® AB-30; Dervacid 3152; Dervacid 3154; Dervacid 3155; Dervacid 3156; Dervacid 3157-C; Dervacid 3158; Dervacid 3352**
- **Dextrin; Emanon 3199; Emanon 3299; Emanon 3352; Extra S; Extra ST**
- **Fanco™ LA; Furcelleran**
- **GRINDSTED®Xanthan EASY; Galactasol® 650; Gantrez® AN-119**
- **Gantrez® AN-139; Gantrez® AN-149; Gantrez® AN-169; Gelcarin® DG 3252**
- **Gellan gum**
- **Genu® VV-11PF; Genu® VV-41PF; Genu® VV-71PF; Genu® Carrageenan; Genugel® X-902-02**
- **Genuvisco®; Glicopol 121; Glicopel 123; Glicopel 125; Glicopel 127**
- **Glicopel 225; Glyceryl hydroxystearate; Glycol distearate; Glycol hydroxystearate**
- **Guar (Cyanopsis tetragonoloba) gum; Gum Tragacanth Ribbons and Flakes; Hectabrite® AW; Hectorite; Hydrine® Hydroxyethylcellulose; Hydroxypropylcellulose; Hydroxypropyl methylcellulose; Imwitor® 191 Imwitor® 900; Jaguar® 308NB; Japan wax, synthetic; Karaya (Sterculia urens) gum; KELCOSOL® KELGIN® F; KELGIN® HV; KELGIN® LV; KELGIN® MV; KELGIN® XL KELTONE® HV; KELTONE® HVCR; KELTONE® LVCR; KELTONE® LVNP; Keltrol® Keltrol® 1000; Keltrol® BT; Keltrol® CR; Keltrol® F; Keltrol® GM Keltrol® RD; Keltrol® SF; Keltrol® T; Keltrol® TF; Kemester® EGDS Klucel® EF Pharm; Klucel® EXF Pharm; Klucel® GF; Klucel® HF; Klucel® HXF Klucel® JF; Klucel® LF Pharm; Klucel® MF; Koster Keunen Synthetic Japan Wax; Koster Keunen Synthetic Spermaceti Laneth-20; Lanogen 1500; Lauramide MEA; Lauramidopropyl PEG-dimonomium chloride phosphate; Lauramine oxide Laureth-2; Lauroampho PEG-glycinate phosphate; Lipo GMS-470 Pastille; Liponate ICS; Liposorb S-20K Liposorb TS-20A; Locust bean (Ceratonia siliqua) gum; Locust Bean Gum Type A-100; Locust Bean Gum Type A-250; Locust Bean Gum Type A-270 Magnabrite® HV; Magnesium aluminum silicate; Magnesium Aluminum Silicate BC 100; Magnesium Aluminum Silicate BC 101; Magnesium Aluminum Silicate BC 102 Magnesium Aluminum Silicate BC 103; Malt extract; D-Mannitol; MANUCOL® DM; MANUCOL® DMF MANUCOL® LB; MANUCOL® Ester ER/K; MANUGE® DMB; Mapeg® 6000 DS; Maxiren® Mazawax® 163R Flake; Mazol® GMS-K; M Dioleato de PEG 400; Methocel® 310 Series; Methocel® A15C Premium Methocel® E15 Food Grade; Methocel® E15LV; Methocel® F4M Premium; Methocel® J5MS; Methylcellulose Methyl hydroxyethylcellulose; Milk protein; M Mono oleato di PEG 200; M Mono oleato di PEG 400; Monestriol 52 Monestriol 102; Monestriol 104; Monestriol 105; Monestriol 112-C; Monestriol 114 Monestriol 204-C; Monestriol 216-C; Myreth-3 myristate; Myristamide MEA; Natrosol® 250 H Natrosol® 250 HHX Pharm; Natrosol® 250 HX Pharm; Natrosol® 250 M Pharm; NINOL® 70-SL; NINOL® 96-SL NINOL® GR; NINOL® L-9; NINOL® LMP; NINOL® SCMP; Nissan Nonion CP-08R Nissan Nonion LP-20R, LP-20RS; Ozokerite; Pectin; PEG-9M; PEG-14M PEG-8 beeswax; PEG-6 dilaurate; PEG-8 dilaurate; PEG-12 dilaurate; PEG-20 dilaurate; PEG-32 dilaurate; PEG-75 dilaurate; PEG-150 dilaurate; PEG-4 dioleate; PEG-6 dioleate PEG-12 dioleate; PEG-20 dioleate; PEG-32 dioleate; PEG-75 dioleate; PEG-150 dioleate PEG-400 dioleate; PEG distearate; PEG-4 distearate; PEG-6 distearate; PEG-8 distearate PEG-12 distearate; PEG-20 distearate; PEG-32 distearate; PEG-75 distearate; PEG-150 distearate PEG-30 glyceryl cocoate; PEG-80 glyceryl...
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</tr>
<tr>
<td>Tragacanth Type G-2S NF Premium; Powdered Gum Tragacanth Type M-3 NF Premium; Propylene glycol alginate; Propylene glycol stearate; Protachem™ SMS-NF; PROVIgel® DPC 6; PROVIgel® DPC 15; PROVIgel® DPG 1; PROVIgel® DPG 3; PROVIgel® DPG 5; PROVIgel® DPG 7; PROVIgel® DPG 9; PROVIgel® DPG 11; PROVIgel® EXC 30; PROVIgel® EXG 01; PROVIgel® EXG 05; PROVIgel® EXG 10; PROVIgel® EXG 20; PROVIgel® EXG 40; PROVIgel® NAG 753; PROVIgel® NAG 755; PROVIgel® NAG 903; PROVIgel® NAG 905; PVM/MA copolymer; Rennet; Rewocid® DU 185 SE; Rewoderm® Li 63; Rewopal® PEG 6000 DS; Rheodol TW-IS399C; Rhodigel® Clear 80; RITA CA NF; RITA SA NF; Ritawax; Sabopal SE 100; Sammi Gelatine; Scogin™ HV; Scogin™ LV; Scogin™ MV; SD alcohol 40; SD alcohol 40-B; Seagel; Silica; Silica, fumed; Silica, hydrated; Sipernat® 22LS; Sipernat® 500LS; Sodium carrageenan; Sodium hyaluronate; Sodium lauryl sulfocacetate; Sodium magnesium silicate; Sotracerine 165; Sofracerine 185; Solan 50; Sorbitan myristate; Span® 60K; Span® 65; Span® 65K; Stearalkonium hectorite; Steareth-8; Steareth-25; Stearyl stearate; STEPAN® PEG 200 DL; STEPAN® PEG 200 DO; STEPAN® PEG 400 DL; STEPAN® PEG 400 DO; STEPAN® PEG 400 DS; STEPAN® PEG 400 ML; STEPAN® PEG 400 MO; STEPAN® PEG 400 MS; STEPAN® PEG 600 DL; STEPAN® PEG 600 DO; STEPAN® PEG 600 DS; STEPAN® PEG 600 ML; STEPAN® PEG 6000 DS; STEPAN® PEG 6000 MS; Sucrose stearate; Sunflower seed oil glyceride; Syloidal® 244FP; Sylwax® K; TP2; TP8; Tabulose® SC-200; Tabulose® SC-580; Tabulose® SC-601; Tabulose® SC-611; Tabulose® SC-612; Tabulose® SC-613; Tabulose® SC-681; TEGO® Alkanol L 4; TEGO®-Betain F 50; Tetronic® 304; Tetronic® 701; Tetronic® 704; Tetronic® 901; Tetronic® 904; Tetronic® 908; Tetronic® 1107; Tetronic® 1301; Tetronic® 1304; Tetronic® 1307; Ticaxan® Regular</td>
</tr>
</tbody>
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Tilol 161; Tilol 163; Tilol 165; Tilol 265-O; Tilol 267-O
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Veegum®; Veegum® HV; Veegum® K thickener, pharmaceutical surfactants
Natrosol® Plus 330 CS
thickener, pharmaceutical suspended APIs
Gumixan K; Gumixan KD
thickener, pharmaceutical suspensions
Genu® Pectin (citrus) type USP/100; Genu® Pectin (citrus) type USP/200; Genu® Pectin (citrus) type USP-H; Genu® Pectin (citrus) type USP-L/200; Jungbunzlauer Xanthan Gum; Food Grade
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Tylose® H 30000 P2 PHA; Tylose® H 100000 P2 PHA; Walocel® C 30 A; Walocel® C 100 A; Walocel® C 1000 A
Walocel® C 2000 A; Walocel® C 10000 A
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thickener, powder products
Bentonite BC 342; Bentonite BC 364; Bentonite BC 670; Bentonite BC 770; Bentonite BC 870; Bentonite BC 4444; Bentonite BC 4446; Bentonite BC 4448
thickener, prolonged-action preparations
Carbomer
thickener, protective creams
Ceresin
thickener, rectals
Carbomer; Carbomer 934; Magnesium aluminum silicate; Propylene glycol stearate; Silica
Xanthan gum
thickener, saliva substitutes
Carboxymethylcellulose sodium
thickener, salves
Beeswax, synthetic; Bentonite BC 342; Bentonite BC 364; Bentonite BC 670; Bentonite BC 770; Bentonite BC 870; Bentonite BC 4444; Bentonite BC 4446; Bentonite BC 4448; Hectorite BC 840; Koster Keuen Beeswax; Koster Keuen Beeswax 100; Koster Keuen Synthetic Beeswax
thickener, skin disinfectants
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thickener, skin protectants
Silica, hydrated
thickener, skin treatment
Rewocid® DU 185 SE; Undecylenamide DEA
thickener, soft capsules
Sammi Gelatine
thickener, solid dosages
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- thickener, solutions
  - Tabulose® SC-200; Tabulose® SC-580;
  - Tabulose® SC-601; Tabulose® SC-611;
  - Tabulose® SC-612
  - Tabulose® SC-613; Tabulose® SC-681;
  - Viscocel® SC-580F; Viscocel® SC-601;
  - Viscocel® SC-611
  - Viscocel® SC-612; Viscocel® SC-613;
  - Viscocel® SC-681
- thickener, solvents: hydroalcoholic topical gels
  - Carbopol® 980
- thickener, solvents: orals
  - Carbomer
- thickener, solvents: pharmaceuticals
  - Carbomer
- thickener, solvents: prolonged-action products
  - Carbomer
- thickener, solvents: rectals
  - Carbomer
- thickener, solvents: topicals
  - Carbomer; Carbopol® 980
- thickener, sublingual tablets
  - Tragacanth (Astragalus gummifer) gum
- thickener, suppositories
  - KELGIN® MV; STEPAN® PEG 200 DL;
  - STEPAN® PEG 200 DO; STEPAN® PEG 400 DL; STEPAN® PEG 400 DO
  - STEPAN® PEG 400 DS; STEPAN® PEG 400 ML; STEPAN® PEG 400 MO; STEPAN® PEG 400 MS; STEPAN® PEG 600 DL
  - STEPAN® PEG 600 DO; STEPAN® PEG 600 DS; STEPAN® PEG 600 ML; STEPAN® PEG 6000 DS; STEPAN® PEG 6000 MS
- thickener, surface-active
  - Klucel® 'F' Grades
- thickener, surfactant aqueous solutions
  - Antil® 141 Liq.
- thickener, surfactants
  - PEG-55 propylene glycol oleate
- thickener, surgical jellies
  - KELCOSOL®; KELGIN® LV; KELTONE® HV
- thickener, suspension: oral sustained-releases
  - Vivapharm® 15
- thickener, suspensions
  - Tabulose® SC-200; Tabulose® SC-580;
  - Tabulose® SC-601; Tabulose® SC-611;
  - Tabulose® SC-612
  - Tabulose® SC-613; Tabulose® SC-681;
  - Viscocel® SC-580F; Viscocel® SC-601;
  - Viscocel® SC-611
- thickener, sustained-releases
  - Beeswax, synthetic; Koster Keunen
  - Beeswax; Koster Keunen Beeswax 100;
  - Koster Keunen Synthetic Beeswax
- thickener, sustained-release tablets
  - Benecel® M; Benecel® ME1; Benecel® ME2; Benecel® MP3; Benecel® MP6
  - Benecel® MP8; Benecel® MP9; Carbopol® 934P; KELTONE® HVCR; KELTONE® LVCR
- thickener, syrups
  - Cekol® 30000
- thickener, tablet binding
  - Klucel® E Pharm; Klucel® EX Pharm;
  - Klucel® G Pharm; Klucel® H Pharm;
  - Klucel® HX Pharm
  - Klucel® J Pharm; Klucel® L Pharm; Klucel® M Pharm
- thickener, tablet coatings
  - Cekol® 30; Klucel® EF Pharm; Klucel® E Pharm;
  - Klucel® EXF Pharm; Klucel® EX Pharm
  - Klucel® GF; Klucel® G Pharm; Klucel® HF;
  - Klucel® H Pharm; Klucel® HXF
  - Klucel® HX Pharm; Klucel® JF; Klucel® J Pharm; Klucel® LF Pharm; Klucel® L Pharm
  - Klucel® MF; Klucel® M Pharm
- thickener, tablet excipients
  - Locust Bean Gum Type A-100; Locust Bean Gum Type A-250; Locust Bean Gum Type A-270
- thickener, tablets
  - Hectorite BC 840; Jungbunzlauer Xanthan Gum, Food Grade; Potassium alginate;
  - Sammi Gelatine; Silica, fumed
  - Wacker HDK® N20
- thickener, throat preparations
  - Carboxymethylcellulose sodium
- thickener, topical creams
  - Lumulse® GMS K; Lumulse® GMS-A
- thickener, topical creams/lotions
  - Hest CO; Liponate BS
- thickener, topical emulsions
  - Hydrine®; Labrafil® M 2130 CS; Super Hartolan
- thickener, topical
  - emulsions/suspensions/gels
    - Acrylates/C10-30 alkyl acrylate crosspolymer; Carbopol® 971P;
Carbopol® 974P; Carbopol® 981; Carbopol® ETD 2020; Carbopol® ETD 2050

thickener, topical liquids
Natrosol® 250 HX; Natrosol® 250 M

thickener, topical lotions
Carbopol® 971P

thickener, topicals
Acrylates/C10-30 alkyl acrylate crosspolymer; Bentonite magma; Carbomer; Carbomer 934; Carbomer 940; Carbomer 941; Carbopol® 934P; Carbopol® 940; Carbopol® 1342; Carbopol® 1382; Carboxymethylcellulose sodium; Carrageenan (Chondrus crispus); Cetyl palmitate; Choleth-24; Cocamide DEA; Crodesta F-110; Crodesta F-160; Dextrin; Dow Corning® Silky Wax 10; Glucamat® DOE-120; Hydroxyethylcellulose; Hydroxypropyl methylcellulose; Isocetyl stearate; Lauramine oxide; Laureth-23; Lexemul® 515; Linoleamide DEA; MM; Lutrol® F 68; Magnesium aluminum silicate; Methylcellulose; Myristyl myristate; Oleamide MEA; Pectin; PEG-150 distearate; PEG-50 hydrogenated tallowamide; PEG-120 methyl glucose dioleate; PEG-55 propylene glycol oleate; PEG-2 stearate; Polawax® NF; Polycrylic acid; Polychol 15; Schercomid HT-60; Schercomid OME; Schercomid SCO-Extra; Schercomid SLE; Schercomid SL-Extra; Sodium lauryl sulfoacetate; Span® 20; Span® 40; Span® 60; Span® 85V; Stearalkonium hectorite; Syncrowax ERLC; Syncrowax HRC; TEGO®-Betain HS; Xanthan gum

thickener, topical solutions
Lutrol® F 127

thickener, transdermals
Carbopol® 934P; Carbopol® 940; Carbopol® 971P; Carbopol® 974P

thickener, troches
Carboxymethylcellulose sodium

thickener, vaginals
Carboxymethylcellulose sodium; Magnesium aluminum silicate; Methylcellulose; Propylene glycol stearate; Silica

thickener, veterinary products
Labrafil® M 2130 CS; Lauramidopropyl PEG-dimonomium chloride phosphate; Lauroampho PEG-glycinate phosphate

thickener, vitamins
TIC Pretested® Ticalose® CMC 15 Fine Powd.

thickener, w/o emulsions
Monomuls® 90 O18

thickener, wound hydrocolloid gels
Aqualon® Cellulose Gum; Blanose® Cellulose Gum

thicker, orals
Sodium carrageenan

thicker, pharmaceuticals
Sodium carrageenan

thinner, topicals
Punctilious® SDA 1-1 Anhydrous

thixotrope
Smectite

thixotrope, acne creams/lotions
Gelwhite® H-NF; Montmorillonite

thixotrope, calamine lotion
Gelwhite® H-NF; Montmorillonite

thixotrope, dental products
Magnesium aluminum silicate

thixotrope, medicated jellies
Magnesium aluminum silicate

thixotrope, ointments
Magnesium aluminum silicate; Silica, fumed; Wacker HDK® N20; Wacker HDK® V15

thixotrope, orals
Magnesium aluminum silicate

thixotrope, pharmaceutical aerosols
Silica, fumed; Wacker HDK® N20

thixotrope, pharmaceutical creams
Silica, fumed; Wacker HDK® N20; Wacker HDK® V15

thixotrope, pharmaceutical emulsions
Avicel® CL-611; Avicel® RC-581; Avicel® RC-591

thixotrope, pharmaceutical powders
Silica, fumed; Wacker HDK® H20; Wacker HDK® N20

thixotrope, pharmaceuticals
Gelwhite® H-NF; Magnesium aluminum silicate; Montmorillonite; Silica, fumed; Stearalkonium hectorite

Van Gel® C; Wacker HDK® N20; Wacker HDK® N20 ST; Wacker HDK® V15; Walocel® CRT 70 A

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Wacker HDK® V15
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Magnuminium aluminum silicate
thixotrope, tablets
Silica, fumed; Wacker HDK® N20
thixotrope, topicals
Magnuminium aluminum silicate;
Stearalkonium hectorite
thixotrope, vaginals
Magnuminium aluminum silicate
tissue-compatible sheet/fiber former, health-care products
Collagen
tissue-compatible sheet/fiber former, implants
Collagen
tissue-compatible sheet/fiber former, medical products
Collagen
tissue-compatible sheet/fiber former, skin substitutes
Collagen
tissue regeneration aid, health products
Capillisil®; D.S.B. C; Lasilium® C;
Silanediol salicylate
γ-tocopherol source, nutritional supplements
Covi-Ox® T-90
tomato oleoresin, natural: dietary supplements
Lyc-O-Mato® 6%; Lyc-O-Mato® 7%; Lyc-O-Mato® 10%; Lyc-O-Mato® 15%
tonic
Arnica montana extract; Birch (Betula alba) oil; Capsicum frutescens extract;
Crataegus monogina extract; Lemon (Citrus medica limonum) juice
Orange (Citrus aurantium dulcis) oil;
Phosphoric acid; Quassia; Wormwood (Artemisia absinthium) oil; Zinc sulfate
tonic, bitter: pharmaceuticals
Quassia
tonicity agent, dentifrices
Glycerin
tonicity agent, IM injectables
Glycerin; D-Mannitol
tonicity agent, intrapleural injectables
D-Mannitol
tonicity agent, IP injectables
D-Mannitol
tonicity agent, IV
D-Mannitol
tonicity agent, ophthalmics
Glycerin; D-Mannitol; Potassium chloride
tonicity agent, oralss
Glycerin; D-Mannitol; Potassium chloride
tonicity agent, parenterals
Glycerin; D-Mannitol
tonicity agent, pharmaceuticals
Glucose; D-Glucose monohydrate;
Glycerin; D-Mannitol; Potassium chloride
Pricerine™ 9088; Sodium chloride
tonicity agent, rectals
Glycerin
tonicity agent, topicals
Glycerin; Sodium chloride
tonic, nausea/vomiting treatment
Phosphoric acid
tonic, pharmaceuticals
Cassia gum
tonic, skin
Zinc sulfate
tonsillitis, acute: treatment
Sodium benzoate
topical agent, corneal laceration detection
Fluorescein
trace metal scavenger, labile substances
Citric Acid Anhyd. Fine Gran. 700 USP FCC
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Silbione™ 70454; Silbione™ 70460
tracer, radiological: tablets
Silbione™ 70454; Silbione™ 70460
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Balsam Peru (Myroxylon pereirae)
ulcer treatment
Silbione™ 70426R; Silbione™ 70451; Silbione™ 70454; Silbione™ 70460
urinary antisepsis treatment
Methenamine hippurate
urine flow improver
Cubeb (Piper cubeba) oil
UV-A absorber, creams/lotions
Orange Wax, Deodorized
UV-A absorber, pharmaceuticals
Butyl methoxy dibenzoyl methane
UV-A/B absorber, creams/lotions
Orange Wax
UV-A/B absorber, pharmaceuticals
Benzophenone-1; Benzophenone-2; Butyl methoxy dibenzoyl methane;
Protaphenone™- 1; Protaphenone™ - 2
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Zinc Oxide NDM
UV absorber, OTC pharmaceuticals
Red petrolatum
UV absorber, pharmaceuticals
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**Melanin**; **Methyl salicylate**
**Octyl methoxycinnamate**; **Orange (Citrus aurantium dulcis) peel wax**; **Oryzanol**
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**Orange (Citrus aurantium dulcis) peel wax**
**UV absorber, sunburn lotions**
**Methyl salicylate**
**UV-B absorber, creams/lotions**
**Lipex 102; Orange Wax, Deodorized**
**UV-B absorber, emollient bases**
**Lipex 102**
**UV–B absorber, pharmaceuticals**
**Orange (Citrus aurantium dulcis) peel wax**
**UV-B absorber, pharmaceuticals**
**Butyl methoxy dibenzoyl methane; Lipex 102; Lipo CD™-OMC; Octyl salicylate; Orange (Citrus aurantium dulcis) peel wax**
**PEG-25 PABA; Unipabol U-17**
**UV protectant, acne treatment**
**NAB Hawthorn Extract**
**UV protectant, erythema treatment**
**NAB Hawthorn Extract**
**vaginal disorder treatment**
**Lactic acid**
**vasodilator, coronary**
**Isosorbide dinitrate**
**vasodilator/lipid reducing treatment**
**Nicotinic acid**
**vasodilatory agent**
**Capsicum frutescens extract**
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**Benzaldehyde; Butylene glycol dicaprylate/dicaprate**
**vehicle, aerosols**
**Captex® 355; Captex® 1000; Tricaprin**
**vehicle, antibiotics**
**Lexol® GT-855; Lexol® GT-865; Lexol® PG-800; Lexol® PG-865; NEOBEE® M-5; NEOBEE® M-20; Propylene glycol dioctanoate**
**vehicle, APIs**
**Gelucire 33/01**
**vehicle, APIs: gelatin capsules**
**Carbowax® E300 NF; Carbowax® E400 NF; Carbowax® E600 NF; Carbowax® E1000 NF; Carbowax® E1450 NF Carbowax® E3350 NF; Carbowax® E8000 NF**
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**vehicle, bacteriostatic: aerosols**
**Captmul® MCM**
**vehicle, bacteriostatic: clinical nutrition**
**Captmul® MCM**
**vehicle, bacteriostatic: coatings**
**Captmul® MCM**
**vehicle, bacteriostatic: delivery/absorption enhancement**
**Captmul® MCM**
**vehicle, bacteriostatic: dermatologicals**
**Captmul® MCM**
**vehicle, bacteriostatic: microemulsions**
**Captmul® MCM**
**vehicle, bacteriostatic: pharmaceuticals**
**Captmul® MCM**
**vehicle, bacteriostatic: suppositories**
**Captmul® MCM**
**vehicle, capsules**
**Castor (Ricinus communis) oil; Glycerol caprylate; Imwitor® 308; Labrafac® CC; Mineral oil**
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**Captex® 300**
**vehicle/carrier, clinical nutrition**
**Captex® 300; Captex® 350; Captex® 810D**
**vehicle/carrier, coatings**
**Captex® 300**
**vehicle/carrier, delivery/absorption enhancement**
**Captex® 300; Captex® 350; Captex® 810D**
**vehicle/carrier, dermatologicals**
**Captex® 300; Captex® 350; Captex® 810D**
**vehicle/carrier, infant formulas**
**Captex® 300; Captex® 350**
**vehicle/carrier, microemulsions**
**Captmul® MCMC10**
**vehicle/carrier, nutritional products**
**Captex® 350; Captex® 810D**
**vehicle/carrier, nutritional/sports supplements**
**Captex® 350**
**vehicle/carrier, orals**
**Captex® 300**
**vehicle/carrier, pharmaceutical coatings**
**Captmul® MCMC10**
**vehicle/carrier, pharmaceuticals**
**Captmul® MCMC10; Captex® 300; Captex® 350; Captex® 810D**
**vehicle/carrier, soft gelatin capsules**
**Captmul® MCMC10; Captex® 300**
**vehicle/carrier, suppositories**
**Captmul® MCMC10**
**vehicle/carrier, suspensions**
**Captex® 300**
**vehicle, chewable tablets**
**Nu-Tab™ 4001; Nu-Tab™ 4003**
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vehicle, clinical nutrition
  Captex® 355 EP/NF; Captex® 355; Captex® 1000; Pureco® 76; Tricaprin

vehicle, coatings
  Captex® 355; Captex® 1000; Tricaprin

vehicle, colors
  NEOBEE® M-5

vehicle, controlled-releases
  Akolip LM

vehicle, corticoid ointments
  Silbione™ Oils 70047 V50

vehicle, creams
  Lexate® PX

vehicle, creams/lotions
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vehicle, delivery/absorption enhancement
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vehicle, dental products
  Gelatin; Sorbitol

vehicle, dentifrices
  Sorbitol

vehicle, dermal dosages
  Geleol®; Monosteol®

vehicle, dermatological emulsions
  Acconon W230

vehicle, dermatologica1s
  Capmul® MCMC8; Captex® 355; Captex® 1000; Hispagel® 100; Hispagel® 200
  Propylene glycol dioctanoate; Shea butter (Butyrospermum parkii); Tricaprin

vehicle, direct compression: chewable tablets
  Candex® Plus; Emdex®; Sugartab®

vehicle, direct compression: nonchewable tablets
  Emdex®

vehicle, direct compression: tablets
  Candex® Plus; Emdex®; Isomaltose; Prosolv SMCC™ 90; Prosolv SMCC™ HD90
  Sugartab®

vehicle, dissolved pharmaceuticals
  Plurol® Oleique CC 497

vehicle, drug delivery systems
  Crodamol EO

vehicle, elixirs
  Sorbitol

vehicle, emulsions
  Castor (Ricinus communis) oil; Labrafil® M 1944 CS; PEG-75 lanolin

vehicle, essential oils
  NEOBEE® M-5

vehicle, expectorants
  Balsam tolu (Myroxylon balsamum)

vehicle, fat-soluble substances: liniments
  Sesamol

vehicle, fat-soluble substances: ointments
  Sesamol

vehicle, fat-soluble substances: pharmaceuticals
  Sesamol

vehicle, flavored
  Alcohol

vehicle, flavors
  Estol 1526; Lexol® PG-800; Lexol® PG-865; NEOBEE® M-5; Propylene glycol dicaprylate/dicaprate
  Propylene glycol dioctanoate; Tricaprylin

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  Pluronic® F68NF; Pluronic® F87NF; Pluronic® F108NF; Pluronic® F127NF; Pluronic® L44NF

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vehicle, fragrances
  Lexol® PG-800; Lexol® PG-865; Propylene glycol dioctanoate

vehicle, gelatin capsules
  Captex® 1000; Gelucire 43/01; Peceol®; Tricaprin

vehicle, hard gelatin capsules
  Akolip LM; Gelucire 33/01; Gelucire 39/01; Maisine® 35-1

vehicle, hard shell capsules
  Labrafil® M 1944 CS; Labrafil® M 2125 CS

vehicle, herbal/homeopathic preparations
  Sarsaparilla

vehicle, herbal/homeopathic products
  Sarsaparilla

vehicle, IM injectables
  Castor (Ricinus communis) oil; Cottonseed (Gossypium) oil; Ethyl oleate; Gelatin; Sorbitol

vehicle, infant formulas
  Captex® 355; Captex® 1000

vehicle, inhalants
  Gelatin

vehicle, injectables
  Acetylated glyceryl stearate; Butylene glycol; Corn (Zea mays) oil; Glicopel 2-G;
Isotonic sodium chloride solution
Labrafil® M 1944 CS; Miglyol® 810; Miglyol® 840; Miglyol® 8810; Milipol G7; Milipol G-7; M Kemfluid 219-D; Monestriol DM; Monestriol GCT; Monestriol GE; Monestriol GP; Monestriol GP-35; Monestriol GP-35-3%; Monestriol GP-35-AE; Monestriol GP-40; Monestriol GP-40-CF; Monestriol GP-40-DC; Monestriol GP-45; Monestriol GP-45-DC; Monestriol GP-60; Monestriol GP-AS; MSOPB; MSOPB/G; Peanut (Arachis hypogaea) oil; Thomil G; Tilol ET; Tilol GCT-R; Tilol GP-O; Triacetina; Trioleina
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Olive (Olea europaea) oil
vehicle, injections
Triol 91
vehicle, IV
Gelatin
vehicle, IV emulsions
Super Refined® Corn NF; Super Refined® Cottonseed NF; Super Refined® Olive NF; Super Refined® Peanut NF; Super Refined® Safflower USP; Super Refined® Sesame NF; Super Refined® Soybean USP
vehicle, IV nutrition
Cottonseed (Gossypium) oil
vehicle, liniments
Olive (Olea europaea) oil; Peanut (Arachis hypogaea) oil; Sesame (Sesamum indicum) oil; Super Refined® Corn NF; Super Refined® Cottonseed NF; Super Refined® Olive NF; Super Refined® Peanut NF; Super Refined® Safflower USP; Super Refined® Sesame NF; Super Refined® Soybean USP
vehicle, lipid-solution topical APIs
Cetiol® A
vehicle, liquid orals
PEG-4
vehicle, liquids
Maisine® 35-1
vehicle, low-density products
Gelucire 33/01; Gelucire 39/01; Gelucire 43/01
vehicle, low-dose pharmaceuticals
Gelucire 33/01; Gelucire 39/01; Gelucire 43/01
vehicle, lubricity
Caprylic/capric triglyceride
vehicle, medicaments
Ritawax AEO; Ritawax ALA
vehicle, medicated body washes
Prolipid® 141
vehicle, medicated cleansers
Aconon W230
vehicle, medicated creams
Prolipid® 141
vehicle, medicinals
Captex® 200; Captex® 800; Captex® 8000; Estol 1526; Lexol® GT-855; Lexol® GT-865; Lexol® PG-800; Lexol® PG-865; NEOBEE® M-5; NEOBEE® M-20; Propylene glycol dicaprylate/dicaprate; Propylene glycol dioctanoate; Tricaprylin; Trioctanoin
vehicle, medicines
Cerette V; 2-Ethylhexyl tallowate; Isodecyl stearate; Isostriol IC; Isotridecyl stearate; M 2 Etil Esil Oleato; M 2 Etil Esil Oleato; M Kemfluid 25; M Kemfluid 217; M Kemfluid 250 3/R; M Kemfluid 100/AIST; M Kemfluid 2 Et. ES./Tallow; M Kemfluid TR/400; M Kemfluid TRA/46; M Kemfluid 10/TRL; M Kemfluid TR/S; M Kemfluid Isoottil Stearato; Monestriol B; Monestriol C; Monestriol IC; Monestriol IS-C; Palmil C; Palmil IS; Palmil O; Thomil 14; Thomil IS; Thomil IS-F; Tilol B; Tilol IS
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vehicle, nasal products
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vehicle, nongreasy: pharmaceuticals
Solan E
vehicle, nutritional fluids
NEOBEE® M-5
vehicle, nutritional preps
Captex® 100
vehicle, nutritional products
Captex® 800; Captex® 8000; Propylene glycol dioctanoate; Tricaprylin; Trioctanoin
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vehicle, nutritional supplements
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Labrafac® Lipophile

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Peanut (Arachis hypogaea) oil; Pluronic® F68NF; Pluronic® F87NF; Pluronic® F108NF; Pluronic® F127NF
Pluronic® L44NF; Sesame (Sesamum indicum) oil; Super Refined® Corn NF; Super Refined® Cottonseed NF; Super Refined® Olive NF; Super Refined® Peanut NF; Super Refined® Safflower USP; Super Refined® Sesame NF; Super Refined® Soybean USP

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Mineral oil

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Super Refined® Oleic Acid NF

vehicle, oral dosages
Geleol®; Monosteol®

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Crodamol GTCC; Crodamol GTCC-PN; Gelatin; Isotonic sodium chloride solution; Labrafac® CC

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Plasdone® K-90; Propylene glycol; Safflower (Carthamus tinctorius) oil; Sesame (Sesamum indicum) oil; Soybean (Glycine soja) oil
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Labrafac® CC; Miglyol® 840; PEG-4; Propylene glycol; Sesame (Sesamum indicum) oil

Soybean (Glycine soja) oil; Super Refined® Corn NF; Super Refined® Cottonseed NF; Super Refined® Olive NF; Super Refined® Peanut NF
Super Refined® Safflower USP; Super Refined® Sesame NF; Super Refined® Soybean USP

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vehicle, pharmaceutical aerosols
Labrafil® M 2125 CS

vehicle, pharmaceutical coatings
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Captex® 200P; Glyceryl caprate; Peceol®

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<td>Aluminum hydroxide; Hydrogenated castor oil; Hydroxypropylcellulose; Hydroxypropyl methylcellulose; Magnesium aluminum silicate Propylene glycol alginate; Sodium silicoaluminate; Sodium stannate</td>
<td>Acconon® S-75; Aluminum hydroxide; Ammonium sulfate; Calcium phosphate monobasic anhydrous; Carboxymethyl hydroxyethyl cellulose Carboxymethyl hydroxypropyl guar; Cerabel BWS; Cerabel CA; Cerabel D157; Cerabel L109 Cerabel L118; Cerabel R260; Cerabel S30; Cerabel S40; Cerabel S60 Cerabel SCA; Ceraffine 48/50; Ceraffine 50/52; Ceraffine 52/54; Ceraffine 54/56 Ceraffine 56/58; Ceraffine 58/60; Ceraffine 60/62; Ceraffine 62/64; Ceraffine 68/70 Ceresine C; Ceresine K; Ceresine Wax Cosmetic Stralpitz; Cerewax 2T; Cerewax 4T Cerewax 105; Cerewax A75; Cerewax AS15; Cerewax FT/B; Cerewax L Cerewax LKT; Cerewax M85/C; Cerewax N°1; Cerewax N°2; Cerewax N°3 Cerewax S90; Cerewax T300; Cerozo 1247; Cerozo 3549T; Cerozo 4347 Cerozo 20447; Cerozo 26151; Cerozo 26457; Cerozo 26555; Cerozo 30447 Cerozo 31049; Cerozo A; Cerozo AF; Cerozo AN; Cerozo C806 Cerozo D306; Cerozo E626; Cerozo F110; Cerozo F308; Cerozo T37 Cerozo T319; Cerozo V164; Ceteareth-20; Galactasol® 650; Gelwhite® MAS 100(SC) Glycol dilaurate; Glycol stearate; Hectorite; Hydrogenated butylene/ethylene/styrene copolymer; Hydrogenated castor oil Hydrogenated microcrystalline wax; Hydrogenated palm kernel glycerides; Hydroxypropylcellulose; Hydroxypropyl methylcellulose; Isocetyl alcohol Isostearyl alcohol; Jarcol™ I-32; Laneth-5; Laneth-10; Laneth-15 Laneth-20; Lauryl lysine; Lipo GMS-470 Pastille; Lipocol CS-50; Lipocol P-15 Liponate ICS; Lipo Polyglycol 8000; Lipo Polyglycol 20000; Lipowax ES; Lipowax ES-C</td>
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<tr>
<td>Viscosity Control Agent, Ostomy Seals</td>
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<tr>
<td>Premium Powdered Gum Karaya No. 1; Premium Powdered Gum Karaya No. 1 Special; Premium Powdered Gum Karaya No. 2; Premium Powdered Gum Karaya No. 2 HV; Premium Powdered Gum Karaya No. 3</td>
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<td>Viscosity Control Agent, Pharmaceutical Creams</td>
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<tr>
<td>Crodacol 1618; Lanette® O; Meroxapol 105; Meroxapol 251; Meroxapol 252 Meroxapol 254; Meroxapol 258</td>
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<tr>
<td>Viscosity Control Agent, Pharmaceutical Creams/Lotions</td>
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<tr>
<td>Mira-Sperse® 606; Mira-Sperse® 626; Mira-Thik® 468; Mira-Thik® 469; Mira-Thik® 606 Mira-Thik® 609</td>
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<td>Viscosity Control Agent, Pharmaceutical Emulsions</td>
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<td>Avicel® CL-611; Avicel® RC-581; Avicel® RC-591; Lanette® 18; Powdered Gum Tragacanth T-150 Powdered Gum Tragacanth T-200; Powdered Gum Tragacanth T-300; Powdered Gum Tragacanth T-400; Powdered Gum Tragacanth T-500</td>
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<td>Viscosity Control Agent, Pharmaceutical Liquids</td>
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<tr>
<td>Isosweet 5500; Maltrin® M200</td>
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</tbody>
</table>
### Handbook of Pharmaceutical Additives, Third Edition

**Viscosity Control Agent, Pharmaceutical Sticks**
- Magnesium aluminum silicate; Meritol 121; Meritol 130; Meritol 160; Meroxapol 172
- Meroxapol 174; Meroxapol 311; Methocel® A4C Premium EP; Methocel® A4M Premium EP; Methocel® E50LV Premium
- Methyl hydroxyethylcellulose; Mira-Thik® 470; Myristamide MEA; Octyldecyl stearoyl stearate; PEG-2M
- PEG-5M; PEG-7M; PEG-9M; PEG-20M; PEG-23M
- PEG-90M; PEG-115M; PEG-5 castor oil; PEG-8 castor oil; PEG-9 castor oil
- PEG-15 castor oil; PEG-4 dilaurate; PEG-150 distearate; PEG-8 laurate; PEG-8 oleate
- PEG-10 propylene glycol; PEG-25 propylene glycol stearate; PEG-80 sorbitan laurate; PEG-75 soy glycerides; PEG-4 stearate
- PEG-8 stearate; PEG-12 stearate; Polyacrylic acid; Polysorbate 81; Powdered Gum Tragacanth T-150
- Powdered Gum Tragacanth T-200; Powdered Gum Tragacanth T-300; Powdered Gum Tragacanth T-400; Powdered Gum Tragacanth T-500; PPG-3-laureth-9
- PPG-26 oleate; PPG-15 stearyl ether; Propylene glycol alginate; Propylene glycol dicaprylate; Propylene glycol dipelargonate
- Pumice; Sodium oleate; Sodium palmitate; Sodium polycrylate; Sodium silicoaluminate
- Sodium stannate; Sorbitan tristearate; Stearalkonium bentonite; Stearamide AMP; Stearamide DBIA-stearate
- Stearamine oxide; Stearone; Stearyl stearate; Tetradecylicosanol; 2-Tetradecyloctadecanol
- Trihydroxystearin; Triisostearyl trilinoleate; Trilanth-4 phosphate; Trilaurin; Trimyristin
- Tripalmitin; Triundecanoin; Tromethamine magnesium aluminum silicate; Tylose® MH Grades; Tylose® MHB
- Van Gel® C

**Viscosity Control Agent, Pharmaceutical Suspensions**
- Lanette® 18

**Viscosity Control Agent, Rectals**
- Magnesium aluminum silicate

**Viscosity Control Agent, Suppositories**
- Octyldecyl stearoyl stearate

**Viscosity Control Agent, Topicals**
- creams/lotions: Liponate BS
- control agent, topical emulsions: Isostearyl alcohol
- control agent, topicals: Acritamer® 940; Acritamer® 941; Aluminum starch octenyl succinate; Cetareath-20; Hydrogenated castor oil
- Hydroxypropyl methylcellulose; Isocetyl stearoyl stearate; Laneth-15; Liponate MM; Magnesium aluminum silicate
- Octyldecyl stearoyl stearate; PEG-4 dilaurate; PEG-150 distearate; PEG-8 stearate; Polyacrylic acid
- PPG-26 oleate; PPG-15 stearoyl ether; Tetradecylicosanol; Trihydroxystearin; Triisostearyl trilinoleate
- Trilanth-4 phosphate

**Viscosity Control Agent, Vaginals**
- Magnesium aluminum silicate

**Viscosity Modifier**
- Calcium/sodium PVM/MA copolymer; Crodafos CS20A; Gantrez® MS-955; Gantrez® S-95; Gantrez® S-97
- PVP/VA E-535; PVP/VA E-635; PVP/VA E-735; PVP/VA I-335; PVP/VA I-535
- PVP/VA I-735; Sympatens-PEG/400; Tylopur® C 600 G1; Tylopur® C 1000 P2; Tylopur® C 6000 G1

**Viscosity Modifier, Absorption Enhancement**
- Caprol® 3GS

**Viscosity Modifier, Acid Suspensions**
- Veegum® K

**Viscosity Modifier, Aerosols**
- Captex® 300; Captex® 355; Captex® 1000; Tricaprin

**Viscosity Modifier, Alcohol-Based Gels**
- TEGO® Carbomer 140

**Viscosity Modifier, Anesthetic Spray Bandages**
- PVP/VA S-630

**Viscosity Modifier, Anhydrous Salves**
- Crodacol C-90; Crodacol CS90 EP; Crodacol S95 EP

**Viscosity Modifier, Antibiotic Aerosol Bandages**
- PVP/VA S-630

**Viscosity Modifier, Antiseptic Spray Bandages**
- PVP/VA S-630
Functional/Application Index

viscosity modifier, clear water gels
  TEGO® Carbomer 140

viscosity modifier, clinical nutrition
  Capmul® GMS-50; Caprol® 3GS; Caprol® PGE860; Captex® 300; Captex® 355 EP/NF
  Captax® 355; Captex® 1000; Hydrokote® 112; Hydrokote® AP5; Hydrokote® M; Tricaprin

viscosity modifier, clinical nutrition

  TEGO® Carbomer 134

viscosity modifier, coatings
  Capmul® GMS-50; Caprol® 3GS; Caprol® PGE860; Captex® 300; Captex® 355
  Captax® 1000; Hydrokote® 112; Hydrokote® AP5; Hydrokote® M; Tricaprin

viscosity modifier, compaction:
  pharmaceuticals
  Sterotex® NF

viscosity modifier, delivery/absorption enhancement
  Capmul® GMS-50; Caprol® PGE860; Captex® 300; Captex® 355; Captex® 1000

Polyglyceryl-6 distearate; Polyglyceryl-3 stearate; Tricaprin

viscosity modifier, delivery enhancement
  Caprol® 3GS

viscosity modifier, delivery systems
  Capmul® GMS-50K

viscosity modifier, dental products
  Magnesium aluminum silicate

viscosity modifier, dermatological emulsions
  Capmul® GMS-50; Captex® 8227

viscosity modifier, dermatological liquid cleansers
  Amonyl® 265 BA; Amonyl® 380 BA

viscosity modifier, dermatologicals
  Caprol® 3GS; Caprol® PGE860; Captex® 300; Captex® 355; Captex® 800
  Captax® 1000; Hydrokote® 112; Hydrokote® AP5; Hydrokote® M; Polyglyceryl-6 distearate
  Polyglyceryl-3 stearate; Shea butter (Butyrospermum parkii); Sterotex® NF; Tricaprin

viscosity modifier, ear drops
  Tylose® H 300 G4 PHA

viscosity modifier, encapsulation
  Hydrokote® 112; Hydrokote® AP5; Hydrokote® M; Sterotex® NF

viscosity modifier, enteric drug releases
  Polyvinyl acetate phthalate

viscosity modifier, eye drops
  Tylose® H 300 G4 PHA

viscosity modifier, gelatin capsules
  Captex® 1000; Tricaprin

viscosity modifier, infant formulas
  Capmul® GMS-50; Capmul® GMS-50K; Caprol® 3GS; Caprol® PGE860; Captex® 300
  Captex® 355; Captex® 1000

viscosity modifier, liniments
  Tylopur® C 300 P2; Tylopur® C 1000 P2

viscosity modifier, medicated jellies
  Magnesium aluminum silicate

viscosity modifier, microemulsions
  Capmul® PGE860; Captex® 800

viscosity modifier, nasal/eyes/ear drops
  Tylopur® C 600 G1; Tylose® H 4000 G4 PHA

viscosity modifier, nose drops
  Tylose® H 300 G4 PHA

viscosity modifier, nutritional products
  Captex® 100

viscosity modifier, nutritional/sports supplements
  Capmul® GMS-50; Caprol® PGE860; Captex® 1000

viscosity modifier, nutritional supplements
  Caprol® 3GS; Captex® 200P; Hydrokote® 112; Hydrokote® AP5; Hydrokote® M; Sterotex® NF

viscosity modifier, ointments
  Magnesium aluminum silicate; Permulgin® D; Super Refined® PEG-400 NF; Super Refined® PEG-600 NF; T-Maz® 85 Special
  T-Maz® 85K; Tylopur® C 300 P2; Tylopur® C 1000 P2; Tylose® H 300 G4 PHA; Tylose® H 4000 G4 PHA

viscosity modifier, orals
  Captex® 300; Captex® 355; Captex® 1000; Magnesium aluminum silicate; Super Refined® PEG-300 NF
  Super Refined® PEG-400 NF; Super Refined® PEG-600 NF

viscosity modifier, o/w creams
  TEGO® Carbomer 134

viscosity modifier, o/w lotions
  TEGO® Carbomer 141

viscosity modifier, parenterals
  Super Refined® PEG-300 NF; Super Refined® PEG-400 NF; Super Refined® PEG-600 NF

viscosity modifier, pharmaceutical creams
  Permulgin® D; Veegum®; Veegum® HV; Veegum® K

viscosity modifier, pharmaceutical creams/lotions
  Crodacol C-90; Crodacol CS90 EP; Crodacol S95 EP; Locust Bean Gum Type
viscosity modifier, pharmaceutical emulsions

- Shea butter (Butyrospermum parkii)
- Tylopur® C 300 P2; Tylopur® C 1000 P2; Tylopur® C 6000 G1; Tylose® H 4000 G4 PHA
- Tylose® H 30000 P2 PHA; Veegum®; Veegum® HV; Veegum® K

viscosity modifier, pharmaceutical gels

- Tylose® H 300 G4 PHA; Tylose® H 4000 G4 PHA

viscosity modifier, pharmaceutical liquids

- Methocel® K100 Premium LV CR EP; Methocel® K100 Premium LV EP; Methocel® K100 Premium LV LH EP; Methocel® K3 Premium LV EP; Veegum® Veegum® HV; Veegum® K

viscosity modifier, pharmaceutical microemulsions

- Captex® 200P

viscosity modifier, pharmaceutical o/w emulsions

- Tylopur® C 600 G1

viscosity modifier, pharmaceutical pastes

- Veegum®; Veegum® HV; Veegum® K

viscosity modifier, pharmaceuticals

- Alkamuls® PSML-20; BPS-15; BPSH-25; Capmul® GMS-50; Caprol® 3GS
- Caprol® PGE860; Captex® 100; Captex® 300; Captex® 300EP; Captex® 355 EP/NF; Captex® 355; Captex® 800; Captex® 1000; Captex® 8227; DEA-lauryl sulfate
- Forlan C-24; GPG™ 3565; GPG™ 7030; Hydrokote® 112; Hydrokote® AP5
- Hydrokote® M; Locust Bean Gum Type A-100; Locust Bean Gum Type A-250; Locust Bean Gum Type A-270; Magnesium aluminum silicate
- Nikkol BPS-5; Nikkol BPS-10; Nikkol BPS-20; Nikkol BPS-30; NINOL® 30-LL; PEG-300 oleate; PEG-5 phytosterol; PEG-10 phytosterol; PEG-15 phytosterol; PEG-20 phytosterol; PEG-25 phytosterol; PEG-30 phytosterol; PEG-20 sorbitan tallate; PEG-20 sorbitan tritallate; PEG-300 steareate
- PEG-1500 steareate; Powdered Guar Gum Type A; Powdered Guar Gum Type AA; Powdered Guar Gum Type BB
- PVP/VA S-630; PVP/VA copolymer; Ritabate 20; Ritabate 40; Ritabate 60
- Ritabate 80; STEOL® CA-460; TEGO® Carbomer 134; TEGO® Carbomer 140; TEGO® Carbomer 141
- T-Maz® 20; T-Maz® 28; T-Maz® 60K; T-Maz® 65K; T-Maz® 80
- T-Maz® 80K; T-Maz® 80KLM; T-Maz® 81; T-Maz® 85; T-Maz® 90
- Van Gel® C; Veegum® D; Veegum® F; Veegum® HS

viscosity modifier, pharmaceutical solutions

- Permulgin® D

viscosity modifier, pharmaceutical suspensions

- Captex® 200P; Tylopur® C 300 P2; Tylopur® C 1000 P2; Tylopur® C 6000 G1; Tylose® H 4000 G4 PHA
- Tylose® H 30000 P2 PHA; Veegum®; Veegum® HV; Veegum® K

viscosity modifier, pharmaceutical syrups

- Tylopur® C 300 P2; Tylopur® C 1000 P2; Tylopur® C 6000 G1; Tylose® H 300 G4 PHA; Tylose® H 4000 G4 PHA
- Tylose® H 30000 P2 PHA

viscosity modifier, pharmaceutical vehicles

- Agnique GLY96; Emery® 916; Emery® 917

viscosity modifier, rectals

- Magnesium aluminum silicate

viscosity modifier, soft gelatin capsules

- Captex® 200P; Captex® 300; Captex® 355; Hydrokote® 112; Hydrokote® AP5; Hydrokote® M

viscosity modifier, sports supplements

- Caprol® 3GS; Captex® 355; Hydrokote® 112; Hydrokote® AP5; Hydrokote® M

viscosity modifier, suppositories

- Capmul® GMS-50; Capmul® GMS-50K; Caprol® 3GS; Captex® PGE860; Captex® 200P
- Captex® 800; Hydrokote® 112; Hydrokote® AP5; Hydrokote® M; Polyglyceryl-6 distearate
- Polyglyceryl-3 stearate; Shea butter
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(Butyrospermum parkii); Sterotex® NF viscosity modifier, suspensions
Captex® 300; Captex® 355; Captex® 1000 viscosity modifier, sustained-releases
Hydrokote® 112; Hydrokote® AP5; Hydrokote® M viscosity modifier, tablet coatings
Capmul® GMS-50K viscosity modifier, tablet excipients
Locust Bean Gum Type A-100; Locust Bean Gum Type A-250; Locust Bean Gum Type A-270 viscosity modifier, tablets
Capmul® GMS-50; Polyvinyl acetate phthalate; Sterotex® NF viscosity modifier, tannin burn ointments
Tylopur® C 600 G1 viscosity modifier, topical creams
Crodacol C-95 EP viscosity modifier, topicals
Magnesium aluminum silicate; STEOL® CA-130; STEOL® CA-230D; STEOL® CA-330; Super Refined® PEG-300 NF; Super Refined® PEG-400 NF; Super Refined® PEG-600 NF viscosity modifier, vaginalns
Magnesium aluminum silicate viscosity reducer, drug delivery systems
Crodamol EO viscosity reducer, ointments
BGL™ 855 viscosity reducer, parenterals
Crodamol EO viscosity reducer, petrolatum bases
Liquid Medilan™; Liquid Medilan™ Ultra viscosity reducer, pharmaceuticals
Cril 1 viscosity reducer, pharmaceutical syrups
ADM Invert Blend 90% Invert/76.7% Solids viscosity reducer, topicals
Crodamol EO viscosity regulator, ear drops
Walocel® C 1000 A; Walocel® C 2000 A viscosity regulator, nose drops
Walocel® C 1000 A; Walocel® C 2000 A visual disturbance treatment
Disodium inosinate vitamin
Eastman® Propionic Anhydride, Kosher; Folic Acid 10% Trituration; Glyceryl dicaprate; Glyceryl dicaprylate; Lipase Niacin USP, FCC; Panthenyl triacetate; Pyridoxine; Vitagen™; Vitamin D5 100 Vitamin D3 100 HP; Vitamin D3 850; Vitamin A, C & E Liposomes; Yeast extract vitamin A concentrate, multivitamins
Vitamin A Palmitate USP, FCC Type P1.7 vitamin A concentrate, soft gelatin capsules
Vitamin A Palmitate USP, FCC Type P1.7 vitamin, antipellagra
Nicotinic acid vitamin, antirachitic: pharmaceuticals
Cholecalciferol vitamin, antimocorbucic
Calcium ascorbate vitamin A precursor
Carotene vitamin A source
Shark liver oil vitamin A supplement, pharmaceuticals
Cod liver oil vitamin A supplement, vitamin mixes
Lucarotin® 10 CWD O vitamin A synthesis
β-ionone vitamin B1
Methyl acrylate vitamin B12 source
Cyanocobalamin vitamin B6 derivative, oil-soluble
DK; DP vitamin C derivative, oil-soluble
CP vitamin C derivative, water-soluble
VC-PMG; VC-SS vitamin C source
Aminopropyl ascorbyl phosphate; Ascorbyl palmitate; Calcium ascorbate vitamin C source, direct compression tablets
Coated Ascorbic Acid, Type EC vitamin C source, monovitamin tablets
Coated Ascorbic Acid, Type EC vitamin C source, multivitamin tablets
Coated Ascorbic Acid, Type EC vitamin C source, pharmaceutical dry preparations
Coated Ascorbic Acid, Type EC vitamin C source, pharmaceuticals
Coated Ascorbic Acid, Type EC; Sodium Ascorbate USP, FCC vitamin derivative, pharmaceuticals
Safester A-75 vitamin, direct compression: tablets
C-90™ Ascorbic Acid 90% Granulation vitamin D supplement, pharmaceuticals
Cod liver oil vitamin E, natural: capsules
Covitol® F-1000-2
Functional/Application Index

vitamin E, natural: chewable tablets  
Covitol® 1210

vitamin E, natural: food fortification  
Covitol® F-1000-2

vitamin E, natural: multivitamins  
Covitol® 1210

vitamin E, natural: pharmaceutical drops  
Covitol® F-1000-2

vitamin E, natural: pharmaceuticals  
Covitol® 1100; Covitol® 1185; Covitol® F-350M

vitamin E, natural: pharmaceutical syrups  
Covitol® F-1000-2

vitamin E, natural: tablets  
Covitol® 1210

vitamin E source  
Blue algae (Haslea ostrearia) extract; Tocopheryl succinate

vitamin E source, chewable supplements  
Dry Vitamin E Acetate 50% SD

vitamin E source, coated dietary supplements  
Dry Vitamin E Acetate 50% SD

vitamin E source, multivitamin tablets  
Dry Vitamin E Acetate 50% SD

vitamin E source, natural  
Wheat (Triticum vulgare) germ oil

vitamin E source, natural: capsules  
Tocopheryl acetate

vitamin E source, natural: liquids  
DL-α-Tocopherol

vitamin E source, natural: pharmaceuticals  
Tocophersolan; Tocopheryl acetate

vitamin E source, pharmaceutical hard shell capsules  
Dry Vitamin E Acetate 50% SD

vitamin E source, pharmaceuticals  
Dry Vitamin E Acetate 50% SD; d-α- Tocopheryl acetate

vitamin E source, topicals  
d-α-Tocopheryl acetate

vitamin F source  
Phospholipids

vitamin, hematopoietic  
Cyanocobalamin

vitamin mineral supplement  
Crillet 4 HP; Crillet 4 NF

vitamin, orals  
Retinol 50 P

vitamin, parenterals  
Retinol 50 P

vitamin, pharmaceuticals  
DL-Panthenol; Vitamin K₃ Dry Powd. 1% GFP; Vitamin K₃ Dry Powd. 5% GFP;

Vitamin K₁

vitamin source, B-complex syrups  
Riboflavin-5’-Phosphate Sodium USP, FCC

vitamin source, direct compression: tablets  
Ascorbic Acid Fine Gran. USP, FCC

vitamin source, dry products  
Ascorbic Acid Fine Gran. USP, FCC; Calcium Ascorbate USP FCC

vitamin source, hard-shell gelatin capsules  
Dry Vitamin E 75™ HP

vitamin source, liquid orals  
Vitamin B12 Cryst. USP, FCC

vitamin source, mineral tablets  
Dry Vitamin E 75™ HP

vitamin source, multivitamin tablets  
Ascorbic Acid Fine Gran. USP, FCC; Dry Vitamin E 75™ HP

vitamin source, parenteral liquid products  
Vitamin B12 Cryst. USP, FCC

vitamin source, parenteral solutions  
Riboflavin-5’-Phosphate Sodium USP, FCC

vitamin source, pharmaceutical liquids  
Riboflavin-5’-Phosphate Sodium USP, FCC

vitamin source, pharmaceuticals  
Ascorbic Acid Fine Gran. USP, FCC; Calcium Ascorbate USP FCC; Copherol® 1250; Copherol® F-1300; Vitinc® dl-alpha Tocopheryl Acetate USP XXII

vitamin source, solid dosages  
Riboflavin-5’-Phosphate Sodium USP, FCC

vitamin source, solid dosage triturations  
Vitamin B12 Cryst. USP, FCC

vitamin supplement, gelatin capsules  
Retinyl palmitate

vitamin supplement, multivitamins  
Retinyl palmitate

vitamin supplement, pharmaceuticals  
Folic acid; Lutavit® Niacin Feed Grade; Retinyl palmitate; Vitamin A and D-3 Blend

vulcanizing agent, dentures  
SR 297

wart treatment  
Lactic acid

water absorption aid, ointments  
Crodacol C-90; Crodacol CS90 EP; Crodacol S95 EP

water absorption aid, w/o emulsions  
Crodacol C-90; Crodacol CS90 EP; Crodacol S95 EP

water activity reducer, pharmaceutical syrups  
ADM Invert Blend 90% Invert/76.7% Solids

water barrier, antiperspirants  
Stearoxy dimethicone
<table>
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<tr>
<th>Category</th>
<th>Additives</th>
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<tr>
<td>Water barrier, creams/lotions</td>
<td>Stearoxy dimethicone</td>
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<td>Water barrier, subcoatings: tablet cores</td>
<td>Kollidon® VA 64 Fine</td>
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<td>Water barrier, tablet core subcoatings</td>
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<td>Vee Gee Pharmaceutical Gelatins</td>
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<td>Waterproofing agent, acne creams</td>
<td>Palmitoyl collagen amino acids</td>
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<td>Waterproofing agent, dermatologicals</td>
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<td>Paraformaldehyde</td>
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<td>Waterproofing agent, ointments</td>
<td>Palmitoyl collagen amino acids</td>
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<td>Waterproofing agent, pharmaceuticals</td>
<td>Cecavon® ZN 70; Cecavon® ZN 72; Cetearyl octanoate</td>
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<td>Water repellent, topicalis</td>
<td>Cetearyl octanoate</td>
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<td>Water repellent, acne creams/lotions</td>
<td>Crodamol CAP</td>
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<td>Water repellent, antibiotic ointments</td>
<td>Crodamol CAP; Crodamol W</td>
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<td>Water repellent, pharmaceuticals</td>
<td>Cyclomethicone; Lanolin wax; Natralube™ 120; Silicone emulsion; Simethicone</td>
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<td>Water resistance aid</td>
<td>Dimethicone; Dow Corning®Dimethiconol Blend 20; Dow Corning® Silky Wax 10</td>
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  - STEPAN® PEG 600 DS; STEPAN® PEG 600 MS

- Wetting agent, surgical scrubs
  - Crodesin LS30; Crodesin LS30 NP; Crodesin LS95 NP; Sodium lauryl sarcosinate

- Wetting agent, suspended powders
  - Pluro® Oleique CC 497

- Wetting agent, tablet coatings
  - Docusate Sodium USP

- Wetting agent, tablets
  - Docusate Sodium USP

- Wetting agent, therapeutic shampoos
  - Coco-betaine

- Wetting agent, tinctures
  - Benzethonium chloride

- Wetting agent, topical creams/lotions
  - Docusate Sodium USP

- Wetting agent, topicals
  - Adinol CT95; Benzalkonium chloride
  - Benzethonium chloride; Brij® 30; Brij® 52
  - Brij® 58; Brij® 72; Brij® 76 Pharma; Brij® 78; Brij® 96 V
  - Brij® 721; Cerasynt® 303; Cetareth-20; Ceteth-20; Cocamide DEA
  - Coconut (Cocos nucifera) oil; Crill 4; Crill 6
  - Crill 45; Crillet 1 HP
  - Crillet 1 NF; Crillet 3; Crillet 3 NF; Crillet 3 Super; Crillet 4
  - Crillet 4 HP; Crillet 4 NF; Crillet 6; Crodamol SCO; Crodasin LS30
  - Crodesin LS30 NP; Crodesin LS95 NP; Crodesta F-10; Crodesta F-110; Crodesta F-160

- Crodesta SL-40; Crovol A-70; Diocetyl sodium sulfosuccinate; Eccowet® W-50; Eccowet® W-88

- Etocas 35 NF; Hydroxylated lecithin; Incrocas 30; Incrocas 40; Labrasol®

- Laneth-15; Lanogel® 21; Lanogel® 41; Lecithin; Octoxyynol-9

- Oleth-3; PEG-4 dilaurate; PEG-150 distearate; PEG-20 sorbitan isostearate; PEG-2 stearate

- PEG-40 stearate; PEG-50 stearate; Polysorbate 20; Polysorbate 40; Polysorbate 60

- Polysorbate 80; Renex® PEG 1000; Schercomid CDO-Extra; Sodium lauroyl sarcosinate; Sodium lauryl sulfate

- Sodium lauryl sulfoacetate; Solan E50; Solulan® 16; Solulan® 75; Solulan® L-575

- Sorbitan olate; Sorbitan sesquioleate; Sorbitan stearate; Synperonic® PE/F68; Synperonic® PE/F87

- Synperonic® PE/F108; Synperonic® PE/F127; Synperonic® PE/L44; Trideceth-10; Tween® 40

- Tween® 60; Tween® 80V; Volpo 3; Volpo 5; Volpo 10

- Volpo N5; Volpo N20

- Wetting agent, topical solutions
  - Cetylpyridinium chloride

- Wetting agent, topical suspensions
  - Crill 4 Super

- Wetting agent, vaginals
  - Diocetyl sodium sulfosuccinate; Polysorbate 20; Polysorbate 60; Polysorbate 80; Sodium lauryl sulfate

- Sorbitan stearate

- Wetting agent, veterinary products
  - Lauramidopropyl PEG-dimonium chloride phosphate; Lauroampho PEG-glycinate phosphate; PEG-35 castor oil

- Wetting agent, vitamin oils

- Tween® 81
Functional/Application Index

wetting agent, vitamins
  Docusate Sodium USP
wetting agent, volatile oils
  Softigen® 767
whipping agent, pharmaceuticals
  Vee Gee Pharmaceutical Gelatins
whitener, medical formulations
  CMP-I®
whitener, tooth filling compounds
  Tullanox® HM-100; Tullanox® HM-150
whitening agent
  CP; VC-PMG; VC-SS
wicking agent, wet granulation
  Sancel-101; Sancel-102; Sancel-105; Sancel-C; Sancel-W
Wilson’s disease treatment
  Triethylenetetramine; Zinc acetate
wound healing aid
  Biodynes® TRF; Crodarom Chamomile O
wound healing aid, topicals
  Saccharomyces lysate extract
wound treatment
  Meadowsweet (Spiraea ulmaria) extract

wound treatment, medicine
  Allantoin
x-ray contrast medium
  Barium sulfate; Iodine
x-ray contrast medium, medicine
  Iodipamide
x-ray diagnostic aid
  Diatrizoic acid
yeast inhibitor, aqueous solutions
  Potassium sorbate
zinc deficiency disease preventive, veterinary products
  Zinc carbonate
zinc source
  Zinc glycinate
zinc source, dietary: pharmaceuticals
  Zinc methionine sulfate
zinc source, dietary: vitamin tablets
  Zinc methionine sulfate
zinc source, orals
  Zinc sulfate
zinc source, pharmaceuticals
  Zinc glycinate; Zinc sulfate
Part IV: Manufacturers Directory
### Manufacturers Directory

#### AAA International Corp.
515 Ogden Ave., Professional Bldg. Suite 317, Downers Grove, IL, 60515, USA (Tel: 630-964-1249; FAX: 630-964-1649; E-mail: sales@aaainternational.com; Internet: http://www.aaainternational.com)

#### Aabbitt Adhesives Inc.
2403 N. Oakley Ave., Chicago, IL, 60647-2009, USA (Tel: 773-227-2700; 800-222-2488; FAX: 773-227-2103; E-mail: info@aabbitt.com; Internet: http://www.aabbitt.com)

#### AAE Chemie NV
Ericalaan 26, 2920 Kalmthout, Belgium (Tel: 32 3 568 1166; FAX: 32 3 568 0597; E-mail: info@aaechemie.com; Internet: http://www.aaechemie.com)

#### Aakash Chemicals & Dyestuffs Inc.
561 Mitchell Rd., Glendale Hts., IL, 60139, USA (Tel: 630-469-3838; 800-255-4855; FAX: 630-469-2255; E-mail: info@aakashchemicals.com; Internet: http://www.aakashchemicals.com)

#### Aarhus
Aarhus Karlshamn Denmark A/S, M.P. Bruuns Gade 27, 8000 Aarhus C, Denmark (Tel: 45 87 30 60 00; FAX: 45 87 30 60 12; E-mail: dk.info@aak.com; Internet: http://www.aak.com/)

Aarhus Karlshamn USA Inc., 131 Marsh St., PO Box 4240, Port Newark, NJ, 07114, USA (Tel: 973-344-1300; FAX: 973-344-9049)

Aarhus Karlshamn Australia Pty Ltd., 4 Endeavour Close, Castle Hill, NSW, 2154, Australia (Tel: 61 2 885 03 522; FAX: 61 2 885 03 422)

#### Aarti Industries Ltd.
201, Udyog Kshetra, Mulund Goregaon Link Rd., Mulund (W), Mumbai, Maharashtra, 400 080, India (Tel: 91 22 55976666; FAX: 91 22 25904806; E-mail: info@aartigrou p.com; Internet: http://www.aartigrou p.com)

#### Aastrid International
247-248, Udyog Bhavan, Sonawala Lane., Goregaon (E), Mumbai, 400 063, India (Tel: 91-22-5691 4333; FAX: 91-22-5691 4334; E-mail: aastrid@bom2.vsnl.com; Internet: http://www.aastrid.com)

#### Abaco Inc.
700 Junes Way, Eastanollee, GA, 30538, USA (Tel: 706-779-0001; FAX: 706-779-2000; E-mail: abaco@alltel.net)

#### Abadan Petrochemical Co.
No. 6, North Naft St., Mirdamad Blvd., Tehran, 19189-3003, Iran (Tel: 98 21 2225 3010; FAX: 98 21 2225 3007; Internet: http://www.abadanpetro.com/en/index.aspx)

#### Abatron, Inc.
5501 95th Ave., Kenosha, WI, 53144-7499, USA (Tel: 262-653-2000; 800-445-1754; FAX: 262-653-2019; E-mail: info@abatron.com; Internet: http://www.abatron.com)

#### Abbott Laboratories
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Abbott Laboratories Ltd., Div. of Abbott Laboratories, Abbott House, Vanwall Business Park, Vanwall Road, Maidenhead, Berkshire, SL6 4XE, UK (Tel: 44 1628 773355; FAX: 44 1628 644 305; Internet: http://www.abbottuk.com)

Abbott GmbH & Co. KG, Max-Planck-Ring 2, 65205 Wiesbaden-Delkenheim, Germany (Tel: 49 6122 580; FAX: 49 6122)58 1244; E-mail: info.de@abbott.com)

Abbott S.A.-N.V., Div. of Abbott Laboratories, 2 rue du Bosquet, Parc Scientifique, 1348 Ottignies, Louvain-La-Neuve, Belgium (Tel: 32 10 475 311; FAX: 32 10 475 575)

#### ABCR
ABCR GmbH & Co. KG, Im Schleheht 10, D-76187 Karlsruhe, Germany (Tel: 49-721-95061-0; FAX: 49-721-95061-80; E-mail: info@abc.de; Internet: http://www.abc.de)

ABCR (UK) Ltd., Unit 60, The Greenhays Business Centre, 10 Pencroft Way, Manchester, M15 6JJ, UK (Tel: 44 161 226 9843; FAX: 44 161 226 9850; E-mail: arrowsmith@abc.de; Internet: http://www.abc.de)

#### ABITEC
ABITEC Corp., Subsid. of Associated British Foods (ABF), 501 W. First Ave., PO Box 569, Columbus, OH, 43216-0569, USA (Tel: 614-429-6464; 800-526-4547; FAX: 614-
Manufacturers Directory

299-8279; E-mail: sales@abiteccorp.com; Internet: http://www.abiteccorp.com

AB Technology Ltd., Div. of ABITEC, Salthouse Rd, Brackmills Industrial Estate, Northampton, Northamptonshire, NN4 7EX, UK (Tel: 44 1604 432600; FAX: 44 1604 701503; E-mail: abitec@global.co.uk; Internet: http://www.abitec.com)

Ablestik
Ablestik Laboratories, Subsid. of National Starch and Chemical Co., an ICI Co., 20021 Susana Road, Rancho Dominguez, CA, 90221, USA (Tel: 310-764-4600; FAX: 310-764-2545; E-mail: ablestik.customerservice@ablestik.com; Internet: http://www.ablestik.com)

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Absorbable Polymers International
756 Tom Martin Dr., Birmingham, AL, 35211-4467, USA (Tel: 205-917-2231; FAX: 205-917-2245; Internet: http://www.durect.com)

Acatris
Acatris Netherlands, Röntgenweg 6, 3752 LJ Bunschoten, The Netherlands (Tel: 31 33 298 20 34; FAX: 31 33 298 68 27; E-mail: info@nl.acatris.com; Internet: http://www.acatris.com)

Acatris Inc., 3300 Edinborough Way, Minneapolis, MN, 55435, USA (Tel: 952-920-7700; FAX: 952-920-7704; E-mail: info@us.acatris.com; Internet: http://www.acatris.com)

Accord Corporation
PO Box 1288, Highland Park, NJ, 08904, USA (Tel: 732-819-8738; FAX: 732-819-7431; E-mail: info@accordchem.com; Internet: http://www.accordchem.com)

Accurate Chemical & Scientific Corp.
300 Shames Dr., Westbury, NY, 11590, USA (Tel: 516-333-2221; 800-645-6264; FAX: 516-997-4948; E-mail: info@accuratechemical.com; Internet: http://www.accuratechemical.com)

Accurate Ingredients Inc.
160 Eileen Way, Syosset, NY, 11791, USA (Tel: 516-496-2500; FAX: 516-496-2516; Internet: http://www.accuratechemical.com)

Acus Standard Inc.
25 Science Park, New Haven, CT, 06511, USA (Tel: 203-786-5290; 800-442-5290; FAX: 203-786-5287; E-mail: usa@accustandard.com; Internet: http://www.accustandard.com)

Aceitera Tapatia
Cerezo 1221, Guadalajara Jal, 44900, Mexico (Tel: 52 3 812-1768; FAX: 52(3)811-6087)

Aceto Corporation
1 Hollow Lane, Suite 201, Lake Success, NY, 11042-1215, USA (Tel: 516-627-6000; FAX: 516-627-6093; E-mail: info@aceto.com; Internet: http://www.aceto.com)

Acme-Hardesty Co.
Div. of Jacob Stern & Sons, Inc., 1787 Sentry Parkway West, Suite 18-460, Blue Bell, PA, 19422, USA (Tel: 215-591-3610; 800-223-7054; FAX: 215-591-3620; E-mail: info@acme-hardesty.com; Internet: http://www.acme-hardesty.com)

Acros Organics N.V.
Div. of Fisher Scientific, 1 Reagent Lane, Fairlawn, NJ, 07410, USA (Tel: 201-703-3163; 800-ACROS-01; FAX: 800-248-3079; E-mail: info@acros.com; Internet: http://www.acros.com)

ACTA Pharmaceutical Co.
1131 N. Fair Oaks Ave., Sunnyvale, CA, 94089-2102, USA (Tel: 408-734-1148; FAX: 408-734-1149)

Active Organics, Inc.
1097 Yates St., Lewisville, TX, 75057-4829, USA (Tel: 972-221-7500; 800-541-1478; FAX: 972-221-3324; E-mail: info@activeorganics.com; Internet: http://www.activeorganics.com)

Actives International Inc.
81 Orchard St., Ramsey, NJ, 07446, USA (Tel: 201-236-2828; FAX: 201-236-9055; E-mail: bwilliams@activesinternational.com)
Manufacturers Directory

ADA International
Room 416, Huikai Bldg., Bldg. No. 35, 
Erlizhuang Xiaqu, Haidian District, Beijing, 
100083, P.R. China (Tel: 86 10 6226 2026; 
FAX: 86 10 6226 2025; E-mail: ghwchem@public3.bta.net.cn; Internet: 
http://www.joinme.net/ada/index.htm)

Adams Food Ingredients Ltd.
Prince St., Leek, Staffordshire, ST13 6DB, UK 
(Tel: 44 1538 399686; FAX: 44 1538 399766; Internet: 
http://www.adamsfood.com)

Adeka Fine Chemical Co., Ltd.
Subsid. of Asahi Denka Kogyo, Yoko Bldg., 1-4-5 Hongo, Bunkyo-ku, Tokyo, 113, Japan 
(Tel: 81 3 5689 8681; FAX: 81 3 5689 8680; Internet: 
http://www.adk.co.jp)

Adept Solutions Inc.
725 Paradise Ct., Soquel, CA, 95073-2347, 
USA (Tel: 831-477-1344; 888-477-6644; FAX: 831-477-1348)

Adheswara Chemicals Pvt. Ltd.
26, Royapettah High Rd., Chennai, 600 014, 
India (Tel: 91 44 281 30019; FAX: 91 44 281 32678)

ADM
ADM, Archer Daniels Midland Co., 4666 Faries Pkwy., Decatur, IL, 62526, USA (Tel: 
217-362-3949; 800-637-5843; FAX: 217-424-4119; E-mail: info@admworld.com; 
Internet: http://www.admworld.com)

ADM Arkady, Div. Archer Daniels Midland Co., 100 South Panplusplus Drive, Olathe, KS, 
66061, USA (Tel: 913-782-8800; 866-545-8200; FAX: 913-782-1792; Internet: 
http://www.admworld.com)

ADM Corn Processing, Div. Archer Daniels Midland Co., 4666 Faries Parkway, Decatur, IL, 62526, USA (Tel: 217-451-3027; 800-553-8411; FAX: 217-451-2153; Internet: 
http://www.adm.org/naen/ahn/cornprocessing.asp)

ADM Ethanol Sales, Div. Archer Daniels Midland Co., 466 Faries Parkway, Decatur, IL, 62526, USA (Tel: 217-451-2568; 800-637-5843; FAX: 217-424-5978; E-mail: ethanol@admworld.com)

ADM Food Additives Div., Div. Archer Daniels Midland Co., 466 Faries Parkway, Decatur, IL, 62522, USA (Tel: 217-424-5200; 800-553-8411; Internet: 
http://www.admworld.com; 
http://food.admworld.com/food)

ADM Lecithin, Div. Archer Daniels Midland Co., 4666 Faries Pkwy., Box 1470, Decatur, IL, 62526, USA (Tel: 217-424-5898; 800-637-5843; FAX: 217-424-4119; E-mail: schroder@corp.admworld.com; Internet: 
http://www.admworld.com)

ADM Protein Specialties, Div. Archer Daniels Midland Co., Box 1470, 4666 Faries Parkway, Decatur, IL, 62525, USA (Tel: 217-424-7453; 800-637-5850; FAX: 217-362-8067; Internet: 
http://www.admworld.com)

ADM Agri-Industries Ltd., Div. Archer Daniels Midland Co., PO Box 162 Stn Main, 4805 - 62nd Avenue, Lloydminster,, Saskatchewan, S9V 1K5, Canada (Tel: 780-875-5554; 800-661-9420; FAX: 780-8753753; Internet: 
http://www.admworld.com)

ADM Specialty Ingredients, 4666 Faries Pkwy., Decatur, IL, 62525, (Tel: 217-451-3958; 800-553-8411; FAX: 217-451-3941; E-mail: specialtyingredients@admworld.com; Internet: 
http://www.admworld.com)

Adrian America, Inc.
1443 Pinewood Street, Rahway, NJ, 07065, 
(Tel: 732-388-3555; FAX: 732-388-3565; E-mail: info@adrianamerica.com; Internet: 
http://www.adrianusa.com)

Adumim Food Ingredients
Mishor Adumim 90610, Israel (Tel: 972 2 535 3565; FAX: 972 2 535 4187; E-mail: info@adumim.co.il; Internet: 
http://www.adumim.co.il)

Advanced Biotech
85 Fifth Ave., Bldg. 5, Paterson, NJ, 07524, 
USA (Tel: 973-357-0577; FAX: 973-357-0644; E-mail: info@adv-bio.com; Internet: 
http://www.adv-bio.com)

Advanced ChemTech, Inc.
5609 Fern Valley Rd., Louisville, KY, 40228-1075, USA (Tel: 502-969-0000; 800-456-1403; FAX: 502-962-5368; E-mail: info@peptide.com; Internet: 
http://www.peptide.com)

Advanced Ingredients, Inc.
331 Capitola Ave., Suite F, Capitola, CA, 95010, USA (Tel: 831-464-9891; 888-238-4647; FAX: 831-464-9895; E-mail: info@advancedingredients.com; Internet: 
http://www.advancedingredients.com)
Manufacturers Directory

Advanced Synthesis Technologies, S.A.
PO Box 437920, San Ysidro, CA, 92173, USA
(Tel: 619-423-7821; FAX: 619-423-7793; E-mail: sales@advancedsynthesis.com; Internet:
http://www.advancedsynthesis.com)

Advance Hitech Agro Products Ltd.
Advance India, 49/32, Site-IV, Industrial Area,
Sahibabad, Ghaziabad, U.P., India (Tel: 0091-120-4776388; FAX: 0091-120-477-4297; E-mail:
advance@ndf.vsnl.net.in; Internet: http://www.advancedsynthesis.com)

Advance Research Chemicals Inc.
Tanutmal Chem. Complex Bldg., 1110 W.
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(Tel: 918-266-6789; FAX: 918-266-6796; E-mail:
sales@fluoridearc.com; Internet:
http://www.fluoridearc.com)

AECI Aroma & Fine Chemicals (Pty.) Ltd.
Subsid. of AECI Ltd., 16 Geleiergang, Alton,
Richards Bay, KZN, 3900, Rep. of S. Africa
(Tel: 27 (035) 797-6000; FAX: 27 (035) 797-3336; E-mail:
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http://www.aafc.co.za)

AEP Colloids, Inc.
393 Church St., P.O. Box 3425, Saratoga
Springs, NY, 12866, USA (Tel: 518-334-9996; 800-241-5882; FAX: 518-334-1960; E-mail:
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http://www.aepcolloids.com)

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USA (Tel: 812-334-9996; 800.523.0091; FAX: 812-334-1960; E-mail:
aerchem@aerchem.com; Internet:
http://www.aerchem.com)

Aeropres
1324 N. Hearne, Suite 200, PO Box 78588,
Shreveport, LA, 71137-8588, USA (Tel: 318-
221-6282; FAX: 318-213-1270; E-mail:
mrivers@aeropres.com; Internet:
http://www.aeropres.com)

AF Pharmaceuticals Inc.
225 Long Ave., Hillside, NJ, 08833, USA (Tel:
973-926-1300; FAX: 201 926 0989)

Agricultural & Chemical Products Ltd.
2-4 Chelmsford Road Industrial Estate,
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CM6 1XG, UK (Tel: 44 1371 875721; FAX:
44 1371 872014)

Agrisales Ltd.
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NW3 6JG, UK (Tel: 44 20 7483 2737; FAX:
44 20 86 6011; Internet:
http://www.agrip products.com)

Agrim
Agrum Inc., 13131 Lake Fraser Drive,
Calgary, Alberta, T2J 7E8, Canada (Tel:
(780) 998-6906; FAX: (780) 998-6677; E-
mail: rstacy@agrium.com; Internet:
http://www.agrium.com)

Agrum U.S., Inc., 4582 South Ulster St.,
Suite 1700, Denver, CO, 80237, USA (Tel:
303-804-4400; FAX: 303-804-4482)

A.G. Scientific
6450 Lusk Blvd., Suite E102, San Diego, CA,
92121, USA (Tel: 858-452-9925; 877-452-
9925; FAX: 858-452-9926; E-mail:
support@agscientific.com; Internet:
http://www.agscientific.com)

Agtrol International
A Nufarm Company, 7322 Southwest
Freeway, Suite 1400, Houston, TX, 77074,
USA (Tel: 713-995-0111; FAX: 713-777-
3877; E-mail: tchavez@agtrol.com;
Internet: http://www.agtrol.com)

AIDP, Inc.
17920 East Ajax Circle, City of Industry, CA,
91748, USA (Tel: 626-964-6910; 866-262-
6699; FAX: 626-964-6739; E-mail:
sales@aidp.com; Internet:
http://www.aidp.com)

Airgas Carbonic
3700 Crestwood Pkwy. NW, Suite 200, Duluth,
GA, 30096-5599, USA (Tel: 770-717-2210;
800-241-5882; FAX: 770-717-2222; E-mail:
jim.exum@airgas.com; Internet:
http://www.airgas.com/carbonic)

Air Liquide
Air Liquide Hellas S.A., 26-28 Asclipiou St,
10679 Athens, Greece (Tel: 30 10 33 87
800; FAX: 30 10 36 25 431; Internet:
http://www.airliquide.com)

Air Liquide America Corp., 2700 Post Oak
Blvd., Suite 1800, Houston, TX, 77056, USA
(Tel: 713-624-8000; 877-855-9533; FAX:
713-624-8794; Internet:
http://www.us.airliquide.com)

Air Liquide Canada Inc., 1250 René
Lévesque West, Suite 1700, Montreal,
Quebec, H3B 5E6, Canada (Tel: (514) 933-
0303; E-mail: info.alc@airliquide.com;
Internet: http://www.ca.airliquide.com)

Air Liquide Australia Limited, Royal Domain
Centre, 9/380 St. Kilda Rd., Melbourne,
Victoria, 3004, Australia (Tel: 61 3 9697
Manufacturers Directory

9888; FAX: 61 3 9690 7107; E-mail: ALAEEnquiries@AirLiquide.com; Internet: http://www.airliquide.com.au/

Air Products
Air Products and Chemicals, Inc., 7201 Hamilton Blvd., Allentown, PA, 18195-1501, USA (Tel: 610-481-4911; 800-345-3148; FAX: 610-481-5900; E-mail: info@airproducts.com; Internet: http://www.airproducts.com)

Air Products and Chemicals, Inc./Polymer Chemicals Div., 7201 Hamilton Blvd., Allentown, PA, 18195-1501, USA (Tel: 610-481-6799; 800-345-3148; FAX: 610-481-4381; Internet: http://www.airproducts.com)

Air Products and Chemicals de México, S.A. de C.V., Pasaje Interlomas No. 16, Col. San Fernando la Herradura, Interlomas, Huixquilucan, C.P. 52760, Mexico (Tel: 011-52-5246-0400; FAX: 52-5-246-0448/0449)

Air Products Brasil Ltda, Av. Francisco Matarazzo, 1400, 11° Andar - Cond. Edifício Milano, Água Branca, São Paulo, SP, 02517-160, Brazil (Tel: 55-11-3856-1700; FAX: 55-11-3856-1781)

Air Products PLC, Hersham Place, Molesey Road, Walton-on-Thames, Surrey, KT12 4RZ, UK (Tel: 44-1932-249200; FAX: 44-1932-249565)

Air Products S.A., 78 Rue Championnet, 75881 Paris Cedex 18, France (Tel: 33 1 44 92 51 00; FAX: 33 1 44 92 51 01)

Air Products SAS, Chaussée de Wavre 1789, B-1160 Brussels, Belgium (Tel: 32 2 674 9411; FAX: 32 2 674 9462)

Air Products Italia S.r.l., Via Umbria 4, S. Giuliano Milanese, Milan, 20098, Italy (Tel: 39 (02) 98838-1; FAX: 39 (02) 9880985)

Air Products GmbH, Hauptverwaltung Hattingen, Huettenstrasse 50, D-45527 Hattingen, Germany (Tel: 49 01805-427-835; FAX: 4901805-427-329)

Air Products AS, Lumberveien 49, N-4621 Kristiansand, Norway (Tel: 47 38 03 99 00; FAX: 47 38 01 11 13)

Air Products South Africa (Pty) Ltd., Private Bag X02, Kempton Park, 1620, Gauteng, 1620, Rep. of S. Africa (Tel: 27 11 322 0000; FAX: 27 11 322 0222; Internet: http://www.airproducts.co.za/)

Air Products Asia, Inc., Suite 6505-7, Central Plaza, 18 Harbour Rd., Wan chai, Hong Kong (Tel: 852 2527 1922; FAX: 852 2527 1957)

Air Products Japan, Inc., 21F MUZA Kawasaki Central Tower, 1310 Ohmiya-cho, Saiwai-ku, Kawasaki, 212-8554, Japan (Tel: 81-44-542-1520; FAX: 81-44-542-1521)

Air Products China, Inc., Rm. 611 Beijing Silver Tower, No. 2 North Rd. Dong San Huan, Chaoyang District, Beijing, 100027, P.R. China (Tel: 86 10 6410 5156; Internet: http://www.airproducts.com.cn/)

Air Products Singapore Pte. Ltd., 9 Temasek Blvd., #8-02, Suntec Tower 2, Singapore, 038989, Singapore (Tel: 65-6332-1610; FAX: 65-6332-1600)

Air-Scent International
290 Alpha Dr., RIDC Industrial Park, Pittsburgh, PA, 15238, USA (Tel: 412-252-2000; 800-247-0770; FAX: 412-252-1010; E-mail: info@airscent.com; Internet: http://www.airscent.com)

Ajay North America
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Ajinomoto Co., Seoul Office, Seo ul Center Building, 91-1, Sokong-Dong, Seoul, Korea (Tel: 82-2-755-6166; FAX: 82-2-753-6875)

Ajinomoto (Singapore) Pte. Ltd., No. 6, Senoko Ave., Singapore, 758299, Singapore (Tel: 65 257 2022; FAX: 65 257 6866)

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Akzo Nobel Surfance Chemistry AB, S-444 85 Stenungsund, Sweden (Tel: 46 303 85000; FAX: 46 303 77 02 81; E-mail: Surfactants.Europe@sc.AkzoNobel.com; Internet: http://www.surface.akzonobel.com)

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24D, 125445 Moscow, Russia (Tel: 7 095 9602890; FAX: 7 495 960 29 70; E-mail: yakov.kuzyakov@akzonobel.com)

Akzo Nobel Chemicals S.A., Autovia de Castelldefels Km. 4,65, 08820 El Prat De Llobregat (Barcelona), Spain (Tel: 34-3-4784411; FAX: 34-3-4780734; E-mail: elprat@akzonobel.com; Internet: http://www.surface.akzonobel.com/)

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Alfa Chem

2 Harbor Way, King's Point, NY, 11024-2117, USA (Tel: 516-504-0059; 800-375-6869; FAX: 516-504-0039; E-mail: 
<table>
<thead>
<tr>
<th>Company Name</th>
<th>Address</th>
<th>Contact Information</th>
</tr>
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<td>Alkali Metals Ltd.</td>
<td>Plot B-5, Block III, Ida Uppal, Hyderabad, 500 039, India</td>
<td>Tel: 91 40 7562932; FAX: 91 40 7562634; E-mail: <a href="mailto:alkali@hd1.vsnl.net.in">alkali@hd1.vsnl.net.in</a>; Internet: <a href="http://www.alkalimetals.com">http://www.alkalimetals.com</a></td>
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<td>Alkermes Inc.</td>
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</tr>
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<td>Tel: 513-489-0294; 800-761-4529; FAX: 513-489-7244; E-mail: <a href="mailto:medisorb_polymer@alkermes.com">medisorb_polymer@alkermes.com</a>; Internet: <a href="http://www.alkermes.com">http://www.alkermes.com</a></td>
</tr>
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<td>Alkyl Amines Chemicals Limited</td>
<td>401-407, Nirman Vyapar, Kendra, Plot No. 10, Sector 17, Vashi, Navi Mumbai, 400 703, India</td>
<td>Tel: 91 22 7890632; FAX: 91 22 7890631; E-mail: <a href="mailto:customercare@alkylamines.com">customercare@alkylamines.com</a>; Internet: <a href="http://www.alkylamines.com">http://www.alkylamines.com</a></td>
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<td>, Westward House, Montrose Ave., Slough, SL1 4TN, UK</td>
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<td>Tel: 501-776-4654; 800-860-3290; FAX: 501--776-4706; E-mail: <a href="mailto:info@almatis.com">info@almatis.com</a>; Internet: <a href="http://www.almatis.com">http://www.almatis.com</a></td>
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<td>Alnor Oil Company, Inc.</td>
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<td>Tel: 516-561-6146; FAX: 516-561-6123; E-mail: <a href="mailto:sales@alnoroil.com">sales@alnoroil.com</a>; Internet: <a href="http://www.alnoroil.com">http://www.alnoroil.com</a></td>
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<td>Aloe Laboratories, Inc.</td>
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<td>Alpha Chem</td>
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<td>Alpharma Inc.</td>
<td>One Executive Dr., Fort Lee, NJ, 07024, USA</td>
<td>Tel: 201-947-7774; 800-645-4216; FAX: 201-947-4879; Internet: <a href="http://www.alpharma.com">http://www.alpharma.com</a></td>
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<td>Altair Industries, Inc.</td>
<td>343 Millburn Ave., Millburn, NJ, 07041, USA</td>
<td>Tel: 973-564-6400; FAX: 973-564-6401; E-mail: <a href="mailto:altairind@aol.com">altairind@aol.com</a></td>
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<td>Altivia</td>
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<td>AluChem Inc.</td>
<td>One Landy Lane, Reading, OH, 45215, USA</td>
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<td>Alzo International Inc.</td>
<td>650 Jernee Mill Rd., Sayreville, NJ, 08872, USA</td>
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<td>Amalgamet Inc.</td>
<td>50 Main St., 12th Fl., White Plains, NY, 10606, USA</td>
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<td>Amano Enzyme Inc.</td>
<td>2-7, 1-chome, Nishiki Naka-ku, Nagoya, 460-8630, Japan</td>
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<tr>
<td>Amano Enzyme USA Co Ltd</td>
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<tr>
<td>Amano Enzyme Europe Ltd.</td>
<td>Roundway House, Cromwell Park, Chipping Norton, Oxfordshire, OX7 5SR, UK</td>
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<td>Amerchol Europe</td>
<td>A Subsid. of The Dow Chemical Co., Havenstraat 86, 1800 Vilvoorde, Belgium</td>
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<td>American Biorganics, Inc.</td>
<td>2236 Liberty Dr, Niagara Falls, NY, 14304, USA</td>
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<td>American Borate Co.</td>
<td>5700 Cleveland St., Suite 420, Virginia Beach, VA, 23462-1752, USA</td>
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<tr>
<td>American Casein Co. (AMCO)</td>
<td>109 Elbow Lane, Burlington, NJ, 08016-4123, USA</td>
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<td>American Chemet Corp.</td>
<td>740 Waukegan Road, Suite 202, PO Box 437, Deerfield, IL, 60015, USA</td>
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<td>American Colloid Co.</td>
<td>Wholly owned subsid. of AMCOL International Corp., 1500 W. Shure Dr., Arlington Hts., IL, 60004-7803, USA</td>
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<td>AMC Chemicals (UK),</td>
<td>Cap House, 9 - 12 Long Lane, London, EC1A 9HA, UK</td>
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<td>AMC Chemicals US LLC</td>
<td>11 Commerce Drive, 2nd Floor, Cranford, NJ, 07095, USA</td>
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American Gelatin Co.
Div. of Health Processes Inc., P.O. Box 481, Green, NY, 13778, USA (Tel: 800-206-6555; FAX: 607-656-4412; E-mail: americangelatin@aol.com)

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Ampacet (Thailand) Co., Ltd., Eastern Seaboard Ind. Estate (Rayong), 64/19 Moo 4, Highway 331, Pluakaeng, Rayong, 21140, Thailand (Tel: 66 38 919 019; FAX: 346-5564; FAX: 847-506-6199; Internet: http://www.colloid.com)
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<td>AMRESCO</td>
<td>30175 Solon Ind. Pkwy., Solon, OH, 44139, USA</td>
<td>Tel: 440-349-1313; 800-336-1313; FAX: 440-349-1182</td>
<td></td>
<td><a href="mailto:info@amresco-inc.com">info@amresco-inc.com</a></td>
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<tr>
<td>Amyl, Inc.</td>
<td>13111 Westheimer, Suite 315, Houston, TX, TX, 77077-5520, USA</td>
<td>Tel: 708-953-1660; 800-344-1660; FAX: 708-953-1698</td>
<td></td>
<td><a href="mailto:info@amyl.com">info@amyl.com</a></td>
<td><a href="http://www.amyl.com">http://www.amyl.com</a></td>
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<tr>
<td>Anar Chemical Co.</td>
<td>1765 West Cortland Court #F, Addison, IL, 60101, USA</td>
<td>Tel: 708-953-1660; 800-344-1660; FAX: 708-953-1698</td>
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<td><a href="mailto:info@anarchem.com">info@anarchem.com</a></td>
<td><a href="http://www.anarchem.com">http://www.anarchem.com</a></td>
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<tr>
<td>Anar International</td>
<td>Sanskrut, Behind Old High Court, Ashram Rd., Ahmedabad, Gujarat, 380 009, India</td>
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<td></td>
<td><a href="mailto:info@anarchem.com">info@anarchem.com</a></td>
<td><a href="http://www.anarchem.com">http://www.anarchem.com</a></td>
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<tr>
<td>Anderson Development Co.</td>
<td>1415 E. Michigan St., Adrian, MI, 49221, USA</td>
<td>Tel: 517-263-2121; FAX: 517-263-1000</td>
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<td>Andrea Aromatics</td>
<td>PO Box 3091, Princeton, NJ, 08543-3091, USA</td>
<td>Tel: 609-695-7710; FAX: 609-392-8914</td>
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<td>Anglia Oils Ltd</td>
<td>Subsid. of Aarhus Olie, King George Dock, Kingston-upon-Hull, North Humberside, HU9 5PX, UK</td>
<td>Tel: 44 1482 701 271; FAX: 44 1482 709 447</td>
<td></td>
<td><a href="mailto:info@angliaoils.co.uk">info@angliaoils.co.uk</a></td>
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<tr>
<td>ANGUS</td>
<td>ANGUS Chemical Co., Subsid. of Dow Chemical Co., 1500 East Lake Cook Road, Buffalo Grove, IL, 60089, USA</td>
<td>Tel: 989-832-1560; 800-447-4369; FAX: 989-832-1465</td>
<td></td>
<td><a href="mailto:dowcig@dow.com">dowcig@dow.com</a></td>
<td><a href="http://www.dow.com/angus/">http://www.dow.com/angus/</a></td>
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<tr>
<td>ANGUS Chemie UK</td>
<td>Subsid. of Dow Chemical Co., Unit 7, Rotunda Business Centre, Thorncliffe Park Estate, Chapeltown, Sheffield, S30 4PH, UK</td>
<td>Tel: 45 114 2571322; FAX: 44 114 2571336</td>
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<td>ANUGUS Chemie GmbH</td>
<td>ANUGUS Chemie GmbH, Subsid. of Dow Chemical Co., Zeppelinstr. 30, 49479 Ibbenbüren, Nordrhein-Westfalen, Germany (Tel: 49 5459 56-0; FAX: 49 54 59 56241; Internet: <a href="http://www.dow.com/angus/index.htm">http://www.dow.com/angus/index.htm</a>)</td>
<td>Tel: 49 5459 56-0; FAX: 49 54 59 56241</td>
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<td>Anilax Chemicals, Inc.</td>
<td>248 Columbia Tpke., P.O.Box 593, Florham Park, NJ, 07932, USA</td>
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<td>Anmar International Ltd.</td>
<td>540 Barnum Ave., P.O. Box 2343, Bridgeport, CT, 06608, USA</td>
<td>Tel: 203-336-8330; FAX: 203-336-5508</td>
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<td><a href="http://www.anmarinternational.com">http://www.anmarinternational.com</a></td>
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<tr>
<td>Anthea Aromatics Pvt. Ltd.</td>
<td>R-82, T.T.C. Industrial Area, MIDC Rabale, Navi Mumbai, 400 701, India</td>
<td>Tel: 91 22 5590 1453; FAX: 91 22 27697447</td>
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<td><a href="mailto:info@anthea-aromatics.com">info@anthea-aromatics.com</a></td>
<td><a href="http://www.anthea-aromatics.com">http://www.anthea-aromatics.com</a></td>
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<tr>
<td>A.P. Chemicals Ltd.</td>
<td>A Member of the BTP plc Group of Companies, Station Road, Cheddleton, Leek, Staffordshire, ST13 7EF, UK</td>
<td>Tel: 44 1538 369000; FAX: 44 1538 361330</td>
<td></td>
<td><a href="mailto:customer.service@chemical.com">customer.service@chemical.com</a></td>
<td><a href="http://www.chemical.com">http://www.chemical.com</a></td>
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<tr>
<td>Apollo Chemical Corp.</td>
<td>PO Box 2176, Burlington, NC, 27216, USA</td>
<td>Tel: 336-226-1161; FAX: 336-228-6963</td>
<td></td>
<td><a href="mailto:apollo@apollochemical.com">apollo@apollochemical.com</a></td>
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<td>AP Pharma</td>
<td>123 Saginaw Drive, Redwood City, CA, 94063, USA</td>
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<td></td>
<td><a href="mailto:jbarr@appharma.com">jbarr@appharma.com</a></td>
<td><a href="http://www.advancedpolymer.com">http://www.advancedpolymer.com</a></td>
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<td>AP Resources Corp.</td>
<td>1307 Windstone B/D, 275-2 Yangjae-Dong, Seocho-Gu, Seoul, 137-722, Korea</td>
<td>Tel: 82 2 3463 1163; FAX: 82 2 3463 1162</td>
<td></td>
<td><a href="mailto:apr@apr.co.kr">apr@apr.co.kr</a></td>
<td><a href="http://www.apr.co.kr">http://www.apr.co.kr</a></td>
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Manufacturers Directory

Arakawa
Arakawa Chemical Industries Ltd., 3-7 Hiranomachi 1-chome, Chuo-ku, Osaka, 541-046, Japan (Tel: 81 6 6209 8500; FAX: 81 6 6209 8542; E-mail: info@arakawachem.co.jp; Internet: http://www.arakawachem.co.jp/e)

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Arch Chemicals, Inc./Biocides, 350 Knotter Dr., Cheshire, CT, 06410, USA (Tel: 203-271-4316; 800-344-9168; FAX: 203-271-4060; E-mail: sales@archbiocides.com; Internet: http://www.archbiocides.com)

Arch Chemicals, Inc./Personal Care Products, 70 Tyler Place, South Plainfield, NJ, 07080, USA (Tel: 908-561-5200; FAX: 908-561-9174; E-mail: ArchPC@archchemicals.com; Internet: http://www.archchemicals.com)

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Arizona Chemical Co., Wholly owned subsid. of International Paper, PO Box 550850, Jacksonville, FL, 32225, USA (Tel: 904-928-8700; 800-526-5294; FAX: 904-928-8779;
Manufacturers Directory

E-mail: info.arizona@ipaper.com; Internet: http://www.arizonachemical.com

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Asahi Kasei America Inc., 535 Madison Avenue, 33rd Floor, New York, NY, 10022, USA (Tel: 1-212-371-9900; FAX: 1-212-371-9900; E-mail: info@ak-america.com; Internet: http://www.ak-america.com/index.php)

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ATZ Chemical Inc., Div. of Atzchemical Inc., PO. Box 458, Edgewater, NJ, 07020, USA (Tel: 201-224-
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<td>Manufacturers Directory</td>
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<td>9770; FAX: 201-224-9750; E-mail: <a href="mailto:atznatural@erols.com">atznatural@erols.com</a>; Internet: <a href="http://www.atznatural.com">http://www.atznatural.com</a></td>
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<tr>
<td>Augustus Oils Ltd.</td>
<td>64 Woolmer Trading Estate, Bordon, Hants, GU35 9QF, UK</td>
<td>Tel: 44 1420 488555; FAX: 44 1420 476777; E-mail: <a href="mailto:sales@augustus-oils.ltd.uk">sales@augustus-oils.ltd.uk</a>; Internet: <a href="http://www.augustus-oils.ltd.uk">http://www.augustus-oils.ltd.uk</a></td>
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<td>Austin Chemical Co. Inc.</td>
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<tr>
<td>Avachem Corp.</td>
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<table>
<thead>
<tr>
<th>Company Name</th>
<th>Address</th>
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<tr>
<td>BIOMOL International, L.P.</td>
<td>5120 Butler Pike, Plymouth Meeting, PA, 19462-1202, USA</td>
<td>Tel: 610-941-0430; 800-942-0430; FAX: 610-941-9252</td>
<td><a href="mailto:info@biomol.com">info@biomol.com</a></td>
<td><a href="http://www.biomol.com">http://www.biomol.com</a></td>
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<tr>
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<td></td>
<td><a href="http://www.bio-rad.com">http://www.bio-rad.com</a></td>
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<tr>
<td>Bio-Rad Laboratories, Life Science Group</td>
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<td></td>
<td><a href="http://www.bio-rad.com">http://www.bio-rad.com</a></td>
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<tr>
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<td>Div. of Bio-Rad Laboratories Inc, Begoniastraat 5, B-9810 Nazareth Eke, Belgium</td>
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<td><a href="http://www.biosiltech.com">http://www.biosiltech.com</a></td>
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<td><a href="http://www.biosynth.com">http://www.biosynth.com</a></td>
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<td>16 MacCarville St., West Royalty Industrial Park, Charlottetown, PEI, C1E 2A6, Canada</td>
<td>Tel: 902-566-1396; 866-883-2872; FAX: 902-628-2045</td>
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<td><a href="http://www.bio">http://www.bio</a> vectra.com</td>
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<td>Blagden Specialty Chemicals Ltd.</td>
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<td><a href="http://www.blagdenspecchem.co.uk">http://www.blagdenspecchem.co.uk</a></td>
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<td>Blanver Farmoquimica</td>
<td>Blanver Farmoquimica Ltda., Rue Ely 76, Cotia - 06700-000, Sao Paulo, Brazil</td>
<td>Tel: 55 11 4612 4262; FAX: 55 11 4612 3307</td>
<td></td>
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<tr>
<td>Blossom Farm Products Co.</td>
<td>12 Rt. 17 N, Paramus, NJ, 07652-2644, USA</td>
<td>Tel: 201-587-1818; 800-729-1818; FAX: 201-526-0310</td>
<td><a href="mailto:blossfarm@erols.com">blossfarm@erols.com</a></td>
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<tr>
<td>William Blythe Ltd.</td>
<td>Subsid. of Holliday Chemical Holdings plc, Holland Bank Works, Bridge St., Church, Accrington, Lancashire, BB5 4PD, UK</td>
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<td><a href="mailto:info@wm-blythe.co.uk">info@wm-blythe.co.uk</a></td>
<td><a href="http://www.wm-blythe.co.uk">http://www.wm-blythe.co.uk</a></td>
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<tr>
<td>BOC</td>
<td>BOC Gases, The Priestley Centre, 10 Priestley Rd., Surrey Research Park,</td>
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Manufacturers Directory

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**Bronson & Jacobs Pty. Ltd.**
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1770 North Park Place, Ste. 109, Naperville, IL, 60563, USA (Tel: 630-369-7300; FAX: 630-369-7325; E-mail: brookchem@brookchem.com; Internet: [http://www.brookchem.com](http://www.brookchem.com))

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Cargill Industrial Oils & Lubricants, PO Box 5700, MS 66, Minneapolis, MN, 55440-5700, USA (Tel: 612-742-6286; 800-842-3631; FAX: 612-742-6722; E-mail: techoils@cargill.com; lubricants@cargill.com; Internet: http://www.techoils.cargill.com)

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<table>
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<tr>
<th>Company Name</th>
<th>Address</th>
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<td>Chem-Impex International, Inc.</td>
<td>935 Dillon Dr., Wood Dale, IL, 60109, USA</td>
<td>(Tel: 630-766-2112; 800-869-9290; FAX: 630-766-2218; E-mail: <a href="mailto:sales@chemimpex.com">sales@chemimpex.com</a>; Internet: <a href="http://www.chemimpex.com">http://www.chemimpex.com</a>)</td>
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<td>Chemisphere Corp.</td>
<td>2101 Clifton Ave., St. Louis, MO, 63139, USA</td>
<td>(Tel: 314-644-1300; 800-844-1301; FAX: 314-644-7194; E-mail: <a href="mailto:mpclote@chemispHEREcorp.com">mpclote@chemispHEREcorp.com</a>; Internet: <a href="http://www.chemispHEREcorp.com">http://www.chemispHEREcorp.com</a>)</td>
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<tr>
<td>Chemisphere Ltd.</td>
<td>Sutton House,, Capenhurst Technology Park, Capenhurst, Chester, Cheshire, CH1 6EH, UK</td>
<td>(Tel: 44 151 348 2010; FAX: 44 151 348 2011; E-mail: <a href="mailto:sales@chemisphere.co.uk">sales@chemisphere.co.uk</a>; Internet: <a href="http://www.chemisphere.co.uk">http://www.chemisphere.co.uk</a>)</td>
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<td>Chem-Materials Co., Inc.</td>
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<td>(Tel: 440-243-5590; 800-585-0808; FAX: 440-243-1940; E-mail: <a href="mailto:info@chem-materials.com">info@chem-materials.com</a>; Internet: <a href="http://www.chem-materials.com">http://www.chem-materials.com</a>)</td>
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<td>Chemol Company, Inc.</td>
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<td>Chemos GmbH</td>
<td>Werner von Siemens Str. 3, D-93128 Regenstauf, Germany</td>
<td>(Tel: 49 9402 9336 0; FAX: 49 9402 9336 13; E-mail: <a href="mailto:sales@chemos-group.com">sales@chemos-group.com</a>; Internet: <a href="http://www.chemos-group.com">http://www.chemos-group.com</a>)</td>
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<td>Chemplex Chemicals, Inc.</td>
<td>Crossroads Corporate Center, 1 International Blvd., Suite 400, Mahwah, NJ, 07495-0400, USA</td>
<td>(Tel: 201-512-8788; FAX: 845-634-4920; E-mail: <a href="mailto:sales@chemplexchemicals.com">sales@chemplexchemicals.com</a>; Internet: <a href="http://www.chemplexchemicals.com">http://www.chemplexchemicals.com</a>)</td>
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<td>ChemPur Feinchemikalien und Forschungsbedarf GmbH</td>
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<td>(Tel: 49 721 933 81 40; FAX: 49 721 47 20 01; E-mail: <a href="mailto:info@ChemPur.de">info@ChemPur.de</a>; Internet: <a href="http://www.ChemPur.de">http://www.ChemPur.de</a>)</td>
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Manufacturers Directory

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1000; Internet: http://www.chevron.com/)

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Ciba Specialty Chemicals (China) Ltd., 16/F Golden Land Bldg., No. 32 Liang Ma Bridge Rd., Beijing, 100016, P.R. China (Tel: 86 10 6464 37 00; FAX: 86 10 6464 37 43)

Cilag AG Int'l., Hochstrasse 201, 8205 Schaffhausen, Switzerland (Tel: 41 52 630 9111; FAX: 41 52 630 9444; E-mail: cilag@cilch.jnj.com; Internet: http://www.cilag.ch)

Cimbar Performance Minerals
25 Old River Rd. S.E., PO Box 250, Cartersville, GA, 30120, USA (Tel: 770-387-0319; 800-852-6688; FAX: 770-386-6785; E-mail: info@cimbar.com; Internet: http://www.cimbar.com)

CITGO
1293 Eldridge Parkway, Houston, TX, 77210-4689, USA (Tel: 800-447-4572; FAX: 800-545-2073; E-mail: info@CITGO.com; Internet: http://www.citgo.com/home.jsp)

Citrus and Allied Essences, Ltd.
3000 Marcus Ave., Ste. 3E11, Lake Success, NY, 11042, USA (Tel: 51-354-1200.; FAX: 516-354-1262; E-mail: info@citrusandallied.com; Internet: http://www.citrusandallied.com)

City Chemical LLC
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Clariant Corp., 4000 Monroe Rd., Charlotte, NC, 28205, USA (Tel: 704-331-7000; 800-631-6313; FAX: 704-377-1063; E-mail: info@clariant.com; Internet: http://www.clariant.com; http://www.clariant-northamerica.com)

Clariant Corp., Fine Chems. Div., 4000 Monroe Rd., Charlotte, NC, 28205, USA (Tel: 704-331-7000; 800-331-6313; FAX: 704-331-7725; E-mail: michael.kelly@clariant.com; Internet: http://www.clariant.com)

Clariant Corp./Functional Chemicals, 11701 Mt. Holly Road, Mount Holly (East), NC, 28120, USA (Tel: 704-827-9651; FAX: 704-822-6529; E-mail: info@clariant.com; Internet: http://www.fun.clariant.com)

Clariant LSM (Florida) Inc., Gainesville, FL, 32602, USA (Tel: 352 376 82 46; FAX: 352 371 62 46)

Clariant UK Ltd., Calverley Lane, Horsforth, Leeds, W. Yorkshire, LS18 4RP, UK (Tel: 44 113 2584 646; FAX: 44 113 2398 381; Internet: http://www.clariant.co.uk)

Clariant Benelux SA, Parc Scientifique Fleming, rue Fond Jean Paques 1, 1348 Louvain-la-Neuve, Belgium (Tel: 32 10 480 511; FAX: 32 10 480 666)
Manufacturers Directory

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Clariant (Japan) K.K., Bunkyo Green Court Center Office 9F, 2-28-8 Honkomagome, Bunkyo-ku, Tokyo, 113-8662, Japan (Tel: 81 3 5977 7880; FAX: 81 3 5977 7883; E-mail: hirosi.kajihara@clariant.com; Internet: http://www.clariant-co.jp)

V.L. Clark Chemical Co., Inc., 60 Hiline Dr., PO Box 87, Union, MO, 63084, USA (Tel: 636-583-4304; 888-VLC-CHEM; FAX: 636-583-5218; E-mail: sales@vlclark.com; Internet: http://www.vlclark.com)

Cleveland Pigment & Color Co., 1680 E. Market St., Akron, OH, 44305-4246, USA (Tel: 330-794-9977; 800-688-3884; FAX: 330-794-1510; Internet: http://www.clevelandpigment.com)

Clofine Dairy & Food Products Inc., PO Box 335, 1407 New Rd., Linwood, NJ, 08221, USA (Tel: 609-653-1000; 800-441-1001; FAX: 609-653-0127; E-mail: Lclofine@clofinedairy.com; Internet: http://www.clofinedairy.com)

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Cognis/Nutrition and Health, 5325 South Ninth Ave., LaGrange, IL, 60525-3602, USA (Tel: 708-579-6150; 800-328-6199; FAX: 708-579-6152; E-mail: cognis.custserv@cognis-us.com)

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730 N. Albany Ave., Chicago, IL, 60612, USA (Tel: 773-265-6500; 800-322-6457; FAX: 773-265-6985; E-mail: sales@columbusfoods.net; Internet: http://www.columbusfoods.com)

Cometals Inc.
Subsid. of Commercial Metals Co., 2050 Center Ave., Suite 250, Ft. Lee, NJ, 07024, USA (Tel: 201-302-0888; FAX: 201-302-9911)

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Continental Carbonic Products, Inc.
3985 E. Harrison Ave., Decatur, IL, 62526, USA (Tel: 217-428-2068; 800-DRY-ICE2; FAX: 217-424-2325; E-mail: ccp@midwest.net; Internet: http://www.continentalcarbonic.com/)

Continental Industries Group Inc. (CIG)
245 E. 58th St., 25th Fl., New York, NY, 10022, USA (Tel: 212-752-2020; FAX: 212-821-0020; E-mail: cigny@cig-usa.com; Internet: http://www.cigusa.com)

Contract Chemicals Ltd.
Penrhyn Road, Knowsley Business Park, Prescot, Merseyside, L34 9HY, UK (Tel: 44 151 548 8840; FAX: 44 151 548 6548; Internet: http://www.contractchemicals.com)

Cook Composites & Polymers (CCP)
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Cornelius Chemical Co. Ltd.
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<table>
<thead>
<tr>
<th>Company</th>
<th>Address</th>
<th>Phone Numbers</th>
<th>Internet Addresses</th>
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<tr>
<td>Cosmetic Supplies USA, Inc.</td>
<td>PO Box 2320, Windermere, FL, 34747, USA</td>
<td>(Tel: 407-876-2440; 877-9-COS-USA; Internet: <a href="http://www.cosmeticsuppliesusa.com">http://www.cosmeticsuppliesusa.com</a>)</td>
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<tr>
<td>Cosmechem</td>
<td>Cosmechem USA, Inc., Industrial West, Clifton, NJ, 07012, USA</td>
<td>(Tel: 973-471-1300; FAX: 973-471-3783; Internet: <a href="http://www.cosmechem.com/index">http://www.cosmechem.com/index</a>)</td>
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<tr>
<td>Cosmechem International Ltd.</td>
<td>Sennweidstrasse 44/46, Steinhausen/Zug, Switzerland</td>
<td>(Tel: 41 748 3333; FAX: 41 41 748 3344; E-mail: <a href="mailto:info@cosmechem.com">info@cosmechem.com</a>; Internet: <a href="http://www.cosmechem.com">http://www.cosmechem.com</a>)</td>
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<td>Coyne Chemical Co., Inc., George S.</td>
<td>3015 State Rd., Croydon, PA, 19021-6997, USA</td>
<td>(Tel: 215-785-3000; FAX: 215-785-1585; Internet: <a href="http://www.coynechemical.com">http://www.coynechemical.com</a>)</td>
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<tr>
<td>CPB International, Inc.</td>
<td>3 Golden Slipper Rd., Bartonsville, PA, 18321, USA</td>
<td>(Tel: 570-629-0700; 888-539-9781; FAX: 570-629-2100; E-mail: <a href="mailto:info@cpbweb.com">info@cpbweb.com</a>; Internet: <a href="http://www.cpbweb.com">http://www.cpbweb.com</a>)</td>
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<tr>
<td>CPI Chemicals</td>
<td>Franz Josefs Kai 31/19, A-1010 Vienna, Austria</td>
<td>(Tel: 43 1 535 2612 15; FAX: 43 535 26 12 12; Internet: <a href="http://www.cpichem.com">http://www.cpichem.com</a>)</td>
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<tr>
<td>CP Kelco</td>
<td>CP Kelco U.S., Inc., 123 North Wacker Dr., Suite 2000, Chicago, IL, 60060, USA</td>
<td>(Tel: 312-554-7800; 800-535 2687; FAX: 312-554 7810; Internet: <a href="http://www.cpkelco.com">http://www.cpkelco.com</a>)</td>
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<td>CP Kelco U.S., Inc., 8355 Aero Dr., San</td>
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<td>Diego, CA, 92123, USA</td>
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<tr>
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<tr>
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<tr>
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<tr>
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<tr>
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<td>(Tel: 201-329-7300; FAX: 201-329-7034; Internet: <a href="http://www.phibrochem.com">http://www.phibrochem.com</a>)</td>
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<tr>
<td>C &amp; P Sales Inc.</td>
<td>4917 Clearview Dr., PO Box 781, Williamsville, NY, 14221, USA</td>
<td>(Tel: 716-634-3061; FAX: 716-631-5180; E-mail: <a href="mailto:crs3@juno.com">crs3@juno.com</a>; Internet: <a href="http://www.candpsales.com">http://www.candpsales.com</a>)</td>
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<tr>
<td>CPS Union Corp.</td>
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<tr>
<td>Cray Valley</td>
<td>Cray Valley SA, 12 Place de L’Iris, La Defense 2, F92062 Paris La Defense Cedex, France</td>
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<tr>
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<tr>
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</table>
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Croda Chemicals Europe Ltd., Div. of Croda International plc, Cowick Hall, Snaith Goole, East Yorkshire, DN14 9AA, UK (Tel: 44 1405 860 551; FAX: 44 1405 860 205; Internet: http://www.croda.co.uk)

Croda Colloids Ltd., Foundry Lane, Ditton Widnes, Cheshire, WA8 8UB, UK (Tel: 44 151 423 3441; FAX: 44 151 423 3205; Internet: http://www.croda-colloids.co.uk)

Croda Food Services Ltd., Div. of Croda International plc, Falcon St., Oldham, Lancashire, OL8 1JU, UK (Tel: 44 161 627 2346; Internet: http://www.croda-foods.co.uk)

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<table>
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<tr>
<th>Company Name</th>
<th>Address/Contact Details</th>
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<tr>
<td>Cedex, France</td>
<td>Tel: 33 1 55 70 22 12; FAX: 33 1 55 70 22 01</td>
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<td>Uniqema Chemie GmbH</td>
<td>Steintor 9, D-46446 Emmerich, Germany (Tel: 49 2822 72 0; FAX: 49 2822 72 276)</td>
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<tr>
<td>Uniqema</td>
<td>1000 Uniqema Blvd., New Castle, DE 19720-2790, USA (Tel: 302-574-5000; FAX: 302-574-3525)</td>
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<td>Uniqema Japan</td>
<td>Sin-San Bldg., 5F, 5-10, Shinbashi 3-chome, Minato-ku, Tokyo, 105-0004, Japan (Tel: 81 3 3504 9670; FAX: 81 3 3504 9679)</td>
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<tr>
<td>Uniqema (Asia)</td>
<td>Lot 1, Solok Waja 3, Bukit Raja Industrial Estate, PO Box 83, 41050 Klang, Selangor Darul Ehsan, Malaysia (Tel: 603 3341 2115; FAX: 603 3343 1923)</td>
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<tr>
<td>Uniqema (Korea)</td>
<td>Seokwong Bldg., 7th Flr., 1361-9 Sucho Dong, Suchoku, Seoul, South Korea (Tel: 82 2 527 5646; FAX: 82 2 527 5650)</td>
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<tr>
<td>Uniqema (Taiwan)</td>
<td>9F-14, No. 189 Sec 2, Keelung Rd., Taipei 110, Taiwan R.O.C. (Tel: 886 2 2377 5222; FAX: 886 2 2377 5136)</td>
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<td>Crompton</td>
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<td>Crowley Chemical Co.</td>
<td>261 Madison Ave., New York, NY, 10016, USA (Tel: 212-682-1200; FAX: 212-953-3487; E-mail: <a href="mailto:info@crowleychemical.com">info@crowleychemical.com</a>; Internet: <a href="http://www.crowleychemical.com">http://www.crowleychemical.com</a>)</td>
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<tr>
<td>Crowley Tar Products Co., Inc.</td>
<td>261 Madison Ave., New York, NY, 10016, USA (Tel: 212-682-1200; FAX: 212-953-3487; E-mail: <a href="mailto:crowleychemical@msn.com">crowleychemical@msn.com</a>; Internet: <a href="http://www.crowleychemical.com">http://www.crowleychemical.com</a>)</td>
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<td>Crown Technology, Inc./Chemical Div.</td>
<td>7513 E. 96 St., PO Box 50426, Indianapolis, IN, 46250-0426, USA (Tel: 317-845-0045; 800-432-0045; FAX: 317-845-9086; E-mail: <a href="mailto:info@crowntech.com">info@crowntech.com</a>; Internet: <a href="http://www.crowntech.com">http://www.crowntech.com</a>)</td>
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<td>Crucible Chemical Co. Inc.</td>
<td>Donaldson Center, Bldg. 69, PO Box 6786, Greenville, SC, 29605, USA (Tel: 864-277-1284; 800-845-8873; FAX: 864-299-1192)</td>
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<td>Crystex Composites, LLC</td>
<td>125 Clifton Blvd., Clifton, NJ, 07011, USA (Tel: 973-779-8866; 800-638-8235; FAX: 973-779-2013; E-mail: <a href="mailto:info@crystexcomposites.com">info@crystexcomposites.com</a>; Internet: <a href="http://www.crystexcomposites.com">http://www.crystexcomposites.com</a>)</td>
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<td>Crystran Ltd.</td>
<td>1 Broom Road Business Park, Poole, Dorset, BH12 4PA, UK (Tel: 44 1202 307650; FAX: 44 1202 307651; E-mail: <a href="mailto:sales@crystran.co.uk">sales@crystran.co.uk</a>; Internet: <a href="http://www.crystran.co.uk">http://www.crystran.co.uk</a>)</td>
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<td>CTC Organics</td>
<td>792 Windsor St. SW, P.O. Box 6933, Atlanta, GA, 30315, USA (Tel: 404-524-6744; FAX: 404-577-1651)</td>
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<tr>
<td>CU Chemie Uetikon GmbH</td>
<td>Raiffeisenstrasse 4, PO Box 1248, 77933 Lahr, Germany (Tel: 49 7821 585 0; FAX: 49 7821 585 230; Internet: <a href="http://www.uetikon.com">http://www.uetikon.com</a>)</td>
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<tr>
<td>Custom Ingredients, Inc.</td>
<td>PO Box 772, 712 Wilson St., Chester, SC, 29706-0772, USA (Tel: 803-581-5800; 888-227-7324; FAX: 803-581-5802; E-mail: <a href="mailto:sales@custoblend.com">sales@custoblend.com</a>; Internet: <a href="http://www.chembuyersguide.com/partners/customingredients.html">http://www.chembuyersguide.com/partners/customingredients.html</a>)</td>
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<td>CVC Specialty Chemicals, Inc.</td>
<td>844 N. Lenola Rd., Mooresown, NJ, 08057, USA (Tel: 856-533-3000; 800-296-0040; FAX: 856-533-3003; E-mail: <a href="mailto:info@cvcchem.com">info@cvcchem.com</a>; Internet: <a href="http://www.cvcchem.com">http://www.cvcchem.com</a>)</td>
</tr>
<tr>
<td>Cyclodextrin Technologies Development Inc.</td>
<td>27317 NW 78th Avenue, High Springs, FL, 32643, USA (Tel: 386-454-0887; FAX: 386-454-8134; E-mail: <a href="mailto:CTD@cyclodex.com">CTD@cyclodex.com</a>; Internet: <a href="http://www.cyclodex.com">http://www.cyclodex.com</a>)</td>
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<tr>
<td>Cyclo International</td>
<td>PO Box 438000, 1147 Merritt Drive, San Ysidro, CA, 92143-8000, USA (Tel: 619-441-9108; FAX: 619-441-2739)</td>
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<td>CyDex, Inc.</td>
<td>10513 W. 84th Terrace, Lenexa, KS, 66214, USA (Tel: 913-685-8850; FAX: 913-685-8856; E-mail: <a href="mailto:cd_info@cydexinc.com">cd_info@cydexinc.com</a>; Internet: <a href="http://www.cydexinc.com">http://www.cydexinc.com</a>)</td>
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<tr>
<td>Cyro Industries</td>
<td>Joint venture of Cytec and Rohm GmbH, 100 Enterprise Dr., 7th Fl., PO Box 5055, Rockaway, NJ, 07866, USA (Tel: 973-442-6000; 800-631-5384; FAX: 973-442-6117; Internet: <a href="http://www.cyro.com">http://www.cyro.com</a>)</td>
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Manufacturers Directory

Cytec Industries
Cytec Industries Inc., Five Garret Mountain Plaza, West Paterson, NJ, 07424-3360, USA (Tel: 973-357-3100; 800-652-6013; FAX: 973-357-3054; E-mail: info@gm.cytec.com; Internet: http://www.cytec.com)

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<th>Company</th>
<th>Address</th>
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<tr>
<td>Daiwa Chemical Co., Ltd.</td>
<td>OG Corporation, 3-1-11, Kamishinjo, Higashi-yodogawa-ku, Osaka, 533-0006, Japan</td>
<td>Tel: 81 6 6328 0500; FAX: 81 6 6328 2160</td>
<td><a href="http://www.ogcorp.co.jp/en/group/daiwa.html">link</a></td>
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<td>Dakota Gasification Co.</td>
<td>1600 East Interstate Avenue, PO Box 5540, Bismarck, ND, 58506-5540, USA</td>
<td>Tel: 701-221-4411; FAX: 701-221-4450</td>
<td><a href="dgcmkt@bepc.com">email</a></td>
<td><a href="http://www.dakotagas.com">link</a></td>
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<td>Dalian Yuanyong Organosilicon Plant</td>
<td>Minquan Street 313-3-1-1, Shahekou District, Dalian, 116023, P.R. China</td>
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<td>DanChem Technologies, Inc.</td>
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<td><a href="wendell@danchem.com">email</a></td>
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<td>Daniels Fine Chemicals Ltd.</td>
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<td>Danisco A/S</td>
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<td><a href="http://www.danisco.com">link</a></td>
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<td>Danisco Cultor</td>
<td>Danisco A/S, Edwin Rahrs Vej 38, DK-8220 Brabrand, Denmark</td>
<td>Tel: 45 89 43 50 00; FAX: 45 89 25 10 77</td>
<td><a href="info.ingredients@danisco.com">email</a></td>
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<tr>
<td>Danisco Cultor (UK) Ltd.</td>
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<td><a href="http://www.danisco.com/texturalingredients">link</a></td>
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<td>Danisco Niebüll GmbH</td>
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<td><a href="info.niebull.ingredients@danisco.com">email</a></td>
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<tr>
<td>Danisco Ingredients France S.A.R.L.</td>
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<td>Tel: 33 1 56 60 47 00</td>
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<tr>
<td>Danisco USA, Inc.</td>
<td>Four New Century Parkway, New Century, KS, 66031-0026, USA</td>
<td>Tel: 913-764-8100; 800-255-6837; FAX: 913-764-5407</td>
<td><a href="usa.info@danisco.com">email</a></td>
<td><a href="http://www.danisco.com">link</a></td>
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<tr>
<td>Danisco USA, Inc., Div. of Danisco Ingredients, USA</td>
<td>411 E. Gano, PO Box 470489, St. Louis, MO, 63147-3210, USA</td>
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<td>Danisco Canada Ltd.</td>
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<td>Danisco Mexicana, S.A. de C.V.</td>
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<td>Danisco Brasil Ltda.</td>
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<td><a href="info.brasil.ingredients@danisco.com">email</a></td>
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<tr>
<td>Danisco Sweeteners, Div. of Danisco Group</td>
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<td>Tel: 44 1737 773732; FAX: 44 1737 773117</td>
<td><a href="sweeteners@danisco.com">email</a></td>
<td><a href="http://www.daniscosweeteners.com">link</a></td>
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<tr>
<td>Danisco Seillans</td>
<td>Div. of Danisco A/S, Route de la Parfumerie, 83440 Seillans, Fayence, France</td>
<td>Tel: 33 4 94 39 00 00; FAX: 33 4 94 39 00 79</td>
<td><a href="ingredients.danisco.com">email</a></td>
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<td>Danisco Textural Ingredients</td>
<td>Langebrogade 1, P.O. Box 17, DK-1001 Copenhagen K,</td>
<td>Tel: 45 3266 2000; FAX: 45 3266 2159</td>
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<tr>
<td>Darwin Chemical Co.</td>
<td>600 N Pine Island Road, Plantation, FL, 33324-1311, USA</td>
<td>Tel: 954-315-0252; FAX: 954-315-0179</td>
<td><a href="sales@darwinchemical.com">email</a></td>
<td><a href="http://www.darwinchemical.com">link</a></td>
</tr>
<tr>
<td>Dasico A/S</td>
<td>Teglporten 2, 2. sal, Postbox 343, 3460 Birkerod, Denmark</td>
<td>Tel: 45 45 81 44 88; FAX: 45 45 81 23 40</td>
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Manufacturers Directory

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<td>DSM Fine Chemicals Austria</td>
<td>St.-Peter-Strasse 25, Postfach 933, A-4021 Linz, Austria</td>
<td>Tel: 43 70 6916 3208; FAX: 43 70 6916 63208; Internet: <a href="http://www.dsmfinechemicals.com">http://www.dsmfinechemicals.com</a></td>
</tr>
<tr>
<td>DSM Fine Chemicals, Inc.</td>
<td>Park 80 West, Plaza Two, Saddle Brook, NJ, 07663-5817, USA</td>
<td>Tel: 201 226 7403; FAX: 201 845</td>
</tr>
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</table>

Manufacturers Directory

DSM Nutritional Products, Inc., 45 Waterview Boulevard, Parsippany, NJ, 07054-1298, (Tel: 800-526 0189; FAX: 973-257 8420; E-mail: nutraaccess.parsippany@dsm.com; Internet: http://www.nutraaccess.com)

DSM Nutritional Products Europe Ltd, Klünenfeldstr. 22, CH-4127 Birsfelden, Switzerland (Tel: 41 61 687 17 77; FAX: 41 61 687 20 82)

DSM Nutrition Japan K.K., Banzai Building, 4th Floor, 2-31-19, Shiba, Minato-ku, Tokyo, 105-0014, Japan (Tel: 81 3 5419-7300; FAX: 81 3 5419-7388)

DSM Special Products, P O Box 5489, 6130 PL Sittard, The Netherlands (Tel: 41 61 688 33 33; 31-46-4773242; FAX: 31-46-4773868; E-mail: marketing.sp@DSM.com; Internet: http://www.dsmsp.com)

DSM Andeno BV, Norderpoort 9, 5900 AB Venlo, The Netherlands (Tel: 31 773 899 555; FAX: 31 773 899 300)

DSM Chemicals North America, Inc., 1 Columbia Nitrogen Rd., PO Box 2451, Augusta, GA, 30903, USA (Tel: 706-849-6600; 800-825-4376; FAX: 706-849-6999)

DSM Coating Resins, Ceintuurbaan 5, PO Box 615, 8022 AW Zwolle, The Netherlands (Tel: 31 38 456 95 69; FAX: 31 38 456 95 00; E-mail: coating.resins@dsms.com)

DSM Engineering Plastics, N. Am. Headquarters, PO Box 3333, 2267 West Mill Road, Evansville, IN, 47732-3333, USA (Tel: 812-435-7500; 800-333-4237; FAX: 812-435-7702; Internet: http://www.dsmep.com)

DSM Engineering Plastics (Canada), 233 Arvin Ave., Stoney Creek, Ontario, L8E 2L9, Canada (Tel: 905-662-1866; FAX: 905-662-3493)

DSM Fine Chemicals Netherlands, Poststraat 1, PO Box 43, 6135 KR Sittard, The Netherlands (Tel: 31 46 47 73882; FAX: 31 46 47 70461; Internet: http://www.dsmfinechemicals.com)

DSM Fine Chemicals Austria, St.-Peter-Strasse 25, Postfach 933, A-4021 Linz, Austria (Tel: 43 70 6916 3208; FAX: 43 70 6916 63208; Internet: http://www.dsmfinechemicals.com)

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DSM Food Specialties, PO Box 1, 2600 MA Delft, The Netherlands (Tel: 31 15 279 3474; FAX: 31 15 279 3540; E-mail: info.food@dsm.com; Internet: http://www.dsm.com)

DSM Melamine Americas, Inc., 5745 Essen Lane, Suite 100-B, Baton Rouge, LA, 70810, USA (Tel: 225-685-3020; FAX: 225-685-3003)

Ducey Chemical, Inc., 106 West Franklin Ave., Pennington, NJ, 08534-1422, USA (Tel: 609-730-1533; 800-453-8639; FAX: 609-730-1308; E-mail: duceychemical@aol.com)

Dudley Chemical Corp., 125 Kenyon Drive, Lakewood, NJ, 08701, USA (Tel: 732-886-3100; FAX: 732-886-3688; E-mail: dudley@dudley-chem.com; Internet: http://www.dudley-chem.com)

J.C. Dudley & Co. Ltd., Cheyney House, Francis Yard, East St., Chesham, Buckinghamshire, HP5 1DG, UK (Tel: 44 1494 792839; FAX: 44 1494 792875; E-mail: sales@jcdudley.co.uk; Internet: http://www.jcdudley.co.uk)

Dujodwala Resins & Terpenes Ltd., 812/813 Tulsiani Chambers, 212 Nariman Point, Mumbai, 400 021, India (Tel: 91-22-282 4089; FAX: 91-22-284 1284; E-mail: power@dujodwala.com; Internet: http://www.dujodwala.com)

DuPont DuPont Specialty Chemicals, 1007 Market St., Wilmington, DE, 19898, USA (Tel: 302-774-1000; 800-441-7515; FAX: 302-774-7321; E-mail: info@dupont.com; Internet: http://www.dupont.com)

DuPont Co./Fluorochemicals, CRP702 - 1274E, Wilmington, DE, 19880-0702, USA (Tel: 800-969-4758; FAX: 302-999-4727; Internet: http://www.dupont.com/dymel)

DuPont Co./Packaging and Industrial Polymers, Barley Mill Plaza 26-2122, Lancaster Pike & Rt. 141, PO Box 80026, Wilmington, DE, 19880-0026, USA (Tel: 302-774-1161; 800-438-7225; FAX: 302-992-3495; E-mail: industrial.polymers@dupont.com; Internet: http://www.dupont.com/industrial-polymers)
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DuPont Argentina S.A., Casilla Correo 1888, Correo Central, 1000 Buenos Aires, Argentina (Tel: 54-1-311-8167; E-mail: info.argentina@arg.dupont.com; Internet: http://www.dupont.com.ar)

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DuPont China Holding Co. Ltd., 1101 China World Tower 2., No. 1 Jian Guo Men Wai Ave., Beijing, 100004, P.R. China (Tel: 86 10 6505 8000; FAX: 86 10 6505 8008; Internet: http://www.dupont.com.cn)

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DuPont Soy Polymers

Eaglebrook, Inc.

Duso Chemical Co., Inc.

Dutch Protein & Services B.V.

Eagle-Picher Technologies, LLC/Chemicals Dept.

Dyneal, Inc.

Eagle Zinc Co.

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Eldorado Chemical Co., Inc., 14350 Lookout Rd., PO Drawer 34837, San Antonio, TX, 78265-4837, USA (Tel: 210-653-2060; 800-292-5372; FAX: 210-653-0825; Internet: http://www.eldoradochemical.com)

Electro Abrasives Corp. 701 Willet Rd., Buffalo, NY, 14218, USA (Tel: 716-822-2500; 800-284-GRIT; FAX: 716-822-2858; E-mail: info@electroabrasives.com; Internet: http://www.electroabrasives.com)

Elementis

Elementis Pigments UK, Birtley, Chester-le-Street, Co. Durham, DH3 1QX, UK (Tel: 44 191 410 2361; FAX: 44 191 410 6005; E-mail: elementis.info@elementis-eu.com; Internet: http://www.elementis.com)

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Elementis Pigments Inc., 2051 Lynch Avenue, East Saint Louis, IL, 62204, USA (Tel: 618-646-2178; 800 323 7796; FAX: 618-646 2110; E-mail: pigments.info@elementis-na.com; Internet: http://www.elementispigments.com)

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Elementis Specialties Malaysia, 120 Jalan 40400 Shah Alam, Selangor, Darul Ehsan, Malaysia (Tel: 603-5192 2887; FAX: 603-5192 3887)

EMCO Chemical Distributors, Inc.

EMCO Chemical Distributors, Inc.

EMCO Chemical Distributors, Inc.

EMCO Chemical Distributors, Inc.
Emerald Kalama Chemical, LLC
1296 NW Third Avenue, Kalama, WA, 98625, (Tel: 360-673-2550; FAX: 360-673-3564; Internet: http://www.emeraldchemicals.com)

Emerson & Cuming
Emerson & Cuming Specialty Polymers, Div. of National Starch, an ICI company, 46 Manning Rd., Billerica, MA, 01821, USA (Tel: 978-436-9700; 800-832-4929; FAX: 978-436-9701; E-mail: technical.servicena@nstarch.com; Internet: http://www.emersoncuming.com)

Emerald Materials, LLC
1296 NW Third Avenue, Kalama, WA, 98625, (Tel: 360-673-2550; FAX: 360-673-3564; Internet: http://www.emeraldmaterials.com)

Encee Chemical Sales Corp.
PO Box 39, New Bern, NC, 28563, USA (Tel: 252-633-5868; FAX: 252-633-3821; E-mail: customerservice@enceechemical.com; Internet: http://www.enceechemical.com)

Engelhard. See BASF

EPO S.r.l.—Instituto Farmochimico Fitoterapico
Via Stadera 19, 20141 Milano, Italy (Tel: 39 2 8958931; FAX: 39 2 89502281; E-mail: eipo@eposrl.com; Internet: http://www.eposrl.com)

Epochem Co., Ltd./International Marketing Div.
Building No 7, Xinfei Road 1500, Songjiang Industrial Zone, Songjiang, Shanghai, 201612, P.R. China (Tel: 86 216760-1595; FAX: 86 21 6760-1605; E-mail: info@epochem.com; Internet: http://www.epochem.com)

Equistar Chemicals
Equistar Chemicals, LP, Partnership of Lyondell, Millennium Chem., & Occidental Petroleum, 1221 McKinney St., Suite 700, PO Box 2583, Houston, TX, 77252-2583, USA (Tel: 713-652-7300; 888-777-0232; FAX: 713-652-6119; E-mail: robyn.newman@lyondell.com; Internet: http://www.equistarchem.com)

Erachem Comilog, Inc.
610 Pittman Rd., Baltimore, MD, 21226, USA (Tel: 410-636-7113; E-mail: CS@erachem-comilog.com; Internet: http://www.erachem-comilog.com)
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<td>Eramex Aromatics GmbH</td>
<td>Postfach 1262, D-40637 Meerbusch-Büderich, Germany</td>
<td>Tel: 49 2132 9358-0; FAX: 49 2132 9358-58; Internet: <a href="http://www.%D0%B5%D1%80%D0%B0%D0%BC%D0%B5%D0%BA%D1%81.de">http://www.ерамекс.de</a></td>
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<td>Esperis SpA</td>
<td>Via Ambrogio Binda, 29, 20143 Milan, Italy</td>
<td>Tel: 39 02 891 22219; FAX: 39 02 891 2257; E-mail: <a href="mailto:info@esperis.it">info@esperis.it</a>; Internet: <a href="http://www.esperis.it">http://www.esperis.it</a></td>
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<td>Esprit Chemical Co.</td>
<td>Esprit Plaza, 7680 Matoaka Rd., Sarasota, FL, 34236, USA</td>
<td>Tel: 941-355-5100; 800-237-7748; FAX: 941-358-1339; E-mail: <a href="mailto:info@Esprixtech.com">info@Esprixtech.com</a>; Internet: <a href="http://www.espritchem.com">http://www.espritchem.com</a></td>
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<td>Esschem Co.</td>
<td>4000 Colombia Ave., PO Box 1139, Linwood, PA, 19061, USA</td>
<td>Tel: 610-497-9000; 800-765-9637; FAX: 610-497-9007; E-mail: <a href="mailto:polymers@esschem.com">polymers@esschem.com</a>; Internet: <a href="http://www.esschem.com">http://www.esschem.com</a></td>
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<tr>
<td>Esseco SpA</td>
<td>28069 San Martino Trecate (NO), Italy</td>
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<tr>
<td>Essence Natural Products</td>
<td>Essence Natural Products Pvt. Ltd., 5-4-187/3&amp;4, Ill Floor, Mahatma Gandhi Rd., Secunderabad, Andhra Pradesh, 500 003, India</td>
<td>Tel: 91 40 7543658; FAX: 91 40 7541450; E-mail: <a href="mailto:info@ea-menthol.com">info@ea-menthol.com</a>; Internet: <a href="http://www.ea-menthol.com">http://www.ea-menthol.com</a></td>
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<tr>
<td>Essence Natural Products</td>
<td>910 S. El Camino Real, San Clemente, CA, 92672, USA</td>
<td>Tel: 949-481-6848; FAX: 949-492-8517; E-mail: <a href="mailto:usa@ea-menthol.com">usa@ea-menthol.com</a>; Internet: <a href="http://www.ea-menthol.com">http://www.ea-menthol.com</a></td>
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<tr>
<td>Essential7</td>
<td>57 Kelly Pl, Roswell, NM, 88203, USA</td>
<td>Tel: 505-347-2794; E-mail: <a href="mailto:Essential7@msn.com">Essential7@msn.com</a>; Internet: <a href="http://www.eessential7.com">http://www.eessential7.com</a></td>
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<tr>
<td>Essential Industries Inc.</td>
<td>28391 Essential Rd., PO Box 12, Merton, WI, 53056-0012, USA</td>
<td>Tel: 414-538-1122; 800-551-9679; FAX: 414-538-1354; E-mail: <a href="mailto:service@essind.com">service@essind.com</a>; Internet: <a href="http://www.essind.com">http://www.essind.com</a></td>
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<tr>
<td>Eurolabs Limited</td>
<td>London House, London Rd. South Poynton, Cheshire, SK12 1YP, UK</td>
<td>Tel: 44 1625 850089; FAX: 44 1625 858854; E-mail: <a href="mailto:roger@eurolabs.co.uk">roger@eurolabs.co.uk</a>; Internet: <a href="http://www.eurolabs.co.uk">http://www.eurolabs.co.uk</a></td>
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<tr>
<td>Euroma Food Ingredients</td>
<td>Kloosterweg 3, PO Box 4, 8190 AA, Wapenveld, The Netherlands</td>
<td>Tel: 31 38 447 3173; FAX: 31 38 447 3195; E-mail: <a href="mailto:info@euroma.com">info@euroma.com</a>; Internet: <a href="http://www.euroma.com">http://www.euroma.com</a></td>
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<tr>
<td>Exaxol Chemical Corp.</td>
<td>14325 60th St. N., Clearwater, FL, 33760-2708, USA</td>
<td>Tel: 727-524-7732; 800-739-2965; FAX: 727-532-8221; E-mail: <a href="mailto:info@exaxol.com">info@exaxol.com</a>; Internet: <a href="http://www.exaxol.com">http://www.exaxol.com</a></td>
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<tr>
<td>Excel Industries Limited</td>
<td>184/87, S.V. Road, Jogeshwari (West), Mumbai, 400 102, India</td>
<td>Tel: 91 22-56464200; FAX: 91 22-26783657; Internet: <a href="http://www.excelind.com">http://www.excelind.com</a></td>
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<tr>
<td>Excelpro Inc.</td>
<td>3760 E. 26th St., Los Angeles, CA, 90023-4506, USA</td>
<td>Tel: 323-268-1918; FAX: 323-268-1993; Internet: <a href="http://www.excelpro.com">http://www.excelpro.com</a></td>
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<tr>
<td>Exotic Naturals</td>
<td>118, Morya House, Off New Link Road, Near Monginis Cake Factory, Andheri (West), Mumbai, 400053, India</td>
<td>Tel: 91 22 26733092; FAX: 91 22 66941179; E-mail: <a href="mailto:info@exoticnatural.com">info@exoticnatural.com</a>; Internet: <a href="http://www.exoticnatural.com">http://www.exoticnatural.com</a></td>
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<tr>
<td>Expansia S.A.</td>
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<tr>
<td>Expocell AB</td>
<td>Gustavsgatan 23, 21611 Limhamn, Sweden</td>
<td>Tel: 46 40 21 10 20; FAX: 46 40 21 10 40; E-mail: <a href="mailto:info@expocell.se">info@expocell.se</a>; Internet: <a href="http://www.expocell.se">http://www.expocell.se</a></td>
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<td>Expo Chemical Co.</td>
<td>6807 Theall Road, Suite A, Houston, TX, 77066, USA</td>
<td>Tel: 281-895-9200; 877-258-3976; FAX: 281-895-9201; E-mail: <a href="mailto:expo@expochem.com">expo@expochem.com</a>; Internet: <a href="http://wwwexpochem.com">http://wwwexpochem.com</a></td>
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<td>Exsymol Monaco</td>
<td>4 Ave. Prince Hereditaire Albert, 98000 Monte Carlo, Monaco</td>
<td>Tel: 377 92 05 66 77; FAX: 377 92 05 25 02; E-mail:</td>
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<td>Company</td>
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<td>ExxonMobil</td>
<td>ExxonMobil Chemical Co., 13501 Katy Freeway, Houston, TX, 77079-1398, USA (Tel: 281-870-6000; 800-231-6633; FAX: 281-870-6661; Internet: <a href="http://www.exxonmobilchemical.com">http://www.exxonmobilchemical.com</a>)</td>
<td>(Tel: 34 91 300 92 00; FAX: 34 91 300 92 40)</td>
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<td>Extractos Andinos CA</td>
<td>El Tablón Oe1-329 y Maldonado, Maldonado, Ecuador (Tel: 593 2 267 3101; FAX: 593 2 267 3401; Internet: <a href="http://www.extractosandinos.com">http://www.extractosandinos.com</a>)</td>
<td>(Tel: 46 31 63 82 00; FAX: 46 31 15 50 08)</td>
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<td>Extractsplus</td>
<td>3275 Corporate View, Vista, CA, 92083, USA (Tel: 760-597-0200; FAX: 760-597-0734; Internet: <a href="http://www.extractplus.com">http://www.extractplus.com</a>)</td>
<td>(Tel: 64 9 302 9172; FAX: 64 9 302 4766)</td>
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<td>ExxonMobil</td>
<td>ExxonMobil Chemical Co., 13501 Katy Freeway, Houston, TX, 77079-1398, USA (Tel: 281-870-6000; 800-231-6633; FAX: 281-870-6661; Internet: <a href="http://www.exxonmobilchemical.com">http://www.exxonmobilchemical.com</a>)</td>
<td>(Tel: 65 6885 8000; FAX: 65 6885 8405)</td>
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<td>ExxonMobil Mexico S.A. de C.V.</td>
<td>Aristoteles No. 77-101, Col. Chapultepec Polanco, Mexico D.F., 11560, Mexico (Tel: 52 5 279 4800; FAX: 52 5 280 0070)</td>
<td>(Tel: 64 9 302 9172; FAX: 64 9 302 4766)</td>
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<td>ExxonMobil Quimica, Ltd.</td>
<td>Rua Libero Badaró, 377 - 8o. andar, Centro, Sao Paulo-SP, 01009-906, Brazil (Tel: 55 11 3291 8500; FAX: 55 11 3291 8523)</td>
<td>(Tel: 91 80 841 1303; FAX: 91 80 841 0295)</td>
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<td>Esso Petrolera Argentina S.R.L.</td>
<td>Carlos Maria Della Paolera 297/299, Piso 12 C1001ADA, Buenos Aires, Argentina (Tel: 54 11 4319 0722; FAX: 54 11 4319 0721)</td>
<td>(Tel: 65 6885 8000; FAX: 65 6885 8405)</td>
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<td>ExxonMobil Chemical Europe Inc.</td>
<td>Hermeslaan 2, 1831 Machelen, Belgium (Tel: 32 2 722 21 11; FAX: 32 2 722 27 80)</td>
<td>(Tel: 886 2 2734 6888; FAX: 886 2 2734 6833)</td>
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<td>ExxonMobil Chemical Ltd.</td>
<td>Cadland Road, Hardley, Hythe, Southampton, Hampshire, SO45 3NP, UK (Tel: 44 23 8089 3822; FAX: 44 03 8089 5909; Internet: <a href="http://www.exxonchemical.com">http://www.exxonchemical.com</a>)</td>
<td>(Tel: 886 2 2734 6888; FAX: 886 2 2734 6833)</td>
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<td>ExxonMobil Chemical France</td>
<td>2, rue des Martinets, BP 270, 92569 Rueil Malmaison Cedex, France (Tel: 33 1 47 10 60 00; FAX: 33 1 47 10 55 11)</td>
<td>(Tel: 886 2 2734 6888; FAX: 886 2 2734 6833)</td>
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<td>Esso Italiana s.r.l. - Chemical Division</td>
<td>Via Paleocapa 7, 20121 Milano (MI), Italy (Tel: 39 02 880 30 31; FAX: 39 02 880 32 31)</td>
<td>(Tel: 886 2 2734 6888; FAX: 886 2 2734 6833)</td>
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<td>ExxonMobil Chemical Holland BV</td>
<td>P.O. Box 1, 4803 AA Breda, The Netherlands (Tel: 31 76 529 26 00; FAX: 31 76 529 27 00)</td>
<td>(Tel: 886 2 2734 6888; FAX: 886 2 2734 6833)</td>
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<td>ExxonMobil Chemical Central Europe GmbH</td>
<td>Neusser Landstrasse 16, 50735 Cologne, Germany (Tel: 49 221 770 31; FAX: 49 221 770 3320)</td>
<td>(Tel: 886 2 2734 6888; FAX: 886 2 2734 6833)</td>
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<tr>
<td>ExxonMobil Chemical Iberia</td>
<td>Avenida del Partenon 4-3a planta, 28042 Madrid, Spain</td>
<td>(Tel: 886 2 2734 6888; FAX: 886 2 2734 6833)</td>
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Manufacturers Directory

Faesy & Besthoff, Inc.
143 Old River Rd., Edgewater, NJ, 07020, USA (Tel: 201-945-6200; FAX: 201-945-6145; E-mail: fbchemicals@aol.com)

Fairmount Chemical Co., Inc.
117 Blanchard St., Newark, NJ, 07105, USA (Tel: 973-344-5790; 800-872-9999; FAX: 973-690-5298; E-mail: drhalle@aghglobal.net)

Fallek Chemical Co.
Div. of ICC Chemical Corp., 460 Park Ave., New York, NY, 10022, USA (Tel: 212-521-1700; FAX: 212-521-1946; E-mail: gv@iccchem.com; Internet: http://www.iccchem.com/fallchem.htm)

The Fanning Corp.
2450 W. Hubbard St., Chicago, IL, 60612-1408, USA (Tel: 312-563-1234; FAX: 312-563-0087; E-mail: CustomerService@fanncorp.com; Internet: http://www.fanncorp.com)

Fanwood Chemical, Inc.
219 Martine Ave., North, PO Box 159, Fanwood, NJ, 07023-0159, USA (Tel: 908-322-8440; FAX: 908-322-8494; E-mail: info@fanwoodchemical.com; Internet: http://www.fanwoodchemical.com)

Farbest Brands
Div. of Farbest-Tallman Foods Corp., 160 Summit Ave., Montvale, NJ, 07645, USA (Tel: 201-573-4900; 800-897-6096; FAX: 201-573-0404; Internet: http://www.farbest.com)

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1893 SW 3rd Street, Pompano Beach, FL, 33069, USA (Tel: 954-979-6440; 800-440-6470; FAX: 954-979-6390; E-mail: info@farmacapsulasusa.com; Internet: http://www.farmacapsulasusa.com)

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The Feldspar Corp.
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Ferlow Brothers
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Fermex International Ltd.
E3 Blackpole Trading Estate (East), Blackpole Rd., Worcester, Worcestershire, WR3 8SG, UK (Tel: 44 1905 755811; FAX: 44 1905 754145; E-mail: info@fermex.co.uk; Internet: http://www.fermex.co.uk)

Ferro
Ferro Corp./World Headquarters, 1000 Lakeside Ave., PO Box 147000, Cleveland, OH, 44114-7000, USA (Tel: 216-641-8580; FAX: 216-696-6958; Internet: http://www.ferro.com)

Ferro Corp./Performance Pigments & Colors, 251 West Wylie Avenue, PO Box 519, Washington, PA, 15301, USA (Tel: 724-223-5900; 800-257-9799; FAX: 724-223-2700; E-mail: sarvish@ferro.com; Internet: http://www.ferro.com)

Ferro Corp./Polymer Additives Div., Route 130 South, PO Box 309, Bridgeport, NJ, 08014, USA (Tel: 856-467-3000; FAX: 856-467-8308; Internet: http://www.ferro.com)

Ferro Corp./Transelco Div., 1789 Transelco Dr., Penn Yan, NY, 14527-9752, USA (Tel: 315-536-3357; FAX: 315-536-8091)

Ferro Mexicana, S.A. de C.V., Oriente 171 #450, Carretera Celaya Salamanca Km. 12.5, Rancho El Pintor, C.P. 38260, Mexico (Tel: 52 41-11-55-1225; FAX: 52 41-11-55-1186)

Ferro (Great Britain) Limited/Colour & Glass Performance Materials, Nile Street Burslem, Stoke-on-Trent, ST6 2BQ, UK (Tel: 44 1782-820400; FAX: 44 1782-820402)
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**Ferro Spain S.A.**, Carretera Valencia - Barcelona Km 61.5, 12550 Almazora (Castellon), Spain (Tel: 34 964-50-44-50; FAX: 34 964-50-44-21)

**Ferro Corp. (Aust.) Pty. Ltd.**, 105-115 Cochranes Road, Moorabbin, Victoria, 3189, Australia (Tel: 61 3-9555-9466; FAX: 61 3-9555-7812)

**Ferro Taiwan Ltd.**, 8F/A,No.133, Min sheng E. Rd., Section 3, Taipei, Taiwan, R.O.C. (Tel: 886 2-27131288; FAX: 886 2-27131899)

**Fibrisol Service Ltd.**, 16 Colville Rd., Acton, London, W3 8TE, UK (Tel: 44 20 8993 6291; FAX: 44 20 8993 1033; E-mail: sales@fibrisol.com; Internet: http://www.fibrisol.com)

**Filo Chemical Inc.**, 50 Broadway, New York, NY, 10004-1698, USA (Tel: 212-514-9330; 800-232-7436; FAX: 212-514-9085; E-mail: filo@filochemical.com; Internet: http://www.filochemical.com)

**Fine & Performance Chemicals Ltd.**, Ellerbeck Way, Stokesley Industrial Park, Stokesley, Middlesbrough, TS9 5JZ, UK (Tel: 44 1642 710106; FAX: 44 1642 718718; E-mail: enquiries@fpcl.co.uk; Internet: http://www.fpcl.co.uk/)

**Finetex Inc.**, 379 Thornall Street, Edison, NJ, 08837, USA (Tel: 732 321 3500; FAX: 732 321 3519; E-mail: information@finetexinc.com; Internet: http://www.finetexinc.com)

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**Nihon Fermentinich K.K.**, Kowa kawasaki Nishiguchi Bldg., 66-2, Horikawacho, Saiwai-ku, Kawasaki-shi, Kanagawa, 212-0013, Japan (Tel: 81 44 543 61 11; FAX: 81 44 541 90 70)

**Firmenich Ltd.**, 73 Kenneth Road, Balgowlah, NSW, 2093, Australia (Tel: 61 2 99 07 93 44; FAX: 61 2 99 07 97 21)

**Firmenich Aromatics Pte. Ltd./Taiwan Representative Office**, 13F-7, No 271, Sec 4, Shi Men Road, Tainan City, 704, Taiwan, R.O.C. (Tel: 886 6 282 73 37; FAX: 886 6 282 73 41)

**Firmenich Asia Private Ltd.**, No 10 Tuas West Road, Singapore, 638377, Republic of Singapore (Tel: 65 6347 2888; FAX: 65 6863 4687)

**Firmenich of Canada Ltd.**, 30 Finley Road, Brampton, Ontario, L6T 1A9, Canada (Tel: 905-457-4490; FAX: 905-457-4818)

**Firmenich S.A.I.C. y F.**, Colectora Panamericana Este 25.201, Don Torcuato B1611DFE, Pcia de Buenos Aires, Argentina (Tel: 54 11 4748 52 00; FAX: 54 11 4741 35 92)

**Firmenich de Mexico S.A. de C.V.**, Louisiana 80, Col. Nápoles, Delegación Benito Juárez, 03810 México, D.F., Mexico (Tel: 52 55 340 20 00; FAX: 52 555 257 53 13; E-mail: info@fischer.co.uk; Internet: http://www.fisher.co.uk)

**Fisher Scientific**, Fisher Scientific USA, 2000 Park Lane Drive, Pittsburgh, PA, 15275-1126, USA (Tel: 412-490-8300; 800-766-7000; FAX: 800-926-1166; 412-490-8759; E-mail: John.Fusco@plpit.fishersci.com; Internet: http://www1.fishersci.com/index.jsp)

**Fisher Scientific UK**, Bishop Meadow Rd., Loughborough, Leicestershire, LE11 5RG, UK (Tel: 44 1509 231166; FAX: 44 1509 231893; E-mail: info@fischer.co.uk; Internet: http://www.fisher.co.uk)

**Flamma Spa**, Via Bedeschi, 22, 24040 Chignolo D'Isola (BG), Italy (Tel: 39 035 49 91 811; FAX: 39 035 49 91 812; E-mail: mailbox@flamma.it; Internet: http://www.flamma.it)

**Flavex Natureextrakte GmbH**, Nordstrasse 7, PO Box 1140, 66780 Rehlingen, Germany (Tel: 49 6835 9195 0;
Manufacturers Directory

FAX: 49 6835 9195 95; E-mail: info@flavex.com; Internet: http://www.flavex.com

Fleurchem, Inc.
33 Sprague Ave., Middletown, NY, 10940, USA (Tel: 845-341-2100; FAX: 845-341-2121; E-mail: info@fleurchem.com; Internet: http://www.fleurchem.com)

Flexsys
Flexsys America L.P., 260 Springside Dr., PO Box 5444, Akron, OH, 44334-0444, USA (Tel: 330-666-4111; 800-321-3416; FAX: 330-668-8371; E-mail: dom.cust.serv@flexsys.com; Internet: http://www.flexsys.com)

Flexsys do Brazil Ltda., Av. Atlantica, 831, Vila Valparaíso, Santo André-São Paulo, 09060-001, Brazil (Tel: 55 11 4425 5055; FAX: 55 11 4426 2239)

Flexsys (Pte) Ltd., No. 103, Jln Anggerik Aranda 31/5, Kota Kemuning Seksyen 31, Selangor Darul Ehsan, 40460 Shah Alam, Malaysia (Tel: 65 872 2808; FAX: 65 872 2818)

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Florida Distillers Co.
Subsid. of Todhunter International, P.O. Box 1447, 530 N Dakota Ave., Lake Alfred, FL, 33402, USA (Tel: 863-956-1116; FAX: 863-956-3979)

Florida Food Prods., Inc./Aloe Div.
2231 W. Hwy. 44, PO Box 1300, Eustis, FL, 32727-1300, USA (Tel: 352-357-4141; 800-874-2331; FAX: 352-483-3192; E-mail: contact@floridafood.com; Internet: http://www.floridafood.com)

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FMC
FMC Corp./Chemical Products Group, 1735 Market St., Philadelphia, PA, 19103, USA (Tel: 215-299-6000; 800-845-0187; FAX: 215-299-6728; Internet: http://www.fmcchemicals.com)

FMC Biopolymer, 1735 Market St., Philadelphia, PA, 19103, USA (Tel: 215-299-6000; 800-526-3649; FAX: 215-299-6291; Internet: http://www.fmcbiopolymer.com)

FMC Corp./Lithium Div., Seven LakePointe Plaza, 2801 Yorkmont Road, Suite 300, Charlotte, NC, 28208, USA (Tel: 704-868-5300; 888-LITHIUM; FAX: 704-868-5370; E-mail: lithium_info@fmc.com; Internet: http://www.fmclithium.com)

FMC Quimica do Brasil Ltda, Av. Antonio Carlos Guillaumon, 25, Distrito Industrial III, Uberaba, Brazil (Tel: 55 34-3319-3000)

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FMC Foret SA, Plaza Xavier Cugat, 2, Edificio C, planta 3a, Parque Oficinas Sant Cugat Nord, 08174 Barcelona, Spain (Tel: 34 93 4 167 400; FAX: 34 93 4 167 403; Internet: http://www.fmcforet.com)

FMC Italia S.p.A., Via Mantova 63/A, Box 333, 43100 Parma, Italy (Tel: 39 0521 908 411; FAX: 39 0521 800781)
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FMC Asia-Pacific, Inc., 1/F, Kirsloon House, Saki Vihar Rd., Saki Naka, Mumbai, 400 072, India (Tel: 91 22 850 0395; FAX: 91 22 850 0398)

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FMC Singapore, 85 Science Park Drive, #02-08 The Cavendish; Singapore Science Park, Singapore, 11859, Singapore (Tel: 656-872-2920; FAX: 656-872-2927)

FMC Korea Ltd., 7th Floor, Hwanghwa Building, 832-7 Yeoksam-Dong, Seoul, 135-080, Korea (Tel: 82 2 539 6411; FAX: 82 2 567 4662)

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875 Greenland Rd., Orchard Park, Suite B9, Portsmouth, NH, 03801-4122, USA (Tel: 603-430-9802; FAX: 603-431-5390; Email: info@focuschemical.com; Internet: http://www.focuschemical.com)

FONA International
FONA International Inc., 1900 Averill Road, Geneva, IL, 60134, USA (Tel: 630-578-8600; 800-308-FONA; FAX: 630-578-8601; Internet: http://www.fona.com)

FONA International Canada ULC, 2447 Anson Drive, Unit 2, Mississauga, Ontario, L5S 1G1, Canada (Tel: 905-677-3499; FAX: 905-677-5107)

Flavors Select de FONA, Eulogio Parra 2422, Col. Ladrón De Guevara, 44600 Guadalajara, Jalisco, Mexico (Tel: 52 (33) 3630.2594; FAX: 52 (33) 3630.2481)

FONA International UK Ltd., Leatherhead Enterprise Centre, Business Park 4, Randalls Road, Leatherhead, Surrey, KT22 7RY, UK (Tel: 44 137.282.5107; FAX: 44 137.282.5107)

Food Ingredient Technology Ltd.
HiTec House, Sand Rd. Industrial Estate, Great Gransden, Bedfordshire, SG19 3AH, UK (Tel: 44 1767 677666; FAX: 44 1767 677966; E-mail: sales@fit-ltd.co.uk; Internet: http://www.fit-ltd.com)

The Foote & Jenks Corp.
1420 Crestmont Ave., Camden, NJ, 08103, USA (Tel: 856-966-0700; FAX: 856-966-6137)

Foremost Farms USA
E10889A Penny Lane, PO Box 111, Baraboo, WI, 53913-0111, USA (Tel: 608-356-8316; 800-362-9196; FAX: 608-355-8695; E-mail: Communications@foremostfarms.com; Internet: http://www.foremostfarms.com)

Forrester Wood & Co. Ltd.
Hawksley Ind. Estate, Heron St., Hollinwood, Oldham, Lancashire, OL8 4UJ, UK (Tel: 44 161 620 4124; FAX: 44 161 627 1050)

Fortitech Inc.
Riverside Technology Park, 2105 Technology Dr., Schenectady, NY, 12308, USA (Tel: 518-372-5155; 800-950-5156; FAX: 518-372-5599; E-mail: info@fortitech.com; Internet: http://www.fortitech.com)

Forum Bioscience
Part of Ajinomoto Co. Inc., Forum House, 41-51 Brighton Rd., Redhill, Surrey, RH1 6YS, UK (Tel: 44 1737 773711; FAX: 44 1737 773116; Internet: http://www.forum.co.uk)

Franklin Industrial Minerals
Franklin Industrial Minerals, Div. of Franklin Industries, 612 Tenth Ave. North, Nashville, TN, 37203, USA (Tel: 615-259-4222; 800-626-8147; FAX: 615-726-2693; Internet: http://www.frankmin.com)


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Fresenius Pharma Austria GmbH
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<td>Gehring Montgomery, Inc.</td>
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</tbody>
</table>
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<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Address</th>
<th>Phone Numbers</th>
<th>Email</th>
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<td>Haco Ltd.</td>
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<tr>
<td>Chr. Hansen S.A.</td>
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<td><a href="http://www.chr-hansen.com">http://www.chr-hansen.com</a></td>
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Manufacturers Directory

Chr. Hansen, Inc., 9015 W. Maple St.,
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Div. of Franz Hoffmann & Söhne KG, Münchenerstrasse 75, PO Box 1460, 86619 Neuburg (Donau), Germany (Tel: 49-84 31/53-0; FAX: 49-84 31/53-330; E-mail: info@hoffmann-mineral.com; Internet: http://www.hoffmann-mineral.com)

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Mitsui Bldg., No. 2, 4-4-20, Nihonbashi Hongoku-cho, Chuo-ku, Tokyo, 103, Japan (Tel: 81 3 3279 5151; FAX: 81 3 3279 5195; E-mail: info@hokkochem.co.jp; Internet: http://www.hokkochem.co.jp/english/index.html)

Holland Company Inc.
153 Howland Ave., Adams, MA, 01220, USA (Tel: 413-743-1292; 800-639-9602; FAX: 413-743-1298; E-mail: info@hollandcompany.com; Internet: http://www.hollandcompany.com)

Hollister-Stier Laboratories
3525 N. Regal St., Spokane, WA, 99207-5788, USA (Tel: 509-489-5656; 800-655-5329; FAX: 509-484-4320; Internet: http://www.hollister-stier.com)

Honeywell
Honeywell Specialty Chemicals, 101 Columbia Rd., Morristown, NJ, 07962, USA (Tel: 973-455-2000; 800-222-0094; FAX: 973-455-4807; E-mail: specialtymaterials2@honeywell.com; Internet: http://www.honeywell.com/sites/sm/index.jsp)


Honeywell Specialty Wax & Additives, 3079 Premiere Pkwy., Suite 100, Duluth, GA, 30097-4905, USA (Tel: 770-689-1000; 800-421-4929; FAX: 770-689-0522; E-mail: mssuspctr@honeywell.com; Internet: http://www.acwax.com)

Honeywell Belgium N.V., Haasrode Research Park, Grauwmeer 1, 3001 Heverlee (Leuven), Belgium (Tel: 32 16 391 205; FAX: 32 16 391 371; E-mail: bernard.gille@honeywell.com)

Honeywell Pte Ltd, 17 Changi Business Park Central 1, Honeywell Building, Singapore, 486073, Singapore (Tel: 65 6355-2828; FAX: 65 6783-6054)

Honeywill & Stein Ltd.
An IMCD Company, Times House, Throwley Way, Sutton, Surrey, SM1 4AF, UK (Tel: 44 20 8770 7090; FAX: 44 20 8770 7295; Internet: http://www.honeywill.co.uk)

Honig Chemical and Processing Corp.
414 Wilson Ave., Newark, NJ, 07105, USA (Tel: 973-344-0881; FAX: 973-344-5743)

The Honjo Chemical Corp.
19-7, Niwajihonmachi 4 chome, Neyagawa City, Osaka, 572-0076, Japan (Tel: 81-72-827-2201; FAX: 81-72-827-0121; Internet: http://www.honjo-chem.co.jp/e_index.html)

Hoogwegt
Havero Hoogwegt BV, PO Box 802, 4200 AV Gorinchem, The Netherlands (Tel: 31 183 62 84 99; FAX: 31 183 62 99 47; E-mail: mail@havero.nl; Internet: http://www.havero.nl)

Hoogwegt US Inc., PO Box 459, 724 Florsheim Dr., Libertyville, IL, 60048-0459, USA (Tel: 847-918-8787; 800-443-3445; FAX: 847-918-9189; E-mail: mail@hoogwegtus.com; Internet: http://www.hoogwegt.com/companies/us/index.html)

Hoover Color Corp.
PO Box 218, Hiwassee, VA, 24347, USA (Tel: 540-980-7233; FAX: 540-980-8781; E-mail: hoover@hoovercolor.com; Internet: http://www.hoovercolor.com)

Horsehead Corp.
300 Frankfort Rd., Monaca, PA, 15061-2295, USA (Tel: 724-774-1020; 800-648-8897; FAX: 724-773-2269; E-mail: info@horseheadcorp.com; Internet: http://www.horsehead.com)
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<tr>
<th>Company Name</th>
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<td>Hosoi Chemical Industry Co., Ltd.</td>
<td>2-3-16, Nihonbashi, Muro-machi, Tokyo, 103, Japan (Tel: 81 3 3270 3601; FAX: 81 3 3279 5863)</td>
<td><a href="http://www.houshound.com">http://www.houshound.com</a></td>
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<td>Houghton Chemical Corp.</td>
<td>PO Box 307, 52 Cambridge St., Allston, MA, 02134, USA (Tel: 617-254-1010; 800-777-2466; FAX: 617-254-2713; E-mail: <a href="mailto:webmail@houghton.com">webmail@houghton.com</a>; Internet: <a href="http://www.houghtonchemical.com">http://www.houghtonchemical.com</a>)</td>
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<td>H&amp;S Chemical Co., Inc.</td>
<td>1025 Mary Laidley Dr., Covington, KY, 41017, USA (Tel: 859-356-8000; FAX: 859-356-8712; E-mail: <a href="mailto:info@hschem.com">info@hschem.com</a>; Internet: <a href="http://www.hschem.com">http://www.hschem.com</a>)</td>
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<td>J.M. Huber</td>
<td>J.M. Huber Corp./Chemicals Div., PO Box 310, 907 Revolution St., Havre de Grace, MD, 21078, USA (Tel: 410-939-7300; 866-881-6480; FAX: 410-939-7313; E-mail: <a href="mailto:jspicer@huber.com">jspicer@huber.com</a>; Internet: <a href="http://www.huber.com">http://www.huber.com</a>)</td>
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<td>Hukill Chemical Corp.</td>
<td>7013 Krick Rd., Bedford, OH, 44146, USA (Tel: 440-232-9400; 800-962-1143; FAX: 440-232-9477; E-mail: <a href="mailto:hukill@hukill.com">hukill@hukill.com</a>; Internet: <a href="http://www.hukill.com">http://www.hukill.com</a>)</td>
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<td>Hummel Croton</td>
<td>10 Harmich Rd., South Plainfield, NJ, 07080-4899, USA (Tel: 908-754-1800; FAX: 908-754-1815; E-mail: <a href="mailto:humchem@aol.com">humchem@aol.com</a>; Internet: <a href="http://www.hummelcroton.com">http://www.hummelcroton.com</a>)</td>
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<td>Hunan Xinyu Native Produce &amp; Animal By-Products Import &amp; Export Co., Ltd.</td>
<td>183 Yuanadai Rd., Changsha, Hunan, 410001, China (Tel: 86 731 4421482; FAX: 86 731 4427356; E-mail: <a href="mailto:hunanxinyu@21cn.com">hunanxinyu@21cn.com</a>; Internet: <a href="http://www.hunanxinyu.com">http://www.hunanxinyu.com</a>)</td>
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<td>Huntsman</td>
<td>Huntsman Corp., 500 Huntsman Way, Salt Lake City, UT, 84108, USA (Tel: 801-584-5700; 800-421-2411; FAX: 801-584-5781; E-mail: <a href="mailto:kelly_mckibbin@huntsman.com">kelly_mckibbin@huntsman.com</a>; Internet: <a href="http://www.huntsman.com">http://www.huntsman.com</a>)</td>
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<td>Huntsman Performance Products</td>
<td>10003 Woodloch Forest Drive, The Woodlands, TX, 77380, USA (Tel: 281 719 6000)</td>
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<tr>
<td>Company Name</td>
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<td>Australia (Tel: 613 9933 6666; FAX: 613 9933 6600)</td>
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<td>Huntsman Tioxide Americas Inc., Div. of Huntsman, 10003, Woodloch Forest Drive, The Woodlands, TX, 77380, USA (Tel: 281 719 8000; 800 367 8462; FAX: 281 719 6054; E-mail: <a href="mailto:connie_nava@huntsman.com">connie_nava@huntsman.com</a>; Internet: <a href="http://www.huntsman.com/tioxide/">http://www.huntsman.com/tioxide/</a>)</td>
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<td>Huntsman Tioxide Europe Ltd., Haverton Hill Rd., Bilingham, Stockton-on-Tees, TS23 1PS, UK (Tel: 44 164 237 0300; FAX: 44 164 237 0290; Internet: <a href="http://www.huntsman-tioxide.com/">http://www.huntsman-tioxide.com/</a>)</td>
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<td>Hutchins &amp; Hutchins Inc.</td>
<td>39 Hutchwood Ln., Waynesboro, VA, 22980, USA (Tel: 540-949-6663; 800-554-4736; FAX: 540-943-9803; Internet: <a href="http://yourcleanroomsupplier.com">http://yourcleanroomsupplier.com</a>)</td>
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<td>Hydrite Chemical Co.</td>
<td>Drawer 0948, 300 N. Patrick Blvd., Brookfield, WI, 53008-0948, USA (Tel: 414-792-1450; 800-346-7960 x 741; FAX: 414-792-8721; E-mail: <a href="mailto:deb.mayersak@hydrite.com">deb.mayersak@hydrite.com</a>; Internet: <a href="http://www.hydrite.com">http://www.hydrite.com</a>)</td>
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<td>Hydro Pronova a.s.</td>
<td>Wholly owned subsid. of Norsk Hydro ASA, Drammensveien 264, N-0240 Oslo, Norway (Tel: 47 22 53 81 00; FAX: 47 22 53 27 25; E-mail: <a href="mailto:corporate@hydro.com">corporate@hydro.com</a>; Internet: <a href="http://www.hydro.com">http://www.hydro.com</a>)</td>
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<td>N.I. Ibrahim Co.</td>
<td>8, Falaki St., Alexandria, Egypt (Tel: 20 3 4865064; FAX: 20 3 4873923; E-mail: <a href="mailto:ibrahimflavogpt@dataxprs.com.eg">ibrahimflavogpt@dataxprs.com.eg</a>; Internet: <a href="http://www.dataxprs.com.eg/ibrahimflavogpt/">http://www.dataxprs.com.eg/ibrahimflavogpt/</a>)</td>
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<td>ICC Industries Inc., 460 Park Ave., New York, NY, 10022, USA (Tel: 212-521-1700; FAX: 212-521-1970; E-mail: <a href="mailto:trading@iccchem.com">trading@iccchem.com</a>; Internet: <a href="http://www.iccchem.com">http://www.iccchem.com</a>)</td>
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<td>ICC Chemical Corp., An affiliate of ICC Industries, Inc., 460 Park Ave., New York, NY, 10022, USA (Tel: 212-521-1700; 800-422-1720; FAX: 212-521-1794; E-mail: <a href="mailto:trading@iccchem.com">trading@iccchem.com</a>; Internet: <a href="http://www.iccchem.com">http://www.iccchem.com</a>)</td>
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<td>ICC Hong Kong, Rm. #1007, 10/F Tai Yau Building, 181 Johnston Road, Wan Chee, Hong Kong (Tel: 852-2366-1678; FAX: 852-2367-1609; E-mail: <a href="mailto:hongkong@iccchem.com">hongkong@iccchem.com</a>)</td>
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<td>ICC Chemical Corp., Gold Name Tower, 1903A, No. 68, Renmin Rd., Zhongshan District, Dalian, 116001, P.R. China (Tel: 86 411 272 1755; FAX: 86 411 272 1955; E-mail: <a href="mailto:dalchian@iccchem.com">dalchian@iccchem.com</a>)</td>
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<td>ICL Performance Products, LP</td>
<td>622 Emerson Rd., Ste. 500, St. Louis, MO, 63141, USA (Tel: 314-983-7500; 800-244-6169; FAX: 314-983-7642; E-mail: <a href="mailto:information@icl-pplp.com">information@icl-pplp.com</a>; Internet: <a href="http://www.astaris.com">http://www.astaris.com</a>)</td>
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<td>I.C. Trading Co., Inc.</td>
<td>249 Walnut Rd., Glen Cove, NY, 11542, USA (Tel: 516-609-9191; FAX: 516-609-9199; E-mail: <a href="mailto:sales@ic-trading.com">sales@ic-trading.com</a>; Internet: <a href="http://www.ic-trading.com">http://www.ic-trading.com</a>)</td>
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<td>Igreca</td>
<td>Z.A les Mulottières, 49140 Seiches Sur Le Loir, France (Tel: 33 02 41211400; FAX: 33 02 41211401; E-mail: <a href="mailto:contact@igreca.com">contact@igreca.com</a>; Internet: <a href="http://www.igreca.com">http://www.igreca.com</a>)</td>
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<td>Ikeda Corp.</td>
<td>Ikeda Bldg., 44 Katabira-Cho, 1-Chome, Hodogaya-Ku, Yokohama, 240-0013, Japan (Tel: 81-45-342-0771; FAX: 81-45-333-9970; E-mail: <a href="mailto:b-dept@ikeda-corp.jp">b-dept@ikeda-corp.jp</a>; Internet: <a href="http://www.ikedabussan.com">http://www.ikedabussan.com</a>)</td>
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<td>IMERYS</td>
<td>IMERYS, 100 Mansell Court East, Suite 300, Roswell, GA, 30076, USA (Tel: 770-594-0660; 888 277 9636; FAX: 770-645-3384; E-mail: <a href="mailto:pmcs.ind@imerys.com">pmcs.ind@imerys.com</a>; Internet: <a href="http://www.imerys.com">http://www.imerys.com</a>)</td>
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<td>IMERYS Minerals Ltd., Par Moor Centre, Par Moor Road, Par, Cornwall, PL24 2SQ, UK (Tel: 44 1726 818000; FAX: 44 1726 811200)</td>
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<td>Imerys Minerals Spa, Via Tolstoi 86, 20098 San Giuliano, Milan, Italy (Tel: 39 2 98 444 01; FAX: 39 2 98 244 59)</td>
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<td>IMERYS Minerals SA, Usine De Lixhe, Rue du Canal 2, 4600 Visé, Lixhe, Belgium (Tel: 32 41 79 98 11; FAX: 32 41 79 82 83)</td>
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<td>IMERYS Minerals Japan K.K., 7F Sagamiya Bldg., 6 Ichibancho Chiyoda-ku, Tokyo, 108-0082, Japan (Tel: 81 3 216 1088; FAX: 81 3 521 61090)</td>
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<td>Manufacturers Directory</td>
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<td><strong>Imperial Industrial Chemicals (Thailand) Co., Ltd.</strong></td>
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<td>11th Floor, Unico House Bldg., No. 29/1 Soi Lung Suan, Ploenchit Rd., Pathumwan, Bangkok, 10330, Thailand (Tel: 66 2 255 4268-70; FAX: 66 2 255 4267; Internet: <a href="http://www.iic.co.th">http://www.iic.co.th</a>)</td>
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<td><strong>Imperial-OEL-Import</strong></td>
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<td>Handelsgesellschaft MBH, Bergstrasse 11, Hamburg, 20095, Germany (Tel: 49 (0) 40/33 85 33-0; FAX: 49 (0) 40/33 85 33-85; E-mail: <a href="mailto:ingo@imperial-oel-import.de">ingo@imperial-oel-import.de</a>; Internet: <a href="http://www.imperial-oel-import.de">http://www.imperial-oel-import.de</a>)</td>
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<td><strong>Impex Colors and Additives</strong></td>
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<td>819 Featherbrook Ct., Sugarland, TX, 77479, USA (Tel: 281-451-6880; FAX: 281 565-5235; E-mail: <a href="mailto:info@impexcolors.com">info@impexcolors.com</a>; Internet: <a href="http://www.impexcolors.com">http://www.impexcolors.com</a>)</td>
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<td><strong>Importers Service Corp.</strong></td>
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<td>233 Suydam Ave., Jersey City, NJ, 07304-3399, USA (Tel: 201-332-6970; FAX: 201-332-4152; E-mail: isc <a href="mailto:gums@iscgums.com">gums@iscgums.com</a>; Internet: <a href="http://www.iscgums.com">http://www.iscgums.com</a>)</td>
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<td><strong>Inalco Pharmaceuticals</strong></td>
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<tr>
<td>3440 Empresa Drive, Suite A, San Luis Obispo, CA, 93401, USA (Tel: 805-782-0718; 800-709-6776; FAX: 805-782-0719; Internet: <a href="http://www.inalcopharm.com">http://www.inalcopharm.com</a>)</td>
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<td><strong>Inchema, Inc.</strong></td>
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<td>180 Old Tappan Rd., Bldg. 6, Old Tappan, NJ, 07675, USA (Tel: 201-768-2290; E-mail: <a href="mailto:inchema201@inchema-usa.com">inchema201@inchema-usa.com</a>; Internet: <a href="http://www.inchema-usa.com">http://www.inchema-usa.com</a>)</td>
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<td><strong>In-Cide Technologies Inc.</strong></td>
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<td>50 N. 41 Ave., Phoenix, AZ, 85009, USA (Tel: 602-233-0756; 800-777-4569; FAX: 602-272-4864; E-mail: <a href="mailto:jb@incidetech.com">jb@incidetech.com</a>; Internet: <a href="http://www.incidetech.net">http://www.incidetech.net</a>)</td>
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<td><strong>Indena</strong></td>
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<td><strong>Indena SpA</strong>, Viale Ortles, 12, 20139 Milan (MI), Italy (Tel: 39 2 5749 61; FAX: 39 2 5749 6290; E-mail: <a href="mailto:indenami@tin.it">indenami@tin.it</a>; Internet: <a href="http://www.indena.it">http://www.indena.it</a>)</td>
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<td><strong>Indena France S.A.</strong>, 23, Rue de Madrid, 75008 Paris, France (Tel: 33 1 45229128; FAX: 33 1 45220291)</td>
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<td><strong>Indena S.A.</strong>, Gran Via Carles III, 94, 10º, 1ª, 08028 Barcelona, Spain (Tel: 34 93 3303816; FAX: 34 93 4110246)</td>
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| **Indena USA Inc.**, 811 First Avenue, Suite 218, Seattle, WA, 98104, USA (Tel: 206-340-6140; FAX: 206-340-0863) |
| **Indena Japan Co., Ltd.**, KDDI Bld. 21F, 1-8-1, Ohtemachi, Chiyoda-ku, Tokyo, 100-0004, Japan (Tel: 81 3 3243 9924; FAX: 81 3 3243 9925) |
| **Independent Chemical Corp.**  |
| 79-51 Cooper Ave., Glendale, NY, 11385, USA (Tel: 718-894-0700; 800-892-2578; FAX: 718-894-9224; E-mail: info@independentchemical.com; Internet: [http://www.independentchemical.com](http://www.independentchemical.com)) |
| **Ind Expo Oleochemicals P. Ltd.**  |
| 192, Pusha Kunj, 3rd Floor, Station Road, Mumbai, 400020, India (Tel: 91-22-2015124; FAX: 91-22-2087412; E-mail: infor@indexpo.com; Internet: [http://www.indexpo.com](http://www.indexpo.com)) |
| **Indium Corp. of America**  |
| 1676 Lincoln Ave., PO Box 269, Utica, NY, 13503, USA (Tel: 315-853-4900; 800-4-INDIUM; FAX: 315-853-1000; E-mail: askus@indium.com; Internet: [http://www.indium.com](http://www.indium.com)) |
| **Indo Colchem Ltd.**  |
| Plot 36, Phase II, GIDC, Vatva, Ahmedabad, Gujarat, 382445, India (Tel: 91 79 25835251; FAX: 91 79 2583 32 22; E-mail: indocol@vsnl.com; Internet: [http://www.indocol.com](http://www.indocol.com)) |
| **Indofine Chemical Co., Inc.**  |
| 121 Stryker Lane, Bldg 30, Suite 1, Hillsborough, NJ, 08844, USA (Tel: 908-359-6778; 888-463-6346; FAX: 908-359-1179; E-mail: chemical@indofinechemical.com; Internet: [http://www.indofinechemical.com](http://www.indofinechemical.com)) |
| **Indspec Chemical**  |
| **Indspec Chemical Corp.,** Wholly owned subsid. of OxyChem, 411 Seventh Ave., Suite 300, Pittsburgh, PA, 15219, USA (Tel: 412-765-1200; 800-782-8134; FAX: 412-765-0439; E-mail: mainoffice@indspec-chem.com; Internet: [http://www.indspec-chem.com](http://www.indspec-chem.com)) |
| **Indspec Chemical Corp./European Sales**  |
| Gebouw de Goudsesingel, Th. Kipstraat 8-10, 3011 RT Rotterdam, The Netherlands (Tel: 31 10 275 60 60; FAX: 31 10 414 30 35) |
Manufacturers Directory

Induchem AG
Industriestrasse 8a, 8604 Volketswil,
Switzerland (Tel: 41 1 908 4333; FAX: 41 1 908 43 30; Internet:
http://www.induchem.com)

Industrias Monfel, S.A. de C.V.
Barracuda #4, Apartado Postal 98, Cuautitlan,
Edo. de Mexico, 54800, Mexico (Tel: 52 5 899 0029; FAX: 52 5 899 0010; E-mail:
correo@monfel.com; Internet:
http://www.monfel.com)

Industrias Quimicas del Valles S.A.
Avenida Rafael de Casanova 81, 08100 Mollet
del Vallés, Barcelona, Spain (Tel: 34 93 579 66 77; FAX: 34 93 593 80 11; E-mail:
igv@iqv-valles.com; Internet:
http://www.iqv-valles.com)

Induxtra de Suministros Llorella S.A.
Pere Alsius 2-4, 17820 Banyoles (Girona),
Spain (Tel: 34 972 582400; FAX: 34 972 582424; E-mail: ids@induxtra.com; Internet:
http://www.induxtra.com)

INEOS
INEOS Belgium NV, Haven 1053, Nieuwe Weg 1, B-2070 Zwijndrecht, Belgium (Tel: 32-3-2509470; FAX: 32-3-2509475)
INEOS Italia S.r.l., Via Carlo Poma 1, 20129 Milano, Italy (Tel: 39 2 7611 5407; FAX: 39 2 7611 8189)
INEOS Iberica, Gran Via 680 7-4, 08010 Barcelona, Spain (Tel: 34-93-270-1884; FAX: 34-93-318-2601)
INEOS Fluor Ltd., The Heath, Runcorn, Cheshire, WA7 4QX, UK (Tel: 44 1928 515525; FAX: 44 1928 513890; E-mail:
info@ineosfluor.com; Internet:
http://www.ineosfluor.com)
INEOS Fluor/European Customer Service Center, Bosdellestraat 120, Box 3, 1933 Sterrebeek (Zaventem), Belgium (Tel: 32 2 785 3170; FAX: 32 2 785 3180; E-mail:
info@ineosfluor.com; Internet:
http://www.ineosfluor.com)
INEOS Fluor Americas LLC, 4990 B ICI Rd., Hwy. 75, PO Box 30, St. Gabriel, LA, 70776, USA (Tel: 225-642-0094; 800-ASK-KLEA; FAX: 225-642-8629; E-mail:
kleaUSwebmail@ineosfluor.com; Internet:
http://www.ineosfluor.com)
INEOS Phenol, Dechenstrasse 3, 45966 Gladbeck, Germany (Tel: 49 2043 958 302; FAX: 49 2043 958 950; E-mail:
marketing@ineosphenol.de; Internet:
http://www.phenolchemie.de)

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http://www.ineossilicas.com)

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INEOS Silicas South Africa (Pty) Ltd. 169 Tedstone Rd., PO Box 14016, Wadeville, Ganteng, 1422, Rep. of S. Africa (Tel: 27 11 820 7111; FAX: 27 11 827 6922)

INEOS Silicas Asia Pacific Pte. Ltd., No. 3 Shenton Way, #15-09 Shenton House, Singapore, 068805, Singapore (Tel: 65 325 0898; FAX: 65 324 2243)

INEOS Vinyls UK Ltd., South Parade, P.O. Box 9, Runcorn, Cheshire, WA7 4JE, UK (Tel: 44 1928 512918; E-mail: csg.uk@ineosvinyls.com; Internet:
http://www.evc-int.com/index_en.htm)

Innophos. See Rhodia

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http://www.inolex.com)

Inoue Perfumery Mfg. Co., Ltd.
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http://www.ino-p.com)

Inspec Fibres GmbH
A Laporte company, Werkstrasse 3, 4860 Lenzing, Austria (Tel: 43 7672 701 2891; FAX: 43 7672 96862; E-mail:
P84@Degussa.com; Internet:
http://www.P84.com)

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710 Thomas Ave. SW, Renton, WA, 98055, USA (Tel: 425-277-9244; 800-322-6646; FAX: 425-277-9246; E-mail:
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http://www.integrachem.com)

Interchem Corp.
120 Rt. 17 North, Paramus, NJ, 07652, USA (Tel: 201-261-7333; FAX: 201-261-7339; E-mail: Sales@interchem.com; Internet:
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International Furan North America Inc.
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6770-105 Oak Hall Lane, Columbia, MD, 21045, USA (Tel: 410-381-8290; 800-929-9004; FAX: 410-381-8295; E-mail: info@iri-us.com; Internet: http://www.iri-us.com)

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<td><strong>Interpolymer GmbH</strong>, Dr. Wirth-Strasse 9a, 67454 Hassloch, Germany (Tel: 49 6324 593 106; FAX: 49 6234 593 107; E-mail: <a href="mailto:info@interpolymer.fr">info@interpolymer.fr</a>)</td>
</tr>
<tr>
<td><strong>Interpolymer Sarl</strong>, 6, Rue Marie Curie, BP60-ZI Intercommunale, 67162 Wissebourg, France (Tel: 33 3 88 54 96 96; FAX: 33 3 88 54 96 99; E-mail: <a href="mailto:info@interpolymer.fr">info@interpolymer.fr</a>)</td>
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<td><strong>Interstate Chemical Co., Inc.</strong>, 2797 Freedland Rd., P.O. Box 1600, Hermitage, PA, 16148-0600, USA (Tel: 724-981-3771; 800-422-2436; FAX: 724-981-3675; Internet: <a href="http://www.interstatechemical.com">http://www.interstatechemical.com</a>)</td>
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<td><strong>Intertrade Holdings Inc.</strong>, State Highway 68, Copperhill, TN, 37317, USA (Tel: 423-496-3331; FAX: 423-496-1322; E-mail: <a href="mailto:info@itorganics.com">info@itorganics.com</a>; Internet: <a href="http://www.itorganics.com">http://www.itorganics.com</a>)</td>
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<td><strong>Invista</strong>, independent subsidiary of Koch, INVISTA Building, 4123 East 37th Street North, Wichita, KS, 67220, USA (Tel: 302-774-1178; 877-4INVISTA; E-mail: <a href="mailto:invistainfo@invista.com">invistainfo@invista.com</a>; Internet: <a href="http://www.invista.com">http://www.invista.com</a>)</td>
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<td><strong>Ironics, Inc.</strong>, PO Box 292, 750 S. Main St., Niles, OH, 44446, USA (Tel: 330-652-0583; FAX: 330-652-2534; Internet: <a href="http://www.ironics.com">http://www.ironics.com</a>)</td>
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<td><strong>Ishihara Sangyo Kaisha (ISK), Ltd.</strong>, 1-3-15, Edobori, Nishi-ku, Osaka, 550-0002, Japan (Tel: 81 6 6444 1853; FAX: 81 6 6445 7798; Internet: <a href="http://www.iskweb.co.jp">http://www.iskweb.co.jp</a>)</td>
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<td><strong>ISK Biosciences Europe S.A.</strong>, Div. of Ishihara Sangyo Kaisha Ltd., Tour ITT, 480 avenue Louise, Bte 12, 1050 Brussels, Belgium (Tel: 32 2 627 86 11; FAX: 32 2 648-3472; Internet: <a href="http://www.iskweb.co.jp">http://www.iskweb.co.jp</a>)</td>
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<td><strong>Isochem Colors, Inc.</strong>, 474 Bryant Blvd., Rock Hill, SC, 29732, USA (Tel: 803-325-7640; 800-786-4633; FAX: 803-325-7641; E-mail: <a href="mailto:smathis@isochemcolors.com">smathis@isochemcolors.com</a>; Internet: <a href="http://www.isochemcolors.com">http://www.isochemcolors.com</a>)</td>
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<tr>
<td><strong>ISP</strong>, International Specialty Products, World Headquarters, 1361 Alps Rd., Wayne, NJ, 07470-3688, USA (Tel: 973-628-4000; 800-622-4423; FAX: 973-872-1583; E-mail: <a href="mailto:info@ispcorp.com">info@ispcorp.com</a>; Internet: <a href="http://www.ispcorp.com">http://www.ispcorp.com</a>)</td>
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<td><strong>ISP Alginates Inc.</strong>, 2145 E. Belt St., San Diego, CA, 92113, USA (Tel: 619-557-3100; 877-272-5446; FAX: 619 557 3128; E-mail: <a href="mailto:cbowman@ispcorp.com">cbowman@ispcorp.com</a>; Internet: <a href="http://www.ispcorp.com">http://www.ispcorp.com</a>)</td>
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<td><strong>ISP Fine Chemicals Inc.</strong>, 1979 Atlas St., Columbus, OH, 43228, USA (Tel: 614-876-3637; 877-ISP-OHIO; FAX: 614-876-9532)</td>
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<tr>
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<td><strong>ISP Europe</strong>, Waterfield, Tadworth, Surrey, KT20 5HQ, UK (Tel: 44 207 519 5054; FAX: 44 207 519 5056)</td>
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<td><strong>ISP Global Technologies Deutschland GmbH</strong>, Emil-Hoffmann-Strasse 1A, 50996 Cologne-Rodenkirchen, Germany (Tel: 49 2236 9649 260; FAX: 49 2236 9649 295)</td>
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<td><strong>ISP (France) SA</strong>, Paris Nord 2, 13, rue de la Perdrix, BP 50007 Tremblay En, F 95945 Roissy CDG Cedex, France (Tel: 33 1 49 93 21 58; FAX: 33 1 49 93 21 62)</td>
</tr>
<tr>
<td><strong>ISP (Belgium) NV</strong>, Hoogkamerstraat 42, B-9100 Sint-Niklaas, Belgium (Tel: 32 3 626 49 30; FAX: 32 3 626 49 32)</td>
</tr>
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</table>
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1682 59th St., Brooklyn, NY, 11204, USA (Tel: 718-236-1666; FAX: 718-236-2248; E-mail: jonaschemnyc@aol.com)

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Jost Chemical Co., Inc., 8150 Lackland Rd., St. Louis, MO, 63114, USA (Tel: 314-428-4300; FAX: 314-428-4366; E-mail: customer.service@jostchemical.com; Internet: http://www.jostchemical.com)

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Plot No. 1A, Sector 16A, Institutional area,, Noida - 201 301,, Uttar Pradesh, India (Tel: 91-120-4516601; FAX: 91-120-451682-30; E-mail: adhesives@jubilantorganosys.com; Internet: http://www.jubilantorganosys.com)

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Jungbunzlauer Ladenburg GmbH, Dr. Albert-Reimann-Strasse 18, 68526 Ladenburg, Germany (Tel: 49 6203 104 0; FAX: 49 6203 104 210; E-mail: office-ldb@jungbunzlauer.com)

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Jungbunzlauer Canada Inc., 1555 Elm St., Port Colborne, Ontario, Canada (Tel: 905-835-5444; FAX: 905-835-0061; E-mail: office-pco@jungbunzlauer.com)

Jungbunzlauer Singapore Pte. Ltd., 99 Bukit Timah Rd., #04-04 Alfa Centre, Singapore, 229385, Singapore (Tel: 65 633 75 900; E-mail: office-sgp@jungbunzlauer.com)

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K3 Corp. 11112 Lakespray Way, Reston, VA, 20191, USA (Tel: 703-758 3930; FAX: 703-758 3930; E-mail: techsupport@k3corp.com; Internet: http://k3corp.com/)

Kaden Biochemicals Inc. Member of the Symrise Group, 17 Camden Rd., Belle Mead, NJ, 08502, USA (Tel: 908-359-8846; FAX: 908-359-8856; E-mail: kaden.bio@t-online.de; Internet: http://www.kadenbio.com)

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Kanto

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Kanto Corp., Wholly owned subsid. of Kanto Chemical Co., Inc., 13424 North Woodrush Way, Portland, OR, 97203, USA (Tel: 503-283-0405; 866-609-5571; FAX: 503-240-0409; E-mail: sales@kantocorp.com; Internet: http://www.kantocorp.com)

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Kao

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Kaufholz & Co., Inc. 1774 Del Mar Avenue, Laguna Beach., CA, 92651-3012, USA (Tel: 949 499 2840; FAX: 949 499 2870)

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<th>Company Name</th>
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<tr>
<td>Kemira Chemicals (UK) Ltd., Kemwater</td>
<td>Kemira Oy, New Potter Grange Rd., M62 Trading Estate, Goole, DN14 6BZ, UK</td>
<td>Tel: 44 1405 765 131; FAX: 44 1405 765 147; E-mail: <a href="mailto:mari.burrows@kemira.com">mari.burrows@kemira.com</a></td>
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<tr>
<td>Kemira Chimie SA</td>
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<tr>
<td>Kemira SA NV</td>
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<td>Kemira Iberica SA</td>
<td>Gran Via Corts Catalanas 641, 08010 Barcelona, Spain</td>
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<td>Kenrich Petrochemicals, Inc.</td>
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</tr>
<tr>
<td>Kerry Group</td>
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<td>Tel: 44 1275 378 500; FAX: 44 1275 378 555; E-mail: <a href="mailto:enquiries@kerryingredients.co.uk">enquiries@kerryingredients.co.uk</a>; Internet: <a href="http://www.kerry-ingredients.co.uk">http://www.kerry-ingredients.co.uk</a></td>
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<tr>
<td>Kerry Bio-Science</td>
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<td>Sheffield Prods.,</td>
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<td>Kessler Chemical, Inc.</td>
<td>77 West Broad St., Unit 21A, Bethlehem, PA, 18018, USA</td>
<td>Tel: 610-758-9602; FAX: 610-758-9615; Internet: <a href="http://www.kesslerchemical.com">http://www.kesslerchemical.com</a></td>
</tr>
<tr>
<td>Keystone Aniline Corp.</td>
<td>2501 W. Fulton St., Chicago, IL, 60612, USA</td>
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</tr>
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**Kingsfield Inc.**
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Dr. W. Kolb Nederland B.V., PO Box 123, NL-4790 AC Klundert, The Netherlands (Tel: 31 168 37 70 80; FAX: 31 168 33 04 81)

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<th>Company</th>
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<tr>
<td>Landers-Segal Color Co. Inc. (LANSCO Colors)</td>
<td>305 West Grand Ave., Montvale, NJ, 07645, USA (Tel: 201-307-5995; 888-4-LANSCO; FAX: 201-307-5855; Internet: <a href="http://www.pigments.com">http://www.pigments.com</a>)</td>
<td>303-480-2605; Internet: <a href="http://www.leprinofoods.com">http://www.leprinofoods.com</a>)</td>
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<td>Land O'Lakes Inc.</td>
<td>P.O. Box 64101, Saint Paul, MN, 55164-0101, USA (Tel: 651-481-2123; 800-328-9680; FAX: 651-481-2000; Internet: <a href="http://www.international.landolakes.com">http://www.international.landolakes.com</a>)</td>
<td>(Tel: 44 207 247 7473; FAX: 44 207 375 1470; E-mail: <a href="mailto:sales@langley-smith.co.uk">sales@langley-smith.co.uk</a>; Internet: <a href="http://www.langley-smith.co.uk">http://www.langley-smith.co.uk</a>)</td>
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<td>Langle-Smith &amp; Co. Ltd.</td>
<td>1-3 Norton Folgate, London, E1 6DB, UK (Tel: 44 207 247 7473; FAX: 44 207 375 1470; E-mail: <a href="mailto:sales@langley-smith.co.uk">sales@langley-smith.co.uk</a>; Internet: <a href="http://www.langley-smith.co.uk">http://www.langley-smith.co.uk</a>)</td>
<td>1830 W. 38 Ave., Denver, CO, 80211, USA (Tel: 303-480-2600; 800-LEPRINO; FAX:</td>
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<td>L C United Chemical Corp.</td>
<td>36 Hoping St., Loucou County, Taoyuan, Taiwan (Tel: 886 3 324 4833 ext.15; FAX: 886 3 324 5980; E-mail: <a href="mailto:info@lcunited.com">info@lcunited.com</a>; Internet: <a href="http://www.lcunited.com">http://www.lcunited.com</a>)</td>
<td>303-480-2605; Internet: <a href="http://www.leprinofoods.com">http://www.leprinofoods.com</a>)</td>
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<td>Leadertech Colors Inc.</td>
<td>520 Elm St., Kearny, NJ, 07032, USA (Tel: 201-955-2400; 800-658-8585; FAX: 201-955-2822; E-mail: <a href="mailto:leadertech@prodigy.net">leadertech@prodigy.net</a>; Internet: <a href="http://www.leadertechcolors.com">http://www.leadertechcolors.com</a>)</td>
<td>(Tel: 11-23610379; FAX: 91-11-23543487; E-mail: <a href="mailto:info@pharma-excipients.com">info@pharma-excipients.com</a>; Internet: <a href="http://www.pharma-excipients.com">http://www.pharma-excipients.com</a>)</td>
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<tr>
<td>The Lebermuth Co. Inc.</td>
<td>14000 McKinley Hwy., Mishawaka, IN, 46545, USA (Tel: 219-259-7000; 800-648-1123; FAX: 800-852-4722; E-mail: <a href="mailto:info@lebermuth.com">info@lebermuth.com</a>; Internet: <a href="http://www.lebermuth.com">http://www.lebermuth.com</a>)</td>
<td>3-7, Honjo 1-chome, Sumida-ku, Tokyo, 130-8644, Japan (Tel: 81 3 3621 6211; FAX: 81 3 3621 6137; Internet: <a href="http://www.lion.co.jp">http://www.lion.co.jp</a>)</td>
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<td>Lehmann &amp; Voss</td>
<td>Lehmann &amp; Voss &amp; Co., Alsterfeuer 19, D-20354 Hamburg, Germany (Tel: 49 40 44197 0; FAX: 49 40 44197 219; E-mail: <a href="mailto:info@lehvoss.de">info@lehvoss.de</a>; Internet: <a href="http://www.lehvoss.de">http://www.lehvoss.de</a>)</td>
<td>Lipo Chemicals Inc., 207 19th Ave., Paterson, NJ, 07504, USA (Tel: 973-345-8600; FAX: 973-345-8365; E-mail: <a href="mailto:salesandmarketing@lipochemicals.com">salesandmarketing@lipochemicals.com</a>; Internet: <a href="http://www.lipochemicals.com">http://www.lipochemicals.com</a>)</td>
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<td>Lehvoss France S.A.R.L.</td>
<td>10, rue des Forts, F - 28500 Chérisy, France (Tel: 33 2374 30530; FAX: 33 2374 30531; E-mail: <a href="mailto:info@lehvoss.fr">info@lehvoss.fr</a>; Internet: <a href="http://www.lehvoss.fr">http://www.lehvoss.fr</a>)</td>
<td>Lipo do Brasil Ltda., Rua Ptolomeu, 407, Bairro Socorro, Sao Paulo SP, 04762-040, Brazil (Tel: 55 11 2124 5300; FAX: 55 11 2124 5322)</td>
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<tr>
<td>Lenape Industries, Inc.</td>
<td>120 Old Camplain Rd., Hillsborough, NJ, 08844, USA (Tel: 908-526-6800; FAX: 908-526-7430; E-mail: <a href="mailto:mail@lenape.com">mail@lenape.com</a>; Internet: <a href="http://www.lenape.com">http://www.lenape.com</a>)</td>
<td>Lipoquimia, S.A. de C.V., Tenayuca No. 72, Fracc. Ind. San Nicolas, Tlalnepantla, Edo. de Mexico, CP 54030, Mexico (Tel: 525 5 9171 8400; FAX: 525 5 5390 7799; E-mail: <a href="mailto:emilio@lipoquimia.com">emilio@lipoquimia.com</a>)</td>
</tr>
<tr>
<td>Leprino Foods</td>
<td>1830 W. 38 Ave., Denver, CO, 80211, USA (Tel: 303-480-2600; 800-LEPRINO; FAX: 303-480-2605; Internet: <a href="http://www.leprinofoods.com">http://www.leprinofoods.com</a>)</td>
<td>Lipo Chemicals Argentina S.A., Calle Virrey Loreto 2435, C.P. 1605 Munro Prov., Buenos Aires, Argentina (Tel: 54 11 4721 0015; FAX: 54 11 4721 0018; E-mail: <a href="mailto:lipo@lipo.com.ar">lipo@lipo.com.ar</a>)</td>
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<tr>
<td>Libraw Pharma</td>
<td>14, Rani Jhansi Road, New Delhi, 110055, India (Tel: 91-11-23610379; FAX: 91-11-23543487; E-mail: <a href="mailto:info@pharma-excipients.com">info@pharma-excipients.com</a>; Internet: <a href="http://www.pharma-excipients.com">http://www.pharma-excipients.com</a>)</td>
<td>Lipo Chile S.A., Cordillera 331, MOD C-11, Parque Industrial, Vespucio Oeste,</td>
</tr>
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Manufacturers Directory

Quilicura, Santiago, Chile (Tel: 56 2 739 1402; FAX: 56 2 739 1403; E-mail: lipo@lipochile.com)

Lipo France S.A.R.L., 27 Ave. de la Baltique, Courtaboeuf 1, 91961 Villebon Sur Yvette Cedex, France (Tel: 33 1 69 86 13 30; FAX: 33 1 69 86 18 59; E-mail: lipofrance@lipofrance.com)

Lipo Chemicals Shanghai Co., Ltd., Room E, Floor 3, No. 2, Alley 1228, JiaLi Mansion, Yan An Road (West), Shanghai, 200052, P.R. China (Tel: 86 21 628 02333; FAX: 86 21 628 12315; E-mail: jimmyjen@vip.sina.com)

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61 E. Green Lane, PO Box 25, Bristol, PA, 19007, USA (Tel: 215-785-3591; 800-229-5667; FAX: 215-785-3597; E-mail: lschepise@loosanddilworth.com; Internet: http://www.loosanddilworth.com)

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Lubrizol Performance Products, 195 Brooks Blvd., Spartanburg, SC, 29318, USA (Tel: 864-579-6814; FAX: 864-579-8402)

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401A Navbharat Estates, Zakaria Bunder Rd, Sweri West, Mumbai, Maharashtra, 400 015, India (Tel: 91 22 4158059; FAX: 91 22 4158074; E-mail: admin@lucidgroup.com; Internet: http://www.lucidgroup.com)

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Naxi, Luzhou, Sichuan, 646300, P.R. China (Tel: 86 830 4122654; FAX: 86 830 4122683)
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Luzenac Asia, 3 International Business Park, #01-18, Nordic European Centre, Singapore, 609927, (Tel: 65 6890 6926; FAX: 65 6890 6927)

Luzenac Australia, Level 22, Central Park, 152-158 St. Georges Terrace, Perth 6837, (Tel: 61 8 9327 2277; FAX: 91 8 9327 2278)

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LycoRed Sàrl, Rheinweg 7, 8200 Schaffhausen, Switzerland (Tel: 41 52 6340808; FAX: 41 52 6340800; Internet: [http://www.lycored.com](http://www.lycored.com))

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LycoRed Corp., 377 Crane St., Orange, NJ, 07051, USA (Tel: 973-882-0323; Internet: [http://www.lycored.com](http://www.lycored.com))

**Lyondell**

Lyondell Chemical Co., 1221 McKinney St., P.O. Box 3646, Houston, TX, 77253-3646, USA (Tel: 713-652-7200; 888-777-0232; FAX: 713-309-4944; E-mail: neil.lacy@lyondell.com; Internet: [http://www.lyondell.com](http://www.lyondell.com))

Lyondell Chemical Co./Technical Center, 3801 West Chester Pike, Newtown Sq., PA, 19073-2387, USA (Tel: 610-359-2000; 800-345-0252; FAX: 610-359-2722)

Lyondell Chemical Europe, Inc., New Lodge, Drift Road, Windsor, Berkshire, SL4 4RR, UK (Tel: 44.1344 898 950)

Lyondell Chimie France SNC, B.P. 201, 13775 Fos-sur-Mer Cedex, France (Tel: 33.4.42.47.51.00)

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**Madison Industries Inc.**

Old Waterworks, P.O. Box 194, Old Bridge, NJ, 08857, USA (Tel: 732-727-2225; 800-275-3924; FAX: 732-727-2653; E-mail: sales@oldbridgechem.com; Internet: [http://www.oldbridgechem.com](http://www.oldbridgechem.com))

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**Magnablend, Inc.**

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640 Herman Rd., Suite 1, Jackson, NJ, 08527, USA (Tel: 732-928-5800; FAX: 732-928-9227; E-mail: Marketing@magnakron.com; Internet: [http://www.magnakron.com](http://www.magnakron.com))

**Magnesia GmbH**

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**Lyondell Chemical Nederland, Ltd.**

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**Lyondell Asia Pacific, Ltd.**

41st Fl., The Lee Gardens, 33 Hysan Ave., Causeway Bay, Hong Kong (Tel: 852 2822 2668; FAX: 852 2840 1690)

**Lyondell South Asia Pte. Ltd.**

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Subsid. of Koor Industries, 9 Omarim St., POB 1646, Omer, 84965, Israel (Tel: 972 8 620 0700; FAX: 972 8 646 9846; E-mail: main@main.co.il; Internet: http://www.main.co.il)

Mallinckrodt Baker
Mallinckrodt Baker, Inc., Div. of Mallinckrodt Inc., 222 Red School Lane, Phillipsburg, NJ, 08865, USA (Tel: 908-859-2151; 800-582-2537; FAX: 908-859-9318; Internet: http://www.mallbaker.com)

Mallinckrodt Baker S.A. de C.V., Fracc. Industrial Esfuerzo Nacional Xalostoc, Ecatepec Estado de Mexico, CP 55320, Mexico (Tel: 5255 5699 0250; FAX: 52-5-755-2585; E-mail: mbaker@tycohealthcare.com; Internet: http://www.mallbaker.com)

Mallinckrodt Baker B.V., Teugseweg 20, P.O. Box 1, 7400 AA, Deventer, The Netherlands (Tel: 31-570-687500; FAX: 31-570-687574; E-mail: jtbaker.nl@emea.tycohealthcare.com; Internet: http://www.mallbaker.com)

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Part of Tri-K Industries, 570 Broadway, PO Box 68, Lawrence, MA, 01842, USA (Tel: 978-682-1853; FAX: 978-682-2544)

Maypro Industries
Maypro Industries, Inc., 2700 Westchester Ave., Purchase, NY, 10577, USA (Tel: 914-251-0701; FAX: 914-251-0746; E-mail:
Manufacturers Directory

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**McGean-Rohco**, 2910 Harvard Ave., Cleveland, OH, 44105-3010, USA (Tel: 216-441-4900; 800-932-7006; FAX: 216-441-1377; E-mail: general.info@mcgean.com; Internet: http://www.mcgean.com)

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**Merck KGaA**, Frankfurter Str. 250, 64293 Darmstadt, Germany (Tel: 49 6151 720;
<table>
<thead>
<tr>
<th>Company Name</th>
<th>Address</th>
<th>Telephone</th>
<th>Fax</th>
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</tr>
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<tr>
<td>Merck Chimie S.A.S.</td>
<td>201, Rue Carnot, 94126 Fontenay-sous-Bois Cedex, France</td>
<td>(Tel: 33 1 43 94 54 00; FAX: 33 1 4394 5125)</td>
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<td><a href="http://www.merckchimie.fr/">http://www.merckchimie.fr/</a></td>
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<tr>
<td>Merck Ltd., Div. of Merck AG, Harrier House, High Street, Yiewsley, West Drayton, Middlesex, UB7 7QG, UK</td>
<td></td>
<td>(Tel: 44 1895 452200; FAX: 44 1895 420605)</td>
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<td><a href="http://www.merckpharmaceuticals.co.uk">http://www.merckpharmaceuticals.co.uk</a></td>
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<tr>
<td>Merck BV, Basisweg 34, Postbus 8198, 1005 AD Amsterdam, The Netherlands</td>
<td></td>
<td>(Tel: 31 20 4808 400; FAX: 31 20 4808 480)</td>
<td></td>
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<td><a href="http://www.merck.nl">http://www.merck.nl</a></td>
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<tr>
<td>Merck (Schweiz) AG, Rüchligstrasse 20, Postfach 464, 8953 Dietikon, Switzerland</td>
<td></td>
<td>(Tel: 41 1 45 1122; FAX: 41 1 45 1123)</td>
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<td><a href="http://www.merck.ch">http://www.merck.ch</a></td>
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<tr>
<td>Merck Schuchardt OHG, Div. of Merck GmbH, Eduard-Buchner-Str. 14-20, 85662 Hohenbrunn, Germany</td>
<td></td>
<td>(Tel: 49 8102 802-0; FAX: 49 8102 802-175)</td>
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<td><a href="http://www.schuchardt.de">http://www.schuchardt.de</a></td>
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<tr>
<td>Messer Group GmbH</td>
<td>Limespark, Otto-Volger-Strasse 3c, D-65843 Sulzbach, Germany</td>
<td>(Tel: 49 6196 7760-0; FAX: 49 6196 7760-501)</td>
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<td><a href="http://www.messer.com">http://www.messer.com</a></td>
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<tr>
<td>Methanex</td>
<td>1800 Waterfront Centre, 200 Burrard St., Vancouver, BC, V6C 3M1, Canada</td>
<td>(Tel: 604-661-2600; 800-661-8851; FAX: 604-661-2676)</td>
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<td><a href="http://www.methanex.com">http://www.methanex.com</a></td>
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<td>M. Michel &amp; Co., Inc.</td>
<td>PO Box 788 Planetarium Station, New York, NY, 10024-0545, USA</td>
<td>(Tel: 212-721-4980; FAX: 212-751-5393)</td>
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<td><a href="http://www.mmichel.com">http://www.mmichel.com</a></td>
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<td>Michelman, Inc.</td>
<td>9080 Shell Rd., Cincinnati, OH, 45236-1299, USA</td>
<td>(Tel: 513-793-7766; 877-ADDITIV; FAX: 877-464-2436; 513-793-2504)</td>
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<td><a href="http://www.michelmaninc.com">http://www.michelmaninc.com</a></td>
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<td>Micro Powders, Inc.</td>
<td>580 White Plains Rd., Tarrytown, NY, 10591, USA</td>
<td>(Tel: 914-793-4058; FAX: 914-472-7098)</td>
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<td><a href="http://www.micropowders.com">http://www.micropowders.com</a></td>
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<td>Midori Kagaku Co. Ltd.</td>
<td>1-25-1 Higashi-Ikebukuro, Toshima-ku, Tokyo, 171-0013, Japan</td>
<td>(Tel: 81 3 3980 8808; FAX: 81 3 3980 8805)</td>
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<td><a href="http://www.midori-kagaku.co.jp">http://www.midori-kagaku.co.jp</a></td>
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<td>Midwest Grain Products Inc.</td>
<td>1300 Main St., PO Box 130, Atchison, KS, 66002-0130, USA</td>
<td>(Tel: 913-367-1480; 800-255-0302)</td>
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<td><a href="http://www.midwestgrain.com">http://www.midwestgrain.com</a></td>
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<tr>
<td>Mikuni Pharmaceutical Industrial Co., Ltd.</td>
<td>2-35, Kamisu-cho, Toyonaka-shi, Osaka, 561, Japan</td>
<td>(Tel: 81 6 6333 5971; FAX: 81 6 6333 3387)</td>
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<td><a href="http://www.mikuni-seiyaku.co.jp">http://www.mikuni-seiyaku.co.jp</a></td>
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<td>Miljac Inc.</td>
<td>280 Elm St., New Canaan, CT, 06840, USA</td>
<td>(Tel: 203-966-8877; FAX: 203-966-3577)</td>
<td></td>
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<td><a href="http://www.miljac.com">http://www.miljac.com</a></td>
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<tr>
<td>Millennium Chemicals, Inc., Div. of Lyondell</td>
<td>230 Half Mile Road, Red Bank, NJ, 07701, USA</td>
<td>(Tel: 732-933-5000; FAX: 732-933-5240)</td>
<td></td>
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<td><a href="http://www.millenniumchem.com">http://www.millenniumchem.com</a></td>
</tr>
<tr>
<td>Millennium Inorganic Chemicals, Subsidiary of Lyondell Chemical, 20 Wight Ave., Suite 100, Hunt Valley, MD, 21030, USA</td>
<td>(Tel: 410-229-4400; 800-638-3234; FAX: 410-229-5003)</td>
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<td><a href="http://www.mic-global.com">http://www.mic-global.com</a></td>
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Manufacturers Directory

Millennium Chemicals/Fragrance & Flavor Div., 601 Crestwood St., Jacksonville, FL, 32208, USA (Tel: 904-768-5800; 800-231-6728; FAX: 904-768-2200; E-mail: inquire@aromachem.com; Internet: http://www.aromachem.com)

Millennium Chemicals/Performance Chemicals, 2701 Broening Hwy., Baltimore, MD, 21222, USA (Tel: 410-288-0200; 800-525-0731; FAX: 410-288-8857; Internet: http://www.millenniumchem.com)

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Millennium Korea, 6/F Samdo Bldg., 1-170 Soonhwa-Dong, Chung-ku, Seoul, Korea (Tel: 82 2 779 4844; FAX: 822 779 4883)

Miller-Stephenson

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Milliken Servicos, Av. das Nacoes Unidas, 12.551-22° floor/2205, Sao Paulo-SP, 04578-903, Brazil (Tel: 55 11 3043 7170; FAX: 55 11 3043 7096)

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Manufacturers Directory

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**Morflex**

**Reilly Chemicals S.A.**
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**Morton Salt,** A Rohm and Haas Company, 290 Springfield Rd., Suite 290, Bloomingdale, IL, 60108-2217, USA (Tel: 630-924-5516; 800-789-SALT; FAX: 312-807-2899; Internet: http://www.mortonsalt.com)

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<th>Manufacturer</th>
<th>Address</th>
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<tr>
<td>Nantong ChangChem</td>
<td>3rd Floor, 6th Row, Youyi Shangcheng, Tao Wu Road, Nantong, 226006, P.R. China</td>
<td>Tel: 86 513 515 5236; FAX: 86 513 515 2292; E-mail: <a href="mailto:info@changchem.com">info@changchem.com</a>; Internet: <a href="http://www.changchem.com">http://www.changchem.com</a></td>
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<tr>
<td>Napier Brown Foods</td>
<td>International House, 1 St. Katharine’s Way, London, E1W 1XB, UK</td>
<td>Tel: 44 020 7335 2500; FAX: 44 020 7335 2504; Internet: <a href="http://www.napierbrown.co.uk">http://www.napierbrown.co.uk</a></td>
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<tr>
<td>Napp Technologies, Inc.</td>
<td>401 Hackensack Ave., Hackensack, NJ, 07601, USA</td>
<td>Tel: 201-843-4664; FAX: 201-843-4737; Internet: <a href="http://www.napptech.com">http://www.napptech.com</a></td>
</tr>
<tr>
<td>Narchem Corp.</td>
<td>3800 W. 38th St., Chicago, IL, 60632-3311, USA</td>
<td>Tel: 773-376-8666; 800-458-1057; FAX: 773-376-8932; E-mail: <a href="mailto:info@narchem.com">info@narchem.com</a>; Internet: <a href="http://www.narchem.com">http://www.narchem.com</a></td>
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<td>Nasoya Foods</td>
<td>23 Jytek Dr., Leominster, MA, 01453, USA</td>
<td>Tel: 508-537-0713; FAX: 508-537-9790; Internet: <a href="http://www.nasoya.com">http://www.nasoya.com</a></td>
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<tr>
<td>National Casein</td>
<td>National Casein Co., 601 W. 80 St., Chicago, IL, 60620-2502, USA</td>
<td>Tel: 773-846-7300; FAX: 773-487-5709; E-mail: <a href="mailto:contact@nationalcasein.com">contact@nationalcasein.com</a>; Internet: <a href="http://www.nationalcasein.com">http://www.nationalcasein.com</a></td>
</tr>
<tr>
<td>National Casein (Canada) Inc.</td>
<td>450 Tapscott Rd., Unit 4, Scarborough, Ontario, M1B 1Y4, Canada</td>
<td>Tel: 416-298-6888; FAX: 416-298-5654</td>
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<tr>
<td>National Cottonseed Products Assn.</td>
<td>104 Timber Creek Drive, Suite 200, Cordova, TN, 38018, USA</td>
<td>Tel: 901-682-0800; FAX: 901-682-2856; E-mail: <a href="mailto:info@cottonseed.com">info@cottonseed.com</a>; Internet: <a href="http://www.cottonseed.com">http://www.cottonseed.com</a></td>
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<tr>
<td>National Diagnostics, Inc.</td>
<td>305 Patton Dr., Atlanta, GA, 30336, USA</td>
<td>Tel: 404-699-2121; 800-526-3867; FAX: 404-699-2077; E-mail: <a href="mailto:info@nationaldiagnostics.com">info@nationaldiagnostics.com</a>; Internet: <a href="http://www.nationaldiagnostics.com">http://www.nationaldiagnostics.com</a></td>
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<tr>
<td>National Purity LLC</td>
<td>434 Lakeside Ave. N., Minneapolis, MN, 55405, USA</td>
<td>Tel: 612-672-0022; FAX: 612-672-0027; E-mail: <a href="mailto:info@nationalpurity.com">info@nationalpurity.com</a>; Internet: <a href="http://www.nationalpurity.com">http://www.nationalpurity.com</a></td>
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<td>National Starch &amp; Chemical</td>
<td>National Starch &amp; Chemical Corp., Member of the ICI Group, 10 Finderne Ave., Bridgewater, NJ, 08807-3300, USA</td>
<td>Tel: 908-685-5000; 800-797-4992; FAX: 908-685-5005; Internet: <a href="http://www.nationalstarch.com">http://www.nationalstarch.com</a></td>
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<tr>
<td>National Starch &amp; Chemical/Food Innovation</td>
<td>10 Finderne Ave., Bridgewater, NJ, 08807-0500, USA</td>
<td>Tel: 856-228-1898; 800-743-6343; FAX: 908-685-5355; Internet: <a href="http://www.foodinnovation.com">http://www.foodinnovation.com</a></td>
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<tr>
<td>National Starch &amp; Chemical, S.A. de C.V.</td>
<td>Carretera a San Pedro Tolotlepec No. 107, Del. Industrial El Coecillo, 50200 Toluca, Estado de Mexico, Mexico</td>
<td>Tel: 52 722-275-7280; FAX: 52 722-275-7298</td>
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<tr>
<td>National Starch &amp; Chemical Ltd.</td>
<td>Prestbury Court, Greencourts Business Park, 333 Styal Rd., Heald Green, Manchester, Lancashire, M22 5LW, UK</td>
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<tr>
<td>National Starch &amp; Chemical GmbH</td>
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<td>Tel: 65 6872-6006; FAX: 65 6872-6033</td>
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<td>Company Name</td>
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<td>Natra US Inc.</td>
<td>1059 Tierra Del Ray, Chula Vista, CA, 91912, USA (Tel: 619-397-4120; FAX: 619-397-4121; E-mail: <a href="mailto:info@natraus.com">info@natraus.com</a>; Internet: <a href="http://www.natraus.com">http://www.natraus.com</a>)</td>
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<td>Natrium Products, Inc.</td>
<td>58 Pendelton, P.O. Box 5465, Cortland, NY, 13045, USA (Tel: 607-753-9829; 800-962-4203; FAX: 607-753-0052; E-mail: <a href="mailto:natrium@natrium.com">natrium@natrium.com</a>; Internet: <a href="http://www.natrium.com">http://www.natrium.com</a>)</td>
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<td>Natrochem Inc.</td>
<td>PO Box 1205, Savannah, GA, 31402, USA (Tel: 912-236-4464; FAX: 912-236-1919; E-mail: <a href="mailto:cmoore@natrochem.com">cmoore@natrochem.com</a>; Internet: <a href="http://www.natrochem.com">http://www.natrochem.com</a>)</td>
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<td>Natural Advantage</td>
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<td>Natural Oils International, Inc.</td>
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<td>Naturex</td>
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<td>NBS Biologicals Ltd.</td>
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<td>NetQem</td>
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<td>New Paradigm Technologies, Inc.</td>
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<td>Niacet Corp.</td>
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<td>Nichem Corp.</td>
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<td>Nihon Emulsion Co., Ltd.</td>
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<td>Nihon Surfactant Kogyo K.K.</td>
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<td>Nikko Chemicals Co., Ltd.</td>
<td>1-4-8, Nihonbash, Bakurocho, Chuo-ku, Tokyo, 103-0002, Japan (Tel: 81 3 3661 1677; FAX: 81 3 3664 8620; E-mail: <a href="mailto:info@nikkol.co.jp">info@nikkol.co.jp</a>; Internet: <a href="http://www.nikkol.co.jp/index.html">http://www.nikkol.co.jp/index.html</a>)</td>
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<td>Nippon Chemicals Co., Ltd.</td>
<td>C.M.Bldg., 3-3, 3-Chome, Nihonbashi-muromachi,, Chuo-ku, Tokyo, 103, Japan (Tel: 81 3 3270 5341; FAX: 81 3 3270-3401; Internet: <a href="http://www.npckk.co.jp">http://www.npckk.co.jp</a>)</td>
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<td>Nippon Aerosil Co., Ltd.</td>
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<td>Nippon Carbide Industries Co., Inc.</td>
<td>11-19, 2-Chome Konan, Minato-ku, Minato-Ku, Tokyo, 108-8466, Japan (Tel: 81 3 5462 8200; FAX: 81 3 5462 8244; Internet:</td>
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</table>
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<td>Tel: 630-231-6111; FAX: 630-231-1302; Internet: <a href="http://www.wrigley.com">http://www.wrigley.com</a></td>
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<tr>
<td><strong>The Nottingham Co.</strong></td>
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<td>Tel: 39 33 179 9878; FAX: 39 33 179 6531; E-mail: <a href="mailto:info@novachemaromatici.com">info@novachemaromatici.com</a>; Internet: <a href="http://www.novachemaromatici.com">http://www.novachemaromatici.com</a></td>
</tr>
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<td>NOVA Chemicals Ltd., Wholly owned subsid. of NOVA Corp., 1000 Seventh Ave. SW, P.O. Box 2518, Calgary, Alberta, T2P 5C6, Canada</td>
<td>Tel: 403-750-3600; 800-661-1548; FAX: 403-269-7410; E-mail: <a href="mailto:public@novachem.com">public@novachem.com</a>; Internet: <a href="http://www.novachem.com">http://www.novachem.com</a></td>
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<tr>
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<td>Tel: 49 6196.927.53.60; FAX: 49 6196 9275333</td>
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<tr>
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<tr>
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<td>Tel: 65 224 8807; FAX: 65-224-1877</td>
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<tr>
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</tr>
<tr>
<td><strong>NOVA Molecular Technologies, Inc.</strong></td>
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<td>Tel: 608-754-NOVA; FAX: 608-754-6878; E-mail: <a href="mailto:novainfo@novamolecular.com">novainfo@novamolecular.com</a>; Internet: <a href="http://www.novamolecular.com">http://www.novamolecular.com</a></td>
</tr>
<tr>
<td><strong>Novarina Srl</strong></td>
<td>Via Pinerolo 35, 10060 Bibiana (TO), Italy</td>
<td>Tel: 39 0121 55724; FAX: 39 0121 55111; E-mail: <a href="mailto:novarina@novarina.it">novarina@novarina.it</a>; Internet: <a href="http://www.novarina.it">http://www.novarina.it</a></td>
</tr>
</tbody>
</table>
Manufacturers Directory

Novartis Pharmaceutical Corp.
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East Hanover, NJ, 07936-1808, USA (Tel:
973-781-6500; 888-669-6682; FAX: 973-
781-6056; Internet:
http://www.pharma.us.novartis.com)

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Noveon Inc., Subsid. of Lubrizol, 9911
Brecksville Rd., Cleveland, OH, 44141-
3247, USA (Tel: 216-447-5000; 800-379-
5389; FAX: 216-447-5740; Internet:
http://www.carbopol.com;
http://www.noveoncoatings.com)
Noveon Europe B.V.A., Lubrizol, Chaussée
de Wavre, 1945, 1160 Brussels, Belgium
(Tel: 32 2 678 1911; FAX: 32 2 678 1990)
Noveon UK Ltd., Carlton Industrial Estate,
Carlton, Barnsley, S71 3HW, (Tel: 44 1226
723661; FAX: 44 1226 728298)
Noveon Asia Pacific Limited, Lubrizol, 1107-
1110 Shui On Centre, Wanchai, Hong Kong (Tel:
852 2508 1021; FAX: 852 2512 2241; Internet:
http://www.asiapacific.noveoninc.com)
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Kalama, WA, 98625, USA (Tel: 360-673-
2550; FAX: 360-673-3564)

Noviant
Noviant CMC Oy, Kuhnamontie 2, PL 500,
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5321; FAX: 312-873-5050; Internet:
http://www.nutrasweet.com)
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<table>
<thead>
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<th>Manufacturer</th>
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<tr>
<td>Petigara Chemicals</td>
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<td>Pfaltz &amp; Bauer Inc.</td>
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<td>Ferro Pfanstiehl Laboratories, Inc., Div. of Ferro, 1219 Glen Rock Ave., Waukegan, IL, 60085, USA</td>
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<td><a href="mailto:custserv@ferro.com">custserv@ferro.com</a>; <a href="http://www.pfanstiehl.com">http://www.pfanstiehl.com</a></td>
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<td>George Pfaus Sons Co., Inc.</td>
<td>824 Wall St., PO Box 7, Jeffersonville, IN, 47130-0007, USA</td>
<td>Tel: 812-283-6697; 800-732-8645; FAX: 812-283-0765</td>
<td><a href="mailto:jsparrow@pfauoil.com">jsparrow@pfauoil.com</a>; <a href="http://www.pfauoil.com">http://www.pfauoil.com</a></td>
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<td>Pfister Chemical, Inc.</td>
<td>Ft. Linden Ave., P.O. Box 15, Ridgefield, NJ, 07657, USA</td>
<td>Tel: 201-945-5400; FAX: 201-945-0159</td>
<td><a href="http://www.pfisterchemical.com">http://www.pfisterchemical.com</a></td>
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<td>Pfizer</td>
<td>Pfizer International, 235 East 42nd Street, New York, NY, 10017, USA</td>
<td>Tel: 212-733-2323</td>
<td><a href="http://www.pfizer.com">http://www.pfizer.com</a></td>
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<td>Pfizer Canada</td>
<td>17300 Trans-Canada Hwy., Sortie 50, Kirkland, Quebec, H9J 2M5, Canada</td>
<td>Tel: 514-695-0500; 877-633-2001</td>
<td><a href="http://www.pfizer.ca">http://www.pfizer.ca</a></td>
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<td>Pfizer Ltd.</td>
<td>Walton Oaks, Dorking Road, Tadworth, Surrey, KT20 7NS., UK</td>
<td>Tel: 44 1304 616161</td>
<td><a href="http://www.pfizer.com">http://www.pfizer.com</a></td>
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<td>Pfizer Europe</td>
<td>Hoge Wei, 10, 1930 Zaventem, Belgium</td>
<td>Tel: 32 2 722 02 11</td>
<td><a href="http://www.pfizer.com">http://www.pfizer.com</a></td>
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<tr>
<td>Pfizer France</td>
<td>23-25 avenue du Dr. Lannelongue, 75668 Paris Cedex 14, France</td>
<td>Tel: 3; Internet: <a href="http://www.pfizer.fr">http://www.pfizer.fr</a></td>
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<tr>
<td>Pfizer Australia</td>
<td>38-42 Wharf Road, PO Box 57, West Ryde, NSW, 2114, Australia</td>
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<td><a href="mailto:info.australia@pfizer.com">info.australia@pfizer.com</a>; <a href="http://www.pfizer.com.au">http://www.pfizer.com.au</a></td>
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<td>Pfizer Japan Inc.</td>
<td>Shinjuku Bunka Quin Bldg., 22-7, Yoyogi 3-chome, Shibuya-ku, Tokyo, 151-8589, Japan</td>
<td>Tel: 81 3 5309-7000; FAX: 81 3 5309-9912</td>
<td><a href="http://www.pfizer.co.jp/pfizer/english/company/">http://www.pfizer.co.jp/pfizer/english/company/</a></td>
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<tr>
<td>Pharmachem Laboratories, Inc.</td>
<td>265 Harrison Ave., Kearney, NJ, 07032, USA</td>
<td>Tel: 201-246-1000; 800-526-0609; FAX: 201-246-8105</td>
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<tr>
<td>Pharmco Products Inc.</td>
<td>58 Vale Rd., Brookfield, CT, 06804-3967, USA</td>
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<td>Pharmline, Inc.</td>
<td>PO Box 291, 41 Bridge St., Florida, NY, 10921, USA</td>
<td>Tel: 845-651-4443; FAX: 845-651-6900</td>
<td>info.pharmlneinc.com; <a href="http://www.pharmlneinc.com">http://www.pharmlneinc.com</a></td>
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<td>Pharmrite North America Corp.</td>
<td>1160 Tapscott Rd., Unit 2 &amp; 3, Toronto, ON, M1X 1E9, Canada</td>
<td>Tel: 416-412-9281; FAX: 416-293-9066</td>
<td><a href="http://www.pharmrite.com">http://www.pharmrite.com</a></td>
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<tr>
<td>Phelps Dodge Refining Corp.</td>
<td>897 Hawkins Blvd, El Paso, TX, 79915-1217, USA</td>
<td>Tel: 915-778-9881; FAX: 915-775-8887</td>
<td><a href="http://www.phelpsdodge.com">http://www.phelpsdodge.com</a></td>
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<td>PhibroChem Ltd.</td>
<td>Div. of Philipp Bros. Chemicals Inc., 65 Challenger Road, Third Floor, Ridgefield Park, NJ, 07660, USA</td>
<td>Tel: 201-329-7300; FAX: 201-329-7034</td>
<td><a href="http://www.phibrochem.com">http://www.phibrochem.com</a></td>
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<td>Phibro-Tech, Inc.</td>
<td>65 Challenger Road, Third Floor, Ridgefield Park, NJ, 07660, USA</td>
<td>Tel: 201-329-7300; FAX: 201-329-7301</td>
<td><a href="http://www.phibrotech.com">http://www.phibrotech.com</a></td>
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Manufacturers Directory

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<thead>
<tr>
<th>Company Name</th>
<th>Address</th>
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<td><strong>Manufacturers Directory</strong></td>
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<tr>
<td>IL, 60069, USA</td>
<td>Tel: 847-634-6330; FAX: 847-634-1992; E-mail: <a href="mailto:pam@purac.com">pam@purac.com</a>; Internet: <a href="http://www.purac.com">http://www.purac.com</a></td>
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Robertet Flavors Inc., 10 Colonial Drive, Piscataway, NJ, 07080, USA (Tel: 732-981-8300; FAX: 732-981-1717)

Roche
Hoffmann-LaRoche Inc., 340 Kingsland St., Nutley, NJ, 07110, USA (Tel: 973-235-5000; 800-526-0625; FAX: 973-235-7605; Internet: http://www.rocheusa.com)

Hoffmann-La Roche Ltd., 2455 Meadowpine Boulevard, Mississauga, Ontario, L5N 6L7, Canada (Tel: 905-542 5555; FAX: 905-542 7130; Internet: http://www.roche canada.com)

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Grenzacherstrasse 124, CH-4070 Basel, Switzerland (Tel: 41 61 688 1111; FAX: 41 61 691 9391; Internet: http://www.roche.ch)

Roche Deutschland Holding GmbH, Emil-Barell-Str. 1, DE-76939 Grenzach-Wyhlen, Germany (Tel: 49 7624 9088 0; FAX: 49 7624 9008 3672; Internet: http://www.roche.de)

Roche Products Ltd., Div. of Roche AG, PO Box 8, 40 Broadwater Road, Welwyn Garden City, Hertfordshire, AL7 3AY, UK (Tel: 44 1707 366000; FAX: 44 1707-338297; Internet: http://www.rocheuk.com)

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Roche Diagnostics
Roche Diagnostics Corp./Roche Applied Science, 9115 Hague Rd., PO Box 50414, Indianapolis, IN, 46250-0414, USA (Tel: 800-428-5433; FAX: 800-428-2883; E-mail: indianapolis.bmbcustomerservice@roche.com; Internet: http://www.roche-applied-science.com)

Roche Diagnostics GmbH/Roche Applied Science, Sandhoferstrasse 116, 68305 Mannheim, Germany (Tel: 49-621-759-8568; FAX: 49-621-759-4083; Internet: http://www.roche-applied-science.com)

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Rohm and Haas South Africa (Pty.) Ltd., 8 Schafer Road, New Germany, 3610 KwaZulu-Natal, South Africa (Tel: 27 31 716 5900; FAX: 27 31 716 5965)

Rohm and Haas B.V., Valgenweg 7, 9936 HV Farmsum, Delfzijl, The Netherlands (Tel: 31 596 633563; FAX: 31 596 615516)

Rohm and Haas European Holding Aps, Oesterfaelled Torv 33, 2nd Floor, DK-2100 Copenhagen, Denmark (Tel: 45 35 444 333; FAX: 45 35 444 343)

Rohm and Haas Espana S.A., Provenza, 216 3rd Fl., 08036 Barcelona, Spain (Tel: 34 93 227 1900; FAX: 34 93 323 4043)

Rohm and Haas India Pvt. Ltd., c/o Maks Commercial Centre, A/14 Veera Industrial Estate, Off Veera Desai Rd., Andheri West Mumbai, 400053, India (Tel: 91 22 636 1497; FAX: 91 22 636 1487; E-mail: jbilling@rohmhass.com)

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SAF Bulk Chemicals, 3050 Spruce St., St. Louis, MO, 63103, USA (Tel: 314-534-4900; 800-336-9719; FAX: 800-368-4661)

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Saint-Gobain
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Sal Chemical Co., Inc.
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Sammi Industrial Co., Ltd.
222, Palgog Il-Dong, Ansan-City, Kyunggi-do, 425-200, South Korea (Tel: 82 31 437 0451; FAX: 82 31 437 0456; E-mail: gelatin@naver.com; Internet: http://www.ec21.net/co/g/gelatin/)

San-Ei Gen F.F.I., Inc.
1-4-9, Hirano-machi, Chuo-ku, Osaka, 540-8688, Japan (Tel: 81 6 6202 3751; FAX: 81 6 6202 3770; Internet: http://www.saneigenffi.co.jp)

San-Ei Gen F.F.I. (U.S.A.), Inc.
630 Fifth Avenue Suite, 1440 (Rockefeller Center), New York, NY, 10111, USA (Tel: 81-3-5200-3400; FAX: 81-3-3245-1697; E-mail: contact@saneigen.com; Internet: http://www.saneigen.com/HTML/saneigen.html)

San Esters Corp.
Subsid. of Mitsubishi Rayon, 55 E. 59th St., 19th Floor, New York, NY, 10022, USA (Tel: 212-223-0020; 800-337-8377; FAX: 212-974-2540; E-mail: eva@kowa.com; Internet: http://www.sanesters.com)

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Div. of Air Products, Room D, 4F., No.15, Nanke 3rd Rd, Sinshih Township, Tainan County, 744, Taiwan R.O.C. (Tel: 886 2 25214161; FAX: 886 2 25818359; E-mail: info@sanfu.com.tw; Internet: http://www.sanfu.com.tw)

Sanpo Organic Chemicals Co., Ltd.
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Sanofi-aventis
Bridgewater, Bridgewater, NJ, Bridgewater, USA (Tel: 908 243 6000; FAX: 908 243 6483; Internet: http://www.sanofi-aventis.us)

Sansho Co. Ltd.
Twin21 MId Tower 23F, 1-61 Shiromi 2-chome, Chuo-ku, Osaka, 540-6123, Japan (Tel: 81 6 6941 7271; FAX: 81 6 6941 7278; Internet: http://www.sansho.co.jp)

Sanwa Chemical Co., Ltd.

Sanyo Chemical Industries, Ltd.
No.10 Chuo Bldg., 5-6, 5-6, Honcho 1-chome, Nihonbashi, Chuo-ku, Tokyo, 103-0023, Japan (Tel: 81-3-5200-3400; FAX: 81-3-3245-1697; E-mail: sanyoprodct@sanyo-chemical.com; Internet: http://www.sanyo-chemical.co.jp)

San Yuan Chemical Co., Ltd.
34 Kuang Fu Rd, Chia Tai Ind., Taipao City, Chiayih, Taiwan R.O.C. (Tel: 886 5-2379361; FAX: 886-5-2379695)

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Div. of Gibraltar Industries, 2601 Weck Dr., Research Triangle Park, NC, 27709, USA (Tel: 919-544-8090; FAX: 919-544-0917; E-mail: mhill@gibraltar1.com; Internet: http://www.scmmetals.com)
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  Scott Bader Co. Ltd., Wollaston, Wellingborough, Northamptonshire, NN29 7RL, UK (Tel: 44 1933 663100; FAX: 44 1933 664592; E-mail: specpol@scottbader.com; Internet: http://www.scottbader.com)

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  6141 Easton Rd., PO Box 310, Plumsteadville, PA, 18949-0310, USA (Tel: 215-766-8861; 877-715-8651; FAX: 215-766-2476; Internet: http://www.scottgas.com)

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<table>
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<tr>
<th>Company Name</th>
<th>Address Details</th>
<th>Telephone Numbers</th>
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<tr>
<td>Shanghai Rokem International Trading Co., Ltd.</td>
<td>9D, Double Dove Great Tower, 438 Pudian Road, Shanghai, 200122, P.R. China (Tel: 86 21 5081 1396; FAX: 86 21 5881 8728; E-mail: <a href="mailto:info@rokem.com">info@rokem.com</a>)</td>
<td>86 21 63636330; E-mail: <a href="mailto:info@rokem.com">info@rokem.com</a>; Internet: <a href="http://www.rokem.com">http://www.rokem.com</a></td>
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<td>Shan Par Industries</td>
<td>303/5, GIDC Estate, PO Box 777, Vadodara, Gujarat, 390 010, India (Tel: 91 265 264 5130; E-mail: <a href="mailto:info@shanpar.com">info@shanpar.com</a>)</td>
<td>FAX: 91 265 263 8717; E-mail: <a href="mailto:info@shanpar.com">info@shanpar.com</a>; Internet: <a href="http://www.shanpar.com">http://www.shanpar.com</a></td>
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<td>Sharon Laboratories Israel</td>
<td>Industrial Zone Ad Halom, PO Box 832, 77106 Ashdod, Israel (Tel: 972 8 855 49800; FAX: 972 8 8544494)</td>
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<td>Shell</td>
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<td>86-21-63636330; E-mail: <a href="mailto:roadtrade@roadyes.com">roadtrade@roadyes.com</a>; Internet: <a href="http://www.roadyes.com/index.php">http://www.roadyes.com/index.php</a></td>
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<td>FAX: 86 21 5081 1396; FAX: 86 21 5881 8728; E-mail: <a href="mailto:info@rokem.com">info@rokem.com</a>; Internet: <a href="http://www.rokem.com">http://www.rokem.com</a></td>
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<td>Div. of Shell Oil Co., One Shell Plaza, PO Box 2463, Houston, TX, 77252-2463, USA (Tel: 713-241-6161; 800-872-7435; FAX: 713-241-4043; E-mail: CustomerCentreUS@shel}</td>
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<td>Shell Mexico</td>
<td>Av Paseo de las Palmas 425, Piso 3 Col Lomas de Chapultepec CP, 11000 Mexico D F, Mexico (Tel: 52 55 5089 5737; FAX: 52 55 5089 5790; E-mail: <a href="mailto:LA_Chemicals@shelleurope.com">LA_Chemicals@shelleurope.com</a>)</td>
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<td>Shell Chemicals Europe BV</td>
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<td>Shell Chemicals Japan Ltd.</td>
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<td>SPI Pharma Group (France)</td>
<td>CheMin du Vallon du Maire, 13240 Septemes-les-Vallons, France (Tel: 33 4 91 96 36 13; FAX: 33 4 91 96 36 33; E-mail: <a href="mailto:patrice@spi-pharma.demon.co.uk">patrice@spi-pharma.demon.co.uk</a>)</td>
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<td>S &amp; S Chemical Co., Inc.</td>
<td>188 Main St., PO Box 659, Northport, NY, 11768, USA (Tel: 631-261-5920; FAX: 631-261-5934; E-mail: <a href="mailto:rds@sandschemical.com">rds@sandschemical.com</a>)</td>
<td><a href="http://www.stlawrencechem.com">http://www.stlawrencechem.com</a></td>
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<td>Sterlino Europe</td>
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<td>St. Lawrence Chemicals, 35 Vulcan St., Rexdale, Ontario, M9W 1L3, Canada (Tel: 416-243-9615; FAX: 416-243-9731)</td>
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<td>Stoppani</td>
<td>Luigi Stoppani S.p.A., Corso Magenta, 85 - 20123 Milano, Italy (Tel: 39 024676161; FAX: 39 024818796; E-mail: <a href="mailto:stoppani.spa@stoppani.it">stoppani.spa@stoppani.it</a>; Internet: <a href="http://www.stoppani.it">http://www.stoppani.it</a>)</td>
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<td>Symrise Inc.</td>
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<td>Synthite Ltd.</td>
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<td>Tel: 44 1352 752521</td>
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<td>Synthon</td>
<td>Synthon S.A., Subsid. of Protex International Group, BP 177, 6 rue Barbès, 92305 Levallois-Paris Cedex, France</td>
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<td>FAX: 201-784-7277</td>
<td>Internet: <a href="http://www.takasago.com">http://www.takasago.com</a></td>
</tr>
<tr>
<td>Takasago Ltd.</td>
<td>Ground Floor Scammell House, 9 Ascot High St., Ascot, Berkshire, SL5 7F, UK</td>
<td>Tel: 44-1344-874-193; FAX: 44-1344-873-724</td>
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Manufacturers Directory

Germany (Tel: 49 211 4976 6660; FAX: 49 211 4976 6666)

Takasago International (Australia) Pte. Ltd.,
Level 5, 815 Pacific Hwy., Chatswood,
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Empresarial Anhanguera – Empresarial I,
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Takasago Taiwan, 12th Floor, No. 22 Nanking
West, Taipei, Taiwan, R.O.C. (Tel: 886-2-2555-0935; FAX: 886-2-2555-0376; Internet:
http://www.takasago.com/english)

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http://www.takasago.com/english)

Takasago Europe Perfumery Laboratory
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11 77; FAX: 41 (1) 3 50 11 78)

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117 971 2719; FAX: 44 117 972 0052; E-
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Internet: http://www.tateandlyle.com)

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62525, USA (Tel: 800-348-7414; FAX: 217-
421-2881; Internet: http://www.tlna.com)

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Manufacturers Directory

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111 Brook St., Scarsdale, NY, 10583-5192, USA (Tel: 914-472-6464; FAX: 914-472-1846; E-mail: fhtaussig@aol.com; Internet: http://www.fhtaussig.net/)

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Amber Chemical, PO Box 768, Lawrenceville, GA, 30246, USA (Tel: 770-339-4460; 800-822-4460; FAX: 770-339-4464; E-mail: mtalley@taylorchemical.com; Internet: http://www.taylorchemical.com/)

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390 N. Wickham Rd., Suite F, Melbourne, FL, 32935-8647, USA (Tel: 321-259-1630; 800-367-2563; FAX: 321-242-0625; E-mail: aloe@terrylabs.com; Internet: http://www.terrylabs.com)

Tessenderlo
Tessenderlo Chemie, Troonstraat 130, Rue du Trône 130, 1050 Brussels, Belgium (Tel: 32 2 639 18 11; FAX: 32 2 639 1702; E-mail: tcgroup@tessenderlo.com; Internet: http://www.tessenderlo.com)
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<thead>
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<th>Company Name</th>
<th>Address Details</th>
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<td>Tessenderlo Kerley, Inc.</td>
<td>2255 North 44th St., Suite 300, Phoenix, AZ, 85008-3279, USA (Tel: 602-889-8300; 800-669-0559; FAX: 602-889-8430; E-mail: <a href="mailto:info@tkinet.com">info@tkinet.com</a>; Internet: <a href="http://www.tkinet.com/">http://www.tkinet.com/</a>)</td>
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<tr>
<td>Tetra Chemicals</td>
<td>A Div. of TETRA Technologies Inc., 25025 I-45 North, Suite 600, The Woodlands, TX, 77380, USA (Tel: 281-367-1983; 800-327-7817; FAX: 281-367-6471; E-mail: <a href="mailto:customerservice@tetratec.com">customerservice@tetratec.com</a>; Internet: <a href="http://www.tetrachemicals.com">http://www.tetrachemicals.com</a>)</td>
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<td>Texas Petrochemicals LP</td>
<td>5151 San Felipe, Suite 800, Houston, TX, 77056, USA (Tel: 713-627-7474; FAX: 713-626-3650; Internet: <a href="http://www.txpetrochem.com">http://www.txpetrochem.com</a>)</td>
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<td>Thatcher Co.</td>
<td>1905 Fortune Rd., PO Box 27407, Salt Lake City, UT, 84127, USA (Tel: 801-972-4587; 800-348-0034; FAX: 801-972-4606; E-mail: <a href="mailto:ChemicalInfo@thatchercompany.com">ChemicalInfo@thatchercompany.com</a>; Internet: <a href="http://www.thatchercompany.com">http://www.thatchercompany.com</a>)</td>
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<td>Thibaut &amp; Walker Co.</td>
<td>49 Rutherford St., PO Box 296, Newark, NJ, 07101, USA (Tel: 973-589-3331; FAX: 973-589-7231)</td>
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<td>Thiele Kaolin Co.</td>
<td>PO Box 1056, 520 Kaolin Rd, Sandersville, GA, 31082, USA (Tel: 478-552-3951; FAX: 478-552-4131; Internet: <a href="http://www.thielekaolin.com">http://www.thielekaolin.com</a>)</td>
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<td>Thirumalai Chemicals Ltd.</td>
<td>101, Sion-Matunga Estate Scheme No. 6, Mumbai, 400 022, India (Tel: 91 22 24017834; FAX: 91 22 24011699; E-mail: <a href="mailto:thirumalai@thiruchem.com">thirumalai@thiruchem.com</a>; Internet: <a href="http://www.thirumalaichemicals.com">http://www.thirumalaichemicals.com</a>)</td>
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<td>P.L. Thomas &amp; Co., Inc.</td>
<td>119 Headquarters Plaza, Morristown, NJ, 07960, USA (Tel: 973-984-0900; FAX: 973-984-5666; E-mail: <a href="mailto:plt@plthomas.com">plt@plthomas.com</a>; Internet: <a href="http://www.plthomas.com">http://www.plthomas.com</a>)</td>
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<td>Thomas Scientific</td>
<td>99 High Hill Rd., PO Box 99, Swedesboro, NJ, 08085, USA (Tel: 856-467-2000; 800-345-2100; FAX: 856-467-3087; E-mail: <a href="mailto:value@thomassci.com">value@thomassci.com</a>; Internet: <a href="http://www.thomassci.com">http://www.thomassci.com</a>)</td>
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<td>Thor Specialities (UK) Ltd.</td>
<td>Wincham Ave., Wincham, Northwich, Cheshire, CW9 6GB, UK (Tel: 44 1606 818800; FAX: 44 1606 818801; E-mail: <a href="mailto:info@thor.uk.com">info@thor.uk.com</a>; Internet: <a href="http://www.thor.com">http://www.thor.com</a>; <a href="http://www.thor.adept.co.uk">http://www.thor.adept.co.uk</a>)</td>
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<tr>
<td>Thor Nordic, Molndalsvagen 24, 41263 Göteborg, Sweden (Tel: 46 31 404 146; FAX: 46 31 404 125; E-mail: <a href="mailto:biocid@thornordic.se">biocid@thornordic.se</a>)</td>
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<tr>
<td>Thor Especialidades, SA</td>
<td>Poligono Industrial El Pla, Avda. de la Industria 1, 08297 Castellgalí (Barcelona), Spain (Tel: 34 93</td>
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<tr>
<td>Company Name</td>
<td>Address</td>
<td>Telephone Numbers</td>
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<td>Thor Specialties Pty. Ltd.</td>
<td>67 Newton Rd., Wetherill Park, NSW, 2164, Australia</td>
<td>Tel: 61 2 9725 1177; FAX: 61 2 9725 5677</td>
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<tr>
<td>Thor Specialties Pty. Ltd.</td>
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<tr>
<td>Thornley Company Inc.</td>
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<tr>
<td>3V Italia SpA</td>
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</tr>
<tr>
<td>3V UK Ltd.</td>
<td>1st Fl., A Wing, South Court, Sharston Rd., Sharston, Manchester, M22 4SN, UK</td>
<td>Tel: 44 0161 998 1991; FAX: 44 0161 998 1997</td>
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<tr>
<td>3V Deutschland GmbH</td>
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<td>3V France SA</td>
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<td>Tel: 33 1 40 827272; FAX: 33 1 40 82 90 28</td>
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<tr>
<td>3V Iberia S.A.</td>
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<tr>
<td>3V International, Lugano</td>
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</tr>
<tr>
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</tr>
<tr>
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Manufacturers Directory

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<th>Company Name</th>
<th>Address</th>
<th>Telephone Numbers</th>
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<th>E-mail Address</th>
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<tr>
<td>Thymly Products Inc.</td>
<td>1332 Colora Rd., PO Box 65, Colora, MD, 21917, USA</td>
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<td>Internet: <a href="http://www.thymlyproducts.com">http://www.thymlyproducts.com</a></td>
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<tr>
<td>TIC Gums, Inc.</td>
<td>4609 Richlynn Dr., PO Box 369, Belcamp, MD, 21017-0369, USA</td>
<td>Tel: 410-273-7300; 800-221-3953; FAX: 410-273-6469</td>
<td>E-mail: <a href="mailto:info@ticgums.com">info@ticgums.com</a></td>
<td>Internet: <a href="http://www.ticgums.com">http://www.ticgums.com</a></td>
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<tr>
<td>Ticona</td>
<td>Ticona GmbH, A Business of Celanese AG, Professor-Staudinger-Straße, 65451 Kelsterbach, Germany</td>
<td>Tel: 49 180 - 584 2662; FAX: 180 - 202 1202</td>
<td>E-mail: <a href="mailto:info@ticgums.com">info@ticgums.com</a></td>
<td>Internet: <a href="http://www.ticgums.com">http://www.ticgums.com</a></td>
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<tr>
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<tr>
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<td>Tel: 31 20 39 80 160; FAX: 31 20 39 80 165</td>
<td>Internet: <a href="http://www.ticona.nl">http://www.ticona.nl</a></td>
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</tr>
<tr>
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<td>Tel: 46 - 31 - 67 86 10; Internet: <a href="http://www.ticona-norden.com">http://www.ticona-norden.com</a></td>
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<tr>
<td>Ticona</td>
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<tr>
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<td>Internet: <a href="http://www.ticona.fr">http://www.ticona.fr</a></td>
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<tr>
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<td>Internet: <a href="http://www.ticona.es">http://www.ticona.es</a></td>
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Manufacturers Directory

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Tilley Chemical Co. 501 Chesapeake Pk. Plaza, Baltimore, MD, 21220-4203, USA (Tel: 410-574-4500; 800-638-6968; FAX: 410-391-6665; E-mail: tilleychemical@erols.com; Internet: http://www.tilleychem.com)

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TKB Trading, LLC 356 24th St., Oakland, CA, 94612, (Tel: 510-451-9011; FAX: 510-451-9044; E-mail: info@tkbtrading.com; Internet: http://www.wholesalecolors.com)

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Tocris Bioscience Tocris House, Hung Road, Avonmouth, BS11 9XJ, UK (Tel: 44 117 916 3333; FAX: 44 117 916 3344; E-mail: customerservice@tocris.co.uk; Internet: http://www.tocris.com)

Toho Chemical Industry Co., Ltd. 6-4, Akashi-cho, Nichirei Akashicho Bldg., Chuo-ku, Tokyo, 104-0044, Japan (Tel: 81 3 5550 3737; FAX: 81 3 5550 1986; E-mail: overseas@toho-chem.co.jp; Internet: http://www.toho-chem.co.jp)

Toho Zinc Co., Ltd. 1-6-1, Nihonbashi Hon-cho, Chuo-ku, Tokyo, 103, Japan (Tel: 81 3 3272 5611; FAX: 81 3 3271 0070; Internet: http://www.tohozinc.co.jp)

Tokyo Kasei Kogyo Co., Ltd. Shindai Building 3F, 1-2-6 Dojimahama, Kita-ku., Osaka, 530-0, Japan (Tel: 81-6-6346-6709; FAX: 81-6-6346-6715; Internet: http://www.tokyokasei.co.jp)

Tomen America Inc./Kawaguchi Subsid. of Tomen Corp., 1285 Ave. of the Americas, New York, NY, 10019, USA (Tel: 212-397-4600; 800-781-0037; FAX: 212-582-2007; E-mail: tomen_america@ov.tomen.com; Internet: http://www.tomenamerica.com)

Tomita Pharmaceutical Co., Ltd. 85-1, Maruyama Akinokami, Seto-cho, Naruto-shi, Tokushima, 771-0360, Japan (Tel: 81 886 88 0511; FAX: 81 886 88 0565; E-mail: webmaster@tomitaph.co.jp; Internet: http://www.tomitaph.co.jp)

Tomiyama Pure Chemical Industries, Ltd. Kyodo Bldg. (Honcho), 1-2-6, Nihonbashi-Honcho, Chuo-ku, Tokyo, 103-0023, Japan (Tel: 81 3 3242 5141; FAX: 81 3 3242 3166; E-mail: overseas@tomypure.co.jp; Internet: http://www.tomypure.co.jp)

Toray Fine Chemicals Co., Ltd. Toray Bldg.,8-1,Mihama 1-chome, Urayasu City, Chiba Pref. 279-8555, Japan (Tel: 81 47 350 6150; FAX: 81 47 350 6095; Internet: http://www.torayfinechemicals.com)

Toray Thiokol Co., Ltd. 5th Fl., Toray Building, 8-1, Mihama 1-chome, Urayasu-shi, Chiba, 279-8555, Japan (Tel: 81 473 50 6150; FAX: 81 473 50 6095; Internet: http://www.toray.com)

TOR Minerals International 722 Burleson Street, Corpus Christi, TX, 78403-2544, USA (Tel: 361-883-5591; FAX: 361-883-7619; E-mail: info@torminerals.com; Internet: http://www.torminerals.com)

Toronto Research Chemicals, Inc. (TRC) 2 Brisbane Rd, North York, ON, M3J 2J8, Canada (Tel: 416-665-9696; 800-727-9240; FAX: 416-665-4439; E-mail: info@trc-canada.com; Internet: http://www.trc-canada.com)

Tosoh Tosoh Corp., Shiba-koen First Bldg., 3-8-2, Shiba, Minato-ku, Tokyo, 105-8623, Japan (Tel: 81 3 5427 5118; FAX: 81 3 5427 5198; E-mail: info@tosoh.co.jp; Internet: http://www.tosoh.co.jp)

Tosoh Europe B.V., Crown Bldg.-South, Hullenbergweg 359, 1101 CP Amsterdam Z.O., The Netherlands (Tel: 31 20 565 0010; FAX: 31 20 691 5458; E-mail: 
Manufacturers Directory

mail: enquires@rctrett.com; Internet: http://www.rctrett.com

Treatt USA, 4900 Lakeland Commerce Pkwy., Lakeland, FL, 33805, USA (Tel: 863-668-9500; 800-866-7704; FAX: 863-668-3388; E-mail: enquires@treattUSA.com; Internet: http://www.rctrett.com)

Trigon Chemie GmbH
Alte Hohenzeller Strasse 20, 36381 Schluechtern, Germany (Tel: 49 6661 96590; FAX: 49 6661 919276; E-mail: info@grigon-chemie.com; Internet: http://www.trigon-de.com)

Tri-Iso, Inc.
480 N. Indian Hill Blvd., Suite 2A, Claremont, CA, 91711, USA (Tel: 909-626-4855; FAX: 909-621-9119; E-mail: service@tri-iso.com; Internet: http://www.tri-iso.com)

Tri-K Industries, Inc.
151 Veterans Drive, Northvale, NJ, 07647, USA (Tel: 201-750-1055; 800-526-0372; FAX: 201-750-9785; E-mail: info@tri-k.com; Internet: http://www.tri-k.com)

Triple Crown America, Inc.
Box 667, Perkasie, PA, 18944, USA (Tel: 215-453-2510; FAX: 215-453-2509; E-mail: info@triplecrownamerica.com; Internet: http://www.triplecrownamerica.com)

Triple-S Chemical Co.
3464 Union Pacific Ave., Los Angeles, CA, 90023-3835, USA (Tel: 323-261-7301; FAX: 323-261-5567)

Troy
Troy Corp., PO Box 955, 8 Vreeland Rd., Florham Park, NJ, 07932-0955, USA (Tel: 973-443-4200; FAX: 973-443-0256; E-mail: troyusa@troycorp.com; Internet: http://www.troycorp.com)

Troy Chemical Co., Ltd., 242 Applewood Crescent, Unit 14, Concord, Ontario, L4K 4E5, Canada (Tel: 905-760-7902; FAX: 905-760-7904; E-mail: mordenm@troycorp.com)

Troy Productos Quimicos Ltda., Rua Cubatão, 587- 7° andar/Cj 72, Paraiso-Sao Paulo-SP, 04013-042, Brazil (Tel: 55 115575 0090; FAX: 55 115575 9080; E-mail: goncalvc@troycorp.com)

Troy Chemical Co. UK, 3rd Floor, Adelphia Mill, Grimshaw Lane, Bollington, Macclesfield, Cheshire, SK10 5JB, UK (Tel: 44 1625 575597; FAX: 44 12625 575009; E-mail: woodd@troycorp.com)

Troy Chemical Co. B.V., Uiverlaan 12e, 3145 XN Maassluis, The Netherlands (Tel: 31 10 5939 065; FAX: 31-10 592 8877; E-mail: bama@kabelfoon.nl)

Troy Chemie GmbH, Wunstorferstrasse 40, D-30926 Seelze, Germany (Tel: 49 5137 8236 510; FAX: 49 5137 8236 106; E-mail: kopotscm@troycorp.com)

Troy France, Bâtiment Châteaignier; Eden Village, Agroparc Avignon, 84140 Montfavet, France (Tel: 33 4.90.84.42.10; FAX: 33 4.90.84.01.12; E-mail: avinensa1@troycorp.com)

Troy Italia, Via Lorenteggio, 35, 20146 Milan, Italy (Tel: 390 2 475054; FAX: 390 2 471712; E-mail: sinigac@troycorp.com)

Troy Iberica, Sucursal en Espana, C/ Santiago Rusinyol, 1, 08470 Sant Celoi (Barcelona), Spain (Tel: 34 93 867 5690; FAX: 34 93 867 5584; E-mail: pascualj@troycorp.com)

Troy Asia, 400 Moo 11, Phairojkijja Bldg 6th Fl, Room A, Bagna-Trad Road, Bagna Sub-District, Bagna District, Bangkok 10260, Thailand (Tel: 66-2-361-4546; FAX: 66-2-361-4547; E-mail: bonnissa@troycorp.com)

The Tryline Co., Inc.
365 118th Ave. SE, Suite 100, Bellevue, WA, 98005, USA (Tel: 425-450-8822; 800-682-0221; FAX: 425-637-7200; Internet: http://www.tryline.com)

Tulco, Inc.
9 Bishop Rd., Ayer, MA, 01432, USA (Tel: 978-772-4412; FAX: 978-772-1751; E-mail: tulco@erols.com; Internet: http://www.tulcocorp.com)

Tulstar Products Inc.
5510 S. Lewis Ave., Tulsa, OK, 74105, USA (Tel: 918-749-9060; 800-988-5782; FAX: 918-747-1444; E-mail: tulstar@tulstar.com; Internet: http://www.tulstar.com)

Ube Industries, Ltd.
Seavans North Bldg, 1-2-1,Shibaura,Minato-Ku, Tokyo, 105-8449, Japan (Tel: 81 3 5419 6112; FAX: 81 3 5419 6237; Internet: http://www3.ube-ind.co.jp/en/index.php3)

Ubichem plc
Mayflower Close, Chandlers Ford Industrial Estate, Eastleigh, Hants, SO53 4AR, UK (Tel: 44 23 8026 3030; FAX: 44 23 8026
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<td>Ungerer &amp; Co., 4 Bridgewater Lane, Lincoln Park, NJ, 07035, USA (Tel: 973-628-0600; FAX: 973-628-0251; E-mail: <a href="mailto:aking@ungerer.org">aking@ungerer.org</a>)</td>
<td>Tel: 973-628-0600; FAX: 973-628-0251; E-mail: <a href="mailto:aking@ungerer.org">aking@ungerer.org</a></td>
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<td>Ueno Fine Chemicals Industry, Ltd.</td>
<td>2-4-8 Koraibashi, Chuo-ku, Osaka, 541, Japan (Tel: 81 6 6203 6193; FAX: 81 6 6229-3895)</td>
<td>E-mail: <a href="mailto:sales@ubichem.com">sales@ubichem.com</a></td>
<td><a href="http://www.ueno-fc.co.jp/e_chem01.html">http://www.ueno-fc.co.jp/e_chem01.html</a></td>
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<td>450 Superior Blvd., Mississauga, Ontario, L5T 2R9, Canada (Tel: 905-670-7776; FAX: 905-670-7751)</td>
<td>E-mail: <a href="mailto:rnahorniak@uflfoods.com">rnahorniak@uflfoods.com</a></td>
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<td>George Uhe Co., Inc.</td>
<td>219 River Drive,, Garfield, NJ, 07026, USA (Tel: 201-843-4000; 800-850-4075; FAX: 201-843-7517)</td>
<td>E-mail: <a href="mailto:global@uhe.com">global@uhe.com</a></td>
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<td>Ulrich Chemical, Inc.</td>
<td>3111 North Post Rd., Indianapolis, IN, 46226-6566, USA (Tel: 317-898-8632; 800-524-0055; FAX: 317-895-0614)</td>
<td>E-mail: <a href="mailto:sales@ulrichchem.com">sales@ulrichchem.com</a></td>
<td><a href="http://www.ulrichchem.com">http://www.ulrichchem.com</a></td>
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<td>Ultra Additives, Inc.</td>
<td>A Münzing Chemie Company, 1455 Broad Street, Bloomfield, NJ, 07003, USA (Tel: 973-279-1306; 800-524-0055; FAX: 973-279-0602)</td>
<td>E-mail: <a href="mailto:info@ultraadd.com">info@ultraadd.com</a></td>
<td><a href="http://www.ultraadditives.com">http://www.ultraadditives.com</a></td>
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<td>Ultra Chemical Inc.</td>
<td>The Galleria, 2 Bridge Ave., Red Bank, NJ, 07701, USA (Tel: 732-224-0200; FAX: 732-224-0017)</td>
<td>E-mail: <a href="mailto:info@ultrachem.com">info@ultrachem.com</a></td>
<td><a href="http://www.ultrachem.com">http://www.ultrachem.com</a></td>
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<td>Ultra International Ltd.</td>
<td>304, AVG Bhawan, M-3, Conaught Circus, New Delhi, 110 001, India (Tel: 91 11 5151 7010; FAX: 91-11-5151 7050)</td>
<td>E-mail: <a href="mailto:ultraintl@vsni.com">ultraintl@vsni.com</a></td>
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<td>Undesa (Unión Deriván S.A.), Avda. Generalitat 175-179, 08840 Viladecans (Barcelona), Spain (Tel: 34 93 637 35 37; FAX: 34 93 659 19 02)</td>
<td>E-mail: <a href="mailto:sales@undesa.com">sales@undesa.com</a></td>
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<td>Undesa</td>
<td>Undesa Italia Srl., Via Garibaldi, 10, 40012 Calderara di Reno (BO), Italy (Tel: 39 51 6467200; FAX: 39 51 6467298)</td>
<td>E-mail: <a href="mailto:sales@undesaitalia.com">sales@undesaitalia.com</a></td>
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<td>Unimin Corp.</td>
<td>Member of Sibelco Group, 258 Elm St., New Canaan, CT, 06840, USA</td>
<td>Tel: 203-966-8880; 800-243-9004; FAX: 800-243-9005; 203-996-3453; E-mail: <a href="mailto:inquiries@unimin.com">inquiries@unimin.com</a></td>
<td><a href="http://www.unimin.com">http://www.unimin.com</a></td>
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<td>Unipex</td>
<td>Tour Franklin - 7th Floor, 100 - 101 Terrasse Boieldieu - La Défense 8, 92042 Paris La Défense Cedex, France (Tel: 33 1 47 32 81 30; FAX: 33 1 41 96 22 00)</td>
<td>E-mail: <a href="mailto:inquiries@unipex.com">inquiries@unipex.com</a></td>
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<td>United Chemical Technologies, Inc.</td>
<td>2731 Bartram Rd., Bristol, PA, 19007-6893, USA (Tel: 215-781-9255; 800-541-0559; FAX: 215-785-1226)</td>
<td>E-mail: <a href="mailto:info@unitedchem.com">info@unitedchem.com</a></td>
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<td>United Coconut Chemicals, Inc./Cocochem</td>
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<td>UCPB Bldg., 17th Fl., Makati Ave., Makati City, 1226, Philippines (Tel: 63 2 816 0371; FAX: 63 2 817 2251; Internet: <a href="http://www.cocochem.ph">http://www.cocochem.ph</a>)</td>
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<td>230 Marcus Blvd, PO Box 18050, Hauppauge, NY, 11788, USA (Tel: 631-273-0900; 800-645-5566; FAX: 631-273-0858; Internet: <a href="http://www.u-g.com">http://www.u-g.com</a>)</td>
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<td>Div. of ICD Group, 1100 Valley Brook Ave., Lyndhurst, NJ, 07071-3608, USA (Tel: 201-507-3300; 800-777-0505; FAX: 201-507-1506; E-mail: <a href="mailto:inquiry@umccorp.com">inquiry@umccorp.com</a>; Internet: <a href="http://www.umccorp.com">http://www.umccorp.com</a>)</td>
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<td>Churerstr. 92k, PO Box CH-8808, Pfäffikon, Switzerland (Tel: 41 55 417 50 17; FAX: 41 55 417 50 18; E-mail: <a href="mailto:info@upltd.com">info@upltd.com</a>; Internet: <a href="http://www.upltd.com">http://www.upltd.com</a>)</td>
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<td>United States Bronze Powders, Inc.</td>
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<td>PO Box 31, 408 Rte. 202 North, Flemington, NJ, 08822, USA (Tel: 908-782-5454; 800-544-0186; FAX: 908-782-3489)</td>
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<td>125 S. Franklin St., Chicago, IL, 60606-4678, USA (Tel: 312-606-4000; 800.950.3839; FAX: 312-606-4519; 888-874-2348; E-mail: <a href="mailto:sampltt@usg.com">sampltt@usg.com</a>; Internet: <a href="http://www.usg.com">http://www.usg.com</a>)</td>
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<td>PO Box 16344, 520 Broome Rd., Greensboro, NC, 27406, USA (Tel: 336-378-0965; FAX: 336-272-4312; E-mail: <a href="mailto:sales@unitexchemical.com">sales@unitexchemical.com</a>; Internet: <a href="http://www.unitexchemical.com">http://www.unitexchemical.com</a>)</td>
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<td>Univar Ltd, Lakeside 5500, Cheadle Royal Business Park, Cheadle, Cheshire, SK8 3GR, UK (Tel: 44 161 741 7000; FAX: 44 161 741 7047; E-mail: <a href="mailto:icenquiries@univarco.uk">icenquiries@univarco.uk</a>; Internet: <a href="http://www.univar.co.uk">http://www.univar.co.uk</a>)</td>
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<td>Univar USA Inc., PO Box 34325, Seattle, WA, 98124-1325, USA (Tel: 425-889-3400; FAX: 425-889-4100; Internet: <a href="http://www.univarusa.com">http://www.univarusa.com</a>)</td>
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<td>Universal Color Dispersions</td>
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<td>Div. of Rohm and Haas, 2701 E. 170 St., Lansing, IL, 60438, USA (Tel: 773-785-5500; 800-232-6567; FAX: 773-868-7485)</td>
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<td>U.S. Aluminum Inc.</td>
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<td>UOP Ltd., Liongate, Ladymeade, Guildford, Surrey, GU1 1AT, UK (Tel: 44 1483 304 848; FAX: 44 1483 304 863)</td>
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<td>UOP GmbH, Steinhof 39, D-40699 Erkrath, Germany (Tel: 49 211 24903 25; FAX: 40 211 249109)</td>
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<td>UOP Middle East Company, Dubai World Trade Centre 25th Fl., PO Box 9248, Dubai, United Arab Emirates (Tel: 971 4 3313 841; FAX: 971 4 3317 033)</td>
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<td>UOP Asia Pacific Pte. Ltd., 101 Thomson Rd. #16-03/04, United Square, Singapore, 307591, Singapore (Tel: 65 253 1652; FAX: 65 253 0088)</td>
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Manufacturers Directory

**UOP Processes International**, Lido Commercial Bldg. A2-418, Jichang-Jiangtai Rd., ChaoYang District, Beijing, 100004, P.R. China (Tel: 86 10 6437 6763; FAX: 86 10 6437 6616)

**UOP K.K.**, NK Bldg. Ohsaki City, 6th Fl., 6-28, Kitashinagawa 5-chome, Shinagawa-ku, Tokyo, 141-001, Japan (Tel: 81 3 5421 2560; FAX: 81 3 5421 2788)

**U.S. Borax**

**U.S. Borax Inc.**, Member of The RTZ Corp. plc, 26877 Tourney Rd., Valencia, CA, 91355-1847, USA (Tel: 661-287-5400; 800-US BORAX; FAX: 661-287-5495; Internet: [http://www.borax.com](http://www.borax.com))

**Borax Argentina S.A.**, Huaytiquina 227, 4407 Campo Quijano Salta, Argentina (Tel: 54 387 490 4030; FAX: 54 387 490 4031)

**Borax South America Repr. Ltda**, Av das Nações Unidas 12551 cj 2208, Brooklin Novo, São Paulo, SP, 04578-000, Brazil (Tel: 55 11 3043 7230; FAX: 55 11 3043 7231; E-mail: sergio.perrella@borax.com)

**Borax Europe Ltd.**, 1A Guildford Business Park, Guildford, Surrey, GU2 8XG, UK (Tel: 44 1483 242000; FAX: 44-1483 242001; E-mail: borax_europe@compuserve.com)

**Borax Benelux SA NV**, Avenue Baron Albert d'Huart, 17, 1150 Brussels, Belgium (Tel: 32 2 512 8858; FAX: 32 2-514 0697)

**Borax España S.A.**, Pol. Ind. La Mina, Apartado 197, 12520 Nules Castellon, Spain (Tel: 34 964 659 030; FAX: 34 964 674 659)

**Deutsche Borax GmbH**, Postfach 1021, 65836 Sulzbach/Taunus, Germany (Tel: 49 6196 5000 50; FAX: 49 6196 5000 60)

**Borax Français S.A.**, Route de Bourbourg, B.P. 59, 59411 Coudekerque-Branche Cedex, France (Tel: 33 03 28 29 28 30; FAX: 33 03 28 61 10 18)

**Borax Italia S.r.l.**, Fermo Posta Monte Marcello, 19030 (SP), Italy (Tel: 39 0187 608004; FAX: 39 0187 609677)

**Borax Asia Pte. Ltd.**, #08-02 Wheelock Place, 501 Orchard Rd., Singapore, 238880, Singapore (Tel: 65 738 6068; FAX: 65 738 6282)

**U.S. Borax Beijing**, No. 1822, 18th Floor, Tower 2, China World Trade Centre, No.; 1 Jianguomenwai Ave., Beijing, 100004, P.R. China (Tel: 86 10 65057046; FAX: 86 10 65057049)

**USB Specialty Biochemicals**

26111 Miles Rd., Cleveland, OH, 44128, USA (Tel: 216-765-5000; 800-321-9322; FAX: 800-535-0878; 216-464-5075; E-mail: customerserv@usbweb.com; Internet: [http://www.usbweb.com](http://www.usbweb.com))

**U.S. Chemicals, Inc.**

280 Elm St., New Canaan, CT, 06840, USA (Tel: 203-966-8877; FAX: 203-966-3577; E-mail: sales@uschemicals.com; Internet: [http://www.uschemicals.com](http://www.uschemicals.com))

**U.S. Petrochemical Industries, Inc.**

Galleria Financial Ctr., 5075 Westheimer Rd., Suite 675, Houston, TX, 77056, USA (Tel: 713-871-1951; FAX: 713-871-1963; E-mail: uspetoc@uspetrochemical.com; Internet: [http://www.uspetrochemical.com](http://www.uspetrochemical.com))

**U.S. Salt, LLC**

10055 Lowell Ave., Ste. 600, Overland Park, KS, 66210, USA (Tel: 913-253-2200; 888-USA-SALT; FAX: 913-253-2201; E-mail: contactussalt@ussaltllc.com; Internet: [http://www.ussaltllc.com](http://www.ussaltllc.com))

**U.S. Silica Co.**

PO Box 187, 2486 Hancock Road, Berkeley Springs, WV, 25411, USA (Tel: 304-258-2500; 800-243-7500; FAX: 304-258-8295; E-mail: sales@ussilica.com; Internet: [http://www.u-s-silica.com](http://www.u-s-silica.com))

**U.S. Synthetics Corp.**

158 Airport Rd., Fitchburg, MA, 01420, USA (Tel: 978-345-0176; FAX: 978-342-8070)

**U.S. Zinc Corp.**

Subsid. of Aleris Int'l., 2250 East Debon Ave., Suite 341, Des Plaines, IL, 60018, USA (Tel: 773-380-6770; FAX: 773-380-6775; Internet: [http://www2.uszinc.com](http://www2.uszinc.com))

**Vaessen-Schoemaker Industrial S.A.**

Calle Copérnico, 8, Pol. Ind. Camí Ral, 08860 Castelldefels (Barcelona), Spain (Tel: (93) 664 99 20; FAX: (93) 664 99 25; E-mail: vaessen@vaessen-schoemaker.com; Internet: [http://www.vaessen-schoemaker.com](http://www.vaessen-schoemaker.com))

**Valmar SA/c/o Technigums**

30 Avenue du Château de Jouques, Bat A23 - Les Espaces de la Sainte, Baume, 13420 Gémenos, France (Tel: 33 442 32 87 38; FAX: 33 442 18 25 44; E-mail: france@valmargroup.com; Internet: [http://www.valmarsa.com](http://www.valmarsa.com))
<table>
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<th>Company Name</th>
<th>Address</th>
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<tr>
<td>Vanchlor, Inc.</td>
<td>Member of VanDeMark Group, 45 Main St, Lockport, NY, 14094, USA</td>
<td>Tel: 716-434-2624; FAX: 716-438-9259</td>
<td><a href="mailto:info@vanchlor.com">info@vanchlor.com</a>;</td>
<td><a href="http://www.vanchlor.com">http://www.vanchlor.com</a></td>
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<tr>
<td>Vanco Trading Inc.</td>
<td>50 Old King Hwy. N., Ste. 101, Darien, CT, 06820, USA</td>
<td>Tel: 203-656-2800; FAX: 203-655-8307</td>
<td><a href="mailto:Sales@Vancotrading.com">Sales@Vancotrading.com</a></td>
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<td>Vandemoortele Bakery Products</td>
<td>Ottergemsesteenweg Zuid 806, 9000 Gent, Belgium</td>
<td>Tel: 32 9 240 1711; FAX: 32 9 240 1768</td>
<td>Internet:</td>
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<td>Van Den Burg Eiprodukten B.V.</td>
<td>Sluisweg 20, PO Box 220, 5140 AE Waalwyk, The Netherlands</td>
<td>Tel: 31 416 671400; FAX: 31 416 335285</td>
<td><a href="mailto:mail@cemaveggproducts.nl">mail@cemaveggproducts.nl</a></td>
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<tr>
<td>R.T. Vanderbilt</td>
<td>R.T. Vanderbilt Co. Inc., 30 Winfield St, Norwalk, CT, 06856-5150, USA</td>
<td>Tel: 203-853-1400; 800-243-6064; FAX: 203-853-1452</td>
<td>E-mail: <a href="mailto:sales@rtvanderbilt.com">sales@rtvanderbilt.com</a>;</td>
<td><a href="http://www.rtvanderbilt.com">http://www.rtvanderbilt.com</a></td>
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<td>Vanguard Chemical International, Inc.</td>
<td>1700 Alma Dr, Plano, TX, 75075, USA</td>
<td>Tel: 972-423-1120; FAX: 972-423-1291</td>
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<tr>
<td>Varsal Instruments, Inc.</td>
<td>363 Ivyland Rd., Warminster, PA, 18974, USA</td>
<td>Tel: 215-957-5880; FAX: 215-957-9111</td>
<td><a href="mailto:info@varsal.com">info@varsal.com</a>;</td>
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<td>Veckridge Chemical Co. Inc.</td>
<td>60-70 Central Ave., South Kearny, NJ, 07032, USA</td>
<td>Tel: 973-344-1818; FAX: 973-690-5936</td>
<td><a href="mailto:rv@veckridge.com">rv@veckridge.com</a>;</td>
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<td>Vege-Tech Co.</td>
<td>412 W. Cypress St., Glendale, CA, 91204, USA</td>
<td>Tel: 818-956-5582; FAX: 818-956-3314</td>
<td><a href="mailto:mdiaz@vegekurl.com">mdiaz@vegekurl.com</a>;</td>
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<td>Velsicol Chemical Corp.</td>
<td>10400 W. Higgins Road, Suite 600, Rosemont, IL, 60018, USA</td>
<td>Tel: 847-298-9000; FAX: 847-298-9018</td>
<td><a href="mailto:distributioninfo@velsicol.com">distributioninfo@velsicol.com</a>;</td>
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<tr>
<td>Velsicol Chemical Ltd.</td>
<td>Lower Road, Halebank, Widnes, Cheshire, WA8 8NS, UK</td>
<td>Tel: 44 151 - 422 3263; FAX: 44 151 - 422 3251</td>
<td>E-mail: <a href="mailto:jmrozik@velsicol.com">jmrozik@velsicol.com</a></td>
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<td>Veltek Associates Inc.</td>
<td>15 Lee Boulevard, Malvern, PA, 19355, USA</td>
<td>Tel: 610-644-8335; FAX: 610-644-8336</td>
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<td><a href="http://www.sterile.com">http://www.sterile.com</a></td>
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<td>Venchem Ltd.</td>
<td>Knotts Lane Chemical Works, Colne, Lancashire, BB8 8AA, UK</td>
<td>Tel: 44 1282 861198; FAX: 44-1282-860020</td>
<td><a href="mailto:sales@venchem.co.uk">sales@venchem.co.uk</a>;</td>
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<td>Venus Ethoxyethers Pvt. Ltd.</td>
<td>Hari Nivas, 1st Fl., 19 Mathew Rd., Mumbai, 400 004, India</td>
<td>Tel: 91 22 363 0466; FAX: 91 22 361 1285</td>
<td>E-mail: <a href="mailto:info@venusgoa.com">info@venusgoa.com</a>;</td>
<td><a href="http://www.venusgoa.com">http://www.venusgoa.com</a></td>
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<td>Verion Inc.</td>
<td>254 Welsh Pool Rd., Exton, PA, 19341, USA</td>
<td>Tel: 610-594-9220; FAX: 610-594-6908</td>
<td>E-mail: <a href="mailto:info@verinioninc.com">info@verinioninc.com</a>;</td>
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<td>Vernon Walden Inc.</td>
<td>5 Cold Hill Road S., Ste. 17, Mendham, NJ, 07945, USA</td>
<td>Tel: 973-543-8300; FAX: 973-543-8310</td>
<td>Internet:</td>
<td><a href="http://www.vernonwalden.com">http://www.vernonwalden.com</a></td>
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<td>Vertex Chemical Corp.</td>
<td>9909 Clayton Rd., Suite 219, St. Louis, MO, 63124, USA</td>
<td>Tel: 314-991-4005; FAX: 314-991-5126</td>
<td><a href="mailto:vertexchem@worldnet.att.net">vertexchem@worldnet.att.net</a>;</td>
<td><a href="http://www.vertexchemical.com">http://www.vertexchemical.com</a></td>
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<tr>
<td>Vevy Europe SpA</td>
<td>16 A, via Sementa, 16131 Genova, Italy</td>
<td>Tel: 39 010 5225 200; FAX: 39 010 5225 025</td>
<td>E-mail: <a href="mailto:sales@vey.com">sales@vey.com</a>;</td>
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<td>301 Main St., PO Box 639, Chatham, NJ, 07928, USA (Tel: 973-635-4841; FAX: 973-635-1459;</td>
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<td>France (Tel: 33 4 92 94 16 06; FAX: 33 4 93 65 44 43; E-mail: <a href="mailto:jmantelin@vincience.com">jmantelin@vincience.com</a>;</td>
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<td>Div. of McShares, Inc., 226 W. Livingston St., Monticello, IL, 61856, USA (Tel: 217-762-</td>
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<td><strong>Vioryl S.A.</strong></td>
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<td>30 22950 45 250; E-mail: <a href="mailto:vioryl@vioryl.gr">vioryl@vioryl.gr</a>; Internet: <a href="http://www.vioryl.gr">http://www.vioryl.gr</a>)</td>
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<td>200 E. Randolph Dr., Chicago, IL, 60601-7799, USA (Tel: 312-861-0700; FAX: 312-861-0708;</td>
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<td>E-mail: <a href="mailto:customerservice@vitamins-inc.com">customerservice@vitamins-inc.com</a>; Internet: <a href="http://vitamins-inc.com">http://vitamins-inc.com</a>)</td>
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<td><strong>Viva Corp.</strong></td>
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<td>India House No 1, Kemps Corner, Bombay, 400 026, India (Tel: 91 22 23091389; FAX: 91 22</td>
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<td><strong>Vivimed Labs Ltd.</strong></td>
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<td>FAX: 91-40-27172242; E-mail: <a href="mailto:info@vivimedlabs.com">info@vivimedlabs.com</a>; Internet: <a href="http://www.vivimedlabs.com/index.html">http://www.vivimedlabs.com/index.html</a>)</td>
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<td><strong>Vivion Inc.</strong></td>
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<tr>
<td>929 Bransten Rd., San Carlos, CA, 94070, USA (Tel: 650-595-3600; 800-479-0997; FAX: 650-</td>
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<td>595-2094; E-mail: <a href="mailto:scsales@vivioninc.com">scsales@vivioninc.com</a>; Internet: <a href="http://www.vivioninc.com">http://www.vivioninc.com</a>)</td>
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<tr>
<td>Postbus 6330, 4000 HH Tiel, The Netherlands (Tel: 31 344 633336; FAX: 31 344 631616;</td>
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<td><strong>Voigt Global Distribution LLC</strong></td>
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<tr>
<td>PO Box 412762, Kansas City, MO, 64141-2762, USA (Tel: 816-471-9500; 877-484-3552; FAX:</td>
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<td>816-471-9502; E-mail: <a href="mailto:sales@vgdll.com">sales@vgdll.com</a>; Internet: <a href="http://www.vgdllc.com">http://www.vgdllc.com</a>)</td>
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<td><strong>Volclay Pty Ltd.</strong></td>
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<tr>
<td>Part of Amcol International Corp., 50 Crowle St, North Geelong, 3215, Australia (Tel: 61 3</td>
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<td>5272 1090; FAX: 61 3 5278 5833; E-mail: <a href="mailto:volclay@volclay.com.au">volclay@volclay.com.au</a>; Internet: <a href="http://www.volclay.com.au">http://www.volclay.com.au</a>)</td>
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<td>1200 Urban Center Dr., Birmingham, AL, 35242, USA (Tel: 205-298-3000; 800-633-8280; FAX:</td>
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<tr>
<td>800-933-6039; Internet: <a href="http://www.vulcanmaterials.com/vc.asp">http://www.vulcanmaterials.com/vc.asp</a>)</td>
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<td><strong>VWR International</strong></td>
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<td>Company of the Merck Group, 1310 Goshen Pkwy., West Chester, PA, 19380, USA (Tel: 610-431</td>
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<td>-1700; 800-932-5000; FAX: 610-431-9174; E-mail: <a href="mailto:chemicals@vwr.com">chemicals@vwr.com</a>; Internet: <a href="http://www.vwrsp.com">http://www.vwrsp.com</a>)</td>
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<td><strong>VYN-AC Inc.</strong></td>
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<td>PO Box 788, Ormond Beach, FL, 32175-0788, USA (Tel: 386-304-3831; 800-342-8475; FAX: 904-</td>
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<td><strong>Vyse Gelatin Co.</strong></td>
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<td>5010 N. Rose St., Schiller Park, IL, 60176, USA (Tel: 847-678-4780; 800-533-2152;</td>
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Manufacturers Directory

FAX: 847-678-0329; E-mail: sales@vyse.com; Internet: http://www.vyse.com

Wacker
Wacker-Chemie AG, Verkaufsbüro Stuttgart, Sophienstraße 41, 70178 Stuttgart, Germany (Tel: 49 89 6279 01; FAX: 49 89 6279 1770; E-mail: info.stuttgart@wacker.com; Internet: http://www.wacker.de)

Wacker-Chemie Fine Chemicals GmbH, Wacker-Chemie GmbH, Johannes-Hess-Strasse 24, 84489 Burghausen, Germany (Tel: 49 8677 83 7979; FAX: 49 8677 83 8181; E-mail: info.finechemicals@wacker.com; Internet: http://www.wacker.com/cms/en/wacker_group/divisions/fine-chemicals/fine-chemicals.jsp)

Wacker-Chemie Italia SpA, Via XXV Aprile, 2, 20097 San Donato Milanese (Mi), Italy (Tel: 39 02 51752-1; FAX: 39 02 51752-498; E-mail: info.italy@wacker.com)

Wacker-Chemie Benelux B.V., Heiligeweg 166, 1561 DM Krommenie, The Netherlands (Tel: 31 75 647-6000; FAX: 31 75 621-5061; E-mail: info.netherlands@wacker.com)

Wacker Chemicals (USA) Inc., 3301 Sutton Rd., Adrian, MI, 49221-9397, USA (Tel: 517-264-8500; 800-485-3686; FAX: 517-264-8246; E-mail: info.usa@wacker.com; Internet: http://www.wackersilicones.com)

Wacker Fine Chemicals, Wacker-Chemie GmbH, 3301 Sutton Rd, Adrian, MI, 49221-9397, USA (Tel: 517-264-8671; FAX: 517-264-8795; E-mail: info.finechemicals@wacker.com; Internet: http://www.wacker.com/cms/en/wacker_group/divisions/fine-chemicals/fine-chemicals.jsp)

Wacker Silicones Corp., Wholly owned subsid. of Wacker-Chemie GmbH, 3301 Sutton Rd., Adrian, MI, 49221-9397, USA (Tel: 517-264-8500; 800-248-0063; FAX: 517-264-8246; E-mail: customercare@wackersilicones.com; Internet: http://www.wackersilicones.com)

Wacker Méxicoana, S.A. de C.V., Calle Picacho-Ajusco No. 130-102, Col. Jardines en la Montana - Tlalpan, Mexico D.F., 14210, Mexico (Tel: 52 55 5446 4433; FAX: 52 55 5630 6861; E-mail: info.mexico@wacker.com)

Wacker Quimica do Brasil Ltda., Rua Municipal no. 100, Jd. Alvorada, 06612-060 Jandira - Sao Paulo, Brazil (Tel: 55 11 4789 8300; FAX: 55 11 4789 8356; E-mail: info.brazil@wacker.com)

Wacker Chemicals Australia Pty. Ltd., 18/20 Duerdin St., Clayton North, Victoria, 3168, Australia (Tel: 61 3 9541 8900; FAX: 61 3 9541 8989; E-mail: info.australia@wacker.com.au; Internet: http://www.wacker.com.au)

Wacker Chemicals (South Asia) Pte. Ltd., 61 Science Park Road, # 06-09/12, The Galen, Singapore Science Park III, Singapore, 117525, Singapore (Tel: (65) 6542-6638; FAX: (65) 6542-6632; E-mail: info.singapore@wacker.com)

Wacker Chemicals (USA) Inc., 3301 Sutton Rd., Adrian, MI, 49221-9397, USA (Tel: 517-264-8500; 800-485-3686; FAX: 517-264-8246; E-mail: info.usa@wacker.com; Internet: http://www.wackersilicones.com)

Wacker Chemicals Korea Ltd., 14 Fl., Ann Jay Tower, 718-2 Yeoksam-Dong, Gangnam-Gu, Seoul, 135-080, Korea (Tel: 82 2 6710-1200; FAX: 82 2 6710-1203; E-mail: info.korea@wacker.com; Internet: http://www.wacker.co.kr)

Wah Chang
An Allegheny Teledyne Company, 1600 NE Old Salem Rd., PO Box 460, Albany, OR, 97321, USA (Tel: 541-967-6977; 888-926-4211; FAX: 541-967-6994; Internet: http://www.wahchang.com/)

Wako
Wako Pure Chemical Industries Ltd., 1-2, Doshomachi 3-Chome, Chuo-ku, Osaka, 540-8605, Japan (Tel: 81 6 6203 3741; FAX: 81 6 6201 2029; E-mail: cservice@wako-chem.co.jp; Internet: http://www.wako-chem.co.jp/english/)

Wako Chemicals USA, Inc., 1600 Bellwood Rd., Richmond, VA, 23237, USA (Tel: 804-
Manufacturers Directory

271-7677; FAX: 804-271-7791; E-mail: labchem@wakousa.com; Internet: http://www.wakousa.com

Wako Chemicals GmbH, Div. of Wako Pure Chemical Industries Ltd., Fuggerstr. 12, 41468 Neuss, Germany (Tel: 49 2131 311 0; FAX: 49 2131 311 100; Internet: http://www.wakochemicals.de)

Georges Walther AG
Grindelstrasse 6, 8304 Wallisellen, Switzerland (Tel: 41 839 20 20; FAX: 41 839 20 10; E-mail: info@gwzag.ch; Internet: http://www.gwzag.ch)

Walton Pharmaceuticals Ltd.
PO Box 76, East Horsley, Surrey, KT24 5YW, UK (Tel: 44 1483 280001; FAX: 44 1483 280002; Internet: http://www.wpl.uk.com)

Wang Trading Enterprises, Inc.
Two Arena Pl., Suite 825, 7324 SW Freeway, Houston, TX, 77074, USA (Tel: 713-664-8840; FAX: 713-664-8842; E-mail: wangt@pdg.net; Internet: http://www.zhongcheng.com)

Wego Chemical & Mineral Corp.
239 Great Neck Rd., Great Neck, NY, 11021, USA (Tel: 516-487-3510; FAX: 516-487-3794; E-mail: sales@wegochem.com; Internet: http://www.wegochem.com)

Weiders Farmasøytiske A/S
Postboks 9113, Grønland, 0133 Oslo, Norway (Tel: 47 22 99 86 00; FAX: 47 22 99 86 01; Internet: http://www.weifa.no)

Steve Weiss & Co., Inc.
315 E. 68th St., New York, NY, 10021, USA (Tel: 212-288-3808; FAX: 212-517-3856; E-mail: sweissnyc@aol.com; Internet: http://www.steveweiss.com)

Welch, Holme & Clark Co. Inc.
7 Ave. L, Newark, NJ, 07105, USA (Tel: 973-465-1200; FAX: 973-465-7332; E-mail: whc@welch-holme-clark.com; Internet: http://www.welch-holme-clark.com)

Welding GmbH & Co. KG
Esplanade 39, D-20354 Hamburg, Germany (Tel: 49-40-35908-251; FAX: 49 40 35908 0; E-mail: mailbox@welding.de; Internet: http://www.welding.de)

Wellman Inc./Plastics Div.
P.O. Box 2050, Fort Mill, SC, 29501, USA (Tel: 803-835-2000; E-mail: home@wellmaninc.com; Internet: http://www.wellmaninc.com)

West Agro, Inc.
11100 N. Congress Ave., Kansas City, MO, 64153-1296, USA (Tel: 816-891-1600; 800-421-1905; FAX: 816-891-1595; E-mail: carol.moss@delaval.com; Internet: http://www.westagro.com)

Westchem, Inc.
1440 S. State College Blvd., #5D, Anaheim, CA, 92806, USA (Tel: 714-535-3535; FAX: 714-535-0353; E-mail: dmattair@westcheminc.com; Internet: http://www.westcheminc.com)

Westco

Westco Fine Ingredients, Inc., 12551-61 Saticoy St. South, North Hollywood, CA, 91605, USA (Tel: 818-255-3351; FAX: 818-255-3352; E-mail: inquiries@westcofine.com; Internet: http://www.westcofine.com)

Western Drugs Pvt. Ltd.
213, Creative Industrial Area, N.M. Joshi Marg, Mumbai, 400 013, India (Tel: 91-22-3016622; FAX: 91-22-3016625; E-mail: wdpl@vsnl.com; Internet: http://www.westerndrugs.com)

Western Electrochemical Co., WECCO
10622 West 6400 North, Cedar City, UT, 84720, USA (Tel: 435-865-5000; FAX: 435-865-5005; Internet: http://www.pepconsystems.com)

Westhove SA
39 rue Loucheur, BP 73, 62510 Arques, France (Tel: 33 3 21 88 38 38; FAX: 33 3 21 88 38 39; E-mail: contact@westhove.com; Internet: http://www.westhove.com)

Westlake Plastics Co.
PO Box 127, W. Lenni Rd., Lenni, PA, 19052, USA (Tel: 610-459-1000; 800-999-1700; FAX: 610-459-1084; E-mail: tony.caballero@westlakeplastics.com; Internet: http://www.westlakeplastics.com)

Whatman Inc.
200 Park Ave, Suite 210, Florham Park, NJ, 07014, USA (Tel: 973 245 8300; 800-WHATMAN; FAX: 973 245 8301; E-mail: info@whatman.com; Internet: http://www.whatman.com)
Manufacturers Directory

Peter Whiting (Chemicals) Ltd.
1 Oil Mill Lane, Hammersmith, London, W6 9UA, UK (Tel: 44 20 8741 4025; FAX: 44 20 8741 1737; E-mail: sales@whiting-chemicals.co.uk; Internet: http://www.whiting-chemicals.co.uk)

The Whole Herb Co.
PO Box 1203, 19800 8th St. E., Sonoma, CA, 95476, USA (Tel: 707-935-1077; FAX: 707-935-3447; E-mail: sales@wholeherbcompany.com; Internet: http://www.wholeherbcompany.com)

Whyte Chemicals Limited
Marlborough House, 298 Regents Park Rd., Finchley, London, N3 2UA, UK (Tel: 44 20 8346 5946; FAX: 44 20 8349 4589; E-mail: sales@whytechemicals.co.uk; Internet: http://www.whytechemicals.co.uk)

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345 California St., 27th Fl., San Francisco, CA, 94104, USA (Tel: 415-772-4000; FAX: 415-772-4011; E-mail: contactus@wecon.com; Internet: http://www.wilburellis.com)

Wilke International Inc.
14321 West 96th Terrace, Lanexa, KS, 66215-2052, USA (Tel: 913-438-5544; 800-779-5545; FAX: 913-438-5554; E-mail: dlactic@wilkeinternational.com; Internet: http://www.wilkeinternational.com)

Wilshire Chemical Co., Inc.
15324 S. Broadway, Gardena, CA, 90248, USA (Tel: 310-323-9232; FAX: 310-323-9434; E-mail: WilshrChem@aol.com; Internet: http://users.aol.com/wilshrchem/chmlist2.htm)

J.C. Wilson Chemicals Ltd.
2-1900 Huron St, London, Ontario, N5V 4A3, Canada (Tel: 519-438-2433; FAX: 519-438-6960)

Alfred L. Wolff
Alfred L. Wolff GmbH & Co., Grosse Baekerstrasse 13, D-20095 Hamburg, Germany (Tel: 49 40 37676 187; FAX: 49 40 37676 100; E-mail: info@alwolff.de; Internet: http://www.alwolff.de)

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Wolff Walsrode AG
A Bayer Company, Postfach 1515, 29655 Walsrode, Germany (Tel: 49 5161 44 0; FAX: 49 5161 44 140; E-mail: info@wolff-walsrode.de; Internet: http://www.wolff-walsrode.de)

World Minerals
137 West Central Ave., Lompoc, CA, 93436, USA (Tel: 805-735-7791; 800-893-4445; FAX: 805-735-7981; E-mail: info@worldminerals.com; Internet: http://www.worldminerals.com)

World of Spice Ltd.
Unit 22, Bebington Close, Billericay, Essex, CM12 0DT, UK (Tel: 44 1277 633303; FAX: 44 1277 633036; E-mail: sales@worldofspice.co.uk; Internet: http://www.worldofspice.co.uk)

Worlée
Worlée-Chemie GmbH, Grunonstr. 22, D-22113 Hamburg, Germany (Tel: 49 40 33 0; FAX: 49 40 733 33 1170; E-mail: info@worlee.de; Internet: http://www.worlee.de)

E.H. Worlée & Co. (UK) Ltd., Copthall House, Nelson Place, Newcastle-under-Lyme, Staffordshire, ST5 1EZ, UK (Tel: 44 1782 71 46 14; FAX: 44 1782 71 42 39; E-mail: sales@worlee.co.uk)

E.H. Worlée & Co. Sarl, P.O. Box 604, F-95004 Cergy Pontoise Cedex, France (Tel: 33 1 30 37 54 60; FAX: 33 1 30 37 53 93)

E.H. Worlée & Co. B.V., Meenthof 17 A, NL-1241 CP Kortenhoef, The Netherlands (Tel: 31 35 656 1424; FAX: 31 35 656 0694; E-mail: chemie@worlee.nl)

Worlée Italia S.r.l., Viale Monza 171, I-20125 Milan, Italy (Tel: 39 02 2804 0379; FAX: 39 02 2890 0514; E-mail: worlee@worleitalia.it)

Worthington Biochemical Corp.
730 Vassar Ave., Lakewood, NJ, 08701, USA (Tel: 732-942-1660; 800-445-9603; FAX: 800-368-3108; 732-942-9270; E-mail: office@worthington-biochem.com; Internet: http://www.worthington-biochem.com)

Wright Corp.
PO Box 9009, 102 Orange St., Wilmington, NC, 28402, USA (Tel: 910-251-8952; FAX: 910-762-9223; Internet: http://www.wrightcorp.com)
Manufacurers Directory

Wutong Aroma Chemicals Co., Ltd.
Wenchang Rd. #151, Tengzhou, Shandong, 277500, China (Tel: 86 632 5583267; FAX: 86 632 5571068; E-mail: zwt@wutong.com; Internet: http://www.wutong.com)

Wyo-Ben, Inc.
1345 Discovery Dr., Billings, MT, 59102, USA (Tel: 406-652-6351; 800-548-7055; FAX: 406-656-0748; E-mail: email@wyoben.com; Internet: http://www.wyoben.com)

Xiamen Topusing Chemical Co. Ltd.
7/H, Chang An Building, Lvling Road, Jiangtou, Xiamen, China (Tel: 0086-592-5538032; FAX: 86-592-5538092; E-mail: tuchem@public.xm.fj.cn; Internet: http://www.topusing.com)

Xinchem Company
204/5, 100 Fushan Road, Pudong, Shanghai, 200127, P.R. China (Tel: 86 21 58203399; FAX: 86 21 68671424; E-mail: info@finechemnet.com; Internet: http://www.finechemnet.com)

Yamamoto Chemicals, Inc.
1-43, Yumizoe-machi Minami, Yao-shi, Osaka, 581-0034, Japan (Tel: 81 729 49 4561; FAX: 81 729 49 5479; Internet: http://www.yamamoto-chemicals.co.jp)

Yasho Industries Pvt. Ltd.
31H, Laxmi Industrial Estate, New Link Rd., Andheri (West), Mumbai, 400 053, India (Tel: 91 22 6692 9152; FAX: 91 22 6692 9154; E-mail: yasho@bom3.vsnl.net.in; Internet: http://www.yashoindustries.com)

XingFangqiao East Chemical
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Yokkaichi Chemical Co., Ltd.
Joint venture of Mitsubishi Petrochem., Daiichi Kogyo Seiyaku, Lion Corp., 1, Miyahigashi-cho, 2-Chome, Yokkaichi City, Mie Pref, 510-0843, Japan (Tel: 81 593 45 1161; FAX: 81 593 45 1168; E-mail: ygs-soumu@yg-chem.co.jp; Internet: http://www.yg-chem.co.jp/index-e.htm)

Yoneyama Yakuhin Kogyo Co., Ltd.
2-3-11, Dosho-machi, Chuo-ku, Osaka, 541-0045, Japan (Tel: 81-6-6202-8673; FAX: 81 6 6223 1093; E-mail: inquiry@yone-

yama.co.jp; Internet: http://www.yone-
yama.co.jp)

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Hirano-machi Showa Bldg.; 2-6-9, Hiranomachi, Chuo-ku, Osaka, 541, Japan (Tel: 81 6 2011600; FAX: 81 6 2275165)

Zaclon Inc.
2981 Independence Rd., Cleveland, OH, 44115, USA (Tel: 216-271-1715; 800-544-2203; FAX: 216-271-1792; Internet: http://www.zaclon.com)

Zeeland Chemicals, Inc.
Subsid. of Rutherford Chemicals, 215 N. Centennial St., Zeeland, MI, 49464, USA (Tel: 616-772-2193; 800-223-0453; 616-772-7344; E-mail: jayne.perkins@rutherfordchemicals.com; Internet: http://www.rutherfordchemicals.com)

ZenPharm International Ltd.
9 Ammolite, Rancho Santa Margarita, CA, 92688, USA (Tel: 949-709-2709; FAX: 949-589-6954; E-mail: jzhou@zenpharm.com; Internet: http://www.zenpharm.com)

Zeochem L.L.C.
Owned by Chemie Uetikon AG, P.O. Box 39340, 1600 West Hill Street, Louisville, KY, 40232, USA (Tel: 502-634-7600; 800-626-5355; FAX: 502-634-8133; E-mail: info@zeochem.com; Internet: http://www.zeochem.com)

Zeon
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Zeon Asia Pte. Ltd., 331 North Bridge Rd., #20-01/02 Odeon Towers, Singapore, 188720, Singapore (Tel: 65 332 2338; FAX: 65 332 2339)

Zeon Chemicals (Thailand) Co., Ltd., 3 Tambol Huaypong, Soi G-14 Pakorn-Songkhororat Rd., Amphur Muang, Rayong, 21150, Thailand (Tel: 66 3 868 5973; FAX: 66 3 868 5972)

Zeon Chemicals Europe Ltd., Sully, Vale of Glamorgan, CF64 5YU, UK (Tel: 44 1446 725 400; FAX: 44 1446 747 988; E-mail: zcsales@zeonchemicals.com; Internet: http://www.zeon.co.uk)
Manufacturers Directory

Zeon France SA, 22, rue Guynemer, 78600 Maisons Laffitte, France (Tel: 33-1-39-12-75-20; FAX: 33-1-39-12-75-26)

Zeon Italia S.r.l., Via G.B. Pirelli, 11, 20124 Milano, Italy (Tel: 39 2 671 417 03; FAX: 39 2 671 417 20; Internet: http://www.zeonitalia.it)

Zeta Pharmaceuticals, Inc. 163 Madison Avenue, Morristown, NJ, 07960, USA (Tel: 973-267-2205; FAX: 973-267-2208; E-mail: dwl@zetapharm.com; Internet: http://www.zetapharm.com)

Zhejiang Sanhuan Chemicals Co., Ltd. No. 1007, Jiu Ling Xi Rd., Yongkang, Zhejiang, 321300, P.R. China (Tel: 86 579 7271588; FAX: 86 579 7271589; E-mail: sales@sanhuan-chem.com; Internet: http://www.sanhuanchemicals.com)

Zhong Hua Fang Da (H.K.) Ltd. Rm. 1704, 17/F, Greenfield Tower, Concordia Plaza, 1 Science Museum Road TST, Kowloon, Hong Kong (Tel: 852 2609 1138; FAX: 852 2609 0731; E-mail: info@fangda.com.hk; Internet: http://www.fangda.com.hk/english/)}

Zimmer AG Borsigallee 1, 60388 Frankfurt/Main, Germany (Tel: 69-4007-01; FAX: 69-4007-546; E-mail: contact@zimmer-ag.de; Internet: http://www.zimmer-ag.de)

Zinkan Enterprises, Inc. 1919 Case Parkway North, Twinsburg, OH, 44087, USA (Tel: 330-487-1500; 800-229-6801; FAX: 330-425-8202; E-mail: sales@zinkan.com; Internet: http://www.zinkan.com)

Zircar Zirconia, Inc. PO box 287, 87 B Meadow Rd., Florida, NY, 10921, USA (Tel: 845-651-3040; FAX: 845-651-0074; E-mail: sales@zircarzirconia.com; Internet: http://www.zircarzirconia.com)

ZOChem Div. of Hudson Bay Mining & Smelting Co., Ltd., 357 Bay Street, Suite 300, Toronto, Ontario, M5H 2T7, Canada (Tel: 416-601-9550; 800-324-1806; FAX: 416-362-3542; Internet: http://www.zochem.com)

Zohar Dalia 19239 Kibbutz Dalia, Israel (Tel: 972 4 9897 252; FAX: 972 4 9890 995; E-mail: info@zohardalia.com; Internet: http://www.zohardalia.com)

Zschimmer & Schwarz Zschimmer & Schwarz GmbH & Co., Postfach 2179, D-56108 Lahnstein-Rhein, Germany (Tel: 49 2621 12 0; FAX: 49 2621 12 407; E-mail: info@zschimmer-schwarz.de; Internet: http://www.zschimmer-schwarz.de)

Zschimmer & Schwarz Italiana SpA, Via Vercelli 81, 13038 Tricerro (VC), Italy (Tel: 39 0161 80 81 11; FAX: 39 0161 80 73 35; E-mail: paolo.tomasoni@zsi.it)

Zschimmer & Schwarz SARL, 10, rue Saint-Marc, 75002 Paris, France (Tel: 33 1 42 33 10 33; FAX: 33 1 40 26 23 81; E-mail: olivier.barrau@wanadoo.fr)

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Zschimmer & Schwarz Inc., Chem-Tex Div., 70 GA Highway 22W, Milledgeville, GA, 31061, USA (Tel: 478-454-1942; FAX: 478-453-8854; E-mail: wburtonzsus@alltel.net)

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Zschimmer & Schwarz Chemicals HK Limited, Room 1004, Lyndhurst Tower, 1 Lyndhurst Terrace, Central, S.A.R., Hong Kong (Tel: 852 2525 3819; FAX: 852 2877 9426; E-mail: zshk@netvigator.com)

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Appendix
# CAS Number Index

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Industrene® 206
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Hystrene® 7022
Hystrene® 9022

112-86-7
Erucic acid
Synative FA U 122

112-92-5
Cachalot® S-56
Cerasynt® WM
Crodacol S95 EP
Crodacol S95 NF
Dow Corning® Silky Wax 10
Hetol SA
Lanette® 18
Lipocol S-DEO
NAA-45
NAA-46
Nacol® 16-95
Nacol® 16-98
Nacol® 18-94
Nacol® 18-98
Nikkol Stearyl Alcohol
Phicolhol 1800
RITA SA NF
Stearyl alcohol
TEGO® Alkanol 18

113-92-8
Chlorpheniramine maleate
MicroMask™
Chlorpheniramine Maleate 10%

114-63-6
Sodium paraben

115-19-5
Methyl butynol

115-69-5
Aminomethyl propanediol

115-70-8
AEPD®
Aminoethyl propanediol

115-71-9
Santalol (α)

115-95-7
Linalyl acetate

115-99-1
Linalyl formate

116-17-6
Trisopropyl phosphite

116-25-6
MDM hydantoin

116-53-0
2-Methylbutyric acid

117-84-0
n-Dioctyl phthalate

117-96-4
Diatrizoic acid

118-52-5
1,3-Dichloro-5,5-dimethyl hydantoin

118-55-8
Phenyl salicylate

118-58-1
Benzylsalicylate

118-60-5
2-Ethylhexyl salicylate
HallBrite® OS

118-61-6
Ethyl salicylate

118-71-8
Maltol

118-92-3
Anthranilic acid

118-93-4
α-Hydroxyacetophenone

119-36-8
Custosense MS
Methyl salicylate
Rhodiaflor™ SME
Rhodiaflor™ SME Extra-Pure

119-53-9
Benzoin

119-61-9
Benzophenone
BP
Velsicure® BTF
Velsicure® Benzophenone

119-64-2
Tetrahydrodronaphthalene

119-65-3
Isoquinoline

119-84-6
Dihydrocoumarin

120-11-6
Isoeugenyl benzyl ether

120-14-9
Veratraldehyde

120-24-1
Isoeugenyl phenylacetate

120-32-1
Chlorophene
Nipacide® BCP

120-40-1
Lauramide DEA
NINOL® 30-LL
NINOL® 55-LL
NINOL® 70-SL
NINOL® 96-SL
NINOL® L-9
Schercomid SL-Extra
STEPANOL® 360

120-45-6
α-Methylbenzyl propionate

120-47-8
Ethylparaben
Nipagin A
Nipasept®

120-50-3
Isobutyl benzoate

120-51-4
Benzy1 benzoate
Unichem BZBN

120-57-0
Heliotropine

120-58-1
Isosafrole

120-72-9
Indole

120-80-9
Pyrocatechol

121-32-4
Ethyl vanillin
Evatek™ #174

121-33-5
Vanillin

121-39-1
Ethyl phenylglycidate

121-45-9
Trimethyl phosphite

121-47-1
Metanilic acid

121-54-0
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121-79-9
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Propyl gallate
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<p>| 557-12-5   | 4-Pentenoic acid |
| 559-84-7   | Butyl formate |
| 552-88-1   | Allyl sulfide |
| 559-29-3   | Potassium stearate |
| 559-50-0   | Myricyl alcohol |
| 559-60-2   | Vinyl bromide |
| 559-03-2   | D&amp;C Orange No. 5 |
| 559-09-1   | NEPD™ 2-Nitro-2-ethyl-1,3-propanediol |
| 559-71-7   | Pentaerythrityl tetraacetate Uniplex 504 |
| 559-82-3   | Lactic acid (DL) |
| 560-14-6   | Pentane-2,3-dione |
| 560-68-2   | α-D-Glucose pentaacetate |
| 560-17-7   | Iodipamide |
| 560-45-1   | Methyl o-methoxybenzoate |
| 560-31-4   | NB 2-Nitro-1-butanol |
| 561-13-2   | Methyl 2-furoate |
| 561-70-7   | Guaiacyl acetate |
| 561-33-5   | Glyceryl tribenzoate |
| 561-25-1   | 1-Penten-3-ol |
| 561-45-5   | 2-Pyro® 2-Pyrroldione Soluphor® P |
| 561-91-1   | Acetylcysteine |
| 561-35-6   | Ethyl pyruvate |</p>
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1320-07-6  D&C Brown No. 1
1320-37-2  Dichlorotetrafluoroethane
1320-40-7  Methylbenzethonium chloride
1320-46-3  Manganese glycerophosphate
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1322-14-1  Calcium undecylenate
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              Pelemol® ML
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              Natural Wax Jelly SP-505
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1327-36-2   Aluminum silicate
              Kaopolite® 1147
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1327-43-1   Gelwhite® MAS 100(SC)
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              Magnesium aluminum silicate
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1332-09-8   Pumice
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1334-78-7   Tolyl aldehyde
1334-82-3   Amyl 2-furoate
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              Kosteran-L/1
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              Montane® 20
              Nissan Nonion LP-20R,
              LP-20RS
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1339-84-2   Ablunol S-60
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Kemester® S80
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Lumisorb™ SMO
Lumisorb™ SMO NF
Montane® 80VG
Nissan Nonion OP-80R
Nofable SO-901
Nofable SO-991
Polypax SMO
Polypax SMO (Tech)
Rheodol AO-10V
Rheodol SP-O10
Sabosorb MO
Sorbirol O
Sorbital S 80
Sorbitan oleate
Sorgen 40
Span® 80V Pharma
Tego® SMO V
Tego® SMS

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1343-88-0
Magnesium silicate

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Sident® 9
Sident® 10
Silica, hydrated
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Sipernat® 22S
Sipernat® 160
Sipernat® 300DS
Sipernat® 310
Sipernat® 320
Sipernat® D10
Sorbinsil AC39
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Tixosil® 73
Tixosil® 123
Tixosil® 331
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Sipernat® 820A
Sodium silicoaluminate
Vitamin A Acetate/D2
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Vitamin A Acetate/D3
Vitamin A Palmitate 500
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Vitamin D3 100
Vitamin D3 100 HP
Vitamin D3 850

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Selexsorb® CDO-200

1344-95-2
Calcium silicate
Dry Vitamin E 75™ HP
Hubersorb®
Micro-Cell® C TV
Micro-Cell® E TV
RxCIPIENTS® FM1000

1345-25-1
Cl 77499
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Iron oxides (FeO)

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1393-63-1
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Gentamycin sulfate

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Glycyrrhizic acid
Nikkol Glycyrrhizic Acid

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Covi-Ox® T-90
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Covitol® F-1000-2
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Lucorotin® 20 CWD/R
Lutein DC
LycoVit® 10% DC

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Chlorophyll

1406-70-8
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Covitol® 1360

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Ammonium glycyrrhizinate
Magnasweet® 100
Magnasweet® 110
Magnasweet® 115
Magnasweet® 118
Magnasweet® 120
Magnasweet® 125
Magnasweet® 135
Magnasweet® 136
Magnasweet® 150
Magnasweet® 165
Magnasweet® 180
Magnasweet® 185
Magnasweet®

1474-78-8
Triethyl phosphonoformate

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Dioctyl maleate
Estanol DOM

2915-57-3
Dioctyl succinate
Wickenol® 159

2917-94-4
Sodium octoxynol-2 ethane sulfonate

3055-93-4
Arlypon® F
Laureth-2

3055-94-5
Laureth-3

3055-96-7
Laureth-6

3055-97-8
Laureth-7

3055-99-0
BL-9EX
Emalex 709
Laureth-9

3056-00-6
Laureth-12
Lipocol L-12

3088-31-1
Sodium laureth sulfate

3097-08-3
Magnesium lauryl sulfate
STEPANOL® MG

3142-72-1
2-Methyl-2-pentenoic acid

3149-28-8
2-Methoxypyrazine

3151-59-5
Cetylamine hydrofluoride
Unifluorid H 101

3179-81-5
Cerasynth® 303
Diethylaminostearate

3208-16-0
2-Ethylfuran

3208-40-0
2-(3-Phenylpropyl) tetrahydrofuran

3228-03-3
Thymol (m-)

3234-85-3
Ceraphyl® 424
Cetiol® MM
Crodamol MM
Exceparl MY-M

HallStar™ MM
Liponate MM
Myristyl myristate
Pelemo® MM
Schercemol MM
Thomil 14

3268-49-3
3-Methylthiopropionaldehyde

3282-30-2
Pivaloyl chloride

3319-31-1
Tri-2-ethylhexyl trimellitate
Velsicol 6959

3327-22-8
Chloro-2-hydroxypropyl trimonium chloride
Polyquat 188

3332-27-2
AMMONYX® MCO
AMMONYX® MO
Myristamine oxide

3380-34-5
Irgasan DP300
Triclosan

3386-18-3
PEG-9

3391-86-4
1-Octen-3-ol

3398-33-2
Sodium undecylenate

3416-22-6
Calcium fumarate

3416-24-8
Glucosamine

3445-11-2
HEP®

3458-28-4
D-Mannose

3460-44-4
α-Methylbenzyl butyrate

3468-63-1
D&C Orange No. 17

3483-12-3
Dithiothreitol

3486-35-9
Zinc carbonate

3520-90-9
Octoxynol-8

3539-43-3
Amphisol® A
Cetyl phosphate

3549-23-3
Methyl p-t-butylphenylacetate

3567-66-6
CI 17200
D&C Red No. 33

3598-16-1
Niacet Sodium Phenoxy Acetate
Sodium phenoxy acetate

3615-41-6
Rhamnose

3632-91-5
Gluconal® MG-P
Magnesium gluconate (anhyd.)

3658-77-3
4-Hydroxy-2,5-dimethyl-3(2H) furanone

3687-45-4
Exceparl OL-OL
Nofable OO-9080
Nofable OO-9090
Nofable OO-9980
Nofable OO-9990
Nofable OO-9999
Oleyl oleate
Schercemol OLO

3687-46-5
Ceraphyl® 140
Cerette V
Cetiol® V
Decyl oleate
Dynacerin® DO
Pelemol® DO
Saboderm DO
Tegosoft® DO

3697-42-5
Chlorhexidine dihydrochloride

3724-65-0
Crotonic acid

3734-33-6
Denatonium benzoate (anhyd.)

3761-53-3
Acid red 26
Cas Number Index

3794-83-0
Tetrasodium etidronate

3796-70-1
Geranyl acetone

3844-45-9
Acid blue 9
FD&C Blue No. 1

3848-24-6
Acetyl butyryl

3913-02-8
Butyloctanol
ISOFOL® 12
Jarcol™ I-12

3915-83-1
Neryl isovalerate

3959-43-3
Sorbitol

4065-45-6
Benzophenone-4

4070-80-8
Pruv™
Sodium stearyl fumarate

4075-81-4
Calcium propionate
(anhyd.)

4080-31-3
Quaternium-15

4112-89-4
Guaiacyl phenylacetate

4180-23-8
Anethole Extra USP 21/22, FCC

4191-73-5
Isopropylparaben

4230-97-1
Allyl octanoate

4247-02-3
Isobutylparaben

4254-14-2
Propylene glycol (-)

4254-15-3
Propylene glycol (+)

4254-16-4
Propylene glycol (±)

4265-97-8
Heptyl octanoate

4292-10-8
Lauramidopropyl betaine

4345-03-3
Covitol® 1185
Covitol® 1210

Tocopheryl succinate (d-α)
4351-54-6
Cyclohexyl formate
4395-92-0
p-
Isopropylphenylacetalddehyde
4403-90-1
CI 61570
D&C Green No. 5

4418-26-2
Sodium dehydroacetate
4429-42-9
Potassium metabisulfite

4433-36-7
Tetrahydro-pseudo-ionone

4437-51-8
3,4-Hexanediol

4468-02-4
Gluconal® ZN-G
Gluconal® ZN-P
Zinc gluconate (anhyd.)

4478-97-1
Ceteth-5

4548-53-2
CI 14700
FD&C Red No. 4

4568-28-9
TEA-stearate

4584-46-7
Dimethylaminoethyl chloride hydrochloride

4602-84-0
Farnesol
Farnesol

4606-15-9
Propyl phenylacetate

4691-65-0
Disodium inosinate

4695-62-9
d-Fenchone

4714-73-8
Methenamine hippurate

4728-82-9
Allyl cyclohexaneacetate

4732-13-2
Carvacryl ethyl ether

4740-78-7
Glyceryl formal

4748-78-1
p-Ethylbenzaldehyde

4767-03-7
Dimethylolpropionic acid

4810-50-8
Kalidone®
Potassium PCA

4826-62-4
2-Dodecenal

4861-85-2
Isopropyl phenylacetate

4864-61-3
3-Octyl acetate

4940-11-8
Ethyl maltol

4985-85-7
N-(3-Aminopropyl) diethanolamine

4991-65-5
Tioxolone
Tioxolone Water Soluble 5%

4996-48-9
Amyl 2-furoate

5001-51-4
Calcium lactobionate

5026-62-0
Nipagin M Sodium
Sodium methylparaben

5026-65-3
Cetyl gallate

5080-50-2
Acetyl-L-carnitine hydrochloride
L-Carnipure® ALC

5117-19-1
PEG-8
Pluracol® E400L
Super Refined® PEG-400 NF

5132-75-2
Octyl heptanoate

5160-02-1
D&C Red No. 9

5165-97-9
AMPS® 2403 Monomer
Sodium 2-acrylamido-2-methylpropanesulfonate

5168-91-2
Ceteth-6

5274-61-3
Ceteth-2

5274-65-7
Oleth-2
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| 5949-29-1 | Citric acid monohydrate |
| 5959-89-7 | Sorbitan laurate |
| 5965-83-3 | 5-Sulfosalicylic acid dihydrate |
| 5968-11-6 | Sodium carbonate (monohydrate) |
| 5970-45-6 | Zinc acetate (dihydrate) |
| 5989-27-5 | d-Limonene |
| 5989-33-3 | Linalool oxide (cis) |
| 5995-86-8 | Gallic acid (monohydrate) |
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Handbook of Pharmaceutical Additives, Third Edition 2797
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<td>8007-47-4</td>
<td>Balsam Canada (Abies balsamea)</td>
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<td>Laurel (Laurus nobilis) berries</td>
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8007-69-0
Sweet almond (Prunus amygdalus dulcis) oil

8007-70-3
Anise (Pimpinella anisum) oil
Star anise (Illicium verum) oil

8007-75-8
Bergamot (Citrus aurantium bergamia) oil

8007-80-5
Cinnamon (Cinnamomum cassia) oil

8007-87-2
Cubeb (Piper cubeba) oil

8008-20-6
Deodorized kerosene
PD-23

8008-26-2
Lime (Citrus aurantifolia) oil

8008-31-9
Mandarin orange oil

8008-45-5
Nutmeg (Myristica fragrans) oil

8008-51-3
Camphor (Cinnamomum camphora) oil

8008-52-4
Coriander (Coriandrum sativum) oil

8008-56-8
Lemon (Citrus medica limonum) oil

8008-57-9
Orange (Citrus aurantium dulcis) oil

8008-63-7
Ox bile extract

8008-74-0
Lipovol SES
Sesame (Sesamum indicum) oil
Super Refined® Sesame NF

8008-79-5
Spearmint (Mentha viridis) oil

8008-80-8
Spruce oil

8008-88-6
Valerian (Valeriana officinalis) extract

8008-93-3
Wormwood (Artemisia absinthium) oil

8008-94-4
Licorice (Glycyrrhiza glabra)

8008-98-8
Cajeput (Melaleuca leucadendron) oil

8009-03-8
Avagel™ 520
Avagel™ 525
Avagel™ 560
Forlan 200
Mineral Jelly No. 10
Mineral Jelly No. 14
Mineral Jelly No. 17
Mineral Jelly No. 20
Penreco Royal
Petrolan USP
Petrolatum (NF)

8009-170 USP White Petrolatum
Pinnacle™ 170 USP White Petrolatum
Pinnacle™ 170A USP Amber Petrolatum
Pinnacle™ 190 USP White Petrolatum
Pinnacle™ 190A USP Amber Petrolatum
Pinnacle™ 225 USP White Petrolatum
Pinnacle™ 225A USP Amber Petrolatum
Pinnacle™ LC 170 Petrolatum
Pinnacle™ LC 190 Petrolatum
Pinnacle™ LC 225 Petrolatum
Pinnacle™ WF 170 Petrolatum
Pinnacle™ WF 190 Petrolatum
Pinnacle™ WF 225 Petrolatum

Pionier® 01
Pionier® 1761
Pionier® 3479

8011-48-1
Pine (Pinus palustris) tar

8011-89-0
Balsam tolu (Myroxylon balsamum)

8011-96-9
Calamine

8012-89-3
Beeswax (yellow)
Beeswax SP 6
Beeswax SP 11
Beeswax SP 139Y
Beeswax SP 154 ISO
Beeswax®
Beeswax SP 420
Beeswax SP 422
Beeswax SP 424
Beeswax SP 426
Beeswax, yellow

Cerabeil Yellow Selection
Koster Keunen Beeswax
Koster Keunen Beeswax 100
Ross Beeswax

8012-91-7
Juniperus communis oil

8012-95-1
Aloe Vera Oil CG
Mineral oil
Ritachol®
Vilvanolin L-101®

8012-99-5
Cherry juice

8013-01-2
Preregen®
Yeast extract

8013-17-0
Invert sugar

Nu-Tab™ 4001
Nu-Tab™ 4003
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<td>8025-95-4</td>
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**Hydrogenated soybean oil**

- Sterotex® HM NF
- Sterotex® K, NF

**Hydrobrite®**

- Hydrobrite® 200PO
- Hydrobrite® 300PO
- Hydrobrite® 380PO
- Hydrobrite® 550PO

**Kaydol®**

**Klearol®**

**Mineral oil (w/h.)**

- Protol®
- Superla® No. 5
- Superla® No. 7
- Superla® No. 9
- Superla® No. 10
- Superla® No. 13
- Superla® No. 18
- Superla® No. 21
- Superla® No. 31
- Superla® No. 35

**Lanolin (hyd.)**

**Cerozo**

- Cerozo 3549T
- Cerozo 4347
- Cerozo 20447
- Cerozo 26151
- Cerozo 26457
- Cerozo 26555
- Cerozo 30447
- Cerozo 31049
- Cerozo A
- Cerozo AF
- Cerozo AN
- Cerozo C806
- Cerozo D306
- Cerozo E626
- Cerozo F110
- Cerozo F308
- Cerozo T37
- Cerozo T319
- Cerozo V164
- Koster Keunen Ozokerite
- Ozokerite
- Ozokerite Wax SP 109
- Ozokerite Wax SP 271
- Ozokerite Wax SP 273
- Ozokerite Wax SP 490
- Ozokerite Wax SP 996
- Ozokerite Wax SP 1016
- Ozokerite Wax SP 1020
- Ozokerite Wax SP 1021
- Ozokerite Wax SP 1023
- Ozokerite Wax SP 1025
- Ozokerite Wax SP 1026
- Ozokerite Wax SP 1028
- Ozokerite Wax SP 1140
- Ozokerite Wax SP 1190

**Lavandin (Lavandula hybrida) oil**

**Clary (Salvia sclarea) oil**

**Sage (Salvia officinalis) oil**

**Storax (Liquidambar orientalis)**

**Capsicum**

**Capsicum frutescens extract**

**Oleoresin capsicum**

**Palm (Elaeis guineensis) kernel oil**

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**Protopet®**

- Alba
- White 1S
- White 2L
- White 3C
- Yellow 2A
- Super White Fonoline®
- Super White Protopet®
- Ultrapure ES Liquid
- Ultrapure L
- Ultrapure Liquid
- Ultrapure SC
- Vilvanolin® C

**Vilvanolin® C**

**Ceralan®**

**Forlan™ LA**

**Forlan 200**
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- Tragacanth Gum Ribbon No. 1 NF FCC
- Tragacanth (Astragalus gummifer) gum
- Tragacanth Gum Ribbon

### Ropufa® '10' n-3 INF Powder
- Powder

### Sammi Gelatine

### Spray Dried Fish Gelatin

### Spray Dried Hydrolysed Fish Gelatin

### Vee Gee Pharmaceutical Gelatins
- Vitamin A Acetate/D2 500/50
- Vitamin A Acetate/D3
- Vitamin A Palmitate 500
- Vitamin D2 850
- Vitamin D3 100
- Vitamin D3 100 HP
- Vitamin D3 850

### Casein
- CMP-I®

### Milk protein

### Amylase
- Diastase J-P

### 9000-71-9
- Catalase

### 9000-92-4
- Urease

### 9001-05-2
- Urease

### 9001-37-0
- Urease

### Glucose oxidase

### 9001-62-1
- ChiroCLEC™-CR Lipase

### Lipase
- Lipase 8
- Lipase 16
- Lipase 24
- Lipase 30
- Lipase AP6
- Lipase AP12

### Newlase

### 9001-73-4
- Papain

### 9001-75-6
- Pepsin

### Pepsin 1:3000 Powder
- Pepsin 1:6000
- Pepsin 1:10,000 Powd. or Gran.
- Pepsin 1:15,000 Powd.

### 9001-98-3
- Maxiren® Rennet

### 9002-01-1
- Streptokinase

### Streptokinase
- Streptodornase

### 9002-07-7
- Trypsin 1:75
- Trypsin 1:150

### 9002-13-5
- Urease

### 9002-18-0
- Agar

### Agar Agar NF MK-80-B Powdered

### Agar Agar NF S-100 Powdered

### Agar Agar NF S-150-B Powdered

### Agar Agar S-100

### MingQiong Brand Powdered Agar Agar

### Bacteriological Grade Powdered Agar Agar Type K-60

### Powdered Agar Agar Type K-80

### Powdered Agar Agar Type K-100

### Powdered Agar Agar Type K-150

### TIC Pretested® Agar Agar 100 FCC/NF Powder

### TIC Pretested® Agar Agar 110 FCC/NF Powd.

### TIC Pretested® Agar Agar 150 FCC/NF Powd.

### TIC Pretested® Agar RS-100 Powder

### 9002-86-2
- Polyvinyl chloride

### 9002-88-4
- A-C® 6
- A-C® 7
- A-C® 7A
- A-C® 8
- A-C® 9
- A-C® 617
- A-C® 617A
- ACumist® B-6
- Cosmolloid® 11101
- Petrothene® GA 818-073

### Polyelethylene
- Polyethylene, high-density
- Polyethylene, linear low density
- Polyethylene wax
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Polyglyceryl-10 distearate
Polyglyceryl-2 stearate
9009-65-8  Protamine sulfate
9010-10-0  Elhibin®
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9010-43-9  Octoxynol-9
9010-66-6  Zein
9010-77-9  A-C® 540
A-C® 5120
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9010-92-8  Styrene/acylates copolymer
9011-14-7  Polymethyl methacrylate
9011-16-9  Gantrez® AN-119
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Gantrez® AN-139 BF
Gantrez® S-97
Luviform® FA 119
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9012-24-2  Nylon 6
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9012-54-8  Cellulase
9012-72-0  β-Glucan
9012-76-4  Chitosan
9013-34-7  Diethylaminoethyl cellulose
9014-01-1  Protease
9016-00-6  Foam Blast® 106
Polydimethylsiloxane
Silbione™ 70426R
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Silfar® 1000
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9025-56-3  Hemicellulase
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Octoxynol-9
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SPL Heparin Sodium USP
9042-08-4  Rennet
9045-22-1  Heparin lithium
SPL Heparin Lithium
9049-05-2  Calcium carrageenan
9049-98-3  Mannide monooleate
9050-04-8  Calcium carboxymethyl cellulose
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ADM Clintose® CR 15
ADM Clintose® CR 18
Di-Pac®
Glucidex® IT6
Glucidex® IT8
Glucidex® IT12
Glucidex® IT19
HuberCal CCG 4000 USP

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20824-56-0  Diammonium EDTA Versene Diammonium EDTA
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21368-68-3  Camphor (DL)
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HT-636
HT-910
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Rehydragel® LV
SB-30
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Mercury oxide (ic), yellow
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22047-49-0  Cetiol® 868
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**Handbook of Pharmaceutical Additives, Third Edition**
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Ceteareth-30
Ceteareth-33
Cetomacrogol 1000 BP
Cremophor® A 11
Cremophor® A 25
Eumulgin® B1
Eumulgin® B2
Eumulgin® B3
Hostaceryl® T-3
Incropolis CS-20
Lipocol SC-4
Lipocol SC-15
Lipocol SC-20
Lipocol SC-25
Lipocol SC-30
Macol® CSA-20
Sabopal TA 25
Simulsol® CS
Teginacid® C
Volpo CS2
Volpo CS12
Volpo CS20
Volpo CS25

68439-50-9
Sympatens-ALM/V/114/99

68439-51-0
PPG-5-laureth-5

68439-53-2
PPG-2 lanolin alcohol ether
PPG-5 lanolin alcohol ether
PPG-10 lanolin alcohol ether
PPG-20 lanolin alcohol ether

68439-57-6
BIO-TERGE® AS-40
BIO-TERGE® AS-90 Beads
Sodium C14-16 olefin sulfonate

68439-72-5
PEG-15 cocamine

68440-05-1
Cocamide MIPA

68440-49-3
Peanut oil PEG-6 esters

68440-66-4
Polyalkyleneoxide modified polydimethylsiloxane
Silwet® L-7500

68441-03-2
BPS-10
BPS-15
BPS-20
BPS-30
BPSH-25
BPS-5
PEG-5 phytosterol
PEG-10 phytosterol
PEG-15 phytosterol
PEG-20 phytosterol
PEG-25 phytosterol
PEG-30 phytosterol

68441-68-9
Crodamol PTC
Pentaerythrityl tetraacrylate/tetrapropionate

68458-88-8
Lanetol AWS
Lanexol AWS
PPG-12-PEG-50 lanolin

68476-03-9
Montan acid wax

68476-78-8
Molasses (Saccharum officinarum)

68479-98-1
Diethyl toluene diamine

68511-77-3
2-Amino-2-(hydroxymethyl)-1,3-propanediol modified hectorite
Veegum® PRO

68513-95-1
Emcosoy STS IP® Soybean (Glycine soja) flour

68514-74-9
Hydrogenated palm oil

68514-95-4
Dialkyl dimethyl ammonium chloride

68518-54-7
Polyquaternium-1

68525-91-7
Acconon C-44, EP

68526-79-4
Hexyl alcohol

68526-85-2
Decyl alcohol

68551-12-2
Alfonic® 1216-1.5
C12-16 pareth-1

68553-11-7
PEG-20 glyceryl stearate
PEG-200 glyceryl tallowate

68553-81-1
EmCon™ Rice Bran Lipovol RB
Rice (Oryza sativa) bran oil

68554-53-0
Abil®-Wax 2434
Stearoxy dimethicone

68583-51-7
Captex® 200
Captex® 200P
Estol 1526
Lexol® PG-865
Miglyol® 840
Myritol® PC
NEOBOE® M-20
Peleomol® PDD
Propylene glycol dicaprylate/dicaprate

68585-34-2
Sodium laureth sulfate

68585-44-4
DEA-lauryl sulfate

68585-47-7
Sodium lauryl sulfate

68603-42-9
Cocamide DEA
Eur-Amid ME
Eur-Amid V
Schercomid SCE
Schercomid SCO-Extra

68604-71-7
Disodium cocoamphodipropionate
Miranol® C2M-SF 70%
Miranol® C2M-SF Conc.

68606-18-8
Cocoglycerides
Myritol® 331
Novata® 299 PH
Novata® AB PH
Novata® A PH
Novata® BCF PH
Novata® BC PH
Novata® BD PH
Novata® B PH
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**WECOBEE® M**

- WECOBEE® M
- Dimethicone copolyol
- Silwet® L-7602

**Lambda® UD**

- Lambda® UD
- Potassium undecylenoyl hydrolyzed collagen

**Star anise (Illicium verum) oil**

- Star anise (Illicium verum) oil

**Lard glycerides**

- Lard glycerides

**Quaternium-26**

- Quaternium-26

**Trimethylolpropane**

- Trimethylolpropane
- Tricaprylate/tricaprate
- Dipentene Extra
- Terpinolene
- Vegetable oil
- Alkyl dimethyl ethylbenzyl ammonium chloride
- BTC® 2125M
- BTC® 2125M-80%
- BTC® 2125M P-40

**Glycerol mono/diisostearate**

- Glycerol mono/diisostearate

**Emalex GWIS-115EX**

- Emalex GWIS-115EX
- Emalex GWIS-120EX
- Emalex GWIS-160EX
- PEG-15 glyceryl isostearate
- PEG-20 glyceryl isostearate

**Emalex GWIS-3-6**

- Emalex GWIS-3-6, EP

**Emalex GWIS-6**

- Emalex GWIS-6, EP

**Emalex GWIS-115**

- Emalex GWIS-115

**Emalex GWIS-120EX**

- Emalex GWIS-120EX

**Emalex GWIS-125**

- Emalex GWIS-125

**Emalex GWIS-150EX**

- Emalex GWIS-150EX

**PEG-20 glyceryl isostearate**

- PEG-20 glyceryl isostearate

**PEG-30 glyceryl isostearate**

- PEG-30 glyceryl isostearate

**PEG-60 glyceryl isostearate**

- PEG-60 glyceryl isostearate

**Triolein PEG-6 esters**

- Triolein PEG-6 esters

**Sodium laurate-6 carboxylate**

- Sodium laurate-6 carboxylate

**Propylene glycol dicaprylate/dicaprate**

- Propylene glycol dicaprylate/dicaprate

**Benzalkonium chloride**

- Benzalkonium chloride
- Benzalkonium saccharinate

**Capryloyl collagen amino acids**

- Capryloyl collagen amino acids
- Lipacide™ C8CO

**Hydrogenated tallow glyceride lactate**

- Hydrogenated tallow glyceride lactate

**Wheat germ glycerides**

- Wheat germ glycerides
- Wickenol® 535

**Arnica montana extract**

- Arnica montana extract
- Yerba santa (Eriodictyon californicum) extract

**Fenugreek (Trigonella foenum-graecum) extract**

- Fenugreek (Trigonella foenum-graecum) extract

**Mono- and diglycerides of fatty acids**

- Mono- and diglycerides of fatty acids
- Acetylated mono- and diglycerides of fatty acids
- Dynacet® 211P
- Dynacet® 212P
- Lamegin® EE Range

**Shark liver oil**

- Shark liver oil

**Quillaja (Quillaja saponaria)**

- Quillaja (Quillaja saponaria)

**Dandelion (Taraxacum officinale) extract**

- Dandelion (Taraxacum officinale) extract

**Hydrogenated palm kernel oil**

- Hydrogenated palm kernel oil
- Paramount B

**Sorbitan stearate**

- Sorbitan stearate

**Pentaerythrytlyl tetraoctadecanol**

- Pentaerythrytlyl tetraoctadecanol

**Cyclomethicone**

- Cyclomethicone

**Amphisol® DEA-cetyl phosphate**

- Amphisol® DEA-cetyl phosphate

**Isoceteth-20**

- Isoceteth-20

**PEG-20 glyceryl isostearate**

- PEG-20 glyceryl isostearate
- PEG-25 glyceryl isostearate
- PEG-25 glyceryl isostearate
- PEG-30 glyceryl isostearate
- PEG-30 glyceryl isostearate
- PEG-40 glyceryl isostearate
- PEG-50 glyceryl isostearate
- PEG-60 glyceryl isostearate

**2-Hexadecyl-1 octadecanol**

- 2-Hexadecyl-1 octadecanol

**Albumin**

- Albumin

**Hydrolyzed wheat protein Protelan AG 11**

- Hydrolyzed wheat protein Protelan AG 11
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Fruisana
Isosweet 5500
Di-Pac®
Gelcarin® DG 3252
Lutein DC
LycoVit® 10% DC
Non Pareil® Seeds
Nu-Tab™ 4001
Nu-Tab™ 4003
Nu-Tab™ 4040
redivivo™ (lycopene) 5% TG/P
redivivo™ (lycopene) 10% WS
Sucrose
Vitamin A Acetate/D2 500/50
Vitamin A Acetate/D3
Vitamin A Palmitate 500
Vitamin D2 850
Vitamin D2 100
Vitamin D3 100 HP
Vitamin D3 850
GPG™ 3565
GPG™ 7030
PG USP
Poly-Chill® Fluid
Polypropylene glycol
Propylene glycol
Propylene Glycol USP, FCC
Cholesterol
Cholesterol HP
Fancol™ CH Loralan-CH
Caffeine
Caffeine Anhydrous Granular S USP
B6-98% Pyridoxine Hydrochloride for DC
Pyridoxine Hydrochloride USP, FCC
Pyridoxine HCl Rocoat® Pyridoxine Hydrochloride 33%
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Crodasinic LS30 NP
Crodasinic LS35
Crodasinic LS95
Crodasinic LS95 NP
MAPROSYL® 30-B
Oramix® L30
Sarcosinate LN
Sodium lauroyl sarcosinate

205-286-2
Tetramethyliuram disulfide

205-289-9
2-Methyl-1-butanol

205-290-4
Sodium propionate

205-305-4
Ascorbyl palmitate
Lutein DC
LycoVit® 10% DC
Phosal® 53 MCT

205-315-9
L-Glutamic acid hydrochloride

205-316-4
Butyl lactate

205-318-5
Rhodinyl isobutyrate

205-341-0
dl-Limonene

205-342-6
β-Terpineol

205-351-5
Catinal MB-50A
GEM
Lauralkonium chloride

205-352-0
BTC® 824 P100
Myristalkonium chloride

205-354-1
Aluminum acetate

205-358-3
Disodium EDTA
Dissolvine® NA-2-P
Protacide™ NA2 P
Versene NA
Versene Na2

205-364-6
Thixcin® R
Trihydroxystearin

205-365-1
Glyceryl tripropionate

205-373-5
Citronellyl phenylacetate

205-381-9
Trisodium HEDTA
Versenol 120

205-388-7
STEPANOL® WAT
TEA-lauryl sulfate

205-391-3
Pentasodium pentetate
Versenex 80

205-392-9
Methyl acetyl ricinoleate
Naturechem® MAR

205-399-7
Benzyl acetate

205-406-3
Phenethyl isovalerate

205-407-9
Cinnamyl isovalerate

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Aminoethylpiperazine

205-413-1
p-Cresyl acetate

205-427-8
Estragole

205-438-8
Ethyl acrylate

205-447-7
Ferrous fumarate

205-451-9
Diethyl maleate

205-455-0
Glyceryl ricinoleate
Softigen® 701
Softisan® 701

205-456-6
Rhodinyl formate

205-458-7
Rhodinyl acetate

205-459-2
Neryl acetate

205-461-3
Citronellyl propionate

205-462-9
Rhodinyl butyrate

205-463-4
Citronellyl butyrate

205-470-2
Ricinoleic acid

205-483-3
Ethanolamine
MEA Commercial Grade
MEA Low Freeze Grade
MEA Low Iron Grade
MEA Low Iron-Low Freeze Grade
MEA NF Grade
NINOL® LMP

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Ethyl acetate

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Malonic acid

205-507-2
2,6-Diaminopyridine

205-510-9
Hydroxycitronellal dimethyl acetal

205-513-5
Hexetidine

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Eastman® EAA
Ethylacetoacetate

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Aluminum diacetate

205-526-6
Aldo® MLD KFG
Colonial Lauricidin®
Glyceryl laurate
Imwitor® 312

205-527-1
Allyl heptanoate

205-530-8
Acetamide MEA
Schercomid AME-70
Schercomid AME-100

205-535-5
Sodium octyl sulfate

205-538-1
MSG

205-540-2
Trimethyldecatrieneol (cis)

205-542-3
Capmul® PG-12
Imwitor® 412
Lauroglycol® 90
Lauroglycol® FCC
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Schercemol PGML
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Nordihydroguaiaretic acid

207-924-5  
Hydrocinnamic acid

207-949-1  
LycoVit® Dispersion 10%
LycoVit® 10% DC
LycoBeads® 5%
Lyc-O-Mato® 6%
Lyc-O-Mato® 7%
Lyc-O-Mato® 10%
Lyc-O-Mato® 15%
Lycopene
redivivo™ (lycopene) 10% FS
redivivo™ (lycopene) 5% TG/P
redivivo™ (lycopene) 10% WS

207-975-3
Isovaleric acid

207-993-1
Stearone

208-010-9
Suberic acid

208-026-6
Chimyl Alcohol 100
Chimyl alcohol

208-080-0
DL-Borneol

208-083-7
Camphene P&F, FCC

208-174-1
Acetyl methyl carbinol

208-187-2
Canthaxanthin 10%
CWS/N
Canthaxanthine
Cl 40850

208-193-5
Myrtenol

208-205-9
Bisabolol
α-Bisabolol
(-)-α-Bisabolol
Dragosantol
Hydagen® B

208-214-8
Ammonium lactate

208-220-0
DL-α-Valine

208-253-0
D&C Yellow No. 8
Fluorescein sodium

208-293-9
Dehydroacetic acid

208-401-4
D-Gluconic acid

208-407-7
Sodium gluconate

208-408-2
Copper gluconate (ic)
Gluconal® CU-P

208-504-4
Eugenyl benzoate

208-531-1
Chloroacetophenone

208-534-8
Sodium benzoate
Sodium Benzoate, Powder
FCC Food
Grade/E211/EP Grade

208-537-4
Rocoat® Thiamine
Mononitrate 331/3%
Thiamine Mononitrate 98 DC
Thiamine nitrate

208-556-8
go-Cresyl acetate

208-561-5
Sesamol

208-639-9
Perillyl alcohol

208-640-4
Cuminic alcohol

208-651-4
m-Anisidine

208-664-5
Pelemol® GTL
Trilactin

208-671-3
Acetyltyrosine

208-686-5
Captex® 8000
Estasan™ GT 8-99 3596
MCT Oil
NEOBEE® 895
Tricaprylin

208-687-0
Dynasan® 112
Trilaurin

208-699-6
Butyl cinnamate

208-702-0
Domiphen bromide

208-704-1
Dicyclohexyl carbodiimide

208-714-6
Benzy1 ethyl ether

208-726-1
Ethyl valerate

208-729-8
Isobutyl butyrate

208-732-4
Amyl hexanoate

208-736-6
Cetyl palmitate
Crodamol CP
Dynacerin® CP
Kessco CP
Palmil C
Pelemol® CP
STEPAN® 653

208-739-2
Amyl butyrate

208-746-0
Isobutyl propionate

208-750-2
cis-trans-1,2-
Dichloroethylene (mixed isomers)
Polyvinyl chloride

208-754-4
Sodium thiocyanate

208-761-2
Acetone sodium bisulfite

208-764-9
Cyclomethicone
Decamethylcyclopentasiloxane
Dow Corning® ST Elastomer 10

208-818-1
Isobutyl formate

208-853-2
Strontium acetate

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Crossential® EL90
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Linoleato Etile
Safester A-75
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Gellant 230-395-7
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AMMONYX® CO 230-472-5
Palmitamine oxide
230-472-5
Linalyl anthranilate
230-525-2
Bardac® 2240
Bardac® 2270
Didecyldimonium chloride
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Trimethyldecatrieneol (isomers)
230-636-6
Beta Carotene 30% FS
Beta-Carotene 10%
DC/GFP
Beta-Carotene Dry Powd.
10% DC/GFP
CaroCare® Nat. β-Carotene 30% S
Carotene
Cl 40800
Cl 75130
Lucarotin® 1 CWD
Lucarotin® 1 CWD/K
Lucarotin® 10 CWD O
Lucarotin® 10 CWD S/Y
Lucarotin® 20 CWD/R
Lucarotin® 30 C
Lucarotin® 30 M
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Nonoxynol-4
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Trioctanoin
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231-100-4
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2-Methoxy-4-vinylphenol
231-102-5
Lithium
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Mercury
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Silicon
231-131-3
Silver
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Tin
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Boron
231-152-8
Cadmium Florence Green Seal-8
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Carbon, activated
Type CG6/AW 8x30
Type CG6/AW 12x40
Type SG6
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Cl 77400
Copper
Copper powder
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Gold
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Zinc
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Aluminum chloride anhydrous
Aluminum chloride hexahydrate
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Gelcarin® DG 3252
Potassium chloride
Standard KCl
Superfine KCl
231-225-4
Ethyl-2-methylbutyrate
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Magnesium sulfate anhydrous
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Diisopropyl sebacate
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4-Methyl-2,3-pentanedione
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Allyl nonanoate
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Allyl phenoxyacetate

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dl-α-Tocopheryl acetate
Tri-K Vitamin E Acetate
Vitamin E Acetate Dry
Powd. 50% DC/GFP
Vitamin E Acetate Dry
Powd. SD 50
Vitamin E Acetate-USP
Vitamin E dl-alpha
Tocopheryl Acetate USP
231-714-2
Nitric acid
231-722-6
Sulfur
231-729-4
Ferric chloride
231-753-5
Ferrous sulfate anhydrous
231-760-3
Cairox® Potassium Permanganate USP
Grade
Potassium permanganate
231-764-5
Ammonium phosphate
231-765-0
Albone® 35 CG
Albone® 50 CG
Albone® 70 CG
Cosmetic Grade Hydrogen Peroxide 35%
Cosmetic Grade Hydrogen Peroxide 50%
Cosmetic Grade Hydrogen Peroxide 70%
Hydrogen peroxide
231-767-1
Tetrasodium pyrophosphate
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Potassium persulfate
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Nitrogen
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Barium sulfate
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Solan E50
Solan ELD
231-793-3
Zinc sulfate
Zinc sulfate heptahydrate
231-801-5
Chromic acid
231-810-4
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231-816-7
Butyl anthranilate
231-820-9
RxCIPIENTS® FM1000
Sodium sulfate
231-821-4
Sodium sulfite
Sulftech®
231-823-5
Magnesium phosphate dibasic
231-826-1
Albrite® Dicalcium Phosphate
Anhydrous Emcompress®
Anhydrous Emcompress® A-TAB®
Calcium phosphate dibasic
Calcium phosphate dibasic dihydrate
Calstar™
DI-TAB
Dry Vitamin D3 Type 100 SD
Emcompress®
Fujicalin
231-830-3
Potassium bromide
231-831-9
Potassium iodate
231-834-5
Potassium phosphate dibasic
231-837-1
COWCIUM® Natural Milk Calcium FG
Calcium phosphate monobasic anhydrous
231-840-8
Alcolec® PS 20 P
Alcolec® PS 40 P
Alcolec® PS 50 P
Calcium phosphate tribasic
Hydroxyapatite
Lucarotin® 10 CWD O
Lucarotin® 20 CWD/R
TRI-CAL WG
TRI-TAB
231-847-6
Cupric sulfate anhydrous
Cupric sulfate pentahydrate
231-853-9
Silver nitrate
231-857-0
d-Dihydrocarvone
231-867-5
Sodium thiosulfate anhydrous
231-868-0
Stannous chloride anhydrous
231-869-6
Manganese chloride (ous), anhydrous
Manganese chloride (ous), tetrahydrate
231-874-3
Cyclohexyl isovalerate
231-875-9
4,4-Dibutyl-γ-butyrolactone
231-876-4
α,α-Dimethylbenzyl isobutyrate
231-878-5
Terpinyl isobutyrate
231-883-2
2-Tridecenal
231-885-3
3-(p-Isopropylphenyl) propionaldehyde
231-887-4
Sodium chlorate
231-890-0
Sodium hydrosulfite
231-893-7
α-Methylbenzyl formate
231-894-2
Methylbenzyl isobutyrate
231-896-3
Schercemol TISC
231-900-3
Calcium sulfate
Calcium Sulfate Anhydrous NF 164
Calcium Sulfate BC 164
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**Clearsweet® Unrefined 95% Dextrose Corn Syrup**

**Corn syrup**
- 42/43 Corn Syrup
- Corn Syrup 36/43

**IsoClear® 42 High Fructose Corn Syrup**

**IsoClear® 55 High Fructose Corn Syrup**

**Lucarotin® 10 CWD O**

**Satin Sweet® 55% Maltose Corn Syrup**

**Satin Sweet® 65% Maltose Corn Syrup**

**Satin Sweet® 70% Maltose Corn Syrup**

**232-440-6 Alcolec® Z-3 Hydroxylated lecithin**

**232-442-7 Dervafac 3760 Hydrogenated tallow Special Fat 168T**

**232-447-4 Noramium® MS 50 Tallowtrimonium chloride**

**232-450-0 Pyroligneous acid**

**232-452-1 Fanco™ HL Hydrogenated lanolin Lanocerina**

**Lanocerina Distilled Lipolan Lipolan Distilled Supersat**

**232-453-7 Mineral spirits Shell Mineral Spirits 135 VM&P naphtha**

**232-455-8 Citation™ 70 Citation™ 90 Citation™ 100 Citation™ 180 Citation™ 210 Citation™ 350 Citation™ 550 Mineral oil (wh.) Pionier® 1730**
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**Handbook of Pharmaceutical Additives, Third Edition**
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232-555-1

| 232-558-1 |
| Agar |
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| Agar Agar NF S-100 Powdered |
| Agar Agar NF S-150-B Powdered |
| Agar Agar S-100 MingQiong Brand |
| Powdered Agar Agar Bacteriological Grade |
| Powdered Agar Agar Type K-60 |
| Powdered Agar Agar Type K-80 |
| Powdered Agar Agar Type K-100 |
| Powdered Agar Agar Type K-150 |
| TIC Pretested® Agar Agar 100 FCC/NF Powder |
| TIC Pretested® Agar Agar 110 FCC/NF Powd. |
| TIC Pretested® Agar Agar 150 FCC/NF Powd. |
| TIC Pretested® Agar RS-100 Powder |

232-668-6

Lactoperoxidase

232-674-9

| Arboceļ® A 300 |
| Arboceļ® M 80 |
| Arboceļ® P 290 |
| Avicel® CL-611 |
| Avicel® PH-102 |
| Avicel® RC-581 |
| Avicel® RC-591 |

Cellulose

<p>| Celphere® CP-102 |
| Celphere® CP-203 |
| Celphere® CP-305 |
| Celphere® CP-507 |
| Celphere® CP-708 |
| Celphere® SCP-100 |
| Ceolus® KG-802 |
| Ceolus® PH-101 |
| Ceolus® PH-301 |
| Ceolus® PH-302 |
| Ceolus® PH-F20JP |
| Ceolus® RC-A591NF |</p>
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3-Propylideneephthalide

241-409-6
Acid red 87

241-411-7
2-Hexylidene cyclopentanone

241-482-4
Cavamax® W8 Pharma Cyclodextrin (γ)

241-501-6
4-Phenyl-3-buten-2-ol

241-637-6
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241-640-2
Myristyl stearate Pelemol® MS

241-646-5
Behenyl behenate Exceparl BB Pelemol® BB

241-654-9
Dynacerin® 660 Oleyl erucate

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242-085-9
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242-177-9
B295 Bis (trimethylsilyl) urea

242-354-0
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242-355-6
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243-746-4
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243-956-6
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244-029-9
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244-063-4
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244-289-3
Escalol® 507 Octyl dimethyl PABA

244-350-4
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244-492-7
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Hydral® 710

Hydral® PGA-HD Rehydrogel® CG

Rehydrogel® HPA Rehydrogel® LV SB-30

244-514-5
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244-543-3
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244-654-7
Mercury oxide (ic), red

Mercury oxide (ic), yellow

244-753-5
2-Acetylpyrazine

244-754-0
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M Kemfluid Isoottil Stearato

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Octylidodecyl stearate

245-205-8
Octylidodecyl myristate

245-261-3
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245-625-1
Ferrous citrate

245-912-1
Butyltin tris (2-ethylhexoate)

Fascat® 9102

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246-402-1
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246-466-0
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246-476-5
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246-495-9
Methyl dihydrojasmonate

246-563-8
BHA

246-675-7
Methylbenzethonium chloride

246-680-4
Sodium dodecylbenzenesulfonate

246-705-9
Crodesta F-160 Ryoto Sugar Ester S-1170

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| Hexyl laurate              |

| **252-010-1**               |
| Plurol® Stearique WL 1009  |
| Polyglyceryl-6 distearate  |

| **252-011-7**               |
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| Mazol® PGO-104 K           |
| Polyglyceryl-10 tetraoleate|

| **252-036-3**               |
| Butyl-(S)-lactate           |
| Purasolv® BL               |

| **252-478-7**               |
| Ceraphyl® 28               |
| Cetyl lactate              |
| Pelemol® CL                |

| **252-487-6**               |
| Nipagin A Sodium           |
| Sodium ethylparaben        |

| **252-488-1**               |
| Nipasol M Sodium           |
| Sodium propylparaben       |

| **252-681-0**               |
| Methyl dibromo glutaronitrile|

| **252-764-1**               |
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| **252-862-4**               |
| Exceparl L-OL              |
| Lauryle oleate             |

| **252-964-9**               |
| Ceraphyl® ICA              |
| Isocetyl alcohol           |

| **252-992-1**               |
| Capmul® MCM                |
| DREWMULSE® GMC-810         |
| Glyceril dicaprylate       |

| **253-031-9**               |
| Theaspirane                |

| **253-048-1**               |
| Potassium ethylparaben     |

| **253-049-7**               |
| Nipabutyl Sodium           |
| Sodium butylparaben        |

| **253-149-0**               |
| Cachalot® C-50             |
| Cetyl alcohol              |
| CoChem CA                  |
| Crodocol C-90              |

| **253-289**                 |
| Crodocol C-95 EP           |
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| Nacol® 16-95               |
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| RITA CA NF                 |
| TEGO® Alkanol 16           |

| **253-363-4**               |
| AMMONYX® KP                 |
| Olealkonium chloride        |

| **253-379-1**               |
| Methyl dihydrojasmonate     |

| **253-407-2**               |
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| **253-458-0**               |
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| Lumulse® 40-L               |
| Mapeg® 400 ML               |
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| Sabopal APG 7               |
| STEPAN® PEG 400 ML          |

| **253-775-4**               |
| Climbazole                  |
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| **253-953-1**               |
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| **254-009-1**               |
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| **254-372-6**               |
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| Imidazolidinyl urea         |
| Nipa Biopure® 100           |
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| **254-495-5**               |
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| **254-599-0**               |
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| **254-898-6**               |
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| **254-992-7**               |
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| **255-062-3**               |
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| Rewopol® SBFA 30            |
| STEPAN-MILD® SL3 BA         |

| **255-350-9**               |
| D.P.P.G.                    |
| Propylene glycol dipelargonate|
| **255-485-3**               |
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| Isostearyl isostearate      |

| **255-623-2**               |
| Exceparl OD-M               |
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| Octyldecyl myristate        |
| Wickenol® 142               |

| **255-649-4**               |
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| **255-674-0**               |
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| Pelemol® ISL               |

| **255-826-6**               |
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| **256-120-0**               |
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| **256-367-4**               |
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| **256-597-5**               |
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| **256-974-4**               |
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| **257-098-5**               |
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| **257-440-3**               |
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| **257-598-3**               |
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258-814-9  
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258-887-7  
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258-903-2  
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259-715-3  
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259-774-5  
Phenethyl tiglate

259-855-5  
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260-070-5  
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Diocetyl malate

260-082-0  
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Nipasorb D

260-143-1  
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260-188-7  
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260-410-2  
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261-245-9  
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2987  Rhodinyl isovalerate
2988  Rose oil
2989  Rose oil
2990  Dog rose (Rosa canina) hips extract
2992  Rosemary (Rosmarinus officinalis) oil
2993  Rose (Rosa centifolia) water
2994  Rue
2995  Rue (Ruta graveolens) oil
2997  Saccharin sodium anhydrous
2997  Saccharin sodium dihydrate
2998  Saffron (Crocus sativus)
3000  Sage (Salvia officinalis)
3001  Sage (Salvia officinalis) oil
3003  Sage (Salvia lavandulaefolia) oil
3004  Salicylaldehyde
3005  Sandalwood (Santalum album) oil
3006  Santalol
3007  Santalyl acetate
3008  Santalyl phenylacetate
3009  Sarsaparilla (Smilax aristolochiaefolia) extract
3010  Sassafras (Sassafras officinale) extract
3012  Summer savory (Saturelia hortensis)
3019  Skatole
3020  Blackthorn berries (Prunus spinosa)
3024  Sodium acetate anhydrous
3025  Sodium benzoate
3026  Trisodium citrate
3027  Sodium hexametaphosphate
3028  Sorbitan stearate
3029  Sorbitol
3030  Spearmint (Mentha spicata)
3032  Spearmint (Mentha viridis) oil
3034  Spruce oil
3035  Stearic acid
3036  Storax (Liquidambar orientalis)
3037  Storax (Liquidambar orientalis)
3038  Sucrose octaacetate
3039  Sulfur dioxide
3041  Tangerine (Citrus reticulata) oil
3042  Tannic acid
3043  Tarragon (Artemisia dracunculus)
3044  Succinic acid
3044  L-Tartaric acid
3045  α-Terpineol
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3049  Terpinyl butyrate
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3052  Terpinyl formate
3053  Terpinyl formate
3054  Terpinyl propionate
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3055  Tetrahydrofurfuryl acetate
3056  Tetrahydrofurfuryl alcohol
3057  Tetrahydrofurfuryl butyrate
3058  Tetrahydrofurfuryl propionate
3059  Tetrahydro-pseudo-ionone
3060  Tetrahydrodinalool
3061  Tetramethyl ethylcyclohexenone
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Handbook of Pharmaceutical Additives, Third Edition
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# Inactive Ingredient Guide

**Chemicals in Compliance with Pharmaceutical Standards:**
Inactive Ingredient Approved Products  

The Inactive Ingredient Guide contains all inactive ingredients present in approved drug products or conditionally approved drug products currently marketed for human use. The ingredients from this guide along with their route of administration are listed here. This is the most current guide presently available from FDA/Center for Drug Evaluation and Research.

*See also:* Permanently Listed Color Additives

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<td>Aluminum silicate</td>
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Aluminum starch octenylsuccinate
   Topical
Aluminum stearate
   Oral, topical
Aluminum sulfate
   Otic, topical
Alzamer-39
   Oral
Alzamer-50
   Oral
Amberlite
   Oral
Amberlite IR-120
   Oral
Amberlite IRP-69M
   Oral
Amberlite XE-58
   Oral
Amberlite XE-88
   Oral
Amerchol-C
   Topical
Amerchol-CAB
   Ophthalmic, topical
Amerchol C
   Topical
1-
   Aminocyclohexanecarboxylic acid, C-11
   Oral
2-Amino-2-methyl-1-propanol
   Topical
Ammonia
   Inh.
Ammonia solution
   Oral, topical
Ammonia solution, strong
   Topical
Ammonio methacrylate copolymer
   Oral
Ammonio Methacrylate Copolymer Type A
   Oral
Ammonio Methacrylate Copolymer Type B
   Oral
Ammonium acetate
   IV
Ammonium calcium alginate
   Oral
Ammonium chloride
   Oral
Ammonium glycyrrhizate
   Oral
Ammonium hydroxide
   IV, ophthalmic, oral, subcut., topical
Ammonium nonoxynol 4 sulfate
   Topical
Ammonium lauryl sulfate
   Topical
Ammonium phosphate
   Oral, sublingual
Ammonium salt of C-12-C-15 linear primary alcohol ethoxylate
   Topical
Ammonium sulfate
   IV
Ammonyx
   Topical
Amphoteric-2
   Topical
Amphoteric-9
   Topical
Amyl acetate
   Oral
Anethole
   Dental, oral
Anise extract
   Oral
Anise oil
   Oral
Anoxid SBN
   Topical
Antifoam
   Oral, topical
Antifoam DC
   Oral
Antifoam M
   Oral
Antipyrine
   Ophthalmic
Apricot kernel oil PEG-6 esters
   Topical, vaginal
Aquacoat
   Oral
Aquacoat ECD
   Oral
Aquaphor
   Topical
Arginine
   IM, IV
Arlatone 289
   Topical
Ascorbic acid
   Caudal block, epidural, IM, Inh., IM, IV, nerve block, oral, rectal, subcut., topical
Ascorbyl palmitate
   Oral, rectal, topical
Aspartame
   Oral
Aspartic acid
   IV
Barium sulfate
   Intrauterine, vaginal
Beeswax
   Oral, topical
Beeswax, synthetic
   Topical
Bentonite
   Oral, topical, transdermal, vaginal
Benzenaldehyde
   Oral
Benzenesulfinic acid solution
   IV
Benzethonium chloride
   Inh, intra-articular, intrabursal, intradermal, IM, nasal, ophthalmic, otic, topical
Benzenesulfonic acid
   Oral
Benzalkonium chloride
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Benzocaine
   Ophthalmic
Benzododecinium bromide
   Oral
Benzoic acid
   IM, IM-IV, IV, nasal, ophthalmic, otic
Benzoin
   Oral
Benzyol alcohol
   Epidural, IM, interstitial, intra-articular, intrabursal, intracavitary, intradermal, intralesional, IM, intraperitoneal, intrapleural, intrasynovial, intrathecal,
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| Opaspray M-1-3459 B Oral                   | | Peanut oil  
<p>|                                             | IM, intratracheal, oral, topical, vaginal |
|                                             | Pectin Dental, oral, topical |
|                                             | PEG-8 caprylic/capric glycerides Oral |
|                                             | PEG-22 methyl ether/dodecyl glycol copolymer Topical |
|                                             | PEG-45/dodecyl glycol copolymer Topical |
|                                             | PEG-25 propylene glycol stearate Topical |
|                                             | PEG-40 sorbitan diisostearate Dental |
|                                             | PEG sorbitan isostearate IM |
|                                             | PEG 6-32 stearate/glycol stearate Topical, vaginal |
|                                             | PEG vegetable oil IM-SC, IV |
|                                             | Peglicol-5-oleate Oral, topical, vaginal |
|                                             | Pegoxol 7 stearate Topical, vaginal |
|                                             | Pentaerythritol cocoate Topical |
|                                             | Pentasodium triphosphate Oral |
|                                             | Pentetate calcium trisodium IV |
|                                             | Pentetate pentasodium IV |
|                                             | Pentetic acid Intrathecal, IV |
|                                             | Peppermint Dental, oral |
|                                             | Peppermint oil Buccal, dental, oral, sublingual, topical |
|                                             | Perfume 25677 Topical |
|                                             | Perfume bouquet Topical |
|                                             | Perfume E-1991 Topical |</p>
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Inactive Ingredient Guide: Approved Products

Polyethylene glycol 8000
  Ophthalmic, oral, rectal, topical, vaginal
Polyethylene glycol 20,000
  Oral
Polyethylene oxide
  Oral
Polyoxyethylene-polyoxypropylene 1800
  Ophthalmic, topical
Polyethylene T
  Oral
Polyethylene terephthalates
  Transdermal
Polyglyclatin
  Dental, implantation, IM, subcut.
Polyglyceryl-3 oleate
  Oral, vaginal
Polyglyceryl-4 oleate
  Vaginal
Polyglyceryl-10 oleate
  Oral
Polyglyceryl-10 tetraenoleate
  Oral
Polyhydroxylethyl methacrylate
  Topical
Polyisobutylene
  Transdermal
Polyisobutylene 35,000
  Transdermal
Polyisobutylene 1,200,000
  Transdermal
Polylactide
  IM, periodontal
Polylols
  Dental
Polyoxyethylene alcohols
  Topical
Polyoxyethylene fatty acid esters
  IM-IV-SC, IM-SC, topical
Polyoxyethylene-polyoxypropylene 1800
  Ophthalmic, topical
Polyoxyethylene propylene
  Topical
Polyoxy 35 castor oil
  Intravesical, IV, ophthalmic, oral
Polyoxy 40 castor oil
  IV
Polyoxy 60 castor oil
  IV
Polyoxy 15 cocaine
  Topical
Polyoxy 4 dilaurate
  Topical
Polyoxy distearate
  Topical
Polyoxy 150 distearate
  Topical
Polyoxyethylene isononylphenyl ester
  Oral
Polyoxy 100 glyceryl stearate
  Topical, vaginal
Polyoxy glyceryl stearate
  Topical
Polyoxy 40 hydrogenated castor oil
  Dental, ophthalmic, oral, topical
Polyoxy 60 hydrogenated castor oil
  Topical
Polyoxy lanolin
  Topical
Polyoxy 75 lanolin
  Topical
Polyoxy 6 and polyoxy 32 palmitostearate
  Topical
Polyoxy palmitate
  Vaginal
Polyoxy 8 stearate
  Oral, topical
Polyoxy 40 stearate
  Dental, ophthalmic, oral, otic, topical
Polyoxy 400 stearate
  Topical
Polyoxy 50 stearate
  Topical
Polyoxy 100 stearate
  Topical, vaginal
Polypropylene
  Intrauterine, topical, transdermal
Polypropylene glycol
  IM-IV, ophthalmic, oral
Propylene glycol alginate
  Oral
Propylene glycol diacetate
  Otic, topical
Propylene glycol dicaprylate
  Topical
Propylene glycol-lecithin
  Buccal, oral
Propylene glycol monolaurate
  Transdermal
Propylene glycol monostearate
  Topical
Propylene glycol ricinoleate
  Topical
Polysaccharides
  Oral
Polysaccharides soy
  Oral
Polysiloxane
  IV, oral
Polysorbate 20
  IM, IM-SC, IV, nasal, ophthalmic, oral, otic, subcut., topical, vaginal
Polysorbate 40
  IM, IM-IV, oral, topical
Polysorbate 60
  Ophthalmic, oral, rectal, topical, vaginal
Polysorbate 65
  Topical
Polysorbate 80
  Intra-articular, intrabursal, intradermal, intralesional, IM, intrasynovial, IV, nasal, ophthalmic, oral, otic, rectal, soft tissue, subcut., sublingual, topical, vaginal
Polyvinylacetel
  Oral
Polyvinyl acetate
  Oral, transdermal
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<tr>
<td>Inh., intra-arterial, IM, IM-</td>
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<tr>
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<td>Inh., IM-SC, rectal, subcut.</td>
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The Inactive Ingredient Guide contains all inactive ingredients present in approved drug products or conditionally approved drug products currently marketed for human use. The ingredients from this guide along with their route of administration are listed here. This is the most current guide presently available from FDA/Center for Drug Evaluation and Research.

### See Also: Inactive Ingredient Guide Chemicals:

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<tr>
<th>Algae meal, dried</th>
<th>cooked</th>
<th>Dihydroxyacetone</th>
<th>Dye FDC green #3</th>
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<td>Alumina</td>
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<td>Dinaphtho[2,3-A:2'3'-I]naphth(2'3':6,7) indolo(2,3-C)carbazole-5,10,15,17,22,24-hexone,14,23-di-hydro</td>
<td>Dye FDC red #3</td>
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<td>Dye DC blue #4</td>
<td>Dye FDC yellow #5</td>
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<td>Beet juice</td>
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<td>Dye FDC yellow #6</td>
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<td>Beet powder</td>
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<td>Dye DC blue #9</td>
<td>Dye FDC yellow #7</td>
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<td>Beet, dehydrated</td>
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<td>Dye DC brown #1</td>
<td>Ferric ammonium citrate</td>
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<td>Benzamide,N,N'-{9,10-dihydro-9,10-dioxo-1,5-anthracenediyl}bis-</td>
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<td>Dye DC green #5</td>
<td>Ferric ammonium ferrocyanide (iron blue)</td>
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<tr>
<td>Benzenetrol,2-[2,5-diethoxy-4[(4-methylphenyl)thiophenyl]]</td>
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<td>Dye DC green #6</td>
<td>Ferric ferrocyanide (iron blue)</td>
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<td>Dye DC green #8</td>
<td>Ferrous gluconate</td>
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<td>Beta-apo-8'-carotene</td>
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<td>Grape color extract</td>
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<td>Dye DC orange #4</td>
<td>Grape skin extract (enocianina)</td>
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<td>Bixin</td>
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<td>Guanine (pearl essence)</td>
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<td>Dye DC red #17</td>
<td>Guatazulene (azulene)</td>
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<td>Dye DC red #21</td>
<td>Henna</td>
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<td>Canthaxanthin</td>
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<td>Dye DC red #22</td>
<td>Iron oxide, synthetic</td>
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<td>Dye DC red #27</td>
<td>Iron oxides</td>
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<td>Chlorophyllin-copper complex, oil soluble</td>
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<td>Dye DC red #36</td>
<td>Paprika &amp; paprika oleoresin</td>
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<td>Chromium hydroxide green</td>
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<td>Phthalocyaninato-2-copper</td>
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<td>Chromium oxide greens</td>
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<td>Phthalocyanine green</td>
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<td>Chromium-cobalt-aluminum oxide</td>
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<td>Dye DC red #7</td>
<td>Poly(hydroxymethacrylate)-dye copolymers</td>
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<td>Cl vat orange 1</td>
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<td>Dye DC violet #2</td>
<td>Pyrogallol</td>
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<td>Pyrophylite</td>
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<td>Pyrophylite aluminum silicate</td>
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<td>Copper metallic powder</td>
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<td>Reactive blue #19</td>
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<td>Corn endosperm oil</td>
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<td>Dye DC yellow #8</td>
<td>Riboflavin</td>
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<td>Cottonseed flour, toasted, partially defatted &amp; cooked</td>
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<td>Dye Ext DC lakes</td>
<td>Safferon (crocus sativa L.)</td>
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<td>Dye Ext DC violet #2</td>
<td>Silver</td>
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<td>Dye Ext DC yellow #7</td>
<td>Tagetes metal &amp; extract (Aztec marigold)</td>
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**Inactive Ingredient Guide: Permanently Listed Color Additives**

<table>
<thead>
<tr>
<th>Talc</th>
<th>Dye DC red #6 lake</th>
<th>Dye DC green #1 lake</th>
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<tr>
<td>Titanium dioxide</td>
<td>Dye DC red #7 Ca lake</td>
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<td>Tumeric &amp; tumeric oleoresin</td>
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<td>Dye DC green #7</td>
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<td>Dye DC red #8</td>
<td>Dye DC orange #12</td>
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<td>Dye DC yellow #10 Al lake</td>
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<td>Dye DC yellow #10 HT lake</td>
<td>Dye DC orange #15</td>
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<td>Vegetable juice</td>
<td>Dye DC yellow #5 lake</td>
<td>Dye DC orange #16</td>
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<td>Dye DC orange #17</td>
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<td>Dye DC orange #3</td>
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<tr>
<td>1,4-Bis[2-methylphenyl]amino-9,10-anthracenedione</td>
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<td>16,17-Dimethoxyd naptho (1,2,3-CD:3',2',1'-IM) perylene-5,10-dione</td>
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<td>16,23-Dihydrodinaptho (2,3-a:2',3'-I)naph[2'3'-6,7-indolo[2,3-C]carbazole-5,10,15,17,22,24-hexone</td>
<td>Dye DC orange #8</td>
<td>Dye DC orange #7</td>
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<td>2-[(2,5-Diethoxy-4-[4-methylphenyl]thio)phenyl]azo]-1,3,5-benzenetriol</td>
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<td>5,9,14,18-Anthrazine</td>
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<td>Dye DC red #10</td>
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<td>6-Ethoxy-2-(6-ethoxy-3-oxo-benzo[b] thein-2-(3H)-ylidene) benzo[b]thiophen-3-(2H)-one</td>
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<td>N, N'-9,10-dihydro-9,10-dioxo-1,5-anthracenediyl]bisbenzamide</td>
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<td>Dye DC red #33 lake</td>
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<td>Dye DC red #20</td>
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### Inactive Ingredient Guide: Permanently Listed Color Additives

<table>
<thead>
<tr>
<th>Dye Ext DC blue #4</th>
<th>Dye FDC red #2 Al lake</th>
<th><strong>See also</strong> Logwood extract (gluewood, campeche wood)</th>
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<tbody>
<tr>
<td>Dye Ext DC blue #5</td>
<td>Dye FDC red #3 Al lake</td>
<td>Logwood extract, chips &amp; extract</td>
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<tr>
<td>Dye Ext DC green #1</td>
<td>Dye FDC red #3 Al lake</td>
<td><strong>Magnesium</strong> aluminum silicate</td>
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<tr>
<td>Dye Ext DC orange #1</td>
<td>Dye FDC red #3 lake</td>
<td><strong>Magnesium</strong> carbonate</td>
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<td>Dye Ext DC orange #2</td>
<td>Dye FDC red #32</td>
<td><strong>Magnesium</strong> stearate</td>
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<td>Dye FDC red #4</td>
<td><strong>Magnesium</strong> trisilicate</td>
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<td>Dye FDC red #9</td>
<td><strong>Metallic salts</strong></td>
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<td>Dye FDC violet #1</td>
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<td>Dye FDC yellow #1</td>
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<td>Dye FDC yellow #2</td>
<td>Saffron oleoresin</td>
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- Ferric chloride
- Ferric hydroxide
- Ferrous sulfate
- Fuller's earth
- Fustic
- Gloss white
- Gold
- Graphite
- Kaolin
- Keiselguhr (diatomite)
- Lapis lazuli (lazurite)
- Lithium stearate
- Lithopone
- **Potential Inactive Ingredients:**
  - **Fuller's earth**
  - **Magnesium carbonate**
  - **Magnesium oxide**
  - **Magnesium stearate**
  - **Metallic salts**
  - **Potassium ferrocyanide**
  - **Safflower (American saffron)**
  - **Saffron oleoresin**
  - **Sienna**
  - **Silicic acid**
  - **Silicon dioxide**
  - **Tin oxide**
  - **Ultramarine blue**
  - **Umber**
  - **Vegetable substances**
  - **Vermiculite**
  - **Zinc carbonate**
  - **Zinc stearate**
  - **Zirconium oxide**
  - **Zirconium silicate**

**Handbook of Pharmaceutical Additives, Third Edition**

2967
# USP and/or NF Compliant Chemicals

Chemicals in Compliance with Pharmaceutical Standards:
The following chemicals that appear in this reference are listed in the United States Pharmacopeia (USP28) and The National Formulary (NF23)

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### BP Compliant Chemicals

Chemicals in Compliance with Pharmaceutical Standards:
The following chemicals that appear in this reference are listed in the **British Pharmacopoeia (2005)**

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### EP Compliant Chemicals

Chemicals in Compliance with Pharmaceutical Standards:
The following chemicals that appear in this reference are listed in the **European Pharmacopoeia (2005)**

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<td>D(+)-Xylene</td>
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Glossary

absorbent. A substance that can 'take up' another substance by capillary, osmotic, chemical, or solvent action.

acetylated. Any organic compound that has been heated with acetic anhydride or acetyl chloride to remove its water. Acetylated lanolins are used in hand creams and lotions.

acid. A compound that may be either organic or inorganic and is characterized by the following properties: gives up (donates) protons to other substances; has a hydrogen ion as its positive radical in solution; contains hydrogen atoms that are replaceable by positive components; reacts with a base to form a salt and water; has a pH of less than 7.0.

acidity regulator. A substance that stabilizes the acidity of pharmaceuticals.

acidulant. Any of a number of acids added to pharmaceuticals to aid in preservation, to chelate metals, and to modify taste.

active pharmaceutical ingredient (API). Any component that is intended to furnish pharmacological activity or other direct effect in the diagnosis, cure, mitigation, treatment, or prevention of disease, or to affect the structure or any function of the body of man or other animals. The term includes those components that may undergo chemical change in the manufacture of the drug product and are present in the drug product in a modified form intended to furnish the specified activity or effect.

adhesive. Any substance, organic or inorganic, natural or synthetic, that is capable of bonding other substances together by attachment.

adjuvant. Subsidiary ingredient or additive in a mixture that contributes to the effectiveness of the primary ingredient.

adsorbent. A solid or liquid that can 'take up' on its surface, by chemical or physical forces, the molecules of gases, liquids, or dissolved substances when it is in contact with these molecules.

adverse reaction. A response to a drug which is noxious and unintended, and which occurs at doses normally used in man for the prophylaxis, diagnosis, or therapy of disease, or for the modification of physiological function.

aerobic. Living in air.

aerobic bacteria. Bacteria capable of growing in the presence of oxygen.

aerosol. A suspension of ultramicroscopic solid or liquid particles in air or gas.

agglomerate. Suspended solids clustered together to form larger clumps or masses that are easier to remove by filtration or settling.

albuminoid. Resembling albumin, a simple protein present in horny and cartilaginous tissues; insoluble in neutral solvents, e.g., keratin, elastin, and collagen are albuminoids.

alkali. One of a class of soluble chemical compounds that combines with acids to form salts. In water solution, alkalies are bitter; turn litmus blue, and have a pH above 7.0.

alkaloid. A vegetable substance with an organic nitrogen base capable of combining with acids to form crystalline salts. Chemical alkaloids end in 'ine', such as betaine from beets, caffeine from coffee beans, and cocaine from the leaves of the coca plant.

alkyl. Meaning 'from alcohol', usually derived from alkane. Any of a series of saturated hydrocarbons, e.g., methane. The introduction of one or more alkyls into a compound makes the product more soluble.

allergen. A substance that induces allergy, by acting in the manner of an antigen upon coming into contact with body tissues by inhalation, ingestion, or skin adsorption. The allergen causes a specific reagin to be formed in the bloodstream.

allergic contact dermatitis. Skin rash caused by direct contact with a substance to which the skin is sensitive. Symptoms include a red rash, swelling, and intense itching.

allergic reaction. An adverse immune response following repeated contact with otherwise harmless substances such as pollens, molds, foods, cosmetics, and drugs.
allergy. Hypersensitivity to particular substances, often resulting in cough, sneezing, headaches, rashes, or nausea.

ambient. The normal environment conditions such as temperature, relative humidity, or room pressure of a particular area under consideration.

amino acid. Any of a group of twenty hydrocarbon molecules (containing the radical group NH₂) linked together in various combinations to form proteins in living things.

amphoteric. A material that can display both acid and basic properties.

analgesic. A substance that soothes, calms, or allays pain.

anaphylaxis. A hypersensitive reaction to an allergen, (as to foreign proteins or drugs) that is marked by a tendency to intense systemic reaction and that results from specific sensitization following one or more usually parenteral contacts with a sensitizing agent.

anaerobe. A microorganism that thrives best or only when deprived of oxygen.

angioedema. A condition characterized by patches of swelling on the skin, mucous membranes, and sometimes viscera, and believed to be an expression of an allergy.

anhydride. A residue resulting from water being removed from a compound.

anhydrous. A substance containing no water.

antacid. A substance that counteracts acidity.

anthelmintic. A substance that expels or destroys parasitic worms.

antibiotic. An organic substance of microbial origin that is either toxic or growth-inhibiting for other organisms, e.g., penicillin, tetracycline, and erythromycin.

antibody. Produced by the immune system in response to exposure to a foreign substance, it is the body's protective mechanism against infection and disease; it is characterized by a structure complementary to the foreign substance, the antigen, that provoked its formation, and is thus capable of binding specifically to the foreign substance to neutralize it.

anticaking agent. An additive used to prevent or inhibit the clumping together of dry material and thus to maintain a free-flowing condition; often used in food and pharmaceutical products that tend to be hygroscopic.

anticoagulant. A substance that hinders the clotting of blood.

antidandruff agent. A substance that is used to mitigate the formation of white or grayish greasy scales on skin surfaces, especially of the scalp.

antifoam. A substance used to reduce or prevent foaming due to proteins, gases, or nitrogenous materials that interfere with the manufacture of the product.

antigen. Any of various foreign substances such as bacteria, viruses, endotoxins, exotoxins, foreign proteins, pollen, and vaccines, whose entry into an organism induces an immune response (antibody production) directed specifically against that molecule. The response can be an increased reaction, such as hypersensitivity or a circulating antibody that reacts with the antigen.

anti-inflammatory agent. A substance used to prevent redness, heat, and swelling that has resulted from an infection or injury.

antimicrobial agent. A substance that acts to destroy or inhibit the activity of microorganisms.

antioxidant. A substance that retards oxidation, deterioration, rancidity, and gum formation in organic substances.

anaphylaxis. A substance that expels or destroys parasitic worms.

antipruritic. A substance used to counteract itching.

antiseptic. A substance that prevents or arrests the growth or action of microorganisms on living tissue.

antispasmodic. A substance used to prevent or relieve spasms or convulsions.

antitackifier. A substance used to prevent stickiness.

antitoxin. An antibody that is capable of neutralizing the specific toxin that stimulated its production in the body.

antiurolitic. Preventive for urinary calculus (stones).

API. See Active Pharmaceutical Ingredient.

aromatic. A fragrant, usually pleasant, spicy, slightly pungent.

asepsis. A condition in which living pathogenic organisms are absent.

assay. A technique (test) for measuring a biological response or for determining characteristics such as composition, purity, activity, and weight.

astringent. A clear liquid containing mostly alcohol, but with small amounts of other ingredients such as boric acid, alum, menthol,
Glossary

and/or camphor; provides a refreshed skin-feel and a cooling feeling from the evaporation of the ingredients.

azo dyes. Broad series of synthetic dyes having double-bonded nitrogens as the chromophore group. The following are examples of azo dyes: Tartrazine, Yellow 2G, Sunset Yellow FCF, Carmoisine, Amaranth, Ponceau 4R, Red 2G, Brown FK, Chocolate Brown HT, Black PN, Pigment rubine.

background contamination. Contamination introduced accidentally in reagents, dilution water, solvents, rinse water, etc., which can be confused with constituents in samples being analyzed.

bactericide. An agent that kills bacteria.

bacteriophage. A virus that exclusively infects bacteria.

bacteriostat. An agent that inhibits the growth of bacterial organisms without necessarily killing them or their spores.

bacterium. Any of a large group of microscopic organisms having round, rod-shaped, spiral, or filamentous unicellular or noncellular bodies that are often aggregated into colonies, are enclosed by a cell wall or membrane, and lack fully differentiated nuclei. Bacteria range in size from 0.4μm to 2.0μm. Some are disease producing, but most perform necessary functions such as digestion, fermentation, and nitrification.

balm. A soothing ointment or application.

balsam. The natural exudate from a tree or plant.

base. An electropositive element or radical that unites with an acid to form a salt; a substance that when dissolved in water, dissociates to produce one or more hydroxyl ions (OH-); the usually inactive ingredient of a preparation serving as the vehicle for the active medicinal principle as in the fatty base of an ointment.

batch. A specific quantity of material produced in a process or series of processes so that it is expected to be homogeneous within specified limits. In the case of continuous production a batch may correspond to a defined fraction of the production, characterized by its intended homogeneity. The batch size may be defined either by fixed quantity or the amount produced in a fixed time interval.

binder. A substance that gives a mixture uniform adhesion, solidification, and consistency; absorbs moisture at high temperatures; e.g., acacia, crospovidone, glucose, glycerin, methyl cellulose, sodium alginate, sorbitol, tragacanth.

bioactivity. A protein’s ability to function correctly after it has been delivered to the active site of the body (in vivo).

bioassay. The determination of the biological activity of a substance (e.g. a drug) by observing its effect on an organism (or organ) compared to a standard preparation.

bioavailability. Amount of a drug that is absorbed from an administered dosage form at a certain rate by the body.

biochemical oxygen demand (BOD). The amount of oxygen required to oxidize the dissolved organic matter in a water sample by aerobic (bacterial) decay; measure of the oxygen depletion that would result from discharging organic impurities into a waterway.

biocide. An agent that can kill all pathogenic and nonpathogenic living organisms, including spores. More general than bactericide, a biocide includes insecticides and any compound toxic to any living thing.

biodegradable. Material that can be broken down by biological action.

bioequivalence. Two pharmaceutical products are bioequivalent if they are pharmaceutically equivalent and their bioavailabilities (rate and extent of availability), after administration in the same molar dose, are similar to such a degree that their effects can be expected to be essentially the same.

bioequivocality. A scientific basis on which generic and brand name drugs are compared with one another.

biological oxygen demand (BOD). The oxygen used in meeting the metabolic needs of aerobic organisms in water containing organic compounds.

biopharmaceuticals. Biotechnologically produced proteins and peptides for pharmaceutical applications.

biopharmaceutics. The science and study of the ways in which the pharmaceutical formulation of administered agents can influence their pharmacodynamic and pharmacokinetic behavior. Differences in pharmaceutical properties can cause substantial differences in the biologic properties and therapeutic usefulness of preparations which are identical with respect to their content of active ingredient. Pharmaceutical properties known to influence the therapeutic efficacy of drugs include: appearance and taste of the dosage
Glossary

form, solubility of the drug form used in the preparation, the nature of "fillers", binders, or menstrua in the dosage form, particle size, stability of the active ingredient, age of the preparation, thickness and type of coating of a dosage form for oral administration, the presence of impurities, etc.

bitter. An alcoholic solution of bitter and often aromatic plant products used in preparing a mild tonic.

bodying agent. A viscosity or consistency-giving substance.


broad spectrum. Over a wide range; a broad-spectrum disinfectant is effective against a wide range of microorganisms including bacterial spores, mycobacteria, nonlipid and lipid viruses, fungi, and vegetative bacteria.

buccal. By mouth.

buffer. A mixture of compounds that, when added to a solution, protects it from any substantial change in pH. Such mixtures are usually in solution form and contain either a weak acid and its related salt or a mixture of two acid salts.

bulking agent. Any innocuous, inert substance used to increase mass.

bulk pharmaceutical chemical (BPC). A pharmaceutical product derived by chemical synthesis, in bulk form, for later dispensing, formulation or compounding, and filling in a pharmaceutical finishing facility.

capsule. A gelatin or gelatin-like container used for enclosing medicine.

capsules, hard. Hollow capsules of various sizes made of pure gelatin with or without the addition of dye. They comprise an upper and lower part; these are joined together once filling is completed.

capsules, soft. Elastic capsule made of gelatin for filling with active ingredient/excipient mixture. Can be produced with different wall thicknesses and either with or without a seam.

carbohydrates. A large class of carbon-hydrogen-oxygen compounds that includes the sugars and their polymers (mainly starch, glycogen and cellulose).

carcinogen. Cancer-causing agent; any substance that causes the development of cancerous growths in living tissues.

carminative. A substance that expels gas from the alimentary canal.

carrier. A usually inactive substance used in association with an active substance especially in aiding the application of the active substance.

catalyst. Any substance that notably affects the rate of chemical reaction without being consumed or undergoing change.

cathartic. A substance used to cleanse the bowels.

characterization. Precisely deciphering and describing all the characteristics of a drug substance that affect its efficacy and its purity; the chemical, physical, and sometimes biological properties that are attributes of a specific drug substance.

chelating agent. Organic compounds that can withdraw ions from solution, forming insoluble complexes.

clarifier. A substance that aids in the removal of small particles that cloud liquids.

coagulant. A substance that is capable of removing colloidal material. Coagulants are used in precipitating solids or semisolids from solution, e.g., casein from milk.

coating. Protects tablet ingredients from deterioration by moisture in the air and makes large tablets easier to swallow. For most coated tablets, a cellulose (plant fiber) film coating is used which is free of sugar and potential allergy-causing substances. Occasionally, other coating materials are used such as corn protein (zein) or an extraction from trees (pharmaceutical glaze).

Code of Federal Register (CFR). A codification of the general and permanent rules published in the Federal Register by the executive department and agencies of the U.S. Federal Government. U.S. regulations that directly apply to pharmaceutical development are contained in Title 21 parts 58 (Good Laboratory Practice for Nonclinical Laboratory Studies), 210 (Current Good Manufacturing Practice in Manufacturing, Processing, Packing, or Holding of Drugs; General), 211 (Current Good Manufacturing Practice for Finished Pharmaceuticals), and 600 (Biological Products: General). Parts 50 (Protection of Human Subjects), 56 (Institutional Review Boards), and 312 (Investigational New Drugs) apply to critical trials.
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coenzyme. A nonpolypeptide molecule required for the action of certain enzymes; often contains a vitamin as a component.

cofactor. Small molecular weight, heat stable inorganic or organic substance required for the action of an enzyme.

colloid. A special type of liquid mixture or suspension in which the particles of suspended liquid or solid are present in a very finely divided form (i.e., particle size from about 1 to 500 millimicrons in diameter). The colloidal suspension of liquids in liquids is an emulsion.

color additive. Any dye, pigment, or substance that can impart color when added or applied to a food, drug, cosmetic, or to the human body.

colorant. Any substance that imparts color to another material or mixture; broadly classified as either pigments or dyes.

color, certified. Synthetic colorants certified by the FDA for safety and purity for use in foods and pharmaceuticals. May be either a dye (soluble) or a lake (insoluble).

color, natural. Any of several colors that occur naturally in plant and animal tissues.

colors, certifiable. Encompasses three categories of 'certifiable' colors: FD&C for application in foods, drugs, or cosmetics; D&C, for applications in drugs or cosmetics; and External D&C, for application in externally applied drugs and externally applied cosmetics.

commingling. The blending of carry-over material from one grade of an excipient with another, usually due to a continuous process.

compatibilizer. A substance that will allow other substances to exist in close and permanent proximity to each other for an indefinite time.

complexing agent. A molecule, atom, or ion that is attached to the central atom of a coordination compound, chelate, or other complex.

condensate. Distillate just after it has been cooled from steam into the liquid state.

conditioner. A substance added to a material or other product that improves its physical state.

consistency regulator. A substance that regulates the degree of firmness, density, viscosity, or resistance to movement or separation of constituent particles.

contamination. The undesired introduction of impurities of a chemical or microbiological nature, or of foreign matter, into or onto a raw material, intermediate, or API during production, sampling, packaging or repackaging, storage, or transport.

control group. The group of subjects in a controlled study that receives no treatment, receives a standard treatment, or receives a placebo.

corrosive. A chemical that causes visible destruction or irreversible alterations in living tissue by chemical action at the site of contact.

counter-irritant. An agent applied locally to produce superficial inflammation with the object of removing inflammation in deeper adjacent parts of the body.

cream. A thick emulsion of oil and water.

critical. A material, process step, process condition, test requirement, or any other relevant parameter is considered critical when noncompliance with predetermined criteria directly influences the quality attributes of the API in a detrimental manner.

current Good Manufacturing Practices (cGMPs). Current accepted standards of design, operation, practice, and sanitization. In the United States, the FDA is empowered to inspect drug-manufacturing plants in which drugs are processed, manufactured, packaged, and stored for compliance with these standards.

cytolysis. The dissolution of cells particularly by destruction of their cell membrane.

cytopathic. Damaging to cells.

cytotoxic. Poisonous to cells.

cytoplasm. The protoplasmic contents of the cell outside the nucleus in which the cell’s organelles are suspended.

cytostatic agents. Therapeutics that inhibit cell division and growth.

cystotoxic. Poisonous to cells.

D&C Colors, dyes, and pigments considered safe in drugs and cosmetics when applied locally to mucous membranes or when given orally.

decolorizing agent. Any material that removes color by a physical or chemical reaction.

defoamer. A substance that reduces or inhibits foam formation due to proteins, gases, or nitrogenous materials that may interfere with processing.

dehydrating agent. A substance that removes chemically combined water or water of hydration.

Delaney amendment. Part of a 1958 law requested by the Food and Drug Administration and written by Congressman James Delaney. The law stated that food and
Glossary

chemical manufacturers had to test additives before marketing them and submit results to the FDA. The amendment specifically states that ‘no additive may be permitted in any amount if the tests show that it produces cancer when fed to man or animals or by other appropriate tests.

delayed hypersensitivity. Manifested primarily as contact dermatitis due to drugs.
demulcent. A substance usually of mucilaginous or oily character capable of soothing an inflamed or abraded mucous membrane or protecting it from irritation, e.g., tragacanth, acacia, flaxseed.
denaturant. A poisonous or unpleasant substance added to alcoholic products to make them undrinkable; also a substance that changes another substance's natural qualities or characteristics.
dental. Of or relating to teeth.
dentifrice. A powder, paste, or liquid for cleaning the teeth.
depilatory. An agent for removing hair, wool, or bristles.
dermis. The inner layer of the skin. The dermis is protected by the epidermis and is made up of tissues, muscles, and nerves. Collagen is found in the dermis layer.
desiccant. A hygroscopic substance such as activated alumina, calcium chloride, silica gel, or zinc chloride that adsorbs water vapor from the air and can be used to maintain a dry atmosphere in drug containers.
diaphoretic. A substance that increases perspiration.
diluent. Inert material added to tablets to increase their bulk in order to make them a practical size for compression.
direct compression. Process by which ingredients are blended and compressed directly into the tablet without a granulating process.
disaccharide. Carbohydrates that are formed when monosaccharide units condense, with the elimination of water.
disaggregation. The breaking up of granules or aggregates into fine particles in aqueous fluid.
disinfection. Process by which viable microbiological agents or cells are reduced to a level unlikely to produce disease in healthy people, plants, or animals. These processes may use chemical agents, heat, ultraviolet light, etc., to destroy most (but not necessarily all) of the harmful or objectionable microorganisms, pathogens, and potential pathogens. Disinfection does not necessarily result in sterilization.
disintegrant. A substance, such as plant cellulose, that expands when wet causing the tablet to break apart in the digestive tract releasing the nutrients for absorption.
dispersant. A surface active agent added to a suspending medium to provide uniform and maximum separation of extremely fine, solid particles, often of colloidal size.
dispersion. A two-phase system where one phase (disperse or internal phase) consists of finely divided particles (often in the colloidal size range) distributed throughout a bulk substance which is the continuous or external phase.
dissolution. The breaking down of fine particles into molecules or ions homogeneously dispersed in aqueous fluid.
distillate. The volatile material recovered by condensing the vapors of an extract or press.
distilled oil. An essential oil obtained by the distillation of the portion of a botanical material, e.g. peel, leaves, stem, containing the essential oil.
diuretic. A substance that promotes water elimination from the body via kidney function; any substance that increases or stimulates the flow of urine, e.g., beer, coffee.
dosage form. The form of the completed pharmaceutical product, e.g. tablet, capsule, injection, elixir, suppository.
dose. The amount of drug administered to a patient or test subject at a single time.
drug. Article intended for use in diagnosis, cure, mitigation, treatment, or prevention of disease in man or other animals and article (other than food) intended to affect the structure or any function of the body of man or other animals.
drug master file. A drug master file (DMF) is a master file that provides a full set of data on an API. In some countries, the term may also comprise data on an excipient or a component of a product such as a container.
drug product. A finished dosage form, for example, tablet, capsule, solution, etc., that generally contains one or more APIs in association with inactive ingredients. The term also includes a finished dosage form, which does not contain an API but is intended to be used as a placebo.
dry granulation. Process by which ingredients are blended and compressed on tablet presses.
drying agent. A substance with the ability to absorb moisture.
Glossary

**efficacy**. The ability of a drug to produce a therapeutic effect.

**electrolyte**. Any compound which in solution conducts a current of electricity and is decomposed by it.

**elixir**. A sweetened, aromatic preparation that contains variable percentages of alcohol and are used either for their medicinal ingredients or in their prescriptions for their flavoring quality.

**emollient**. A thick, creamy material used to soothe or soften the skin, usually made from oil, water, and wax.

**emulsifier**. A substance that prevents the separation of immiscible substances in an emulsion; helps to distribute evenly one substance in another; used to improve texture, homogeneity, consistency, and stability.

**emulsion**. A system (such as fat in milk) consisting of a liquid dispersed, with or without an emulsifier, in an immiscible liquid usually in droplets of larger than colloidal size.

**encapsulant**. That which surrounds, encases, or protects, such as a capsule.

**enhancer**. A substance used to increase, intensify or heighten; a flavor enhancer increases the flavor of a food without contributing any taste of its own.

**enteric coating**. To make the tablet not break up within the stomach but instead to break apart within the intestines.

**enzyme**. Any of numerous proteins or conjugated proteins produced by living organisms and functioning as complex biochemical catalysts; it promotes reactions and functions as a regulator, making sure the organism does not produce too much or too little of any chemical substance.

**epidural**. Situated upon or administered outside the dura mater.

**escharotic**. Caustic substance producing an eschar, a hard crust, or scab.

**essential oil**. The active flavoring principles of certain botanicals such as roots, stems, leaves, and buds of spices and herbs, seeds, flowers, citrus fruit skins, and barks of certain trees. The oil is found in small sacs that are distributed throughout the plant structure.

**ethic pharmaceutical**. A controlled substance for the diagnosis or treatment of disease.

**etiologic agent**. A disease-causing organism or toxin.

**European Pharmacopoeia (EP)**. Documented standards and regulations for European community on the quality of the active ingredients and excipients of pharmaceuticals.

**European Union (EU)**. A federation of European countries, formerly known as the European Economic Community (EEC), organized to promote economic growth and trade; member countries are Belgium, Denmark, France, Germany, Great Britain, Greece, Ireland, Italy, Luxembourg, The Netherlands, Portugal, and Spain.

**excipient**. A substance used in the pharmaceutical industry, other than the active ingredient, which has been appropriately evaluated for safety and is included in a drug delivery system to: aid in the processing of the drug delivery system during its manufacture; protect, support, or enhance stability, bioavailability, or patient acceptability; assist in product identification; or enhance any other attribute of the overall safety and effectiveness of the drug during storage or use.

**expiration date (expiry date)**. The date placed on the container/labels of an API designating the time during which the API is expected to remain within established shelf-life specifications if stored under defined conditions, and after which it should not be used.

**Ext. D&C**. Colorants not certifiable for use in oral products but considered safe for use in externally applied products; specifically excludes colorants that may have oral toxicity.

**extender**. A substance added to a product in the capacity of a diluent or modifier.

**extract (flavoring)**. An alcohol or alcohol-water solution containing a flavoring ingredient; less potent than essential oils.

**extract-solid**. A viscous or semisolid material obtained by first extracting the botanical material with a water-ethanol solvent and then removing the solvent almost completely. This is a liquid extract that has been concentrated.

**FD&C**. Colors certifiable for use in coloring foods, drugs, and cosmetics.

**febrifuge**. A substance that mitigates or removes fever.

**fermentation**. The biochemical synthesis of organic compounds by microorganisms.

**fiber**. A fundamental form of solid characterized by relatively high tenacity and an extremely high ratio of length to diameter.

**filler**. A substance added to another substance to increase bulk or weight; a material used for filling out the size and shape of a tablet or
Glossary

capsule making it practical to produce and convenient for the consumer to use.

**final bulk product.** The final drug product after chemical or biological processing and purification, ready for concentration, drying, and filling into containers prior to dispensing and final filling.

**finished product.** A medicinal product that has undergone all stages of production, including packaging in its final container.

**fixative.** A substance used to reduce the overall volatility of flavoring agents.

**flavor.** A substance added to food or pharmaceuticals to give it a specific taste; an extract or essence that imparts its flavor to food.

**flavor adjuncts.** Substances that are added to a flavor but are not an essential part of it; e.g., antioxidants, carriers, emulsifiers, and solvents.

**flavor, artificial.** A flavor not found in nature.

**flavor enhancer.** A substance that will magnify, modify, or supplement the natural or original flavor, taste, or aroma of a pharmaceutical without the substance contributing significantly to that flavor.

**flavor, natural.** A flavor derived from a natural animal or plant product.

**foam builder.** A substance that increases the amount of air in a product.

**foam inhibitor.** An additive that prevents the formation of foam during processing.

**Food and Drug Administration (FDA).** The U.S. Federal Agency responsible for enforcement of the Federal Food, Drug, and Cosmetic Act.

**formulation.** The composition of a dosage form, including the characteristics of its raw materials and the operations required to process it.

**fungicide.** Any substance that kills or inhibits the growth of fungi.

**gellant.** A substance that forms stiff gels when added to water; used in food and pharmaceutical products for its thickening and water-binding properties.

**generally regarded as safe (GRAS).** An U.S. FDA term for a group of chemicals that by current knowledge are safe to use in food and pharmaceuticals.

**generic drug.** A drug produced and marketed under its chemical or "generic" name, e.g., acetaminophen as opposed to "Tylenol", a brand name for the former produced by Johnson & Johnson. A generic drug can be sold only after a proprietary drug goes off patent (i.e. when the patent runs out after 17 years). There are numerous generic drug manufacturers. While generic drugs are cheaper for consumers, they still must meet the standards of GMPs as set out by governmental agencies.

**germicide.** An agent that destroys microorganisms, especially pathogenic microorganisms; a germicide can be a sterilizer, disinfectant, or antiseptics.

**granuloma.** An inflammatory tumor or growth composed of granulation tissue.

**gum.** A sticky substance issuing from certain trees; this substance is used for stiffening or adhesive purposes.

**haloenzyme.** An enzymes that contain proteins. The protein part of this type of enzyme is termed an apoenzyme and the non-amino acid part is termed a coenzyme.

**hazardous substance.** A substance which by reason of being explosive, flammable, toxic, poisonous, corrosive, oxidizing, irritant or otherwise harmful, is likely to cause injury.

**health hazard.** Classification of a chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed persons. This classification applies to chemicals that are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents that act on the hematopoietic system, and agents that damage the lungs, skin, eyes, or mucous membranes.

**hematopoietic.** An organic system of the body consisting of the blood and the structures that function in its production.

**humectant.** A substance that is used to preserve the moisture content of materials; commonly used humectants include: glycerin, propylene glycol, sorbitol, hexylene glycol, butylene glycol.

**hydrate.** A crystalline product made up of salts and closely associated water molecules.

**hydrogenation.** A chemical reaction that adds hydrogen atoms to an unsaturated fat thus saturating it and making it solid at room temperature.

**hydrolyzed.** Made into water-soluble form.

**hydrophilic.** Having a strong affinity for water.
Glossary

**hydrophobic.** Nonwetting; water repelling.

**hygroscopic.** Descriptive of a liquid or solid material that picks up atmospheric water vapor and thus acts as a drying agent.

**IDLH (Immediately Dangerous to Life and Health).** A concentration of airborne contaminants, normally expressed in parts per million (ppm) or milligrams per cubic meter, which represents the maximum level from which one could escape within 30 minutes without any escape-impairing symptoms or irreversible health effects. This level is established by the United States' National Institute of Occupational Safety and Health (NIOSH).

**immediate release dosage form.** A dosage form that is intended to release all the active ingredient on administration with no enhanced, delayed, or extended release effect.

**immune response.** The production of antibodies or particular types of cytotoxic lymphoid cells resulting from the presence of an antigen.

**immunity.** The state of an organism in which protection from many infectious diseases is afforded by prior exposure to the infectious agents.

**immunogen.** A substance that is capable of causing antibody formation.

**implant.** Something placed inside of tissue such as a graft, a small container, or a radioactive material for treatment, or a pellet containing hormones to be gradually absorbed.

**impurity.** Any component of the drug product that is not the chemical entity defined as the drug substance or an excipient in the drug product.

**impurity profile.** A description of the identified and unidentified impurities present in a typical batch of API produced by a specific controlled production process. It includes the identity or some qualitative analytical designation (e.g., retention time), the range of each impurity observed, and type of each identified impurity. For each API there should be an impurity profile describing the identified and unidentified impurities present in a typical batch. The impurity profile is normally dependent upon the process or origin of the API.

**inactivation.** Any process that destroys the ability of a specific microbiological agent or eukaryotic cell to self-replicate.

**inert.** Does not dissolve in water or react chemically with other substances.

**inert ingredients.** Other ingredients that make up the composition of formulated drugs, besides the active, therapeutic agents. The variety of dosage forms essentially define the functional roles of inert ingredients, and inert ingredients are critical to delivering drug actives.

**infectious.** Able to cause disease in a susceptible host.

**inhalation.** The act of drawing air into the lungs.

**injection.** A preparation intended for parenteral administration and/or constituting or diluting a parenteral article prior to administration. The introduction of parenterals may be into the subcutaneous cellular tissue (subcutaneous or hypodermic), or the muscular tissue (intramuscular).

**intermediate.** A chemical or material used during the manufacturing process that is not the drug product but for which manufacture is critical to the successful production of the drug product.

**intra-articular.** Within the joints.

**intrabursal.** Inside the sacs enclosing viscid fluid located in the tendons and bony prominences.

**intradermal.** Being between the layers of the skin.

**intramuscular (IM).** The route of administration for certain parenteral drugs into muscle tissue. The procedure is called an injection.

**intraperitoneal (IP).** Within the peritoneal cavity.

**intrastitial.** Within the tissue.

**intrasynovial.** Within the connective tissue.

**intra-uterine.** Within the uterus.

**intravascular.** Administered by entry into a blood vessel.

**intravenous (IV).** The route of administration of certain parenteral drugs into veins. The procedure is called an infusion.

**in vitro.** In isolation from the living organism in an experimental, artificial environment, e.g., cells in tissue culture).

**in vivo.** Occurring within a living system, plant, or animal.

**iodophor.** An "iodine-carrying" compound. An iodophor is a combination of iodine and a solubilizing surface active agent, or carrier.

**irritant.** A chemical that is not corrosive but that causes a reversible inflammatory effect on living tissue by chemical action at the site of contact.

**irritation.** Condition in which redness, soreness, inflammation, some swelling appears on the skin or other bodily part. In severe cases some blistering may be seen.

**isolate.** An aromatic compound consisting of one ingredient isolated from a natural raw material such as menthol from peppermint oil or citral from lemongrass oil.
Glossary


**labile**. Unstable or unsteady; not fixed; characterized by adaptability to alteration or modification, i.e., relatively easily changed, as in cleavage of a molecule or molecular rearrangement in a compound or complex chemical material.

**lake**. Any of a large group of organic pigments that are composed essentially of a soluble dye rendered insoluble by the absorption on or chemical combination with an inorganic carrier.

**laxative**. A substance that encourages or induces a bowel movement.

**leavening agent**. A substance that is added to food or pharmaceuticals in order to produce or stimulate the production of carbon dioxide, i.e., to cause fermentation.

**Lethal Dose Fifty (LD50)**. A calculated dose of a material that is expected to cause the death of 50% of an entire defined experimental animal population. It is determined from the exposure to the material by any route other than inhalation of a significant number from that population.

**liniment**. A liquid or semiliquid preparation that is applied to the skin as an anodyne or a counter-irritant.

**lipids**. Hydrophobic biological compound (fat and fat-like material) that is insoluble in water, but soluble in nonpolar solvents such as benzene, chloroform, and ether. The major components in most lipids are fatty acids.

**liposome**. An artificial phospholipid vesicle. Liposomes can be useful for the enclosure of macromolecules such as nucleic acids or, after loading with an appropriate drug. They may be used therapeutically to achieve slow release of the drug into circulation.

**lipotropic**. Tending to prevent abnormal deposition of fats.

**lot**. A batch, or a specific identified portion of a batch, having uniform character and quality within specified limits or, in the case of a drug product, produced by continuous process, a specific identified amount that is produced in a unit of time or quantity in a manner that assures its having uniform character and quality within specified limits.

**lubricant**. A material used in topicals or tablets that adds slipperiness and reduces friction, thus making it easier to apply to the skin or swallow.

**lymphadenopathy**. Chronically swollen lymph nodes.

**masking agent**. A substance that is added to a pharmaceutical formulation in order to eliminate an unpleasant taste or smell of an active ingredient and thereby make the active ingredient more easy to consume.

**medicinal product**. Any substance or combination of substances presented for treating or preventing disease in human beings or animals; a substance or combination of substances that may be administered to human beings or animals with a view to making a medical diagnosis or to restoring, correcting, or modifying physiological functions.

**metabolize**. To undergo change by physical and chemical processes.

**microencapsulated**. Surrounded by a thin, protective layer of biodegradable substance referred to as microsphere.

**micron (micrometer)**. A unit of length equal to one millionth of a meter (µm) or thousandth of a millimeter (25µm are approximately 0.001 inch.). Bacteria range in size from 0.5µm to 20µm.

**microorganism**. A microscopic plant or animal, such as a bacterium, protozoan, yeast, virus, or algae.

**moiety**. A part or portion of a molecule, generally complex, having a characteristic chemical or pharmacological property.

**monosaccharide**. The simplest carbohydrate consisting of one unit of water per carbon atom; monosaccharides have the general formula C₆H₁₂O₆, e.g., glucose.

**mother liquor**. The residual liquid that remains after the crystallization or isolation processes. A mother liquor may contain unrecovered products (i.e., unreacted starting materials, intermediates, levels of the API and/or impurities); it may then be used for further processing.

**mutagen**. A chemical or physical agent that interacts with DNA and causes a mutation.

**mutation**. A sudden, random, permanent, genetic change; a genetic change within cells that changes its characteristics.

**nasal**. Of or relating to the nose.

**National Formulary (NF)**. A compendium of purity and testing criteria for chemicals that function...
Glossary

as excipients in pharmaceutical products; usually used in combination with the USP.
nebulizer. To reduce a medicinal solution to a fine spray.
neutralizer. A substance that changes the acid-alkaline balance.
nutritional supplements. Vitamins and minerals that are most commonly sold over the counter and are often combined with OTC active substances, e.g., cold and flu remedies contain vitamin C and paracetamol.
ointment. A formulation containing fats or oils, but no water; it does not blend with the skin but forms a separate layer over it. Ointments are semisolid preparations for external application to the body. Ointment preparations contain an oleaginous base, such as lard, vaseline, lanolin.
oleoresin. The solid, semisolid, or heavy viscous fluid or residue obtained by solvent extraction or percolation of plant matter; it consists of an essential oil and a resin. Oleoresins can be used as flavoring agents in pharmaceuticals.
ophthalmic. Pertaining to the eyes.
ophthalmics. Pertaining to products for the eyes.
oral. Of or relating to the mouth.
oral product. A pharmaceutical product meant to be introduced through the mouth in the form of a tablet, capsule, or suspension.
oral solid dosage drug. Formulated in a solid or powder form for a patient to ingest orally.
organoleptic. Evaluating a product by sense perception (hearing, sight, smell, taste, or touch).
organs of elimination. Describes the kidneys, liver, and gastrointestinal tract.
oral drug. In the United States, the FDA can grant ‘Orphan Drug status’ to one company for a drug that is believed to substantially increase the life expectancy of the treated patient for a particular disease. This excludes other companies from receiving an FDA license to produce a similar drug for a finite period of time (usually 7 years), thereby allowing the company producing the drug to recuperate their R&D expenses.
osmosis. The diffusion of a solvent through a semipermeable membrane from a solution of higher concentration to one of lower concentration until there are equal concentrations of fluid on both sides of the membrane.
otic. Pertaining to the ear.

over-the-counter (OTC) medicine. Drug formulations that over time become recognized as safe for self-medication, e.g., Tagamet and aspirin. Not all countries recognize the same drugs as safe for such usage.
oxidizing agent. An agent that causes removal of electrons; an element that gains electrons and is reduced.
packaging. All operations, including filling and labeling, which a bulk product has to undergo in order to become a finished product.
packaging material. Any material intended to protect an intermediate or API during storage and transport.
parenteral. Injected or for injection subcutaneously, intramuscularly, or intravenously, or introduced other than by way of the intestines.
parenteral drug. A drug intended for injection through the skin or other external boundary tissue, rather than through the alimentary canal, so that the active substances it contains are administered, using gravity or force, directly into a blood vessel, organ, tissue, or lesion. It is infused when administered intravenously (IV), or injected when administered intramuscularly (IM), or subcutaneously into the human body.
pathogenic. Causing or capable of causing disease.
periarticular. About or surrounding a joint.
peritoneal. Relating to the smooth, transparent serous membrane that lines the cavity of the abdomen.
pH. Symbol for the negative logarithm of the effective hydrogen-ion concentration or hydrogen-ion activity in gram equivalents per liter and used for convenience in expressing both acidity and alkalinity in a scale of 0 to 14 (acidity to alkalinity) with 7 representing neutrality as in pure water.
pharmaceutical. A broad term that includes not only all types of drugs and medicinal and curative products but also ancillary products such as tonics, dietary supplements, vitamins, and deodorants.
pharmaceutical additive, direct (intentional). Any substance added purposely to a drug or pharmaceutical for technological purposes such as preserving the pharmaceutical from bacterial deterioration, protecting it from oxidative changes, and improving its organoleptic characteristics, or texture.
Glossary

**pharmaceutical additive, unintentional**  Chemical substances found in pharmaceuticals as a result of environmental or accidental contamination.

**pharmaceuticals, classical**  Small-molecule, nonbiotech drugs produced by chemical synthesis.

**pharmacokinetics**  The discipline that deals with the rates of absorption, distribution, metabolism, and excretion of drugs.

**pigment**  A natural or synthetic inorganic or organic substance that imparts a color (including black or white) to other materials.

**plasticizer**  A chemical substance added to a resin to impart flexibility, workability, or distensibility; used in soft gelatin capsules.

**poison**  Any substance which when taken into the body in a single dose of 1.0 gm. or less, is injurious to health or dangerous to life.

**potentiator**  A substance that imparts flavor to a much greater extent than an enhancer. The most important of these are the 5´-nucleotides, that are approved by the FDA. Potentiators do not add any taste of their own, but intensify the taste response to substances already present in the substance.

**precipitate**  An insoluble reaction product; when a solution reaches saturation, the solute separates out of the solution.

**preservative**  A substance, either natural or synthetic, that protects pharmaceuticals against spoilage, discoloration, or decay; used to retard or prevent microbial or chemical spoilage.

**processing aid**  Material, excluding solvents, used as an aid in the manufacture of an intermediate or API (Active Pharmaceutical Ingredient) which itself does not participate in a chemical or biological reaction (e.g. filter aid, activated carbon, etc.).

**propellant**  A liquefied gas with a vapor pressure greater than 14.7 lb/sq. in. at 105 F.

**prophylaxis**  The prevention of, or protective treatment for disease.

**pulmonary**  Of or affecting the lungs.

**pulse therapy**  Intervals of low levels between 'spikes' of high levels of a drug in the bloodstream.

**pungent**  Describes an astringent or acrid, sharp odor or flavor.

**purgative**  A substance that is used to cleanse or wash away impurities.

**quality assurance (QA)**  The sum total of the organized arrangements made to ensure that all APIs are of the quality required for their intended use and that quality systems are maintained.

**quality control (QC)**  Checking or testing that specifications are met, or that the regulatory process, through which the industry measures actual quality performance, compares with standards, and acts on any differences.

**rancid**  Having a rank smell; smelling or tasting like stale fat.

**raw material**  A general term used to denote starting materials, reagents, intermediates, processing aids, and solvents intended for use in the production of intermediates or APIs.

**reagent**  A substance other than a starting material or solvent, which is used in the manufacture of a new drug substance.

**rectal**  Of or relating to the rectum.

**reducing agent**  A substance that loses electrons and is oxidized.

**regulatory affairs**  Drug companies must show that their products consistently meet standards set by government agencies. Regulatory affairs departments document those activities, submit proposals, and follow those proposals through completion or approval.

**release controlling excipient (critical compositional variable)**  An inactive ingredient in the final dosage form that functions primarily to extend the release of the active drug substance from the dosage form.

**rheology control agent**  A substance that affects the flow of a liquid.

**rubefacient**  A substance for external application that produces redness of the skin.

**salve**  An unctuous adhesive substance for application to wounds or sores.

**scale-up**  To take a biopharmaceutical manufacturing process from the laboratory scale to a scale at which it is commercially feasible.

**sedative**  A drug that allays irritability, nervousness, or excitement.

**sensitizer**  A chemical that causes a substantial proportion of exposed people or animals to develop an allergic reaction in normal tissue after repeated exposure to the chemical.

**sepsis**  The presence of various pus-forming and other pathogenic organisms or their toxins in the blood or tissues.

**sequestrant**  A substance that absorbs ions and prevents changes that would affect flavor, texture, and color of the food or pharmaceutical.
Glossary

**shelf life.** Length of time during which the product exhibits stability.

**side effect.** Any unintended effect of a pharmaceutical product occurring in people when normal doses are administered.

**solubilizer.** Agent that increases the amount of a substance that will dissolve in another substance.

**solute.** The substance that dissolves to form ions in solution.

**solvent.** A substance capable of dissolving another substance (solute) to form a uniformly dispersed mixture (solution) at the molecular or ionic size level; a solvent is either polar or nonpolar.

**sorbet.** That which can absorb or adsorb, or a combination of the two.

**spheroidization.** The process by which particles are shaped into uniform spheres to be more effectively used in the production of: controlled release pharmaceuticals, enzymes, catalysts, etc.

**stability.** The ability of an active ingredient or a drug product to retain its properties within specified limits throughout its shelf-life.

**stabilizer.** A pharmaceutical additive that thickens, prevents separation, prevents flavor deterioration, retards oxidation by increasing the viscosity, or gives a smoother product.

**steady-state blood level.** Maintaining a constant level of a drug in the blood stream during therapy.

**sterilizing agent.** A substance that destroys bacteria and other infectious organisms.

**stiffener.** A substance that aids in the hardening or thickening of another substance.

**stimulant.** Any agent or drug that temporarily increases action of any organ of the body.

**stomachic.** A substance that excites action in the stomach.

**styptic.** A substance that acts as an astringent or inhibits the oozing of blood.

**subcutaneous.** Beneath the skin; injected beneath the skin.

**sublingual.** Situated or occurring under the tongue.

**substrate.** The substance on which an agent acts.

**suppository.** Semirigid plastic designed to deliver a unit dose to a body cavity; it either melts at body temperature or dissolves in the fluids of the body cavity into which they are inserted.

**surfactant.** Any compound that reduces surface tension when dissolved in water or a water solution, or reduces interfacial tension between two liquids or between a liquid and a solid.

**suspended solids.** Undissolved solids that can be removed by filtration.

**suspending agent.** A substance that causes particles to mix, but remain undissolved in a liquid or solid.

**suspension.** A specific category of pharmaceutical products that must be in a colloidal dispersion for proper action, e.g., kaolin/pectin works as an adsorbent because it has a high surface area when in suspension.

**sweetener.** A sweet tasting substance used in foods and pharmaceuticals; may be either natural or synthetic; usually having much greater sweetness intensity than sugar (sucrose), but without the caloric value, e.g., saccharin, aspartame.

**symbiosis.** The phenomenon of two entities performing a joint function that neither entity can perform alone.

**synergist.** A substance which when used with another substance produces an effect that is more than additive.

**synovitis.** Inflammation of a synovial membrane, usually with pain and swelling of the body's joints.

**synthesis.** Creating products through chemical and enzymatic reactions.

**syrup.** An aqueous solution of sugar, usually sucrose, commonly used as a vehicle due to its taste and favorable viscosity properties.

**systemic.** Capable of spreading through the entire body.

**teratogen.** A substance that affects normal development, often causing developmental anomalies; ionizing radiation may have this effect.

**therapeutic index.** The ratio of the toxic dose to the minimally effective dose of a drug.

**thickener.** A substance used to impart body, improve the consistency, or texture of a pharmaceutical, or to stabilize an emulsion; works by absorbing water.

**tincture.** Alcoholic solutions of medications.

**titer.** A measured sample - the strength of a solution or the concentration of a substance (as an antibody) in solution as determined by titration.

**titration.** Volumetric analysis by means of the addition of definite amounts of a test solution to a solution of a known amount of the substance analyzed.
Glossary

tocopherols. The group of compounds (alpha, beta, delta, epsilon, eta, gamma, and zeta) that make vitamin E; obtained through vacuum distillation of edible vegetable oils.
tolerance. The state in which the quantity of drug required to produce a specific biological effect in a particular individual has increased.
tonicity agent. A substance which invigorates, restores, freshens, or stimulates.
topical product. A pharmaceutical product meant to be applied to the skin or soft tissue in the form of liquid, cream, or ointment.
toxic. Pertaining to a substance that is harmful.
toxicity. The quality or condition of being poisonous, harmful, or destructive.
toxicology. A science that deals with poisons, their effects, and the problems involved.
toxin. Any poisonous agent, produced by one living organism that is poisonous to other organisms. A toxins is usually unstable, notably toxic when introduced into the tissues, and typically capable of inducing antibody formation.
transdermal. Relating to, being, or supplying a medication in a form for absorption through the skin into the bloodstream.
triglycerides. Fatty substances in the blood.
troche. A medicinal tablet or lozenge usually of circular or oval form, e.g., one used as a demulcent for soreness or irritation of the throat.
urticaria. A transient skin eruption characterized by itching red or pale smooth, slightly raised patches and caused by irritation of the gastrointestinal, pulmonary, or urinary mucous membranes or from contact with an external agent and found in individuals with a specific sensitivity.
uv absorber. A substance which absorbs radiant energy.
vaccine. A preparation of killed microorganisms, living attenuated organisms, or live, fully virulent organisms that is administered to produce or artificially increase immunity to a particular disease.
vaginal. Of or relating to the vagina, the canal that leads out from the uterus.
validation. A documented program that provides a high degree of assurance that a specific process, method, or system will consistently produce a result meeting predetermined acceptance criteria.
vector. An agent, such as an insect, that can carry a disease-producing organism from one host to another.
vehicle. An inert substance such as a liquid or syrup in a medicinal compound through which an active agent is administered or by which other ingredients are held together.
verification. The act of reviewing, inspecting, testing, checking, auditing, or otherwise establishing and documenting whether items, processes, services, or documents conform to specified requirements.
veterinary. Referring to pharmaceuticals or biologicals intended for animal use.
virucide. An agent that destroys or inactivates viruses.
virulence. The disease-producing power of a microorganism.
virus. A simple, noncellular parasite that can reproduce only inside living cells. The simple structure of viruses is their most important characteristic. Most of them consist only of a genetic material, either DNA or RNA, and a protein coating. Some also have membranous envelopes. Viruses are 'alive' in that they can reproduce themselves, although only by taking over a cell's synthetic machinery; but they have none of the other characteristics of living organisms. Viruses cause a large variety of significant diseases in plants and animals, including humans.
viscosity control agent. A substance that controls the internal resistance to flow exhibited by a fluid.
vitamin. Represents one of a group of organic substances, some of which are of unknown composition, present in minute amounts in natural foodstuffs which are essential to normal metabolism. A lack of a vitamin in the diet causes deficiency diseases. Vitamins are commonly classified into two groups, the fat-soluble, and the water-soluble. Vitamins A, D, E, and K are fat-soluble; Vitamin C and members of the vitamin B complex group are water-soluble. In general, vitamins play catalytic and regulatory roles in the body's metabolism.
volatile oil. A substance that will evaporate quickly; responsible for the aroma, odor, and flavor found in the aqueous distillation of organic compounds of flavorings or pure spices.
Glossary

**wet granulation.** Process by which a powdered drug and a diluent are blended with a dispersion of a binder excipient.

**xenobiotics.** Industrial chemicals that have a chemical structure not found in natural compounds that may resist degradation by microorganisms.

**yeast.** Unicellular fungus belonging mainly to the Ascomycetes that usually multiply by budding. Its commercial significance lies in its ability to secrete enzymes, e.g., a source of vitamins and proteins, also used in the brewing and baking industries. They can also be used as excipients in rDNA technology.

**yield, expected.** The quantity of material or the percentage of theoretical yield anticipated at any appropriate phase of production based on previous laboratory, pilot scale, or manufacturing data.

**yield, theoretical.** The quantity that would be produced at any appropriate phase of manufacture, processing, or packing of a particular API or intermediate, based upon the quantity of components to be used, in the absence of any loss or error in actual production.
Bibliography


Bibliography

